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By A. HOWARD CLARK.

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PART XV.

THE WHALE-FISHERY.

1.—HISTORY AND PRESENT CONDITION OF THE FISHERY.

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1. GENERAL REVIEW.

The whaling fleet.—The American whale-fishery in 1880 employed one hundred and seventy-one vessels, aggregating 38,633.38 tons, and valued with outfits at $2,891,650. Additional capital, aggregating $1,733,000, was invested in wharves, store-houses, and oil refineries. The number of men employed on the vessels was 4,198 and in shore whaling about 250. The largest vessel was the steam bark Belvidere, 440.12 tons, and the smallest one employed in ocean whaling was the schooner Union, 66.22 tons. Most of the schooners and the smaller vessels of other classes were employed in Atlantic Ocean whaling, while the largest and best equipped craft were in the Pacific and Arctic fleets. The distribution was as follows: Five vessels in Hudson Bay, one hundred and eleven in the North and South Atlantic, twenty-five in Bering Sea and the Arctic Ocean, twenty-two in the Pacific Ocean, and eight hauled up at home ports.

The greater number of vessels belonged in Massachusetts, one hundred and twenty-three hailing from New Bedford, twenty from Provincetown, seven from Edgartown, six from Boston, two from Westport, two from Marion, and one from Dartmouth. New London, Conn., owned five vessels and five hailed from San Francisco, Cal. The interest of San Francisco in the whale-fishery cannot be measured by the number of vessels owned there, for almost the entire North Pacific and Arctic fleets are accustomed to make that place a fitting port and the headquarters for reshipment of oil and bone to the Atlantic sea-board.

The Provincetown fleet was composed almost entirely of schooners employed in Atlantic Ocean whaling. The whaling-grounds of Hudson Bay and Davis Strait are favorite resorts for New London whalemen, while New Bedford vessels are scattered over all the seas.

Besides the vessel fishery there is a boat or shore whaling industry, which at times is quite profitable. The principal stations are on the California coast and are manned mostly by Portuguese. On the coasts of Washington Territory and Alaska whales are taken by the Indians and Eskimos. The only points on the Atlantic coast where boat-whaling is carried on are at Provincetown and one or two places in North Carolina; at Provincetown the business in some years is of considerable importance, as in 1880, when 48 whales were taken, yielding 29,925 gallons of oil, and 8,750 pounds of bone. The principal species taken at the Atlantic stations is the fin-back

whale, and on the California coast the gray whale. Neither of these species yields bone of great value and both furnish but a limited quantity of oil. Humpback, sulphur-bottom, and right whales are occasionally captured at the California and Alaskan stations, but seldom on the Atlantic coast.

THE PRODUCTS.—The products of the fishery in 1880 were valued at $2,323,943, and included 37,614 barrels of sperm oil and 34,626 barrels of whale oil; 458,400 pounds of whalebone, worth $907,049, and $5,465 worth of ambergris and walrus ivory. The Pacific-Arctic grounds were the most productive, yielding oil and bone worth $1,249,990. From Atlantic Ocean grounds oil and bone were taken worth $908,771.

The principal products of the whale-fishery are oil and bone, the former obtained from the blubber and the latter from the jaws of the animal. The minor products are ambergris from sperm whales and guano and glue made from bones and other refuse matter. Oil as it comes from the animal is classed as sperm oil and whale oil, the former being derived exclusively from sperm whales, and the latter from the right whale and other varieties, as also from blackfish and porpoise. Walrus oil, taken by the northern fleet, is also generally classed as whale oil. Sperm oil is worth about double the value of other whale oil. Northern whale oil is slightly higher than southern oil and blackfish higher than either. From sperm oil is made refined oils for lubricating, and spermaceti used chiefly for candles. The jaws of blackfish and porpoise yield a very superior oil, employed for lubricating watches and clocks.

Crude or unrefined sperm oil is little used, though about half the entire production of ordinary whale oil is used in a crude state in the manufacture of cordage.

The oil is prepared at the refineries and sent to market under various trade names, as *Spring-make natural*, *Spring-make bleached*, *Natural winter*, *Bleached winter*, and *Double-bleached winter*. These names indicate the grades of oil and the processes of refining. The results of refining sperm oil are three or more grades of oil and two qualities of spermaceti. From whale oil are produced several grades of oil, whale-foots, which is a tallow-like substance, and oil soap used by scourers.

The refining of whale oils is carried on almost exclusively at New Bedford, which port is practically the headquarters of the American whaling industry. When the business was extensive there were several large refineries in active operation, but for some years past three establishments have been enough to care for the entire production.* The process of refining varies according to the kind of oil, yet in some essentials the methods are alike for all.

When landed from the vessels the oil is in wooden casks, varying in size from a few gallons to a hogshead or more in capacity. If not sold at once to the refiners it is stored on the wharves or in sheds, being covered with seaweed and boards to protect the barrels from leakage by exposure to the sun. It sometimes remains in this condition for many months or even years.

At the refinery the oil is drained into vats and the casks rinsed out with hot oil, recoopered, and made ready for another cruise, or sold to be sent to Africa for shipping palm oil.

In the refining process the oil is first heated, when pieces of blubber and foreign matter settle, and the clear oil is again put in casks to be packed in ice pits and subjected to the freezing process, which partially congeals or granulates it. The next step in the refining is to strain the oil through woolen cloths to separate the foots, and it is then put in cotton bags, and submitted to heavy pressure, which further separates the oil from the solid matter, leaving in the bags, if sperm oil, spermaceti, which is further heated and refined, or in the case of whale oil leaving whale-foots, extensively used by tanners for softening leather. The various grades of oil are obtained by further heating and pressing, and by the admixture of chemicals to clarify or bleach it.

* Refineries have recently (1885) been established at San Francisco, Cal.

Sperm oil is used chiefly as a lubricator, for which purpose it is unsurpassed. Whale oil is employed in many industries, but chiefly by tanners in the preparation of leathers. Blackfish oil is specially good in preparing morocco. Whale oil, mixed with black lead and paraffine oil, is used for lubricating car axles and wheels.

Spermaceti is used in medicine, in laundries, and for other minor purposes, but is used chiefly for the manufacture of candles; a patent candle of superior quality is made from paraffine and spermaceti mixed.

Whalebone requires comparatively little preparation to fit it for use by whip-makers, dress-makers, and numerous other tradesmen. It is received from the vessels in bundles of slabs varying from a foot to 15 feet in length. These slabs are scraped, steamed, cut, and split into suitable sizes for use.

The whalebone workers of the United States recognize five varieties of bone; (1) Arctic, from the Bowhead or Polar whale; this is the largest bone, and is used principally in the manufacture of whips and dress bone; (2) Northwest, which is the heaviest bone, and is used for whips and canes; (3) South Sea, which is fine and short, used for whips and dress bone; (4) Humpback, short and black, specially suitable for corsets; (5) Finback, short and coarse, used for corsets. Some slabs of bone have longitudinal streaks of white or light yellow. The white portion is of greater value than the black, and is thought by the workers to be caused by disease.

Ambergris, when pure, is worth more than its weight in gold. It is used in the preparation of fine perfumery, having the property of thoroughly and permanently uniting the ingredients. It is found in the intestines of the sperm whale, and is a very uncertain article. Many whalers have cruised the seas for years and never found an ounce, while fortunate ones have secured a hundred pounds or more of the precious substance in a single year. It is supposed to be a product of a disease in the animal similar to indigestion. This theory of its origin is supported by the fact that particles of cuttle-fish, the chief food of the sperm whale, are often found in the ambergris, and the location of the substance in the intestines also supports this theory. In 1858 a New Bedford vessel secured 600 pounds of ambergris, worth $10,500; in 1878 the Adeline Gibbs, of New Bedford, brought home 136 pounds that sold for $23,000. The total quantity received from the American whaling fleet from 1836 to 1880 was 1,667⅞ pounds.

A full discussion of ambergris and the manner of obtaining it, is given in the section of this report treating of the Preparation of Fishery Products.

DECLINE OF THE FISHERY.—Starbuck, in 1877, thus discussed the causes of the decline of the whale-fishery:

"On the 1st of January, 1877, the entire fleet was reduced to 112 ships and barks, and 51 brigs and schooners, having a total capacity of 37,828 tons.*

"It will be well to see to what causes this decline is attributable. Many circumstances have operated to bring this about. The alternate stimulus and rebuff which the fishery received as a short supply and good prices led to additions to the fleet and an overstock and decline in values, were natural, and in themselves probably formed no positive impediment. The increase in population would have caused an increase in comsumption beyond the power of the fishery to supply, for even at the necessarily high prices people would have had light. But other things occurred. The expense of procuring oil was yearly increasing, when the oil-wells of Pennsylvania were opened, and a source of illumination opened at once plentiful, cheap, and good. Its dangerous qualities at first greatly checked its general use, but these removed, it entered into active, relentless competition with whale oil, and it proved the more powerful of the antagonistic forces.

* The lowest ebb was reached on the 1st of January, 1875, when the fleet consisted of 119 ships and barks, and 44 brigs and schooners, with a capacity of 37,733 tons.

"The length of voyages increased from two years for a cargo of sperm and from nine to fifteen months for a cargo of whale oil to four years to fill the latter, while the former was practically abandoned as a separate business* after it became necessary to make voyages of four, five, and even six years, and then seldom return with a full cargo. As a matter of necessity the fitting of ships became far more expensive, a rivalry in the furnishing adding perhaps considerably to the outlay. Vessels were obliged to refit each season at the various islands in the Pacific, usually at the port of Honolulu when passing in its vicinity, and the bills drawn upon the owners on these occasions were so enormous as to call forth loud and frequent complaints; and in later years the only available western fishery was in the North Pacific and Arctic Oceans, where disasters were the rule and immunity from them the exception, thereby incurring, when the vessels were not lost, heavy bill for repairs, besides the ordinary ones of refitting.

"Again, during the later days of whaling, more particularly immediately after the discovery of the gold mines in California, desertions from the ships were numerous and often causeless, generally in such numbers as to seriously cripple the efficiency of the ship. In this way large numbers of voyages were broken up and hundreds of thousands of dollars were sunk by the owners. During a portion of the time many ships were fired by their refractory and mutinous crews, some of them completely destroyed, others damaged in amounts varying from a few hundred to several thousand dollars. Crews would apparently ship simply as a cheap manner of reaching the gold mines, and a ship's company often embraced among its number desperadoes from various nations, fit for any rascality which might best serve them to attain their end. They took no interest in the voyage, nor cared aught for the profit or loss that might accrue to the owners. In order to recruit, it became necessary, particularly during the ten years next succeeding the opening of the gold mines, to offer heavy advance-wages, and too often these were paid to a set of bounty-jumpers, as such men were termed in the Army during the late war, who only waited the time when the ship made another port to clandestinely dissolve connection with her and hold themselves in readiness for the next ship. Unquestionably there were times when men were forced to desert to save their lives from the impositions and severity of brutal captains, but such cases were undoubtedly very rare. Formerly the crews were composed almost wholly of Americans, but latterly they were largely made up of Portuguese shipped at the Azores, a mongrel set shipped anywhere along the western coast of South America, and Kanakas shipped at the Pacific islands. There were times, when the California fever was at its highest, that the desertions did not stop with the men, but officers and even captains seemed to vie with the crew in defrauding the men from whose hands they had received the property to hold in charge and increase in value.

"Another source of loss was, strangely enough, to be found in the course of the consular agents sent out by our Government to protect the interests of our whalemen. Many and bitter were the complaints at the extortionate charges and percentages demanded by many of these men.†

"As another important source of the decline in this business must be regarded the scarcity and shyness of whales. Prior to the year 1830 a ship with a capacity for 2,000 barrels would cruise in the Pacific Ocean and return in two years with a cargo of sperm-oil. The same ship might go to Delago or Woolwich Bay and fill with whale-oil in about fifteen months, or to the coast of

* Always excepting, of course, Atlantic whalers. Sperm-whaling in the Atlantic has always been pursued by the bulk of the Provincetown vessels and by quite a fleet of schooners and brigs from other ports. There is an occasional revival of this pursuit in larger vessels at intervals of a few years, at present some of the most successful voyages being made by ships and barks cruising for sperm whales in this ocean.

† In many cases justice (?) seems to have been meted more in accordance with the requirements of the income of our representatives than with those of abstract right, and it has happened that the case of an arbitrary, cruel captain against some unfortunately weak and impecunious sailor has been decided on the time-honored (among barbarians) maxims that "might makes right," and "the king can do no wrong."

Brazil and return in nine months full of the oil peculiar to the whales of those seas; but, as has been previously remarked, this has all changed, and the length of the voyage has become entirely disproportioned to the quantity of oil returned.

"Briefly, then, this is the case. Whaling as a business has declined: 1st, from the scarcity and shyness of whales, requiring longer and more expensive voyages; 2d, extravagance in fitting out and refitting; 3d, the character of the men engaged; 4th, the introduction of coal oils.

"Of late years sperm-whaling in the Atlantic Ocean has been revived with some success, but the persistency with which any field is followed up makes its yield at least but temporary. It may perhaps be a question worthy of serious consideration whether it is policy for the United States Government to introduce the use of coal oils into its light-house and similar departments, to replace the sperm oil now furnished from our whaling ports, and thus still further hasten the ultimate abandonment of a pursuit upon the resources of which it draws so heavily in the day of its trouble,* or whether this market—the only aid asked from the Government—may still continue at the expense of a few dollars more per year."†

2. WHALING-GROUNDS.‡

DISTRIBUTION OF WHALES.—A whale-ship leaving her home port mans her mast-head as soon as she leaves soundings, and from that time is in constant hope of seeing whales. There are certain portions of the ocean where whales abound, and many large tracts where vessels rarely make a stop; still it is not unusual even in the more barren spaces to hear from aloft the welcome cry "there she blows." Many of the grounds where vessels were formerly very successful are now entirely abandoned and others are but seldom visited. There are now no sperm whalers from the United States on the Indian Ocean or North Pacific grounds, and very few cruising in the West Pacific Ocean, but nearly all of the vessels at present engaged in this branch of the fishery resort to the grounds in the North and South Atlantic and the eastern part of the South Pacific Oceans.

At an early period in the development of the whale fishery there was little difficulty in securing a cargo in a short time. Whales were abundant near shore and in very many parts of the ocean. They were taken in great numbers by the Dutch and by the English at Spitzbergen *and off the east coast of Greenland, upon grounds that have not been frequented for many* years.§ Later they were abundant in Davis Strait, where they were pursued by a considerable fleet of vessels. They are still taken there in limited numbers by a fleet of about a dozen Scotch steamers. Toward the close of the last century began the discovery of prolific grounds for right whales in the South Atlantic, and of the famous South Pacific sperm and right whale grounds. In the present century important fields have been discovered in the North Pacific and Arctic Oceans,

* The London Mercantile Gazette, of October 22, 1852, said: "The number of American ships engaged in the Southern whale-fishery alone would of themselves be nearly sufficient to man any ordinary fleet of ships-of-war which that country might require to send to sea." Instances are not wanting, indeed, where whalemen have undertaken yeoman's service for their country. Thus, in November, 1846, Captain Simmons, of the Magnolia, and Capt. John S. Barker, of the Edward, both of New Bedford, hearing that the garrison at San José, Lower California, was in imminent danger, landed their crews and marched to its relief. Nor were their good services toward foreign governments in peace less honorable to the country than in war, for when the Government buildings at Honolulu were burning some years ago, and entire and disastrous destruction threatened, American whalemen rushed to the rescue and quenched the flames, already beyond the control of the natives. During the rebellion, of 5,956 naval officers, Massachusetts furnished 1,228, Maine 449, Connecticut 264, New Hampshire 175, Rhode Island 102, and Vermont 81.

† Report U. S. Commission of Fish and Fisheries for 1875–'76.

‡ Special acknowledgments are due Capt. H. W. Seabury, of New Bedford, Mass., and Capt. William M. Barnes, of Nashua, N. H., for information on this subject.

§ The east coast of Greenland has recently again become a cruising ground for the whalers of Norway and Scotland.

among which are the Japan, Northwest, and Okhotsk grounds, now well nigh abandoned. The Arctic grounds north of Bering Strait were first visited in 1848 by the Superior, under Captain Roys, and these grounds have since been by far the most important for the production of whalebone and a superior quality of whale oil.

RELATIVE IMPORTANCE OF VARIOUS GROUNDS.—The relative importance of the various oceans to the whale-fishery during recent years is shown by the following facts: Of the sperm oil taken by the American whaling fleet from 1870 to 1880, 55 per cent. was from the North and South Atlantic grounds; 33 per cent. from the Pacific; and 12 per cent. from the Indian Ocean. Of the whale oil taken during the same period, 58 per cent. was by the North Pacific fleet from the region north of the fiftieth parallel, including the Arctic, Okhotsk, and Bering Seas; 24 per cent. by vessels cruising in the North and South Atlantic; 10 per cent. from the Pacific grounds; 5 per cent. from the Indian Ocean; and 3 per cent. from Hudson Bay, Cumberland Inlet, and Davis Strait. Of the whalebone secured in the same time 88 per cent. was by the North Pacific fleet; 5 per cent. by the Hudson Bay and Cumberland Inlet fleet; 4 per cent. from the North and South Atlantic grounds; and 3 per cent. about equally divided between the Pacific and Indian Oceans. The number of voyages commenced by United States vessels from 1870 to 1880 was 810, which includes the Arctic whalers annually refitting at San Francisco and other ports. Of these voyages, 382 were to the North and South Atlantic, 254 to the Arctic, Okhotsk, and adjacent grounds, 98 to the Pacific, 45 to the Indian Ocean, and 31 to Hudson Bay and Cumberland Inlet.

(*a*) SPERM-WHALE GROUNDS.

GEOGRAPHICAL DISTRIBUTION OF SPERM WHALES.—The sperm whale is very widely distributed in the oceans of the temperate and the tropical zones. They have been taken as far south as 56° south latitude in the Atlantic and in the Pacific, and as far north as 56° 12′ in the North Pacific. Early authors mention them as numerous on the coast of Greenland, but Beale* says that they are seldom or never seen there by recent navigators. They are generally taken off soundings, though they are sometimes abundant in comparatively shallow water, especially along the edge of the ocean banks. Within the limits included between 30° north and 30° south latitude they are generally of smaller size than in higher latitudes. There are certain cruising-grounds especially frequented by vessels in search of sperm whales, and these will be described in order beginning with those in the Atlantic Ocean, proceeding then to the Pacific and Indian Ocean grounds.

The Atlantic grounds, from which more than half the entire production of sperm oil is taken, are visited by both large and small vessels, the latter cruising chiefly north of the equator and remaining out about nine months, while the former make voyages lasting one, two, or even three years, cruising over various parts of the North and South Atlantic and sending oil home from the Azores, St. Helena, and other convenient ports. Vessels visiting the Pacific and Indian Oceans are usually barks and ships, and fit out for long voyages.

NORTH ATLANTIC GROUNDS.—Profitable sperm whaling has been found in the Caribbean Sea, off Chagres, Blanquilla, and in other parts of the sea; in the Gulf of Mexico, particularly in latitude 28° to 29° north, longitude 89° to 90° west; in various parts of the West India seas, especially in the Mona Passage and off the coasts of Cuba, Porto Rico, and St. Domingo, north of the Bahama Islands, in latitude 28° to 29° north, longitude 79° west; on the "Charleston Ground," in latitude 29° to 32° north, longitude 74° to 77° west, and on the "Hatteras Grounds," extend-

* BEALE, THOMAS: Natural History of the Sperm Whale, London, 1836, p. 88. He says that sperm whales are found from 60° north to 60° south latitude.

ing along the edge of the Gulf Stream off Cape Hatteras.* Vessels cruise on the more southern of the above grounds during the winter months and early spring, and work north and east as the season advances. Their next resorts, after leaving the Charleston Ground, are in latitude 36° north, longitude 74° west; latitude 32° north, longitude 68° west; latitude 28° to 33° north, longitude 48° to 57° west, and from latitude 33° to 45° north, longitude 50° to the east of the Azores.†

Among the favorite resorts in the North Atlantic are the "Two Forties" and "Two Thirty-sixes," the former being in latitude 40° north, longitude 40° west, and the latter in latitude 36° north, longitude 36° west. Vessels cruise here throughout the summer and fall months and often into December. The whales taken are of all sizes. Ships of late years have cruised from latitude 43° to 46° north, longitude 25° to 32° west, also from latitude 48° to 50° north, longitude 21° to 24° west; and on the "Commodore Morris Grounds,"‡ in latitude 52° to 54° north, longitude 23° to 25° west. Sperm whales are often seen and taken near the Azores. Good cruising places, known as the "Western Grounds," are situated in latitude 28° to 37° north, longitude 40° to 52° west. Another resort is the "Steen Ground," in latitude 31° to 36° north, longitude 21° to 24° west, where vessels cruise from August to November. Sperm whales are sometimes found quite numerous along the southern coast of Portugal and Spain from Cape St. Vincent to the Straits of Gibraltar; also near the southern side of the island of Teneriffe; north and west of the Cape Verde Islands during the winter months; from latitude 10° to 14° north, longitude 35° to to 40° west in March, April, and May, and in latitude 5° to 7° north, longitude 18° to 20° west, during the winter season. Good whaling has also been found in the Gulf of Guinea near the Island Fernando Po; also on the "Cornell Ground," in latitude 5° to 9° north, longitude 22° to 27° west.§

SOUTH ATLANTIC GROUNDS.—On the west side of the South Atlantic, sperm whale grounds were formerly found on and near the Carabellas banks in latitude 17° to 19° south from the coast of Brazil to longitude 35° west; also in about latitude 23° south, longitude 39° to 42° west. The smaller class of vessels cruised on these grounds, capturing mostly large bull whales, while large

* "In 1837," says Captain Atwood, of Provincetown, "the 'Edward and Rienzi' was bought for blackfishing, and went on the ground south of the George's Bank and towards Cape Hatteras. No whaling vessels had ever been there before, and she found sperm whales abundant, and since that time the 'Hatteras Ground' and the 'Charleston Ground' farther south, have been favorite cruising places for the Provincetown fleet."

† *On the northern edge of the Grand Banks and the Gulf Stream where the Labrador current meets the Stream,* making an eddy and a strong current, sperm whales were reported in the months of September, October, and November. The geographical position of this spot, as given by Messrs. Swift & Allen, of New Bedford, is latitude 41° to 46° N., and longitude 45° to 50° W. Care should be taken to keep a medium temperature of water.—J. T. BROWN.

‡ This ground was first visited by the American fleet about the year 1859 and was then called the Camilla Ground, after the bark Camilla. It has been cruised upon by many of the best vessels of the sperm-whale fleet.

§ Captain Tripp, of the bark Pioneer, makes the following condensed report of a cruise for sperm whales in 1873 and 1874 mainly in the North Atlantic.

On July 12 he found sperm whales in latitude 38° 05′ N., longitude 67° 45′ W., and on the 30th killed a large whale in latitude 35° 45′ N., longitude 45° 50′ W. August 4 he again saw sperm whales in latitude 35° 27′ N., longitude 45° 16′ W. On the 27th took a large one in latitude 34° 37′ N., longitude 39° 41′, W., and found them on the 31st in latitude 34° 37′ N. and longitude 39° 41′ W. On September 12 he killed two whales in latitude 35° N. and longitude 39° 50′ W. He crossed the equator, but again worked to the northward and finished his cruise.

On March 29 he killed two whales in latitude 13° 58′ N., longitude 37° 28′ W., and another on April 28 in latitude 13° 20′ N. and longitude 44° 25′ W. Sperm whales were seen on the 1st, 2d, 3d, and 4th of May in the latitudes of 13° 36′, 13° 34′, 13° 28′, and 13° 22′, and in the longitudes of 44° 51′, 44° 34′, 44° 24′, and 44° 20′, respectively, but no catches were made; on the 5th he killed four whales in latitude 13° 28′, longitude 44° 28′; two on the 8th in latitude 13° 18′ and longitude 44° 49′; three on the 10th in latitude 13° 08′, longitude 44° 25′, and four on the 12th in latitude 13° 56′, and longitude 45° 22′. On the 13th sperm whales were seen in latitude 13° 08′ and longitude 45° 14′, but none were killed. From that time on he had "greasy luck." On the 19th he killed three whales in latitude 13° 06′, longitude 46° 25′. One was killed July 21 in latitude 34° and longitude 44° 12′; two on August 1 in latitude 34° 45′; one on the 10th in latitude 34° 13′, longitude 40° 17′; two on the 20th in latitude 31° 26′, longitude 50°, and one large one on the 25th in latitude 31° and longitude 50°. He cruised in this locality fourteen months and obtained 1,100 barrels of sperm oil.—J. T. BROWN.

vessels found good whaling on the "River La Plate Ground" extending from latitude 30° to 40° south, and from 30 to 250 miles off-shore. The season here was from September to May, and the whales taken were of all sizes. A few vessels continue to cruise on all these grounds, meeting with moderate success. Large whales have also been found quite plenty in latitude 45° to 47° south, longitude 55° to 60° west, where ships cruise from November to May.

Passing across to the east side of the ocean we find good whaling grounds along the coast of Africa, also around the islands of Ascension and St. Helena. The principal resorts are in latitudes 4° to 23° south, longitude 9° to 10° west; around St. Helena; latitude 34° south, longitude 0° to 7° west; also a few degrees east of the meridian in the same latitude; and on the "Carroll Ground" in latitude 32° south, longitude 7° east. The time for cruising on the more southern of the above grounds is from September to May, and farther north during the whole year.

South Pacific Grounds.—Sperm whales are often seen off Cape Horn, and it is the opinion of most whalers that they pass from one ocean to the other in their migrations. Captain Seabury writes that he has himself on two occasions taken large sperm whales within sight of land off this cape. The grounds in the Pacific have been exceedingly profitable. From the time of their discovery in 1788, by Nantucket whalemen in an English whale-ship, dates the great prosperity of the sperm-whale fishery which reached its climax in the year 1837.

One of the most important and extensive grounds in the South Pacific lies off the coast of Chili, extending from latitude 35° to 46° south, and from the coast 200 miles off shore. Within these limits there are some specially favorable spots, as around the island of Huafo, near the south end of Chiloe Island, off Mocha Island, and off the port of Talcahuano. Around the islands of Juan Fernandez and Masafuero, and from these islands to longitude 90° west, are good grounds. Ships cruise here and farther south from September to May, and sometimes throughout the year, finding mostly large whales.

Passing farther north we come next to the Archer Ground, which lies in latitude 17° to 20′ south, longitude 84° to 90° west, where ships cruise throughout the year, capturing large whales. From the Archer Ground, all along the coast to Panama Bay, in latitude 8° north, from the shore to 90° west longitude, many sperm whales have been taken. Along the coast from latitude 12° to 18° south, also from latitude 10° to 14° south, longitude 86° to 90° west, were formerly noted cruising places. The latter is called the "Callao Ground," and is still visited by a few ships that cruise throughout the year, taking medium sized bull whales, yielding from 40 to 60 barrels of oil each.

One of the most important grounds in the South Pacific extends from latitude 5° south to 2° north, and from the coast of Peru to longitude 93° west, embracing the Galapagos Islands. "Most of the whales found here," says Captain Seabury, "are cows and calves, though occasionally a large bull whale is captured. The large whale is quite often found 3 or 4 miles from the school of small ones. After striking one of a school the others sometimes stop around the fast whale, which is called 'bringing to' or 'brought to,' when each of the four boats may fasten to a whale. More frequently the rest start off after the first boat strikes and are pursued by the boats."

Many ships have cruised on the Offshore Ground, extending from latitude 3° 30′ to 5° 30′ south, and from longitude 100° to 120° west. The season here lasts during the whole year, and the whales taken are of all sizes, though the majority are young bulls. These whales go in schools, and the larger the size of whale the smaller is the number. This ground was discovered in the year 1818 by Capt. George W. Gardner in the ship Globe, of Nantucket. The whalers had been cruising along the coast of South America when Captain Gardner concluded to find new

fields, and in his search he cruised over the ground extending from latitude 5° to 10° south, and from longitude 105° to 125° west, where whales were found in great numbers. This new field was christened the "Offshore Ground," and continues to this day a favorite resort of Pacific whalers.

On a belt of ocean from latitude 2° north to 2° south and extending across the Pacific from the west coast of South America, large numbers of sperm whales have been taken, especially from longitude 110° to 130° west, and also around Jarvis Island and the King's Mill Group. The whales taken near the equator are generally of the smaller kind.

Vessels have cruised with some success around the Marquesas Islands, Low and Societies. Navigator's Islands, the Fiji group, and around New Zealand and Australia. The most noted part of the New Zealand Ground is 20 miles southeast and southwest from French Rock, which lies in about latitude 31° 30′ south, longitude 179° west. Other resorts included on the New Zealand Ground are on the Vasques Ground, in latitude 36° south, longitude 165° west; from latitude 36° to 38° south, longitude 164° to 166° west; around the Three Kings, in latitude 32° south, longitude 170° to 175° east; 40 to 80 miles off shore east-northeast from Monganui and east-southeast from Cape Bret; around Stewart's Island, the Snares, and Chatham Islands. Sperm whales have sometimes been found abundant all around New Zealand. Large schools of great sperm whales abounded here more than on any other whaling ground. Captain Seabury says that "several ships often get into a school of these whales at one time, each vessel taking one or more whales that yield 100 barrels of oil. The season for cruising at the extreme south is in the summer months, or from September to April, and on the northern ground vessels cruise throughout the year. Hurricanes are sometimes encountered off the Navigator's Islands and French Rock, so that only the best of vessels are sent there."

Sperm whales were once abundant all the way across from New Zealand to Australia, and around Tasmania; also along the shores of Australia, and near Wreck Reef, around New Ireland, the Solomon Islands, New Guinea, Kermadec Islands, New Caledonia, and New Georgia. Banker Bay, New Ireland, was a noted place.

NORTH PACIFIC GROUNDS.—The most important ground in the North Pacific for many years was off the coast of Japan, first visited by whaling vessels in 1820. Around the Bonin Islands, in latitude 27° north, longitude 140° west, was also a noted ground. Vessels cruised all the way from latitude 28° to 32° north, and longitude 165° west to 165° east. The Japan Ground included the region from the coast of Japan southeast to Bonin Islands, across to 165° west longitude. The season was from May to November, during which time great quantities of oil were frequently taken. The whales were mostly large bulls, and many of them very old, as was shown by their teeth.

Capt. William M. Barnes, formerly of New Bedford, writes: "There is now (1881) not a single sperm whaler in the North Pacific Ocean, and in certain parts of it, as on the old Japan Ground, the Arctic cruisers in crossing have lately seen sperm whales in increasing numbers." During the winter season in the northern hemisphere the Arctic whalers occasionally spend a few months among the islands of the Western Pacific, but otherwise these large grounds are now seldom resorted to by whalemen. In many cases the sperm whalers find it difficult to fill their casks with sperm oil, and so assist in making up their cargo by spending a few months in "humpbacking."

Sperm-whaling was formerly carried on with good success around the Ladrone Islands, also in the Sooloo or Mindora Seas, and around the East India Islands, where ships continued to cruise until within about three years. The whales were generally very small, and mostly cows with calves. A great deal of calm weather and strong currents are found around these islands and seas.

We come now to the grounds on the eastern side of the North Pacific. In former years many ships cruised around Cape San Lucas, near the Gulf of California, and along the coast of Lower California from 10 to 50 miles off shore. Whales of large size were taken here in the winter months by vessels that had spent the summer on the Japan Ground. Around the Maria Islands, near San Blas, on the Mexican coast, whales were quite often found; also in the Bay of Panama from the coast to 90° west longitude, and farther west in the ocean from latitude 4° to 8° north, longitude 100° to 110° west. *In the vicinity of Owhyhee and other parts of the Sandwich Islands vessels* met with fair success.

INDIAN OCEAN GROUNDS.—The principal resorts of vessels in this ocean were off Port Dauphin and around Madagascar in the Mozambique Channel; around the islands of Mauritius and Bourbon and the island of Roderique; around the Amirante Group, and Seychelle and Comore Islands; off Zanzibar and along the east coast of Africa to the Red Sea; off the island Socotra; along the Arabian coast; around the Laccadive Islands and the island of Ceylon. Other resorts are along the west and south coasts of Australia, especially in the vicinity of Cape Leeuwin and off Shark's Bay, on the ground extending from latitude 20° to 23° south, longitude 107° to 110° east. From March to July ships cruise several degrees off shore to the west of Australia and from October to May near the land. The number of American whaling vessels visiting the Indian Ocean has been gradually diminishing for several years, and in 1880 not a single vessel from the United States went there for sperm oil. A fleet of about eleven sail of vessels, belonging at Tasmania, is engaged mostly in sperm whaling, and some years they meet with good success.

SPERM-WHALE GROUNDS IN 1840.—The principal grounds visited by sperm whalers about the time of the greatest prosperity in this fishery are thus described by Commander Wilkes, of the United States Exploring Expedition:

"The following embraces all the different grounds in the Pacific visited by our whalers:

"(1) The on-shore ground; that includes the whole extent of ocean along the coast of Chili and Peru from the island of Juan Fernandez to the Galapagos Islands.

"(2) The off-shore ground; being the space between latitude 5° and 10° south, longitude 90° and 120° west.

"(3) In the neighborhood of the Hawaiian Islands.

"(4) In the neighborhood of the Society Islands.

"(5) In the neighborhood of the Samoan Group.

"(6 In the neighborhood of the Fiji Group.

"(7) In the neighborhood of the King's Mill Group.

"(8) Along and to the south of the equator, from the coast of South America to the King's Mill Group.

"(9) Across the South Pacific, between the parallels of 21° and 27° south.

"(10) Across the North Pacific, between the parallels of 27° and 35° north.

"(11) In the neighborhood of the east coast of New Zealand.

"(12) In the middle ground between New Holland and New Zealand.

"(13) The coast of Japan, and between it and Bonin Islands.

"(14) The northwest coast of America.

"(15) Coast of California.

"These, it will be seen, embrace a large field, and it might be supposed that a ship could hardly miss finding the animals. Such, however, is not the case. A vessel may visit all these places, and yet return home a 'clean ship,' if she happened to be out of season. It appears from experience that whales, in their migrations congregate in the above-named places at certain times

of the year, and those who are acquainted with the business endeavor to be early on the cruising grounds. I shall now point out the times, according to the best information, at which the whales visit the several grounds, and, although not a whaler, I hope to give such information as may be useful to this class of my countrymen.

"For convenience of description, the cruising-grounds may be considered as included within four sections or belts.

"These belts are from 20 to 25 degrees of latitude in width.

"The first of which I speak is that between the equator and the northern tropic; the second, between the tropic and 50° north; the third, between the equator and the southern tropic and latitude 50° south.

"Within the tropics whales are almost always to be met with. There are, however, particular places within this zone where they chiefly congregate. Whales are found in the first belt on the north side of the equator, to the southward of the Sandwich Islands, and thence westward as far as the Mulgrave Islands, for the greater part of the year; but the only spot or space they are known to abound in at any particular season, within this belt is to the westward of the Galapagos; they pass and repass over the rest of this space in their migrations, and may generally be found near to or around the small islands.

"In the second belt they range from the coast of Japan to the northwest coast of America and California; this they frequent from May till November. In the month of July they are found off the Bonin Islands, and between them and the coast of Japan. They frequent the space lying to the northward of the Hawaiian Islands, and comprehended between the parallels of 28° and 35° north; and within the meridians of 145° and 156° west, from June to October; and resort to the northwest coast of America in August and September, and to that of California in November and January.

"The third belt comprises the ocean from the coast of South America to the King's Mill Group, including the Marquesas, Society, and Friendly Islands, the Samoan and Fiji Groups. Within these are spaces known as the on-shore and off-shore grounds. The latter the whalers frequent from November to February, and along this belt they are found until the months of July and August, by which time they reach the King's Mill and Fiji Groups. There are, however, stragglers to be met with in this space during all seasons.

"The fourth belt extends from the southern tropic to the latitude of 50° south. The most profitable time for cruising within it is in the months of March, April, and May, to the eastward of New Zealand. After that date, along and between the parallels of 22° and 28° south, from the coast of New Holland to that of South America. The portion of sea between New Holland and New Zealand is called the 'middle ground,' and is frequently found very profitable.

"From an examination of the particular localities in which whales are found most at certain seasons, and connecting these with my own observations on currents, I am induced to believe the places of their resort will point more correctly to the neutral points or spaces of no current, than any other data that we yet possess.

"These must necessarily become the rendezvous, or feeding-places, of these animals. The determination of these points will, therefore, throw additional light on the systems of currents in the ocean, by pointing out the neutral spaces. The chief resort of whales will be seen on the map at one view; and when these are connected with the currents shown to exist by the observations of the expedition and others, they will be found to correspond in a remarkable manner with the neutral spaces.

"I have myself paid much attention to acquiring information in relation to the position of these grounds from the masters of whale-ships, but have usually found their reports at variance

one with another, and they have sometimes differed as much as 5 degrees in assigning their limits. Their position, no doubt, varies much in different years; but even this will not explain all the discrepancies of the statements.

"If we examine the seasons of the appearance of whales at certain islands, they will generally be found to be between the beginning and the end of the summer of the climate, during which time animal life is most prolific, and the food of the whale consequently abounds near the particular group. I have frequently been told, and it is generally believed, that whales are partial to warmth, and frequent few places outside the tropics. This, if true, would be singular enough; but the main reason for their frequenting the summer seas at particular seasons is the procurement of food, which is there to be found in greater abundance; and there appears to be little doubt that in migrating these animals move with the currents until they find their food in plenty, and then continue in such locality until it is exhausted.

"A number of instances are known, * * * in which, at certain seasons, strong currents have been experienced in places where three months afterward they were found to have ceased altogether, or even to have changed their direction. I have now particular reference to the northwest coast.

"Having pointed out the different belts in the Pacific, I will now refer to the localities in the Atlantic and Indian Oceans where the sperm-whale fishery is most successful.

"These, in like manner, are found to correspond, and are connected with the obstructions of the submarine currents, or the places where, from opposing currents, they become lost.

"In the Atlantic Ocean: (1) Off the Azores or Western Islands; (2) off the Cape de Verdes; (3) north of Bahama Banks; (4) Gulf of Mexico; (5) Caribbean Sea; (6) to the eastward of the Windward Islands; (7) north coast of Brazil; (8) south coast of Brazil; (9) Carrol Ground, or a space of ocean lying between St. Helena and Africa.

"In the Indian Ocean: (1) Off the south end of Madagascar, and between it and Africa; (2) off the north end of Madagascar; (3) the coast of Arabia; (4) west coast of Java; (5) northwest coast of New Holland; (6) south coast of New Holland, and between it and Van Diemen's Land.

"The periods of time allotted to these fisheries coincide with the time at which it might be expected that the food of the whale would be most plentiful if brought by the polar streams.

"The Atlantic fishery is, for the most part, carried on in a smaller class of vessels than those used in the Pacific; the voyages are of less duration, and less capital is therefore required in this business than the other. In speaking of the cruising-grounds, I shall follow the order in which they are visited.

"The first in point of time is that near the Azores. This ground does not extend more than 200 miles from these islands, and lies principally to the southwest of them. Here whales are found during the summer months, and as late as October. These islands, it will be well to remark here, lie in the route of the great north polar stream, and form an obstruction to its passage; consequently the food is arrested in its progress, and is accumulated here.

"The next ground visited is off Cape Blanco and the Cape de Verdes, and it is also searched by the outward-bound ships of the Pacific fleet. The whalers of the Atlantic next pass to the north coast of Brazil, in the months of October, November, and December, and thence to the Brazil Bank, and off the mouths of the Rio de la Plata, where they fish in January and February; after this they seek Saint Helena and Carrol Ground, which lies from 50 to 200 miles south of that island, toward the Cape of Good Hope. On the latter ground they remain during the months of March, April, and May; and thence they pass to the westward along the South American coast, to the eastward of the Windward Islands; thence to the Bahama Banks, Cape Hatteras, and along the coast of the United States, home.

"The smaller class of whalers seldom extend their cruisings to the south of the line, but after they have visited the first two whaling-grounds they usually pass to the westward toward the island of Fernando de Noronha, and thence along the South American coast until they reach the Windward Islands. They frequent the Caribbean Sea in the months of January and February, and farther to the westward off the peninsula of Yucatan and Cuba in April; after which time they proceed through the Gulf of Mexico to cruise off the Bahama Banks and Cape Hatteras in May. Thence they pass northward, on either side of the Gulf Stream, to the eastern side of the Grand Banks.

"In the Indian Ocean, the south part of Madagascar, off Point Dauphin, is visited in March and April; in May, June, and July the ground off the southwest coast of Madagascar, in the Mozambique Channel, and upon both sides of that channel. The whalers usually recruit in Saint Augustine's Bay, where supplies are to be had in abundance, and both wood and water are easily procured. After this they usually spend some time off Cape Corrientes, with the cape and headlands on either side, and visit the Comoro Isles. Sperm whales are frequently found in numbers among these islands, and ships usually do well in their vicinity. The African coast, from Mozambique to Zanzibar, is good ground, and the latter is also a good port for repairing.

"Some ships extend their cruising during the northeast monsoon, from October to April, to the Arabian coast, but the African is generally preferred. The Chagos Archipelago at times affords some success, but it is very doubtful ground, and has not often been frequented. The proper season is during the southwest monsoon.

"The most profitable ground in the Indian Ocean is the west and northwest coast of New Holland, as far eastward as the islands of Timor, Lomboch, and Angier, and westward to the Keeling Islands, including the coast of Java.

* * * * * * * * * *

"It will be perceived how nearly these grounds coincide with the places wherein, according to the views already stated, the polar streams are obstructed by land or islands, so as either to interrupt their course or create such an impediment as to change it.

"The Sooloo Sea is the only place that remains to be noticed. American ships, however, have seldom gone thither, but English vessels are reported as having met with much success there."*

(*b*) RIGHT-WHALE GROUNDS.

GEOGRAPHICAL DISTRIBUTION OF RIGHT WHALES.—The right whale (*Eubalæna*) is found in various parts of the world as far north as latitude 61° 30′, at the mouth of Hudson Strait, and south to the Antarctic Ocean, though it is rare in the warmest latitudes. This whale, of which there are several species in the different oceans, must not be confounded with the bow-head, or polar whale, which is called right whale by many whalemen, though quite distinct from it and inhabiting much colder waters, the bow-head being an ice whale and the right a temperate whale. The principal right-whaling grounds east of America are in the South Atlantic, while in the Pacific Ocean they are of about equal importance both north and south of the tropics.

NORTH ATLANTIC GROUNDS.—The North Atlantic grounds for this species are few in number. They are taken during the summer months off the southern end of Greenland and to a limited extent in the lower part of Davis Strait, near Resolution Island. Along the eastern coast of the United States they are occasionally captured by shore whalemen, especially at the whaling stations in North Carolina. During the winter months whalers find them on the Hatteras

* Narrative of Wilkes's U. S. Exploring Expedition, vol. v.

Ground, in the Gulf of Mexico, and in the Caribbean Sea. A few small vessels have cruised with indifferent success for right whales along the west coast of Africa, in latitude 15° north, and in Center Bay, about latitude 23° north. At no particular place in the North Atlantic are they now abundant, though they were formerly taken in great numbers close to the New England shore, and eastward of the Newfoundland fishing-banks.

SOUTH ATLANTIC GROUNDS.—The most noted grounds for right whales at the commencement of the right-whale fishery in the last century were off the coasts of Brazil and of Patagonia, on what were called the "Brazil," or "Main," and "False Banks," and especially between the thirty-sixth and the fifty-fifth parallels from the coast to 30° west longitude. The most important spots were on and about the above banks and from latitude 38° to 45° south, and longitude 38° to 45° west. Right whales were also quite abundant in the vicinity of the Falkland Islands, which were first visited by our whalemen in 1774; near the Tristan Islands, between latitude 28° to 42° south, and from the meridian to 20° west longitude, was called the "Tristan Ground," and was a favorite cruising place. Good whaling was also found from latitude 34° to 43° south and longitude 24° to 28° west. Other important grounds were along the west coast of Africa from latitude 22° to 32° south, or to the Cape of Good Hope. Ships met with great success on the South Atlantic grounds for many years, and it was not an uncommon occurrence for vessels of from 1,500 to 2,500 barrels capacity to fill up and return home from the South Atlantic in one season, making the voyage in from seven to ten months.

The grounds more particularly visited at the present day in this ocean are around the Tristan Islands in latitude 36° to 38° south, longitude 10° to 25° west, from September to January; on the east coast of South America in latitude 30° to 35° south, from May to August; and from September to June along the coast of Patagonia in latitude 42° to 52° south. The whales caught are of the regular right-whale species, the bull when full grown yielding from 40 to 60 barrels of oil and the cow from 60 to 80 barrels, or about 60 barrels on an average. The whalebone averages about 300 pounds to 100 barrels oil in the bull, and 400 to 600 pounds to 100 barrels oil in the cow whale.

INDIAN OCEAN AND SOUTH PACIFIC GROUNDS.—We now pass the Cape of Good Hope to the right whale grounds in the Indian Ocean, all of which are at present entirely abandoned by the Americans. On many parts of the ocean lying between the parallels of 20° to 50° south, and from longitude 18° to 80° east, right whales were found abundant in former years, and a few ships continued to cruise there up to 1879, though most of the whales have been killed or driven from the ground. The most important places within these limits of latitude and longitude were at Delago Bay, in latitude 26° south, longitude 32° east; east of Cape of Good Hope, in latitude 35° to 38° south, longitude 30° to 35° east; around the Crozette Islands, in latitude 45° to 47° south, and longitude 49° to 52° east; in the vicinity of St. Paul's Island, in latitude 32° to 38° south, longitude 70° to 80° east; and near Kerguelen Island, in latitude 48° to 50° south, longitude 69° to 70° west.

The season for cruising in the Indian Ocean is the same as in the South Atlantic. The best months for whaling offshore are from September to May, and when inshore more whales are taken in the winter months, when they can be found around the islands, near the rocks, and among the kelp or seaweed. The whales in this ocean are smaller than those taken in the South Atlantic, averaging 40 barrels of oil and 240 pounds of bone for the bull, and for the cow whale 60 barrels of oil and 360 pounds of bone, or 600 pounds of bone to 100 barrels of oil.

In former years right whales were found quite plenty on the west and south coasts of Australia, especially at Cape Leeuwin, Geographe Bay, and King George Sound. They were also taken

around Van Diemen's Land, or Tasmania, which place, for the past ten years, has employed a fleet of eleven vessels, principally in the sperm-whale fishery in this vicinity. In the year 1872 nineteen vessels, measuring 4,917 tons, belonged at Tasmania, and produced 112 barrels of whale oil and 2,712 barrels of sperm oil.

The vicinity of New Zealand was once an important right-whaling ground, and is still occasionally visited by vessels, that meet with moderate success, taking both right and sperm whales. The grounds are both inshore and offshore; the most noted of those offshore, from October to March, are from latitude 38° to 48° south, and longitude 154° to 162° east. Commencing the season to the north, vessels work south with the whales. Around the Auckland Islands and in the vicinity of Stewart's Island, from the land to 100 miles offshore, are good cruising grounds; also from 36° to 45° south latitude, and 160° east to 160° west longitude.

Right whales were taken in abundance off the coast of Chili about forty years ago, and a few vessels still cruise in that vicinity, making mixed voyages for sperm and whale oil. The season is from September 1 to January 1, on the grounds from latitude 42° to 47° south, and longitude 75° to 80° west. After the beginning of the year vessels work along shore toward the north as far as latitude 35° south, occasionally anchoring in the bays and cruising back and forth between the thirty-fifth and the fortieth parallels until May. The most noted grounds are Concepcion and St. Vincent bays, near the port of Talcahuana, where they formerly caught their whales and tried out their oil while at anchor, sometimes taking 1,000 barrels of oil in a month. Some vessels used to winter in these bays, though they were not very successful in the winter months.

NORTH PACIFIC GROUNDS.—One of the principal cruising places for right whales in this ocean is that known as the "Northwest coast right-whale ground," or the "Kadiak ground," situated near an island of that name off the Aliaska peninsula, and extending from latitude 50° to 60° north, and longitude 130° to 160° west. The best portion of this ground lies between latitude 55° to 58° north, and longitude 140° to 152° east, and the most profitable cruising season is from April to October. The first whaling vessel to cruise here was the ship Ganges, of Nantucket, commanded by Capt. Barzillar Folger. This was in the year 1835, from which time until within a few years past the Kadiak was the most important ground north of the Japan ground. The whales taken on this ground average about 125 barrels of oil each, the male or bull making from 60 to 100 barrels, and the cow whale from 100 to 250 barrels. The bone will average about 1,000 pounds to 100 barrels of oil, and is much longer than the South Sea bone. A full-grown whale here has about two hundred slabs of bone, varying in length from 1 foot to 11 feet. Some of these whales, though apparently good when taken, prove to be "dry skins," making no oil, and many of them sink after being killed. The blubber varies in thickness on different parts of the body, being from 5 to 15 inches on a 100-barrel whale, and on a 200-barrel from 5 to 18 inches. The lips, from which oil is also taken, sometimes yield from 8 to 10 barrels.

Right whales are found and have been captured around the Fox Islands and in Bristol Bay north of the Aliaska peninsula. In Bering Sea, along the coast of Kamchatka, there is good right whaling; also at the entrance to Okhotsk Sea, and in the southern part of that sea during the months of April and May. They are also taken in the Japan and the Yellow Seas. "In former years," says Scammon, "the right whales were found on the coast of Oregon, and occasionly in large numbers; the few frequenting the coast of California are supposed to have been merely stragglers from their northern haunts. Some, indeed, have been taken (from February to April) as far south as the Bay of San Sebastian Viscaino, and about Cerros Island, both places being near the parallel of 29° north latitude."*

* Marine Mammalia, p. 96.

(c) BOWHEAD-WHALE GROUNDS.

GEOGRAPHICAL DISTRIBUTION OF BOWHEAD WHALES.—The bowhead or polar whale is the species formerly taken in great numbers by the Dutch and English whalers at Spitzbergen, Greenland, and Davis Strait. It is the whale captured by the American fleet in the Arctic Ocean, and is the most valuable of the right or whalebone whales both for the quantity and for the quality of its oil and for the length and the thickness of its baleen. In the English whale fishery it is not distinguished from the right whale, but is not the same as the species commonly known to American whalemen under that name. The American right whale lives in more temperate waters, while the polar or bowhead whale inhabits only the icy regions of the northern seas. The home of the bowhead is in most of the waters north of the sixtieth parallel of north latitude. It is found in lower latitudes on the Asiatic than on the Greenland side of America, being taken in the Okhotsk Sea as far south as the fifty-fourth parallel and in the Bering Sea as far south as the fifty-fifth parallel, which is the southern limit of the winter ice in that sea. In the Greenland Arctic the bowhead is not found south of Cape Farewell on the sixtieth parallel. The northern limit of this whale is undefined.

The capture of the bowhead whale began at Spitzbergen in the early part of the seventeenth century; it soon extended to the east coast of Greenland, and early in the eighteenth century they were taken in Davis Strait and adjoining waters. It was not until the year 1848 that the whalers pushed their way through Bering Strait and established the very profitable fishery for this species in the Pacific-Arctic.

The principal grounds visited by the whaling vessels of the United States in search of the bowhead are as follows:

ATLANTIC-ARCTIC GROUNDS.—Off Cape Farewell, at the southern end of Greenland, from June to August; also in Hudson Strait and Hudson Bay, especially in the vicinity of Southampton Island and near Cape Fullerton, that lies in about latitude 64° north, and longitude 86° west. The vessels are accustomed to work through the ice in Hudson Strait about the middle of July, arriving in the bay about August 1, and if intending to return home the same year they leave the bay by the 1st of September. Many of them go into winter quarters about September 15, and spend the winter in the ice, taking advantage of the early and the late appearance of the whales, as also occasionally capturing seals or walrus in the winter months.

In Davis Strait the vessels cruise near Northumberland Inlet in about latitude 65° north, and longitude 68° west. Cumberland Inlet has also been a favorite resort for whaling vessels of the smaller class, and they frequently winter there. Resolution Island, at the entrance to Cumberland Inlet, is a good ground for both bowhead and right whales during April and May.

The whales taken in these bays and inlets in former years would average about 120 barrels of oil each, the bull 100 barrels, and the cow 140 barrels; but of late years they have been smaller and scarcer. The yield of bone is usually about 1,300 pounds to 100 barrels of oil.

American vessels at present cruise no farther north than the sixty-fifth parallel, though the Scotch steam-whalers, that carry their blubber home to be boiled out, frequently take their whales as far north as the seventy-fifth parallel. The American vessels formerly went as far as Pond's Bay, in about latitude 73° north.

A further discussion of the movements of the Scotch whalers is given below under the head of Foreign Whale Fishery.

In the seventeenth and eighteenth and first part of the nineteenth centuries there were very profitable whaling grounds for the bowhead in the vicinity of Spitzbergen and off the east coast

of Greenland, where extensive fisheries were carried on by the European nations. These grounds were not visited by vessels of the United States until within the past thirty years, and then only in a few instances. The first American whaler sailing for Spitzbergen Sea was the ship Hannibal, Captain Royce, that left New London May 21, 1855, and returned March 21, 1856, with only twenty-eight barrels of whale oil. A second attempt was the voyage of the bark Tempest, Captain Allyn, that left New London May 21, 1857. Captain Allyn states that he had undertaken this voyage to the Spitzbergen regions by the advice of Hon. Thomas W. Williams, a successful whaling agent, who furnished him with Scoresby's journals and information obtained by correspondence with whaling agents in Scotland, setting forth the frequent appearance of whales in the region of ocean north of Russia. During the month of July these seas were cruised over by the Tempest, but, "although we sought diligently for whales," says Captain Allyn, "our search was totally unsuccessful, and on the 9th of August we concluded to proceed to a more congenial climate."* The vessel then cruised down through the North and South Atlantic Oceans, round Cape of Good Hope, on to New Zealand, and thence to the Okhotsk Sea, and after cruising with moderate success for two or three seasons in these waters returned to New London in 1861. In 1865 a third attempt was made to establish an American fishery in these seas, this time at Iceland by the bark Reindeer, of New York, principally for sulphur-bottom whales. The first year's work was unsuccessful, and the second season resulted in such little profit that the project was abandoned. These three voyages are the only ones, so far as known, that have been made by American whaling vessels to the oceans east of Greenland or north of Europe.

The Russians and Norwegians carry on profitable whale fisheries, mostly for the fin-back, at one or two points along the coasts of Norway and Finmark. One of these stations is on an island in Varangar Fiord, opposite Wadso, in Finmark. In recent years a few Norwegian vessels have visited Spitzbergen in search of whales, as in the season of 1873, when six vessels, with fifty-seven men, were frozen in the ice at the island, and seventeen of the men perished before assistance reached them.

PACIFIC-ARCTIC GROUNDS.—The fleet of whaling vessels cruising north of 50° north latitude in the waters between the Asiatic and the American coasts is called the North Pacific fleet. It has been the most important branch of the American right-whaling fleet since 1835, when the famous Kadiak ground, lying between latitude 50° and 60° north, was discovered. Here were taken only the right whale, but in 1843 the fleet pushed farther north, and began capturing bowheads on the Kamchatka coast. In 1848 a whaling vessel entered the Arctic in pursuit of these large animals and met with good success. In 1839 there were only two vessels in the North Pacific fleet. From that date to 1880 the total number of voyages made to these grounds by American vessels was 4,300, and the total catch of whale-oil (including oil of the right whale, bowhead, and walrus) was 3,904,397 barrels, or 60 per cent. of the total production of whale-oil by the American fleet in all oceans during the same period.

The North Pacific right and bowhead whale fishery has always been peculiarly an American enterprise, very few foreign vessels having participated in it. The principal grounds were discovered by American vessels between the years 1835 and 1848. The most important whaling grounds for the bowhead in this region are the Okhotsk Sea and the Arctic Ocean. The former is at present of little importance, but few vessels having visited it during the past five or ten years, nearly all of the fleet preferring the hazardous, though profitable, whaling in the Arctic. The

* The Old Sailor's Story, by Gurdon L. Allyn, 1879, p. 85.

bays in the Bering Sea are visited by the fleet on its way to the Arctic, and large numbers of whales are sometimes taken in these waters before the ice permits the vessels to pass through the Strait.

The North Pacific whale fishery was at its height in 1846, when 292 ships cruised in the region north of the fiftieth parallel, between the Asiatic and the American shores. In 1868 there were but 68 vessels in the fleet, of which number 41 were in the Arctic Ocean, 8 in the Okhotsk Sea, and 19 on the Kadiak ground. In the season of 1880 the fleet was reduced to 19 vessels, all of which cruised in the Arctic and captured a total of 265 whales.

"The principal herding places of the bowheads in the Okhotsk," says Scammon, "were at the extremities of this great sheet of water, the most northern being the Northeast Gulf (Gulf of Ghijigha), the most southern Tchanter Bay. The whales did not make their appearance in Northeast Gulf so soon as in the bay. Whalers endeavored, as soon as possible, to get to the head of Tchanter Bay, where they found the objects of pursuit in the intermediate water, between the ice and the shore, long before the main body of the congealed mass was broken up, and before the ships could get between the ice and the shore, even at high tide, the boats being sent forward weeks previous to the ships. Soon after the ships' arrival the whales avoided their pursuers by going under the main body of ice, situated in the middle of the bay, where they found breathing-holes among the floes. The boats cruised about the edge of the barrier, watching for them to emerge from their covert, which occasionally they did, when chase was instantly given. Frequently, in sailing along this ice-field, you could hear distinctly the sound of whales blowing among it, where no water was visible at the point whence the sound came. The first of the season, before the ice broke up and disappeared, when there were no whales about, the question was frequently asked, 'Where are the whales?' and as often answered, 'They are in the ice'; and, 'When do you think they will come out?' was answered by, 'When the ice leaves.' It has been established beyond question that this species pass from the Atlantic to the Pacific, or rather, if we may be allowed the expression, from the Atlantic Arctic to the Pacific Arctic, by the north; and, too, it is equally certain that numerous air-holes always exist in the ice that covers the Arctic waters, even in the coldest latitudes. These fissures are caused by the rise and fall of the tides, and contraction and expansion of the ice. Storms acting upon the water hundreds of miles distant also have their influence in rending asunder the icy fetters of those frozen seas. It appears to us not improbable that the bowhead has a feeding and breeding ground in a polar sea. And as they have never been seen during the winter months in any other quarter of the globe, except as before mentioned, it would appear that they must remain among the rough water and broken ice, at the southern edge of the winter barrier, or migrate to some remote sea unknown to man."*

The whaling vessels enter the Okhotsk as soon as the ice leaves, which is usually about the last of May, though sometimes it is as late as July. Having anchored the vessel in a convenient bay or inlet, the boats are sent out in search of the whales, and the animals, after being captured, are sometimes towed ashore and cut up there, the blubber being rafted off to the vessel. This mode is made necessary from the fact that the boats may be absent several days or even weeks, and be quite a distance from their vessel. The difficulties incident to whaling in the Okhotsk are told by Captain Scammon in his history of the whale-fishery. The whales found here during recent years have been much smaller than those taken at the beginning of the fishery, when the largest sometimes yielded 250 barrels of oil each, and the smallest about 80 barrels. The cow whales gave the most oil, averaging about 130 barrels, and the bulls about 90 barrels, the yield of bone being about 1,500 pounds to 100 barrels of oil. The season closes in the Okhotsk about the

* SCAMMON: Marine Mammalia, p. 59.

latter part of October, though vessels sometimes continue cruising throughout November at great risk from the ice, and they have occasionally wintered in the ice in order to take advantage of the late and early seasons.

Ships that cruise in the Arctic Ocean generally arrive in the Kamchatka and the Anadyr Seas about the beginning of May, and continue cruising south of Bering Strait until the ice permits them to pass through the Strait into the Arctic, which is usually about the first of June. Before entering the Strait a considerable number of whales are sometimes taken in the bays and gulfs along the Siberian coast and about St. Lawrence Island. Captain Barnes, in the bark Sea Breeze, of New Bedford, in the season of 1877, passed the Aleutian chain on May 4, and three days after came up to the ice in latitude 56° 30′ north. Until May 23 the ice was skirted toward the westward, and frequent ineffectual attempts were made to penetrate it. Land was sighted on the 24th, 250 miles west-southwest from Cape Navarin, and on that day the ice was entered. On June 18, whales were seen off Cape Chaplin. The whales usually pass through the Strait about the beginning of June, and are followed up by the vessels that cruise along the western side of the Arctic during the first part of the season, while waiting for the ice to open so that they may pass to the eastward to Point Barrow. This time of waiting usually lasts from the middle of June till the 1st of August, and is called the "summer season" or "between seasons." It is spent principally in capturing walrus which herd on the ice floes in immense numbers in the vicinity of Cape Serdze-Kamen. During specially favorable "summer seasons," as that of 1880, many whales are taken, and little time is spent in walrusing, but these weeks are usually quiet ones with the fleet, the killing of walrus being considered a pastime by the whalemen.

As soon as the ice will permit, at the beginning of August, the fleet follows up through the openings, capturing whales wherever they can be found. Most of the vessels reach Point Barrow by the middle of August, and begin to push farther to the eastward, creeping along the edge of the ice or entering the openings in search of their prey. Some of the vessels in the season of 1877 went as far east as Return Reef, and early in September they had all returned to Point Barrow. From this time until the ice begins to close up the fleet cruises back and forth westward of Point Barrow, reaching some seasons as high as the seventy-second parallel, which is about the most northern cruising ground in the Arctic. The period from the middle of August until about October 1, when the fleet leaves the ocean, is the real Arctic season, and an exciting one it is.

Ships quite often anchor along the shores in thick weather, as also to "cut in" the whales, or to "try out" the oil. Most of the ships leave the sea about the 1st of October, though sometimes they stay later, at the risk of being caught in the new ice. "The general breaking up of the ice in this region," says Captain Hooper, "commences in May or June in the vicinity of Bering Strait, and continues until the first part of September, after which time new ice begins to form, although the sea is not entirely closed for some weeks later. The heavy gales keep the larger floes in motion, and prevent them from uniting in one mass. After October 1 the water is so chilled that a general closing up of the sea is likely to occur at any time. Formerly the whale-ships did not remain in the Arctic later than the middle of September, but as whales grew scarce they prolonged their stay each year, until last year (1879) they did not leave until after the middle of October. This resulted in the loss of three vessels and two entire crews; a fourth vessel, the bark Helen Mar, Captain Bauldry, barely escaped, bringing with her the crew of the bark Mercury, one of the lost vessels. Her escape was effected by carrying all sail with a strong, fair wind, and forcing a passage through the new ice, which was so thick that at times her headway was entirely lost until a strong puff of wind started her again. In this way the vessel worked on a few miles each day, reaching Bering Strait about the 1st of November."*

* Corwin's Cruise, 1880.

(*d*) HUMPBACK-WHALE GROUNDS.

GEOGRAPHICAL DISTRIBUTION OF HUMPBACK WHALES.—Humpback whales (*Megaptera*) are found within the parallels of 60° north and 70° south latitude. They are seldom seen far from land, but are generally caught in mild climates, within certain bays and along coasts where the water is shallow.

The most noted places for taking them in the Atlantic Ocean are in the vicinity of the Island of Trinidad and in the Gulf of Para, from 10° to 11° north latitude, and 61° to 63° west longitude, also around Cape Verde Islands during the winter months, and on the coast of Africa from 3° north to 7° south latitude from June to October.

"Some of the Provincetown whalers," says Captain Atwood, "prosecute both the humpback and the sperm whale fishery. They sail from port about the middle or last of January and go direct to the West Indies, where they whale near the shores of these islands for humpbacks. Their whaling-ground for this species is from Tobago, latitude 11° 20′ north, longitude 60° 27′ west, thence northward around the shores of the islands as far as the Island of Mariegulante, in latitude 15° 52′ north, longitude 61° 18′ west. These vessels stop there until the latter part of April or early in May, when they leave for the Western, Charleston, or Hatteras grounds in pursuit of sperm whales, and usually return home in September. Another favorite ground is around the Cape Verde Islands, where these vessels cruise near the shore for the humpback during the winter months and then go north to the sperm whale grounds."

In 1879 humpback whales were abundant on the coast of Maine. One of the most successful whalers out of Provincetown that season was the Brilliant, an old pink-stern schooner of 17 tons, which hunted this species off Deer Isle, Maine. Up to October 1 she had taken four whales, yielding one hundred and fifty-five barrels. The Brilliant carried but one whale-boat, and tried out the oil on shore, towing in the whales as they were killed. Capt. J. W. Collins reports that on May 17, 1877, when in latitude 44° 16′ north, longitude 58° 59′ west, he noticed an unusual number of whales and porpoises. "There were more humpback whales than I had even before seen in that locality; appeared to be entirely fearless of the vessel; played around her all day, sometimes coming up alongside within 15 or 20 feet, their heads out of water 10 or 12 feet. At other times they would lie on top of the water and lash it into snowy foam with their long, flexible fins."

In the Pacific Ocean humpbacks are taken all along the coast of Ecuador and Colombia, from Guayaquil to the Bay of Panama and on reefs around the islands of the Friendly Group, also occasionally around the New Hebrides and the Fiji Group. They are also found in considerable abundance around the Rosemary Islands, on the northwest coast of Australia, and around Brampton Shoals. The best grounds on the South American coast are in the Gulf of Guayaquil, which lies in about latitude 3° south, and from here along the shore to the north as far as 3° north latitude, off the villages of Tacaroes and Esmaraldas, in Ecuador. Ships occasionally anchor and send out their boat for the whales, that must as a rule be killed in shoal water, as most of them sink and must be hauled up. The season for whaling on this coast is from February to August, beginning at Esmaraldas in February, and working along south until, in June, the whales appear at the Gulf of Guayaquil, and continue until August. The season on the Australian coast and around the Western Pacific group of islands begins about the 1st of June and continues into November and December.

Humpback whales are taken along the coast of California at the shore-whaling stations, especially at Monterey Bay. They are also seen and captured at Magdalena and Balenas Bays. In many bays and around islands in the Alaskan territory and the Aleutian Islands they are taken by the Indians and the Eskimos.

Captain Scammon records the following observations on this species of whale: "In the years 1852 and 1853 large numbers of humpbacks resorted to the Gulf of Guayaquil, coast of Peru, to calve, and the height of the season was during the months of July and August. The same may be said of the gulfs and bays situated near the corresponding latitudes north of the equator; still, instances are not infrequent when cows and their calves have been seen at all other seasons of the year about the same coast. In the Bay of Valle de Banderas, coast of Mexico (latitude 20° 30′), in the month of December, we saw numbers of humpbacks, with calves but a few days old. In May, 1855, at Magdalena Bay, coast of Lower California (about latitude 24° 30′), we found them in like numbers, some with very large calves, while others were very small. The season at Tongataboo (one of the Friendly Islands, latitude 21° south, longitude 174° west), according to Captain Beckerman, includes August and September. Here the females were usually large, yielding an average of 40 barrels of oil, including the entrail fat, which amounted to about 6 barrels. The largest whale taken at this point during the season of 1871 produced 73 barrels, and she was adjudged to be 75 feet in length." *

In the year 1872 humpback whaling was successfully prosecuted at Panama Bay; Harper's and Tonga Islands; Chesterfield Shoals; coast of Africa; West Indies; Crozet and Desolation Islands. The last two islands have been visited more especially for the capture of right whales and sea elephants, though humpback whales were taken here and in other parts of the Indian Ocean.

(e) FINBACK, SULPHUR-BOTTOM, AND OTHER WHALING GROUNDS.

SULPHUR-BOTTOM WHALES.—The finback and the sulphur-bottom whales are found in most parts of the different oceans and in some places are very numerous. The sulphur-bottom is the largest whale known, varying from 60 to 100 feet or more. It is, like the finback, exceedingly swift in its movements, and can be captured only by the whaling rocket or the bomb-gun. Captain Seabury states that "they sometimes follow the vessel for miles." There can hardly be said to be any special grounds where the sulphur-bottom is captured, comparatively few having ever been taken. On the coast of California the shore-whalemen have taken a few, and several were taken some years since by the schooner Page, of San Francisco, off the port of San Quentin, Lower California. An attempt was made about 1865 to establish a fishery for this species at Iceland. "Two or three small screw steamers," says Captain Seabury, "were sent there from England to whale in the bays, using for the capture a whale-gun and a large line to go through the bottom of the boat. They were quite successful in taking the whale, and followed up the business for two or three years, but the expense being greater than the income, it was abandoned. Beyond those taken by this expedition off Iceland, there have been but few sulphur-bottoms captured."

FINBACK WHALES.—This whale is taken principally by shore-whalemen, vessels preferring more profitable game, as the finback has but little blubber, no valuable bone, and withal is very difficult to capture. They are taken by the California boat-whalers, and for two years past have been captured in considerable number along the coast of New England, especially at Provincetown, where forty-eight were secured in the spring of 1880. The shore-whaling stations on the coasts of Norway and Finmark are for the capture of this species.

GRAY WHALE OR DEVIL-FISH.—The California gray whale, also called "devil-fish" and "mussel-digger," is found principally on the coast of California, in the bays and gulfs and along the shores, in shoal water. The most noted places are Magdalena Bay, in about latitude 25° north, and Scammon's Lagoon, in about latitude 30° north. They are also found and taken in the

* Marine Mammalia, p. 43.

Okhotsk Sea and the Arctic Ocean. They are not large, and yield on an average only about 30 barrels of a reddish oil. They are said to be the most dangerous to capture of all whales. The bomb-lance or the whaling rocket is generally used in the chase. On the Californian coast the best season for the capture of this species is from November to April or May, after which time they move north. They appear in October and November off the coast of Oregon on their return south. This whale is known only in northern latitudes, and is not found in the Atlantic Ocean. No great number has ever been taken. Captain Scammon, in 1872, estimated that the whole number captured or destroyed since 1846, when bay-whaling commenced, would not exceed 10,800.

DISTRIBUTION OF BLACKFISH AND PORPOISE.—There are several other species of cetacea, as the blackfish and the porpoise, that are widely distributed over the oceans, and are often taken by whaling vessels, though they are not special objects of pursuit. Those fisheries for these species are discussed in the next chapter. The white whale or beluga is found principally in the icy waters of the north, and several hundred of them are annually taken by the natives of the countries bordering those seas, as also by the Scotch whaling vessels visiting Davis Strait. These vessels in 1877 took 935 white whales, and in 1876 they captured 700. According to Scammon large numbers are captured by the natives of Alaska and of Eastern Siberia, where they ascend the rivers for several hundred miles. They are taken in the Gulf of Saint Lawrence, and also by the Norwegians at Spitzbergen. Nordenskiold* states that in 1871 vessels from Tromsoe alone caught 2,167 of this species in nets. Their value was estimated at about $15 each. Both the blubber, hide, and carcass are utilized, the latter by the guano factories in Norway. They are also taken in nets by the Russians and Samoyeds at Chabarova.

ROUTES TO GROUNDS; SUPPLY STATIONS.

ROUTES TO WHALING GROUNDS.—Vessels engaged in the Atlantic Ocean fishery are of two classes, those of small size on short cruises and those of large capacity that make longer voyages. The former cruise principally in the North Atlantic, and are always on the alert for whales, working on all the grounds in this ocean, but especially those near the Azores or on the Hatteras ground. They usually leave home in the spring and return in the fall, proceeding first to the more southern and working toward the more northern fields. Some of these small vessels, however, remain out for a year or even more, spending the winter months on the tropical grounds and often cruising in the South Atlantic, where they obtain a quantity of oil to be transshipped from St. Helena to the United States. They will work toward home, stopping in the principal equatorial and northern grounds. The second or larger class of vessels are gone from home for from two to three years, often cruising on all the grounds in both the North and the South Atlantic. They usually go first to the Western Islands and from there work south or north as the abundance or the scarcity of whales on the different grounds may suggest. They frequently resort to ports at the Azores or Cape Verde Islands, in the north Atlantic, and St. Helena, in the South Atlantic.

The Hudson Bay or Davis Strait fleet is composed of vessels of all sizes. They make voyages lasting from eight months to one or two years. Many of them have been accustomed to leave home in the spring and to proceed at once to the Straits in time to enter the bays and gulfs at the breaking up of the ice. They spend the summer in search of whales, and may return home in the early fall, or remain to winter in the ice in order to take advantage of the early movement of whales in spring. There are no refitting ports to which they can resort, so that if the vessel be of small carrying capacity she will generally prefer to winter at home rather than in the icy regions.

* Voyage of the Vega, vol. i.

The Pacific-Arctic fleet is accustomed to winter in San Francisco or at the Sandwich Islands, and upon the opening of spring to proceed at once to the north, there awaiting the opening of the ice to go through the Strait. They return to winter quarters in the late fall and transship their catches by rail or vessel to New Bedford. Vessels sailing from New Bedford for the Arctic leave home in the fall, in order to pass Cape Horn during the summer season. These vessels seldom stop on the various grounds in their pathway, but will not refuse a good chance to take a whale wherever they may be. They are frequently absent from home for several years, making annual cruises north from their refitting station.

Ships and barks that cruised in the Pacific Ocean in former years made their voyages in from thirty to forty-eight months, or an average of about forty months. At the present time such a vessel shipping products home seldom makes a voyage in less than three years, and sometimes they are gone five years. The usual course of sperm and right whale ships when sailing in the spring or summer is to look the ground over as far as the Western Islands, touch there and get recruits and ship oil, if they have any; then run down and sight the Cape Verde, and sometimes touch there for refreshments and ship men if needed, which is quite often done at the Azores or Western Islands. They then cross the equator in from 24° to 31° west longitude, and, if bound round Cape Horn, run along within a few degrees of the east coast of South America, generally to the west of the Falkland Islands, and, passing through the Straits of Le Maire or to the east of Staten Land, steer for Cape Horn, keeping as near to the cape as possible, to avoid the strong westerly gales and easterly current that is usually found off shore. After getting around the Horn each ship steers for its chosen ground. In coming home they take a more easterly course, after getting into the Atlantic Ocean, than the passage out, so as to strike the southeast trade wind in about longitude 28° or 30° west; then make a direct track for home.

If bound around the East Cape or Cape of Good Hope, after crossing the equator they keep by the wind in going through the southeast trades, and when in latitude 28° to 30° south, steer to the eastward and double the cape. If bound to New Zealand, they keep in the variable wind to the south of latitude 30° south, and pass around Van Dieman's Land. If bound into the Indian Ocean, after passing the cape they steer for their several grounds. If sailing late in the season, and bound direct for the Pacific or Indian Ocean, ships keep the same course, except that they go more to the south and avoid the Western Islands.

SUPPLY STATIONS.—The principal places in the North Atlantic visited by whaling vessels for supplies or for transshipment of oil are the Barbadoes, Bermuda Islands, Fayal at the Azores, and Port Praya at Cape Verde Islands. In the South Atlantic the most important places are Pernambuco, Rio de Janeiro, St. Catherine, and Montevideo, on the east coast of South America. On the African coast are St. Helena, Ambrozet, and Cape Town.

In the Indian Ocean, Mauritius, on the Isle de France, is about the only port whence oil is transshipped and about the only place for repairs, though there are other places, as Zanzibar, Seychelle Islands, Singapore, and some of the East India islands, that are visited by the vessels. On the west coast of New Holland, Shark's Bay, Geographe Bay, and King George's Sound; also, Hobart Town, on Van Dieman's Land, and Sydney, on the east coast of Australia, are supply stations for vessels cruising on adjacent grounds.

The principal places visited by whalemen in the South Pacific are Monganui and Bay of Islands, on the east coast of New Zealand, Feejee and Navigator's Island, Papeta, on the island of Otaheite, and Nookaheva, one of the Marquesas Islands; and on the west coast of South America the ports of San Carlos, Talcahuano, Valparaiso, Callao, Payta, and Tumbez. Only two ports are much used for transshipping oil; these are Talcahuano, in Chili, and Bay of Islands, in New

Zealand. These, with Payta and Tumbez, in Peru, are the principal ports visited by ships. The Galapagos Islands have some good harbors and are occasionally resorted to for the land turtles or terrapin that are abundant there. On some islands wood can be obtained, and on the south side of Chatham Island good water can be got with safety from November to May.

In the North Pacific the principal ports visited for the transshipment of oil are San Francisco, Panama, Hila, and Honolulu. Tacames, in Ecuador, Acapulco, on the west coast of Mexico, Yokohama, Hakadadi, Guam, one of the Ladrone Islands, Hong-Kong, and Manila have all been visiting stations. There are also many other places occasionally visited by the whaling fleet. For the convenience of the Arctic fleet a supply vessel is sent from San Francisco to meet the vessels at Bering Strait or in the Arctic and receive what oil they may wish to send home and supply them with fresh provisions.

3. EARLY HISTORY OF BOAT-WHALING IN NEW ENGLAND.

COAST OF MAINE.

We find no records to indicate that shore-whaling was ever extensively practiced on the coast of Maine, though drift whales may have been frequently cast ashore and cared for by the shoremen. The following item, given by Hubbard in his history of New England, shows that the people of Maine, in early times, were not versed in the handling of whales: "In 1668 a sperm whale fifty-five feet long was taken at Winter Harbor, near Casco Bay. The like hath happened in other places of the country, where, for want of skill to improve it, much gain hath slipped out of the hands of the finders."

MASSACHUSETTS NORTH OF CAPE COD.

There is little in the early records to show what interest the people of Massachusetts, north of Cape Cod, had in shore whaling. It is probable that at Salem and vicinity this business was carried on in a small way during the eighteenth century. Mr. John Higginson, in 1700, writes that at Salem, "we have a considerable quantity of whale oil and bone for exportation."* He writes again in 1706 to a friend in Ipswich as if he were concerned with others in boat whaling. Drift whales were frequently found, and claimants notified to prove their rights before courts of admiralty in accordance with the laws of the colony. Boston papers of December 12, 1707, mention the capture by boats of a 40-foot whale near Noddle's Island. It is therefore inferred that whale boats and implements for capture were kept in readiness in the vicinity of Boston.

It is probable that, as in recent years, drift whales were taken at Cape Ann and other points farther north along the coast of Massachusetts, though we find no record to show a definite business done in boat whaling at places north of Cape Cod.

BOAT WHALING AT CAPE COD.

Starbuck has called attention to the fact that the abundance of whales was one of the main arguments for the early settlement of Cape Cod by the English, and has quoted some interesting accounts of the manner in which the aborigines hunted the whale two centuries and a half ago. In Richard Mather's Journal of his voyage to Massachusetts, in 1635, he records seeing on the end of the Bank of Newfoundland near to New England "mighty fishes rolling and tumbling in the waters, twice as long and as big as an ox" and "mighty whales, spewing up water in the air, like

* FELT: Annals of Salem, II, p. 225.

the smoke of a chimney, and making the sea about them white and hoary, as is said in Job, of such incredible bigness that I will never wonder that the body of Jonas could be in the belly of a whale."

As early as 1661, Sandwich, Barnstable, Yarmouth, and Eastham were included in a proposition regarding the distribution of drift whales, submitted by the general court of Plymouth Colony,* and in 1690, the people of Nantucket, finding that the people of Cape Cod had made greater proficiency in the art of catching whales than themselves, sent thither for an instructor.†

The Cape Cod whale fishery in the seventeenth century, and perhaps later, was prosecuted no doubt nearly exclusively from the shore, as was also done in Nantucket, and as to the present day the sperm-whale fishery is carried on about the Bermudas. A lookout was kept by watchmen on the shore, who gave signals when a whale appeared and indicated his movements from their lofty stations. One of these stations was on Great Island, at the mouth of Wellfleet Harbor, where, tradition says, there were at one time ten or twelve houses and the first tavern built in Wellfleet. Wellfleet was then included in the town of Eastham, and it was doubtless by the people of this settlement that the petition was presented in 1706, which states, "all or most of us are concerned in fitting out Boats to Catch and take Whales when ye season of ye year Serves; and whereas when we have taken any whale or whales, our Custom is to Cutt them up and to take away ye fatt and ye Bone of such Whales as are brought in and afterwards to let ye Rest of ye Boddy of ye Lean of whales Lye on shoar in lowe water to be washt away by ye sea, being of noe vallue nor worth any Thing to us," and begs that Thomas Houghton or his assigns be permitted to take away this waste.‡

Another of these stations was in what is now the town of Dennis, and is the present site of the hotel called the "Bay House." This tract was the joint property of Dennis and Yarmouth, and was reserved until March, 1877, when it was sold by the mutual vote of the two towns at the yearly town meeting.

Starbuck relates that in 1724 and 1726, in the prosecution of the wars between the Indians and the colonists, some of the friendly Indians from the county of Barnstable were enlisted with the express understanding that that they were to be discharged in time to take part in the fall and winter whale-fishery.§

This would indicate that the boat fishery was still at that time profitable and actively prosecuted.

In 1737, a paragraph in the Boston News Letter stated, a dozen whaling vessels were fitting in Provincetown, for Davis Strait, and that so many people were going that not over a dozen or fourteen men would be left. Eastham also had a vessel in Davis Strait this year, and the Davis Strait fleet from Massachusetts alone is estimated by Starbuck to have consisted of from fifty to sixty vessels. Four years later Barnstable had at least one whaling vessel which was captured by the Spanish, and in 1770 this port still had two whalers in the Arctic.

The size of the Arctic fleet of Massachusetts in 1737 would indicate that the shore-fishery was falling off in importance. Indeed a statement to this effect occurs in Felt's Annals of Salem, under date of 1748, where it is said, "whales formerly for many successive years set in alongshore by Cape Cod. There was good whaling in boats * * * . After some years they left this ground and passed farther off upon the banks at some distance from the shore. The whalers then used sloops with whale-boats aboard, and this fishery turned to good account. At present the whales take their course in deep water, whereupon a peace our whalers design to follow them."‖

* STARBUCK: in Rep. U. S. Fish. Com., Part IV, 1875–'76, p. 7.
† STARBUCK: *l. c.*, p. 17.
‡ Mass. Col. MSS. maritime, IV, pp. 72–73, quoted by Starbuck, *l. c.*, p. 30.
§ *l. c.*, p. 31.
‖ STARBUCK: *l. c.*, p. 33.

This corresponds also with statements gathered by Starbuck from various sources to the effect that the years 1737, 1738, and 1739 were very unfortunate ones for the people of Provincetown, Sandwich, and adjacent ports, insomuch that some of the inhabitants took into serious consideration a change of residence.

The people of Yarmouth preserve a tradition that the early whale fishery of that region had for its object the capture of humpbacks and right whales. As has been suggested, the number of humpbacks taken must have been very considerable, yet the right whales must also have been plenty in early days.

The Plymouth colonists, according to Thacher,* were inclined at first to settle on Cape Cod, because large whales of the best kind for oil and bone came daily alongside, and played about the ship, while the master (presumably of the "Mayflower") and his mate, and others experienced in fishing, preferred it to the Greenland fishery. In February, 1738, the Yarmouth whalemen had killed but one large whale during the season; the bone of that being from 8 to 9 feet long. This was of course a right whale, and the thing in the occurrence remarkable to the recorder was that a great many more had not been taken the same winter. In March, 1736, the boats of Provincetown took a large whale which produced 100 barrels of oil. Humpbacks rarely yield more than 50 barrels, and probably would not have been classed among the numerous "large whales" taken in those years. Another argument in favor of the supposed early abundance of the right whale in these waters, was that upon their becoming scarce, a large fleet was forthwith dispatched to Davis' Straits, where none but whalebone whales occur. The sperm-whale fishing of Cape Cod was not inaugurated until about 1826, or at least not in a permanent way, though Starbuck gives nine vessels from "Cape Cod" in 1789, eight of which cruised in the "Straits of Belleisle," six of which obtained about 50 barrels each of sperm oil, the other two about 80 barrels each.

In the early records of the Plymouth and Massachusetts Bay Colonies are numerous orders relating to drift whales, among which we find the following: "At a session of the general court, the first of the 8th month, 1645," it was ordered as one of the duties of the Auditor-General, "that he shall take notice and looke aft^r wafes, strayes, goods lost, shipwrecks, whales, &c., or any such things of ye like nature, w^r ye pticuler owner is not knowne; and ye country may claime a priviledge in or comon right unto."† July 4, 1656, it was "ordered by the court that wheras the countrey hath receiued great dammage by a defect in the order about the barrell of oyle due for euery whale taken on drift or cast on shore as is expressed in the said order by leakquage of Caske *or otherwise; the court haue ordered that for the future all such oyle as shalbee due and* payable as aforsaid shalbee deliuered att Boston, viz, a full barrell of marchantable oyle for euery whale and the fraight therof discharged by those that deliuer it, the said oyle to bee deliuered att Boston to such as the Treasurer shall appoint from yeare to year and a receipt taken from such as to whome it is deliuered shalbee a discharge to those that deliuer it."‡ In 1661 it was "enacted by the Court and the Authoritie therof that whosoeuer taketh any whale on drift att sea without those bounds and limites alreddy sett and bring them on shore hee shall have the one halfe and the Countrey the other halfe; and the Countrey to allow Caske for theire pte of the oyle. That whosoeuer shall find any whale on shore on the Cape or elsewhere that is out of any Townese bounds and is on the Countreyes bounds or limittes shall allow the Countrey two hogsheads of oyle cleare and payed to the Countrey."§

On the 3d of June, 1662, it was resolved that "wheras there hath bine much controversye occationed for want of a full and cleare settlement of matter relateing into such whales as by Gods

* Quoted by Starbuck, *l. c.*, p. 5.
† Records of Massachusetts, II, p. 143.
‡ Plymouth Colony Records, XI, p. 208.
§ *Ibid.*, XI. p. 66.

providence doe fall into any pte of this Jurisdiction. This Court doth therfore order for the prevention of any discontent or controversy for the future and for a finall Issue and settlement soe farr as in the Court lyeth about the same; that for all such whales as by Gods providence shalbee cast on shore on any pte of this gou^rment or shalbee by any cut vp att sea and brought on shore in the Gou^rment; there shalbee for every such fish one full hogshead of Marchantable oyle payed into the Countrey delivered att Boston by such townes or psons as are Interested in the lands where they fall or shall soe cutt vp any fish att sea; and incase that any fish bee soe considerably torne or wasted that a full quarter pte bee gone; then to pay but halfe a hogshead and for such Inconsiderable peeces of fish as are lesse then halfe they shall pay nothing; and for the resedew of such fish or the produce of them as remaines the Countreyes pte being discharged. It shalbee freely att the dispose of such Townes where it falls or for the Benifett of such as Cutt them vp: if taken on drift without such bounds as have bine formerly sett; the same being still continewed."*

On the 4th of November, 1690, it was—

"Ordered, that for the prevention of contests and suits by whale killers:—

"1. This Court doth order, that all whales killed or wounded by any man & left at sea, s^d whale killers that killed or wounded s^d whale shall presently repaire to some prudent person whome the Court shall appoint, and there give in the wounds of s^b whale, the time & place when & where killed or wounded; and s^d person so appointed shall presently comitt it to record, and his record shall be allowed good testimony in law.

"2. That all whales brought or cast on shore shall be viewed by the persons so appointed, or his deputy, before they are cut or any way defaced after come or brought on shore, and s^d viewer shall take a particular record of the wounds of s^d whale, & time & place where & when brought on shore; & his record shall be good testimony in law, and s^d viewer shall take care for securing s^d fish for the owner.

"3. That whatever person or persons shall cut up or deface any whale fish, by cutting, stabbing, or launcing, after come on shore or at sea, if a drift, unless of necessity to towe it to shore, before it hath been viewed by the person appointed thereto, and a record taken by him, shall lose their right to s^d fish, & pay a fine of ten pounds to the county. And s^d viewers shall seize s^d fish for the owners use, on the effects thereof, and s^d viewer shall have power to make a deputy or deputies under his hand, and to have six shillings for [each] whale so viewed & recorded of the owners thereof.

"4. That whosoever find, takes, or cuts up any drift whale found on the stream, a mile from the shore, not appearing to be killed by any man, shall be the† first sieze and secure them, paying an hogshead of oyle to ye county for every such whale."

MARTHA'S VINEYARD.

The inhabitants of this island were early engaged in boat whaling. According to Starbuck the earliest mention of whales at this place occurs in November, 1652, when Thomas Daggett and William Weeks were appointed "whale cutters for this year." In the following April it was "Ordered by the town that the whale is to be cut out freely, four men at one time, and four at another, and so every whale, beginning at the east end of the town." In 1690 Mr. Sarson and William Vinson were appointed by "the proprietors of the whale" to oversee the cutting and sharing of all whales cast on shore within the bounds of Edgartown, "they to have as much for their care as one cutter."

* Ply. Col. Rec., xi, p. 134.

† *Ibid.*, vi, p. 252.

"In 1692," says Starbuck, "came the inevitable dispute of proprietorship. A whale was cast on shore at Edgartown by the proprietors, 'seized by Benjamin Smith and Mr. Joseph Norton in their behalf,' which was also claimed by 'John Steel, harpooner, on a whale design, as being killed by him.' It was settled by placing the whale in the custody of Richard Sarson, esq., and Mr. Benjamin Smith, as agents of the proprietors, to save by trying out and securing the oil; 'and that no distribution be made of the said whale, or effects, till after fifteen days are expired after the date hereof, that so such persons who may pretend an interest or claim, in the whale, may make their challenge; and in case such challenge appear sufficient to them, then they may deliver the said whale or oyl to the challenger; otherwise to give notice to the proprietors, who may do as the matter may require. By the inhabitants of Martha's Vineyard, in 1702–'3, there appear to have been several whales killed. The following entry occurs under that date in the court records: 'The marks of the whales killed by John Butler and Thomas Lothrop. One whale lanced near or over the shoulder blade, near the left shoulder blade only; another killed with an iron forward in the left side, marked W; and upon the right side marked with a pocket-knife T. L.; and the other had an iron hole over the right shoulder-blade, with two lance holes in the same side, one in the belly. These whales were all killed about the middle of February last past; all great whales, betwixt 6 and 7 and 8-foot bone, which are all gone from us. A true account given by John Butler from us, and recorded Per me, Thomas Trapp, clerk.'"

NANTUCKET.

The history of shore-whaling at Nantucket begins with the occupancy of that island by Europeans, about the year 1640, although prior to that time the Indians were doubtless accustomed to occasionally capture a whale. "The very earliest account of a capture," says Mr. C. S. Raleigh, "was in the year 1608, when a party of Indians killed a humpback whale which got stranded on a part of Nantucket, called Caton, in the inner harbor." "The first whaling expedition," says Macy, "was undertaken by some of the original purchasers of the island; the circumstances of which are handed down by tradition, and are as follows: A whale, of the kind called 'scragg,' came into the harbor and continued there three days. This excited the curiosity of the people, and led them to devise measures to prevent his return out of the harbor. They accordingly invented and caused to be wrought for them a harpoon, with which they attacked and killed the whale. This first success encouraged them to undertake whaling as a permanent business; whales being at that time numerous in the vicinity of the shores."*

The islanders were anxious to engage in the whaling industry and, according to Starbuck,† recorded a memorandum of a proposed agreement with one James Loper, in which it is said that the said James "doth Ingage to carrey on a Designe of Whale Catching on the Island of Nantucket that is to say James Ingages to be a third in all Respects, and som of the Town Ingages also to carrey on the other two thirds with him in like manner—the town doth also consent that first one company shall begin, and afterwards the rest of the freeholders or any of them have Liberty to set up another Company provided they make a tender to those freeholders that have no share in the first company and if any refuse the rest may go on themselves, and the town doth engage that no other Company shall be allowed hereafter; also, whoever kill any whales, of the Company or Companies aforesaid, they are to pay to the Town for every such whale five shillings and for the Incoragement of the said James Loper the Town doth grant him ten acres of Land in sume Convenant place that he may chuse in (Wood Land Except) and also liberty for the commonage of three cows and Twenty sheep and one horse with necessary wood and water for his

* MACY: Hist. Nantucket, p. 28. † Report U. S. Fish Com., 1875–'76.

use, on Conditions that he follow the trade of whalling on this Island two years in all seasons thereof beginning the first of March next Insuing; also he is to build upon his Land and when he leaves Inhabiting upon this Island then he is first to offer his Land to the Town at a valuable price and if the Town do not buy it he may sell it to whom he please; the commonage is granted only for the time of his staying here." "At the same meeting," continues Starbuck, "John Savidge had a grant made to him, upon condition that he took up his residence on the island for the space of three years, and also that he should 'follow his trade of a cooper upon the island, as the Town or whale Company have need to employ him.' Loper beyond a doubt never improved this opportunity offered him of immortalizing himself, but Savidge did, and a perverse world has, against his own will, handed down to posterity the name of Loper, who did not come, while it has rather ignored that of Savidge, who did remove to that island."

In the mean time the people of Cape Cod were becoming more proficient in whaling than those of Nantucket, so that the latter sent to the cape in 1690, and "employed a man by the name of Ichabod Paddock to instruct them in the manner of killing whales and extracting their oil."* From small beginnings the industry increased, and reached its greatest prosperity in 1726, when, says Macy, eighty-six were taken, "a greater number than was obtained in any one year, either before or since that date. The greatest number ever killed and brought to the shore in one day was eleven." Shore whaling at this period was the principal employment of the islanders. "The Indians even manifested a disposition for fishing of every kind, readily joined with the whites in this new pursuit, and willingly submitted to any station assigned them. 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; some of the most active of them were made steersmen, and some were allowed even to head the boats; thus encouraged, they soon became experienced whalemen, and capable of conducting any part of the business."

The following incident illustrates their bravery when in danger:

"It happened once, when there were about thirty boats about six miles from shore, that the wind came round to the northward and blew with great violence, attended with snow. The men all rowed hard, but made but little headway. In one of the boats were four Indians and two white men. An old Indian in the head of the boat, perceiving that the crew began to be disheartened, spake out loud in his own tongue, and said, '*Momadichchator auqua sarshkee sarnkee pinchee eynoo sememoochkee chaquanks wihchee pinchee eynoo;*' which in English is, 'Pull ahead with courage; do not be disheartened; we shall not be lost now; there are too many Englishmen to be lost now.' His speaking in this manner gave the crew new courage. They soon perceived that they made headway, and after long rowing they all got safe on shore."†

Whales were abundant close in shore for many years, so that a plentiful supply of oil was obtained without going out of sight of land. "The south side of the island," says Hector St. John, "was divided into four equal parts, and each part was assigned to a company of six, which, though thus separated, still carried on their business in common. 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 whales."‡

"The process of *saving* the whales," says Macy, "after they had been killed and towed ashore, was to use a *crab*, an instrument similar to a capstan, to heave and turn the blubber off as fast as

* MACY: *op. cit.*, p. 30. † Mass. Hist. Soc. Coll., iii p. 175.
‡ Letters from an American farmer; Hector St. John Crèvecœur; published 1782.

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 to their dwelling-houses, where the oil was boiled out and fitted for market." *

Shore-whaling continued till about the middle of the eighteenth century, when whales became scarce and were pursued by vessels, when the boat-whaling, as a regular business, was, according to Macy, abandoned. "The first sperm-whale known to the islanders was found ashore on the southwest part of Nantucket. It caused considerable excitement, some demanding a part of the prize under one pretense, some under another, and all were anxious to behold so strange an animal. There were so many claimants of the prize, that it was difficult to determine to who it should belong. The natives claimed it because they found it; the whites, to whom the natives made known their discovery, claimed it by a right comprehended, as they affirmed, in the purchase of the island by the original patent. An officer of the crown made his claim, and pretended to seize the fish in the name of his majesty, as being property without any particular owner. After considerable discussion between these contending parties, it was finally settled that the white inhabitants, who first found the whale, should share the prize equally amongst themselves. The teeth, which were considered very valuable, had been extracted by a white man and an Indian, before any others had any knowledge of the whale. All difficulty being now settled, a company was formed, who commenced cutting the whale in pieces convenient for transportation to their try-works. The sperm procured from the head was thought to be of great value for medical purposes. It was used both as an internal and external application; and such was the credulity of the people, that they considered it a certain cure for all diseases; it was sought with avidity, and, for awhile, was esteemed to be worth its weight in silver. The whole quantity of oil obtained from this whale is not known." †

RHODE ISLAND AND CONNECTICUT.

In 1731 Rhode Island passed an act for the encouragement of the fisheries, giving "a bounty of five shillings for every barrel of whale oil, one penny a pound for bone, and five shillings a quintal for codfish, caught by Rhode Island vessels, and brought into this Colony." ‡

The fishery had been carried on to some extent in boats from the shore, and whales were taken in the waters of Narraganset Bay.

The first official document to be found connecting the State of Connecticut with the whale fishery is a resolve passed at a meeting of the general court held at Hartford, May 25, 1647, which says:

"Yf Mr. Whiting, wth any others shall make tryall and p^r^secute a designe for the takeing of whale w^th^in these libertyes, and if vppon tryall w^th^in the terme of two yeares, they shall like to goe on, noe others shalbe suffered to interrupt the, for the tearme of seauen yeares." §

It is probable that drift-whales were occasionally taken along the coast of Connecticut in early times, but we find no special reference to show that boat-whaling was ever engaged in by the inhabitants.

NEW YORK.

Long Island, with its long stretch of sandy beaches, was in early times a favorite resort for boat whalemen. It was the rival of Cape Cod, and the inhabitants on its eastern end found much profit in capturing whales, and shipping oil and bone to London. The following interesting account of shore-whaling along those shores is taken entire from Mr. Starbuck's ‖ report on the whale fishery.

* Hist. Nantucket, p. 31. † *Ibid.*, p. 32. ‡ ARNOLD: Hist. Rhode Island, ii, p. 103.
§ Conn. Col. Rec., i, p. 154. ‖ U. S. Fish Commissioner's Report, Part IV, 1875–'76.

"It is probably safe to assert that the first organized prosecution of the American whale-fishery was made along the shores of Long Island. The town of Southampton, which was settled in 1640 by an offshoot from the Massachusetts Colony at Lynn, was quick to appreciate the value of this source of revenue. In March, 1644, the town ordered the town divided into four wards of eleven persons to each ward, to attend to the drift-whales cast ashore. When such an event took place two persons from each ward (selected by lot) were to be employed to cut it up. 'And every Inhabitant with his child or servant that is above sixteen years of age shall have in the Division of the other part,' (*i. e.* what remained after the cutters deducted the double share they were, ex-officio, entitled to) 'an equall proportion provided that such person when yt falls into his ward a sufficient man to be imployed about yt.'* Among the names of those delegated to each ward are many whose descendants became prominent in the business as masters or owners of vessels—the Coopers, the Sayres, Mulfords, Peirsons, Hedges, Howells, Posts, and others. A few years later the number of 'squadrons' was increased to six.

"In February, 1645, the town ordered that if any whale was cast ashore within the limits of the town no man should take or carry away any part thereof without order from a magistrate, under penalty of twenty shillings. Whoever should find any whale or part of a whale, upon giving notice to a magistrate, should have allowed him five shillings, or if the portion found should not be worth five shillings the finder should have the whole. 'And yt is further ordered that yf any shall finde a whale or any peece thereof upon the Lord's day then the aforesaid shillings shall not be due or payable.'† 'This last clause,' says Howell, 'appears to be a very shrewd thrust at "mooning" on the beach on Sundays.'

"It was customary a few years later to fit out expeditions of several boats each for whaling along the coast, the parties engaged camping out on shore during the night. These expeditions were usually gone about one or two weeks.‡ Indians were usually employed by the English, the whites furnishing all the necessary implements, and the Indians receiving a stipulated proportion of oil in payment.

"At Easthampton on the 6th of November, 1651, 'It was Ordered that Rodman Mulford shall call out ye Town by succession to loke out for whale.'§ Easthampton, however, like every other town where whales were obtainable, seems to have had its little unpleasantnesses on the subject, for in 1653 the town 'Ordered that the share of whale now in controversie between the Widow Talmage and Thomas Talmage' (alas for the old-time Chesterfieldian gallantry) 'shall be divided among them as the lot is.'‖ In the early deeds of the town the Indian grantors were to be allowed the fins and tails of all drift-whales; and in the deed of Montauk Island and Point, the Indians and whites were to be equal sharers in these prizes.¶ In 1672 the towns of Easthampton, Southampton, and Southwold presented a memorial to the court at Whitehall 'setting forth that they have spent much time and paines, and the greatest part of their estates, in settling the trade of whale-fishing in the adjacent seas, *having endeavoured it above these twenty yeares*, but could not bring it to any perfection till within these 2 or 3 yeares last past. And it now being a hopefull trade at New Yorke, in America, the Governor and the Dutch there do require ye Petitioners to come under their patent, and lay very heavy taxes upon them beyond any of his Maties subjects in New England, and will not permit the petitioners to have any deputys in Court,** but being chiefe, do impose what Laws they please upon them, and insulting very much over the Petitioners

* HOWELL: Hist. of Southampton, p. 179. † *Ibid.*, p. 184. ‡ *Ibid.*, p. 183.
§ Bicentennial Address at Easthampton, 1850, by Henry P. Hedges, p. 8. ‖ *Ibid.*, p. 8. ¶ *Ibid.*
** In this petition is an early assertion of the twinship of taxation and representation, for which Massachusetts and her offshoots were ever strenuous.

threaten to cut down their timber which is but little they have to Casks for oyle, altho' the Petr purchased their landes of the Lord Sterling's deputy, above 30 yeares since, and have till now under the Government and Patent of Mr. Winthrop, belonging to Comtycut Patent, which lyeth far more convenient for ye Petitioners assistance in the aforesaid Trade.' They desire, therefore, either to continue under the Connecticut government, or to be made a free corporation. This petition was referred to the 'Council on Foreign Plantations.'

"This would make the commencement of this industry date back not far from the year 1650. In December, 1652, the directors of Dutch West India Company write to Director General Peter Stuyvesant, of New York: 'In regard to the whale-fishery we understand that it might be taken in hand during some part of the year. If this could be done with advantage, it would be a very desirable matter, and make the trade there flourish and animate many people to try their good luck in that branch.' In April (4th), 1656, the council of New York 'received the request of Hans Jongh, soldier and tanner, asking for a ton of train-oil or *some of the fat of the whale lately captured.*'"

In 1669 Mr. Maverick writes from New York to Colonel Nichols, as follows:

"On ye East end of Long Island there were twelve or thirteen whales taken before ye end of March, and what since wee heare not; here are dayly some seen in the very harbour, sometimes within Nutt Island. Out of the Pinnace, the other week, they struck two, but lost both, the iron broke in one, the other broke the warpe. The Governour hath encouraged some to follow this designe. Two shollops made for itt, but as yett wee doe not heare of any they have gotten."*

"In 1672," continues Starback, "the town of Southampton passed an order for the regulation of whaling, which, in the latter part of the year, received the following confirmation from Governor Lovelace: 'Whereas there was an ordinance made at a Towne-Meeting in South Hampton upon the Second Day of May las relating to the Regulation of the Whale fishing and Employment of the Indyans therein, wherein particularly it is mentioned. That whosoever shall Hire an Indyan to go a-Whaling, shall not give him for his Hire above one Trucking Cloath Coat, for each whale, hee and his Company shall Kill, or halfe the Blubber, without the Whale Bone under a Penalty therein exprest: Upon Consideraciou had thereupon, I have thought good to Allow of the said Order, And do hereby Confirm the same, until some inconvenience therein shall bee made appeare, And do also Order that the like Rule shall bee followed at East Hampton and other Places if they shall finde it practicable amongst them.

"'Given under my hand in New Yorke, the 28th of Novemb'r, 1672.'

"Upon the same day that the people of Southamption passed the foregoing order, Governor Lovelace also issued and order citing that in consequence of great abuse to his Royal Highness in the matter of drift-whales upon Long Island, he had thought fit to appoint Mr. Wm. Osborne and Mr. John Smith, of Hempstead, to make strict inquiries of Indians and English in regard to the matter.†

"It was early found to be essential that all important contracts and agreements, especially 'between the English and Indians, relating to the killing of whales should be entered upon the town books, and signed by the parties in presence of the clerk and certified by him. Boat-whaling was so generally practiced, and was considered of so much importance by the whole community, that every man of sufficient ability in the town was obliged to take his turn in watching for whales from some elevated position on the beach, and to sound the alarm on one being seen near the coast.'‡ In April (2d), 1668, an agreement was entered on the records of Easthamp-

* Doc. of Col. Hist. New York, III p. 183. † N. Y. Col., MSS., General Entries iv, p. 123, Francis Lovelace.
‡ Howell: Hist. Southampton.

ton, binding certain Indians of Montauket in the sum of £10 sterling to go to sea, whaling, on account of Jacobus Skallenger and others, of Easthampton, beginning on the 1st of November and ending on the 1st of the ensuing April, they engaging 'to attend dilligently with all opportunitie for ye killing of whales or other fish, for ye sum of three shillings a day for every Indian; ye sayd Jacobus Skallenger and partners to furnish all necessarie craft and tackling convenient for ye designe.' The laws governing these whaling-companies were based on justice rather than selfishness. Among the provisions was one passed January 4, 1669, whereby a member of one company finding a dead whale killed by the other company was obliged to notify the latter. A prudent proviso in the order was that the person bringing the tidings should be well rewarded. If the whale was found at sea, the killers and finders were to be equal sharers. If irons were found in the whale, they were to be restored to the owners.* In 1672, John Cooper desired leave to employ some 'strange Indians' to assist him in whaling, which leave was granted;† but these Indian allies required tender handling, and were quite apt to ignore their contracts when a fair excuse could be found, especially if their hands had already closed over the financial consideration. Two or three petitions relating to cases of this kind are on file at New York. One of them is from 'Jacob Skallenger, Stephen Hand, James Loper and other adjoined with them in the Whale Designe at Easthampton,' and was presented in 1675. It sets forth that they had associated together for the purpose of whaling, and agreed to hire twelve Indians and man two boats. Having seen the natives yearly employed both by neighbors and those in surrounding towns, they thought there could be no objection to their doing likewise. Accordingly, they agreed in June with twelve Indians to whale for them during the following season. 'But it fell out soe that foure of the said Indians (competent & experienced men) belonged to Shelter-Island whoe with the rest received of your peticon^rs in pt. of their hire or wages 25s. a peece in hand at the time of the contract, as the Indian Custome is and without which they would not engage themselves to goe to Sea as aforesaid for your Peticon^rs.' Soon after this there came an order from the governor requiring, in consequence of the troubles between the English and the aborigines, that all Indians should remain in their own quarters during the winter. 'And some of the towne of Easthampton wanteing Indians to make up theire crue for whaleing they take advantage of your hon^rs s^d Ordre thereby to hinder your peticon^rs of the said foure Shelter-Island Indians. One of ye Overseers being of the Company that would soe hinder your peticon^rs. And Mr. Barker warned yor peticon^rs not to entertaine the said foure Indians without licence from your hon^r. And although some of your peticoners opposites in this matter of great weight to them seek to prevent yor peticon^rs from haveing those foure Indians under pretence of zeal in fulfilling y^r hon^rs order, yet it is more then apparent that they endeavor to break yor peticon^rs Company in y^t maner that soe they themselves may have opportunity out of the other eight Easthampton Indians to supply theire owne wants.' After representing the loss liable to accrue to them from the failure of their design and the inability to hire Easthampton Indians, on account of their being already engaged by other companies, they ask relief in the premises,‡ which Governor Andross, in an order dated November 18, 1675, grants them, by allowing them to employ the aforesaid Shelter-Island Indians.§

"Another case is that of the widow of one Cooper, who in 1677 petitions Andross to compel some Indians who had been hired and paid their advance by her late husband to fulfill to her the contract made with him, they having been hiring out to other parties since his decease.‖

* This code was very similar to that afterward adopted in the Massachusetts Bay.

† N. Y., Col. MSS.; General Entries, iv, p. 235.

‡ N. Y. Col. MSS., xxv, Sir Ed. Andross, p. 41.

§ Warrants, Orders, Passes, &c., 1674–1679, p. 164.

‖ N. Y. Col. MSS., xxvi, p. 173.

"The trade in oil from Long Island early gravitated to Boston and Connecticut, and this was always a source of much uneasiness to the authorities at New York. The people inhabiting Easthampton, Southampton, and vicinity, settling under a patent with different guarantees from those allowed under the Duke of York, had little in sympathy with that government, and always turned toward Connecticut as their natural ally and Massachusetts as their foster mother. Scarcely had what they looked upon as the tyrannies of the New York governors reduced them to a sort of subjection when they were assailed by a fresh enemy. A sudden turn of the wheel of fortune brought them, in 1673, a second time under the control of the Dutch. During this interregnum, which lasted from July, 1673, to November, 1674, they were summoned, by their then conquerors, to send delegates to an assembly to be convened by the temporary rulers. In reply the inhabitants of Easthampton, Southampton, Southold, Seatoocook, and Huntington returned a memorial setting forth that up to 1664 they had lived quietly and prosperously under the government of Connecticut. Now, however, the Dutch had by force assumed control, and, understanding them to be well disposed, the people of those parts proffer a series of ten requests. The ninth is the particular one of interest in this connection, and is the only one not granted. In it they ask, 'That there be ffree liberty granted ye 5 townes aforesd for ye procuring from any of ye united Collonies (without molestation on either side:) warpes, irons, or any other necessaries ffor ye comfortable carring on the whale design.' To this reply is made that it 'cannot in this conjunction of time be allowed.' 'Why,' says Howell,* "the Council of Governor Colve chose thus to snub the English in these five towns in the matter of providing a few whale-irons and necessary tackle for capturing the whales that happened along the coast, is inconceivable;" but it must be remembered that the English and Dutch had long been rivals in this pursuit, even carrying their rivalry to the extreme of personal conflicts. The Dutch assumed to be, and practically were, the factors of Europe in this business at this period, and would naturally be slow to encourage any proficiency in whaling by a people upon whom they probably realized that their lease of authority would be brief. Hence, although they were willing to grant them every other right in common with those of their own nationality, maritime jealousy made this one request impracticable. How the people of Long Island enjoyed this state of affairs is easy to infer from their petition of 1672. The oppressions alike of New York governors and Dutch conquerors could not fail to increase the alienation that difference of habits, associations, interests, and rights had implanted within them. Among other arbitrary laws was one compelling them to carry all the oil they desired to export to New York to be cleared, a measure which produced so much dissatisfaction and inconvenience that it was beyond a doubt "more honored in the breach than in the observance." At times some captain, more scrupulous than the rest, would obey the letter of the law or procure a remission of it. Thus, in April, 1678, Benjamin Alford, of Boston, in New England, merchant, petitioned Governor Brockholds for permission to clear with a considerable quantity of oil that he had bought at Southampton directly from that port to London, he paying all duties required by law. This he desires to do in order to avoid the hazard of the voyage to New York and the extra danger of leakage thereby incurred. He was accordingly allowed to clear as he desired.†

* Hist. of Southampton, p. 62.

† N. Y. Col. MSS., xxvii, pp. 65, 66. Accompanying the order is a blank clearance reading as follows: "Permitt & suffer the good ——— of ——— A. B. Commander, bound for the Port of London in Old England to passe from the Harbo^r at the North-Sea near South^ton at the East End of Long Isl. with her loading of Whale Oyl & Whalebone without any manner of Lett Hindrance or Molestaõn, shee having beene cleared by order from the Custom house here & given security accordingly. Given under my hand in N. Y. this 20th day of April in the 30th yeare of his Maties raigne A° Domini 1678.

"To all his Maties Offic^rs whom this may Concerne."

"In 1684 an act for the 'Encouragement of Trade and Navigation' within the province of New York was passed, laying a duty of 10 per cent. on all oil and bone exported from New York to *any other port or place except directly to England, Jamaica, Barbadoes, or some other of the* Caribbean Islands.

"In May, 1688, the Duke of York instructs his agent, John Leven, to inquire into the number of whales killed during the past six years within the province of New York, the produce of oil and bone, and 'about his share.'* To this Leven makes reply that there has been no record kept, and that the oil and bone were shared by the companies killing the fish. To Leven's statement, Andross, who is in England defending his colonial government, asserts that all those whales tha were driven ashore were killed and claimed by the whalers or Indians.†

"In August, 1688, we find the first record of an intention to obtain sperm oil. Among the records in the State archives at Boston is a petition from Timotheus Vanderuen, commander of the brigantine Happy Return, of New Yorke, to Governor Andross, praying for 'Licence and Permission, with one *Equipage Consisting in twelve mariners, twelve whalemen and six Diuers*—from this Port, upon a fishing design about the Bohames Islands, And Cap florida, for sperma Coeti whales and Racks: And so to returne for this Port.'‡ Whether this voyage was ever undertaken or not we have no means of knowing, but the petition is conclusive evidence that there were men in the country familiar even then with some of the haunts of the sperm-whale and with his capture.

"Francis Nicholson, writing from Fort James, December, 1688, says: 'Our whalers have had pretty good luck, killing about Graves End three large whales. On the Easte End aboute five or six small ones.'§ During this same year the town of Easthampton being short of money, debtors were compelled to pay their obligations in produce, and in order to have some system of exchange the trustees of the town 'being Legally met March 6, 1688–9 it was agreed that this year's Towne rate should be held to be good pay if it be paid as Follows:

	£.	s.	d.
Dry merchantable hides att	0	0	6
Indian Corn	0	3	0
Whale Bone 3 feet long and upwards	0	0	8.'

NOTE.—*It is estimated by George R. Howells, from papers on file in the office of the secretary of state of New* York, that the boat-whalemen of Southampton in 1687 took 2,148 barrels of oil.

"In July, 1708, Lord Cornbury writes again to the board of trade regarding New York affairs.‖ In his letter he says: 'The quantity of Train Oyl made in Long Island is very uncertain, some years they have much more fish than others, for example last year they made four thousand Barrils of Oyl, and this last Season they have not made above Six hundred: About the middle of October they begin to look out for fish, the Season lasts all November, December, January, February, and part of March; a Yearling will make about forty Barils of Oyl, 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.'

"*In 1709* the fishery had attained such value on Long Island that some parties *attempted to* reduce it, so far as possible, to a monopoly, and grants of land previously made by Governor Fletcher and others, in a reckless and somewhat questionable manner were improved for personal benefit. Earl Bellomont, in commenting on these irregular practices, writes to the lords of trade, under date of July 2 of that year,¶ citing, among others, one Colonel Smith, who, he states,

* N. Y. Col. Records, iii, p. 282. † *Ibid.*, p. 311. ‡ Mass. Col. MSS., Usurpation, vi, p. 126.
§ *Ibid.*, iv, p. 303. ‖ N. Y. Col. Rec., v, p. 60. ¶ *Ibid.*, iv, p. 535.

'has got the beach on the sea shore for fourty miles together, after an old manner as I have been told by some of the inhabitants * * * having forced the town of Southampton to take a poore £10 for the greatest part of the said beach, which is not a valuable consideration in law, for Colonel Smith himself own'd to me that that beach was very profitable to him for whale fishing, and that one year he cleared £500, by whales taken there.'

"In 1716, Samuel Mulford, of Easthampton, in a petition to the King, gave a sketch of the progress of this industry in that vicinity.* In the recital of the grievances of his neighbors and himself, he writes that 'the inhabitants of the said Township and parts adjacent did from the first Establishment of the said Colony of New York enjoy the Privilege & Benefit of fishing for whale & applying ye same to their own use as their undoubted right and property.'† By his petition it appears further that in 1664 Governor Nicolls and council directed that drift-whales should pay a duty of every sixteenth gallon of oil to the government, 'exempting the whales that were killed at Sea by persons who went on that design from any duty or imposition.' Governor Dongan also claimed duty on drift-whales, and he also exempted those killed at sea. 'There was no pretence,' under Dongan, 'to seize such whales or to exact anything from the fishermen on that account, being their ancient right and property. Thus the inhabitants had the right of fishing preserved to them, and the Crown the benefit of all drift Whales, and everything seemed well established between the Crown and the People, who continued chearfully, and with success, to carry on the said fishing trade.' This state of affairs continued until 1696, when Lord Cornbury (afterward Earl of Clarendon) became governor. It was then announced by those in authority that the whale was a 'Royal Fish,' and belonged to the Crown; consequently all whalers must be licensed 'for that purpose which he was sure to make them pay for, and also contribute good part of the fruit of their labour; no less that a neat 14th part of the Oyle and Bone, when cut up, and to bring the same to New York an 100 miles distant from their habitation, an exaction so grievous, that few people did ever comply for it.'‡ The result of this policy was to discourage the fishery, and its importance was sensibly decreased. In 1711 the New York authorities issued a writ to the sheriffs directing them to seize all whales. This demand created much disturbance, but the people, knowing no remedy, submitted with what grace they could to what they felt was a grievous wrong, and an infringement upon their rights under the patent under which their settlement was founded. Since that time, Mulford continues, a formal prosecution had been commenced against him for hiring Indians to assist him in whaling. He concludes his petition with the assertion that, unless some relief was afforded, the fishery must be ruined, since 'the person concerned will not be brought to the hardship of waiting out at sea many months, & the difficulty of bringing into New York the fish, and at last paying so great a share of their profit.'

"Mulford, during the latter part of his life, was continually at loggerheads with the government at New York. A sturdy representative of that Puritan opposition to injustice and wrong with which the early settlers of Eastern Long Island were so thoroughly imbued, the declining years of his life were continual eras of contention against the tyrannies and exactions of governors, whose only interest seemed to be to suck the life-blood from the bodies of these unfortunate flies caught in their spider's-net, and cast the useless remains remorselessly away. He was one of the

*N. Y. Col. Rec., v, p. 474.

These are undoubtedly what the authorities were pleased to term "Massachusetts notions."

‡ It was these outrageously unjust laws that brought the government into the notorious disrepute it attained with its outlying dependencies from 1675 to 1720. In March, 1698, the council of Lord Cornbury declared certain drift-whales the property of the Crown (which apparently meant a minimum amount to the King and a maximum share to the governor), "when the subject can make no just claim of having killed them." One Richard Floyd having offered a reward to any parties bringing him information of such whales, the council ordered an inquiry into the matter in order to prevent such practices in the future. (Council Minutes, viii, p. 6.)

remonstrants against the annexation of the eastern towns to the New York government, and from 1700 to 1720 was the delegate from these towns to the assembly. In 1715 the opposition of the government to his constituency reached the point of a personal conflict with him. In a speech delivered in the assembly in this year he boldly and unsparingly denounced the authorities as tyrannical, extravagant, and dishonest. He cited numerous instances of injustices from officers of the customs to the traders of and to his section. While grain was selling in Boston at 6*s.* per bushel, and only commanding one-half of that in New York, his people were compelled by existing laws to lose this difference in value. While the government was complaining of poverty and the lack of disposition on the part of the people to furnish means for its subsistence, the governor had received, says Mulford, during the past three years, three times the combined income of the governors of Massachusetts, Rhode Island, and Connecticut. In 1716 the assembly ordered this speech to be put into the hands of the speaker, but Mulford, without hesitation, caused it to be published and circulated.* From this time forth the war upon him was, so far as the government was concerned, a series of persecutions, but Mulford undauntedly braved them all and in the end was triumphant. Quite a number of letters passed between the governor and himself, and between them both and the lords of trade in London. As an earnest of the feeling his opposition had stirred up, the governor commenced a suit against him in the supreme court, the judges of which owed their appointment to the executive. Shortly after this, Governor Hunter, in a communication to the lords of trade regarding the state of affairs in the province, writes that he is informed that Mulford, who 'has continually flown in face of government,' and always disputed with the Crown the right of whaling, has gone to London to urge his case.† He states that 'that poor, troublesome old man' is the only mutineer in a province otherwise quiet (an assertion that evidenced either a reckless disregard for truth, or a want of knowledge of affairs inexcusably culpable); that the case he pleads has been brought before the supreme court and decided against him, and Mulford is the only man who disputes the Crown's right, and the good governor charitably recommends their lordships to 'bluff him.'‡ Still later, Hunter states that it was the custom long before his arrival to take out whaling licenses. Many came voluntarily and did so. If whaling is 'decayed,' it was not for want of whalemen, for the number increases yearly; 'but the truth of the matter is, that the Town of Boston is the Port of Trade of the People inhabiting that end of Long Island of late years, so that the exportation from hence of that commodity must in the Books be less than formerly.' The perquisites arising from the sale of these licenses were of no account in themselves, but yielding in this matter would only open a gap for the disputation of every perquisite of the government.§

* A copy of this speech is bound in an old volume of the Boston News-Letter, in the library of the Boston Atheneum.

† In the address of H. P. Hedges at the Bi-Centennial celebration at Easthampton, in 1850, he says, when Mulford finally repaired to London to present the case to the King, he was obliged to conceal his intention. Leaving Southampton secretly, he landed at Newport, walked to Boston, and from thence embarked for London. Arrived there, he "presented his memorial, which it is said attracted much attention, and was read by him in the House of Commons." He returned home in triumph, having obtained the desired end. At this time he was seventy-one years old. "Songs and rejoicings," says J. Lyon Gardiner (*vide* Hedge's Address, p. 21), "took place among the whalemen of Suffolk County upon his arrival, on account of his having succeeded in getting the King's share given up." It is related of him (*Ibid.*, p. 68) that while at the court of St. James, being somewhat verdant, he was much annoyed by pickpockets. As a palliative, he had a tailor sew several fish-hooks on the inside of his pockets, and soon after one of the fraternity was caught. This incident being published at the time won for him an extensive notoriety. He was representative from East Hampton from 1715 to 1720, and died in 1725, aged eighty years.

‡ N. Y. Col. Rec., v, 480. This assertion must be inexcusably inaccurate, for it was unquestionably on the ground of his sturdy defense of their rights that the people of Easthampton so steadily returned him to the assembly.

§ N. Y. Col. Rec., v, p. 484. This admission of Hunter's of the smallness of the revenue is indisputable evidence of his incompetence, and of the truth of Mulford's assertion of the ultimate ruin of the whale-fishery under such restrictions.

"To this the lords of trade reply:* 'You may intimate in your letter to our Secretary of 22d November last that the Whale fishery is reserved to the Crown by your Patents: as we can find no such thing in your Commission, you will explain what you mean by it.' Mulford is now in London, and desires dispatch in the decision in regard to this matter, pending which the lords desire to know whether dues have been paid by any one; if so, what amount has been paid, and to what purpose this revenue has been applied. They close their letter with the following sentence, which would hardly seem open to any danger of misconstruction: '*Upon this occasion we must observe to you, that we hope you will give all due incouragement to that Trade.*' Evidently the case of Mulford *vs.* Hunter looks badly for the governor. Still, Hunter is loth to yield readily, and the discussion is further prolonged.

"It is now 1718. Governor Hunter, in his answer to the inquiries of their lordships, says Commission was issued giving power 'Cognoscendi de Flotsam, Jetsom, Lagon, Deodandis, &c.,' follows 'et de Piscibus Regalibus Sturgeonibus, Balenis Cœtis Porpetiis Delphinis Reggis, &c.' In regard to the income, he again writes that it is inconsiderable; that only the danger of being accused of giving up the Crown's right would have led him to write about it. In amount, it was not £20 per annum (corroboratory of Mulford's assertion of its decline), and as the fish had left this coast, he should not further trouble them about it. Up to the present time all but Mulford had paid and continued to pay. The subject appears to have been finally referred to the attorney-general, and the governor says (1719), waiting his opinion, he has surceased all demands till it comes. The question must have been left in a state of considerable mistiness, however, for in 1720 Governor Burnett informs the lords, in a letter which indicates a satisfied feeling of compromise between official dignity and the requirements of the trade, that he remits the 5 per centum on the whale fishery, but asserts the King's rights by still requiring licenses, though in 'so doing he neglects his own profit,' 'and this,' he adds, 'has a good effect on the country.' Under his administration the act for the encouragement of the whale fishery was renewed." †

4. BOAT WHALING IN THE PRESENT CENTURY.

Within the present century shore whaling has been prosecuted to some extent at various points on the Atlantic coast, from Maine to South Carolina. The business has been profitable at Provincetown, Mass., and at Beaufort, N. C. At the former place during the spring of 1880, forty-eight whales, valued at $14,037, were captured; at the latter place the average annual catch is four whales, valued at $4,500. The total value of the shore whaling on the entire coast in 1880 reached about $18,000, which is far above the average year's work. We are indebted to Mr. Earll for facts about this fishery at Maine, and the southern North Carolina coast, and to Captain Atwood for an account of the business at Provincetown.

COAST OF MAINE.

Shore-whaling in the vicinity of Tremont began about 1840. Mr. Benjamin Beaver and a small crew of men caught three or more whales annually for about twenty years, but gave up the business in 1860. No more whales were taken from this time till the spring of 1880, when one was taken and brought into Bass Harbor, and yielded 1,200 gallons of oil, but no bone of value.

* N. Y. Col. Rec., v, p. 510.

† ALEXANDER STARBUCK: Hist. Am. Whale Fishery, in U. S. Fish Com. Report, 1875–76.

Capt. J. Bickford, a native of Winter Harbor, is reported by Mr. C. P. Guptil to have cruised off the coast in 1845 in schooner Huzza, and to have captured eight whales, one of which was a finback, the rest humpback whales. This schooner made only one season's work, but in 1870 Captain Bickford again tried his luck in a vessel from Prospect Harbor and captured one finback whale.

Mr. Earll states that according to Capt. George A. Clark and Captain Bickford whaling was extensively carried on from Prospect Harbor for many years. The fishing began about 1810, when Stephen Clark and Mr. L. Biller, of Rochester, Mass., came to the region, and built try-works on the shore, having their lookout station on the top of an adjoining hill. The whales usually followed the menhaden to the shore, arriving about the first of June and remaining till September. When one was seen the boats, armed with harpoons and lances, immediately put out from the land and gave chase. If they succeeded in killing the whale, it was towed to the flats of the harbor at high water, where it was secured and left to be cut up at low tide. Ten years later they began using small vessels in the fishery, and by this means were enabled to go farther from land. The fishery was at its height about 1835 to 1840, when an average of six or seven whales was taken yearly. The largest number taken in any one season was ten. The average yield of oil was 25 to 30 barrels for each whale. The business was discontinued about 1860, since which date but one or two whales have been taken.

COAST OF MASSACHUSETTS.

In the early part of the present century whales were abundant along this coast, and Provincetown whalers in small boats frequently captured a large number in a season. The Gloucester Telegraph of November 6, 1850, says: "A right whale was taken at Provincetown last Thursday by a party in three boats. It is estimated to yield 60 barrels of oil."

In the Barnstable Patriot of November 12, 1861, is the following item:

"*Whale.*—On Saturday morning the spout of a whale which was discovered playing around off Nauset in the midst of a fleet of some 200 mackerel fishermen was suddenly cut short by a Nantucket fisherman, the Sam Chase making fast to him. This is the fifth whale taken by Sam Chase since July 25, and will make about 25 barrels. The five will have made 125 barrels, worth $1,500."

Whales have from time to time been stranded on the beaches about Cape Ann; several have also been found by fishing vessels and towed into Gloucester Harbor. In July, 1833, one 50 feet long, and measuring 10 feet through, was towed into the harbor and tried out on Eastern Point. The Cape Ann Advertiser of October 21, 1870, records the capture off Eastern Point of a whale 45 feet in length. In the spring of 1880 finback whales were unusually abundant in Ipswich and Massachusetts Bays, so that fishermen in their dories were in some cases alarmed for their own safety, as the whales were darting about in pursuit of schools of herring. Six of this species of whale were found dead floating in the bay and towed into Gloucester harbor. They had been killed by Provincetown whalers. Three of them were tried out at Gloucester; the remainder were allowed to drift to sea again.

Captain Atwood writes the following account of the shore-whaling at Provincetown in 1880: "Early in March there came into our bay and harbor immense quantities of herring and shrimp. They were followed by a great number of finback whales, that remained here most of the time in greater or less numbers until about the middle of May, when they all left the coast. During the time they were here many of them were killed with bomb-lances. They sank when killed, and

remained on the bottom some two or three days, when they floated on the surface, and as they were liable to come up in the night or during rugged weather, when the whalemen were not on hand to take care of them, many drifted out to sea, and were lost or picked up by Gloucester fishing vessels and towed to that port. A few were brought to Provincetown by these vessels, with whom the proceeds for the oil were divided. There were brought in and landed at Jonathan Cook's oil works on Long Point 38 whales, from which the blubber was stripped and the oil extracted. Two other whales brought in were sold to parties who took them away for exhibition, one to Boston and the other to New York.

"Early in June immense quantities of sand-eels (*Ammodytes*) came in our harbor and bay and remained several days. About the 10th of June there appeared plenty of whales feeding on the sand-eels. They were again attacked by our men, when a number of them were killed in a few days, and ten were saved and landed at the oil works. Probably as many more that were not killed outright received their death wound, went out of the bay, soon after died, and were lost.

"The forty-eight whales delivered at the oil works yielded about 950 barrels of oil, that sold at an average price of 40 cents per gallon.

"When the first whales were killed it was supposed the whalebone in their mouths was worthless, and it was not saved; but subsequently some was saved and sold at 15 cents per pound. The average quantity of bone in each whale is about 250 pounds. Probably the bone of thirty-five whales has been saved, making an aggregate of 8,750.

"No whales have come in of late; our men are still anxiously looking for another school, hoping they will come again and give them another benefit.

"Total for the season's work:

48 whales, 29,925 gallons of oil, at 40 cents	$11,970 00
1 whale, sold for exhibit in Boston	350 00
1 whale, sold for exhibit in New York	405 00
8,750 pounds of whalebone from thirty-five whales, at 15 cents	1,312 50
	14,037 50

"Besides the whales saved and taken to Provincetown, many of those lost by our whalers were towed into other places; others have drifted on shore at different points. We hear of four being towed into Gloucester, three into Boston, one to Newburyport, one to Cape Porpoise, one Portland, one Mount Desert; two drifted ashore at Scituate, two at Barnstable, one at Brewster, one at Orleans, two at Wellfleet, one on the back of Cape Cod; one was stripped of its blubber at sea by a fishing vessel, that sold it in Boston. The entire catch from March to July was probably one hundred whales, of which number nearly all were killed by Provincetown whalers. Three of these whales were humpbacks; the rest were of the finback species."

In the fall of 1880 a finback whale about 50 feet long was killed in Cape Cod Bay, and towed to Boston, where it was sold to an enterprising Yankee, who, after realizing quite a profit by exhibiting it in Boston, conceived the idea of transporting it to Chicago for exhibition. It was accordingly carefully cleaned and loaded upon a large platform car. Salt and ice were freely used for its preservation. It reached Chicago, and was shown to the public as one of the wonders of the deep. The enterprising exhibitor made several thousand dollars by this venture.

The following graphic description of whaling in Massachusetts Bay in 1881 was written for a Boston newspaper:

"The denizens of Cape Cod have always been an amphibious population, largely taking their living from, and making their fortunes upon, the waters of the oceans of the world. Especially is this the case with the people of the lower half of the 'Right Arm,' who are fishers indeed, the

majority of them taking to the water, like young ducks, immediately after their advent into a sandy world, and becoming experts in the navigation of its depths and the capture of its treasures even before their school days have fully passed.

"Provincetown occupies the extremity—the curling finger—of this cape, and its situation is in every way peculiar. With the exception of a narrow strip or neck of sand heaps which unites it to the main cape, it is surrounded by water—the salt water of the Atlantic—which rolls unchecked between its outer shores and those of Europe. Its outer coast line, beginning at a point opposite the narrow neck alluded to, sweeps around in a grand circle almost the entire circuit of the compass, its outlines nearly resembling those of a gigantic capital O, as that letter is usually found in manuscript. The inclosed water of this circle is the harbor of Provincetown, and the town is built along the inner shore, at the bottom of the basin. Outside is the Race, Wood End, and sundry interesting points of light-house, life-saving station, all of vast moment to mariners and ship-owners. Inside is one of the singular harbors of the world, deep enough and spacious enough to shelter a fleet of hundreds of the largest ships of the world at one time, and with peculiarities belonging to itself sufficient to make it famous wherever these ships may sail.

"If there are any kinds of fish, or any methods of taking them, which are not familiar to the waters or the people of Provincetown, their description is now in order. From the fry and minnow for pickerel bait up to the 100-barrel right whale, Provincetown waters have witnessed the capture of all kinds, and have frequently contributed specimens over which savants have puzzled and wondered. The beaches of her shores have received as loot mighty carcases of whales and blackfish; shoals of porgies at one time, which all the teams of all the region could hardly remove soon enough, so immense was the deposit, while fish-weirs (one of them took 700 barrels of mackerel a few mornings since), try-works, and the implements and appliances of various fisheries mark the scene in all directions.

"Now, it has been no unusual thing, at any time since the establishment of this exaggerated fish-net yclept Provincetown, for a whale of some variety to be occasionally stranded upon her beaches, or captured by her cruisers or boatmen. But it is only within the past three years that the systematic pursuit of a leviathan within her waters has been established; in other words, that the home whale-fishery has been a feature of her business operations. A whale in the harbor of Provincetown, especially at certain seasons, is almost as common a presence as that of a turtle in a mill-pond; but they are usually representatives of a class disliked and scorned by old-school whalemen, and not remunerative to their capturers, unless the latter be men of enthusiasm and desperate enterprise. So that, although there are plenty of veteran whalers in the region, it has been left to the young Provincetowners of the present generation to inaugurate and establish an enterprise which has already shown good results. One young captain, with his crew, last year took upward of 250 barrels of oil off Provincetown, and is scoring fair results the present season, though the conditions have, so far, been very unfavorable. Some of his whales he captured in the harbor; but mainly his game was chased and killed in the water outside and near by.

"The variety of whale mostly found in Massachusetts Bay waters is the finback, a long, clean, perfectly formed creature, growing sometimes to 75 or 80 feet in length, but usually from 45 to 55 feet. He is the most complete model of craft for speed and easy working in the water that can be imagined, and his tail in motion the most perfect development of the screw motor; and, indeed, the finback moves through the water when occasion offers as the most rapid express train never does on its tracks on land. It is timid and non-resistant, and it is principally on account of its great speed and its habit of immediate flight when stricken that the old whalemen detest it. Your veteran has no relish for being drawn to the bottom, boat and all, by an aquatic race-horse possessing the traveling qualities of a meteor.

"Therefore, as hinted above, the youngsters who are perpetually learning new 'kinks' and confounding their progenitors, have stepped into a new order of things. They begin with an exact reversal of the old-time processes, which were to harpoon the whale, and then lance him to death. The Provincetowner first lances his prey, and immediately after harpoons it, for reasons and in pursuance of methods shortly to be given.

"The finbacks come in numbers early in the spring, following the bait which is their food—herrings, sand eels, mackerel, and the like, and where this bait is found in reasonable quantities the whales will surely be found. When feeding this whale stretches wide open his jaws, moves forward among the bait on the surface with velocity until he has pocketed or scooped (in his mouth) a quantity (some barrels), when he snaps together his front doors and swallows the catch, having no teeth, nor need of any. It is at this feeding season that he is easiest approached and fastened to. When not feeding he is usually lazily sleeping, or disporting, and, indeed, the gambols of this variety of whale seem to form a very necessary part of his existence, to which he pays much attention. The antics of a calf in a pasture, or a young puppy in a back yard, are hardly more diverting or singular than are those of a pair of whales in their festive moments. They will stand on their heads and flourish their tails in the air; then stand upon their tails and snap their jaws in the air. They whirl and roll and swash about, sometimes tearing the water into shreds, and again darting about, exhausting every possibility of whale enjoyment. They are as full of curiosity as a deer, or as are many of the fish varieties, and this they evidence frequently by playing about the boats which have come out to capture them, reconnoitering and viewing these boats from all sides, and sinking a few feet below the surface, following their every motion, while they occasionally appear at the surface for an outside observation.

"When touched or struck their immediate impulse is to dash off like a rocket, and this impulse they obey to perfection. To test their marvelous facility of speed, a harpoon was thrown into one off the Race (the extremity of Cape Cod), when he started off across the bay in the direction of Boston, and in forty minutes had dragged the boat and its contents of crew and implements within full view of Minot's Ledge light-house. All the line was paid out by the boat's crew and they were finally obliged to slip for their lives.

"A common fishing schooner is now fitted out for this whale-catching business, carrying a whale-boat of the ancient approved construction, with sufficient men to man the boat and leave some one or two on board to follow in the vessel when the boat is actually engaged. The captain usually handles the lance and harpoon, and pulls a spare oar when not thus engaged. Besides himself, four oarsmen and a boat-steerer comprise the crew of the boat of the successful captain alluded to above.

"The bomb-lance is a most destructive weapon. The gun from which the lance is fired is of very thick metal, and the breech is made heavy with lead to neutralize the recoil, which is heavy with this kind of arm. The length of barrel is about 17 inches. The lance itself is of iron, with a chamber 6 or 7 inches in length along the lower center, and solid between the chamber and point, the latter tapering, and filed or ground to three edges. About the base of the lance are india-rubber wings, folded when the lance is inserted in the gun, and acting as wad to make the lance fit the barrel easily, and just rest upon the powder charge of the gun. When fired these rubber wings expand, and, like the paper feathers of a boy's dart, preserve the poise of the weapon. The chamber of the lance is filled with powder, like a bomb-shell, and a one-second, or thereabout, fuse is attached, so that, when the weapon is discharged into the body of a whale, it explodes within, inflicting terrible wounds. Care must be taken not to discharge the lance at too short range, as in that case it will pass through and through the whale's carcase without exploding, and entail no

serious injury. About 30 feet distance is the range usually sought for. This implement, in the hands of a cool and skillful sailor, works 'like a charm,' and great is its destruction of the life of leviathan. To illustrate this, and also the whole matter, an actual day's work of the captain foresaid will now be detailed:

"The present year the season has been very backward; east and cold winds and rough weather have prevailed, and the bait was at least two weeks later than usual in the bay. On account of these and other unfavorable circumstances the whale catch in Provincetown neighborhood has thus far been small. At 2 o'clock on a morning in May of last year the crew of the schooner was aroused by the captain, the vessel then lying near the wharves in Provincetown Harbor. She was got under way, and the spouting or 'blowing' of a whale could be plainly heard from her deck. At once the chase began, the experienced captain working in the dark, at times with prospects of success, but without its attainment as the hours passed. That there was more than one whale in the harbor was evident, and one of them was a humpback, a prize, indeed, and much more valuable than a finback, yielding twice as much of oil for the same size of creature. As dawn streaked and day opened, one after another various other craft in the harbor became awakened to what was going on, and numerous boats' crews put off from the shore to join in a chase and possible capture, with the details of which they were perfectly familiar, and the tactics of which were their common practice.

"The first rays of the sun fell upon an exciting scene. There were a humpback whale and a finback coursing about the harbor, the latter fully 65 feet in length. The chasing boats and vessels represented a great variety of craft, and a still greater variety of crews and individuals engaged. There were tall, short, crooked, lank, old, and young boat-steerers; fat men puffing at paddles, and lean men tugging at long oars. Excitement, emulation, and competition roused all these men to prodigious efforts, and, in their anxiety and enthusiasm, they manifested the most singular traits and cut the oddest pranks. The finback led them a desperate chase, now here, now there, until hours had slipped away, and he was not caught, although the very *élite* of Cape Cod skill in whale capture, aided by experienced veterans of the northern and Pacific fleets, had lent a hand. Away over on the east side of the harbor the humpback was finally stricken, a bomb-lance entering his huge body, shattering his backbone in the explosion, and the monster died instantly. A vigorous and triumphant yell announced the capture, but the finback escaped. The schooner then proceeded outside, and followed the shore towards the Race.

"From the time of leaving the harbor until noon not a whale was sighted. The waters of a pond inshore were apparently no more free of the creatures than was Cape Cod Bay at that time. About noon it fell flat calm, and the schooner drifted lazily. But as the early afternoon advanced the cry of 'Blows!' awoke every man to the knowledge that an immediate change in the status might be at hand. The sun was burning hot, and the face of the bay like a mirror. In less time after the first cry than it takes to tell the incident no less than fifteen 'blows' were counted, and whales were in abundance on every hand.

"The boat, which had been towing astern, was at once occupied, and the advance, which promised the fairest success, was made without delay. The spouting columns appeared at regular intervals, and soon the boat was in close proximity. Headway was stopped, the oarsmen exchanged their oars for stumpy paddles, like those with which an Indian manages his canoe, and every one of them took his seat upon the gunwale of the boat, paddle in hand, ready for orders. The captain took his stand forward, gun in hand, ready to discharge the lance at the first favorable opportunity. The whales (there were a pair of them, male and female, as it proved) were sportive, and at once began a reconnaissance of the boat. They would sink about 10 feet below

the surface, roll partly upon one side, and cast an eye upward, as if speculating upon the apparition, and occasionally come up, blow, and roll lazily under again. Their every motion could be plainly seen while they were under water, and their movements anticipated. The captain singled out the female, the largest and best animal, and thenceforth all attention was paid to her movements. At last she came slowly to the surface, just moved her immense tail with the necessary motion to change her direction, and started directly across the bow of the boat, under the very nose of the captain. A straightforward bow shot was what he had been waiting for, and in an instant the gun was at his shoulder. Up to this moment the men had all been guided by expressive wavings of the captain's hand; and his every motion was watched as men watch for a drop to fall during an execution. As the gigantic finback passed—she proved to be upwards of 65 feet in length—she rolled slightly to one side, and threw up the flipper nearest the captain as a man would throw up the elbow of his bent arm to a level with the shoulder. Quick as thought the captain fired, the lance struck the huge carcass just under the flipper and entirely disappeared, and the empty gun was flung along the bottom of the boat.

"Instantly the captain was standing on the bow deck, harpoon in hand. The whale was motionless, apparently with absolute astonishment. In this moment of quiet, which could not be prolonged, the boat slightly advanced, the captain's both hands arose high in the air, the harpoon descended directly downward, and the whale was transfixed, the iron entering her body near the tail. The lance had seemingly hardly left the gun at greater speed than the initial movement of that whale when consciousness was aroused. The whale line attached to the harpoon was coiled with characteristic care in two tubs nearly amidships, led aft around the loggerhead in the stern deck, and then forward through a notch in the extreme bow, out of which it was kept from slipping by a pin passed through the two upper parts of the crotch. Instantly every man was standing along this line, grasping it with hat in hand to preserve it from the intense friction. The loggerhead was kept constantly wet, and a man stood over it, hatchet in hand, to cut upon the first 'foul,' or other indication of extreme danger. And now appeared the wisdom of the movements. The lance had entered the vitals of the whale, inflicting, it was well known, a terrible internal wound upon its explosion. Had this not been the case, and only the harpoon held the whale, she would have finished the race incontinently by obliging the crew to slip the line, or be drawn under water. As it was, she must soon come up for further action. To appreciate the situation that ensued, you should have seen that boat go through the water; that is, you should have been seated upon one of her thwarts or along her bottom. The whale moved forward and also downward, and the water was then many fathoms deep. The downward movement, of course, depressed the bow of the boat, and the immediate danger was from being drawn under by motion too swift to allow the cutting of the surface. At once a great trough was made in the smooth sea by the flying craft, the boat occupying the cavity, and from both her sides a sloping bank of water, inclining outward and upward, seemed builded about her. To one sitting upon a thwart and looking outward, the surface of the bay seemed just opposite the line of his eyes, so great was the depression of the trough.

"Now, then, a sheer of the whale and the boat would take water at once over the side. The forward movement became too swift, the bow too much depressed. Fathom after fathom was allowed to slip around the loggerhead, until 50, 60, 80, 100 fathoms had been paid out, and three or four minutes had elapsed. The whale had been struck off the Race, and had started across the bay in the direction of Plymouth.

"At the end of the time indicated the line began to slack and the whale to move upward from the bottom of the bay. Still, however, she tore onward. As fast as could be the line was hauled

upon, and all possible taken in. And now the whale is upon the surface, and great jets of almost pure blood, red and arterial, rise in the air and fall backward upon her head and shoulders. That tells the story. The boat rushes forward, and now seems to be floating in blood, so thick have the waters become with it, and the smell arising is deadly sickening and almost suffocating to the inexperienced.

"Down again the creature goes, to remain about the same time as at first. The speed hardly diminishes. Up again she comes, and now the noise of her spouting is as of huge pipes obstructed, and soon great clots of blood and substance fall as before upon the surface of the water. Every muscle in every man is as tense as whalebone, and every nerve like steel. Each says to himself, Will the end never come?

"A breeze is rising on the eastern board, but its outer edge is still far from the schooner. The two men left on board the latter have headed her in chase of the boat, but she is soon bull-down in the view of the boat's crew. No matter. There are successive risings of the whale at more frequent intervals, and now it is largely water that she spouts, and the wonder is if she has any more blood left in her carcass. Usually when a finback is killed the body sinks at once, and does not rise again for forty-eight hours; and every lance is stamped with its owner's initials, that carcasses found may be identified. Other varieties of whale, having more blubber, do not sink, at least not so readily.

"An idea strikes the captain. 'This whale,' he says, 'has lost so much blood that I do not believe she will sink, and I will try an experiment.' He means that he will not haul up to the animal by the harpoon line and dispatch her with another lance; but that he will follow her till she dies of exhaustion and her present wound.

"Suddenly the whale turns square about, and starts back toward the Race. There is some confusion, a slacking and jerking of the line, and all at once the harpoon slips, and whale and boat are parted. And now the men growl and lower at the captain, for allowing their hard-earned prize thus to escape. But he knows that a short time must decide the contest and that the whale must soon die.

"She is followed by her frequent spoutings of black blood and matter, and, her speed slacking, the chase draws upon her. She stops. Will the captain give her another lance? The proposal is useless, for her death flurry is begun, and it will soon be seen whether the experiment of the captain is to result favorably.

"And now she leaps full length out of the water, and falls prone upon it with a crash like a falling building. The surface is streaked and torn with foam mingled with blood. She stands now upon her head, now upon her tail; like lightning she darts hither and thither. She sinks and rises, spouts and half rolls over. Every man is in position to keep clear of her, if in her frenzy she blindly comes their way. 'For God's sake, captain, look out!' shouts one; 'here she comes!' The warning is justified; she is coming full head toward the boat. But momently she staggers, ceases effort; her motion slows; she rolls three-quarters over, and lies dead in the middle of Massachusetts Bay.

"The schooner is out of sight. From 3 o'clock until 5 she has been battling for life, and leading her capturers such a chase as the world cannot equal under other conditions. The breeze—a stiff easter—has arrived. The whale must be towed home, but it is a serious matter with oars and only the boat. Happily she has shut her mouth in dying, and will tow easier in consequence. The captain's experiment has worked well, and this was about the only finback captured in these waters that season without sinking.

"But the breeze brings the schooner, after a somewhat blind chase. Provincetown Harbor is reached next morning, and the whale landed at the try-works. There is no room here for further detail or description. The captain is at this very moment cruising for whales off Grand Menan, with a better Provincetown schooner than he had last year. But he has taken 90 barrels in Massachusetts Bay the present season."

COAST OF RHODE ISLAND AND NEW YORK.

Whales have frequently been taken by vessels soon after starting on their voyages from New Bedford and other ports, and sometimes schools of whales are seen close inshore. Of late years no organized effort has been made to engage in shore whaling, though during the last century the coast of Long Island was a favorite place for this fishery.

The following clippings mention the capture of a right whale at Newport, and the appearance of a school of whales at the entrance of Long Island Sound:

"The whale, which for several days had been sporting in our river, was captured on Monday last in fine style by a boat's crew of young men from Newport. Mr. Oliver Potter laid the boat alongside as the whale came up, and Mr. Thomas White fastened the harpoon into her side. After running the boat some distance she was lanced and carried into Newport. The whale is of the right sort, about 44 feet long, and rated at 70 barrels of oil. A number of gentlemen of this town have made arrangements to gratify the curiosity of those who may wish to see this creature of the deep, and it will be exhibited for several days in a convenient place at Fox Point."

"A Connecticut paper, dated August 16, 1873, states that the skipper of the sloop Annie, of Saybrook, Conn., reports a large school of whales in close proximity to home. Monday, while midway between Southeast Point, Block Island, and Montauk, a school of whales, numbering probably thirty-five, was seen from the Annie's deck, gamboling near the Block Island shore, whence they had been lured, it is supposed, by the prospect of a good feeding-ground. In the school very few finbacks or humpbacked whales were to be seen. The majority were large whales, some of them being not less than 70 feet in length. Boatmen report it as a common occurrence to see two or three finbacks in company in the race, but the appearance of so many large whales is a new experience."

COAST OF NEW JERSEY.

The only record we have of shore-whaling on this coast is that furnished by Mr. Earll, who, while visiting the coast in 1880, learned that between 1810 and 1820 Capt. John Sprague, of Manahawkin, with a crew of seven men, followed whaling exclusively for a few years, with fair results. They had a camp and try-works on the shore, and were provided with a whale-boat, in which they put off from the beach whenever a whale was seen.

COAST OF NORTH CAROLINA.

The whale-fisheries of Beaufort seem to have been prosecuted continuously for a long period of years, and the oldest inhabitants are unable to give any information of their origin. There has never been any extensive business, and the fishing has been confined wholly to small boats going out from the shore, with the exception of two vessels run during a few months each. The first was the Daniel Webster, 24.15 tons, that fitted out for whaling in the winter of 1874–'75, with a crew from Provincetown, Mass., but after three months' cruising she gave it up and returned to Provincetown, having taken nothing. The next vessel, the Seychille, 47.07 tons, came to Beaufort in the winter of 1878–'79, but was lost in the August storm of 1879, having taken nothing.

The usual plan is for the fishermen to establish camps among the sand hills along the shore between Cape Lookout and Little River, where they live from the 1st of February to the last of April. When the season arrives for whaling, three crews of six men each unite to form a camp, and proceed to build a house out of rushes in some desirable location near the shore, for protection against the weather. Their boats, usually three in number, and their implements, are placed in readiness on the beach, and a lookout selected, where one man is stationed, to give the signal if the whales come in sight.

At this season of the year the whales are moving northward, and in their migrations often come within a short distance of the shore, where they are pursued and often captured by the fishermen. As soon as the whale is harpooned the "drug" is thrown over, and when he turns to fight the fishermen, armed with guns, shoot him with explosive cartridges, and, after killing him with their lances, tow him to the shore, where they try him out.

The number of crews varies with the season, it formerly averaging but two or three, of eighteen men each. In the spring of 1879 four crews were engaged in this fishery, and five whales were taken.

In the spring of 1880 there were six crews of 108 men stationed between Cape Hatteras and Bear Inlet, but the season being unusually open, most of the whales had passed before the fishermen came on the shore, and but one was taken, the bone and oil selling for $408.

The yearly catch of late is about four whales, averaging 1,800 gallons of oil and 550 pounds of bone each, giving the catch a value of $4,500. The shares usually range from thirty to forty, as follows: Each boat one share, the gun two shares, the gunner an extra share, and each steersman an additional one-half share, the men all receiving one share each.

The whaling-gun was introduced into the locality by the schooner Daniel Webster, of Provincetown, in 1874.

COAST OF SOUTH CAROLINA AND GEORGIA.

There are no regular whaling-camps on this coast, but whaling vessels from the north often cruise a short distance off Port Royal, S. C., and Brunswick, Ga., sometimes meeting with good success. These vessels are of the smaller class, ranging from 53 to 117 tons, and spend the winter and early spring months before their departure for the off-shore grounds in capturing whales near the bars off this coast. They were formerly in the habit of going to Fernandina, Fla., every fall to ship their oil and bone to the North, but owing to the yellow fever at that place some of them came to Brunswick, Ga., in 1876, and one of them secured a whale in this vicinity. The following year two vessels came in January and remained till the middle of March, getting one whale. The third year two whales were caught by the same vessel, and in 1879 four vessels visited the locality, and had taken up to March 1, five whales yielding 226 barrels of oil and 2,750 pounds of bone. The whaling-ground is on a bar only about 4 miles from the shore. A whale after being captured by the whalemen in boats, is towed by the vessel into the sound and there stripped of blubber and the oil tried out.

An exciting scene occurred at Charleston in the spring of 1880, which is thus described in the Charleston News of January 8:

"UNUSUAL SPORT IN CHARLESTON HARBOR.—Several days ago the almost unprecedented presence of a whale in Charleston Harbor was announced. Whether driven here by stress of weather, seeking misanthropic seclusion from his kind, or on an exploring expedition, will never be known, but his presence was a huge black verity. Several timid and ineffectual attempts had been made to effect his capture or destruction, but all were futile, until a regular hunt was

organized yesterday, Mr. Armstrong Hall, engineer, and Captain Smith, of the tug Royal Arch, leading it. The attacking force originally consisted of two of Messrs. Bangs & Dolby's row-boats, each manned by three oarsmen, an experienced and trustworthy coxswain, and a man in the bow of each armed with a harpoon. Other boats with their crews joined in the chase, however, when the whale was seen near Fort Sumter at about 9.45 a. m. He had been first met and struck on the bar, however, by the boats above mentioned at about 8 o'clock, a harpoon and line being made fast in his body near the tail. Pursuit was continued, one of the boats towing after the whale by the line, and the other being rowed to within a short distance of him as he would rise to blow, and the harpoons being launched at him whenever a favorable opportunity offered. During the chase he had been working his way to landward, and soon got in the shoal water near Fort Johnston, on James Island. In his struggles he became entangled in the stout line attached to the harpoon, and wound himself in it so that it held firmly. He remained in the shoal water during the morning, the line having been cut to save the boat during a "flurry," and in the afternoon, at about 1.30 o'clock, an attempt was made to secure him. Four steam-tugs—the Morgan, the Republic, the Wade Hampton, and the Royal Arch—were present, besides probably fifty or sixty row-boats, and a few small sailing craft.

"The news of the capture had spread rapidly, and quite a crowd, including a number of ladies, gathered on the battery and watched the struggle that ensued. The line was taken aboard and made fast to one of the tugs, which attempted to coax the fish toward the city. But the steamer proved to be too unhandy for the delicate manipulation required, and the line was finally snapped, a piece of considerable length being left attached to the whale worn *en traine*. Then ensued a series of exciting maneuvers. The tugs would approach him in turn as opportunity offered, and those aboard would drive lances and harpoons at him, with more or less effect, or attempt to throw great running nooses over the flukes of his tail as they were thrust above the surface in the creature's struggles. He indulged in a series of the most extraordinary gymnastic performances, turning complete somersaults, and occasionally standing on his head, apparently for several moments, with from 2 to 6 feet of his tail projecting above the water.

"Meantime, many of the small boats were dodging about him, and missiles were hurled at him whenever a fair chance was offered. Time and again barbed harpoons and the long keen blades of lances were plunged into his sides and back, and time and again did they fail to hold, being drawn back by the lines by their owners. He was slowly but surely scuffling and turning himself through the mud, which was seen upon his head several times, across the Ashley River toward White Point Garden, the center of an ever-varying circle of all sorts of craft, armed with all sorts of weapons. In his progress he ran under the bow of the schooner Minnehaha, where earnest efforts were made to lasso him, a compliment which he returned by standing on his head and thrashing her with his tail until she shook from stem to stern. He struck several blows upon her jib-boom, which was damaged somewhat, the rigging thereabout being badly torn. He would lash the water with the flukes of his tail, making reports like the discharge of a musket, and drenching all in his neighborhood. He came to the surface frequently to blow, which he did with a noise resembling that made by the blowing out of steam from an engine, sending a fountain from each of his nostrils. At one time he got beneath the bow of one of the tugs, lifting it almost clear of the water, and a stroke of his tail wrenched off one of the cabin doors that stood open. It is impossible to describe, and almost impossible to imagine, the tremendous force of one of these strokes. The great volumes of water that rose after each showed the immense strength that was put forth in them.

"Two of the tugs ran over him, and the propeller of the Wade Hampton gave him several blows, the effects of which were seen upon his bleeding back as he next rose. The line had also evidently chafed him considerably, the skin near the tail being perceptibly raw from it. It appeared about this time as if he was almost exhausted. He would now and then cease his struggles entirely, and lie placidly upon the water with almost his entire body exposed, as if resting. Observers could almost imagine that they could see him pant, and his snorts came in quick succession, and seemed to have a ring of distress or despair in them. His motions, too, were slower and more languid, as if he were about to relinquish the unequal struggle and die.

"All this time the two boats that had originated the chase had steadily followed him up, the men in the bows driving their long lances into his body near where their experience taught them was a vital point. Suddenly there was a cheer. One of the tugs rather involuntarily had gotten so close on him that the remainder of the line hanging to him was secured by a boat-hook, and quickly spliced to another line on board. About half an hour of playing him followed, when the line, which had been stranded gradually, again parted. Half a dozen efforts were made to throw a noose over his tail from the deck of the Wade Hampton, from which place such trifles as a rifle-bullet or so and two or three balls from a large revolver were fired into him without perceptible effect. One or two of the efforts to throw the noose over him were very nearly successful, but he seemed to dodge beneath the water as it fell about him.

"Another cheer announced another apparent success. A lance thrust from one of the Bangs & Colby boats had evidently struck him deeply, and the men in her yelled exultantly as they rapidly backed away. The blood poured out and dyed the water around, and in a few seconds a gigantic plume of crimson spray arose as he came up to blow. As he lifted his side from the water and struck another gigantic blow, the blood could be seen pouring forth in a stream like that from a small hose. He lay comparatively quiet, and another and stronger line was passed about him from the Morgan. With this he was played for another half hour, during which time the small boats kept steadily striking him whenever he appeared. He had by this time changed his course somewhat, turning toward the center of the harbor, and crossing the stream across the bows of the bark Framat, which he narrowly missed striking.

"The confusion of boats and lines was very great, tugs, bateaus, and row-boats being gathered about the fish, alternately advancing and backing, amid a chaos of yells, oaths, cries of warning, and orders, the confusion being increased when the object of all attention would suddenly begin to lash the water or execute some fancy movement, causing a wild scattering of craft on all sides. That some one was not drowned or knocked in the head is a subject of general wonder.

"At last, when just alongside the Wade Hampton, the whale, who had lines enough about him almost for a ship's rigging, seemed suddenly to decide to free himself by one mighty effort. In a second almost the water for many feet about him became a mass of seething, heaving foam. He turned over and over, fairly churned the sea with his tail, threw first his ugly head, and then the great black rubber-looking flukes far above the surface, and bent himself almost double, straightening out again with terrific violence. When the spray and foam were gone and men had an opportunity to look, the Morgan's line was found slack and broken. The whale had freed himself and disappeared. His track was rapidly followed, the struggle having by this time been brought to a point opposite the Southern wharves, which were packed with people.

"The game appeared once or twice at long intervals, and was finally come up with by the pursuers, now greatly diminished in numbers, on the eastern side of Cooper River, near the shore. Again the chase became hot, one or two strokes being given, and the Morgan running over the whale again. About this time, however, he ran so close in that the tugs were afraid to

follow, and stood idly at a distance. Only about seven row-boats were now engaged in the hunt, the others having retired from it, among the few which still followed being that laid hands upon by the News and Courier deputation. The fish turned and went down Hog Island Channel, the oarsmen pulling steadily and cheerily after him.

"*Talk of sport! What sport is comparable with the rush through the water after such huge* game as this, when tired muscles forget their weariness and are endowed with fresh life at every sight of the great head and every splash of the monster's body? 'Give away! Give away with a will!' And with oars going, the gunwales parting the smooth water, which seemed to rush by, and every nerve and sinew tense and firm, the chase followed, no one knowing fatigue or stopping to measure distances in such a hunt. At last the boats huddle together, and spread again in a circle as the fish is caught up with. A moment and he appears, and in that moment a long-boat shoots by his side, and the man in the bow, cool and steady, and with a deliberation that looks cruel, plunges his lance into the mountain of flesh, while the oars are backed with a rush and surge, and *the craft glides away. Again and again this is repeated, the boats moving in a continual semi*-circle, hemming the great fish in, and forming a barrier, which he could burst like pack-thread if he knew it, to the deep water where his safety and rest lie. Slowly he works out, tacking this way and that, and getting the merciless steel upon almost every reappearance.

"He was evidently weakening this time. His plunges beneath the water were shorter and *shorter in duration, and he seemed to gasp for breath as he came up. At last a bare-footed sailor* in one of the first two boats, the man who struck the first blow in the morning (Garrison, of North Carolina), drove his lance home. The boat backed away, but there was no need for it. An inert black mass lay upon the surface, moving gently with the motion of the water. Dead at last.

"Then the boats rushed in and clustered around the dead giant. The Royal Arch came up, and from her deck some one fired a rifle-ball into the whale's back. There was something like a shudder, a feeble serpentine motion of the body, and then stillness. This was just at sunset, off Shem Creek, on the east shore, and cheer after cheer arose, the whistle of the tug joining in the triumphal chorus. Lines were quickly made fast about the great body, and it was towed to Sullivan's Island, where *it will remain a part of to-day.*

"The fish is a 'right whale.' As well as could be estimated last night his length is from 40 to 50 feet, and the thickness of his body from 10 to 15 feet. His captors estimate that he will yield from $600 to $800 worth of oil. When examined after death the body and sides of the monster were found to be thickly seamed and scarred in every direction with the marks of the lances, harpoons, and hooks, showing that the hunters had aimed well."

COAST OF CALIFORNIA.

By David S. Jordan.

According to Captain Scammon "shore-whaling was commenced at Monterey, in the year 1851, by Captain Davenport, formerly a whaling-master of much experience and enterprise. The whales were pursued in boats from the shore, and when captured were towed to the beach and flensed, much in the same manner, doubtless, as it had been done by our New England whalers more than one hundred and fifty years ago. At the point where the enormous carcass was stripped of its fat, arose the whaling-station, where try-pots were set in rude furnaces, formed of rocks and clay, and capacious vats were made of planks, to receive the blubber. Large mincing-tubs, with mincing-horses and mincing-knives, cutting-spades, ladles, bailers, skimmers, pikes, and *gaffs, with other whaling implements, surrounded the try-works*; and near by, a low structure,

covered with brushwood, constituted the store-house for oil. A light shanty, with four compartments, served the purpose of wash-room, drying-room, store-room, and cooper's shop, and a sort of capstans, termed 'crabs,' were used in lieu of the ship's windlass, whereby the falls to the heavy cutting-tackles were hove in, when fastened to the blanket-piece, which served to roll the massive forms of the captured animals on the beach during the process of flensing."

"From this experiment of local whaling," continues Scammon, "sprang up a system of shore or coast whaling, which has been prosecuted for over twenty years (1874), and which extends from Half-Moon Bay (latitude 37° 30′), on the north, to Point Abanda (latitude 32° 20′), in Lower California." In 1874 there were "eleven whaling parties scattered along this belt of coast, located at Half-Moon Bay, Pigeon Point, Monterey Bay (two), Carmel Bay, San Simeon, San Luis Obispo, Goleta, Portuguese Bend (near San Pedro), San Diego, and Point Abanda. The organization of each party is nearly on the same plan as that of the whale-ship's officers and crew, all being paid a certain share, or 'lay,' which corresponds to the position or individual services rendered by each member. A 'whaling company,' as it is termed, consists of one captain, one mate, a cooper, two boat-steerers, and eleven men; from these, two whale-boats are provided with crews of six men each, leaving four hands on shore, who take their turn at the lookout station, to watch for whales, and attend to boiling out the blubber when a whale is caught. The stock of the company consists of boats, whaling implements, and whaling gear, which is divided into sixteen equal shares, and the 'lay' of each member is the same. The captain and mate, however, are paid a bonus of $200 or $300 for the term of engagement, which is one year, and they are also exempt from all expenses of the company.

"The whaling year begins on the 1st of April, this being about the time that the California gray whales have all passed toward the Arctic Ocean, and the humpback whales begin their northern passage. The cruising limits of the local whalers extend from near the shore line to 10 miles at sea. At dawn of day the boats may be seen, careening under a press of sail, or propelled over the undulating ground-swell by the long measured strokes of oars, until they reach the usual whaling-ground, where the day is passed plying to and fro, unless the objects of pursuit are met with. Each boat is furnished with Greener's harpoon-gun, mounted at the bow, besides the bomb-gun in general use, which imparts to them more of a military appearance than the usual aspect of a whaling craft. Generally, whales are first seen from the boats, but occasionally they are discovered by the man on watch at the station, who signals to the boats by means of a flag elevated upon a pole, with which he runs toward the quarter where the whales are seen; or a series of signals are made from a tall flag-staff.

"The cetaceous animals frequenting the coast, having been so long and constantly pursued, are exceedingly wild and difficult to approach, and were it not for the utility of Greener's gun the coast fishery would be abandoned, it being now next to impossible to 'strike' with the hand-harpoon. At the present time (1874) if the whale can be approached within 30 yards it is considered to be in reach of the gun-harpoon. When the gunner fires, if he hits his game, the next effort made is to haul up near enough to shoot a bomb-lance into a vital part, which, if it explodes, completes the capture; but if the first bomb fails the second or third one does the fatal work. The prize is then towed to the station, and, if it be night, it is secured to one of the buoys, placed for the purpose, a little way from the surf, where it remains until daylight, or until such time as it is wanted to be stripped of its blubber. The whales generally taken by the shore parties are humpbacks and California grays; but occasionally a right whale, a finback, or a sulphur-bottom is captured.

"The localities of several of the stations are quite picturesque. Some of them are nearly concealed from seaward view, being inside some rocky reef, or behind a jagged point, with its outlying rocks, upon which each successive wave dashes its foam, as if forbidding the approach of ship or boat. The one which most interested us is half hidden in a little nook, on the southern border of the Bay of Carmel, just south of Point Pinos. Scattered around the foot-hills, which come to the water's edge, are the neatly whitewashed cabins of the whalers, nearly all of whom are Portuguese, from the Azores or Western Islands of the Atlantic. They have their families with them, and keep a pig, sheep, goat, or cow prowling around the premises; these, with a small garden-patch, yielding principally corn and pumpkins, make up the general picture of the hamlet, which is a paradise to the thrifty clan in comparison with the homes of their childhood. It is a pleasant retreat from the rough voyages experienced on board the whale-ship. The surrounding natural scenery is broken into majestic spurs and peaks, like their own native isles, with the valley of the Rio Carmel a little beyond, expanded into landscape loveliness.

"Under a precipitous bluff, close to the water's edge, is the station, where, upon a stone-laid quay, is erected the whole establishment for cutting-in and trying-out the blubber of the whales. Instead of rolling them upon the beach, as is usually done, the cutting-tackles are suspended from an elevated beam, whereby the carcass is rolled over in the water—when undergoing the process of flensing—in a manner similar to that alongside a ship. Near by are the try-works, sending forth volumes of thick black smoke from the scrap-fire under the steaming caldrons of boiling oil. A little to one side is the primitive storehouse, covered with cypress boughs. Boats are hanging from davits, some resting on the quay, while others, fully equipped, swing at their moorings in the bay. Seaward, on the crest of a cone-shaped hill, stands the signal-pole of the lookout station. Add to this the cutting at the shapeless and half-putrid mass of a mutilated whale, together with the men shouting and heaving on 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."*

In 1879 shore whale-fisheries were, or had lately been, in operation at the following points on the coast of California:

(*a*) Santo Tomas, in Lower California, about 35 miles south of San Diego.

(*b*) Cojo Viejo, in Santa Barbara County, just south of Point Conception and 51 miles west of Santa Barbara.

(*c*) Port Starford, in San Luis Obispo County.

(*d*) San Simeon, in San Luis Obispo County.

(*e*) Carmelo Bay, in Monterey County.

(*f*) Monterey, in Monterey County.

There have been whale-fisheries also at the following points:

(*a*) Ballast Point, at San Diego.

(*b*) Dead Man's Island, in San Pedro Bay, Los Angeles County.

(*c*) Portuguese Bend, just north of San Pedro Bay, n Los Angeles County.

(*d*) Goleta or Moore's Landing, 8 miles west of Santa Barbara, in the same county.

(*e*) Point Sur, in San Luis Obispo County.

(*f*) Pigeon Point, in San Mateo County.

(*g*) Half-Moon Bay, in San Mateo County.

* SCAMMON: Marine Mammalia, pp. 247-250.

The first shore-whaling camp on the California coast was established by Capt. Joseph Clark, near Monterey, about the year 1851.* From Monterey Captain Clark went to San Diego and thence to Portuguese Bend. He went to San Simeon about 1864.

Capt. Frank Anderson, who is said to be now the most experienced whaling captain on the coast, is a native of the Azores Islands, his Portuguese name having been dropped on naturalization in the United States, as is the general custom among the natives of the Azores. He was at first a whaler on ships from New Bedford, then came to California in 1866, and since 1873 he has had charge of whaling-camps as captain. He was at San Luis Obsipo until 1874, at Portuguese Bend till 1877, and at Pigeon Point till 1879, when he with his entire company removed to Cojo Viejo.

The San Diego fishery was established by Captain Clark about 1858. In 1869 the whalers were driven off from Ballast Point in January, the land being taken for Government purposes. The company lost the rest of that year; then they went to Santo Tomas, in Mexico, at which point a company has been most of the time subsequently, but Captain Anderson is informed that they have now suspended. Before the arrival of this party at Santo Tomas, another party, under Captain Price, had been there in 1864 and 1865. The Mexican Government charged a fee of about $50 annually, and the United States customs officers at San Francisco admitted the oil free of duty, although shipped from a Mexican port, "in consideration of the fact that they were Americans and poor men who worked for their living." This privilege was afterwards refused to certain San Francisco capitalists.

In 1866 a station existed for a short time on Dead Man's Island, a circular rock rising in San Pedro Bay.

Portuguese Bend is an unusually good station for winter whaling, although little comes there in summer. While there Mr. Anderson used to work only in winters. In the three winters, December to April, spent there, 2,166 barrels of oil were obtained.

Pigeon Point has many summer whales, but the water is too rough in winter. The first year 1,000 barrels were obtained; the second year 564. In 1877, in the month of September, a whale 120 feet long is reported by the New Bedford Standard to have been "towed into Pigeon Point for the whaling company, making two whales at anchor at that port."

Goleta was not a very good station. The camp came about 1870 and broke up in 1878. There were three companies there in all, the first of Jamaica negroes. One winter 450 barrels were obtained there.

Whaling was practiced is Los Angeles County for a time, but was discontinued in 1876.

The following species of whales are found on the Pacific coast:

(1) Sperm whale, not taken by shore camps.

(2) Humpback whale, or summer whale.

(3) Gray whale, or devil fish, so called because it fights harder than the others.

(4) Right whale, not often seen.

(5) Sulphur-bottom whale (*Sibbaldius sulfureus* Cope). Large, 80 to 110 feet long. Twelve of them were taken at Pigeon Point, but none yet at Cojo. They pass by going north in April and south in the fall. They are hard to hold or tow, because when dead the under jaw drops down.

(6) Finback. Two struck at Cojo, but lost in deep water. They are very slim, with but little blubber, 100 to 120 feet long, and make about 30 barrels of oil.

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* Scammon says the first camp was established by Captain Davenport, at Monterey, in 1851.

(7) Bowhead, seen only in Arctic regions.

(8) *Russian whale. Scarce and only in Arctic regions.* Very large.

The humpback whale goes north in summer, returning in the fall. Some migrate as far as Alaska, but many not beyond Point Concepcion. This is therefore almost the only species taken in summer. Four have been taken at Cojo this year. The cows are about 50 feet long, and the bull whales about 45. *The former produce about 70 barrels of oil, the bulls about half as much.* The four taken at Cojo produced 148 barrels of oil. This species was formerly much more abundant than now. Since 1875 it has become quite scarce. The whalebone of this species is black, but of little value; said to be worth .045 per pound in Japan, but not worth shipping. The oil of this species is white and quite thick. The reddish and thinner oil of the gray whale sells more readily, but both bring the same price. The oil of the sulphur-bottom whale is like lard, and becomes solid in cold weather. All these oils are chiefly used in rope-making; some of it in leather working. The oil made from blubber is more valuable than that taken from the inside, and is kept separate from the latter. The gray whale is usually about 45 feet long, the bulls 35. They generally follow the line of the edge of the kelp in going southward. There are usually two or three together. "They feed on sardines and shrimps." They go southward from December to February to calve in the Gulf of California. Then they return northward from the latter part of February to May. The most of February is a "slack time," when few are seen. When they return northward the cows and calves usually keep well out to sea, the bulls farther toward shore. The whalebone of this species is white, scanty, and worthless. A gray cow whale sometimes yields about 90 barrels of oil; a bull less than half as much.

CAMP AT COJO VIEJO.—The company consists of twenty men in winter and eighteen in summer. Fifteen of these constitute the management, own the property, and share the proceeds equally. Captain Anderson is employed by these, receiving $100 in cash and one-seventeenth of all receipts (above freights and commission). There are two others receiving one thirty-fifth of the proceeds, one one-fortieth, and another one fifty-fifth. Two Chinamen also accompany the camp, receiving for their services the sinews of the whale, which are shipped to China, supposably for soup. These sinews used to sell at 50 cents per pound to the Chinese in San Francisco, then at 40 cents, and afterwards there was no market. They are now worth about 25 cents per pound in San Francisco, and are said to sell at $1 per pound in China. There are 20 to 30 pounds of sinews in a whale.

The whole company at Cojo came originally from the Azores, with the exception of two or three from the Madeiras. The same persons constituted the company on Pigeon Point. The company have built for themselves a large house, in which they eat and sleep, and store their guns and harpoons. Beside this, the captain, who is accompanied by his wife, has a separate smaller house, and the Chinese another after their fashion. These are on a bluff above the beach. On a cliff above is a signal-port, where two men watch for whales. On the beach below are the kettles for trying the oil, the barrels, and other things of that sort. In a little laguna are the two whaleboats not in use.

The entire outfit cost about $2,000, exclusive of the houses, &c. The total expenses of the camp are $4,000 to $5,000 yearly. There are four whaling-boats, two being in use each half of the year, while the others are being repaired, painted, &c. These were made in New Bedford, where they cost $145 each, but cost $200 at San Francisco. The outfit of a boat when ready to attack a whale is worth about $600. It consists of eight bomb-lances, two harpoons, one 200-fathom line, two guns, a swivel-gun, worth $200, for the harpoons and large bombs, and a smaller gun, worth $55, for the bomb-lances. The smaller bomb-lances are made in Norway, and come twenty-five in

a box, at $94 per box. These are shot at the whale from a short thick gun, held at the shoulder. They explode in the flesh of the whale, "disgusting him," but not usually killing him. Of the sixteen gray whales thus far taken at Cojo, there was but one which did not have scars from bomb-lance wounds. The whales are becoming so shy, that these things can rarely be shot closely enough to prove effectual. These bomb-lances are a little over a foot long. A much larger bomb-lance, holding a pound of powder, invented by Anderson, and made for him in Norway, is used by this camp. It is fired from the swivel-gun, and usually kills the whale. They cost $5 each.

The harpoons are usually much more effectual. The sort used, differing somewhat from any in use in the Atlantic, is manufactured in Cambria, in San Luis Obispo County. A rope is fastened to this, and it is shot from the large swivel-gun at the whale. These harpoons fired from guns have been in use on the coast since about 1868; the Cambria harpoon by Anderson since about 1872. The harpoons cost $9 each. Some of them have been used five times, but occasionally one is hopelessly bent, or the rope holding it is broken. The swivel-gun is made in England. It is placed in the bow of the boat; sometimes men are killed by the recoil. One man in Anderson's camp was kicked in the chest by it and died of hemorrhage. The harpoon weighs 7 to 9 pounds, the rope about 37 pounds. The gun will not shoot well more than 150 feet, the deflection of the projectile preventing it from striking squarely at a greater distance. At a distance of more than 90 feet it is necessary to aim above the whale. Unless the whale is held by a line, it is likely to sink when dead, and in rough weather it is hard to prevent them from sinking even when so held. Harpoons are thrown by hand only when necessary to hold up dead whales. The whale-lines are brought from New Bedford.

The company arrived at Cojo from Pigeon Point April 25, 1879, and devoted the following summer to getting ready for work. The following are the dates when whales were caught; humpback whales, October 18 and 24, two on each day; California gray whales, on December 14, 21, 24, 28, and 29, January 5, 9, 10, 12 (two whales), 14, 17, 21, 22, 25, February 1; making a total of twenty whales up to February 14. A camp is considered to do well if obtaining fifteen whales per year. The rent of the land, with privilege of garden, cow-pasture, and firewood, is usually about $100 per year, but is only $1 at Cojo.

The oil is barreled, and being rolled into the surf is taken on a lighter and transferred to a San Francisco steamer and consigned to parties in San Francisco for sale. On January 23 there were shipped 3,285 gallons; February 2, 13,534½ gallons; now on hand, 315 gallons; total product, April to February, 17,134½ gallons, worth about 45 cents per gallon in San Francisco. The bones of the whale are worth about $10 per ton for soap-making in San Francisco, but their shipment from Cojo is not considered profitable.

CARMELO CAMP.—At the south end of the Bay of Carmelo is a whaling-camp, consisting of seventeen men all told; all Portuguese, from Azores Islands, commanded by Captain Mariano. The outfit is owned by a company of four, of whom Mariano is one, and the rest are outside parties. The other sixteen are hired on different lays, averaging one-fiftieth. The captain receives one-fifteenth. During the past year they have caught three humpback, one finback, and three gray whales, one of the humpback whales in the spring, which is unusual. Two hundred barrels of oil have been obtained, the finback yielding 30 barrels of a lighter oil, but selling for no more. This company runs from October to March only, the men then disbanding and going elsewhere. They have two whaling-boats only, and use the harpoons made by G. W. Proctor, at Cambria or San Marcos, and also sometimes those made by Merritt, in Monterey. Carmelo is a very good whaling-station, inferior to Monterey only, but there is not so good a chance for long chases of whales. Three right whales were seen this year, but none caught. Last year Mariano's company

was at Point Sur, farther south in Monterey County. There are many whales at Point Sur, but the coast is very rugged and the sea runs very high, so that for much of the winter the boats had to be hauled out of the water and the men dared not venture out. In 1878–'79 at Point Sur, one humpback, three gray, and a right whale were taken, and in 1877–'78, at Point Sur, one gray and one-sulphur bottom. One large man-eater shark (*Carcharodon rondeleti*) was taken by the whalers at Carmelo last year.

MONTEREY WHALING COMPANY.—Another whaling-camp is at Monterey. This consists of twenty-three men all told, all Portuguese, and all but one from the Azores. This company has no captain, but their most efficient man, Mr. Verissimo, is made secretary, having charge of all business and receiving no salary. The three boat-headers in the company receive a lay of one twenty-third, the cook is hired outright, and the residue of receipts are divided equally among the other nineteen who own the outfit. This company, with changing membership, has been in Monterey since 1855. Verissimo has been here since 1867. This year fourteen whales have been obtained from September to April—seven gray whales (three down and four up whales), six humpback whales, and one right whale—besides two basking sharks (*Cetorhinus maximus*); in all 500 barrels of whale-oil and 8 of shark-oil.

The basking shark is rare here, sometimes not seen for twenty years. This year several were seen in Monterey Bay. "When a man is on the lookout for whales he can't see sharks." The sharks come to the surface at times, and remain quiet for a while, and their "flukes" and dorsal fins may be seen by one who is watching. The shark-oil should be worth 60 to 75 cents a gallon, each shark yielding 125 gallons. In 1878–'79 one humpback and three gray whales were taken, making 185 barrels of oil, and in 1877–'78 eight whales, making 500 barrels. Years ago this business paid better, for whales were more abundant, and higher prices were paid for the oil.

This company own three good boats, New Bedford made, and four guns of each kind. Their harpoons are mostly made by Merritt, a blacksmith in Monterey. They are thought superior to Proctor's, in that they are less likely to slip out of the whale; the posterior flange of the head is wider. With one of them nineteen whales have been shot. They are made of Swiss iron, and cost $10 each.

The Monterey Democrat thus describes the dangers of shore-whaling in that vicinity: "On Friday of last week the crew of one of our whale-boats narrowly escaped total destruction. They had struck and made fast to a California gray, a species particularly vicious, and were approaching him for a shot with the bomb-gun. There were a lot of porpoises around the creature, which suddenly appeared to be 'gallied' by them, and paused in his race. The boat under sail and running swiftly, got, unawares, within the sweep of the leviathan's tail, and when the shot was delivered a stroke in response from that tremendous creature crushed like an egg-shell the timbers of its bow. The sea rushed in through the fracture, and the boat being weighted down with her crew, an anchor, and two heavy guns, sank below the surface. The captain had been struck in the side by a fragment of the broken timbers, and was almost paralyzed. In the confusion, for a moment or two, no one thought to cut the rope by which the fish was fast, and it had resumed its flight. A tragedy was imminent, but luckily the captain recovering himself, ordered the rope to be cut, and the immediate and most pressing danger was escaped. The peril was, however, still considerable. Two of the crew could not swim, and they were all immersed to their necks in ice-cold water. Once or twice the boat rolled over, and they were in that perilous condition for half an hour before their consort, which was at some distance, heard their cries, and came to their rescue."

The following item about whaling at Monterey appeared in the Monterey Californian:

"Last week our Portuguese fishermen killed a large female whale of the California gray species (*Rhachianectes glaucus*), about 60 feet in length, being some 22 feet larger than has ever been killed here before—the average of females killed being about 42 feet. After cutting off the blubber they found inside a nearly full-grown male calf, which measured 18 feet from the end of its nose to the tip of its tail, or fluke, as the whalers call it; the circumference of the body at its center 9 feet; the head about 4 feet in length; pectoral fins 3 feet; breadth of tail 3½ feet, and it had two ridges on the lower jaw. When brought on shore it still had 3 feet of the umbilical cord attached to it. The whalebone on its upper jaw was soft and white; the tongue large and soft; the eyes nearly full size, about as large as a cow's, and the skin was of a dark brown, mottled white. It had no dorsal fin. The females, when with young, generally keep off shore when on their way down south, to bring them forth in the warm waters of the bays of Lower California, where they remain all winter and go north in the spring. The females, when with calf, are dangerous, as they often attack the boats of the whalers. The writer once saw a boat cut completely in two by the flukes of one of these whales, and it looked as if it had been chopped in two by a dull ax; and several of the men were wounded. The term of gestation is about one year. Formerly these marine monsters were so numerous in Monterey Bay that whalers would fill up lying at anchor. Oftentimes they would be seen playing in the surf and rolling the barnacles out of their sides and backs on the sand beach—an odd way of scratching themselves."

SAN SIMEON WHALING COMPANY.—The men in this company are all Portuguese but one, and most of them are from the Azores Islands. Captain Clark (*née* Machado) is from the Azores, whence he shipped as a seaman to the United States. He began whale-fishing at Monterey, where an American, Captain Davenport, the first California shore-whale fisher, was engaged before him. In 1858 he began whaling at San Diego. In 1864 he was at Portuguese Bend, and in 1865 started the San Simeon Camp, where he has ever since remained.

There are twenty men in the camp at San Simeon. They are hired by Captain Clark, who owns the entire outfit. The boat-pullers receive one-fiftieth of the lay (*i. e.*, all receipts), the boat-steerers receive one-fortieth, and the strikers one-sixteenth.

Thirteen whales have been taken this season (up to February 21). One summer whale or humpback, November 15; the others all gray whales. No other kinds have ever been secured by Clark, and the humpback whale is not taken later than December.

The last whale southward bound was taken January 29, and a few northward-bound whales have been noticed—about February 18, the first February 7.

The following is the record of the number taken each year at San Simeon: 1865 to 1871, 20 to 25 each year, never less; 1872, 21; 1873, 22; 1874, 16; 1875, 12; 1876, 7; 1877, 13; 1878, 3; 1879, 14=500 barrels; 1880, 13+.

It takes about ten or twelve whales per year to pay the expenses of the camp, especially now when oil is so low. Four hundred and fifty barrels of oil have been obtained this year and shipped to Charles Sealy, of San Francisco, to be sold on commission. Since 1865 the whales have been growing more scarce and more shy. When they return from the South they keep out farther than when they come down. The sea is often rougher, and the head winds render it difficult to follow them. They rarely take more than four return whales. At San Diego only gray whales, and rarely a right whale, are taken.

The camp is provided with four whale-boats made in New Bedford, costing $200, $175, $150, and $150 each. Two are in use for whaling and one for towing all the time, the other rests. There are also two swivel-guns, made in England, each costing $200; two bomb-guns, made in New Haven (?), costing $50; and some bomb-lances, made in Norway. The harpoons are made by G.

W. Proctor, formerly of Cambria, now of San Marcos, San Luis Obispo County. Mr. Proctor is a blacksmith. He began making harpoons in 1870 or 1871. The first one made was presented to Captain Clark, who struck three whales with it and then put it up to keep for luck. Mr. Proctor has no patent on the harpoons, and no warerooms or factory. He makes them out of the very best iron, better than that used in the English harpoon. They are heavier than the latter, and the posterior part of the head is made thick, instead of thin and sharp. There is also a little contrivance by which the turning of the head in the flesh is made more certain. They are now used by nearly all the California whalers, and are considered by them as better and more durable than the others. The harpoons are used for making fast to the whale; the bombs for killing. Often flint lance-heads and bone harpoons of the Eskimos are found in the whales, and very few of them are unscathed. The neighboring Chinamen help when a whale is brought in, receiving the sinews for their share. The total outfit is worth $1,000 to $1,500; the houses about $300.

Whales going down are fatter than when returning. A south-bound whale makes perhaps 35 barrels of oil, but a north bound only 25 barrels. Mostly bull whales are taken. On the south journey the larger cows come nearest shore and first. When they return the cows and calves are farthest out, the bulls and dry cows near shore.

Portuguese Bend was once a good whaling-station, but lacked wood and water. San Diego was an excellent station until the only suitable place was taken by the Government. Santo Tomas is a good place from the chance of taking sperm whales.

PORT STARFORD CAMP.—This camp is located on "Whaler's Point," about a mile north of the landing at "Port Starford." This camp consists of 21 men, all but one Portuguese, and mostly from the Azores. To the American, Michael Noon, I am indebted for the information obtained, Captain Marshall (Marsiali) being away. The property is owned by four or five shareholders, the captain being one of them and the others are hired by these, each man receiving a particular lay, the oarsmen one sixty-fifth to one-seventieth, the boat-steerers one thirty-fifth to one-fortieth, the strikers one-seventeenth to one-twentieth. The station is usually fairly good but this year they have had poor luck; only four whales, all gray, having been secured. In 1879 nine, in 1878 eleven were taken. Most of these were gray; though a few humpbacks were taken in the fall. One hundred and fifty barrels of oil have been shipped to San Francisco from this camp. They have three whale-boats here made at New Bedford. The other items of outfit are the same as at San Simeon. The whole cost about $1,500, and would sell for about half that amount.

Captain Marshall established the station here, and has been in charge all the time since its beginning in 1868 or 1869. The men in this company, as at San Simeon, are discharged in the summer, and a new set hired each fall, many of them different. Some of its members are engaged in summer in fishing for the market of San Luis Obispo.

STATISTICAL RECAPITULATION.—The aggregate amount of oil taken by the several shore parties, prior to 1874, is estimated by Scammon at not less than 95,600 barrels; of this amount 75,600 barrels were obtained from California gray whales, and 20,000 barrels from humpbacks, finbacks, and sulphur-bottoms. "The value of the oil may be placed at about $13 a barrel, which would give a gross of about $1,242,800, or an annual product for twenty-two years of $56,490. To obtain this oil not less than 2,160 California grays and 800 humpbacks and other whalebone whales were robbed of their fatty coverings. If we add to this one-fifth for the number of whales that escaped their pursuers, although mortally wounded, or were lost after being killed, either by sinking in deep water or through stress of weather, we shall swell the catalogue to 3,552. To this add one-eighth for unborn young, and the whole number of animals destroyed would be 3,996, or about 181 annually. This may be regarded as a low estimate; doubtless, the number of these creatures

destroyed every year by the enterprising California whalemen far exceeds the above estimate."* The production of the various whaling-camps in 1879 was 63 whales, yielding 58,084 gallons of oil, valued at $26,137.80. The total number of men engaged at the camps was 101, nearly all of whom were Portuguese.

SHORE-WHALING BY ESKIMOS AND INDIANS.

The Eskimos of Alaska capture whales of several species, using their flesh for food and from the blubber preparing oil for domestic use. The whalebone is saved and traded with the whaling-vessels coming along those shores in the summer season. The beluga or white whale is also an object of pursuit.

Mr. Petroff, in his census report on Alaska, says: "The oil obtained from the beluga and the large seal (Maklak) is a very important article of trade between the lowland people and those of the mountains, the latter depending upon it entirely for lighting their semi-subterranean dwellings during the winter, and to supplement their scanty stores of food. The oil is manufactured by a very simple process. Huge drift-logs are fashioned into troughs, much in the same manner as the Thlinket tribes make their wooden canoes. Into these troughs filled with water the blubber is thrown in lumps of from 2 to 5 pounds in weight; then a large number of smooth cobble-stones are thrown into a fire until they are thoroughly heated, when they are picked up with sticks fashioned for the purpose, and deposited in the water, which boils up at once. After a few minutes these stones must be removed and replaced by fresh ones, this laborious process being continued until the oil has been boiled out of the blubber and floats on the surface, when it is removed with flat pieces of bone or roughly fashioned ladles, and decanted into bladders or whole seal skins."† Mr. Petroff sends us the following graphic description of the hunt:

"BELUGA HUNTING AT ALASKA.—Next day about noon I was invited to participate in a canoe excursion in pursuit of some beluga or white grampus, a member of the whale family, but of an average length of only 16 or 20 feet. The blubber of this animal is considered a great delicacy by the Indians in this neighborhood, and the Laiada chief wished to get a supply of that greasy staff of life before returning home. Accordingly we started off in ten bidarkas, all the Indians being provided with various sizes of spears, while I took nothing but my rifle. In half an hour after leaving the mouth of the river the proposed hunting-ground was reached and the canoes separated in search of the game. For some time we cruised about without seeing a 'blow,' but finally the long expected signal shout was heard from one of the canoes, and all assembled immediately around their intended victim, which was a female beluga, with a calf following in its wake. First the old one would come up and blow, and in a few seconds after the young one would follow suit, throwing up a diminutive spout. The calf was attacked first, and as soon as its blood dyed the water, the dam turned around as if in pursuit of the murderer, describing circles around the floating body of its offspring and lashing the water into foam with its tail and flukes. While racing around the animal received well-aimed spears from the bidarkas, which had formed a circle, and as these weapons are provided with inflated bladders near the head, the beluga was soon buoyed up on the surface of the water, being too exhausted to draw under the large number of bladders fastened to its back and sides, and in that position was easily killed. Three more were killed in the same manner, and the party was preparing to return to the village when I thought I would try another way of securing the game, and without giving any notice to the men in the other canoes, as I ought to have done, I aimed my rifle at a beluga which was showing its huge white back above the water a short distance from me. The shot went off and its effect was instantaneous, though not exactly as I had

* SCAMMON: Marine Mammalia, p. 251.

† Alaska, its Population, Industries, and Resources, by Ivan Petroff. Tenth Census, Vol. VIII.

expected. The shot was well aimed and hit the spine of the animal, inflicting a mortal wound; but while the beluga was floundering about in its death struggles, lashing the water into foam dyed with its own red blood, one stroke of the tail upset one of the canoes, throwing the inmates into the water. There was plenty of assistance on hand, however; the canoe was righted, and the men crawled into it, very wet to be sure, but not at all in a bad humor. The accident was the subject of jokes innumerable on the way home. When the last beluga had been secured, and its body fastened to the stern of our canoe, the whole squadron was set in motion. With the tide in our favor, we glided along swiftly in spite of the weighty carcasses we had in tow, and as we drew near to the village the monotonous boat song was chanted by the men as they plied their paddles. On the high bank of the river the old chief was standing ready to receive us, while the squaws were sitting in the grass and watching our approach, joining with their shrill voices in the song as soon as we were near enough to be heard. On our arrival at the beach the whole village had assembled to view and admire the spoils of our day's sport. As soon as the belugas had been dragged ashore, knives were drawn on all sides and slices of the blubber cut off and eaten raw, apparently with great gusto, by old and young. I tasted a small morsel, and must confess that it resembles raw bacon fat more than anything I ever swallowed; but that is only the case immediately after the killing; as soon as the blubber is half a day old the rancid, fishy taste is there and grows stronger every day. It was dark before all the blubber had been cut off and safely stored out of reach of the village dogs, but late as it was the chief's house was prepared for a continuation of yesterday's feast and games. I was not prepared for a second siege of that kind and managed to slip away unobserved, glad to escape an ordeal which would have been more trying on a Caucasian's olfactory nerves than that of the day before, on account of the fresh supply of blubber and oil. Before I arose next day the visiting party from Laiada had taken their departure to set some other village in commotion, while the good people of Chketuk were yet reveling in remembrance of the joys just past."

The Indians of Cape Flattery are said to derive their principal subsistence from fishery products, the most important of which are the whale and halibut. Mr. James G. Swan, in a report on the Makah Indians, in No. 220 Smithsonian Contributions to Knowledge, 1869, says: "Of the former [whales] there are several varieties which are taken at different seasons of the year. Some are killed by the Indians; others, including the right whale, drift ashore, having been killed either by whalemen, swordfish, or other casualties. The various species of whales are: The sperm whale, kōts-ké, which is very rarely seen; right whale, yakh'-yo-bad-di; blackfish, klas-ko-kop-ph; finback, kaú-wid; sulphur-bottom, kwa-kwau-yak'-t'hle; California gray, che-che-wid or chet'-a-pūk; killer, se-hwau. The generic name of whales is chet'-a-pūk. The California gray is the kind usually taken by the Indians, the others being but rarely attacked.

"Their method of whaling, being both novel and interesting, will require a minute description—not only the implements used, but the mode of attack, and the final disposition of the whale, being entirely different from the practice of our own whalemen.

"From information I obtained, I infer that formerly the Indians were more successful in killing whales than they have been of late years. Whether the whales were more numerous, or that the Indians, being now able to procure other food from the whites, have become indifferent to the pursuit, I cannot say; but I have not noticed any marked activity among them, and when they do go out they rarely take a prize. They are more successful in their whaling in some seasons than in others, and whenever a surplus of oil or blubber is on hand, it is exchanged or traded with Indians of other tribes, who appear quite as fond of the luxury as the Makahs. The oil sold by these whalers to the white traders is dogfish oil, which is not eaten by this tribe, although

the Clyoquot and Nootkan Indians use it with their food. There is no portion of a whale, except the vertebræ and offal, which is useless to the Indians. The blubber and flesh serve for food; the sinews are prepared and made into ropes, cords, and bowstrings; and the stomach and intestines are carefully sorted and inflated, and when dried are used to hold oil. Whale-oil serves the same purpose with these Indians that butter does with civilized people; they dip their dried halibut into it while eating, and use it with bread, potatoes, and various kinds of berries. When fresh, it is by no means unpalatable; and it is only after being badly boiled, or by long exposure, that it becomes rancid and as offensive to a white man's palate as the common lamp-oil of the shops."

5. DEVELOPMENT OF THE SPERM-WHALE FISHERY.

EARLY HISTORY OF WHALING AT NANTUCKET.—The fishery for sperm whales began at a much later period than that for right whales, but the exact date of its commencement is unknown. The whales taken by the early settlers of New England were mostly the right or whalebone species and the first spermaceti whale known to the people of Nantucket caused great excitement. It was found dead on the shore, and quite a dispute arose concerning its ownership, "for the sperm procured from the head was thought to be of great value for medical purposes." It would thus appear that sperm whales had been heard of by these people, but had not been seen by them. "The first spermaceti whale taken by the Nantucket whalers," says Macy, "was killed by Christopher Hussey. He was cruising near the shore for right whales, and was blown off some distance from the land by a strong northerly wind, where he fell in with a school of that species of whales, and killed one and brought it home. At what date this adventure took place is not fully ascertained, but it is supposed to be not far from 1712. This event gave new life to the business, for they immediately began with vessels of about thirty tons to whale out in the 'deep,' as it was then called, to distinguish it from shore-whaling. They fitted out for cruises of about six weeks, carried a few hogsheads, enough probably to contain the blubbers of one whale, with which, after obtaining it, they returned home. The owners then took charge of the blubber, and tried out the oil, and immediately sent the vessel out again. In 1715 the number of vessels engaged in the whaling business was six, all sloops of from thirty to forty tons burden each, which produced £1,100 sterling, or $4,888.88." *

BEALE'S ACCOUNT OF THE ORIGIN OF THE SPERM-WHALE FISHERY.—The history of the sperm-whale fishery is accurately given by Thomas Beale,† in his history of the sperm-whale, in which he says: "The origin of the sperm-whale fishery, that is before it became organized as a branch of commerce—like the origin of other fisheries of the same nature, is involved in such deep mystery as almost altogether to defy the searching acumen of the historian. Without looking into the ancient, romancing, and classical histories, with which most of the countries of Europe abound, and which contain wonderful stories of the appearance, death, or capture of the sperm-whale, or other creatures of the same order, it may be sufficient for some of us to know that during the early part of the last century a few daring individuals who inhabited the shores of the American continent, fitted out their little crafts, furnished with weak and almost impotent weapons, to attack and destroy in its own element the mighty monarch of the ocean, in order to rob his immense carcass of the valuable commodity with which it is surrounded. But even as far back as the year 1667 we find a letter, published in the second volume of the Philosophical Transactions, from Mr. Richard Norwood, who resided at the Bermudas, which states that the whale-fishery had

* MACY: Hist. Nantucket, pp. 32, 36.

† The Natural History of the Sperm-Whale by Thomas Beale, Surgeon: London, 1836; 12mo., pp. 393.

been carried on in the bays of those islands for 'two or three years,' evidently meaning the black-whale fishery; for in another part he says: 'I hear not that they have found any spermaceti in any of those whales;' but subsequently he states in the same letter: 'I have heard from credible persons that there is a kind of whale having *great teeth*, as have the spermaceti, at Elentheria and others of the Bermuda Islands. One of this place, John Perinchief, found one there dead, driven upon an island, and though I think ignorant of the business, yet got a great quantity of spermaceti out of it.' He says again: 'It seems they have not so much oil as ours (meaning the black whale), but the oil, I hear, is at first like spermaceti, but they clarify it, I think, by the fire.'

"But in volume iii, Philosophical Transactions," continues Beale, "in a letter from the same place, written a year or two afterwards, we find something like a beginning of the sperm-whale fishery threatened by a Mr. Richard Stafford, who informs us that he has killed several black whales himself, and who is represented as a very intelligent gentleman. He says: 'Great stores of whales make use of our coast;' but in another part he states: 'But here have been seen spermaceti whales driven upon the shore. These have divers teeth about the bigness of a man's wrist. I have been,' says he, 'at the Bahama Islands, and there have seen of this same sort of whale, dead on the shore, with sperma all over their bodies. Myself and about twenty others have agreed to try whether we can master and kill them, for I could never hear of any of that sort that was killed by any man, such is their fierceness and swiftness.' He concludes by remarking that 'one such whale would be worth many hundred pounds.' A weighty reason for the establishment of the fishery, no doubt. The same writer, in another part of his letter, states: 'There is one island among the Bahamas, which some of our people are settled upon, and more are coming thither. It is called New Providence, where many rare things might be discovered, if the people were but encouraged.' This same New Providence afterwards became so famous as a whale-fishing station by the exertions of our American descendants. But even before these needy adventurers commenced their career of spermaceti hunting, 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 from their canoes, and pierce him with their lances of wood or other instruments of the same material, which were barbed, and which, before they were plunged into his flesh, 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, which, being repeated at every rising of the whale, or when they were so fortunate as to get near enough to do so, in a few instances, by a sort of worrying-to-death system, rewarded the enterprising savage with the lifeless body of his victim, but which in most cases was that of a very young one; and even this, when towed to the shore, it was impossible for them to turn over, so that they were obliged to content themselves with flinching the fat from one side of the body only.

"But although, as has been before stated, Mr. Richard Stafford had threatened to commence the sperm-whale fishery at the Bahama Islands, it appears rather doubtful whether he did so or not, when we come to peruse the letter of the Hon. Paul Dudley, F. R. S., published in 1724, Phil. Trans., vol. xxxiii, an extract of which states: 'I very lately received from Mr. Atkins, an inhabitant of Boston, in New England, who used the whale-fishery for ten or twelve years (black whales), and was one of the first that went out a fishing for the spermaceti whales about the year 1720.' It also appears in this account that the fishery even then was very little understood, for Mr. Atkins himself says 'he never saw, nor certainly heard of a spermaceti female taken in his life,' for he states 'the cows of that species of whale, being much more timorous than the males, and almost impossible to come at, unless when haply found asleep upon the water, or detained by their calves.' In another part of this letter the Hon. Paul Dudley states: 'Our people formerly

used to kill the whale near the shore; but now they go off to sea in sloops and whale boats in the months of May, June, and July, between Cape Cod and Bermuda, where they lie by in the night, and sail to and again 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 beginning of June to the end of May; for the spermaceti whales, from the beginning of June to the end of August.'"

CONDITION OF THE FISHERY FROM 1720 TO 1775.—About the middle of the eighteenth century the value of oil increased by the opening up of new markets, and the people of New England pushed forward with zeal in the whaling industry. The English, French, and Dutch had been very successful in the northern fishery for whalebone whales, but had taken no part in the capture of sperm whales, leaving this work for the American fleet which began to grow rapidly in the number and size of its vessels. In 1720 the whaling fleet of New England numbered only a few sloops of about 36 tons each, making voyages east to Newfoundland and south to the Gulf Stream. By 1731 the American fleet amounted to 1,300 tons, and the size of the vessels increased so that in 1746 schooners and brigs from 100 to 130 tons were employed. Just before the Revolutionary war the whaling industry was very prosperous in New England, the fleet was large, and the profits considerable. Voyages were made to the north and south for sperm and right whales, but the chief object of pursuit was the sperm whale, whose oil was nearly three times the value of that of the right whale. The principal grounds visited for the sperm whale were off the coast of Brazil and Guiana, various parts of the West Indies, the Cape Verde and Western Islands, and eastward of the Banks of Newfoundland.

Scammon gives the following statistics to show the condition of the business from 1762 to 1770, inclusive:

Year.	Number of vessels.	Number of barrels.	Value of production.
1762	78	9,440	$102,518 40
1763*	60	9,238	100,324 68
1764	72	11,983	131,135 38
1765	101	11,512	125,020 32
1766	118	11,969	129,983 24
1767	108	16,561	179,852 46
1768	125	15,439	167,667 54
1769	119	19,140	462,996 60
1770	125	14,331	346,666 89
	906	119,613	1,746,165 51

*Scoresby, in his account of the Whale Fishery of the British Colonies in America, states there were eighty vessels employed in the American fisheries during the year 1763.

"About 1774," says Scammon, "the fleet was augmented by still larger vessels, some of which crossed the equator, and obtained full cargoes upon that noted ground called the 'Brazil Banks,' while others cruised around Cape Verde Islands or the West Indies, in the Gulf of Mexico, Caribbean Sea, or upon the coast of the Spanish Main. Soon after they extended their voyages to the South Atlantic, around the Falkland Islands, and to the coast of Patagonia, where fur-seal skins and sea-elephant oil were sometimes obtained. In such instances these whaling and sealing expeditions were called 'mixed voyages.'"*

"Between the years 1770 and 1775," says Macy, "the whaling business increased to an extent hitherto unparalleled. In 1770 there were a little more than one hundred vessels engaged; and in 1775 the number exceeded one hundred and fifty, some of them large brigs. The employment

* SCAMMON: Marine Mammalia and American Whale Fishery, p. 206.

of so great and such an increasing capital may lead our readers to suppose that a corresponding profit was realized; but a careful examination of the circumstances under which the business was carried on will show the fallacy of such a conclusion. Many branches of labor were conducted by those who were immediately interested in the voyages. The young men, with few exceptions, were brought up to some trade necessary to the business. The rope-maker, the cooper, the blacksmith, the carpenter, in fine, the workmen, were either the ship-owners or of their household; so were often the officers and men who navigated the vessels and killed the whales. Whilst a ship was at sea, the owners at home were busily employed in the manufactory of casks, iron work, cordage, blocks, and other articles for the succeeding voyage. Thus the profits of the labor were enjoyed by those interested in the fishery, and voyages were rendered advantageous even when the oil obtained was barely sufficient to pay the outfits, estimating the labor as a part thereof. This mode of conducting the business was universal, and has continued to a very considerable extent to the present day. Experience taught the people how to take advantage of the different markets for their oil. Their spermaceti oil was mostly sent to England in its unseparated state, the head matter being generally mixed with the body oil; for, in the early part of whaling it would bring no more when separated than when mixed. The whale oil, which is the kind procured from the species called 'right whale,' was shipped to Boston or elsewhere in the colonies, and there sold for country consumptiom, or sent to the West Indies."*

The extraordinary zeal that the Americans took in the whale-fishery at this time called forth from Mr. Burke that glowing tribute which has become familiar to every American. "Whether this eloquent address," says Beale, "had any effect or not upon the minds of our own merchants and ship-owners in stimulating them to fit out ships for the sperm and other whale-fisheries, I am not aware, but it is certain that in the following year (1775) the first attempt was made to establish the sperm whale fishery from Britain; and we accordingly find, from private statements on which I can securely rely, that ships of from 100 to 109 tons burden were sent to South Greenland, coast of Brazil, Falkland Islands, and the Gulf of Guinea, for the purpose of procuring sperm and other oils. The names of the ships which were thus employed in these distinct expeditions were the Union, Neptune, Rockingham, America, Abigail, Hanover, Industry, Dennis, Beaver, and Sparrow, but the principal places of resort of the spermaceti whale not having been yet discovered, the vessels met with very trifling success.

"BOUNTIES GRANTED.—In the following year, 1776, the Government, with a view to stimulate all persons engaged in these fisheries, established a principle of reward for those ships which were most successsful in their endeavors; in accordance with which, five different *bounties* or premiums were offered, forming a scale of prizes for those who were so fortunate as to prove the five gradations of success, the sum of £500 being the maximum, and that of £100 being the minimum prize. In 1781 four ships were fitted out for the river St. Lawrence, but after they had been out a considerable time they returned with the discouraging announcement of having only procured 6 gallons of sperm oil among them during the whole time of their absence.

"SPERM WHALES FROM FRANCE.—In 1784, France, which it appears had preceded the other nations of Europe in the whale-fishery, but had for many years past, for some cause or other, hardly had any share in it, now endeavored to revive it, and with this view Louis XVI fitted out six ships from Dunkirk on his own account, which were furnished at a great expense with a number of experienced harpooners and able seamen from Nantucket. The adventure was more successful than could have been reasonably expected, considering the auspicies under which it was carried on. Several private individuals followed the example of His Majesty, according to Mr.

* MACY: Hist. Nantucket, p. 68.

McCullock, 'and in 1790 France had about forty ships employed in the fishery. The Revolutionary war destroyed every vestige of this rising trade. Since the peace the Government has made great efforts for its renewal, but hitherto without success; and it is singular, that with the exception of an American house at Dunkirk, hardly any one has thought of sending out a ship from France.'

"A PROSPEROUS PERIOD.—In the year 1785 the English shipmasters began to discover the haunts of the sperm whale, the principal object of pursuit, for we find that after they had been out twelve months many vessels returned with from 20 to 80 tons of sperm oil each, so that in the year 1786 we find 327 tons of sperm oil was brought to this country, and which sold for £43 per ton. And the success which attended our whaling expeditions at this time was quite equal to that which the American whalers met with. In 1786 the bounties were increased to £700 maximum and £300 minimum, which had the effect of increasing the perseverance and activity of our whalers, for we now discover them staying out eighteen and even twenty-eight months, and bringing home much larger quantities of sperm oil. During the year 1788 the ships that were sent out were much increased in size, so that they were frequently of from 150 to 300 tons burden, and they still continued, like the Americans, to fish on this side Cape Horn, taking the common black, as well as the sperm whale, at such places as the Gulf of Guinea, coast of Brazil, Falkland Islands, and, for sperm whales in particular, about the equinoctial line. But if the Americans had been the first to establish the fishery on their own shores, and even throughout the North and South Atlantic Oceans, it was the destiny of the mother country to enjoy the honor of opening the invaluable sperm fisheries of the two Pacifics, the discovery of which formed an era in the commercial history of this country. For not only was the sperm-whale fishery by this discovery prodigiously increased, but other commercial advantages accrued from the whalers who resorted to these seas opening a trade with the people who inhabited the extensive shores which bound the enormous ocean."*

"In the year 1789 a gentleman from Cape Cod, who had returned from service in the East India Company, having seen sperm whales near Madagascar, communicated the fact to some of the Nantucket whalemen, who, profiting by the knowledge, in due time dispatched ships to that coast, which proved to be a rich whaling ground."†

The American whale fishery, just before the Revolutionary war, employed a total of not less than 360 vessels of various kinds, with an aggregate burden of nearly 33,000 tons, and produced about 45,000 barrels of spermaceti oil, 8,500 barrels of whale oil, and 75,000 pounds of whalebone annually. By the year 1789 this large fleet had been reduced to about 130 sail of vessels, producing annually scarcely 10,000 barrels of spermaceti oil and about 15,000 barrels of whale oil, with a corresponding proportion of whalebone.

THE BEGINNING OF THE PACIFIC SPERM-WHALE FISHERY.—"In 1788," says Beale, "the grand mercantile speculation of sending ships round Cape Horn into the Pacific, in order to extend the sperm-whale fishery, was reserved for the bold and enterprising mind of Mr. Enderby, a London merchant and ship-owner, who fitted out, at a vast expense, the ship Amelia,‡ Captain Shields, which sailed from England on the 1st of September, 1788, and returned on the 12th of March, 1790, making an absence of one year and seven months, but bringing home the enormous cargo of 139 tons of sperm oil, and likewise having the good fortune to receive £800 more by way of an increased bounty in consequence of the peculiar nature of the expedition. The Amelia having been the first ship of any country which had entered the Pacific in search of whales, her suc-

* BEALE: *op. cit.*, pp. 144-146. † SCAMMON: Marine Mammalia, p. 209.

‡ The Amelia was an English fitted ship, manned by the Nantucket colony of whalemen; her first mate, Archelus Hammond, of Nantucket, killed the first sperm whale known to have been taken in the Pacific Ocean.

cess gave an amazing impulse to all persons engaged in the fisheries, so that several ships, both from this country and America, immediately followed in her track, for on her return in 1790 many vessels were directly sent off, the crews of which continued the fishery along the coasts of Chili and Peru with great advantage; so that in 1791 we had a great addition in the importation of sperm oil, amounting this year to 1,258 tons, making an increase over the importation in the year 1786 of 931 tons. In 1791 the bounties were again altered, but the alteration merely related to the time the ships should remain out. The ships which were at this time engaged in the fishery carried from twenty-two to thirty men each. This enterprising branch of commerce was carried on year after year with considerable success, subject to but slight variations in the annual and gradual increase in the importation of oil, giving employment to a vast number of persons, many of whom were enriched to an immense amount by the success which attended their exertions in this now profitable pursuit."*

The new grounds for sperm whale in the Pacific discovered by American whalemen in English vessels, were soon resorted to by vessels from Nantucket. The first vessels sailed in 1791, and returned "loaded with oil, and reported that whales were plenty, the coast agreeable to cruise on, and the climate healthy. This was sufficient encouragement, notwithstanding the length of the voyages, for a considerable part of the whaling interest to be directed that way. An additional number of vessels was then fitted out, which together made a considerable fleet."†

Starbuck says that six ships sailed for the Pacific fishery in 1791 from Nantucket and one from New Bedford. In the mean time ships from Dunkirk, among them the Falkland, Canton, and the Harmony, had already performed their voyages, and in February, 1792, arrived at Dunkirk with full cargoes. It was the custom in those days to nearly fill with sperm, then return to the Atlantic Ocean and complete their load on the coast of Patagonia or on Brazil Banks, commanders preferring to round Cape Horn with a snugly-loaded ship. The names of the six Nantucket vessels were the Beaver, Washington, Hector, Warren, Rebecca, and Favorite. "These ships," says Scammon, "were only 250 tons burden, dull sailers, having no copper on their bottoms, and but scantily fitted with whaling appliances or provisions. The scene of their first exploits was upon the coast of Chili. These pioneer voyages, through the persistent daring of the hardy men who led them, were eminently successful, which induced the people of the neighboring settlements of other New England ports to extend their whaling commerce, and but few years passed before a numerous fleet were plying over those rough waters. Gradually, however, they extended their cruises toward the more distant but smiling regions of the tropics. As early as 1800,‡ American whalers were plowing the sparkling waters along the coast of Peru, and their keels cut the equatorial line, north and south, in the Pacific. A favorite cruising-ground was from the Spanish Main westward around the Galapagos Islands. There a rich harvest rewarded them, where they labored in a genial climate, with an almost uninterrupted succession of fine breezes and pleasant weather. At certain seasons, north of the equator, the northeast trades blew fresh, and at the south they would frequently increase to a brisk gale; but these periodical breezes, compared with the heavy gales of the Atlantic and the tedious weather about Cape Horn, served only to enliven them into renewed activity under the heated rays of a tropical sun, when in pursuit of the vast herds of cachalots which were met with, bounding over or through the crested waves. During these long voyages it became unavoidably necessary to occasionally go into port, in order to 'recruit ship.' When arrived at these places of supply, good store of fresh meat, water, and vegetables was laid in, and the ship's company were allowed to pass, in turn, a few days of liberty on shore. In due time those ports along the coast of Chili and Peru, which were suited

* BEALE: *op. cit.*, pp. 146–149. † MACY: Hist. Natucket, p. 141. ‡ Nantucket paper.

to the requirements of the adventurers, became famous places of resort for American whale ships. The principal ones were Talcahuano and Valparaiso, in Chili, and Payta, Callao, and Tumbez, in Peru. At these places usually could be obtained any needed recruits, and the picturesque scenery, blended with those sunny climes, together with the charms of the beautiful women, made their periodical visits to the coast peculiarly attractive, and wrought an entire temporary change from the life on 'blue water.' The abrupt and lofty group of islands, the Galapagos, which extend into both latitudes from the equator, and the little island of Cocos, situated in the rainy region on the border of Panama Bay, were frequently visited, and became more familiar to the whalemen, in many instances, than their Atlantic homes. Every rugged mountain and verdant valley of the former were traversed in hunting the galapago, or 'elephant terrapin,' which furnished them with ample supply of the most delicious meat, and the latter was resorted to for fresh water, which was dipped from cascades flowing out of their natural reservoir beyond the wooded bluffs. And upon the rocks about the beach of Chatham Bay, rudely chiseled, are the records of those pioneer whale fishers, with the dates of the visits of transient vessels, from the pigmy shallops of Drake's time to the magnificent national ships of the present century."*

SPERM WHALING AT NEW ZEALAND AND THE OFFSHORE GROUND.—The sperm-whale fishery at New Zealand began about the year 1802, and in 1803, according to Beale, "many vessels were plowing the China Seas, about the Molucca Islands, in search of the sperm whale."† In 1818‡ Capt. George Gardner, in the ship Globe, of Nantucket, discovered the famous "offshore ground" that was soon visited by scores of sperm whalers. In speaking of this discovery Scammon says: "The love of adventure tempted the whalers to turn their prows even from the sunny shores of Peru, and, with flowing sheets, they coursed over the Pacific until, in latitude 5° to 10° south and longitude 105° to 125° west, the objects of pursuit were found in countless numbers, whose huge forms blackened the waves and whose spoutings clouded the air as far as the eye could discern."

THE JAPAN GROUND.—The next important sperm-whale ground to be discovered was the *Japan Ground. The honor of opening this profitable whaling ground is claimed by both Americans* and Englishmen. According to Starbuck,§ "having received word from Captain Winship, of Brighton, Mass., who had friends at Nantucket, that on a recent voyage from China to the Sandwich Islands he had seen large numbers of sperm whales on that coast, Capt. Joseph Allen, in the ship Mars, was dispatched there." The Mars sailed from Nantucket October 26, 1819, arriving home March 10, 1822, with 2,425 barrels of sperm oil, and within two or three years a fleet of thirty sail of vessels were cruising on the new ground. By 1835 there were cruising in the North Pacific, between the coasts of New Albion on the east and the Japan Islands on the west, near a hundred ships,‖ one-third English, and the others Americans.

The first English whaling vessel to visit the new field was the ship Syren, of 500 tons burden, commanded by Capt. Frederick Coffin, of Nantucket, and carrying a crew of thirty-six seamen. "The Syren," says Beale, "sailed from England on the 3d of August, 1819, and arrived off the coast of Japan on the 5th of April, 1820, where she fell in with immense numbers of the spermaceti whale, which her crew gave chase to with excellent success; for they returned to their native land on the 21st of April, 1822, after an absence of about two years and eight months, during which time they had by their industry, courage, and perseverance, gathered from the confines of the North Pacific Ocean no less than the enormous quantity of 346 tons [2,768 barrels] of sperm

* SCAMMON: *op. cit.*, pp. 210, 211.
† BEALE: *op. cit.*, p. 149.
‡ Proceedings American Antiquarian Society, No. 57, p. 29.
§ Report U. S. Fish Commission, 1875–'76, p. 96.
‖ MACY: Hist. Nantucket, p. 224.

oil, which was brought into the port of London in safety and triumph, showing a success unprecedented in the annals of whaling, and which astonished and stimulated to exertion all those engaged in the trade throughout Europe and America. The success which attended this expedition not only rewarded the seamen and others who composed the crew, but the spirited owner who had sent them out also must have felt the solid and weighty considerations which he no doubt received in return for the great and successful enterprise to which he had given origin. After the return of the Syren the Japan fishery was speedily established, and remains to this day [1839] the principal one in both Pacifics; and although it has been so much resorted to by ships of different nations ever since, which have carried off immense quantities of sperm oil, yet such is the boundless space of ocean throughout which it exists, that the whales scarcely appear to be reduced in number. But they are more difficult to get near than they were some years back, on account of the frequent harassing they have met with from boats and ships, so that they have now become well aware of the reckless nature of their pursuers, and they evince great caution and instinctive cunning in avoiding them."*

SPERM WHALING IN THE INDIAN OCEAN.—"In 1828," says Scammon, "four ships were sent from Nantucket to cruise for sperm whales off the coast of Zanzibar, around the Seychelle Islands, and about the mouth of the Red Sea; and one of the number, with the very appropriate name of Columbus, through the skill and energy of the captain, sailed up the Red Sea in quest of the objects of pursuit."† The Seychelle Islands had been visited by the English whaler Swan, a vessel of 150 tons, in 1823, for the purpose of searching for sperm whales, and the captain had been directed to prosecute the fishery, if possible, at the entrance of the Red Sea and Persian Gulf. The expedition did not prove as successful as was anticipated, though the effect of opening up the new fields was of great subsequent advantage, "for although," says Beale, "the Swan did not return until the 27th of April, 1825, and had only procured 40 tons of sperm oil during all the time of her absence, yet her want of entire success was not owing to the absence of whales at the places to which they were sent, for the crew saw immense numbers, but from a series of misfortunes which befel them, and which rendered them incapable of prosecuting the fishery with all the energy and entire devotion which it requires to bring about a successful termination. The ships which resorted to the Seychelles after the return of the Swan had good reason to be well satisfied with the success which attended their efforts, not only from the number of whales which they found there, but from its being so much nearer home than the Japan fishery, by which much time was saved in the outward and homeward passages."‡

CONDITION OF THE FISHERY, 1837 TO 1880.—In the year 1837 the sperm-whale fishery was at its highest point of prosperity. The production of the American fleet that year was 5,329,138 gallons of sperm oil, valued at $4,396,538.85. Most of the fleet at this period were scattered over the various grounds in the North and South Pacific Oceans, and in the Japan Sea, and cargoes of over 3,000 barrels were not uncommon on a three years' cruise. "Most of our whale ships," says Macy, in 1835, in his History of Nantucket, "go into the Pacific by the way of Cape Horn; some by the eastern route south of New Holland and Van Dieman's Land; others after cruising awhile in the Indian Ocean, in the neighborhood of Madagascar and mouth of the Red Sea, pursue their way into the Pacific Ocean through the Straits of Timor, between New Guinea on the south and the Pelew Islands on the north, touching at the Ladrone Islands, and then onward to the Japan coast. They there meet ships which sailed from home about the same time with themselves and came by the way of Cape Horn. Others, too, meet at the same place that came by the route south of New

* BEALE: *op. cit.*, p. 149. † SCAMMON: *op. cit.*, p. 212. ‡ BEALE: *op. cit.*, p. 152.

Holland. It must appear obvious that our whale ships are exploring in a more effectual manner than twenty national ships could every part of the vast Pacific. They have discovered many islands, reefs, and shoals, which navigators sent out expressly for exploring purposes had passed unseen."

The extraordinary success of the fleet of whalers led to a rapid increase in the number of vessels engaged, so that in 1839 the fleet of the United States numbered 555 vessels, whose aggregate tonnage was 169,354 tons. Nearly 500 of these vessels were ships and barks, a large proportion of which were in the Pacific sperm-whale fishery. In 1842 the number was 594, at which time, according to Scammon, the foreign whaling fleet amounted to 230 sail, and the combined fleet of the world engaged in whaling was 824 vessels. The fleet from the United States reached its highest number in 1846, when 678 ships, 34 brigs, and 17 schooners and sloops, a total of 729 vessels, measuring 230,336 tons, were engaged in this industry. It is impossible to give the exact number of these vessels that were engaged in sperm whaling, but it is probable from a careful estimate that nearly one-half of the entire fleet followed this branch of the whale fishery. In 1844 the sperm-whale fleet of the United States numbered 315 vessels, of which 242 were ships and barks in the Pacific, and 73 schooners in the Atlantic sperm fishery. At about this time the New Holland branch of the English whale fishery was rapidly growing, the proximity of those whaling ports of Australia to some of the most productive cruising-grounds enabling the ships fitted out there to perform three voyages while the English and American were performing two. The number of whale ships from French, German, and Danish ports at this time, according to Cheever, was between 60 and 70, and the English fleet, which in 1821 numbered 323 ships, was reduced to 85.

The fleet from the United States began now to decrease, and the receipts of sperm oil became less and less, until in 1860 the entire production of sperm oil by American vessels was only 2,306,934 gallons. The price of this oil, however, had advanced from 82½ cents in 1837 to $1.41½ per gallon, and the entire fleet of whaling vessels was reduced to 560 sail. In 1870 the receipts of sperm oil had further decreased to 1,738,265 gallons, and the whaling fleet numbered 316 sail, of which number 231 were principally sperm whaling and the balance right whaling. These sperm whalers were distributed over the various grounds as follows: 125 in the North and South Atlantic, 41 in the Indian Ocean, and 65 in the Pacific Ocean. In 1875 the sperm-whale fleet numbered 134 sail and the entire whaling fleet 163 vessels, and the receipts of sperm oil were 1,342,435 gallons.

The general decline of the whale-fishery, resulting partly from the scarcity of whales, has led to the abandonment of many of the once famous grounds, and cargoes of sperm oil are obtained only after the most energetic efforts in scouring the oceans. In the Western Pacific Ocean, the Indian Ocean, and the Japan Sea, where once large fleets of vessels cruised, there are now but few. The results of this branch of the whale-fishery during the year 1877 on the different grounds were varied. In the North Atlantic Ocean eighty-two vessels took 13,500 barrels, the largest yield for many years. Good catches were also taken by the fleet off Chili, on the Off-shore Ground, at New Zealand, and the Sooloo Sea. Vessels in the South Atlantic had fair success, while but little oil was taken in the Indian Ocean.

In 1880 the Indian Ocean and Sooloo Sea sperm-whale grounds were abandoned by the American fleet.

LENGTH OF VOYAGES.—The length of a sperm-whaling voyage in the North Atlantic, where it is generally carried on in the smaller class of vessels, is from six to eighteen months, though occasionally a vessel may return with a fair cargo in five months, while another vessel of large size

may remain from home for three years. Voyages to the South Atlantic and Indian Ocean occupy from two to four years, depending largely upon the abundance of whales. These vessels are principally ships and barks, the schooners and brigs finding employment in the North Atlantic fishery.

The Pacific Ocean whalers remain from home three or four years, or even a greater length of time, transshipping their oil from San Francisco, Honolulu, and South American ports, and taking supplies from time to time at convenient places.

STATISTICS FOR 1880.—The receipts of sperm oil from the American fleet in the year 1880 were 1,184,841 gallons, the smallest quantity, with the exception of the years 1865 and 1874, received since the year 1826. The entire yield of the fleet from 1804 to 1880 was 166,604,496 gallons, and the number of sperm whales taken, allowing 25 barrels to each whale and 10 per cent. of those taken as lost, was 232,790. The receipts of sperm oil by decades since the year 1810 were as follows:

Period.	Quantity.
	Gallons.
1810 to 1820	5, 159, 495
1820 to 1830	22, 848, 336
1830 to 1840	41, 241, 310
1840 to 1850	39, 146, 055
1850 to 1860	26, 260, 806
1860 to 1870	16, 305, 377
1870 to 1880	12, 819, 493

The products of the sperm-whale fishery, in addition to the oil from the blubber and head, and ivory from the teeth, includes that very valuable substance ambergris, which when pure is worth its weight in gold. A full discussion of the manner of obtaining ambergris and the value of the production is given in the section of this report treating of Preparation of Products.

CAPT. H. W. SEABURY ON SPERM WHALES.—"The largest sperm whale that I have seen taken," says Capt. H. W. Seabury, of New Bedford, "was 120 barrels; though I have heard of one that made 148 barrels. The male or bull, when full grown, varies from 70 to 110 barrels, very seldom going beyond the latter amount, and is from 50 to 70 feet long. Female or cow sperm whales have been caught that made 50 barrels, though they do not often yield more than 35 barrels. They vary much in size in different places. In the Caribbean Sea, Gulf of Mexico, and along the Gulf Stream through the Atlantic, they run small, and full-grown cows will not average over 15 barrels. Those caught in the Pacific Ocean near the equator as far as longitude 135° west, average about 25 barrels while those caught farther west and in most parts of the Indian Ocean run smaller. The cows with their young give from nothing up to 35 barrels, and seem to go in schools together, and we frequently see from twenty-five to fifty and sometimes one hundred or more in a school, with occasionally a large bull among them, and at times, though seldom, we find all sizes together. The male or bull whales seem to separate from the cows and calves when about the size of 35 barrels, as we seldom get them in the schools of the mother and its young to make more oil than that, and we find the young bulls in pods or schools beyond that size; we find them in what we call 40-barrel bulls, where they generally go in larger numbers than they do as they increase in size; we find them again in smaller schools of about the size of 50 barrels, and again about 60 barrels, where we sometimes see eight or ten together, and 70 barrels four or five, and beyond that one, two, and three, except on New Zealand Ground, where the large whales go in larger bodies; many times we raise a large sperm whale alone, or sometimes two within a short distance of each other, going their regular course from 3 to 6 miles per hour; they will make their course as

straight as we can steer a ship, and make their distances very regular during the time they are up and down; a large whale will usually stay down when not disturbed from forty to fifty minutes; have known them to stay down one hour; their time on the top of the water about fifteen minutes—spouting during that time, say forty-five times, or three times to the minute. Schools are quite often seen going off their regular course. The small whale does not stay down so long as the large one, and is not quite so regular; when feeding they are up and down quite often. The usual way of raising or discovering the whale is from the mast heads, where men are stationed all the time in good weather during the day; the spout is generally seen first, unless they are breaching or lap-tailing, which makes white water and is more easily seen than the spout, and can be seen farther off. In a very clear day with a moderate breeze a spout can be seen 6 miles, and sometimes 7 miles, and a breach 12 when a large one. A breach is when the whale comes out of water; he generally comes out head-foremost two-thirds of his length and falls over on his side, which throws up a large amount of water; the size of the breach is in proportion to the whale. A lap-tail is when the whale throws his tail out of water, and when he lets it down it usually throws up a great deal of water, and experienced whalemen can tell the different kind of whales very readily shortly after they see them spout, or by their breach; the sperm-whale spout is blown out forward and from the forward end of the head, and is thick and bushy, while the finback is straight up and thin; the right is forked forming two spouts at the top; the humpback is lower and thin; the breach of a sperm whale, when made regular, will be like a cone and be much higher than other whales, which are lower, and makes more of a splash—spreading out; the length of the sperm whale are according to their size; the longest I should think would not exceed 70 feet, the head forming about one-third of the length, and making about one-third of the oil. There are some exceptions as to this; the large whale will usually make 38 per cent. head, while the smaller one will not make over 30 per cent., so that it makes some difference in a cargo that is obtained of large whales or small ones. The case of a large whale, which is the top of the head, will yield from 8 to 12 barrels pure spermaceti. In former years it was the custom to hang the same in the ship's tackles, and bail the oil out in buckets; the practice is still in use now in small vessels, but large ones, since the patent gear to the windlass has been in use, have usually hove the whale head in on deck, first separating the junk from the case, and taking the junk first, then the case, and bail the oil out while the same lies on deck; (much more is saved in this way than in the old process of bailing them alongside;) the outside, or white horse, as it is termed, is then thrown overboard, the junk is cut up into horse-pieces, as they are called by whalemen, and put into casks on deck, or tanks below deck, if the ship is provided with one preparatory to bailing out the same. The jaw of a large sperm whale is about 18 feet long, meaning the longest ones, and projects out of the head about 10 feet, and the prongs or pans are inside about 8 feet. There are generally about forty-four teeth to a jaw, a row being formed on each side. On the upper jaw there are no teeth, the teeth to the lower jaw going into sockets in the upper when the mouth is closed. Their food is a fish called squid, at times said to be very large; we often see small ones on the top of the water, and pieces of the larger ones floating about on the surface from the size of a bucket to the size of a barrel; while in the act of killing them they sometimes throw up pieces of the squid."

6. THE DEVELOPMENT OF THE NORTH PACIFIC AND ARCTIC WHALE FISHERY.

THE NORTH PACIFIC AND PACIFIC-ARCTIC FISHERY.

THE BEGINNING OF THE FISHERY.—The history of whaling in the Arctic Ocean north of Bering Strait, begins in the year 1848, when Captain Roys, of the bark Superior, of Sag Harbor, N. Y., cruised there and took many large whales. The Honolulu Friend gives the following

account by Captain Roys of the opening up of this profitable whaling region: "I entered the Arctic Ocean about the middle of July, and cruised from continent to continent, going as high as latitude 70, and saw whales wherever I went, cutting in my last whale on the 23d of August, and returning, through Bering Strait, on the 28th of the same month. On account of powerful currents, thick fogs, the near vicinity of land and ice, combined with the imperfection of charts and want of information respecting this region, I found it both difficult and dangerous to get oil, although there were plenty of whales. Hereafter, doubtless, many ships will go there, and I think there ought to be some provision made to save the lives of those who go there should they be cast away."*

The whales taken by Captain Roys were of the bowhead species, which is peculiar to Arctic regions. Vessels had been taking the right whale in the Okhotsk Sea and neighboring waters for some years prior to the inauguration of the Bering Strait fishery, but it was not until about this time that whalemen began to take notice of the bowhead or Greenland whale that had been looked upon as of no more importance than the finback or sulphur-bottom whales. They were greatly surprised when they discovered with what ease the bowhead could be killed, and the great amount of oil and bone it yielded. According to Starbuck, the first bowheads were taken in the year 1843 on the coast of Kamchatka by ships Hercules, Captain Ricketson, and Janus, Captain Turner, both of New Bedford. This species of whale was first taken in the Okhotsk Sea about 1847, or, as Captain Roys thinks, in 1848 or 1849.†

CAPTAIN BARNES ON ARCTIC WHALING IN 1877.—The following account of Arctic whaling during the season of 1877 is kindly furnished by Capt. William M. Barnes, of bark Sea Breeze, of New Bedford. The letter was written to Capt. H. W. Seabury, and published in the New Bedford Evening Standard of November 21, 1877.

"We came yesterday (October 22) through the Aleutian Islands by the 172° west longitude pass. Better charts and a greater familiarity with these islands than we formerly possessed have deprived them of much of the dread we formerly entertained for them, and I do not think that any vessel has lately taken the old route on the down passage to the west of the islands. In going north last spring we passed the chain at the same place on May 4, and three days later came up to ice in latitude 56° 30′ north. From that time till the 23d of the same month we skirted the ice to westward, attempting in different places to penetrate it, but ever finding it too compact. On May 24 we were in sight of land, 250 miles west-southwest from Cape Navarin, and on that day we entered the ice in company with barks Roman and Mount Wollaston. In a week we had worked through a belt of ice of some 40 miles in width, and had come into a strip of clear water, inshore of the ice, and extending all the way to Cape Navarin. It was the luck of the Sea Breeze to get into this water a few hours ahead of the other two vessels, and with a good breeze we soon were a long way from them, but before they lost sight of us whales had made their appearance in the loose ice around their ships, and each vessel succeeded in taking two large ones.

"On the 6th of June we were off Cape Navarin, and on the 10th off Plover Bay, not having seen a single whale. On the following day, off Cape Chaplin, we saw and chased a whale going quick north, and on the same day spoke Captain Redfield, of a trading schooner, who reported the eastern part of the sea quite free from ice, and that he had seen quite a number of whales off St. Lawrence Island. So we, going by our experience in these last few years, supposed that the whales had already gone to the north, and made the best of our way into the Arctic. It proved, however, that there was still a large body of whalers somewhere in the southern ice that came up through the straits after nearly all the whales had passed through. The several trading vessels

* Whale and his Captors, p. 105. † See Scammon's Marine Mammalia, p. 60, and Nimrod of the Sea, p. 388.

report seeing many whales, and that quite a number were taken by the natives at different places. At this time most of the whalers were walrusing, but a few that were in the line of whales in the Arctic took one or more. In two or three days they had all gone past and no more whales were seen till the ships were off Point Barrow.

"From the middle of June till the last of July we were engaged in catching walruses. The past season was rather a poor one for this branch of business, as it was later than usual before the walruses were found in large numbers. We took 2,000, that yielded 1,200 barrels of oil. There does not yet appear any diminution in the number of these animals; still if the ships continue to catch them as they have done for the last few years it cannot be long before there will be a great decrease. This season a schooner was fitted from San Francisco expressly for walrus catching, and doubtless the fair success she met with will prompt the fitting away of others next year, so I fear the poor walruses are destined to suffer.

"Early in August we arrived off Point Barrow. We found a number of whalers already there, and some of them boiling. The ice, when we passed up, was some 10 miles off shore, at the Sea Horse Islands, and from there to Point Barrow, 70 miles, there was a strip of clear water 20 miles wide, but which will almost be closed up if the wind came a few hours from the west. From Cape Smith to Point Barrow there was a body of ice aground, and on the western edge of the bank that extends to the north from the point there was a wall of ice some 6 miles long and 60 feet or more in height, so high that there were only a few places where it was possible from the "crow's nest" to look over it. This wall, however, was quite narrow, and probably was formed when a pack moving from the west took the ground on this bank, in some 7 fathoms of water, the pressure behind piling the succeeding ice upon that which was grounded. We found the ships anchored near the end of this wall. To the northeast there was an opening in the ice of several miles of greater or less extent, according to the wind, while to the eastward of the point the ice lay in huge floes many miles in extent, and but little separated. Only near the point was there much small ice, and among this there was much that was so large as to make navigation among it unsafe and difficult. The whales were already coming from the east, and would cross the open water near the end of the ground ice and bury themselves in the western pack.

"On August 15 five vessels started to the eastward, and the next day passed out of sight. One vessel after another would follow, and by the last of the month the whole fleet was to the east of Point Barrow. To the north was an unknown amount of ice, but it was possible, with care and with a favoring wind, to thread one's way along the land among the floes of ice. In this difficult navigation the Roman and Milton came to grief, and returned to the point. Some of the vessels report having gone as far east as Return Reef. The Sea Breeze went no farther than Smith's Bay. The vessels that first went east found whales off Point Tangent, 40 miles from Point Barrow, but farther east very few whales were seen—fortunately, as it proved—as it is acknowledged that if whales had been found and the fleet been detained a few days to the eastward New Bedford would again have had to deplore the loss of her northern fleet.

"Early in September the ships were all back to Point Barrow. The weather was now quite cold, and the ice encroaching fast on our open space. On the 6th of September, in company with bark Mercury, we steered to the southwest and run 80 miles between the ice and land, and then to the west of Herald Island. We found much open ice over the usual whaling-ground. September 13 we were in the longitude of Herald Island, but 80 miles to the south of it, and the ice trending to the southwest, so we turned again to the east. Here we spoke bark Cleone,* Captain Nye, who was also working east and reported the Rainbow working up towards Herald Island.

* Cleone wrecked the same year in Saint Lawrence Bay, Captain Nye afterwards lost in Mt. Wollaston.

In a few days we were back among the eastern ships, and on the 17th of the month learned that the Three Brothers had been abandoned in the ice around Point Barrow, and that the ships that brought down her crew barely escaped the double danger of being inclosed by the ice and of being frozen in. We had now northeast wind, quite cold, and snowy. A few nights after the W. A. Farnsworth was lost, her crew barely having time to escape as they stood.

"At this time there was more young ice than I have ever before seen in the Arctic. On the 20th of September, in latitude 70° 20′, the whole ocean appeared to be frozen over, the young ice being nearly an inch thick, so that the ship needed a fresh breeze to force her way through it; and a few days later we found ice nearly 2 inches thick still farther south.

"About the 20th of September several vessels left, some it is reported leaving the sea to look for right whales. Others went westward.

"The northeast wind freshened to a gale, and on the 25th of September we had drifted to south of Cape Lisburne, and in company with the Mount Wollaston anchored under the lee of Point Hope. Next day took our anchors and steered south to leave the sea, but before we had reached East Cape met a south wind and swung off again for Herald Island. October 1, sighted Herald Island, also vessels whaling, and soon after whales. The south wind, with a current running north, had carried the ice so far that ships were now whaling close to the island in clear water. Learned soon after that there had been many whales here; that the Rainbow had worked up through 80 miles of ice and found them here about the middle of September, and that all the vessels here had been doing well. There were in sight here nine sails; if any more, not immediately around the island, and it was thought that all the others had left the sea. The last whales were taken here October 10, by barks Cleone and Helen Mar. We took three only, making 330 barrels. For many years I have not seen so many or such large whales as about here for the first week in October.

"Left Herald Island October 10. On the 12th anchored in Saint Lawrence Bay. Found here the Rainbow, 17 whales; Norman, 14 whales; and Mount Wollaston, 8 whales. Soon after arrived there the Pacific 11 whales, the Northern Light 9 whales, the Progress 8 whales, the Helen Mar 13 whales, and the Cleone 11 whales.

"We sailed from Saint Lawrence Bay October 18, leaving five vessels there. Two days later we killed and lost a right whale, near Saint Matthew's Island, by the sinking of the whale. And now the season seems closed, and nothing remains but to make the best of our way to port. * * *

"Long before you will receive this, in all probability you have learned all that is to be known concerning the vessels abandoned last season. Only two vessels survived the winter. There were, I believe, five men, Hawaiian natives, who made their way over the ice to the Acors Barns, the vessel that lay nearest the land, away to the east of Point Barrow. It chanced that in the gale that soon came on, after the fleet was abandoned, that this vessel was driven through a break in the ground-ice that walled the northern shore, and these men succeeded in reaching the land and Point Barrow soon after the departure of the vessels that were saved. Three of these men were badly frozen and soon died. The two others were kindly cared for by the natives on the point, and when I saw them on board Hawaiian brig William H. Allen were fat and hearty. The bark Clara Bell was abandoned a few miles south from Cape Smith. She was found lying at her anchor, wholly clear from ice, and with no further damage than was done by the natives, who took whatever was of any use to them, and cut and hacked till they had made a bad looking vessel of her. The first few vessels helped themselves to whatever was left of value, and the schooner Newton Booth, of San Francisco, took the remaining oil. The Clara Bell lay there at her anchor till about the 20th of September, when she broke adrift and came up with the current and went out of sight in the ice to the northeast. She was last seen off Harrison's Bay.

"I cannot learn that anything certain is known concerning the other abandoned ships. There was a report that some trading vessel understood from the natives, at Point Hope, that during the winter a ship made her appearance off the point, among the ice; that they (the natives) boarded her; that they found no one on her; but on the ice near her the bodies of two men who had perished while trying to reach the land. It seems probable to me that in the strong northeast gales of the fall the abandoned ships were driven to the southwest, and were drifting around with the ice through the winter, and if not sooner broken to pieces, were carried away in the spring among the ice moving north. The Acors Barns was burned by the natives.

"The men that spent the winter among the natives report most kind treatment. They say, however, that occasionally they had to flee from one house to another, when the inmates of the first were having a drunken frolic, as at such times they could not be sure of their lives. A few years ago these people did not know the use of intoxicating liquors. What a comment on our boasted civilization and on the genuineness of our Christianity that this little colony of people, in this most remote corner of the earth, must suffer and be imbruted because of us! It is a grievous shame, and one that I hope will soon come to an end." [The Sea Breeze arrived at San Francisco November 11, having had a long and rough passage down—a succession of southerly gales—with 1,450 barrels oil, 5,000 pounds whalebone, and 6,000 pounds ivory.]

CAPTAIN PEASE ON ARCTIC WHALING.—Captain Pease, of the ship Champion, of Edgartown, in a letter published in the New Bedford Shipping List, of November 29, 1870, thus describes some of the incidents of Arctic whaling:

"We made and entered the ice on the 17th day of May, about 40 miles south of Cape Navarin, weather thick and snowing; on the 20th the weather cleared up, showing about a dozen ships in the ice. The weather having every appearance of a gale, I worked out of the ice, and soon found myself surrounded by fifty ships. Saw but one whale in the ice. On the 23d, weather pleasant, two or three ships worked a short distance in the ice; the next day the fleet commenced following and in a few hours fifty ships were on a race to Cape Thaddeus; it was oak against ice, and like all heavy moving bodies which come in collision, 'the weakest structure always gives way;' so with the ships, they *all* came out more or less damaged in copper and sheathing—the Champion four days ahead to Cape Thaddeus, in clear water.

"Unfortunately, for the first time since whaling, there were no whales. On the 13th of June we lowered for a whale going quick into the ice, Cape Agchen bearing southwest 90 miles, and before getting the boats clear the ice packed around us. From that time until the 26th, so close and heavy was the ice packed around us, that we found it impossible to move the ship. With our sails furled, we drifted with the ice about 12 miles per day toward Cape Agchen, the ship lying as quiet as in a dock, but on the 22d, when close under the cape, a gale set in from the southward, producing a heavy swell and causing the ship to strike heavily against the ice. We saved our rudder by hooking our blubber-hooks to it and heaving them well taut with hawsers to our quarters. Had the current not taken an easterly shore course, the ship must have gone on shore. The wind blowing on shore, which was distant less than half a mile, 5 to 6 fathoms of water under us, ship rolling and pounding heavily against the ice, weather so thick we could not see 50 yards, made it rather an anxious time. For thirty-six hours I was expecting some sharp-pointed rock would crash through her sides. On the 24th, finding only 4½ fathoms water, little current, with the larger pieces of ice around, we let go an anchor and held her to a large floe of ice. Here we broke our sampson-post off in the deck. On the morning of the 25th the weather cleared up, showing our position to be at the head of a small bay about 15 miles east of Cape Agchen. Here for two days we lay becalmed and ice-bound. On the second day the ice loosened, when we took

our anchor and by eighteen hours' hard work succeeded in kedging about 4 miles seaward; a breeze then springing up from off shore, we spread sail and passed into clear water. We spent a short time in the straits, but saw nothing of the bowhead kind. Passed into the Arctic July —, and found most of the fleet catching walrus; about a dozen ships (this one among the number) went cruising along the northern ice for bowheads. After prospecting from Icy Cape to near Herald Island, and seeing not a whale, I returned to the walrus fleet. The first ship I saw was the Vineyard, with one hundred and seventy-five walrus; since then I have not seen or heard from her. This walrusing is quite a new business, and ships which had engaged in it the previous season and came up prepared were very successful. While at it, we drove business as hard as the best of them, but soon became convinced that the ship's company (taken collectively) were much inferior to many others; they could not endure the cold and exposure expected of them. I have seen boats' crews that were properly rigged, kill and strip a boat-load of walrus in the same length of time another (not rigged) would be in killing one and hauling him on the ice. We took some four hundred, making about 230 barrels. About August 5 all the ships went in pursuit of bowheads (most of them to Point Barrow). When off the Sea Horse Islands we saw a few whales working to the westward, just enough to detain us; we took two making 200 barrels; the weather cold, and a gale all the time. In September I worked up about 70 miles from Point Barrow; saw quite a show of small whales in the sea; took four which made about 100 barrels. As that was a fair sample, and not having the right boys to whale in that ice, where the thermometer stood only 8 above zero, I went back to the westward. Ships that had from forty to fifty men (clad in skins) and officers accustomed to that particular kind of whaling, did well. In going back the fourth mate struck a whale which made about 70 barrels. From the 28th of September to the 4th of October we saw a good chance to get oil, had the weather been good, and a well, hardy crew. We could not cut and whale at the same time. We took four whales which would have made 500 barrels had we had good weather to boil them. On the 4th of October we put away for the straits, in company with the Seneca, John Howland, and John Wells—a gale from the northeast, and snowing. On the evening of the 7th it blew almost a hurricane; hove the ship to south of Point Hope, with main-topsail furled; lost starboard bow boat, with davits—ship covered with ice and oil. On the 10th entered the straits in a heavy gale; when about 8 miles south of the Diomedes, had to heave to under bare poles, blowing furiously, and the heaviest sea I ever saw; ship making bad weather of it; we had about 125 barrels of oil on deck, and all our fresh water; our blubber between decks in horse pieces, and going from the forecastle to the mainmast every time she pitched, and impossible to stop it; ship covered with ice and oil; could only muster four men in a watch; decks flooded with water all the time; no fire to cook with or to warm by, made it the most anxious and miserable time I ever experienced in all my sea service. During the night shipped a heavy sea, which took off bow and waist boats, davits, slide-boards, and everything attacked, staving about 20 barrels of oil. At daylight on the second day we found ourselves in 17 fathoms of water, and about 6 miles from the center cape of Saint Lawrence Island. Fortunately the gale moderated a little, so that we got two close-reefed topsails and reefed courses on her, and by sundown were clear of the west end of the island. Had it not moderated as soon as it did, we should, by 10 a. m., have been shaking hands with our departed friends."

Another difficulty of North Pacific navigation is mentioned in a letter from Capt. William H. Kelley, of the bark James Allen, of New Bedford, to the Hawaiian Gazette, in 1874.* He says: "One of the perplexities of the navigator cruising in the Arctic Ocean is the singular effect northerly and southerly winds seem to have upon the mariner's compass. Captains have noticed this singu-

* See New Bedford "Shipping List," January 5, 1875.

larity for years, and no solution of the matter, as far as I have learned, has yet been arrived at. Navigators have noticed that with a north or northeast wind they can tack in eight points, while with the wind south or southwest in from fourteen to sixteen points. All navigators know that for a square-rigged vessel to lie within four points of the wind is an utter impossibility, the average with square-rigged vessels being six points. This peculiar action of the compass renders the navigation of the Arctic difficult and at times dangerous, especially in thick, foggy weather. Navigators in these regions have proved to their satisfaction that on the American coast, north and east of Point Barrow, to steer a land course by the compass and allow the variations given by the chart, 44° 15′ east, with the wind at north or northeast, *would run the ship ashore, steering either east or west.* * * * Experience, therefore, has obliged navigators to ignore the variations marked upon the charts, and lay the ship's course by the compass alone to make a land-course safe in thick weather. * * * With an east or west wind the effect on the compass is not so great as with other winds. I have said this much to show the working of the compass in the Arctic Ocean during different winds, not that I admit that the wind has any effect whatever upon the compass. I give the facts as they came under my observation, and corroborative testimony will be borne by any shipmaster who has cruised in the Arctic Ocean."

THE DANGERS OF THE FISHERY.—Whaling in the Arctic Ocean is attended with uncertainty in every particular, both in regard to the condition and movement of the ice, and the movement of the whales. The early departure of the animals to inaccessible regions among the ice, and the anxious weeks spent in awaiting their return, make this ground one of the most exciting regions that whalemen can find, and the surroundings are of more than usual interest. Much has been written in the accounts of Arctic expeditions descriptive of the icy regions, and much is said of the dangers attending navigation in those seas. Nothing can exceed the daring and pluck of the whalemen in their endeavors to search out and capture their prey. Forgetful of surrounding dangers, they pursue the spouting animal far up among the ice-floes, and many a vessel has been crushed to pieces by the ice as she was tracking out a whale. Anxious to secure full fares, they remain amid the freezing waters until early winter stares them in the face, when they plow their way homeward. Several disasters have overtaken the fleet in their zeal to catch the whale, as in 1871, when thirty-two noble craft were left at anchor in sight of certain destruction, the crews, after arduous labor, saving themselves in boats.

The story of the disaster of 1871, as also that of 1876, is told as follows by Starbuck:

"In the fall of 1871 came news of a terrible disaster to the Arctic fleet, rivaling in its extent the depredations of the rebel cruiser. Off Point Belcher thirty-four vessels lay crushed and mangled in the ice; in Honolulu were over twelve hundred seamen who by this catastrophe were shipwrecked.

"Early in May the fleet arrived south of Cape Thaddeus, where they found the ice closely packed, and the wind blowing strong from the northeast.* This state of affairs continued during the most of the month. June came in with light and variable winds and foggy weather; but the ice opening somewhat, the ships pushed through in sight of Cape Navarin, where they took five or six whales, and for a short time heard many more spouting among the ice. About the middle of June the ice opened still more, and the fleet passed on through Anadir Sea, taking a few whales as they went. By the 30th of June the vessels had passed through Bering Strait, preceded by the whales. Waiting the further breaking up of the ice, they commenced catching walruses, but with comparatively poor success. During the latter part of July, the ice disappearing from the east shore south of Cape Lisburne, the fleet pushed on to the eastward, following the ice, the

* Harper's Weekly, December 2, 1871.

principal portion of which was in latitude 69° 10′. A clear strip of water appearing on the east shore, leading along the land to the northeast, they worked along through it to within a few miles of Icy Cape. Here some of the vessels anchored, unable to proceed farther on account of the ice lying on Blossom Shoals.

"About the 6th of August the ice on the shoals started, and several ships got under way. In a few days most of the fleet was north of the shoals, and, aided by favorable weather, they worked to the northeast as far as Wainwright Inlet, eight vessels reaching there on the 7th, Here the ships either anchored or made fast to the ice, which was very heavy and densely packed. and whaling was carried on briskly for several days, and every encouragement was given for a favorable catch. On the 11th of August a sudden change of wind set the ice inshore, catching a large number of boats which were cruising for whales in the open ice, and forcing the ships to get under way to avoid being crushed. The vessels worked inshore under the lee of the ground ice, and succeeded, despite the difficulties of the situation, in saving their boats by hauling them for long distances over the ice, some of them, however, being badly stoven. On the 13th the ice grounded, leaving a narrow strip of water along the land up to Point Belcher. In this open water lay the fleet anchored or fast to the ice, waiting for the expected northeast wind that was to relieve them of their icy barrier, whaling constantly being carried on by the boats, though necessarily under many adversities.

"On the 15th of August the wind came around to the westward, driving the ice still closer to the shore and compelling the vessels to work close in to the land. The drift of the ice inland was so rapid that some of the vessels were compelled to slip their cables, there being no time to weigh anchor. By this event the fleet was driven into a narrow strip of water not over a half a mile in width at its widest part. Here, scattered along the coast for 20 miles, they lay, the water from 14 to 24 feet deep, and ice as far as the lookouts at the mastheads could see. Whaling was still carried on with the boats off Sea-Horse Island and Point Franklin, although the men were obliged to cut up the whales on the ice and tow the blubber to the ships.

"On the 25th a strong northeast gale set in and drove the ice to a distance of from 4 to 8 miles off shore, and renewed attention was given to the pursuit of the whale. Up to this time no immediate danger had been anticipated by the captains beyond that incidental to their usual sojourn in these seas. The Eskimo, nevertheless, with the utmost friendliness, advised them to get away with all possible speed, as the sea would not again open; but this was contrary to the Arctic experience of the whalemen, and they resolved to hold their position.

"On the 29th began the series of conflicting circumstances resulting in the destruction of the fleet. A southwest wind sprang up, light in the morning, but freshening so toward evening that the ice returned inshore with such rapidity as to catch some of the ships in the pack. The rest of the fleet retreated ahead of the ice, and anchored in from 3 to 4 fathoms of water, the ice still coming in and small ice packing around them. The heavy floe-ice grounded in shoal water and between it and the shore lay the ships, with scarcely room to swing at their anchors.

"On the 2d of September the brig Comet was caught by the heavy ice and completely crushed, her crew barely making their escape to the other vessels. She was pinched until her timbers all snapped and the stern was forced out, and hung suspended for three or four days, being in the mean time thoroughly wrecked by the other vessels; then the ice relaxed its iron grip and she sunk. Still our hardy whalemen hoped that the looked-for northeasterly gale would come, and felt greater uneasiness on account of the loss of time than because of their present peril. Their experience could not point to the time when the favoring gale had failed to assure their egress. Nothing but ice was visible off shore, however, the only clear water being where they lay, and

that narrowed to a strip from 200 yards to half a mile in width, and extending from Point Belcher to 2 or 3 miles south of Wainwright Inlet. The southeast and southwest winds still continued, light from the former and fresh from the latter direction, and every day the ice packed more and more closely around the doomed vessels.

"On the 7th of September the bark Roman, while cutting-in a whale, was caught between two immense floes of ice off Sea Horse Islands, whence she had helplessly drifted, and crushed to atoms, the officers and crew escaping over the ice, saving scarcely anything but their lives.

"The next day beheld the bark Awashonks meet a similar fate, and a third fugitive crew was distributed among the remaining ships. The peril was now apparent to all; the season was rapidly approaching the end; the ice showed no signs of starting, but on the contrary the little clear water that remained was rapidly filling with ice and closing around them. Frequent and serious were the consultations held by the captains of the beleaguered vessels. One thing at least was evident without discussion; if the vessels could not be extricated, the crews must be got away before winter set in, or the scanty stock of provisions they had could only postpone an inevitable starvation. As a precautionary measure, pending a decision on the best course to adopt, men were set to work to build up the boats, that is, to raise the gunwales so as to enable them the better to surmount the waves. Shoes* were also put on them, to prevent, as far as possible, injury from the ice. The brig Kohola was lightened in order to get her over the bar at Wainwright Inlet, upon which there were only 5 or 6 feet of water. Her oil and stores were transferred to the deck of the Charlotte, of San Francisco, but when discharged it was found that she still drew 9 feet of water, and the attempt to get her over the shoal water was abandoned.† An expedition of three boats, under the command of Capt. D. R. Frazer, was now sent down the coast to ascertain how far the ice extended; what chances there were of getting through the barrier; what vessels, if any, were outside, and what relief could be relied upon. Captain Frazer returned on the 12th, and reported that it was utterly impracticable to get any of the main body of the fleet out; that the Arctic and another vessel were in clear water below the field, which extended to the south of Blossom Shoals, 80 miles from the imprisoned crafts; and that five more vessels, then fast in the lower edge of the ice, were likely to get out soon. He also reported, what every man then probably took for granted, that these free vessels would lay by to aid their distressed comrades. It is a part of the whaleman's creed to stand by his mates. On hearing this reported, it was decided to abandon the fleet, and make the best of their way, while they could, to the rescuing vessels. It was merely a question whether they should leave their ships and save their lives, or stand by their ships and perish with them.

"The morning of the 14th of September came, and a sad day it was to the crews of the ice-bound crafts. At noon the signals, flags at the mast-heads, union down, were set, which told them the time had come when they must sever themselves from their vessels.‡ As a stricken family

*A sheathing—in this case copper—being used.

† The same experiment, with the same result, was tried by Captain Redfield, of the brig Victoria.

‡ The following protest was written on the 12th of September, and signed by all the captains on the following day before abandoning their vessels:

"POINT BELCHER, *Arctic Ocean, September* 12, 1871.

"Know all men by these presents, that we, the undersigned, masters of whale-ships now lying at Point Belcher, after holding a meeting concerning our dreadful situation, have all come to the conclusion that our ships cannot be got out this year, and there being no harbor that we can get our vessels into, and not having provisions enough to feed our crews to exceed three months, and being in a barren country, where there is neither food nor fuel to be obtained, we feel ourselves under the painful necessity of abandoning our vessels, and trying to work our way south with our boats, and, if possible, get on board of ships that are south of the ice. We think it would not be prudent to leave a single soul to look after our vessels, as the first westerly gale will crowd the ice ashore, and either crush the

feels when the devouring flames destroy the home which was their shelter, and with it the little souvenirs and priceless memorials which had been so carefully collected and so earnestly treasured, so feels the mariner when compelled to tear himself from the ship, which seems to him at once parent, friend, and shelter. In these vessels lay the result of all the toil and danger encountered by them since leaving home. Their chests contained those little tokens received from or reserved for friends thousands of miles away, and nothing could be taken with them save certain prescribed and indispensable articles. With heavy hearts they entered their boats and pulled away, a mournful, almost funereal, flotilla, toward where the vessels lay that were to prove their salvation. Tender women and children were there, who, by their presence, sought to relieve the tedium of a long voyage to their husbands and fathers, and the cold north wind blew pitilessly over the frozen sea, chilling to the marrow the unfortunate fugitives.

"The first night out the wanderers encamped on the beach behind the sand-hills. A scanty supply of fire-wood they had with them and such drift-wood as they could collect sufficed to make a fire to protect them somewhat from the chilling frost. The sailors dragged boats over the hills, and by turning them bottom upward and covering them with sails, made quite comfortable habitations for the women and children. The rest made themselves comfortable as best they could.

"On the second day out," says Captain Preble, "the boats reached Blossom Shoals, and there spied the refuge-vessels lying 5 miles out from shore, and behind a tongue of ice that stretched like a great peninsula 10 miles farther down the coast, and around the point of which the weary crews were obliged to pull before they could get aboard. The weather here was very bad, the wind blowing fresh from the southwest, causing a sea that threatened the little craft with annihilation. Still the hazardous journey had to be performed, and there was no time to be lost in setting about it. * * * All submitted to this new danger with becoming cheerfulness, and the little boats started on their almost hopeless voyage, even the women and children smothering their apprehensions as best they could. On the voyage along the inside of the icy point of the peninsula everything went moderately well; but on rounding it they encountered the full force of a tremendous southwest gale and a sea that would have made the stoutest ship tremble. In this fearful sea the whale-boats were tossed about like pieces of cork. They shipped quantities of water from every wave which struck them, requiring the utmost diligence of all hands at bailing to keep them afloat. Everybody's clothing was thoroughly saturated with the freezing brine, while all the bread and flour in the boats was completely spoiled. The strength of the gale was such that the ship Arctic, after getting her portion of the refugees on board, parted her chain-cable and lost her port anchor, but brought up again with her starboard anchor, which held until the little fleet was ready to sail.

"By four o'clock in the afternoon of the second day all were distributed among the seven vessels that formed the remnant of the fleet that sailed for the Arctic Ocean the previous spring. Not a person was lost to add to the grief already felt or to increase the gloom of their situation.

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ships or drive them high upon the beach. Three of the fleet have already been crushed, and two are now lying hove out, which have been crushed by the ice, and are leaking badly. We have now five wrecked crews distributed among us. *We have barely room to swing at anchor between the pack of ice and the beach, and we are lying in three fathoms* of water. Should we be cast on the beach it would be at least eleven months before we could look for assistance, and in all probability nine out of ten would die of starvation or scurvy before the opening of spring.

"Therefore, we have arrived at those conclusions: After the return of our expedition under command of Capt. D. R. Frazer, of the Florida, he having with whale-boats worked to the southward as far as Blossom Shoals, and *found that the ice pressed ashore the entire distance* from our position to the shoals, leaving in several places only sufficient water for our boats to pass through, and this liable at any moment to be frozen over during the twenty-four hours, which would cut off our retreat, even by the boats, as Captain Frazer had to work through a considerable quantity of young ice during his expedition, which cut up his boats badly."

(Signed by the masters.)

To the Europa were assigned 280; to the Arctic, 250; to the Progress, 221; to the Lagoda, 195; to the Daniel Webster, 113; to the Midas, 100; and to the Chance, 60; in all 1,219 souls in addition to their regular crews. On the 24th of October the larger portion of these vessels reached Honolulu, and the remaining ones of the seven speedily followed.

"On the receipt of the news of this disaster, more particularly in New Bedford, great excitement was occasioned. The value of the wrecked vessels sailing from that port alone exceeded, with their cargoes, $1,000,000. But the owners of whaling-vessels were not the men to yield supinely to a single misfortune, however overpowering it might seem, and the ensuing year twenty-seven ships were busy in the Arctic, and in 1873 twenty-nine visited that precarious sea.

"The names of the beleaguered fleet were: from New Bedford, barks Awashonks, value $58,000; Concordia, $75,000; Contest, $40,000; Elizabeth, $60,000; Emily Morgan, $60,000; Eugenia, $56,000; Fanny, $58,000; Gay Head, $40,000; George, $40,000; Henry Taber, $52,000; John Wells, $40,000; Massachusetts, $46,000; Minerva, $50,000; Navy, $48,000; Oliver Crocker, $48,000; Seneca, $70,000; William Rotch, $43,000; ships George Howland, $43,000; Reindeer, $40,000; Roman, $60,000; Thomas Dickason, $50,000. From New London, bark J. D. Thompson, value $45,000; and ship Monticello, $45,000. From San Francisco, barks Carlotta, value $52,000; Florida, $51,000; and Victoria, $30,000. From Edgartown, ships Champion, value $40,000; and Mary, $57,000. And from Honolulu, Sandwich Islands, barks Paira Kohola, $20,000; Comet, $20,000; and Victoria 2d and ship Julian, $40,000. The Honolulu vessels had generally American owners, having been placed under the Hawaiian flag to protect them from rebel cruisers.

"Capt. William H. Kelley, who commanded the Gay Head, visited the locality the following year, and wrote home the condition of such of the vessels as still remained. The Minerva lay at the entrance to Wainwright Inlet, as good in hull as when abandoned. The T. Dickason lay on her beam-ends on the bank, bilged and full of water. The Seneca was dragged by the ice up the coast some distance; her bowsprit was gone, bulwarks stove, and rudder carried away, and she was frozen in solid. The Reindeer sank, and the Florida was ashore on Sea Horse Islands, burned to the water's edge. The rest of the fleet were either carried away by the ice, crushed to pieces, or burned by the natives. The Gay Head and Concordia were burned where they lay. 'The bark Massachusetts went around Point Barrow. There was one white man on board her who staid up here last winter. He made his escape over the ice this summer, and was five days getting back to the ships. He was about used up when they found him this summer. The natives set out to kill him, but the women saved him, and afterward the old chief took care of him. He saved a large quantity of bone, but the natives took it away from him, except a small quantity. He said $150,000 would not tempt him to try another winter in the Arctic. He said that four days after we left the ships last year the water froze over and the natives walked off to the ships; and fourteen days after there came on a heavy northeast gale and drove all but the ground-ice away (that never moved). Shortly after there blew another northeast gale, and he said that of all the butting and smashing he ever saw, the worst was among those ships driving into each other during those gales. Some were ground to atoms, and what the ice spared the natives soon destroyed, after pillaging them of everything they pleased.'"

In the season of 1876 the fleet met with another disaster of less pecuniary extent but more appalling in its effect on human life. The fleet consisted of eighteen American ships and barks and two foreign vessels. Of these, twelve were lost or abandoned in the Arctic. "Much of the melancholy story seems a duplicate description of that of 1871. Again the fleet had entered that fatal ocean early in August, and again commenced the season's whaling with prospects of fair

success; again the ice commenced closing around them; again they cherished delusive hopes that a strong gale would drive it off shore and afford them a means of escape, and again these hopes were doomed to a bitter disappointment. Again the masters decided it was necessary to abandon their vessels, and again the abandonment was accomplished. Here the parallel ceases. Several men perished from exposure in journeying from one beleaguered vessel to another apparently more safe, and many died on the toilsome, perilous march and voyage to the rescuing ships. Many more preferred to stay by the ships and risk their chances of surviving during the terrible Arctic winter to assuming the nearer and, to them, apparently no less dangerous alternative of an immediate escape."* Three hundred men escaped, and fifty-three remained among the natives. There was no feasible way to communicate with them until the summer of 1877. Provisions and fuel were reported amply sufficient for them, and with the first clear water of 1877 ready hands and willing hearts hastened to their assistance. The experiences of these men during the winter and until their rescue in the summer of 1877 are told by Captain Barnes on page 77, above; only two of the abandoned vessels survived the winter: one of these was burned by the natives and the other was lost in September, 1877. The names of the lost and abandoned vessels with their approximate values, not including cargoes, were as follows: (Of these the Arctic was lost; the others abandoned.) From New Bedford, the Acors Barns, $36,000; Camilla, $36,000; Cornelius Howland, $40,000; James Allen, $36,000; Java 2d, $25,000; Josephine, $40,000; Marengo, $40,000; Mount Wollaston, $32,000; Onward, $40,000; and St. George, $36,000. From San Francisco, the Clara Bell, $24,000. And from Honolulu, the Arctic, $32,000, and Desmond, $24,000. A total loss of $442,000. The estimated value of the cargoes was about $375,000 more.

In 1877 three of the Arctic fleet were lost, in 1878 one, and in 1879 three. The description of the class of vessels employed in this fishery is given under the head of vessels and apparatus, and the cruising-grounds are discussed under the head of whaling-grounds.

STATISTICS OF PACIFIC-ARCTIC WHALING 1835 TO 1880.—The following statement gives a summary of each season's fishing of the North Pacific fleet from 1835 to 1880. The locality includes the waters between the Asiatic and American coasts north of 50° north latitude.

Statement showing the number of American vessels in the North Pacific fleet each year and their catch of oil and bone.

[Compiled from Whalemen's Shipping List.]

Year.	No. of vessels.	Average barrels whale oil.	Total barrels whale oil.	Total pounds whalebone.†	Remarks.
1835	1				
1836	1				
1837	1				
1838	1				
1839	2	1,400	2,800		
1840	2	587	1,700		
1841	20	1,412	28,200		
1842	29	1,627	47,200		
1843	108	1,349	146,800		
1844	170	1,528	259,570		
1845	263	953	250,600		
1846	202	869	253,600		

* History Whale Fishery, in U. S. Fish Commission Report, 1875–'76.

† Arctic whalebone not recorded separate prior to 1868.

Statement showing the number of American vessels in the North Pacific fleet each year and their catch, &c.—Continued.

Year.	No. of vessels.	Average barrels whale oil.	Total barrels whale oil.	Total pounds whalebone.*	Remarks.
1847	177	1,059	187,443	.....	
1848	159	1,164	185,256	.....	
1849	155	1,334	206,850	.....	
1850	144	1,692	243,648	.....	
1851	138	626	86,390	.....	
1852	278	1,343	373,450	.....	
1853	238	912	217,056	.....	
1854	232	794	184,003	.....	
1855	217	873	189,579	.....	
1856	178	822	146,410	.....	
1857	143	796½	113,900	.....	
1858	196	620	121,650	.....	
1859	176	535	94,160	.....	
1860	121	518	62,678	.....	Two of the fleet lost, the George and Mary and Pauline.
1861	76	724	55,024	.....	
1862	32	610	19,525	.....	
1863	42	857	36,010	.....	
1864	68	522	35,490	.....	
1865	59	617	36,415	.....	
1866	95	598	56,925	.....	
1867	90	640	57,620	.....	Also eleven foreign vessels.
1868	61	708	43,230	627,500	Also seven foreign vessels that took 4,370 barrels oil, 66,000 pounds bone.
1869	43	890	38,275	525,000	Also six foreign vessels that took 6,475 barrels oil, 85,000 pounds bone.
1870	46	1,060	49,205	659,550	Also nine foreign vessels that took 3,080 barrels oil, 27,000 pounds bone.
1871	35	.....	.....	15,000	All but seven of the fleet were lost, including four foreign vessels.
1872	27	730	19,730	258,200	Also four foreign vessels took 1,900 barrels oil, 29,400 pounds bone.
1873	30	678	20,295	239,300	Also four foreign vessels; two of them took 980 barrels oil, 5,300 pounds bone.
1874	23	883	20,380	222,100	Also four foreign vessels that took 2,530 barrels oil, 25,000 pounds bone.
1875	16	1,355	21,680	230,460	Also four foreign vessels that took 3,450 barrels oil, 36,800 pounds bone.
1876	18	.....	5,250	35,200	All but eight of the fleet lost, also two foreign vessels.
1877	19	1,096	17,530	153,800	Three of the fleet were lost. One foreign vessel took 300 barrels oil, 3,000 pounds bone.
1878	17	770	13,080	114,200	One of the fleet lost.
1879	21	.....	18,800	200,500	Three of the fleet lost.
1880†	19	1,406	26,700	409,000	
Total	4,300	.....	3,994,397	.....	

* Arctic whalebone not recorded separate prior to 1868.

† Since the above was compiled the reports for subsequent years have been received, as follows: 1881, 23 vessels, 24,740 barrels of whale oil, 387,000 pounds whalebone; 1882, 32 vessels, 22,975 barrels whale oil, 360,500 pounds whalebone; 1883, 38 vessels, 10,155 barrels whale oil, 159,400 pounds whalebone; 1884, 39 vessels, 20,450 barrels whale oil, 318,700 pounds whalebone. The fleet in 1880 included two steamers, in 1884 the number of steamers had increased to nine. Another marked change in this fishery is the larger proportion of vessels hailing from San Francisco, as is shown on subsequent pages in the details of each year's voyage.

The cruising grounds of the fleet, prior to 1848, were south of Bering Strait, chiefly on the Northwest Ground. In 1848 a vessel passed through the Strait and was very successful. From that date the Arctic fleet increased rapidly in numbers. Since the year 1868 the principal resort of the North Pacific fleet (so called) has been the Arctic Ocean north of Bering Strait, as shown on following pages.

The details of each voyage to the North Pacific and Arctic Oceans since 1868 are given in the following lists, compiled from the Whalemen's Shipping List:

List of vessels comprising the North Pacific whaling fleet of 1868, with the season's catch of each vessel.

Name of vessel.	Fishing ground.	Season's catch.	
		Whale oil.	Bone.
NEW BEDFORD.		*Barrels.*	*Pounds.*
Active	Arctic	800	17,000
Adeline	Okhotsk	400	4,500
Alto	Kadiak	425	4,000
Aurora	do	400	5,000
Awashonks	Arctic	800	12,000
Benj. Cummings	Okhotsk	260	3,000
California	Arctic	1,000	18,000
Cicero	Kadiak	280	2,000
Corinthian	Arctic	1,050	15,000
Concordia	do	600	10,000
Cornelius Howland	do	1,100	16,000
Daniel Webster	do	925	15,000
Eagle	do	300	8,000
Eugenia	Kadiak	200	
Fanny	do	500	5,000
Gay Head	do	600	4,000
George	do	150	1,000
George Howland	Arctic	600	8,000
Helen Mar	do	1,000	18,000
Helen Snow	do	1,050	18,000
Hercules	Okhotsk	350	3,000
Hibernia	Kadiak	630	5,000
Islander	do	260	1,500
James Allen	Arctic	1,050	18,000
Java	Kadiak	600	6,000
John Carver	Arctic	550	6,500
John Howland	do	1,000	17,000
John Wells	do	950	18,000
Josephine	do	1,300	17,000
Lydia	do	400	7,000
Massachusetts	do	800	15,000
Midas	Okhotsk	1,175	9,000
Milo	Arctic		
Nautilus	do	1,000	11,000
Navy	do	160	1,200
Norman	Kadiak	600	9,000
Ocean	Arctic	300	4,500
Ohio	do	1,150	20,000
Onward	do	1,300	25,000
Oriole	do	1,000	16,000
President	Kadiak	470	4,000
Progress	Arctic	1,000	20,000
Rainbow	Kadiak	80	1,000
Reindeer	Arctic	1,550	25,000
NEW BEDFORD—continued.		*Barrels.*	*Pounds.*
Sea Breeze	Okhotsk	1,100	15,000
Seine	Kadiak	30	300
St. George	Arctic	800	4,000
Tamerlane	Kadiak	430	4,000
Thomas Dickason	do	370	3,500
Three Brothers	Arctic	1,170	21,000
Trident	Kadiak	1,050	8,000
Washington	Arctic	100	2,000
52 ships and barks		35,505	505,000
FAIRHAVEN.			
General Scott	Arctic	1,100	15,000
EDGARTOWN.			
Champion	Arctic	500	8,500
Europa	Okhotsk	325	3,000
Vineyard	Arctic	1,300	22,500
3 ships		2,125	34,000
NEW LONDON.			
Acors Barns	Arctic	450	4,500
Monticello	do	900	16,000
Nile	Okhotsk	450	6,000
3 ships and barks		1,800	26,500
SAN FRANCISCO.			
Florida	Arctic	1,700	31,000
Massachusetts	do	1,000	16,000
1 ship and 1 bark		2,700	47,000
HONOLULU.			
Comet	Arctic	600	12,000
Julian	do	1,100	18,000
Kohola	do	700	15,000
William Rotch	Okhotsk	900	7,000
4 ships and barks		3,300	52,000
BREMEN.			
Eagle	Kadiak	170	3,000
Count Bismarck	Arctic	600	9,500
2 barks		770	12,500
TAHITI.			
Norman	Kadiak	300	2,500

RECAPITULATION.

Fishing ground.	Ships and barks.	Whale oil.	Bone.
		Barrels.	*Pounds.*
Arctic Ocean	41	35,005	575,200
Okhotsk Sea	6	4,900	50,500
Kadiak	19	7,625	68,800
Total	66	47,900	694,500

List of vessels comprising the North Pacific whaling fleet of 1869, with the season's catch of each vessel.

Name of vessel.	Fishing ground.	Season's catch.	
		Whale oil.	Bone.
NEW BEDFORD.		*Barrels.*	*Pounds.*
Active	Arctic	800	12,500
Aurora	do	1,500	17,000
Awashonks	do	700	11,000
Benj. Cummings	Okhotsk	200	2,300
California	Arctic	750	14,000
Concordia	do	1,450	18,500
Cornelius Howland	do	1,300	18,000
Daniel Webster	do	1,000	12,000
Elizabeth Swift	do	900	15,000
Emily Morgan	Bristol Bay	600	2,000
Gay Head	Arctic	1,200	16,500
George Howland	do	1,200	15,000
Helen Mar	do	650	10,500
Helen Snow	do	1,000	16,000
Henry Taber	do	800	17,000
Hercules	Okhotsk	500	5,000
Hibernia	Arctic	800	13,500
James Allen	do	950	13,500
Janus	Okhotsk	575	9,000
John Carver	Arctic	800	14,000
John Howland	do	1,700	21,000
Josephine	do	1,100	17,000
Lagoda	do	650	11,600
Marengo	do	1,000	13,500
Massachusetts	do	1,000	16,000
Norman	do	1,000	17,000
Ohio	do	400	7,500
Oliver Crocker	do	980	14,000
Onward	do	1,000	15,000
Oriole	do	1,250	14,500
Progress	do	1,100	13,000
NEW BEDFORD—continued.			
Rainbow	Arctic	900	13,000
Roman	do	750	11,500
Sea Breeze	do	1,050	12,000
Trident	do	1,600	18,000
William Rotch	Okhotsk	450	2,500
36 ships and barks		33,605	462,000
EDGARTOWN.			
Europa	Okhotsk	500	5,000
Vineyard	Arctic	600	8,500
2 ships		1,100	13,500
NEW LONDON.			
Acors Barns	Arctic	300	11,000
J. D. Thompson	do	300	12,000
Monticello	do	120	
Nile	Okhotsk	350	4,000
4 ships and barks		1,070	27,600
SAN FRANCISCO.			
Florida	Arctic	1,600	21,000
HONOLULU.			
Weilhelm 1st	Arctic	1,300	15,000
Kohola	do	800	15,000
Eagle	do	1,600	25,000
Count Bismarck	do	1,200	15,000
Julian	do	1,500	15,000
Comet	do	75	
6 ships and barks		6,475	85,000

RECAPITULATION.

Fishing ground.	Ships and barks.	Whale oil.	Bone.
		Barrels.	*Pounds.*
Arctic Ocean	42	41,575	586,200
Okhotsk Sea	6	2,575	31,200
Bristol Bay	1	600	2,000
Total	**49**	**44,750**	**619,000**

List of vessels comprising the North Pacific whaling fleet of 1870, with the season's catch of each vessel.

Name of vessel.	Fishing ground.	Season's catch.	
		Whale oil.	Bone.
NEW BEDFORD.		*Barrels.*	*Pounds.*
Active	Arctic	1,050	18,000
Alaska	do	740	10,000
Aurora	do	1,300	15,000
Benjamin Cummings	do	1,080	15,000
California	do	1,400	15,000
Concordia	do	1,600	16,000
Cornelius Howland	do	1,550	18,000
Daniel Webster	do	1,200	18,000
Elizabeth Swift	do	1,150	15,600
Emily Morgan	do	750	8,000
Eugenia	do	400	6,000
Fanny	do	1,200	20,000
George	Bristol Bay	400	5,000
Henry Taber	Arctic	1,100	19,650
Hercules	do	1,500	20,000
Helen Snow	do	1,000	16,000
Janus	do	350	4,300
John Howland	do	1,500	21,000
John Wells	do	1,100	17,000
Josephine	do	2,100	30,000
Lagoda	do	900	10,000
Marengo	do	1,070	13,000
Midas	do	1,200	16,000
Minerva	do	925	12,000
Navy	do	700	10,000
Norman	do	380	1,000
Ohio	do	1,000	15,000
Oliver Crocker	do	970	12,000
Onward	do	1,650	23,000
Roman	do	1,350	19,000
Sea Breeze	do	1,350	10,000
Seneca	do	1,200	18,000
Thomas Dickason	do	950	14,000
Trident	do	1,800	20,000
William Rotch	do	1,000	13,000
35 ships and barks		38,915	519,550
EDGARTOWN.		*Barrels.*	*Pounds.*
Champion	Arctic	950	12,000
Europa	do	850	11,000
Mary	do	750	10,000
Vineyard	do	1,400	20,000
4 ships and barks		3,950	53,000
NEW LONDON.			
Acors Barns	Arctic	700	8,000
J. D. Thompson	do	1,500	15,000
Monticello	Okhotsk	200	2,000
3 ships and barks		2,400	25,000
SAN FRANCISCO.			
Florida	Arctic	1,900	30,000
Massachusetts	do	1,050	7,000
Menshikoff	do	800	15,000
Victoria	do	190	10,000
4 ships and barks		3,940	62,000
HONOLULU.			
Arctic	Arctic	850	15,000
Comet	do	400	7,000
Count Bismarck	do	1,500	18,000
Eagle	do	1,000	10,000
Julian	do	1,500	18,000
Kobela	do	650	10,000
Onward	do	500	9,000
Parea	do	800	.....
Wilhelm 1st	do	880	10,000
9 ships and barks		8,080	97,000

RECAPITULATION.

Fishing ground.	Ship and barks.	Whale oil.	Bone.
		Barrels.	*Pounds.*
Arctic Ocean	53	56,685	749,550
Okhotsk Sea	1	200	2,000
Bristol Bay	1	400	5,000
Total	55	57,285	756,550

In the season of 1871 the North Pacific fleet consisted of thirty-five American and four foreign vessels, all but seven of which were abandoned in the ice off Wainwright's Inlet, north of Bering Strait. The names of the saved vessels were the Europa, Arctic, Progress, Lagoda, Daniel Webster, Midas, and Chance. Four of the lost vessels belonged at Honolulu. The following are the names of the abandoned vessels and the ports to which they belonged:

NEW BEDFORD.—*Barks:* Awashonks, Concordia, Contest, Elizabeth, Emily Morgan, Eugenia, Fanny, Gay Head, George, Henry Taber, John Wells, Massachusetts, Minerva, Navy, Oliver Crocker, Seneca, William Rotch. *Ships:* George Howland, Reindeer, Roman, Thomas Dickason.

NEW LONDON.—*Bark:* J. D. Thompson. *Ship:* Monticello.

SAN FRANCISCO.—*Barks:* Carlotta, Florida, Victoria.

EDGARTOWN.—*Ships:* Champion, Mary.

HONOLULU.—Paira Kohola, Comet, Victoria 2d, Julian.

The North Pacific whaling fleet of 1872.

Name of vessel.	Whale oil.	Bone.	Name of vessel.	Whale oil.	Bone.
NEW BEDFORD.	*Barrels.*	*Pounds.*	NEW BEDFORD—continued.	*Barrels.*	*Pounds.*
Active	775	13,000	Progress	900	7,000
Alaska	150	3,000	Rainbow	70	1,200
Arnolda	500	9,000	Sea Breeze	450	5,000
Bartholomew Gosnold	600	8,500	Tamerlane	360	4,000
Camilla	1,000	12,000	Trident	1,300	20,000
Europa	600	11,000	Triton	275	6,000
Helen Mar	1,050	10,000	Total	18,960	248,200
Helen Snow	40	400	NEW LONDON.		
Illinois	1,000	19,000	Acors Barns	750	10,000
James Allen	1,100	15,000	HONOLULU.		
Jireh Perry	1,650	16,000	Arctic	1,000	12,000
Josephine	1,200	16,000	R. W. Wood	550	12,000
Joseph Maxwell	100	1,600	Total	1,550	24,000
Lagoda	500	5,000	SYDNEY.		
Live Oak	1,000	12,000	Chance	200	3,000
Louisa	550	10,000	Faraway	150	2,400
Marengo	1,450	16,500	Total	350	5,400
Midas	1,000	13,500			
Nautilus	360	5,000			
Northern Light	800	10,000			

The North Pacific whaling fleet of 1873.

Name of vessel.	Whale oil.	Bone.	Name of vessel.	Whale oil.	Bone.
NEW BEDFORD.	*Barrels.*	*Pounds.*	NEW BEDFORD—continued.	*Barrels.*	*Pounds.*
Active	525	4,000	Progress	1,075	17,000
Alaska	550	8,000	Sea Breeze	400	3,000
Arnolda	550	6,000	St. George	900	12,000
Bartholomew Gosnold	300	.....	Triton	100	.....
Camilla	550	7,000	Total	18,595	210,100
Europa	800	8,000	NEW LONDON.		
Helen Mar	550	8,500	Acors Barns	380	4,000
Illinois	800	11,600	SAN FRANCISCO.		
James Allen	1,000	9,000	Florence	520	200
Java	180	3,500	Helen Snow	1,000	15,000
Java 2d	150	3,000	Total	1,520	15,000
Jireh Perry	1,150	10,000	HONOLULU.		
Josephine	1,150	14,000	R. W. Wood	600	1,000
Joseph Maxwell	1,100	14,000	Arctic	380	4,300
Live Oak	1,600	13,500	Total	980	5,300
Louisa	1,150	11,000	SYDNEY.		
Marengo	820	6,000	Adventurer	.....	.....
Midas	550	6,500	Faraway	.....	.....
Mount Wollaston	550	9,000			
Nautilus	550	7,000			
Northern Light	750	4,500			
Ocean Steed	.....	.....			
Onward	800	7,000			

The North Pacific whaling fleet of 1874.

Name of vessel.	Whale oil.	Bone.
NEW BEDFORD.	*Barrels.*	*Pounds.*
Arnolda	125	1,500
Bartholomew Gosnold	330	4,500
Camilla	140	1,500
Europa	1,050	10,000
Helen Mar	750	5,200
Illinois	1,530	18,300
James Allen	1,350	19,300
Java	1,375	15,000
Java 2d	1,100	11,000
Jireh Perry	1,550	16,000
Josephine	1,400	18,000
Joseph Maxwell	950	10,200
Mount Wollaston	900	12,000
Marengo	800	7,200
Northern Light	1,100	12,200
Onward	1,800	20,000
Progress	1,100	14,000
Sea Breeze	60	800
St. George	1,350	9,300
Triton	900	9,000
Total	19,660	213,600

Name of vessel.	Whale oil.	Bone.
NEW LONDON.	*Barrels.*	*Pounds.*
Acors Barns	260	3,200
SAN FRANCISCO.		
Florence	200	2,300
Tugny	260	3,000
Total	460	5,300
HONOLULU.		
Arctic	950	10,000
Onward	600	5,000
Total	1,550	15,000
SYDNEY.		
Adventurer	650	5,000
Faraway	330	5,000
Total	980	10,000

The North Pacific whaling fleet of 1875.

Name of vessel.	Whale oil.	Bone.
NEW BEDFORD.	*Barrels.*	*Pounds.*
Acors Barns	1,550	13,450
Camilla	1,880	24,200
C. Howland	1,100	10,000
Europa	1,650	17,000
Helen Mar	1,500	12,200
Illinois	2,100	26,500
James Allen	1,650	15,000
Java	1,650	16,430
Java 2d	800	6,000
Mount Wollaston	450	4,800
Northern Light	750	10,000
Onward	1,650	18,000
Rainbow	*1,000*	*18,800*

Name of vessel.	Whale oil.	Bone.
NEW BEDFORD—continued.	*Barrels.*	*Pounds.*
St. George	1,750	14,280
Triton	1,300	14,000
Total	23,480	220,460
SAN FRANCISCO.		
Florence	1,200	10,000
HONOLULU.		
Arctic	1,100	15,000
Onward	750	7,800
Faraway	600	6,000
Desmond	1,600	8,000
Total	*3,450*	*36,800*

The North Pacific whaling fleet of 1876.

Name of vessel.	Whale oil.	Bone.
NEW BEDFORD.	*Barrels.*	*Pounds.*
Acors Barns*		
Camilla*		
Cornelius Howland*		
Illinois*		
James Allen*		
Java		
Java 2d*		
Marengo*		
Mount Wollaston	250	3,000
Northern Light	1,400	4,100
Norman	500	
Onward*		
Osmault	150	1,800

Name of vessel.	Whale oil.	Bone.
NEW BEDFORD—continued.	*Barrels.*	*Pounds.*
Rainbow	550	10,000
St. George*		
Three Brothers	1,700	14,000
Total	4,550	33,800
SAN FRANCISCO.		
Clara Bell*		
Florence	700	1,400
HONOLULU.		
Arctic*		
Desmond*		

*Lost.

The North Pacific whaling fleet of 1877.

Name of vessel.	Whale oil.	Bone.
NEW BEDFORD.	*Barrels.*	*Pounds.*
Cleone*		12,000
Eliza	700	1,500
Helen Mar	1,300	20,500
Java*		
Mercury	1,080	800
Milton		
Mount Wollaston	850	12,000
Norman	1,700	16,000
Northern Light	1,600	16,000
Osmanli	150	2,000
Pacific	1,350	15,000
Progress	1,300	12,000
Rainbow	2,300	25,000
Roman	700	4,000
Sea Breeze	1,500	6,500
Thomas Pope	700	3,000
Three Brothers	*500	*500
SAN FRANCISCO.		
Dawn	600	3,000
Florence	1,200	4,000
HONOLULU.		
William H. Allen	300	3,000
Total	17,830	156,800

* Lost; catch of whalebone saved.

The North Pacific whaling fleet of 1878.

Name of vessel.	Whale oil.	Bone.
NEW BEDFORD.	*Barrels.*	*Pounds.*
Abram Barker	300	5,000
Coral	850	12,000
Eliza	950	5,000
Helen Mar	680	7,500
Hunter	620	3,500
John Howland	860	8,000
Mercury	950	6,500
Mount Wollaston	100	700
Norman	850	6,000
Northern Light	850	3,500
Pacific	670	5,500
Progress	600	6,000
Rainbow	1,370	21,000
Sea Breeze	1,200	10,000
Thomas Pope	870	5,000
SAN FRANCISCO.		
Florence*	500	4,000
Dawn	800	5,000
Total	13,080	114,200

* Lost—300 barrels oil and 3,000 pounds bone saved.

The North Pacific whaling fleet of 1879.

Name of vessel.	Whale oil.	Bone.
NEW BEDFORD.	*Barrels.*	*Pounds.*
Abram Barker	1,175	15,000
Coral	1,200	15,000
Eliza	950	8,500
Fleetwing	600	4,500
Helen Mar	1,100	15,000
Hunter	1,280	12,000
John Howland	1,150	15,000
Mercury*	975	9,000
Mount Wollaston*	300	4,500
Norman	1,250	13,000
Northern Light	1,150	8,500
Pacific	1,050	8,000
Progress	900	10,000
Rainbow	1,150	17,000
Sea Breeze	1,250	13,000
Thomas Pope	1,000	15,000
Vigilant†	400	6,000
EDGARTOWN.		
Tropic Bird	450	4,000
SAN FRANCISCO.		
Francis Palmer	500	3,500
Dawn	850	4,000
Hidalgo	120	
Total	18,800	200,500

* Lost.

† Last seen in the Arctic Ocean October 10, 1879.

The North Pacific whaling fleet of 1880.

Name of vessel.	Number of whales.	Barrels whale oil.	Pounds whalebone.	Barrels sperm oil.	Pounds walrus ivory.
NEW BEDFORD.					
Abraham Barker ..... bark	14	1,300	20,000	.....	.....
Coral ..... do	17	1,700	23,000	.....	150
Eliza ..... do	16	1,600	23,000	56	1,800
Fleetwing ..... do	12	1,250	19,000	180	1,100
Helen Mar ..... do	16	1,450	25,000	.....	100
Hunter ..... do	19	1,800	30,000	.....	800
John Howland ..... do	5	500	7,500	40	.....
Mary and Helen ..... steamer	27	2,250	46,000	300	.....
Norman ..... bark	10½	1,550	17,000	.....	2,500
Pacific ..... do	11½	1,700	17,000	80	2,500
Progress ..... do	17½	1,900	28,000	.....	800
Rainbow ..... do	24½	2,150	38,000	80	150
Sea Breeze ..... do	17	1,650	25,500	90	1,200
Thomas Pope ..... do	10	1,100	15,000	40	900
EDGARTOWN.					
Tropic Bird ..... brig	9	900	12,000	180	600
SAN FRANCISCO.					
Alaska ..... schooner	12	550	23,000	.....	.....
Dawn ..... bark	13	1,400	17,000	.....	1,300
Francis Palmer ..... do	6½	1,150	12,000	.....	1,150
Hidalgo ..... brig	8	800	12,000	.....	800
Total for the fleet	265½	*26,700	409,000	1,046	15,450

* Includes 4,000 barrels walrus oil.

The North Pacific whaling fleet of 1881.

Name of vessel.	Whale oil.	Bone.	Name of vessel.	Whale oil.	Bone.
NEW BEDFORD.	*Barrels.*	*Pounds.*	NEW BEDFORD—continued.	*Barrels.*	*Pounds.*
Abram Barker	1,200	14,000	Pacific	1,200	20,000
Atlantic	700	12,000	Progress	1,500	25,000
Belvedere	1,800	32,000	Rainbow	1,650	30,000
Coral	1,450	24,000	Thomas Pope	1,250	24,000
Daniel Webster*	.....	.....	Sappho	350	7,000
Eliza	200	3,000	SAN FRANCISCO.		
Europa†	1,050	12,000			
Fleetwing	1,400	24,000	Dawn	1,200	17,000
Helen Mar	1,900	30,000	Francis Palmer	450	6,000
Hunter	1,200	18,000	Hidalgo	500	5,000
John Howland	1,400	24,000	Sea Breeze	1,400	25,000
Josephine†	1,200	11,000	Tropic Bird†	740	8,000
Northern Light	1,000	16,000	Total	24,740	337,000

* Lost July 2.

† Japan Sea.

The North Pacific whaling fleet of 1882.

Name of vessel.	Whale oil.	Bone.
NEW BEDFORD.	*Barrels.*	*Pounds.*
Abram Barker	850	13,500
Arnolda	300	3,000
Atlantic	650	11,000
Belvedere, steamer	750	9,000
Eliza	350	6,000
Europa*	950	11,000
Fleetwing	1,250	19,000
Gazelle	200	3,000
George and Susan	900	11,000
Helen Mar	800	11,000
Hunter	1,400	25,500
Jacob A. Howland	600	9,000
John Howland	1,750	29,500
Josephine	300	5,000
Louisa	400	6,000
Mabel	700	10,500
Mary and Susan	1,050	20,500
Northern Light	800	11,500
North Star, steamer†		
NEW BEDFORD—continued.	*Barrels.*	*Pounds.*
Ohio 2d	600	8,000
Rainbow	1,000	15,000
Reindeer*	350	3,200
Sappho‡		
Stamboul	300	4,000
Young Phœnix	225	3,800
EDGARTOWN.		
Bounding Billow	600	10,000
SAN FRANCISCO.		
Bowhead, steamer	1,650	26,000
Coral	1,000	14,000
Dawn	900	14,000
Francis Palmer	350	5,000
Hidalgo	700	8,000
Sea Breeze and tender	1,309	34,500
Total	22,975	360,500

* Japan Sea. † Lost July 8. ‡ Lost May 6.

The North Pacific whaling fleet of 1883.

Name of vessel.	Whale oil.	Bone.
NEW BEDFORD.	*Barrels.*	*Pounds.*
Abram Barker	600	6,700
Arnolda	100	
Atlantic	125	1,300
Belvedere, steamer	500	8,000
Europa*	650	5,500
Fleetwing	275	3,900
Gazelle	140	5,900
George and Susan	250	1,400
Helen Mar	90	1,400
Hunter	125	1,200
Jacob A. Howland	350	4,400
John Howland†	250	2,000
Josephine	330	5,500
Louisa‡	300	5,000
Lucretia, steamer	125	1,500
Mabel	240	4,500
Mary and Helen, steamer (new)	380	4,500
Mary and Susan	200	3,500
Northern Light*	325	5,000
Ohio 2d	350	7,000
Rainbow	450	7,000
NEW BEDFORD—continued.	*Barrels.*	*Pounds.*
Reindeer*	400	3,500
Stamboul	50	
Young Phœnix	300	6,300
SAN FRANCISCO.		
Amethyst	100	1,500
Balena, steamer	100	4,000
Bowhead, steamer	950	15,000
Bounding Billow	240	3,300
Coral	280	3,000
Cygnet§		
Dawn	100	1,400
Eliza	375	6,000
Francis Palmer		
Hidalgo		
Narwhal, steamer	430	6,000
Orca, steamer	1,300	20,500
Sea Breeze	150	1,800
Wanderer	125	1,900
Total	10,155	159,400

* Japan Sea. † Lost July 17. ‡ Lost September 22. § Lost August —.

The North Pacific whaling fleet of 1884.

Name of vessel.	Whale oil.	Bone.	Name of vessel.	Whale oil.	Bone.
NEW BEDFORD.	*Barrels.*	*Pounds.*	SAN FRANCISCO.	*Barrels.*	*Pounds.*
Abram Barker	400	7,000	Amethyst	200	2,000
Arnolda	300	5,000	Balæna, steamer	1,700	20,000
Atlantic	70	1,000	Bowhead, steamer †	400	10,000
Belvedere, steamer	260	3,000	Bounding Billow	280	5,000
Fleetwing	900	14,000	Coral	275	3,500
Gazelle	.....	.....	Dawn	.....	.....
George and Susan	370	5,500	Eliza	130	2,000
Helen Mar	.....	.....	Emma F. Herriman †	1,075	11,500
Jacob A. Howland	850	12,500	Francis Palmer	100	2,000
Josephine	1,000	18,000	Hidalgo	100	2,000
Lucretia, steamer	380	6,700	Hunter	275	3,000
Mabel	100	1,700	Mary and Helen, steamer	1,000	17,000
Mars	240	4,500	Narwhal, steamer	1,250	20,000
Mary and Susan	200	3,500	Northern Light	700	12,500
Ocean	270	4,500	Orca, steamer	2,100	31,000
Ohio 2d	650	11,500	Sea Breeze	225	6,500
Rainbow	750	12,000	Stamboul	300	5,800
Reindeer *	300	5,000	Thresher, steamer	1,700	25,000
Young Phœnix	950	12,000	Wanderer	260	3,800
EDGARTOWN.					
Napoleon	90	1,700	Total	20,450	318,700

* Okhotsk and Japan Seas. † Lost.

DAVIS STRAIT AND HUDSON BAY FISHERY.

ORIGIN OF THE FISHERY.—The whale-fishery had been extensively prosecuted by the Dutch at Spitzbergen and on the east coast of Greenland for more than a hundred years before it was found necessary to seek other fields. The Dutch were the first to push into new waters and capture the animals on the west coast of Greenland in Davis Strait. They inaugurated the fishery there in the year 1719, and were soon followed by other European nations. Probably the first American vessel to visit Davis Strait sailed from New England, under Captain Atkins, in 1732. He cruised as far as 66° north. In 1736 several whaling vessels returned to New England from those parts, and in 1737 the Davis Strait fleet from Massachusetts alone numbered between fifty and sixty vessels, a dozen of which were fitted at Provincetown.

Douglass, in his History of North America, published in 1760, says "some New England men a few years since attempted whaling in the entrance of Davis Strait, but to no advantage; they generally arrived there too late, in keeping too near the Labrador shore (they kept within 50 leagues of the shore, they should have kept 150 leagues to sea); they were embayed and impeded by the fields of ice. Last year [1745] Nantucket brought about 10,000 barrels of whale oil to market, *this year they do not follow it so much, because of the low price of oil in Europe, notwithstanding* this year they fit out six or seven vessels for Davis Strait, and sail end of March; they sometimes make Cape Farewell in fifteen days, sometimes in not less than six weeks. The whaling season in both Greenlands is in May and June; the Dutch set out for Davis Strait beginning of March; sometimes they are a month in bearing to weather Cape Farewell; they do not arrive in the fishing-grounds until May. Anno 1743, perhaps a medium year, the Dutch had in Davis Strait fifty whaling ships (at Spitzbergen or East Greenland they had one hundred and thirty-seven whalers) and got seventy-six and a half whales."

The American whale-fishery was very prosperous just before the Revolutionary war, when the annual northern fleet fitted out from Massachusetts numbered one hundred and eighty-three

vessels, measuring 13,820 tons. Many of these cruised in Davis Strait, while the remainder pursued the fishery in the Gulf of Saint Lawrence, about the Straits of Belle Isle, and in other northern waters. After the war the business was greatly reduced in extent, and the northern fleet numbered only ninety-one vessels, very few of which went as far north as Davis Strait. There was at this time, however, a great increase in the northern fisheries from British and French ports, many of these foreign vessels being commanded and in some cases manned by American whalemen who had settled in England, where they might take advantage of the bounty system.

The war of 1812 to 1815 between the United States and England had a very depressing influence on the American whale-fishery; after the war it revived, but the northern cruising grounds were abandoned for the more profitable southern fields that were less exposed to danger and yielded an abundance of sperm and whale oil.

REVIVAL OF THE FISHERY IN 1846.—It was not until the year 1846 that Davis Strait was again visited by our whalemen. In that year the ship McLennan, under Captain Slate, sailed from New London on the 8th of April, and returned September 17 with about 140 barrels of oil. Part of the officers and crews of the vessel were Englishmen experienced in the fishery in those waters. Although the first voyage was not as successful as could be desired, yet the McLennan was again fitted in the spring of 1847, and sailed March 5, returning October 5 with 1,111 barrels of oil and 15,000 pounds of bone, besides 845 seal-skins obtained off the Newfoundland coast at the beginning of the season. In 1849, 1850, and 1851 other voyages were made, and in 1852 the vessel was lost in the Davis Strait, while on her sixth voyage to those waters. The product of her several voyages was about 5,500 barrels of whale oil and 51,000 pounds bone, besides a few thousand seal-skins and some barrels of seal oil.

Capt. S. O. Buddington, who sailed on the McClennan on her voyages in 1850 and 1851, gives the following account of those and subsequent voyages in which he participated: "On the 7th of March, 1850, I sailed on the McClennan from New London bound for Davis Strait. We were fitted for sealing as well as whaling. When we arrived on the coast of Newfoundland we saw seals on the ice some 40 miles from land. In cruising along the coast as far as the Straits of Belle Isle, we captured about seven hundred seals, saving the skins and blubber. About the middle of May we quitted sealing and went whaling off Discoe, Greenland, and in Baffin's Bay. We got five whales that season, and arrived home October 22. The next year I sailed again in the same vessel, leaving New London February 8. While sealing during the spring along Newfoundland and south of Davis Strait we got about eleven hundred seals and two whales. We did not go as far north as Discoe this year, but whaled in Cumberland Inlet, where we got a few whales, and at the close of the season the vessel left for home, arriving at New London, October 28, with 258 barrels of oil, 4,900 pounds of bone, 1,100 seal-skins, and some seal oil. The entire crew of the McClennan did not return home in her, but myself with a gang of twelve men were left to spend the winter in the inlet, for the purpose of trading with the natives and capturing what whales and seals we could. We built the frame of a hut from spare stuff left by the vessel, and covered it with seal-skins. Here we spent the cold winter, occasionally securing a seal and purchasing articles of the natives in exchange for knives, powder, &c. We were the first whalemen that ever spent a winter in this region. At the opening of spring we found whales in considerable abundance, and with the aid of the natives secured during the spring and summer months sixteen small whales that yielded considerable blubber, and about 16,000 pounds of bone.

"The McClennan left home in the spring of 1852, but never reached the inlet. It is thought she was lost near the entrance to Davis Strait. After waiting long enough to be satisfied that our vessel would not return to take us home, we shipped our oil, skins, and bone on an English

vessel, and sailed on her for Hull, England, leaving the inlet October 1, and arriving at Hull November 7, when we sold our oil, whalebone, and seal-skins. I started for the United States on an English vessel, but she was disabled and returned to port, when I shipped on another vessel, and arrived in New London about the middle of January, 1853.

"On July 13, 1853, I sailed again for Davis Strait on the brig Georgiana. We did not stop for seal on the Newfoundland coast, but hastened to Cumberland Inlet, where we spent the winter with the vessel frozen in the ice. This was the first whaling vessel to winter in the ice in the vicinity of Davis Strait. We had quite a successful time in catching seals and whales at the opening of spring, taking advantage of the first movement of the ice when whales were abundant, and we secured twelve in two days. During the entire voyage we caught twenty-four whales that yielded 890 barrels of oil and 16,000 pounds of bone. By trade and capture we got about 1,000 seal-skins, worth at that time about 75 cents apiece at New London. Arrived home October 8, 1854.

"In the year 1855 I sailed again in the same vessel, leaving New London April 11. Some of the crew were disabled by scurvy while on our way north. This delayed us, so that when we reached Frobisher Bay we were too late in the season for whaling. We wintered in the bay and had a terrible hard time of it, losing fourteen men by scurvy. As soon as the ice opened in the spring we started for home, but our men were weak and it took us several weeks to make a few miles. After many difficulties we finally reached New London September 27, 1856, with no cargo except about 200 seal-skins obtained during the winter.

"In 1857 I sailed on the Georgiana again, and had a very good voyage, leaving New London April 11, and arriving home December 20, with 600 barrels of oil, 12,000 pounds of bone, and about 200 seal-skins. I tried it again in the same vessel in 1858. We sailed June 1, the vessel and outfit being valued at $9,000; went to Cumberland Inlet and wintered there, and returned home December 9, 1859, with a cargo valued at $21,000. This was an excellent voyage and quite a contrast to the terrible hardships of our trip two years before.

"On May 29, 1860, I went north in the bark George Henry. Capt. C. F. Hall went with us. This was his first trip to the Arctic. He has written an account of it in a book entitled Arctic Researches, published in 1865. Our whaling-ground on this voyage was in Frobisher Bay, where we wintered two seasons returning home September 13, 1862, with 564 barrels of oil, 10,100 pounds of bone, 450 seal-skins, and 250 walrus-skins. As these were the first quantity of walrus-skins brought home by any whaling vessel, we did not know whether they were of any merchantable value. We had prepared them by salting a little and then drying on the rocks. They sold at 50 cents each in New London and were used for belting. During the winter months we lived with the natives in their huts. We got short of provisions and moved from place to place, so that we were sometimes a long distance from our vessel. Wherever we went we took a whale-boat and gear along with us, rigging the boat on a sled for this purpose. Occasionally we would pull the boat to the edge of the ice and go in search of whales, capturing several in this manner.

"I sailed in 1863 on a voyage to Cumberland Inlet in the schooner Franklin. We wintered there and arrived home in 1864. I made two voyages after this, each tolerably successful."

From 1846 to 1852 the McClennan was the only American vessel fishing in the vicinity of Davis Strait. In the latter year this vessel was lost, and in 1853 the Amaret and Georgiana were fitted for those waters. In 1855 the George Henry was added to the fleet, and these three comprised the entire Davis Strait fleet until 1860, when ten vessels were sent out to those waters The vessels that had been sent north prior to 1860 were generally of the older class, and not thoroughly equipped for severe battling with the ice, but that year two large ships were included

in the list. These were fitted at a large cost for the express purpose of pushing farther west through Hudson Strait into the bay where it was anticipated abundance of whales could be found, and where no American vessel had ever been. "Without accurate charts, in waters totally unknown, among ice and strong currents, in short days and long nights, in fogs and gales of wind, with large compass variations, these adventurous navigators pushed their way, and reached the longitude of 90°, spent a winter there, when the thermometer fell to 60° below zero, obtained cargoes worth about $60,000, and returned to the United States in 1861."*

Since 1860 this fishery has been pursued with varying success; the total number of voyages fitted since that date has been one hundred and eight, and the largest number sent out in any one year was nineteen vessels in 1864. About 3 per cent. of the entire catch of whale oil and 5 per cent. of the whalebone taken by the American fleet from 1870 to 1880 was by the Hudson Bay vessels. Most of the whaling has been carried on in Cumberland Inlet and Hudson Bay, no Americans having pushed on as far north as do the Scotch steam whalers that cruise up as far as the seventy-fourth parallel. The first steam-whaling vessel owned in the United States was the steam-bark Pioneer, sent to Davis Strait in 1866. She sailed April 28, and arrived home November 14, with 340 barrels of oil and 5,300 pounds of bone. She sailed again in 1867, and was lost on the voyage, being sunk by the ice. The best voyage ever made by the Davis Strait fleet was by the bark Pioneer that sailed from New London June 4, 1864, and after passing the season in Hudson Bay returned, September 18, 1865, with 1,391 barrels of oil and 22,650 pounds of bone, valued at $150,000.

The vessels in this northern fleet must be double planked around the bow and along the sides near the water line as a protection against the ice. This planking will last for several years. No copper or metal is used on the bottom, and but few sails are needed as the vessel is frozen in the ice much of the time. The natives are of great assistance to the whalers, helping them in taking whales and also in procuring fresh fish and meat. On the Scotch steamers it is the general custom to carry the blubber home to be tried out, but American whalers here, as in other parts of the world, prefer to try it out on board the vessels. The Scotchmen cruise about these waters during the summer months, and then return home, while many of the American vessels winter in the ice.

Most of the whales taken in these northern waters are of the bowhead or polar species—which is peculiarly an ice-whale—and is the same as taken by the Pacific-Arctic fleet. Whales have been taken in the vicinity of Point Barrow, with harpoons in them bearing the marks of vessels that had been pursuing the fishery in the vicinity of Davis Strait; hence it seems certain that there exists a passage from one ocean to the other. An instance of this kind is given by the Honolulu Commercial Advertiser, in December, 1870. It is an account of a harpoon which was found in a whale captured by the ship Cornelius Howland, of New Bedford, then cruising in the North Pacific Ocean. It is the custom among whalemen to have each iron stamped with initials designating the ship to which it belongs. This is done to prevent dispute in case it is necessary to waif the whale, or in case boats from two different ships lay claim to one which has been killed. While off Point Barrow the Cornelius Howland took a large polar whale, in the blubber of which was embedded the head of a harpoon marked "A. G.," the wound made by it having healed over. This was presumed to have belonged to the bark Ansel Gibbs, also of New Bedford. But she was known to have been pursuing the fishery in Cumberland Inlet and its vicinity for some ten or eleven years previously. The obvious inference was that this whale must have found his way

* Mr. R. H. Chapell, of New London, in a letter to Capt. C. F. Hall, quoted in Narrative of the Second Arctic Expedition.

from ocean to ocean by some channel unknown to navigators, and that at some seasons of the year there must be an inter-ocean communication. The Advertiser adds: "We have heard before of instances where whales have been caught at Cumberland Inlet with harpoons in them, with which they have been struck in the Arctic Ocean, but we believe this is the first authenticated instance of a whale having been caught in the Arctic Ocean with a harpoon in it from the Davis Strait side."

Scarcely any effort has ever been made by Americans to find whaling-grounds to the east of Greenland or at Spitzbergen, where the Dutch and English once found such profitable fishing. Two American vessels have been sent to the Spitzbergen seas; one, the Hannibal, of New London, a ship of 441 tons that sailed May 21, 1855, and returned March 21, 1856, with 28 barrels of whale oil; the other vessel was the bark Tempest, also of New London, that sailed May 21, 1857. After an unsuccessful cruise near Spitzbergen and the east coast of Greenland, she sailed for the South Atlantic and thence to the North Pacific Ocean, where, after several cruises, she obtained a fair cargo, and returned to New London in 1861. The four years' cruise of the Tempest was not profitable, but resulted in a loss of $7,000. The owner being asked how he could lose so much by the voyage, said: "I will, by way of reply, mention a few items, and the reader may draw his own inferences. Cost of vessel; interest on the same; outfits; interest on outfits; provisions for a large crew; advance to crew; desertion of men; shipping new hands; repairs on vessel; wear and tear; staving boat; clothing for men; new sails; few whales; insurance; commission; leakage; gauging; commission; wharfage; port charges; taxes; more leakage; outgoes; freight; fog; thunder."

Another attempt of Americans to whale in the waters north of Europe was made at Iceland in the years 1865 and 1866, by Captains Dahl and Royce. They proceeded to Seidis Fjord, in latitude 65° 18′ north, with two vessels, the bark Reindeer, of New York, under the American flag and a little steamer called the Visionary, which was built in Scotland, and sailed under the Danish flag. They had two whale-boats fitted for catching the whales that were towed by the steamer into the fjord where they were cut in. The first season proved unsuccessful, but in the spring of 1866, twenty sulphur-bottom whales were taken yielding about 900 barrels of oil. Extensive arrangements had been made to carry on the fishery, steam oil try-works having been built on land. In the winter of 1865–'66 there was sent to Iceland the Dutch schooner Jan Albert, that had been remodeled into a screw steamer and named the Liteus. The crew consisted of Americans, Danes, Scotch, Russians, and one Polynesian. They further employed two small iron steamers built in Glasgow and Liverpool, and called the Vigilant and Stegpideder. By the end of September they had taken forty whales that yielded about 2,400 barrels of oil. Although this American attempt to establish a whale-fishery at Iceland was partially successful, yet the returns as compared with the expenses of the undertaking did not warrant its continuance, and the fishery was abandoned.

The fishing by Scotch vessels in Davis Strait and east of Greenland, as also the early history of the Spitzbergen whale-fishery are discussed below under the head of Whale Fishing by Foreign Nations.

The total number of American vessels that have engaged in whaling in Davis Strait, Hudson Bay, and vicinity, since the revival of this fishery in 1846, includes 16 schooners, 7 brigs, 13 barks, 7 ships, and 1 steamer, a total of 44 vessels, of which 18 were lost on their voyages. The entire number of voyages fitted out in the same period was 138.

RECORD OF VOYAGES 1846 TO 1879.—The following table is a record of each voyage made by the American fleet to the region of Davis Strait and Hudson Bay from 1846 to 1879:

U. S. Fishery Laboratory
Beaufort, North Carolina

U.S. FISH COMMISSION
BEAUFORT, N.C.

Voyages of the Davis Strait and Hudson Bay fleet from 1846 to 1879.

Name of vessel.	Rig.	Tons.	Port.	Sailed.	Returned.	Whale oil.	Whalebone.	Remarks.
1846–1852.						*Barrels.*	*Pounds.*	
McClennan	Ship	376	New London	Apr. 8, 1846	Sept. 17, 1846	140	.....	
Do	do	376	do	Mar. 5, 1847	Oct. 5, 1847	1,111	15,000	845 seal-skins.
Do	do	376	do	Mar. 3, 1849	Oct. 16, 1849	600	12,000	
Do	do	376	do	Mar. 7, 1850	Oct. 22, 1850	450	7,000	700 seal-skins
Do	do	376	do	Feb. 8, 1851	Oct. 28, 1851	258	4,900	1,100 seal-skins
Do	do	376	do	Mar. —, 1852	.....	.....	.....	*Lost in Davis Strait.*
1853.								
Amaret	Brig	91	New London	July 13, 1853	Aug. 29, 1854	369	8,000	
Georgiana	do	190	do	July 13, 1853	Oct. 9, 1854	890	16,000	
1854.								
Amaret	Brig	91	New London	Sept. 7, 1854	Aug. 12, 1855	Clean.	.....	Arrived at Labrador late, and was frozen in the ice from October, 1854, to July, 1855.
1855.								
George Henry	Bark	303	New London	May 29, 1855	Dec. 26, 1855	184	.....	Brought home the abandoned ship Resolute, of the English expedition in search of Franklin.
Georgiana	Brig	190	do	Apr. 11, 1855	Sept. 16, 1856	Clean.	.....	Wintered in Frobisher Strait; lost 14 men from scurvy.
1856.								
Amaret	Brig	91	New London	May 21, 1856	——, 1857	190	2,200	
George Henry	Bark	303	do	May 21, 1856	Sept. 17, 1857	418	.....	
1857.								
Amaret	Brig	91	New London	Sept. 7, 1857	Sept. 1, 1858	267	5,700	Frozen in the ice eight months; took the first whale July 1, and was full July 22.
Georgiana	do	190	New London	Apr. 11, 1857	Dec. 20, 1857	443	6,500	
1858.								
Georgiana	Brig	190	New London	June 1, 1858	Dec. 9, 1859	847	15,000	Sailed for $9,000; cargo worth $21,000.
1859.								
Amaret	Brig	91	New London	Apr. 13, 1859	.....	.....	.....	Lost in Cumberland Inlet September 27, 1860. The Amaret was the Rescue of Kane's expedition.
1860.								
Ansel Gibbs	Ship	319	Fair Haven	Apr. 11, 1860	Nov. 11, 1861	500	9,000	
Antelope	Bark	340	New Bedford	Mar. 15, 1860	Oct. 12, 1863	1,500	24,000	
Black Eagle	do	311	do	May 20, 1860	Nov. 3, 1861	1,122	17,800	
Daniel Webster	Ship	336	do	Mar. 21, 1860	Jan. 5, 1863	.....	6,500	Put in Aberdeen, Scotland, on account of the rebellion; sent home 2,300 pounds bone; three men died of scurvy in 1862.
George Henry	Bark	303	New London	May 29, 1860	Sept. 13, 1862	564	10,100	450 seal and 250 walrus skins.
Georgiana	Brig	190	do	May 1, 1860	Oct. 7, 1861	695	14,700	
Hannibal	Ship	441	do	Mar. 21, 1860	.....	.....	8,000	Abandoned in Cumberland Inlet October, 1861.
Northern Light	do	513	Fair Haven	July 21, 1860	Oct. 11, 1861	1,104	21,000	
Pioneer	Bark	235	New London	June 1, 1860	Oct. 22, 1861	10	.....	
Syren Queen	Ship	461	Fair Haven	June 13, 1860	Oct. 11, 1861	665	15,700	Five men died of scurvy.
1861.								
Antelope	Bark	340	New Bedford	Oct. 31, 1861	Oct. 12, 1863	1,500	24,000	
Northern Light	Ship	513	do	Nov. 18, 1861	Oct. 17, 1862	1,295	19,900	
1862.								
Ansel Gibbs	Ship	319	New Bedford	Apr. 15, 1862	Oct. 11, 1863	1,000	17,500	
Black Eagle	Bark	311	do	May 5, 1862	Sept. 24, 1863	650	30,000	
Georgiana	Brig	190	New London	May 9, 1862	Nov. 3, 1863	319	4,700	
Orray Taft	Bark	176	New Bedford	Apr. 27, 1862	Oct. 25, 1867	225	3,000	
Pioneer	do	235	New London	May 24, 1862	Oct. 13, 1863	561	9,000	
1863.								
Actor	Schooner	90	New London	June 15, 1863	Oct. 25, 1863	51	2,150	
Andrews	Bark	303	New Bedford	Apr. 20, 1863	Oct. 25, 1864	1,046	17,150	
Daniel Webster	do	336	do	Apr. 21, 1863	Oct. 27, 1864	36	9,700	
Franklin	Schooner	119	New London	June 24, 1863	Sept. 8, 1864	341	5,800	
George Henry	Bark	303	do	Mar. 19, 1863	.....	.....	.....	*Lost in Hudson Bay, 1863.*
Isabella	Brig	192	do	June 6, 1863	Oct. 4, 1864	502	7,250	

Voyages of the Davis Strait and Hudson Bay fleets from 1846 *to* 1879—Continued.

Name of vessel.	Rig.	Tons.	Port.	Sailed.	Returned.	Whale oil.	Whalebone.	Remarks.
1863.						*Barrels.*	*Pounds.*	
Northern Light	Ship	513	New Bedford	Apr. 29, 1863	Oct. 24, 1864	1,270	20,900	
Pavilion	Brig	150	Fair Haven	June 15, 1863				Crushed in the ice in Hudson Bay in 1863; seven men lost; survivors suffered severely from cold and exposure.
Wm. Thompson	Ship	495	New Bedford	Mar. 17, 1863	Dec. 19, 1863	100	1,200	
1864.								
Black Eagle	Bark	311	New Bedford	May 7, 1864	Oct. 1, 1865	781	12,400	
Concordia	do	265	Sag Harbor	June 3, 1864	Oct. 1, 1865	70	900	
Cornelia	Schooner	197	New London	May 9, 1864	Oct. 11, 1865	300	4,200	
Era	do	188	do	Aug. 31, 1864	Sept. 20, 1864	Clean.		
George and Mary	Bark	165	do	June 4, 1864	Oct. 10, 1865	180	2,800	
Georgiana	Brig	190	do	Apr. 13, 1864	Oct. 10, 1865	766	15,250	
Glacier	Schooner	282	New Bedford	June 21, 1864	Nov. 13, 1865	328	5,550	
Helen F.	do	108	New London	June 30, 1864	Sept. 18, 1865	Clean.		
Isabel	do	95	do	June 8, 1864	Oct. 26, 1864	Clean.		
Leader	do	81	do	May 28, 1864	Sept. 11, 1865	287	5,000	
Milwood	Bark	254	New Bedford	Apr. 24, 1864	Oct. 28, 1864	2,082	30,200	
Monticello	do	356	New London	June 30, 1864	Sept. 21, 1865	271	3,900	
Morning Star	do	305	New Bedford	May 14, 1864	Oct. 14, 1865	1,170	17,900	
Orray Taft	do	176	do	Apr. 9, 1864	Oct. 6, 1865	472	7,254	
Oxford	Brig	130	Fair Haven	May 5, 1864	May 31, 1865	75	795	
Pioneer	Bark	235	New London	June 4, 1864	Sept. 18, 1865	1,391	22,650	Value of cargo, $150,000.
S. B. Howes	do	101	do	Apr. 19, 1864	Oct. 5, 1865	199	3,000	
1865.								
Andrews	Bark	303	New Bedford	Apr. 1, 1865	Apr. 25, 1866	1,038	16,600	
Daniel Webster	Ship	356	do	May 20, 1865	Nov. 14, 1866	703	11,500	
Era	Schooner	188	New London	May 17, 1865	Nov. 19, 1866	236	2,900	
Franklin	do	119	do	Apr. 25, 1865	Sept. 17, 1866	534	8,900	
Isabella	Brig	192	do	Mar. 7, 1865	Nov. 9, 1866	584	10,500	
Milwood	Bark	356	New Bedford	Apr. 19, 1865	Nov. 7, 1866	923	14,500	
S. B. Howes	Schooner	101	New London	Oct. 26, 1865	Oct. 9, 1867	300	6,000	
1866.								
Ansel Gibbs	Bark	303	New Bedford	May 1, 1866	Oct. 9, 1867	320	6,000	
Black Eagle	do	311	do	Apr. 20, 1866	Sept. 24, 1867	200	3,000	
Concordia	do	265	Sag Harbor	May 11, 1866	Sept. 13, 1867	440	7,300	
Cornelia	Schooner	148	Groton	Apr. 18, 1866	Oct. 31, 1867	200		
Glacier	do	177	New Bedford	Apr. 10, 1866	Oct. 8, 1867	20	200	
George and Mary	Bark	105	New London	Apr. 18, 1866	Sept. 14, 1867	500	10,000	
Georgiana	Brig	128	do	July 12, 1866	Nov. 29, 1867	800	16,000	
Helen F	Schooner	108	do	July 16, 1866	Nov. 20, 1867	50		
Morning Star	Bark	238	New Bedford	Apr. 18, 1866	Oct. 31, 1867	650	12,000	
Orray Taft	do	134	do	May 8, 1866	Oct. 25, 1867	225	3,000	
Oxford	Brig	91	Fair Haven	May 1, 1866	Sept. 22, 1867	280	8,000	
Pioneer	Bark	228	New Bedford	Apr. 19, 1866	Sept. 12, 1867	500	8,000	
Pioneer	Steamer	212	New London	Apr. 28, 1866	Nov. 14, 1866	340	5,300	First steam whaler from the United States.
Quickstep	Schooner	105	do	June 28, 1866	Sept. 14, 1868	362	6,600	
S. B. Howes	do	101	do	June 28, 1866	Oct. 9, 1866	249	5,600	
U. D	do	77	do	June 6, 1866	Sept. 26, 1866	Clean.		
1867.								
Andrews	Bark	277	New Bedford	May 20, 1867				Lost in Cumberland Inlet November 14, 1867.
Era	Schooner	188	New London	Apr. 11, 1867	Aug. 27, 1868	837	13,400	
Franklin	do	119	do	May 2, 1867	Sept. 10, 1868	393	6,600	
Isabella	Brig	192	do	May 25, 1867	Sept. 14, 1868	668	8,700	
Milwood	Bark	216	New Bedford	Apr. 2, 1867	Nov. 13, 1868	378	8,880	
Pioneer	Steamer	212	New London	Mar. 20, 1867				Sunk among the ice in Hudson Strait, July 6, 1867.
1868.								
Ansel Gibbs	Bark	303	New Bedford	June 3, 1868	Sept. 26, 1869	650	10,000	
Concordia	do	217	Sag Harbor	Apr. 20, 1868	Oct. 7, 1868	200	2,900	

Voyages of the Davis Strait and Hudson Bay fleets from 1846 to 1879—Continued.

Name of vessel.	Rig.	Tons.	Port.	Sailed.	Returned.	Whale oil.	Whalebone.	Remarks.
						Barrels.	*Pounds.*	
1868.								
Cornelia	Schooner	148	Groton	May 26, 1868	Sept. 23, 1869	143	1,765	
George and Mary	Bark	105	New London	May 16, 1868	Sept. 17, 1869	450	8,000	
Georgiana	Brig	128	do	Aug. 5, 1868				Lost in 1868 with entire crew
Helen F	Schooner	108	do	June 20, 1868		1,450	13,600	Lost in Cumberland Inlet November 10, 1870.
Oxford	Brig	91	Fair Haven	July 20, 1868				Lost in Cumberland Inlet in 1869.
S. B. Howes	Schooner	101	New London	June 20, 1868	Nov. 6, 1869	Clean.		
1869.								
Era	Schooner	188	New London	May 11, 1869	Oct. 5, 1870	533	5,400	
Franklin	do	119	do	May 18, 1869	Oct. 5, 1870	473	8,418	
Isabella	Brig	192	do	Apr. 14, 1869	Oct. 15, 1870	527	6,587	
Milwood	Bark	216	New Bedford	Apr. 6, 1869	Oct. 6, 1870	960	15,900	
Quickstep	Schooner	105	New London	May 18, 1869				Lost in 1870.
1870.								
Ansel Gibbs	Bark	303	New Bedford	June 21, 1870	Oct. 6, 1870	1,340	22,040	
George and Mary	do	105	New London	May 3, 1870	Nov. 20, 1871	425	5,000	
S. B. Howes	Schooner	101	do	July 7, 1870				Lost in the inlet in 1873.
1871.								
Ansel Gibbs	Bark	303	New Bedford	Dec. 13, 1871				Lost in Hudson Bay October 19, 1872, having 530 barrels oil and 819,000 pounds bone on board; 8,500 pounds bone were saved; 15 of crew died of scurvy.
Concordia	Bark	217	New London	Apr. 25, 1871	Nov. 9, 1871			Nothing but freight; broken up in 1873.
Glacier	do	195	New Bedford	July 9, 1871	Sept. 26, 1873	75	1,600	
Isabella	Brig	192	New London	May 31, 1871	Oct. 28, 1872		228	
Milwood	Bark	216	New Bedford	Sept. 25, 1871		140		Lost on Black Lead Island.
1872.								
Abbie Bradford	Schooner	115	New Bedford	May 28, 1872	Sept. 7, 1873	878	13,131	
John Atwood	do		Provincetown	May 29, 1872	Oct. 8, 1872	180	3,128	
Orray Taft	Bark	134	New Bedford	July 2, 1872				Lost in Hudson Bay September 14, 1872.
1873.								
Isabella	Brig	192	New London	June 26, 1873	Sept. 2, 1873	Clean.		
1874.								
Abbie Bradford	Schooner	115	New Bedford	May 12, 1874	Sept. 24, 1875	650	12,000	The first mate and a boat's crew were lost in the ice September 5, 1874.
Nile	Ship	293	New London	June 15, 1874	Dec. 9, 1874	800	8,000	
President	Bark	259	New Bedford	June 9, 1874	Sept. 16, 1874	500	8,000	
1875.								
Isabella	Brig	192	New London	June 8, 1875	Aug. 27, 1877	400	4,000	
Nile	Ship	293	do	May 4, 1875	Jan. 11, 1876	380	5,000	
1876.								
A. Houghton	Bark	219	New Bedford	May 23, 1876		200	4,500	Lost in Hudson Bay June 12, 1877; value $24,000.
1877.								
A. J. Ross	Brig	197	New Bedford	July 17, 1877	Apr. 10, 1878	243	2,300	
Era	Schooner	134	New London	July 11, 1877	Dec. 4, 1878	20		
L. P. Simmons	do	89	do	May 30, 1877	Nov. 27, 1878	100	2,000	
Nile	Bark	293	do	July 11, 1877	Dec. 1, 1878	350	8,000	
1878.								
Abbie Bradford	Schooner	115	New Bedford	May 8, 1878	Aug. 31, 1879	550	8,000	
Abbott Lawrence	Brig	169	do	May 4, 1878	Sept. 1, 1879	190	3,000	
A. J. Ross	do	197	do	May 15, 1878		20		Lost in Hudson Bay August 16, 1878
Franklin	Schooner	77	do	July 25, 1878	Aug. 31, 1879	40	215	
Isabella	Brig	132	do	May 14, 1878	Aug. 31, 1879	200	4,000	
Mattapoisett	Bark	110	do	May 28, 1878	Sept. 7, 1879	150	2,000	
1879.								
George and Mary	Bark	105	New Bedford	June 22, 1879	Sept. 22, 1880	70	2,400	Mate froze to death. Brought home remains of Dr. Irving, of Franklin Expedition.
Delia Hodgkins	Schooner	95	New London	June 15, 1879	Nov. 22, 1879	300		
Era	do	134	do	June 23, 1879	Nov. 24, 1880	550	8,000	

7. HISTORY OF THE AMERICAN WHALE FISHERY FROM 1750 TO 1815.

The Dutch and English had carried on the whale-fishery in the northern seas for several years prior to the settlement of New England by Englishmen. Along the shore of Massachusetts whales were constantly being driven ashore and were secured by the inhabitants. In the early records of the colonies we find numerous references to drift whales, but it was not until about the year 1712 that vessels were used, and those of but small tonnage, so that they ventured but on short voyages. By the year 1730, however, the vessels were of larger class and generally sloop-rigged. By the year 1750 there was a large fleet sailing from various ports in New England, which has always been the enterprising center for the whale-fishery in this country.

The following exhaustive review of the American whale-fishery during the period from 1750 to 1815 is quoted from Starbuck's History of the Whale Fishery printed in the report of the United States Commissioner of Fish and Fisheries for 1875–'76:

BOUNTY TO ENGLISH WHALERS.—"The period from 1750 to 1784 was the most eventful era to the whale-fishery that it has ever passed through. For a large proportion of the time the business was carried on under imminent risk of capture, first by the Spanish and French and after by the English. The colonial Davis Strait fishery seems to have been quite abandoned, and the vessels cruised mostly to the eastward of the Grand Banks, along the edge of the Gulf Stream and in the vicinity of the Bahamas. In 1748 the English Parliament had passed a second act to encourage this fishery. By it the premium on inspection of masts, yards, and bowsprits, tar, pitch, and turpentine, and on British-made sail-cloth were to continue, and the duties on foreign-made sail-cloth were remitted to vessels engaged in this pursuit. A bounty was also granted on all ships engaged in whaling during the then existing war; harpooners and others employed in the Greenland fishery were exempted from impressment. The commissioners of customs were, under the required certificate, to pay the second twenty shillings per ton bounty granted by Parliament over the first twenty previously granted.* The ships which had sailed during the previous March or April were to be equal sharers in this bounty with those whose sailing had been delayed. All ships built or fitted out for this pursuit from the American colonies conforming to this act were to be licensed to whale, and in order to receive the bounties must remain in Davis Straits or vicinity from May (sailing about May 1) until the 20th of August, unless sooner full or obliged to return by accident. Foreign Protestants serving in this fishery for two years, and qualifying themselves for its prosecution, were to be treated as though they were natives.† The cause of this concession to the colonies was a part of Lord Shirley's scheme to rid Acadia of the French. It was his desire that George II should cause them to be removed to some other English colony, and settle Nova Scotia with Protestants,‡ and to this end invitations were sent throughout Europe to induce Protestants to remove thither. 'The Moravian Brethren were attracted by the promise of exemption from oaths and military service. The good will of New England was encouraged by care for its fisheries; and American whalemen, stimulated by the promise of enjoying an equal bounty with the British, learned to follow their game among the icebergs of the Greenland seas.'§ 'The New Englanders of this period,' says Bancroft,‖ 'were of homogeneous origin, nearly all tracing their descent to the English emigrants of the reigns of Charles the First and Charles the Second. They were a frugal and industrious race. Along the sea-side, wherever there was a good harbor, fishermen, familiar with the ocean, gathered in hamlets; and each returning season saw them

"* In sixth year of the reign of George II." "† Mass. Col. MSS., Maritime, vi, p. 316."
"‡ The carrying out of this scheme and the destruction of the colony of Acadians justly receives execration."
"§ Bancroft's Hist. U. S., v, p. 45." "‖ *Ibid.*, iv, p. 149."

with an ever-increasing number of mariners and vessels, taking the cod and mackerel, and sometimes pursuing the whale into the icy labyrinths of the northern seas; yet loving home, and dearly attached to their modest freeholds.'

"Of this period Hutchinson says: * 'The increase of the consumption of oil by lamps as well as by divers manufactures in Europe has been no small encouragement to our whale-fishery. The flourishing state of the island of Nantucket must be attributed to it. The cod and whale fishery, being the principal source of our returns to Great Britain, are therefore worthy not only of provincial but national attention.'

"A continual succession of foreign wars, in which the hardy fishermen and farmers of New England were constantly called to the aid of England, coupled with a continual succession of intolerant measures adopted by the mother country toward the plantations, which, in common with the colonists at large, they felt impelled to resist, was gradually preparing America for the eventful struggle which was to end in its independence. By the experience of the wars they learned their strength; through the pressure of the tyrannical acts they learned their rights."

EMBARGO OF 1757.—"Pending the expedition for the reduction of Nova Scotia in 1755 an embargo was laid upon the Bank fishermen, though the risk of capture was so great that it of itself must have quite effectively embargoed many of them.†

"In 1757—the embargo being still continued upon the fishery in these waters—a petition was presented to the general court of Massachusetts from the people of Martha's Vineyard and Nantucket, representing that the memorialists 'being Informed that your Honours think it not advisable to Permit the fishermen to Sail on their Voyages until the time limited by the Embargo is Expired by Reason that their fishing banks where they Usually proceed on said Voyages lyes Eastward not far from Cape breton which may be a means of their falling into the hands of the french which may be of bad Consequence to the Common Cause. Your Memorialists would Humbly observe to Your Honours that that is not the Case with the whalemen their procedure on their Voyages is Westward of the Cape of Virginia and southward of that until the month of June from which Your Memorialists are of the mind their is nothing like the Danger of their falling into the hands of the Cape breton Privateers as would be If they went Eastward. Your Memorialists would further Observe that the whalemen have almost double the Number of hands that the fishermen Carry which makes Their Charge almost Double to that of fishermen and ye first part of the Whale season is Always Esteemed the Principal time for their making their Voyages which If they lose the greatest part of the People will have nothing to Purchase the Necessaries of life withal they haveing no other way which must make them in miserable Situation. Your memorialists would therefore beg that y^r Honours would take Our Miserable Situation under Consideration and grant our Whalemen liberty to Proceed on Our Voyages from this time If it be Consistent with your Great wisdom as in duty bound shall every pray‡

"'JOHN NORTON (for Martha's Vineyard)
"'ABISHAI FOLGER (for Nantucket)'

"In compliance with the foregoing petition the council passed this resolution (April 8, 1758): 'Inasmuch as the Inhabitants of Nantucket most of whom are Quakers are by Law exempted from Impresses for military Service. And their Livelihood intirely depends on the Whale fishery—

"* Hist. of Massachusetts, ii, p. 400."

"† A duty was laid upon the colonists in 1756 to support a frigate on the Banks to defend the fishery."

"‡ Mass. Col. MSS., Maritime, vi, p. 371. From this petition it would appear that, having an unfavorable season at the southward, the whalemen would stand for the Banks hoping to fill there. If, however, a vessel got home early from the north, they frequently went on another voyage to the south and westward in the same year."

Advised that his Excell^y give permission for all whaling Vessells belong^g to s^d Il^d to pursue their Voyages, taking only the Inh^ts of s^d Island in s^d Vessells and that upon their taking any other persons whatsoever with them they be subject to all the Penalties of the law in like manner as if they had proceeded without Leave.'" *

THE GULF OF SAINT LAWRENCE AND STRAITS OF BELLEISLE FISHERY.—"In 1761 the fishery of the Gulf of Saint Lawrence and the Straits of Bellisle was opened to our whalemen, and they speedily availed themselves of its wealth. This was the legitimate result of the conquest of Canada and the cession of territory made by France to England at the conclusion of the war, a result which the colonists had labored hard and spent lives and treasure unstintedly to attain, but of the benefit of which they were destined to be defrauded. A duty was levied on all oil and bone carried to England from the colonies, and by another oppressive act of Parliament they were not allowed to find for this product any other market. The discrimination between the plantations and the mother country was made the more marked since at this time the residents of Great Britain were allowed a bounty from which he provincials were debarred. Against these injustices the merchants of New England, and those of London engaged in colonial trade, respectfully petitioned. They represented that 'in the Year 1761 The Province of Massachusetts Bay, fitted out from Boston & other ports† Ten Vessels of from Seventy to Ninety Tons Burden for this Purpose. That the Success of these was such as to encourage the Sending out of fifty Vessels in the Year 1762 for the same trade. That in the Year 1763 more than Eighty Vessels were imploy'd in the same manner.‡ That they have already imported to London upwards of 40 Ton of Whale Finn: being the produce of the two first years. That upon Entring of the above Finn, a Duty was required and paid upon it, of thirty one Pound ten shillings ℔ Ton. That the weight of this Duty was render'd much heavier by the great reduction made in the price of Dutch Bone since the commencement of this trade from £500 to £330 ℔ Ton.' They represent further that the reason for the conferring of bounties upon vessels in this pursuit from Great Britain was to rival the Dutch,§ but in spite of this encouragement there was not enough oil and bone brought into England by British vessels to supply the demand. They also reasoned that Parliament could not intentionally discriminate between the various subjects of the Crown, granting

"* Mass. Col. MSS., Maritime, vi, p. 371. Martha's Vineyard appears to be ignored in the order."

"† As already explained, Boston was the port of entry for many of the Cape towns and its own immediate vicinity."

"‡ According to the following doggerel there were seventy-five whaling captains sailing from Nantucket in 1763:

Whale-List, by Thomas Worth, M. 1763.

Out of Nantucket their's Whalemen seventy-five,
But two poor Worths among them doth survive:
Their is two Ramsdills & their's Woodbury's two,
Two *Ways* there is, chuse which one pleaseth you,
Folgers thirteen, & Barnards there are four
Bunkers their is three & Jenkinses no more,
Gardners their is seven, Hussey's their are two,
Pinkhams their is five and a poor Delano,
Myricks there is three & Coffins there are six,
Swains their are four and one blue gally Fitch.
One Chadwick, Cogshall, Coleman their's but one,
Brown, Baxter, two & Paddacks there is three,
Wyer, Stanton, Starbuck, Moorse is four you see,
But if for a Voyage I was to choose a Stanton,
I would leave Sammy out & choose Ben Stratton.
And not forget that Bocott is alive,
And that long-crotch makes up the seventy-five.
This is answering to the list, you see,
Made-up in seventeen hundred & sixty-three."

"§ The Dutch from 1759 to 1768 sent to the Greenland fishery 1,324 ships, which took 3,018 whales, producing 146,419 barrels of oil and 8,785,140 pounds of bone. (Scoresby.) Great Britain in the same time sent about one-third the number of ships."

to one a bounty and requiring of another a duty for the same service. They, however, ask for no bounty—they are content that Great Britain should alone receive the benefit of that—but they simply desire that they should not be taxed with a duty on these imports."*

ENGLISH BOUNTY ABOLISHED.—"The knowledge that the English fishery, even with its bounty, was still unable to fully cope with the Dutch, or even to supply its own home demand, as well as the desire of Earl Grenville to forward certain projects in his American policy, notably the odious stamp-tax, caused some attention to be paid to petitions similar to the foregoing, fortified somewhat by the presence of a special agent from Massachusetts to sustain the position and urge the claims there made. To various sections various tenders were to be made. 'The boon that was to mollify New England,' says Bancroft,† 'was concerted with Israel Maudit, acting for his brother, the agent of Massachusetts, and was nothing less than the whale-fishery. Great Britain had sought to compete with the Dutch in that branch of industry; had fostered it by bounties; had relaxed even the act of navigation, so as to invite even the Dutch to engage in it from British ports in British shipping. But it was all in vain. Grenville gave up the unsuccessful attempt, and sought a rival for Holland in British America, which had hitherto lain under the double discouragement of being excluded from the benefit of a bounty,‡ and of having the products of its whale-fishing taxed unequally. He now adopted the plan of gradually giving up the bounty to the British whale-fishery, which would be a saving of £30,000 a year to the treasury, and of relieving the American fishery from the inequality of the discriminating duty, except the old subsidy, which was scarcely 1 per cent. This is the most liberal act of Grenville's administration, of which the merit is not diminished by the fact that the American whale-fishery was superseding the English under every discouragement. It required liberality to accept this result as inevitable, and to favor it. It was done, too, with a distinct conviction that 'the American whale-fishery, freed from its burden, would soon totally overpower the British.' So this valuable branch of trade, which produced annually 3,000 pounds, and which would give employment to many shipwrights and other artificers, and to three thousand seamen, was resigned to America."

EFFECTS OF WAR.—"With the people of Nantucket every foreign war meant a diminution of their whaling fleet, for there is scarcely any risk that whalemen have not and will not run in pursuit of their prey. During the years 1755 and 1756 six of their vessels had been lost at sea and six more were taken by the French and burned, together with their cargoes, while the crews

"* Mass. Col. MSS., Maritime, vol. vii, p. 243. The concluding portion of this petition, including the signatures, is missing, a fact greatly to be regretted, as it would be extremely interesting to know who the prominent oil-merchants of that time were. The following is the statement of imports of oil and bone from the colonies into England and from Holland to the same country, which accompanied the petition:

Account of Fins & Oil from America to England & Duties from Christmas 1758 *to Christmas* 1763.

Year.	Fins.				Whale-oil.			
		Duty, America.	Duty, London.			Duty, America.	Duty, London.	
	F. Out. Lbs.	£ s. d.	£ s. d.		T. H. G.	£ s. d.	£ s. d.	
1758 to 1759	17 0 17	11 0 0	10 14 0		3,245 2 28	1,898 13 8	1,436 3 8	
1760	18 2 9	28 16 6	27 10 4		2,595 1 14	1,518 5 1	1,148 8 5	
1761	27 0 8	42 2 6	40 10 6		3,126 3 31	1,829 4 5	1,383 12 10	
1762	335 2 5	522 3 10	502 5 0		2,483 2 39	1,452 18 9	1,090 0 4	
1763	1,546 3 13	2,427 5 8	2,315 9 4		5,030 0 12	2,942 11 7	2,225 15 11	
Total	1,965 0 24	3,011 10 1	2,896 15 2		16,481 1 16	9,641 13 6	7,293 1 2	

†Bancroft's United States, v, p. 184.

‡The bounty of 1748 had evidently been legislated out of existence.

were carried away into captivity. In 1760 another vessel was captured by a French privateer of twelve guns and released after the commander of the privateer had put on board of her the crew of a sloop they had previously taken nearly full of oil and burned. The captain of the sloop, ——— Luce, had sailed with three others who were expected on the coast. The day after Luce was taken the privateer engaged a Bermudian letter of marque and was beaten. During this engagement several whalemen in the vicinity made their escape. In the same month (June) another privateer of fourteen guns took several whaling vessels, one of which was ransomed for $400, all the prisoners put on board of her, and she landed them at Newport.* In 1762 another Nantucket sloop was taken by a privateer from the French West Indies, under one Mons. Palanqua, while she was cruising in the vicinity of the Leeward Islands."

MARTHA'S VINEYARD AND NANTUCKET WHALERS.—"At Martha's Vineyard whaling did not seem to thrive so well as at the sister island of Nantucket. The very situation of Nantucket seemed favorable for the development of this and kindred pursuits; in fact, the situation made them necessities. While the Vineyard was quite fertile and of considerable extent, Nantucket was comparatively sterile and circumscribed. At the Vineyard a livelihood could be attained from tilling the earth, at Nantucket a large portion of that which sustained life must be wrested from the ocean. A constant struggle with nature, and a constant surmounting of those obstacles incident to their location and surroundings, developed within the Nantucketois a spirit of adventure which was carefully trained into channels of enterprise and usefulness. Hence, the early history of whaling on Martha's Vineyard was not that ultimate success that it was on Nantucket, and while the year 1775 found the latter with a fleet of 150 vessels with a burden of 15,000 tons, the former at the same period could count but 12 vessels and an aggregate of 720 tons.

"In 1752 Mr. John Newman and Timothy Coffin built a vessel of 75 tons, but she was also destined to a brief existence. On her second voyage whaling she was captured near the Grand Banks by the French, and Captain Coffin, her commander, lost his life, his vessel, and his cargo. In the same year (1752) John Norton, esq., with others, purchased a vessel of 55 tons for the carrying on of this business, and, like her contemporary, she failed to survive her second voyage, but was cast away on the coast of Carolina, Capt. Christopher Beetle being at the time in command. Mr. Norton immediately chartered a vessel to get his own off, but on their arrival on Carolina, his vessel was gone, with her sails, rigging, and appurtenances, and he out of pocket a further sum of $500 to the wrecking party. Eight years later (1760), Esquire Norton, with others, built the sloop Polly, 65 tons burden. On her third whaling trip to the southward she too was lost, and by her destruction perished Nicholas Butler, her captain, and thirteen men. Repeated losses had reduced Norton to somewhat straitened circumstances, and, selling what property he had left, he removed to Connecticut, where he died.

"It is impossible to separate in the accounts of whaling at this time the share which Boston took in it from that taken by other ports. The reports which may be found in the current papers rarely gave the name of the port to which entering or clearing vessels belonged. In fact the majority of the reports are merely records of accidents, and it is very rarely indeed that the amount of oil taken by returning whalers is given.

"In 1762 a whaling schooner, commanded by ——— Bickford, was totally lost on Seil (?) Islands. The crew, fourteen in number, were taken off by a fishing vessel."

LONG ISLAND WHALERS.—"Of the Long Island fishery the only record accessible is the meager one regarding Sag Harbor. Easthampton, Southampton, and their more immediate neighbors seem to have been supplanted by this younger town.† Probably prior to 1760 vessels had

"* These vessels were from several whaling ports."

"† Sag Harbor was settled in 1730."

been fitted for whaling from this port; if so, their identification is impossible. In 1760, however, three sloops were fitted out by Joseph Conkling, John Foster, and others. They were named Goodluck, Dolphin, and Success, and their cruising ground was in the vicinity of 36° north latitude."

RHODE ISLAND WHALERS.—"The reports regarding Rhode Island are equally meager. Occasional reports are to be found of the arrivals of whaling-vessels, but no report of where they cruised or what success they met with, and no records exist at the custom-house to help clear up the historical mist. Warren comes into notice at this period as quite a thriving whaling-port. The Boston News-Letter of October 23, 1766, says: 'Several Vessels employed in the Whale Fishery, from the industrious Town of Warren in Rhode Island Colony, have lately returned, having met with considerable success. One Vessel, which went as far as the Western Islands, brought home upwards of 300 Barrels of Oil. Some Vessels from Newport have also been tolerably successful. This Business, which seems to be carried on with Spirit, bids fair to be of great Utility to that Government.'"

VIRGINIA WHALERS.—"Williamsburgh, Va., felt the stimulus caused by success in this business; and in the early spring of 1751 several gentlemen subscribed a sum of money and fitted out a small sloop, called the Experiment, for whaling along the southern coast. On the 9th of May, 1751, she returned with a valuable whale. This was the first vessel ever fitted for this pursuit from Virginia, and whether she continued for any length of time in the business is unknown. The encouragement of the first success undoubtedly caused another venture."

BEGINNING OF WHALING INDUSTRY AT NEW BEDFORD.—"In the vicinity of New Bedford whaling probably commenced but little prior to 1760. In that year William Wood, of Dartmouth, sold to Elnathan Eldredge, of the same town, a certain tract of land, located within the present town of Fairhaven, and within three-quarters of a mile of the center of the town, on the banks of the Acushnet River, 'Always Excepting and reserving * * * * * that part of the same where the Try house and Oyl shed now stands.' How long these buildings had been standing at the date of this deed is unknown, but the fact of their being there then is indisputable, and, as it was not the habit in those days to put up useless buildings, they were undoubtedly applied to the purpose for which they were built. That they were considered valuable property is evident from the fact of their being reserved. In 1765, four sloops, the Nancy, Polly, Greyhound, and Hannah, owned by Joseph Russell, Caleb Russell, and William Tallman, and from 40 to 60 tons burden, were employed in the whale-fishery.* In Ricketson's 'History of New Bedford' is published a portion of a log-book of the whaling-sloop Betsey, of Dartmouth, in 1761. The early portion is missing, the first date commencing July 27. These small vessels usually sailed in pairs, and, so long as they kept in company, the blubber of the captured whales was divided equally between them. Hence the reports, in which the captains' names are always given instead of the names of the vessels, which rarely occur, often return the vessels in pairs, with the same quantity of oil to each. The following are a few extracts from this journal as published: 'August 2d, 1761. Lat. 45.54, long. 53.57. Saw two sperm-whales; killed one.—Aug. 6th. Spoke with John Clasbery; he had got 105 bbls.; told us Seth Folger had got 150 bbls. Spoke with two Nantucket men;

"* Ricketson's History of New Bedford, p. 58. Mr. Ricketson says: 'To Joseph Russell, the founder of New Bedford, is also attributed the honor of being the pioneer of the whale-fishery of New Bedford. It is well authenticated by the statements of several cotemporaries, lately deceased, that Joseph Russell had pursued the business as early as the year 1755.' From what particular portion of the then town of Dartmouth (which also included what is now known as New Bedford, and Fairhaven) he fitted out his vessels, is uncertain. At that time the land on which stands the city of New Bedford was unpopulated by the whites, and not a single house marked the spot where, within less than a century thereafter, stands the city from which was fitted out more whaling-vessels than from all the other American ports combined."

they had got one whale between them; hey told that Jenkins & Dunham had got four whales between them, and Allen & Pease had got 2 whales between them. Lat. 42.57.—Sunday, August 9th. Saw sperm-whales; struck two, and killed them between us, (naming their escort).—August 10th. Cut up our blubber into casks; filled 35 hhds.; our partner filled 33 hhds. Judged ourselves to be not far from the Banks. Finished stowing the hold.—August 20. Lat. 44 deg. 2 min. This morning spoke with Thomas Gibbs; had got 110 bbls; told us he had spoke with John Aikin, and Ephraim Delano, and Thomas Nye. They had got no oil at all. Sounded; got no bottom. Thomas Gibbs told us we were but two leagues off the Bank.' The Betsey probably arrived home about the middle of September. In 1762 she apparently made another voyage, though the journal up to the 2d of September is missing. On that date they spoke 'Shubel Bunker and Benjamin Paddock.' On the 3d of September they 'Knocked down try-works.'* On the 15th they spoke Henry Folger and Nathan Coffin."

RESTRICTIONS TO AMERICANS WHALING IN GULF OF ST. LAWRENCE.—"About this time a new element entered into antagonism with colonial whaling in the Gulf of St. Lawrence and vicinity. Scarcely had the colonists aided to wrest this fishery from the French, when the English governors, in their turn, strove to keep our vessels from enjoying its benefits. In the News-Letter of August 8, 1765, is the following statement: 'Tuesday one of the sloops which has been on the Whaling Business returned here. We hear that the Vessels employed in the Whale Fishery from this and the neighbouring Maritime Towns,† amounting to near 100 Sail, have been very successful *this Season in the Gulph of St. Lawrence and Streigths of Belle isle; having, tis said, already made* upwards of 9,000 Barrels of Oil.' But this rosy-colored report was speedily followed by another of a more somber hue. In August 22, the same paper says: 'Accounts received from several of our Whaling Vessels on the Labrador Coast, are, that they meet with Difficulties in regard to their fishing, in Consequence of Orders from the Commanding Officers on that Station, a Copy of which are as follows:

"'MEMORANDUM: In Pursuance of the Governor's Directions, all masters of Whaling Vessels, and others whom it may concern, are hereby most strictly required to observe the following Particulars, viz:

"'1 To carry the useless Parts of such Whales as they may catch to at least Three Leagues from the Shore, to prevent the Damage that the neighbouring Fishers for Cod and Seal sustain by their being left on the Shore.

"'2 Not to carry any Passengers from Newfoundland or the Labradore Coast to any Part of the Plantations.

"'3 To leave the Coast by the first of November at farthest.

"'4 Not to fish in any of the Ports or Coasts of Newfoundland lying between Point Richi and Cape Bonavista.

"'5 Not to carry on any Trade or have any Intercourse with the French on any Pretence.

"* In other words, took them down. From this it is evident that some vessels were prepared for trying out their oil on board.

"The News-Letter of July 26, 1764, states that one Jonathan Negers, of Dartmouth, while whaling, was so injured by a whale's striking the boat that he died a few days after."

"† It is impossible to apportion the vessels among their proper ports. The vessels from Cape Cod and the northward cleared at Boston; those from the Vineyard, at Nantucket; those at Dartmouth, sometimes at Nantucket and sometimes at Newport."

"'6 In all your Dealings with the Indians to treat them with the greatest Civility: observing not to Impose on their Ignorance, or to take Advantage of their Necessities. You are also on no Account to serve them with spirituous Liquors.

"'7 Not to fish for any other than Whale on this Coast.

"'Dated on board His Majesty's sloop Zephyr, at the Isle of Bois, on the Labradore Coast, the 21st July, 1765.

"'JOHN HAMILTON.'

"The issue of November 18 reports that on account of this proclamation the vessels 'are returning half loaded.' It was the custom with many early whalemen, especially from the immediate vicinity of Boston, to go prepared for either cod or whale fishing, and in the event of the failure of the one to have recourse to the other. All restrictions which are sustained by an armed force are liable to be made especially obnoxious by the manner of the enforcement, and this was no means a contrary case. It was not at all surprising, then, that the ensuing season's fishing was only a repetition of the failure of that of 1765. 'Since our last,' says the News-Letter, 'several Vessels are returned from the Whaling Business, who have not only had very bad Success, but also have been ill-treated by some of the Cruisers on the Labradore Coast.' Two ships had been fitted out from London, the Palliser and the Labradore, for the express purpose of trading, fishing, and whaling on the coast of Labrador and in the straits of Belle Isle. Capt. Charles Penn, who came out in them as pilot, left the straits on the 9th of July on his way to Newfoundland. On his passage he went on board quite a number of whaling-vessels, and reported that they had met with very poor success; had got only about twenty whales in the entire fleet. In consequence of this failure some of them had, according to the time-honored practice, gone to fishing for cod, but had been interrupted by an armed vessel and by the 'company's ships' (the Palliser and Labradore), and their catch all taken away from them save what their actual necessities required. This was done under the pretense that the whole coast was patented to 'the company,' and by virtue of orders issued by Hugh Palliser, 'governor of Newfoundland, Anticosti, Magdalenes, and Labradore.' Palliser's proclamation, which bore date of April 3, 1766, specified that all British subjects whaling in that vicinity should choose places on shore where they should land, cut up their blubber, and make oil as they arrived, but not to select any place which was used in the cod-fishery. Whalemen from the plantations might take whales on those coasts, but were only permitted to land on some unoccupied place within the Gulf of Saint Lawrence to cut up and try out their blubber; and it was particularly specified that they were not to make use of any place which was used by the British fishermen for the same or a similar purpose. Complaint having been made of the provincial whalemen in regard to their waste interfering with the cod-fishery, they were enjoined that they must carry the carcasses of the whales at least three leagues from the shore. No fishermen from the plantations were to be allowed to winter on Labrador. And then Capt. John Hamilton, 'of H. M. sloop of war Merlin, Lieut. Gov. of Labradore,' &c., issued his proclamation: 'This is to give Notice to all Whalers from the Plantations, that they are allowed to fish for Whales only, on the Coast of Labradore, that if they are found to have any other Fish on Board, the Fish will be seized, and they excluded the Benefit of Whale-fishery this season; and on no Pretence to trade with the Indians; whatever they shall purchase will be confiscated, and after this Notice their Vessels liable to be seized,' &c. Captain Hamilton's decree bore the date of June 25, 1766.

"The result of these arbitrary measures was that the whalemen left those seas and went off the Banks. The close of the season witnessed the return of the whaling fleet with but indifferent

success.* Naturally those interested (and this included the wealthiest merchants and the most skillful mechanics, as well as the most indefatigable mariners) felt aggrieved. It seemed scarcely in consonance with the colonial ideas of justice, crude as those notions appeared to the English nobility, that the beneficial results of a conquest which they almost single-handed had made, and for defraying the expense of which England had declined any remuneration, should be diverted to the sole benefit of those alone who were residents of the British Isles. Merchants in London, too, whose heaviest and most profitable trade was with the provinces, joined their voices in denouncing this wrong. During the early winter the report came that Palliser's regulations were suspended until the ministry and Parliament had time to consider the subject. The matter had already, late in the last whaling season, been brought to the attention of the governor of Newfoundland, and he issued the following supplementary edict, which appeared in the Boston papers of January, 1767:

"'By His Excellency Hugh Palliser, Governor and Commander in Chief in and over the Island of Newfoundland, the Coast of Labradore and all the Territories dependent thereupon:

"'Whereas a great many Vessels from His Majesty's Plantations employed in the Whale-Fishery resort to that Part of the Gulph of St. Lawrence and the Coast of Labradore which is within this Government: and as I have been informed that some Apprehensions have arisen amongst them that by the Regulations made by me relating to the different Fisheries in those Parts, they are wholly precluded from that Coast:

"'Notice is hereby given, That the King's officers stationed in those Parts have always had my Orders to protect, assist and encourage by every Means in their Power, all Vessels from the Plantations employed in the Whale-Fishery, coming within this Government; and, pursuant to his Majesty's Orders to me, all Vessels from the Plantations will be admitted to that Coast on the same Footing as they have ever been admitted in Newfoundland; the ancient Practices and Customs established in Newfoundland respecting the Cod Fishery, under the Act of Parliament passed in the 10 and 11th Years of William IIId commonly called The Fishing Act, always to be observed.†

"'And by my Regulations for the Encouragement of the Whale Fisheries, they are also under certain necessary Restrictions therein prescribed, permitted to land and cut up their Whales in Labradore; this is a Liberty that has never been allowed them in Newfoundland, because of the Danger of prejudicing the Cod-Fishery carried on by our adventurer's Ships, and by Boat-Keepers from Britain, lawfully qualified with Fishing-Certificates according to the aforementioned Act, who are fitted out at a very great Risque and Expence in complying with said Act, therefore they must not be liable to have their Voyages overthrown, or rendered precarious by any Means, or by any other Vessels whatever. And, Whereas great Numbers of the Whaling Crews arriving from the Plantations on the Coast of Labradore early in the Spring considering it as a lawless Country are guilty of all Sorts of Outrages before the Arrival of the King's Ships, plundering whoever they

"* The Boston News-Letter mentions the arrival of Capt. Peter Wells at that port from whaling August 18, 1766. Under date of October 2, the News-Letter says: 'Since our last a Number of Vessels have arrived from Whaling. They have not been successful generally. One of them viz: Capt. Clark on Thursday Morning last discovering a Spermaceti Whale near George's Banks, mann'd his Boat, and gave Chase to her, & she coming up with her jaws against the Bow of the Boat struck it with such Violence that it threw a Son of the Captain; (who was forward ready with his Lance) a considerable Height from the Boat, and when he fell the Whale turned with her devouring Jaws opened, and caught him. He was heard to scream, when she closed her Jaws, and part of his Body was seen out of her Mouth, when she turned, and went off.'"

"† Duties on oil imported in British ships were remitted, the commander and one-third of each crew being British. Duties were also remitted on fat, furs, and tusks of seal, bear, walrus, or other marine animal taken in the Greenland seas. By other acts the imported materials to be used in outfitting were made non-dutiable, and bounties were established, amounting in the final aggregate to 40s. per ton."

find on the Coast too weak to resist them, obstructing our Ship Adventurers from Britain by sundry Ways, banking amongst their Boats along the Coast, which ruins the Coast-Fishery, and is contrary to the most ancient and most strictly observed Rule of the Fishery, and must not be suffered on Account; also by destroying their Fishing-Works on Shore, stealing their Boats, Tackle and Utensils, firing the Woods all along the Coast, and hunting for and plundering, taking away or murdering the poor Indian Natives of the Country; by these Violences, Barbarities, and other notorious Crimes and Enormities, that Coast is in the utmost Confusion, and with respect to the Indians is kept in a State of War. For preventing these Practices in future Notice is hereby given, That the King's Officers stationed in those Parts, are authorized and strictly directed, to apprehend all such Offenders within this Government, and to bring them to me to be tried for the same at the General Assizes at this Place: And for the better Government of that Country, for regulating the Fisheries, and for protecting His Majesty's Subjects from Insults from the Indians, I have His Majesty's Commands to errect Block-Houses, and establish Guards along that Coast. This Notification is to be put in the Harbours in Labradore, within my Government, and through the Favour of His Excellency Governour Bernard, Copies thereof will be put up in the Ports within the Province of Massachusetts, where the Whalers mostly belong, for their Information before the next Fishing Season.

"'Given under my Hand at St. John's in Newfoundland, this First Day of August, 1766.

"'HUGH PALLISER.

"'By Order of His Excellency,

"'JNº. HORSNAILL.'

"There can scarcely be a doubt but that the indiscretions of the whalemen were much magnified (if indeed they really existed) in this pronunciamento of Governor Palliser, for the sake of bolstering up the former one. The whalemen of those days were far from being the set of graceless scamps which he represents them to be. Probably there was here and there a renegade. It would be quite impossible to find in so large a number of men that all were strict observers of the laws. Self-preservation, if no more humane motive existed, militated against the acts of which he complained. The whalemen were accustomed to visit the coast for supplies, in many cases several times a year; usually on their arrival in those parts they stood in for some portion of the coast and 'wooded;' and it is hardly credible that they should wantonly destroy the stores they so much needed, or make enemies on a coast where they might at any time be compelled to land. The colonial governors quite often made the resources under their control a source of revenue for themselves, and the fact of the modification of Palliser's first proclamation only under pressure of the King and Parliament would seem to indicate personal interest in keeping whalemen from the colonies away from the territory under his control.

"It is quite evident that even with this modification the colonial fishermen did not feel that confidence in the Saint Lawrence and Belle Isle fishery that they felt when it was first opened to them, for a report from Charleston, S. C., dated June 19, 1767, states that on 'the 22d ultimo put in here a sloop belonging to Rhode Island, from a whaling voyage in the southern latitudes, having proved successful about ten days before. The master informs us that near fifty New England vessels have been on the whale fishery in the same latitudes this season by way of experiment.'* Over the open sea fortune-seeking governors could exercise no control, and there our seamen probably felt they could pursue their game without let or hindrance. Whales at that time abounded along the edge of the Gulf Stream, and there they continued to be found for some years,

"* Boston News-Letter."

shiftng their ground gradually as their fierce captors encroached more and more upon them to the vicinity of the Western and Leeward Islands, the Cape de Verdes, the Brazil Banks, and beyond. Some few whalemen, in spite of the restrictions, still visited the newly-opened fishing-ground.

"*The general results of the various voyages were on the whole good, and other places began* to feel the stimulus of a desire to compete. Providence took part, and early in 1768 several vessels were fitted out from that port for this pursuit. New York, too, entered the lists, and Mr. Robert Murray and the Messrs. Franklin fitted a sloop for the same purpose, and she sailed on the 19th of April of that year.* The town of Newport manifested great activity.

"It was currently reported in the colonies, during the early part of 1767, that the irksome restrictions upon whaling were to be entirely removed; petitions to that effect had been presented to the home government, and a favorable result was hoped for, and early in 1768 the straits of Davis and Belle Isle were again vexed by the keels of our fishermen, as many as fifty or sixty anchoring in Canso Harbor in April of that year, a few of them bound for the former locality, but *the majority of them cruising in the vicinity of the Gulf of Saint Lawrence and Newfoundland.*† Two whaling sloops from Nantucket, one commanded by ——— Coleman, and the other by ——— Coffin, were lost this season in the Straits of Belle Isle, and the crews were saved by Captain Hamilton, of the Merlin sloop of war, who also aided them in saving the sails, rigging, and stores from the wrecks. The fishery in those parts was quite unsuccessful, many vessels, up to the last of August, having taken little or no oil.‡

"In 1768 there sailed from Nantucket eighty sail of vessels of an average burden of 75 tons, and probably fully as many more from other ports—Cape Cod, Dartmouth, Boston, Providence, Newport, Warren, Falmouth (Cape Cod), and perhaps other ports being represented—and the voyages being undertaken to Davis Strait, straits of Belle Isle, Grand Banks, Gulf of Saint Lawrence, and Western Islands. Early in the season the Western Island fleet appears to have done little, but by the middle of September they had obtained an average of about 165 barrels. The northern fleet probably did nearly as well, as numerous instances occur of vessels spoken late in the summer and in the early fall with from 100 to 150 and even as high as 200 barrels. Assuming, then, that one hundred and forty vessels returned with an average produce of 150 barrels (which was the actual average import at Nantucket), and we have as the result of the season's fishing 21,000 barrels, worth, at £18 per ton, the ruling price, £47,200, or about $236,000."

PROSPERITY OF WHALE FISHERY, 1770 TO 1775.—"'Between the years 1770 and 1775,' says Macy, 'the whaling business increased to an extent hitherto unparalleled. In 1770 there

"* There seems to be no accessible report of this vessel's return, and hence the degree of success or failure of her voyage is a matter of doubt. The people of Nantucket were reported to have made £70,000 in 1767."

"† From a log-book kept by Isaiah Eldredge, of the sloop Tryall, of Dartmouth, which sailed April 25, 1768, for the straits of Belle Isle. She cleared from Nantucket, as Dartmouth was not then a port of entry. On Friday, April 29, she was at anchor in Canso Harbor, with fifty or sixty other whalemen. Saturday, May 7, left Crow Harbor and at night anchored in Man-of-War Cove, Canso Gut, 'with about sixty sail of whalemen.' The vessels were continually beset with ice, and on the 23d of May they cleared their decks of snow, which was 'almost over shoes deep.' They killed their first whale on the 22d of July. The larger number of vessels were spoken in pairs, which was the usual manner of cruising. The sloop returned to Dartmouth on the 5th of November. This log runs to 1775, and commences again in 1785, ending in 1797, with occasional breaks where leaves are cut out."

"‡ In October, 1767, a whaling sloop, belonging to Nantucket, arrived at the bar off that port, on board of which were four Indians, who had had some dispute at sea and agreed to settle it on their return. As the vessel lay at anchor the officers and crew—except three white men and these Indians—went ashore. The whites being asleep in the cabin, the Indians went on deck, divided into two parties, and, arming themselves with whaling lances, commenced the affray. The two on one side were killed immediately, the other two were unhurt. The white men hearing the affray, rushed upon deck, and, seeing what was done, secured the murderers. In November of the same year some Newburyport fishermen were astounded at perceiving their vessel hurried through the water at an alarming rate without the aid of sails. Upon investigating the cause, it was found that the anchor was fast to a whale (*or vice versa*), and the cable was cut, relieving them of their unsolicited propelling power.—(Boston News-Letter.)"

were a little more than one hundred vessels engaged; and in 1775 the number exceeded one hundred and fifty, some of them large brigs. The employment of so great and such an increasing capital may lead our readers to suppose that a corresponding profit was realized, but a careful examination of the circumstances under which the business was carried on will show the fallacy of such a conclusion. Many branches of labor were conducted by those who were immediately interested in the voyages. The young men, with few exceptions, were brought up to some trade necessary to the business. The rope-maker, the cooper, the blacksmith, the carpenter—in fine, the workmen were either the ship-owners or of their household; so were often the officers and men who navigated the vessels and killed the whales. While a ship was at sea, the owners at home were busily employed in the manufacture of casks, iron work, cordage, blocks, and other articles for the succeeding voyage. Thus the profits of the labor were enjoyed by those interested in the fishery, and voyages were rendered advantageous even when the oil obtained was barely sufficient to pay the outfits, estimating the labor as a part thereof. This mode of conducting the business was universal, and has continued to a very considerable extent to the present day [1835]. Experience taught the people how to take advantage of the different markets for their oil. Their spermaceti oil was mostly sent to England in its unseparated state, the head matter being generally mixed with the body oil, for in the early part of whaling it would bring no more when separated than when mixed. The whale oil, which is the kind procured from the species called 'right whales,' was shipped to Boston or elsewhere in the colonies, and there sold for country consumption, or sent to the West Indies.'*"

DEPREDATIONS BY PRIVATEERS AND PIRATES.—"The seas continued to be infested with French and Spanish privateers and pirates,† and whalemen, especially those frequenting the ocean in the vicinity of the Western Islands, were, from the very nature of their employment, constantly liable to depredations from these corsairs, whether legalized or lawless. In March, 1771, the sloop Neptune, Captain Nixon, arrived in Newport from the Mole, bringing with him portions of the crews of three Dartmouth whalemen, who had been taken on the south side of Hispaniola by a Spanish guarda coasta. These vessels were commanded by Capts. Silas Butler, William Roberts, and Richard Welding. Another whaling vessel, belonging to Martha's Vineyard, commanded by Ephraim Pease, was also taken at about the same time, but released in order to put on board of her the remaining prisoners. At this time Pease had taken 200 barrels of oil, and the Dartmouth vessels, which were carried into Saint Domingo, 100 barrels. These captures were made on the 11th of February.‡

"But it did not always happen that whalemen fell so easy a prey to predatory vessels. A little strategy sometimes availed them when a forcible resistance would have been out of the ques-

"* Bancroft says (Hist. U. S., v, p. 265), in 1765 the colonists were not allowed to export the chief products of their industry, such as sugar, tobacco, cotton, wool, indigo, ginger, dyeing-woods, whalebone, &c., to any place but Great Britain—not even to Ireland. Save in the matter of salt, wines, victuals, horses, and servants, Great Britain was not only the sole market for the products of America, but the only storehouse for its supplies.

"This stringency must, however, have been somewhat relaxed as regards oil, for the Boston News-Letter of September 8, 1768, gives the report from London, dated July 13, that the whale and cod fisheries of New England 'this season promised to turn out extremely advantageous, many ships fully laden having already been sent to the Mediterranean markets.' The success of the Americans seems to have again aroused the jealousy of their English brethren, for in this year an effort was made in Parliament to revive the bounty to English whalemen, with the intent to weaken the American fishery."

"† The word 'pirate' seems to have been in those days of a somewhat ambiguous signification, and was quite as likely to mean a privateer as a corsair."

"‡ The men who came home with Captain Nixon were Oliver Price, Pardon Slocum, and Philip Harkins.—(Boston News-Letter.)"

tion, and it may be easily believed that men to whom danger and hairbreadth escapes were part of their every-day life would scarcely submit supinely when there was any chance in their favor. A notable instance of this kind occurred in April, 1771. Two Nantucket whaling sloops, commanded respectively by Isaiah Chadwick and Obed Bunker, were lying at anchor in the harbor of Abaco, when a ship appeared off the mouth of the harbor with her signals set for assistance. With that readiness to aid distressed shipmates which has ever been a distinguishing trait of American whalemen, one of the captains with a boat's crew made up of men from each sloop hastened to render such help as was in their power. The vessel's side reached, the captain immediately boarded her to find what was desired, and much to his surprise had a pistol presented to his head by the officer in command with a peremptory demand that he should pilot the ship into the harbor. He assured the commander that he was a stranger there, but that there was a man in his boat who was acquainted with the port. The man was called and persuaded in the same manner in which the captain had been. The argument used to demonstrate the prudence of his compliance with the request being so entirely unanswerable the man performed the service, anchoring the ship where a point of land lay between her and the sloops. This being done the boat was dismissed and the men returned to their vessels. The Nantucket captains now held a consultation as to what course should be pursued. Those who had been on board the ship noticed that the men seemed to be all armed. They also observed, walking alone in the cabin, a man. The conclusion arrived at was that the ship was in the hands of pirates and the man in the cabin was the former captain, and measures were immediately inaugurated to secure the vessel and crew. To this end an invitation was extended to the usurping captain, his officers, and passengers to dine on board one of the sloops. The courtesy was accepted, and the pirate captain and his boatswain, with the displaced captain as representative of the passengers, repaired on board the sloop. After a short time he became uneasy, and proposed to return to his own vessel, but he was seized by the whalemen and bound fast and his intentions frustrated. The actual captain now explained the situation, which was that the ship sailed from Bristol (R. I. ?) to the coast of Africa, from thence carried a cargo of slaves to the West Indies, and was on her return home with a cargo of sugar when the mutiny occurred, it being the intention of the mutineers to become pirates, a business at that time quite thrifty and promising. Our fishermen now told the boatswain that if he would go on board the ship and bring the former mate, who was in irons, and aid in recapturing the vessel, they would endeavor to have him cleared from the penalties of the law, and they prudently intimated to him that there was a man-of-war within two hours' sail from which they could obtain force enough to overpower his associates. As a further act of prudence, they told him they would set a certain signal when they had secured help from the ship of war.

"The boatswain not returning according to the agreement made, one sloop weighed anchor and stood toward the pirate ship as though to pass on one side of her. As she approached, the mutineers shifted their guns over to the side which it seemed apparent she would pass and trained them so as to sink her as she sailed by. But those who navigated the sloop were fully alive to these purposes, and as she neared the ship her course was suddenly changed and she swept by on the other side and was out of range of the guns before the buccaneers could recover from their surprise and reshift and retrain their cannon. On the sloop stood upon her course till they were out of sight of the ship, then tacking, the signal agreed with the boatswain was set and she was steered boldly for the corsair. As she hove in sight, the pirates, recognizing the sign, and believing an armed force from the man-of-war was on board the whaling vessel, fled precipitately to the shore, where they were speedily apprehended on their character being known. The whalemen

immediately boarded their prize, released the mate, and carried the ship to New Providence, where a bounty of $2,500 was allowed them for the capture and where the chief of the mutineers was hanged."*

SUPERIOR SEAMANSHIP OF AMERICAN WHALEMEN.—"About this time Dr. Benjamin Franklin, being in London, was questioned by the merchants there respecting the difference in time between the voyages of the merchantmen to Rhode Island and the English packets to New York. The variation, which was something like fourteen days, was a source of much annoyance to the English merchants, and believing the place of destination might have something to do with it, they seriously contemplated withdrawing the packets from New York and dispatching them to Rhode Island. In this dilemma they consulted Dr. Franklin. A Nantucket captain, named Folger,† who was a relative of the doctor's, being then in London, Franklin sought his opinion. Captain Folger told him that the merchantmen were commanded by men from Rhode Island who were acquainted with the Gulf Stream and the effect of its currents, and in the passage to America made use of this knowledge. Of this the English captains were ignorant, not from lack of repeated warnings, for they had been often told that they were stemming a current which was running at the rate of 3 miles an hour, and that if the wind was light the stream would set them back faster than the breeze would send them ahead, but they were too wise to be advised by simple American fishermen, and so persevered in their own course at a loss of from two to three weeks on every trip. By Franklin's request, Captain Folger made a sketch of the stream, with directions how to use or avoid its currents, and this sketch, made over a century ago, is substantially the same as is found on charts of the present day. 'The Nantucket whalemen,' says Franklin,‡ 'being extremely well acquainted with the Gulph Stream, its course, strength, and extent, by their constant practice of whaling on the edges of it from their island quite down to the Bahamas, this draft of that stream was obtained of one of them, Captain Folger, and caused to be engraved on the old chart in London for the benefit of navigators by B. Franklin.'

"Notwithstanding this information so kindly volunteered to them, and notwithstanding the fact that the Falmouth captains were furnished with the new charts, they still persisted in sailing their old course. There is a point where perseverance degenerates into something more ignoble; it would seem as though at this date these self-sufficient captains had about attained that point."

LOSS OF AMERICAN WHALING VESSELS.—"In 1772 two whaling sloops from Nantucket, with 150 barrels of oil each, were captured by a Spanish brig and sloop off Matanzas.§ In December of the same year, the brig Leviathan, Lathrop, sailed from Rhode Island for the Brazil Banks on a whaling voyage. On the 25th of January they lowered for whales, and in the chase the mate's boat (Brotherton Daggett) lost sight of the brig, but the crew were picked up at sea and brought home by another vessel.

"In 1773 quite a fleet of American whalers were on the coast of Africa, no less than fourteen being reported as coming from that ground, and probably there were as many more of whom no

"* Boston News-Letter."

"† Works of Franklin, iii, p. 353. Probably Capt. Timothy Folger, a man who was prominent for many years in the history of Nantucket."

"‡ Works of Franklin, iii, p. 364. In a note Franklin says: 'The Nantucket captains, who are acquainted with this stream, make their voyages from England to Boston in as short a time generally as others take in going from Boston to England, viz, from twenty to thirty days.' Quite a number of Boston packets to and from England were at this time and for many years after commanded by Nantucket men."

"§ In May, 1770, according to the Boston News-Letter, no less than nineteen vessels cleared from Rhode Island, whaling. The Post-Boy for October 14, 1771, is responsible for the following: 'We learn from Edgartown that a vessel lately arrived there from a whaling voyage, and in her voyage, one Marshall Jenkins, with others, being in a boat which struck a whale, she turned and bit the boat in two, took Jenkins in her mouth, and went down with him; but on her rising threw him into one part of the boat, whence he was taken on board the vessel by the crew, being much bruised, and in a fortnight after he perfectly recovered. This account we have from undoubted authority.'"

report was made. One brig from Boston, while off the coast of Sierra Leone, sent a boat ashore with six men to procure water. The boat was seized and the crew all massacred by the natives. In the spring of the following year a sloop owned by Gideon Almy, of Tiverton, and another belonging to Boston, were seized, while watering at Hispaniola, by a French frigate, carried into Port au Prince and there condemned.*

"In 1774 a report came by the way of Fayal that a small American whaling brig was lying in the harbor of Rio Janeiro with only her captain and three men on board. It appears that, putting in there for refreshments,† in the summer of 1773, a portion of her crew were, 'by fair or foul means,' induced to ship on a Portuguese snow‡ for a three months' whaling voyage. The snow was provided with harpoons and other whaling craft, made after the English models, and was cruising for sperm whales, a business altogether new to the Portuguese, who had been hitherto ignorant of any but the right whale, and had never ventured even in the pursuit of them out of sight of land. The brig still lay there in October, 1773, waiting the return of her men.§"

CONDITION OF THE FISHERY AT OUTBREAK OF THE REVOLUTIONARY WAR.—"In 1774 the whale fishery in the colonies must have been in the full tide of success. There were probably fitted out annually at this time no less than 360 vessels of various kinds, with an aggregate burden of nearly 33,000 tons, and employing directly about 4,700 men, and indirectly an immensely greater number. Despite the depredations of French and Spanish privateers the fishery continued to flourish. The annual production from 1771 to 1775 was probably at least 45,000 barrels of spermaceti oil and 8,500 barrels of right-whale oil, and of bone nearly or quite 75,000 pounds.‖ In the

"* Boston News-Letter."

"† Some vessels never dropped anchor in a port from the day they sailed until their return; but scurvy was very apt to manifest itself where a crew was so long deprived of fresh provisions."

"‡ 'A snow is a vessel equipped with two masts resembling the main and foremasts of a ship, and a third small mast, abaft the mainmast, carrying a trysail. These vessels were much used in the merchant service at the time of the Revolution.' (Lossing's Field Book, ii, p. 845, note.)"

"§ Boston News-Letter."

"‖ *State of the whale fishery in Massachusetts, 1771 to 1775.*

Ports.	Vessels fitted annually for northern fishery.		Vessels fitted annually for southern fishery.		Seamen employed.	Sperm oil taken annually.	Whale oil taken annually.
	No.	*Tons.*	*No.*	*Tons.*		*Barrels.*	*Barrels.*
Nantucket	65	4,875	87	10,200	2,625	26,000	4,000
Wellfleet	20	1,000	10	1,000	420	2,250	1,250
Dartmouth	60	4,500	20	2,000	1,040	7,200	1,400
Lynn	1	75	1	120	28	200	100
Martha's Vineyard	12	720	.....	.....	156	900	300
Barnstable	2	150	.....	.....	20	240	.....
Boston	15	1,300	5	700	260	1,800	600
Falmouth (Cape Cod)	4	300	.....	.....	52	400	.....
Swanzey	4	300	.....	.....	52	400	.....
	183	13,820	721	14,020	4,050	39,390	7,650

"These statistics are from Jefferson's report, and were gathered for him by governor of Massachusetts.

"According to Pitkin, among the exports of the colonies, including Newfoundland, Bahamas, and Bermudas, were, for the year 1770:

	Great Britain.	Ireland.	South of Europe.	West Indies.	Africa.	Total.
Sperm candles.....pounds..	4,865	450	14,167	351,625	7,905	379,012
Whale oil.....tons..	5,202	22	175	268	.....	5,667
Whalebone.....pounds..	112,971	.....	.....	.....	.....	112,971

"Value, sterling: Sperm candles, £23,688 4*s.* 6*d.*; whale oil, £83,012 15*s.* 9*d.*; bone, £19,121 7*s.* 4*d.*"

various sea-port towns from which this pursuit was carried on, in Nantucket, Wellfleet, Dartmouth, Lynn, Martha's Vineyard, Barnstable, Boston, Falmouth, and Swanzey, in Massachusetts, in Newport, Providence, Warren, and Tiverton, in Rhode Island, in New London, Connecticut, Sag Harbor, on Long Island, the merry din of the 'yo heave ho' of the sailors was heard; the ring of the blacksmith's hammer and anvil made cheery music; the coopers, with their hammers and drivers, kept time to the tramp of their feet as round and round the casks they marched, tightening more and more the bands that bound together the vessels which should hold the precious oil; and the creaking of the blocks as the vessels unloaded their freight or the riggers fitted them anew for fresh conquests, and the rattle of the hurrying teams as they carried off the product of the last voyage or brought the necessaries for the future one, lent their portion of animation to the scene. Everywhere was hurry and bustle; everywhere all were employed; none that thirsted for employment went away unsatisfied. If a vessel made a bad voyage, the owners, by no means dispirited, again fitted her out, trusting in the next one to retrieve the loss; if she made a profitable one the proceeds were treasured up to offset a possible failure in some future cruise. On all sides were thrift and happiness.

"But a change was near. 'A cloud, at first no bigger than a man's hand,' was beginning to overshadow the whole heaven of their commercial prosperity. The colonies, driven to desperation by the heartless cruelty of their mother country, prepared to stay further aggression, and resent at the mouth of the cannon and the point of the bayonet the insults and injuries that for a decade of years had been heaped upon them; and the English ministry, against the earnest entreaty of British merchants on both sides of the Atlantic, prepared also to enforce its desires by a resort to arms.*

"The first industry to feel the shock of the approaching storm was the fisheries. Massachusetts, the center of this pursuit, was to the English ministers the very focus of the insurrectionary talk and action, and 'the first step,' says Bancroft, 'toward inspiring terror was to declare Massachusetts in a state of rebellion, and to pledge the Parliament and the whole force of Great Britain to its reduction; the next, by prohibiting the American fisheries, to starve New England; the next, to excite a servile insurrection.'†

"Accordingly on the 10th of February, 1775, the ministry introduced into Parliament a bill restricting the trade and commerce of Massachusetts Bay, New Hampshire, Connecticut, and Rhode Island to Great Britain, Ireland, and the British West Indies, and prohibiting the colonies from carrying on any fishery on the Banks of Newfoundland or any other part of the North American coast.‡ 'The best ship-builders in the world were at Boston, and their yards had been closed; the New England fishermen were now to be restrained from a toil in which they excelled the world. Thus the joint right to the fisheries was made a part of the great American struggle.'§ To this bill there was a small but active and determined opposition, both in the House of Lords and House of Commons. It was urged on the part of the ministry that the fisheries were the property of England, and it was with the English Government to do as they pleased with them. To this opinion the minority strenuously demurred. 'God and nature,' said Johnston, 'have given that fishery to New England and not to Old.'‖ It was also argued by the friends of America that if the American fishery was destroyed the occupation must inevitably fall into the hands of the natural rivals of Great Britain. Despite the efforts of the little band the bill was received

"*The colonial trade had become to many English merchants and manufacturers a matter of great importance, and the loss of it would be a serious misfortune. One of the industries which would feel the deprivation most strongly was the manufacture of cordage, of which the Americans were by far the chiefest purchasers in the English market."

"† Bancroft's United States, vii, p. 222, February, 1775."

"‡ Eng. Annual Reg., 1775, p. 78."

"§ Bancroft's United States, vii, p. 239."

"‖ *Ibid.*"

by a vote of 261 to 85, and passed through its various stages. As each phase was reached the act was fought determinedly but uselessly and hopelessly. The merchants and traders of London petitioned against it, and the American merchants secured the services of David Barclay to conduct the examination of those who were called to testify by the friends and opponents of the bill.* 'It was said that the cruelty of the bill exceeded the examples of hostile rigor with avowed enemies; that in all the violence of our most dangerous wars it was an established rule in the marine service to spare the coast-fishing craft of our declared enemies; always considering that we waged war with nations, and not with private individuals.'†

"It was claimed that by the provisions of the bill much hardship must fall upon many people who were *already at sea, and who, from the very nature of their occupations, must be innocent.* 'The case of the inhabitants of Nantucket was particularly hard. This extraordinary people, amounting to between five and six thousand in number, nine-tenths of whom are Quakers, inhabit a barren island, 15 miles long by 3 broad, the products of which were scarcely capable of *maintaining twenty families. From the only harbor which this sterile island contains,* without natural products of any sort, the inhabitants, by an astonishing industry, keep an 140 vessels in constant employment. Of these, eight were employed in the importation of provisions for the island and the rest in the whale fishery.' A petition was also presented from the English Quakers in behalf of their brethren at Nantucket, in which they stated the innocence of the inhabitants of that island, 'their industry, the utility of their labors both to themselves and the community, the great hazards that attended their occupation, and the uncertainty of their gains; and showed *that if the bill passed into a law, they must in a little time be exposed to all the dreadful miseries* of famine. The singular state and circumstances of these people, occasioned some attention to be paid to them. A gentleman on the side of the administration said, that on a principle of humanity he would move that a clause should be added to the bill to prevent the operation from extending *to any whale ships which sailed before the 1st of March, and were at that time the property of* the people of Nantucket.'‡

"'The bill,' says a reviewer of the time, 'was attacked on every ground of policy and government; and with the greatest strength of language and height of coloring. The minority made *amends for the smallness of their numbers by their zeal and activity.* * * * *Evil principles,'* they contended, 'were prolific; the Boston port bill begot this New England bill; this will beget a Virginia bill; and that again will become the progenitor of others, until, one by one, Parliament has ruined all its colonies, and rooted up all its commerce; until the statute book becomes nothing but a black and bloody role *of proscriptions; a frightful code of rigor and tyranny; a monstrous* digest of acts of penalty and incapacity and general attainder; and that wherever it is opened it will present a title for destroying some trade or ruining some province.'§

"It was during the debate upon this bill that Burke made that eloquent defense of the colonies which *has rung in the ears of every boy born or bred in a sea-port town since the day it was uttered.*

"* Among the evidence given was much tending to show the importance of the colonial trade. It appeared that in 1764 New England employed in the fisheries 45,880 tons of shipping and 6,002 men, the product amounting to £322,220 16s. 3d. sterling in *foreign markets;* that all the materials used in the building and equipping of vessels, excepting salt and lumber, were drawn from England, and the net proceeds were also remitted to that country; that neither the whale nor cod fishery could be carried on so successfully from Newfoundland or Great Britain as from North America, for the natural advantages of America could neither be counteracted nor supplied; that, if the fishery was transferred to Nova Scotia or Quebec, Government would have to furnish the capital, for they had neither vessels nor men, and these must come from New England; that it must take time to make the change, and the trade would inevitably be lost; and that American fishermen had such an aversion to the military government of Halifax, and 'so invincible an aversion to the loose habits and manners of the people, that nothing could induce them to remove thither, even supposing them reduced to the necessity of emigration.'—(Eng. Annual Reg.)"

"† Eng. Annual Reg., 1775, p. 80." "‡ *Ibid.*, p. 85." "§ *Ibid.*, p 85."

'For some time past, Mr. Speaker,' said Burke, 'has the Old World been fed from the New. The scarcity which you have felt would have been a desolating famine, if this child of your old age—if America—with a true filial piety, with a Roman charity, had not put the full breast of its youthful exuberance to the mouth of its exhausted parent. Turning from the agricultural resources of the colonies, consider the wealth which they have drawn from the sea by their fisheries. The spirit in which that enterprising employment has been exercised ought to raise your esteem and admiration. Pray, sir, what in the world is equal to it? Pass by the other parts, and look at the manner in which the people of New England have of late carried on the whale fishery. Whilst we follow them among the tumbling mountains of ice, and behold them penetrating into the deepest frozen recesses of Hudson's Bay and Davis' Straits, whilst we are looking for them beneath the Arctic Circle, we hear that they have pierced into the opposite region of polar cold, that they are at the antipodes, and engaged under the frozen serpent of the south. Falkland Island, which seemed too remote and romantic an object for the grasp of national ambition, is but a stage and resting-place in the progress of their victorious industry.* Nor is the equinoctial heat more discouraging to them than the accumulated winter of both the poles. We know that whilst some of them draw the line and strike the harpoon on the coast of Africa, others run the longitude, and pursue their gigantic game along the coast of Brazil. No sea but what is vexed by their fisheries. No climate that is not a witness to their toils. Neither the perseverance of Holland, nor the activity of France, nor the dexterous and firm sagacity of English enterprise, ever carried this most perilous mode of hardy industry to the extent to which it has been pushed by this recent people; a people who are still, as it were, but in the gristle, and not yet hardened into the bone, of manhood. When I contemplate these things; when I know that the colonies in general owe little or nothing to any care of ours, and that they are not squeezed into this happy form by the constraints of a watchful and suspicious Government, but that, through a wise and salutary neglect, a generous nature has been suffered to take her own way to perfection; when I reflect upon these effects, when I see how profitable they have been to us, I feel all the pride of power sink, and all presumption in the wisdom of human contrivances melt, and die away within me. My rigor relents. I pardon something to the spirit of liberty.'

"But eloquence, logic, arguments, facts availed nothing. The bill became a law. In the upper house of Parliament, where a minority fought the bill as determinedly as the minor part of the Commons, fifteen lords entered a protest against it. The island of Nantucket was, for the reasons enumerated, relieved somewhat from its extremest features, a fact which did not escape the surveillance of the provincial authorities, who in their turn restricted the exportation of provisions from any portion of the colonies, save the Massachusetts Bay, to that island, and the Provincial Congress of Massachusetts further prohibited any exportation from that colony, save under certain regulations.† But, like the mother country, the colonies yielded to the behests of humanity and relaxed their stringency in regard to this island.

"At an early day after the formal opening of the issue of battle between England and the plantations, the general court of Massachusetts passed a resolve, directing 'that from and after the fifteenth Day of August instant, no Ship or Vessell should sail out of any port in this Colony, on any whaling Voyage whatever, without leave first had and obtained from the Great and General

"*At this time the Falkland Islands were the subject of considerable acrimony between the English, Spanish, and Brazilian Governments. According to Freeman (Hist. Cape Cod, ii, p. 539, note), the people of Truro were the first of our American whalemen to go to the Falklands. In 1774 Capts. David Smith and Gamaliel Collins, at the suggestion of Admiral Montague, of the British navy, made voyages there on that pursuit, in which they were very successful."

"†Mass. Col. MSS., Provincial Congress, i, p. 300."

Court of this Colony, or from some Committee or committees or persons they shall appoint to grant such leave;' and on the 24th of August, the day for adjournment of the court being near at hand, it was further resolved, in view of possible damage liable to accrue to parties for want of *these permits, 'that the Major part of the Council for this Colony be, and they accordingly are,* hereby fully impowered to grant leave for any Vessell or Vessells to sail out of any port in this Colony, on any whaling Voyage whatever, as to them shall seem fit & reasonable for the Benefit of Individuals, and the Good of the Public, provided there be good & sufficient security given that the Oil & Bone, &c., obtained on said Voyage shall be brought into some Port in this Colony, *except the port of Boston, & such Permits do not interfere with any Resolve or Recommendations* of the Continental Congress—The power herein given to continue only in the recess of the general court.'*"

THE DEATH-KNELL OF AMERICAN WHALING.—"The bells that called the hardy yeomanry of New England to the defense of their imperiled liberties on the ever-memorable morning of the 19th *of April rung the death-knell of the whale fishery, save that carried on from Nantucket;* the rattle of musketry was the funeral volley over its grave.† Save from this solitary island, it was doomed to annihilation. A few vessels were fitted out early in the war from other ports, but the risk was so great and the necessity so small that the business was soon abandoned. With Nantucket it was simply a case of desperation; the business must be carried on, or the island must be depopulated; starvation or removal were the only alternatives of inaction. The receipt of the news of the battle at Lexington and Concord, glorious as it was to the colonies at large, and glorious as it may have been to the islanders whose religious principles were not rigidly opposed to war in any form and under any circumstances, was to the majority of the inhabitants the announcement of ruined fortunes, annihilated commerce, misery, privation, and suffering. Without the immediate circle of colonial assistance, knowing that they were cut off from aid in case *they were attacked, open to and defenseless at all sides from the predatory raids of avowed* enemies and treacherous, pretended friends, the only course left open to them to adopt was to be as void of offense as possible and strive to live through the desperate struggle just about to commence. Some of the people removed to New York and eventually established the whale fishery there. Some removed to North Carolina and there formed a community remarkable for thrift and *hospitality; but the vast majority preferred to link their fortunes with those of their island home,* and with her sink or swim. Vessels from abroad turned their prows toward home and speeded on their way, hoping to attain their port before English armed vessels could intercept them; those already arrived were most of them stripped of their sails and rigging and moored to the crowded wharves, or run high and dry ashore.

"*The petitions of parties for permission to fit out their vessels for whaling* were almost invariably complied with by the general court, bonds being given in about £2,000 that the cargo should be landed at some port in the colony, excepting Boston or Nantucket.‡

"* *Mass. Col. MSS. Rev. Council Papers, series i, vol. ii, p. 17.*"

"† The shipping of Nantucket rendered important ante-revolutionary aid to the colonists in the importation of powder, a service that was continued at intervals during the war. The Earl of Dartmouth, in a letter to Lieutenant-Governor Colden, dated 7th September, 1774, says: 'My Information says that the Polly, Captn Benjamin Broadhelp, bound from Amsterdam to Nantucket, has among other Articles received on board, no less a quantity than three Hundred thousand pounds weight of Gunpowder, & I have great reason to believe that considerable quantities of that commodity, as well as other Military Stores, are introduced into the Colonies from Holland, through the channel *of St. Eustatia.' (N. Y. Col. Rec., viii, p. 487.) St. Eustatia was captured by the English during the colonial war,* the chief grounds of the capture being the alleged supply to the revolting colonies of contraband goods."

"‡ The following is the form of the bond:

"'Know all men by these presents that Nathaniel Macy & Richd Mitchell Jr both of Sherburn in the County of Nantucket, are holden & stand firmly bound unto Henry Gardner Esq of Stowe in the County of Middlesex Treasurer

"In 1776 the Continental Congress endeavored to induce France to engage in war against England, but in the proposed negotiations the fisheries on the banks of Newfoundland and the various gulfs and bays of North America were to be understood as not open to a question of division. Spain, too, was applied to. 'The colonies,' says Bancroft, 'were willing to assure to Spain freedom from molestation in its territories; they renounced in favor of France all eventual conquests in the West Indies; but they claimed the sole right of acquiring British continental America and all adjacent islands, including the Bermudas, Cape Breton, and Newfoundland. It was America and not France which first applied the maxim of monopoly to the fisheries. The King of France might retain his exclusive rights on the banks of Newfoundland, as recognized by England in the treaty of 1763, but his subjects were not to fish "in the havens, bays, creeks, roads, coasts, or places," which the United States were to win.'" *

THE ENGLISH WHALE FISHERY ENCOURAGED.—"In the mean time how was England affected by her American policy? The colonial fishery being abolished, it became essential that something should be done to replace it, 'and particularly to guard against the ruinous consequences of the foreign markets, either changing the course of consumption or falling into the hands of strangers, and those perhaps inimical to this country. The consumption of fish oil as a substitute for tallow was now become so extensive as to render that also an object of great national concern; the city of London alone expending about £300,000 annually in that commodity.'† The evidence taken on behalf of the ministry in support of their restraining bill, tending to show that there already existed sufficient capital in ships, men, and money for the immediate and safe transfer of the whale fishery to England, while well enough for partisan purposes, was not considered so reliable by the parties bringing it forward, and the Government was not at all desirous or willing to risk a matter of such extreme importance upon the testimony there given.

"Measures were accordingly taken to give encouragement to this pursuit to the fishermen and capitalists of Great Britain and Ireland. ‡ The committee having the subject in charge were of the opinion that a bounty should extend to the fisheries to the southward of Greenland and Davis Strait, and at the same time that the duties on oil, blubber, and bone, imported from Newfoundland, should be taken off. It was found that the restraining bill worked serious damage to the people of Newfoundland, and also to the fisheries from the British islands to that coast, as, in order to prevent absolute famine there, it was necessary that several ships should return light from that vicinity in order to carry cargoes of provisions from Ireland to the sufferers there. §

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of the Colony of the Massachusetts Bay or his Successors in s^d office in the Lawful & Just sum of Two thousand pounds to the which payment well & truly to be made we bind ourselves our Heirs Exec' or Administrators, firmly by these presents sealed wth our seal Dated this fourteenth day of September Anno Dom: 1775.

"'The Condition of this obligation is such that whereas the above-said Nathaniel Macy is about to Adventure to sea on a whale Voyage the schooner Dighton Silas Paddack Master—if then the s^d Silas Paddock or any other person who may have the Command of s^d schooner Dighton, during s^d Voyage shall well & truly bring or Cause to be brought into some port or harbour of this Colony except the port of Boston or Nantucket all the oil & whale Bone that shall be taken by s^d schooner Dighton in the Course of s^d Voyage & produce a Certificate under the hands of the Selectmen of s^d Town Adjoining to such port or harbour that he there Landed ye same then the above Obligation to be Void & of none Effect otherways to stand and remain in full force & virtue.

"'NAT^AL MACY,

"'RICH^D MITCHELL, JR.

"'Signed, Sealed, & did in presence of us.'

"C.

"(Mass. Col. MSS. Misc., iii, p. 64.)

"The colonial papers of March 28, 1776, mention that the English frigate Renown, on her passage to America, took ten sail of American whalemen, which were sent to England to avoid the danger of recapture."

"* Bancroft's U. S., ix, p. 132." "† Eng. Annual Reg., 1775, p. 113."

"‡ Speech of the Earl of Harcourt to the Irish Parliament, October 10, 1775." "§ Annual Reg., 1776, p. 131."

"The English fishery, even under the encouragement given, did not, however, answer the expectations or hopes of its friends. It was not so easily transferred as had been imagined. A few more vessels sailed from Great Britain, employing, of course, a few more men, but the extra supply was a mere trifle in comparison to the deficiency that the restraining bill had caused."

RETALIATION BY THE AMERICAN COLONIES.—"The colonies, in turn, passed a bill cutting off supplies to the English fleet from the plantations,* a course entirely unforseen by the sage adherents of the British bill. As a natural consequence, the fishery, which promised so well on paper, and upon which the majority in Parliament had founded so many hopes, failed to yield them the solace for the evil done to America that they so fondly anticipated. Many ships, instead of bearing to England supplies, only returned there for provisions to relieve the distress they found on the coast, both on the sea and the land. Indeed, it was estimated that the colonial restraining act caused a loss to England in the fishery in these parts alone of fully half a million of pounds sterling.† To add to the calamities caused by man, the very elements seemed combined against them, for a terrible storm arose, and the center of its fury was the shores and banks of Newfoundland. 'This awful wreck of nature,' says a chronicler of the time, 'was as singular in its circumstances as fatal in its effects. The sea is said to have risen 30 feet almost instantaneously. Above seven hundred boats, with their people, perished, and several ships, with their crews. Nor was the mischief much less on the land, the waves overpassing all mounds, and sweeping everything before them. The shores presented a shocking spectacle for some time after, and the fishing-nets were hauled up loaded with human bodies.'‡ These misfortunes the opposers of the bill attributed to the vengeance of an indignant Providence."

AMERICAN SEAMEN "IMPRESSED."—"But Parliament went further than this, and added to the atrocity of this measure another none the less barbarous. It was decreed that all those prisoners who should be taken on board of American vessels should be compelled, without distinction of rank, to serve as common sailors on British ships of war. This proposed measure was received with great indignation by those gentlemen in Parliament whom partisan asperity had not blinded to every feeling of justice to or compassion for the colonies. This clause in the bill which contained this provision was 'marked by every possible stigma,' and was described by the lords, in their protest, as 'a refinement in tyranny' which, 'in a sentence worse than death, obliges the unhappy men who shall be made captives in this predatory war to bear arms against their families, kindred, friends, and country; and after being plundered themselves, to become accomplices in plundering their brethren.'§ And, by the articles of war, these very men were liable to be shot for desertion."

CONDITION OF ENGLISH WHALE-FISHERY IN 1779.—"By the action of this measure large numbers of Nantucket whaling captains with their crews and a few from other ports were captured by the English, and given their choice either to enter the service of the King in a man-of-war or sail from an English port in the same pursuit to which they had become accustomed.‖ In September (13th), 1779, John Adams, writing from Braintree¶ to the council of Massachusets, says:

"* The 'Restraining' bill."

"† Eng. Annual Reg., 1776, p. 49."

"‡ English Annual Reg., 1776, p. 43. There was also much distress at the Barbadoes. It was thought at one time to draw supplies for beleaguered Boston from these islands, but cut off as they were from supplies from the colonies, with 80,000 blacks and 20,000 whites to feed, the project was deemed in the highest degree dangerous."

"§ Annual Reg., 1776, p.118."

"‖ To his captors Capt. Nathan Coffin, of Nantucket, nobly said: 'Hang me, if you will, to the yard-arm of your ship, but do not ask me to be a traitor to my country.'—(Bancroft, ix, p. 313.)"

"¶ Adams, vii, p. 63. This is almost identical with the letter in Mass. Col. MSS., Resolves, vi, p. 216."

"'May it please your Honours:* While I resided at Paris I had an opportunity of procuring from London exact Information concerning the British Whale Fishery on the Coast of Brazil, which I beg Leave to communicate to your Honours, that if any advantage can be made of it the opportunity may not be lost.

"'The English, the last year and the year before, carried on this Fishery to very great advantage, off of the River Plate, in South America in the Latitude Thirty-five south and from thence to Forty, just on the edge of soundings, off and on, about the Longitude sixty-five, from London. They had seventeen vessells in this Fishery, which all sailed from London, in the Months of September and October. All the officers and Men are Americans.

"'The Names of the Captains are, Aaron Sheffield of Newport, ———, Goldsmith† and Richard Holmes from Long Island, John Chadwick, Francis May,‡ Reuben May,§ John Meader, Jonathan Meader, Elisha Clark, Benjamin Clark, William Ray, Paul Pease, Bunker Fitch, Reuben Fitch, Zebbeedee Coffin,‖ and another Coffin, ——— Delano,¶ Andrew Swain, William Ray, all of Nantucket, John Lock, Cape Cod;** four or five of these vessels went to Greenland. The fleet sails to Greenland yearly, the last of February or the Beginning of March. There was published, the year before last, in the English Newspapers, and the same Imposture was repeated last year, and no doubt will be renewed this, a Letter from the Lords of Admiralty to Mr. Dennis De Beralt, in Colman street, informing him that a Convoy should be appointed to the Brazil Fleet. But this, I had certain Information, was a Forgery calculated mainly to deceive American Privateers, and that no Convoy was appointed, or did go with that Fleet, either last year, or the year before.

"'For the Destruction or Captivity of a Fishery so entirely defenceless, for not one of the Vessells has any arms, a single Frigate or Privateer of Twenty-four, or even of Twenty guns, would be sufficient. The Beginning of December, would be the best Time to proceed from hence, because the Frigate would then find the Whaling Vessells nearly loaded. The Cargoes of these Vessells, consisting of Bone and Oyl, will be very valuable, and at least four hundred and fifty of the best kind of seamen would be taken out of the Hands of the English, and might be gained into the American service to act against the Enemy. Most of the officers and Men wish well to this Country, and would gladly be in its service if they could be delivered, from that they are engaged in. Whenever an English Man of war, or Privateer, has taken an American Vessell, they have given to the Whalemen among the Crew, by order of Government, their Choice, either to go on Board a Man of war, and fight against their Country or go into the Whale Fishery. Such Numbers have chosen the latter as have made up the Crews of these seventeen Vessells.

"'I thought it my Duty to communicate this Intelligence to your Honours, that if so profitable a Branch of Commerce, and so valuable a Nursery of Seamen, can be taken from the English it may be done. This State has a peculiar Right and Interest to undertake the Enterprise, as almost the whole fleet belongs to it. I have the Honour to be, with the highest Consideration, your Honours most obedient & most humble servant

"'JOHN ADAMS.'

"* In 1778 the commissioners (Franklin and Adams) in France wrote to the President of Congress in nearly the same words, urging the destruction of the English whale fishery on the coast of Brazil and the release of the Americans there, who were practically prisoners of war, compelled to aid in supporting the enemy. In the letter of the commissioners, dated Passy, ———, 1778, Messrs Franklin and Adams write that three whalemen have been taken by French men-of-war and carried into L'Orient. The crews of these whaling vessels are Americans.—(Works of John Adams, vii, p. 63.)"

"† William Goldsmith, who sailed from Nantucket for London with a cargo of oil in April, 1775."

"‡ Francis Macy." "§ Reuben Macy." "‖ Zebdiel Coffin."

"¶ Abisha Delano (probably.)" "** From Nantucket. Twenty names are given in this list."

"This letter was referred to a committee, who reported that a copy of it should be sent to the President of the Continental Congress, which report was adopted, and thus Massachusetts let slip through her fingers the identical golden opportunity which the General Government had neglected the year before. The suggestions of Mr. Adams, who of all our Revolutionary statesmen seems most to have understood and appreciated the importance of this industry, were practically disregarded.* It is difficult to calculate how much the American whale fishery was affected by this failure to act on this suggestion of Mr. Adams. Many of these captains and men, and others captured at other times during the war, had at its close sailed so long from British ports that the extraordinary inducements held out by the English, and the depression in their business in the United States, immediately succeeding the close of the war, operated to transfer to that country their skill and, measurably, their capital."

FORAYS BY ENGLISH NAVAL VESSELS: TREATY OF 1778.—"In the years 1778-'79 the English navy made several forays upon the sea-coast towns of New England, destroying much property at Warren, R. I., Dartmouth, Martha's Vineyard, and Nantucket in Massachusetts.† Indeed, these predatory raids were frequent throughout the war, and liable to occur at any time, consequently the unfortunate inhabitants were kept in a continual ferment. During the same time the Government of France was continually intriguing for the exclusive possession of the North American fisheries. On the 6th of February, 1778, a treaty of amity and commerce was arranged between France and the United States. Upon this point each side was to retain the exclusive right to its own. The Americans conceded to the French the rights reserved by the treaties of Utrecht‡ and Paris,§ even to the French interpretation of them, which were the right to fish upon the Banks, and the exclusive use of one-half the shores of Newfoundland upon which to dry their fish.‖ In regard to what disposition should be made of that island in case it should be captured, nothing was said; the sentiment of New England, however, upon that point was unmistakable. Later in the same year Samuel Adams, in a letter from Philadelphia, wrote: 'I hope we shall secure to the United States, Canada, Nova Scotia, Florida, too, and the fishery, by our arms or by treaty.' He writes further, and every year of the past century has borne witness to the soundness of his views: 'We shall never be on a solid footing till Great Britain cedes to us, or we wrest from her, what nature designs we should have.' ¶

"* An exception to the general apathy in this respect occurred late in the fall or early in the winter of 1776, when boats from the Alfred, man-of-war, were sent ashore at Canso and destroyed the whaling interest there, burning all the materials for that industry, together with all the oil stores with their contents."

"† 'Return of vessels and stores destroyed on Acushnet River the 5th of September, 1778: 8 sail of large vessels, from 200 to 300 tons, most of them prizes; 6 armed vessels, carrying from 10 to 16 guns; a number of sloops and schooners of inferior size, amounting in all to 70, besides whale-boats and others; amongst the prizes were three taken by Count D'Estaign's fleet; 26 store-houses at Bedford, several at McPherson's Wharf, Crans Mills, and Fairhaven; these were filled with very great quantities of rum, sugar, molasses, coffee, tobacco, cotton, tea, medicines, gunpowder, sail-cloth, cordage, &c.; two large rope-walks.

"'At Falmouth, in the Vineyard Sound, the 10th of September, 1778: 2 sloops and a schooner taken by the galleys, 1 loaded with staves; 1 sloop burnt.

"'In Old Town Harbor, Martha's Vineyard: 1 brig of 150 tons burden, burnt by the Scorpion; 1 schooner of 70 tons burden, burnt by ditto; 23 whale-boats taken or destroyed; a quantity of plank taken.

"'At Holmes's Hole, Martha's Vineyard: 4 vessels, with several boats, taken or destroyed; a salt-work destroyed, and a considerable quantity of salt taken.'—(Ricketson's New Bedford, p. 282.)

"At Sag Harbor Long Island, property was taken or destroyed to a large amount; Newport suffered greatly; Nantucket lost twelve or fourteen vessels, oil, stores, &c., to the value of £4,000 sterling. Warren, R. I., suffered during the war to the extent of 1,090 tons of shipping, among them two vessels loaded with oil, and a large amount of other property. Sag Harbor also lost one or more vessels by capture."

"‡ April 11, 1613."

"§ February 10, 1763."

"‖ Bancroft's U. S., ix, 481. The fact must be kept in mind that whaling and fishing for cod were both carried on on nearly the same waters, and often by the same vessels."

"¶ Bancroft's U. S., x, 177."

"France also sought the aid of Spain, and that power was given to understand that in the final treaty of peace between the United States and England, they, too, would necessarily have some voice. Vergennes, in October (1778), stated, as the only stipulations which France would require, that in the final negotiations the treaty of Utrecht must be either wholly continued or entirely annulled; that she must be allowed to restore the harbor of Dunkirk; and that she must be allowed 'the coast of Newfoundland, from Cape Bonavista to Cape St. John, with the exclusive fishery from Cape Bonavista to Point Riche.'* By a treaty made with Spain, April 12, 1779, France bound herself to attempt the invasion of Great Britain or Ireland, and to share only with Spain the North American fisheries, in case she succeeded in driving the English from Newfoundland.

"These discussions (as to the terms to be embraced in the final treaty of peace) were necessary pending the question of an alliance with France and Spain against England. When the subject of frontiers was brought up, France, while yielding all claim to the provinces of Canada and Nova Scotia, which for years had been hers, joined heartily with Spain in opposing the manifest desire of the Americans to secure them. Two States persisted in the right and policy of acquiring them, but Congress, as a body, deferred to the French view of the subject. 'With regard to the fisheries, of which the interruption formed one of the elements of the war, public law had not yet been settled.' By the treaty of Utrecht, France agreed not to fish within 30 leagues of the coast of Nova Scotia; and by that of Paris, not to fish within 15 leagues of Cape Breton. Moreover, New England at the beginning of the war had, by act of Parliament, been debarred from fishing on the banks of Newfoundland. * * * 'The fishery on the high seas,' so Vergennes expounded the law of nations, 'is as free as the sea itself, and it is superfluous to discuss the right of the Americans to it. But the coast fisheries belong of right to the proprietary of the coast. Therefore the fisheries on the coasts of Newfoundland, of Nova Scotia, of Canada, belong exclusively to the English; and the Americans have no pretensions whatever to share in them.'† In vain the United States urged that the colonies, almost exclusively, had improved the coast fisheries, and considered that immemorial and sole improvement was practical acquisition. In vain they insisted that New England men, and New England money, and New England brains had effected the first conquest of Cape Breton, and were powerful aids to the subsequent conquest of Nova Scotia and Canada, and hence they had acquired at least a perpetual joint propriety. To their arguments Vergennes replied that the conquests were made not for the colonies but for the crown, and when New England dissolved its allegiance to that crown she renounced her right to the coast fisheries. In the end the United States were obliged to succumb; they had asked aid from foreign powers, and they must yield, so far as was practicable, to the demands those powers made. These concessions were a portion of the price of independence.

"A committee‡ was appointed by Congress to definitely arrange upon what terms the future treaty of peace with England should be finally consummated, and in February, 1779, they reported that Spain manifested a disposition to form an alliance with the United States, hence independence was an eventual certainty. On the question of fishing they reported that the right should belong properly to the United States, France, and Great Britain in common. This portion of the report was long under discussion in Congress, and it was finally voted that the common right of the United States to fish 'on the coasts, bays, and banks of Newfoundland and Gulf of Saint Lawrence, the Straits of Labrador, and Belle Isle should in no case be given up.'§ Under a vote to

"* Bancroft's U. S., x, p. 184."

"‡ Bancroft's U. S., x, pp. 210–11."

"† Gouverneur Morris, of New York; Burke, of North Carolina; Witherspoon, of New Jersey; Samuel Adams, of Massachusetts, and Smith, of Virginia.—(Bancroft's U. S., x, p. 213.)"

"§ Bancroft's U. S., x, p. 213."

reconsider this subject on the 24th of March, Richard Henry Lee proposed that the United States should have the same rights which they enjoyed when subject to Great Britain, which proposition was carried by the votes of Pennsylvania, Delaware, and the four New England States, New York and the Southern States opposing. New York, under the leadership of Jay and Morris, peremptorily declined to insist on this right by treaty, and Morris moved that independence should be the sole condition of peace. This was declared out of order by the votes of the New England States, New Jersey, and Pennsylvania, against the unanimous vote of New York, Maryland, and North Carolina; Delaware, Virginia, and South Carolina being equally divided.

"But France had a vital interest in this matter, and the French minister interposed his influence, and on the 27th of May Congress returned to its original resolve, 'that in no case, by any treaty of peace, should the common right of fishing be given up.'

"On the 19th of June the equanimity of the French minister was suddenly and rudely disturbed by Elbridge Gerry, who being from Marblehead, was the steady and persistent champion of the claims of New England, and who, in the prolonged discussions, always came to the front in defense of those rights. Entirely unexpectedly, Gerry, avoiding 'a breach of the rules of Congress by a change in form, moved resolutions, that the United States have a common right with the English to the fisheries on the banks of Newfoundland, and the other fishing-banks and seas of North America. The demand was for no more than Vergennes confessed to belong to them by the law of nations; and Gerry insisted that unless the right received the guarantee of France, on the consent of Great Britain, the American minister should not sign any treaty of peace without first consulting Congress.'* A most stormy and bitter debate ensued. The friends of France resisted strenuously. Four States declared if the resolution was adopted they should secede. The matter, however, was somewhat compromised, and the common right of fishing on the Grand Banks affirmed; Congress asking for that right the guarantee of France by means of a supplementary article explanatory of former treaties.

"The French minister became alarmed, and sought an interview with the President of Congress and two other members known to be equally favorably disposed to the policy he represented. The vigor and zeal with which New England had pressed the matter had disposed them to concede to the desires of this section. He assured them 'that disunion from the side of New England was not to be feared, for its people carried their love of independence even to delirium,' and continued: 'There would seem to be a wish to break the connection of France with Spain; but I think I can say that, if the Americans should have the audacity to force the King of France to choose between the two alliances, his decision would not be in favor of the United States; he will not certainly expose himself to consume the remaining resources of his Kingdom for many years only to secure an increase of fortune to a few ship-masters of New England. I shall greatly regret, on account of the Americans, should Spain enter into war without a convention with them.' Five hours of discussion failed to induce the members to undertake to change the views of Congress, and a new interview was held on the 12th of July, between Gerard and Congress, in a committee of the whole. As a final result the question was left to be settled when a treaty of peace was formally arranged with Great Britain.*

"In the mean time how fared it with the whale fishery? The people of Nantucket, with whom alone it was still encouraged, though in the face of the most terrible discouragements, were reduced to the severest straits. To live, they must eat; to eat, they must have provisions; to obtain provisions, they must give in exchange money or its equivalent; to obtain the exchangeable commodity, some business must be pursued. The whale fishery was the only business available to

"* Bancroft's U. S., x, pp. 216 to 219."

them. Long practice had made them familiar with it, and a singleness of pursuit had kept them comparatively ignorant of any other occupation. But the great problem was how to carry it on, even in the limited way to which, by the destruction of their vessels, they were restricted. If they sailed under American protection, the English captured and destroyed their vessels and imprisoned their men; if they cleared with the sanction of English safeguards, the Americans performed for them the same kindly offices. Between the upper and the nether millstones of war they were quite ground to powder. In their extremity they learned that the English were inclined to be lenient toward them in the matter, and they had quite reliable assurance that the leading men of the American Government looked compassionately upon the distressed situation of the unfortunate islanders.

"Influenced by these considerations, the inhabitants sent Timothy Folger, esq., to New York, to represent the condition they were in, and solicit permission to carry on whaling without danger of capture from British cruisers. They asked permits for twenty fishing boats to fish around the island, for four vessels to be employed in the whale fishery, for ten small vessels to supply the inhabitants with wood, and for one to go to New York for some few supplies not obtainable elsewhere.* Their petition was not so successful as they had wished."

AMERICAN VESSELS GRANTED PERMITS FOR WHALING.—"In 1781 Admiral Digby succeeded Admiral Arbuthnot in the command of the English fleet in these waters, and permission to whale was asked of him,† and permits were issued for twenty-four vessels to pursue the business unmolested by English armed cruisers.‡ 'This privilege,' says Macy, 'seemed to give new life to the people. It produced a considerable movement in business, but the resources of the island had so diminished that but a small number of vessels could take the benefit of these permits. Those who had vessels, and were possessed of the means, fitted them out on short voyages, and, had there been no hindrance, it is probable that they would have done well; for the whales,

"* Macy, 113."

"† Mr. Macy gives us to understand that no permits were granted, but this must be an error; for Mr. Rotch (*vide* MS.), who was one of the committee the succeeding year to obtain grants from the English, mentions an accusation made by Commodore Affleck, of abuse of confidence in regard to the permits which were granted the year before, and that scarcely a vessel could be found but had one of these documents. To this Mr. Rotch replied: 'Commodore Affleck, thou hast been greatly imposed upon in this matter. I defy Capt. ——— to make such a declaration to my face. Those Permits were put into my hands. I delivered them, taking receipts for each, to be returned to me at the end of the voyage, and an obligation that no transfer should be made or copies given. I received back all the Permits except two before I left home, and should probably have received those two on the day that I sailed. Now if any duplicity has been practiced, I am the person who is accountable, and I am here to take the punishment such perfidy deserves.' Mr. Rotch's character as a man and a merchant stood too high to be questioned, and the commodore, who a moment before was so violent, became more genial, and replied, 'You deserve favor,' and assisted Mr. Rotch to obtain it. The termination of this difficulty is but one example of the manner in which all these slanders, from both English and Americans, were disposed of when the accused could have an opportunity of confronting the accusers or those in authority."

"‡ The following is a copy of one of these permits, from Macy, p. 115:

"'[L. S.] By Robert Digby, Esquire, Rear Admiral of the Red, and Commander-in-chief, &c., &c.

James Chase
Obadiah Folger
George Coleman
Silvanus Swain
Charles Russell
Peter Pollard
Andrew Coleman
Obed Barnard
Jonathan Briggs

"Permission is hereby given to the Dolphin brig, burthen sixty tons, Walter Folger owner, navigated by Gilbert Folger as master and the twelve seamen named in the margin, to leave the island of Nantucket and to proceed on a whaling voyage,—to commence the first of January, 1782, and end the last day of ——— following, provided that they have on board the necessary whaling craft and provisions only, and that the master of said brig is possessed of a certificate from the selectmen of the said island, setting forth that she is *bone fide* the property of the inhabitants of the island, with the names of the master and seamen in her; and that she shall not be found proceeding with her cargo to any other port than Nantucket or New York.

"'Dated at New York, the first day of December, 1781.

"'ROBERT DIGBY.

"'To the commissioners of his majesty's ships and vessels of war, as well as of all privateers and letters of marque.

"'By command of the Admiral:

"'THOMAS M. PALMER.'"

having been unmolested for several years, had become numerous, and were pretty easily caught. To carry on the whale fishery under permission of the Government of Great Britain was a proceeding somewhat novel, and could not pass unnoticed. Although it was not publicly known, yet it was generally believed that some kind of indulgence had been shown by the enemy to the people of Nantucket. This caused some clamor on the continent; but our Government well knew the situation of the place, and its large participation in the calamities of the war, and was, consequently, rather inclined to favor than to condemn the acceptance of favors from the English. Although the Government could not grant an exclusive privilege to any particular part of the Union, yet such encouragement was given by the leading men of the nation, in their individual capacity, as to warrant the proceeding. Several vessels whaling under these permits were taken by American privateers and carried into port, but in every instance they were soon liberated. Whenever it was found that the permits were used for no other purpose than that for which they had been granted, and that the vessels using them had not been engaged in illicit trade, there was no hesitation in releasing them.'

"Nevertheless a great risk attended this mode of proceeding, and the islanders became satisfied that to make the business reasonably safe permits must be obtained from both contending powers and permission also to make use of each license against the other's vessels of war. Accordingly, a town meeting was convened on the 25th of September, 1782, and a memorial prepared and adopted which was sent to the general court of Massachusetts.* This petition recited the unfortunate situation the people were in, exposed to the inroads of English and Americans, with neither side able or willing to protect them against the other, and powerless, because of the defenseless character of the island and the religious convictions of the vast majority of the inhabitants, to suitably guard their own firesides. They urged that people in continental towns, where the broad country opened to them a place for retreat, could have but faint ideas of the suffering of those who were constantly liable to hostile invasion and whose insular position precluded all thoughts of escape, and they indignantly resented the calumnies which had been spread broadcast through the State in regard to alleged actions of theirs. Regarding the prosecution of their business, they said:

"'We now beg leave to throw a few hints before you respecting the Whalefishery, as a matter of great importance to this Commonwealth. This place before the War, was the First in that branch of business, & employed more than One Hundred Sail of good Vessels therein, which furnish'd a support not only for Five Thousand Inhabitants here, but for Thousands elsewhere, no place so well adapted for the good of the Community at large as Nantucket, it being destitute of every material necessary in the Business, and the Inhabitants might be called Factors for the Continent rather than Principals; as the war encreased the Fishery ceased, until necessity obliged us to make trial the last Year, with about seventeen sail of Yessels, Two of which were captured & carried to New York,† & one was burnt the others made saving voyages. The present Year we employed about Twenty Four sail in the same business, which have mostly compleated their Voyages, but with little success; & a great loss will ensue; this we apprehend is greatly owing to the circumscribed situation of the Fishery; we are now fully sensible that it can no longer be pursued by us, unless we have free liberty both from Great Britain & America to fish without inter-

"* By a very disastrous fire at Nantucket, in 1846, the records both of the town and custom-house were destroyed, hence there arises much difficulty in getting many interesting details. Many of the custom records of New Bedford were destroyed by fire in 1825; the corresponding documents of Newport, prior to 1779, were carried away by the English, and the vessel containing them being sunk, they were, when recovered, in a very damaged condition; the similar records of Sag Harbor (the older ones) were stored in a damp place, and are mildewed and illegible."

"† New York, at this time, was in possession of the English."

ruption; As we now find One of our Vessels is captured & carried to New York, but without any Oil on board, and Two others have lately been taken & carried into Boston & Salem, under pretense of having double papers on board, (Nevertheless we presume the captors will not say that any of our Whalemen have gone into New York during the season as such a charge would have no foundation in Truth). And if due attention is not paid to this valuable branch, which if it was viewed in all its parts, perhaps would appear the most advantageous, of any possess'd by this Government, it will be entirely lost, if the War continues: We view it with regret & mention it with concern, & from the gloomy prospect now before us, we apprehend many of the Inhabitants must quit the Island, not being able even to provide necessaries for the approaching Winter: some will retreat to the Continent & set down in the Western Governments; and the most active in the Fishery will most probably go to distant Countries, where they can have every encouragement, by Nations who are eagerly wishing to embrace so favourable an opportunity to accomplish their desires; which will be a great loss to the Continent in general, but more to this Government in particular. We beg leave to impress the consideration of this important subject, not as the judgment of an insignificant few, but of a Town which a few Years since stood the Third in Rank (if we mistake not) in bearing the Burthens of Government; It was then populous and abounded with plenty, it is yet populous but is covered with poverty. Your Memorialists have made choice of Samuel Starbuck, Josiah Barker, William Rotch, Stephen Hussey and Timothy Folger, as their Committee who can speak more fully to the several matters contain'd in this Memorial, or any other thing that may concern this County, to whom we desire to refer you. Signed in behalf of the Town by—

"'FREDERICK FOLGER,

"'*Town Clerk.*'

"This memorial was referred to a committee consisting of George Cabot, esq., on behalf of the senate, and General Ward and Colonel McCobb on the part of the house, which committee on the 29th of October made the following report:

"'That altho' the Facts set forth in said Memorial are true and the Memorialists deserve Relief in the premises, yet as no adequate Relief can be given them but by the United States in Congress assembled, therefore it is the opinion of the Committee that the said Memorial be referr'd to the consideration of Congress, and the Delegates of this Commonwealth be required to use their Endeavours to impress Congress with just Ideas of the high worth & Importance of the Whale fishery to the United States in general, & this State in particular.'*

"This report was accepted, and it was ordered that the delegates be furnished with a copy of the memorial, and be required to take the action indicated in the report.

"In addition to the action of the general court, the town also sent William Rotch and Samuel Starbuck to Philadelphia to intercede personally in the matter. After conferring with General

"*Mass. Col. MSS., Petitions, i, pp. 124-5-6-7-8-9. A memorandum accompanies this, which various circumstances seem to indicate is the work of Mr. Rotch, and which says: 'Perhaps some of these reports may have originated from this—a Committee of our Island in the fore part of the year 1781 applied to some of the Members of the General Court and spread before them the peculiar circumstances wherein the Island was involved, one whereof was that our Vessels whenever they passed in or out were perfectly under the controul of the Britons and it was therefore necessary that permits should be obtained from them for our Vessels to proceed on the Whale fishery—since which time some of them have been taken by the American Privateers for having such Permits—and we are thereby reduced to this difficulty that if we carry our Vessels over the bar without permit from the British Admiral they are made prize to the Britons—if they have such permits they are taken by our own Countrymen—and our harbour is therefore completely shut up—and all our prospects terminate in poverty and distress—what gives us great concern is that our people who understand the Whale fishery will be driven to foreign neutral Countries and many years must pass away before we shall again be enabled to pursue a branch of business which hath been in times past our support and hath yielded such large aids to the Commerce of this Country.'"

Lincoln, Samuel Osgood, Nathaniel Gorham, Thomas Fitzsimmons, and James Madison, they approached one of the Massachusetts delegation who was a resident of Boston, and who was greatly prejudiced against Nantucket. After an interview of about two hours with no apparent relaxation of the bitterness of feeling on his part, Mr. Rotch questioned him as to whether the whale fishery was 'worth preserving to this country?' He replied, 'Yes.' 'Can it be preserved in the present state of things by any place except Nantucket?' 'No.' 'Can we preserve it unless you and the British will both give us permits?' 'No.' 'Then, pray,' continued Mr. Rotch, 'where is the difficulty?' Thus this interview ended. Messrs. Rotch and Starbuck then drew up a memorial and presented it to the consideration of the above named gentlemen, desiring them to review it, at the same time telling them of the conversation between Mr. Rotch and the delegate from Boston. By advice of these friends they waited again upon the member from Massachusetts, and he accepted the charge of bringing the subject before Congress, where, after deliberation, it was determined to grant permits for thirty-five vessels to sail on whaling voyages, and these were accordingly granted and delivered. The very next day a vessel arrived from Europe bringing the rumor of the signing of a provisional treaty of peace.*

"This was early in 1783.† The passage from the provisional to the definitive treaty was long, circuitous, and at times dark. One of the chief sources of difference was the settlement of the question of the fisheries, England with an apparent feeling of magnanimity conceding favors, and America with a sense of justice claiming rights. Against what the United States considered her just dues the diplomacy of the English, their late enemies, and the French, their recent allies, was arrayed, and nothing but firmness, sagacity, and skill on the part of the American commissioners saved the day. The English guarded their assumptions with all possible jealousy; the French sought a loose place in the armor to insert the diplomatic sword, and gain by treaty what they had been unable to sustain with force. The Americans were ever on the alert to overcome the prejudices of a power from whom they had conquered a peace, and to propitiate the supersensitiveness of a power which had rendered them so valuable assistance. They could not, however, depart from certain propositions. The articles which must be inviolate were those guaranteeing to America full and unconditional independence, and the withdrawal from the thirteen States of all British troops; the Mississippi as a western, and the Canadian line as it was prior to the Quebec act of 1774, for a northern boundary; and a freedom in the fishery off Newfoundland and elsewhere as it had been enjoyed prior to the commencement of hostilities. In vain Great Britain sought to evade the latter clause; the United States tenaciously, as in a vice, held her to it, and she yielded."

EFFECTS OF THE REVOLUTIONARY WAR.—"But the announcement of peace came to a people whose commerce was sadly devastated. Save such of the interest as had been preserved by what Mr. Jefferson termed the Nantucketois, the business of whaling was practically ruined and required rebuilding. To Nantucket the war had, despite its holy necessity and its glorious conclusion, been a heavy burden. Of the little over 150 vessels owned there in 1775, 134 had fallen into the hands of the English and 15 more were lost by shipwreck; many of the young men had perished through the rigors of war;‡ in about 800 families on the island there were 202 widows and 342 orphan children; the direct money loss far exceeded $1,000,000 in times when a

"* Memoranda of William Rotch—unpublished."

"† On the 22d of March, 1783, an order was passed in Congress granting 35 licenses to Nantucket vessels to whale and to secure them from the penalty attached to double papers. (Madison Papers, p. 405.)"

"‡ It is estimated that no less than 1,200 seamen, mostly whalemen, were captured by the English or perished at their hands during the Revolution, from Nantucket alone!"

man's pay was 67 cents per day; one merchant alone lost over $60,000.* And as it was with Nantucket, so it was in a degree with all the whaling ports.† With an energy characteristically American, they sought, on the return of peace, to retrieve their losses. Scarcely had the echo of the hostile guns died away, scarcely had the joyful news of peace reached their ports, when the whalemen began to equip anew for their fishery. The Bedford, just returned to Nantucket from a voyage, was immediately loaded with oil and dispatched to London, arriving in the Downs on the 3d of February. Her appearance was thus chronicled by an English magazine of that day: 'The ship Bedford, Captain Mooers,‡ belonging to the Massachusetts, arrived in the Downs the 3d of February, passed Gravesend the 4th, & was reported at the Custom-House the 6th instant. She was not allowed regular entry until some consultation had taken place between the commissioners of the customs & the lords of council, on account of the many acts of parliament yet in force against the rebels in America. She is loaded with 487 butts of whale oil; is American built;§ manned wholly by American seamen; wears the rebel colors & belongs to the Island of Nantucket in Massachusetts. This is the first vessel which displayed the thirteen rebellious stripes of America in any British Port. The vessel lies at Horseley down a little below the Tower, and is intended immediately to return to New England.' Immediately after, almost simultaneously with her, arrived another ship from Nantucket—the Industry, Capt. John Chadwick, while the sloop Speedwell, James Whippey, master, was sent to Aux Cayes.‖ Those at Nantucket who had capital left resumed the whale fishery with as many vessels as they could procure. Long comparative immunity from capture had caused the whaling-grounds to become repopulated, and the whales themselves had become less shy and hence more easily killed. Directly succeeding the war the products of the fishery commanded good prices, and soon other ports entered into competition. New London, Sag Harbor, Hudson, N. Y., Boston, Hingham, Wellfleet, Braintree,¶ Plymouth, Bristol, each sent out one or more whale hunters. For a brief time the business promised much profit, but the fever was a fitful one. The excessive prices which the commodity commanded immediately after the war** rapidly became reduced; Great Britain, the only market for the sperm oil, had, by an alien duty of £18 sterling per ton, practically precluded its shipment from America. Oil which before the war was worth £30, now scarcely brought £17, while to cover expenses and leave a reasonable margin for profit, £25 were required.†† The situation was indeed desperate—almost hopeless."

ESTABLISHMENT OF BOUNTY SYSTEM BY MASSACHUSETTS.—"In the discussion of means for relief many of the people of Nantucket expressed the opinion that if the island could be made neutral commercial affairs might assume a more healthy tone. A memorial was finally sent to the legislature of Massachusetts praying relief, and the agents presenting it were instructed to have the subject of neutrality acted upon. As may be readily supposed, however, the invidious legislation that Nantucket was unable to obtain during the war, she would scarcely be likely to get on its conclusion, and the subject of neutrality was very properly dismissed. That the depression in the whaling business needed some alleviation was, however, too evident to require discussion, and

"* William Rotch, esq."

"† Warren, R. I., suffered a loss of 12 vessels (about 1,100 tons), of which at least two were whalemen.—(Hist. of Warren, p. 101.)"

"‡ Capt. William Mooers, who sailed for many years in the employ of Messrs. Rotch & Co. It is related that one of the crew of the vessel first showing the American flag in the Thames was hump-backed. One day a British sailor meeting him clapped his hand upon the American's shoulder, saying, 'Hilloa, Jack, what have you got here?' 'Bunker Hill and be d——d to you,' replied the Yankee, 'will you mount?'"

"§ The Bedford was built in 1765, by Ichabod Thomas, at North River. She was built a brig."

"‖ Letter of William Rotch, esq."

"¶ One small schooner of 38 tons burden hailed from Braintree."

"** Macy's Nantucket, 121."

"†† See Mr. Rotch's MS."

in 1785 the legislature passed the following preamble and resolution: 'Whereas this court, having a due sense of the high worth and importance of the whale fishery, are desirous of its preservation not only to this State, but to the United States in general; therefore, *Resolved*, That there be paid, out of the treasury of this Commonwealth, the following bounties upon whale oil of the different qualities hereafter mentioned, viz: For every ton of white spermaceti oil, five pounds; for every ton of brown or yellow spermaceti oil, sixty shillings; for every ton of whale oil (so called), forty shillings, that may be taken or caught by any vessel or vessels that are or may be owned and manned wholly by the inhabitants of this Commonwealth, and landed within the same, from and after the first day of January next, until the further order of the general court.' The selectmen of the various towns were further empowered to appoint sworn inspectors to inspect all oil so landed, and mark on the head of each cask so inspected the initital letters of his name, and a description of the oil by the initials W. B., or Y. W. O., and deliver to the selectmen a sworn certificate thereof. To obtain the bounty, a certificate from the selectmen must be presented to the governor and council,* detailing the kind, quality, and amount of oil, and where landed. To this certificate the owners were to make oath or affirmation.

"But, although the bounty seemed at first beneficial, the ultimate effect was not so good. The business became unduly stimulated and an overproduction prevented to a great degree the desired advance in profit. The demand was greatly limited. A long suspension in the use of oil had accustomed the people in general to the use of tallow candles, and but little oil was required either for towns or for light-houses."

TRANSFER OF WHALING INTERESTS FROM NANTUCKET TO FRANCE AND ENGLAND.—"In the mean time, seeing no chance for any amelioration in their condition, unable to carry on a business at a prospective loss, and accustomed from early childhood only to this pursuit, hence unable and unwilling to adventure another, some of the prominent merchants of Nantucket resolved to transfer their business to some place where the demand for their products and the advantageous bounty offered would make it far more remunerative. Among these was William Rotch. On the 4th of July, 1785, Mr. Rotch sailed from Nantucket in the ship Maria, bound for London, arriving there on the 27th. At as early a day as practicable he opened negotiations with the chancellor of the exchequer (William Pitt) for a transfer to England of such of the whale fishery at Nantucket as he could control.† The subject was laid before the privy council, and Mr. Rotch waited four months for their summons. Finally, in deference to a request of his that some one be appointed to close the matter, he was referred to Lord Hawksbury, a gentleman not very favorably disposed toward America. Mr. Rotch gave him his estimate of the sum necessary to induce a removal, viz, '£100 sterling transportation for a family of five persons, and £100 settle-

"* Macy, 129."

"† Capt. Alexander Coffin was of those who looked upon the whale fishery as a peculiarly American pursuit, and who denounced any effort looking to a transfer of it to any foreign government. On the 8th of June, 1785, he addressed from Nantucket a vigorous letter to the Hon. Samuel Adams. He wrote in severe terms against the measures being adopted to remove to England, and says Mr. Rotch 'is now taking on board a double stock of materials, such as cedar boards (commonly called boat-boards), of which they have none in England, a large quantity of cooper's stuff for casks, &c. Neither does it stop here; the house of Rotch have been endeavoring to engage an acquaintance of mine to go to Bermudas to superintend the business at that place.' In a postscript he adds, 'Since writing the above I have been favored with the original scheme of establishment of the fishery at Bermudas, copies of which are here inclosed. One of the company is now at Kennebec, contracting with some persons for an annual supply of *hoops*, staves, and other lumber necessary for the business.' This letter was laid before the senate of Massachusetts, and the result was the passage of an act prohibiting the export to Bermudas of the articles enumerated, and the transfer in this direction was prevented."

ment; £20,000 for a hundred families.' Lord Hawksbury demurred to this as a large sum.* At a subsequent interview Mr. Rotch added to his previous position the demand to bring with him thirty American ships, which demand also met with remonstrance from Lord Hawksbury, who seemed to be of the 'penny wise pound foolish' order of statesmen. Mr. Rotch finally took leave of Lord Hawksbury without obtaining any satisfaction, and, embarking on board his vessel, sailed for France.† Landing at Dunkirk, he drew up proposals to the French Government and forwarded them to Paris. These proposals were eagerly entertained, and the preliminaries were speedily arranged for a transfer of the interest of Mr. Rotch and his family and friends to Dunkirk, from which port, for several years, a very successful fishery was carried on. Contemporary with the negotiations with Mr. Rotch, a letter was dispatched to the people of Nantucket by Capt. Shubael Gardner, from L——— Coffin, who resided at Dunkirk, stating that his sympathy for the people of that island had led him to apply to the French Government in their behalf, and with excellent success. Every request he had made had been granted, and the unlimited freedom, the abundance and cheapness of provisions, the absence of custom-houses, the small taxes, the regularity of the town, the manners and industry of the inhabitants, and its situation, rendered it, in his opinion, 'the most eligible place in the universe for the people of Nantucket to remove to.‡

"* 'And what,' queried Lord Hawksbury, 'do you propose to give us in return for this outlay of money?' 'I will give you,' returned Mr. Rotch proudly, 'some of the best blood of the island of Nantucket.' At this interview Hawksbury presented his own figures, where, says Mr. Rotch (see MS.), 'he had made his nice calculation of £87 10s. for transportation and settlement of a family,' and, says he, 'I am about a fishery bill, and I want to come to something that I may insert it,' &c. My answer was, 'Thy offer is no object; therefore go on with thy fishery bill without any regard to me.' I was then taking leave and withdrawing. 'Well, Mr. Rotch, you'll call on me again in two or three days.' 'I see no necessity for it.' 'But I desire you would.' 'If it is thy desire perhaps I may call.' However, he let me rest but one day before he sent for me. He had the old story over again, but I told him it was unnecessary to enter again into the subject. I then informed him that I had heard a rumor that Nantucket had agreed to furnish France with a quantity of oil. He stepped to his bureau, took out one of a file of papers, and pretended to read an entire contradiction, though I was satisfied there was not a line there on the subject. I said, 'It was only a vague report that I had heard, and I cannot vouch for the truth of it, but we are like drowning men, catching at every straw that passes by; therefore I am now determined to go to France and see what it is. If there is any such contract, sufficient to retain us at Nantucket, neither you nor any other nation shall have us, and if it is insufficient, I *will endeavor to enlarge it.*' *'Ah,' says he, 'Quakers go to France?'* *'Yes,' I replied, 'but with regret.'* *I then* parted with Lord Hawksbury for the last time.—(Rotch MS.)"

"† His lordship sent once more for Mr. Rotch to call on him, but Mr. Rotch returned answer, 'If Lord Hawksbury desires to see me he will find me on board my vessel up to the hour when she takes her anchor.' When Mr. Rotch was once gone, Hawksbury became alarmed and sent to him by letter, informing him that he had made provision in the fishery bill for him, with liberty to bring forty ships instead of thirty, 'he having forgotten the number;' but it was too late. This unexpected ending of his hopes was far from pleasing either to his lordship or the Government. After the interview with the King of France, Mr. Rotch returned to England, and was importuned to remove to Great Britain. In his memoranda he says he was waited upon by one of the officials, who told him he was 'authorized by Mr. Pitt to tell you that you shall make your own terms.' 'I told him,' continues Mr. Rotch, 'he was too late. I made very moderate proposals to you, but could obtain nothing worth my notice. I went to France, sent forward my proposals, which were doubly advantageous to what I had offered your Government; they considered them but a short time, and on my arrival in Paris were ready to act. I had a separate interview with all the ministers of state necessary to the subject, five in number, who all agreed to and granted my demands. This was effected in five hours, when I had waited to be called by your privy council more than four months.' All attempts on the part of the English Government to reopen the subject were politely but firmly rejected by Mr. Rotch. 'In the beginning of 1793,' the account continues, 'I became fully aware that war between England and France would soon take place; therefore it was time for me to leave the country in order to save our vessels if captured by the English. I proceeded to England. Two of them were captured, full of oil, and condemned, but we recovered both by my being in England, where I arrived two weeks before the war took place. My going to France to pursue the whale fishery so disappointed Lord Hawksbury that he undertook to be revenged on *me* for his own folly, and I have no doubt gave directions to the cruisers to take any of our vessels that they met with going to France. When the Ospray was taken by a King's ship, the officer sent on board to examine her papers called to the captain and said, "You'll take this vessel in, sir; she belongs to William Rotch."' Mr. Rotch returned to the United States with several of his vessels in 1794, and, after residing in Nantucket about a year, removed to New Bedford, where he lived until his death, in May, 1828."

"‡ The following is a list of advantages secured to Nantucket whalemen by Mr. Coffin:

"'1st. An entire free exercise of their religion or worship within themselves.

"What effect this state of affairs may have had in the arrangement of treaties of commerce with Great Britain is somewhat uncertain, but the attempt to a consummation of this plan was intrusted to a man not only thoroughly imbued with New England principles, but of sufficient statesmanship to realize of how much national importance this matter was. None knew better than John Adams that the secret of the commercial greatness which should be developed lay in the codevelopment of the fisheries; that herein was the nursery for seamen who would be a source of wealth in peace and of power in war. It was desirable to make duties and courtesies more reciprocal, and one of the first duties intrusted to Mr. Adams on his appointment to the court of St. James in 1785 was the arrangement of some treaty which should be mutually satisfactory. Naturally, one of the principal points was the importation of the products of our fishermen, since that industry, perhaps more than any other, was in danger of serious injury from the existing condition of things.

"In a letter to the Marquis of Carmarthen, dated July 29, 1785, Mr. Adams refers to the trouble accruing from the alien duties laid by England in these words: 'The course of commerce since the peace, between Great Britain and the United States of America, has been such as to have produced many inconveniences to the persons concerned in it on both sides, which become every day more and more sensible. The zeal of Americans to make remittances to British merchants has been such as to raise the interest of money to double its usual standard, to increase the price of bills of exchange to 8 or 10 percentum above par, and to advance the price of the produce of the country to almost double the usual rate. Large sums of the circulating cash, and as much produce as could be purchased at almost any rate, have been remitted to

"'2d. The concession of a tract of ground to build their houses and stores.

"'3d. All the privileges, exemptions, and advantages promised by the King's declaration in 1662, confirmed by letters patent of 1724, to all strangers who come to establish there, which are the same as those enjoyed by the natif subjects of his majisty.

"'4th. The importation into the Kingdom, free from all duties whatever, of the oil proceeding from their fishery, and the same premiums and encouragement granted for the cod and other fisheries to natif subjects.

"'5th. A premium per ton on the burthen of the vessels that will carry on the whale fishery, which shall be determined in the course of the negotiation either with Mr. Rotch or with the select men of the island.

"'6th. All objects of provisions and victuals for their ships shall be exempted from all duties whatever.

"'7th. An additional and heavier duty shall be laid on all foreign oil, as a further encouragement to them, in order to facilitate the sale of their own.

"'8th. The expenses of removing those of the inhabitants who are not capable of defraying themselves shall be paid by the Government.

"'9th. A convenient dock shall be built to repair their ships.

"'10th. All trades-people, such as smiths, boat-builders, coopers, and others shall be admitted to the free exercise of their trade without being liable to the forms and expense usually practiced and paid by the natif subjects for their admittance to mastership.

"'11th. They shall have liberty to command their own vessels, and have the choice of their own people to navigate them.

"'12th. They shall be free from all military and naval service, as well in war as in peace, in the same manner and extent as expressed by the King's ordinance of the 16th of February, 1759.'—(Macy, 257, 258.)

"These were probably essentially the same concessions made to Mr. Rotch in person. How many American captains pursued the fishery from the various British and French ports subsequently to the Revolution it would be difficult to determine. Nantucket alone furnished eighty-three captains for the French and one hundred and forty-nine captains for the English fishery; probably the bulk of the total number came from this one port, though in the course of the prosecution of whaling by these nations, New Bedford furnished a very considerable number. In a 'Journal of a Voyage to Greenland' from Dunkirk in the ship Penelope, Capt. Tristram Gardner (a Nantucket man), he records, under the head of Friday, June 6, 1788, in latitude 70° north, '100 *ships in sight.*' On the 22d of the same month he states, as a mere matter of fact not worthy of extended comment, 'Wind at South; A Ruged sea; Plenty of Snow. Later Part Saw Ise to ye S. W. of us a 4 ye wind Shifted to ye Northward, but Still thick weather. Saw A Number of ships, but No whale. So ends this 24 hours. Lat. 79.02.' And yet this is within about 175 miles of the highest northern point attained by any of our splendidly equipped expeditions undertaken with the express purpose of pushing as far north as possible in vessels armored and strengthened and equipped in the most complete manner, while the whaling voyages were pursued in small, not uncommonly strong ships, not even having the feeble protection of coppered bottoms. As early as 1753, a schooner was fitted from Boston for the discovery of the northwest passage. She sailed in the spring and returned in October of the same year."

England; but much of this produce lies in store here, because it will not fetch, by reason of the duties and restrictions on it, the price given for it in America. No political arrangements having been made, both the British and American merchants expected that the trade would have returned to its old channels, and nearly under the same regulations, found by long experience to be beneficial; but they have been disappointed. The former have made advances, and the latter contracted debts, both depending upon remittances in the usual articles, and upon the ancient terms, but both have found themselves mistaken, and it is much to be feared that the consequences will be numerous failures. Cash and bills have been chiefly remitted; neither rice, tobacco, pitch, tar, turpentine, ships, oil, nor many other articles, the great sources of remittances formerly, can now be sent as heretofore, because of restrictions and imports, which are new in this commerce, and destructive of it; and the trade with the British West India Islands, formerly a vast source of remittance, is at present obstructed. * * * There is a literal impossibility, my lord, that the commerce between the two countries can continue long to the advantage of either upon the present footing.'* He continues, that these evils will increase, and asserts that it is the desire of the United States to be on good terms commercially with England, and not be driven to other markets with their goods, and he closes by proposing the arrangement of a treaty of commerce between the two countries.

"It would be interesting, though not necessary in this connection, to follow the negotiations through each step; to see how the English administration felt compelled to cater to those who upheld the British navigation laws; to see how jealousy of our incipient naval power procrastinated the treaty which it was inevitable must come; to see how self-confident and secure the English felt that our trade must unavoidably come to them; to see how an attempt was made to throw the influence of Ireland against America by ostentatious concessions, and how the attempt failed; to see how, finally, the fear of American reciprocity in restrictions led to English reciprocity in concessions; but those things can be more satisfactorily learned from the diplomatic correspondence of the day.†

"On the 24th of August Mr. Adams had a conference with Mr. Pitt for the first time in this connection. Passing by the matter of the interview, so far as it relates to the other portions of the proposed treaty, we find that when the treaty of commerce was proposed, Mr. Pitt inquired what were the lowest terms that might be satisfactory to America. Mr. Adams replied that he might not think himself competent to decide that question; that, because of the rapidly increasing feeling in America, affairs had already culminated in Massachusetts in the passage of an act of navigation by that State, showing the tendency of the times, and that the action of England would have much to do in arresting that prejudice; that the five hundred ships employed in the commerce of the United States in 1784 might easily be compelled to become the property of American citizens and navigated wholly by American seamen; that the simple passage of an old English statute, 'that none of the King's liege people should ship any merchandise out of or into the realm, but only in ships of the King's liegance, on pain of forfeiture,' modified to suit the American form of government, would effect this; that the nation had the legal right to govern its own commerce; that the ability of the Americans to build ships and the abundance of material they had for that purpose could not be doubted; and that whatever laws England might make, she would be glad to receive and consume considerable American produce, even though imported through France or Holland, and sell us as many of her manufactures as we could pay for, through the same channels. The conversation finally introduced the subject of ships and oil, and Mr. Pitt said to Mr. Adams the Americans 'could not think hard of the English for encouraging their own shipwrights, their manufacturers of ships, and their own whale fishery.' To which

"* Works of John Adams, viii, p. 298."

"† *Ibid.*, p. 377."

Mr. Adams replied, 'By no means, but it appeared unaccountable to the people of America that this country should sacrifice the general interests of the nation to the private interests of a few individuals interested in the manufacture of ships and in the whale fishery, so far as to refuse these remittances from America in payment of debts, and for manufactures which would employ so many more people, augment the revenue so considerably, as well as the national wealth, which would, even in other ways, so much augment the shipping and seamen of the nation. It was looked upon in America as reconciling themselves to a diminution of their own shipping and seamen, in a great degree, for the sake of diminishing ours in a small one, besides keeping many of their manufacturers out of employ, who would otherwise have enough to do; and besides greatly diminish the revenue, and, consequently, contrary to the maxim which he had just acknowledged that one nation should not hurt itself for the sake of hurting another, nor take measures to deprive another of any advantage without benefiting itself.'* From the questions of comparative gains or losses to either power, and the relations in which France would stand to both, Mr. Pitt led Mr. Adams into a lengthy and useless conversation on the whale fisheries of the three countries, referring specially to the efforts of M. de Calonne to introduce this pursuit into France, asking suddenly the question 'whether we had taken any measures to find a market for our oil anywhere but in France.' To this Mr. Adams replied, 'I believed we had, and I have been told that some of our oil had found a good market at Bremen; but there could not be a doubt that spermaceti oil might find a market in most of the great cities in Europe which were illuminated in the night, as it is so much better and cheaper than the vegetable oil that is commonly used. The fat of the spermaceti whale gives the clearest and most beautiful flame of any substance that is known in nature, and we are all surprised that you prefer darkness, and consequent robberies, burglaries, and murders in your streets to the receiving, as a remittance, our spermaceti oil. The lamps around Grosvenor Square, I know, and in Downing street, too, I suppose, are dim by midnight, and extinguished by two o'clock; whereas our oil would burn bright till 9 o'clock in the morning, and chase away, before the watchmen, all the villains, and save you the trouble and danger of introducing a new police into the city.'†

"But despite the fact that Mr. Pitt appeared more favorable than was anticipated, Mr. Adams did not expect any immediate response to his propositions. The English ministers in their individual capacity seemed singularly timorous, and manifested much fear of committing themselves before joint cabinet action. Adams inclined to the opinion that nothing short of the convincing eloquence of dire necessity would drive the English ministry from the positions they had assumed in regard to the navigation act, and that an answer to his propositions, even at a late day, was doubtful, without Congress authorized similar acts with the United States, and these counter-irritants were actually put in force, to determine on which side the inconvenience was greatest. The great cry in the United Kingdom was, 'Shall the United States be our ship-carpenters? Shall we depend upon a foreign nation for our navigation? In case of a war with them, shall we be without ships, or obliged to our enemies for them?' How much this nightmare of inability to cope with their late colonies in anything like a fair field was stimulated by the Government is uncertain, but the authorities evidently used no efforts to allay it.‡

"* 5th Richard, ii, ch. 3."

"† Works of John Adams, viii, pp. 308-309."

"‡ In negotiation with the Portuguese ministers in November, 1875, Mr. Adams asked (viii, p. 340) if they did not want our sperm oil. He replied that they had olives and made oil from them; they had no use for their own sperm oil and sold it to Spain. 'They had now,' he said, 'a very pretty spermaceti-whale fishery, which they had learned of the New Englanders, and carried on upon the coast of Brazil.' According to the Boston News-Letter of April, 21, 1774, the method of obtaining their knowledge was somewhat open to objections. In 1805 the Portuguese attempted to carry on the whaling business from Mozambique, and Timothy Folger, Francis Paddack, William Hull, and John Hillman, of Nantucket, went there to take charge of the fishery; but early in 1810 accounts were received at Nantucket stating that they had all been taken sick and died there."

"The effort to bring about the desired compromise continued, as Mr. Adams had judged it would, all the succeeding fall and winter. In January, 1786, Bowdoin wrote to Adams, in reply to a letter from him, that the navigation act of Massachusetts had been so modified as to be only operative against Great Britain, and copies of the repealing act had been sent to the executives of the other States in order to secure harmony of action upon this point. In regard to the effect the existing English laws would have upon the interest which is under consideration here, he wrote: 'It is very true, their encouragement of their whale fishery, by suffering the alien duty on oil to depress ours, will increase their shipping in this branch, increase their seamen, and, in several other ways, be advantageous to them. To a person that looks no further, it would appear that this was good policy; and the goodness of it would be inferred from the advantages arising. But when he should extend his view, and see how that stoppage of the American whale fishery, by depriving the Americans of so much capital a means of paying for the woolen goods they used to take of Britain, must, at the same time, occasion the American demand to cease, or be proportionately diminished, not to mention the risk of a change or deviation of the trade from the old channel, he will calculate the national profit and loss that arises from that stoppage.

"'Three thousand tons of oil was the usual annual quantity produced by the whalemen at Nantucket, all of which was shipped to England, at an average price of £35 per ton, making about £105,500. The whole of which went to pay for and purchase a like amount of woolens and other British goods; nine-tenths of the value of which are computed to arise from the labor of the manufacturer, and to be so much clear gain to the nation. The other tenth, therefore, being deducted, gives the national gain arising from the industry of the Nantucket whalemen, and the capital employed in that business, namely £94,500, without the nation's paying a shilling for the risk of insurance, or any other risk whatever.

"'On the change of trade, pursuant to the new regulations, the British merchants must employ a large capital in the whale fishery, whose products we will suppose equal to that of the Nantucket, £105,000. They will have made an exceeding good voyage if the whole of that sum should be equal to one-half of the cost of the outfits; though, from many of the vessels not meeting with fish, and from a variety of accidents to which such a voyage is subject, it probably would not be a quarter. The whole of the product goes towards payment of the outfits and charges of the voyage, and a large sum must be advanced for the second voyage, &c.

"'Now, although this mode of commerce would be productive of some national benefits, yet, considered in a comparative view with the benefits arising from the former mode, they would be found of little importance. A like comparison may be made with other branches of commerce, particularly the British West Indian, and the result will be found the same. For the sake, then, of gaining pence and farthings, Britain is sacrificing pounds by her new regulations of trade. She has a right to see for herself; but, unhappily, resentment and the consequent prejudices have so disordered her powers of vision that it requires the skillful hand of a good political optician to remove the obstructing films. If she will not permit the application of your couching instruments, or, if applied, they can work no effect, the old lady must be left to her fate, and abandoned as incurable.'*

"* Adams, viii, 363–4. In his reply to Mr. Bowdoin, under date of May 9, 1786, Mr. Adams, after expressing surprise that such reasoning as his (Bowdoin's) has no effect on the English cabinet, writes: 'Mr. Jenkinson, an old friend of the British empire, is still at his labors. He is about establishing a bounty upon fifteen ships to the southward, and upon two to double Cape Horn, for spermaceti whales. Americans are to take an oath that they mean to settle in England before they are entitled to the bounty.' In September, 1786, Mr. Adams writes to Mr. Jefferson from London (viii, 414): 'The whalemen, both at Greenland and the southward, have been unsuccessful, and the price of spermaceti oil has risen above £50 per ton.'"

"On the 21st of January, 1786, Mr. Adams, in a letter to Secretary Jay, writes: 'It will take eighteen months more to settle all matters, *exclusive of the treaty of commerce.*'* And thus it continued. Argument and persuasion had no effect. Convinced in spite of themselves, they still clung fondly, obstinately, perhaps foolishly, to their obnoxious laws. As late as November, 1787, Mr. Adams writes to Mr. Jay: 'They are at present, both at court and in the nation at large, much more respectful to me, and much more tender of the United States, than they ever have been before; but, depend upon it, this will not last; they will aim at recovering back the western lands, at taking away our fisheries, and at the total ruin of our navigation, at least.'† Mr. Adams's position at the court of St. James was terminated, by his urgent request, soon after this, and the question of commercial relations between the two countries was still unsettled.‡

"This state of affairs was scarcely such as would occasion the utmost harmony. The United States naturally resented this frigid manner of treating our overtures for friendship. In August, 1786, Mr. Jefferson, in a letter from Paris to Mr. Carmichael, writes: 'But as to every other nation of Europe,§ I am persuaded Congress will never offer a treaty. If any of them should desire one hereafter, I suppose they will make the first overtures.'"||

THE AMERICAN WHALE FISHERY DECLINING.—"But while America was exerting herself so unsuccessfully to be allowed to live on terms of civility with England, the whale fishery carried on from within her borders was languishing.

"Like the effect of the heat of the sun on the iceberg, so was the effect of foreign bounties upon the American fishery, dissolving it, breaking off a fragment here and a fragment there. Lured by the promise of English bounties, discouraged with the prospect in America, where the price for oil would scarcely repay the cost of procuring it, and where there was no market for their chief staple, several of the people of Nantucket removed to the vicinity of Halifax, in Nova Scotia. There, in 1786 and 1787, they settled, building dwellings, wharves, stores, manufactories for sperm candles, and such other structures as were connected with their fishery, and calling their new settlement Dartmouth.¶ There they carried on the pursuit for several years prosperously, and gave promise of considerable commercial importance. But the disintegration which commenced at Nantucket continued at Dartmouth, and just as the settlement seemed about to become thrifty and important it began to become divided, pieces again split off, and the village, as a whaling port, soon became a thing of the past. Those who were the earliest to remove from Nantucket soon grew uneasy of their new location, and having greater inducements offered them if they removed to England, again migrated, and settled in Milford Haven, from whence for many years they carried on the business with very considerable success. The parent died in giving birth to the child; Milford Haven flourished, but at the expense of Dartmouth's existence.

"*Adams, viii, 363–4, 389."

"† *Ibid.*, 463."

"‡ Works of Jefferson, ii, 18. See also article on Jefferson, by Parton, in Atlantic Monthly for February, 1872."

"§ Referring to Russia, Portugal, Spain, France, Sweden, Tuscany, and the Netherlands."

"|| Jefferson, ii, 18."

"¶ Works of Jefferson, ii, 518. Mr. Jefferson says, referring to a further hegira of the islanders: 'A vessel was already arrived from Halifax to Nantucket, to take off some of those who proposed to remove; two families had gone on board, and others were going, when a letter was received there which had been written by Monsieur le Marquis de Lafayette to a gentleman in Boston, and transmitted by him to Nantucket. The purport of the letter was, to dissuade their accepting the British proposals, and to assure them that their friends in France would endeavor to do something for them. This instantly suspended their design; not another went on board, and the vessel returned to Halifax with only the [two] families.' In 1796 William Rotch & Son petitioned Congress to remit the excess of duties and tonnage charged them on two whale ships by the collector of New Bedford, in consequence of their not being provided with *United States registers. These were ships which sailed from Nantucket in 1787 and 1789*, under registers from the State of Massachusetts, and were used in the Dunkirk fishery, returning to the United States in 1794, some years after the National Government had been in operation. The committee which was appointed to consider the petition reported favorably upon it, and the prayer was granted.—(State Papers, vii, p. 411.)"

"France did not view this transfer with indifference. The scheme for the building up of the fishery at Dunkirk by emigration from Nantucket having proven only partially successful,* it was desirable to inaugurate some other measures to prevent further increase of the business in England. A committee of gentlemen well informed in such matters was instructed to investigate and report on the subject of encouragement of a general commerce with the United States. It was evident that the American whalemen could not be induced to leave their native country if they could support themselves there. The natural inference was, if a market could be opened to their products which would replace the one closed, they would not emigrate. Accordingly upon this point the committee reported in favor of an immediate abatement of the duty upon oil and a promise of a further abatement after the year 1790. The letter of M. de Calonnes (who was in treaty with the Nantucket whalemen) recommending this, was immediately sent to America, and after careful investigation of the subject, the *arret* of the 29th of December, 1787, ratifying the abatement and promising a further one if the French King found such a proceeding of mutual benefit, was passed.

"But the measure in this form had a contrary effect from what was intended. 'The English, says Jefferson,† 'had now begun to deluge the markets of France with their whale oils; and they were enabled, by the great premiums given by their Government, to undersell the French fisherman, aided by feebler premiums, and the American, aided by his poverty alone. Nor is it certain that these speculations were not made at the risk of the British Government to suppress the French and American fishermen in their only market. Some remedy seemed necessary. Perhaps it would not have been a bad one to subject, by a general law, the merchandise of every nation and of every nature to pay additional duties in the ports of France, exactly equal to the premiums and drawbacks given on the same merchandise by their own Government. This might not only counteract the effect of premiums in the instance of whale oils, but attack the whole British system of bounties and drawbacks, by the aid of which they make London the center of commerce for the whole earth. A less general remedy, but an effectual one, was to prohibit the oils of all *European* nations; the treaty with England requiring only that she should be treated as well as the most favored *European* nation. But the remedy adopted was to prohibit all oils, without exception.'‡ And this on the 20th of September, 1788, only nine months from the passage of the former law.§

"Through the exertions of Jefferson this error, political as well as commercial, was remedied, and in December, 1788, the abatement of duties on oils was so arranged as to make the American

"* 'Nine families only, of thirty-three persons in the whole, came to Dunkirk.'—(Jefferson, ii, 519.)"

"† Jefferson, ii, 520."

"‡ Jefferson, ii, 521. 'The annual consumption of France, as stated by a person who has good opportunities of knowing it, is as follows:

	Tons.
"'Paris, according to the registers of 1786	1,750
"'Twenty-seven other cities, lighted by M. Sangrain	500
"'Rouen	312½
"'Bordeaux	375
"'Lyons	187½
"'Other cities, for leather and light	1,875
	5,000'"

"§ Jefferson states (ii, 523) that before the war Great Britain had less than 100 vessels engaged in whaling, while America employed 309. (This does not take into account Sag Harbor, New York, nor the very important fishery from Newport, Providence, and Warren, in Rhode Island, which Mr. Jefferson seems to have overlooked in his report.) In 1788 these circumstances were reversed, America employing 80, and Great Britain 314."

and the French on the same footing, and cut off all danger of overstocking from European rivals, and in January, 1789, this arrangement received its legal ratification.*"

REVIVAL OF AMERICAN WHALING IN 1789.—"The revival of the business in the United States, and the growing scarcity of whales in the waters heretofore mostly frequented, made the equipping of larger vessels a necessity, and from the sloops and schooners which formerly composed the greater portion of the whaling fleet an advance was made to brigs and ships and the field still further extended.† The sperm whale being of the most value, the effort to encompass his capture was greater; and he was pursued, as he fled from his old haunts, till the Pacific Ocean was attained.‡ At Nantucket the number of vessels soon increased to such an extent that it became necessary to go abroad for men to man them, and some Indians and a large number of negroes were brought from the main-land to aid in filling the crew-lists. Ups and downs the business had then, as it ever has since. A presumed prosperity induced competition, the markets became glutted, and oil was sold at less than the cost of production. The price of whalebone became reduced to 10 cents per pound and less, instead of commanding a dollar, as it did prior to the Revolution. The disturbances between England and France, and the internal commotions to which the latter country was subjected, effectually annuled the effect of the French *arret* of 1789. So disastrously did these things affect whaling that the quarrels of France and England forced many Nantucket men to sell their vessels, others to dismantle and lay theirs up, while a few still held on, some making a little profit, the majority suffering a severe loss."

TROUBLE WITH FRANCE.—"In 1798§ came the threats of disturbance between France and the United States. French privateers, in the excess of their zeal, preyed upon American commerce as well as upon that of the powers with whom they were in direct conflict. A large number of vessels fell victims to these depredators, and the friendly relations existing somewhat precariously between France and the United States became nearly supplanted by a state of actual warfare. The whaling interest, as usual, was among the earliest sufferers. Early in 1799 many parties in Nantucket sold their ships rather than fit them out at the risk of capture. News began to reach the island that vessels were already captured, and the business of the islanders, both in fishing and trading, almost ceased. Instead of fitting out a dozen ships for whaling but two or three were fitted, and sadness and gloom shrouded every face. The difficulties were finally adjusted and business resumed its old channels, but the losses which the unfortunate Nantucketers sustained by the unjustifiable, piratical depredations, though settled to the satisfaction of our Government and duly receipted for, with others, by the United States, have never been remunerated, while some of the unlucky owners, officers, and underwriters, in comfortable circumstances at the commencement of these troubles, lost their little property, the accumulations of years, and died in poverty.‖

"* Jefferson, ii, 539. When the *arret* of 29th December, 1787, was drawn up, the first draft was so made as to exclude *all European oils*, but at the very moment of passing it, they struck out the word 'European,' so that our oils became involved. 'This, I believe,' says he, 'was the effect of a single person in the ministry.'"

"† Sag Harbor re-entered the business in 1785; New Bedford in 1787 or 1788."

"‡ In the Pacific the Americans had been preceded by the Amelia, Captain Shields, an English-fitted ship, manned by the Nantucket colony of whalemen, and sailing for that ocean from London in 1787, her first mate, Archelus Hammond, killing the first sperm whale known to have been taken in that ocean.

"In Jefferson's report he enumerates three qualities of oil: 1, the sperm; 2, that from the ordinary right whales; 3, that from the right whales on the Brazil Banks, which was darker in color and of a more offensive odor when burned than from No. 2."

"§ The Boston papers of 1796 reported that the Carisford frigate had arrived at the Cape of Good Hope from England with credentials constituting General Graig governor of the colony, the limits of which were to be so arranged as to cut off other nations from participation in the Delago Bay fishery."

"‖ The subject of the French spoliation is one to which the people of Nantucket have been particularly sensitive. Isolated communities are more liable to feel that the injustice done to one is an injustice to all; hence, although comparatively few of the islanders suffered from the depredations of the French, or rather from the apparent breach of faith

These unauthorized captures were not confined exclusively to the French, for in 1800 the Spanish authorities at Valparaiso, emulating the hostility to a power ostensibly at peace with them which the French had shown, seized and condemned the whale ships Miantonomah, of Norwich, and Tryal, of Nantucket."*

THE WAR OF 1812 AND ITS EFFECTS ON THE WHALE FISHERY.—"From this time till the opening of the second war with England whaling was pursued with a gradually-augmenting fleet. And this in the face of the uncertainties which the increasingly critical state of affairs between the United States and England occasioned. In 1802 Nantucket added five ships to her fleet, and New London sent her first large vessel,† and in 1806 the quantity of oil imported into the country was considerably in excess of the consumption.

"The embargo act of 1807 almost suspended the pursuit, not so much by actual proscription as because of the impossibility of effecting insurance upon the vessels, but it soon received another impetus on account of the prospect of a general peace throughout Europe.

"The commencement of the war of 1812 found a large portion of the whaling fleet at sea. Trusting that the causes of contention between England and America would be removed without the necessity of a final appeal to arms, many owners had fitted out their ships. This was particularly the case at Nantucket, from which port a large proportion of the fleet had sailed for the Pacific Ocean on voyages varying from about two years to two years and a half.‡ With the reception of the news of the declaration of war a large portion of the vessels in the North and South Atlantic, and some of those in the Pacific, turned their prows homeward, hoping to make the home port before the seas swarmed with letters-of-marque and national vessels of war. Many of these vessels from Nantucket, on arriving home sailed thence immediately for Boston, Newport, New Bedford, or some other fortified port, where they could ride out the storm of war in security. After the month of July, 1812, was ushered in, reports of the capture of whaling vessels came thick and fast to Nantucket.§ First came the news of the taking and burning of the schooner

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on the part of a Government bound to protect them and their interests, all felt that seeming injustice as a personal matter. In a letter to the Hon. George McDuffie, giving an account of the claims of Nantucket in this behalf, published in the Warder of May 20, 1846, the following is described as the actual condition of the claimants and character of the demands:

"'Ship Joanna, Coffin, taken with 2,000 barrels of oil on board; value of ship and cargo, $40,000; one of the original owners still living—seventy-five years old and *poor;* one of the crew also living, *poor;* the master and mate died recently, *poor;* children still surviving; *claim never sold.* Ship Minerva, Fitch, 1,500 barrels of oil on board; value, $30,000; one of the original owners living—sixty-eight year old, *poor;* master still alive—seventy-eight years old, with small means and many dependents; one of the crew alive, *poor; claims never sold.* Ship Active, Gardner, 3,000 barrels of oil on board; value, $50,000; same owners as Minerva with captain; Captain Gardner died two years ago, at the age of eighty-five, leaving a large family and grandchildren; *claims never sold.* Ship Ann, Coffin (in merchant service); loss of ship, $10,000; the captain left a large family in slender circumstances; one of the underwriters died a few years since in the almshouse, who, at the time of the capture, stood high among Nantucket merchants; *claims never sold.*'

"Speaking in the interest of the whale fishery, it may be safely asserted that the people of Nantucket view with regret and disappointment what they consider the gross injustice showed to them (with others) in putting off, upon untenable pretexts, the settlement of these demands. The stern logic of poverty and the almshouse is keener than the sophistries of politicians. The Fox, of New Bedford, Capt. Coffin Whippey, captured in 1796 with 1,500 whale and 500 sperm, was another case. In 1853 Captain Whippey—captured a second time in 1798—was living, but dependent upon charity."

"* The Miantonomah was a new ship, on her first voyage."

"† In 1794 the ship Commerce, of East Haddam, was fitted for a whaling voyage, and sailed from New London on February 6 of that year. In 1770 Capt. Isaiah Eldridge, of the sloop Tryall, of Dartmouth, spoke, among other whalemen on the Davis Strait ground, Thomas Wiccum (Wiggin?), of New London."

"‡ See Macy, 161–2–3."

"§ When war seemed inevitable the ship-owners of Nantucket held a meeting to take into consideration the subject of how to best secure the fleet from capture. It was proposed to request the British minister at Washington to use his influence with his Government to obtain from them immunity from capture of whale ships belonging to the island. This plan was ultimately abandoned, the majority of the owners being of the opinion that 'the prospect of success was too faint to warrant the attempt.'—(Macy, 165.)"

Mount Hope, David Cottle master. In quick succession they learned of the capture of the Alligator, Hope, Manilla, Ocean (brig), Ranger, Fame,* Rose, Renown,* Sterling, Edward, Gardner, Monticello, Chili, Rebecca, and others, and it may be easily imagined that the prospect for the islanders had but little in it that appeared encouraging. New Bedford, too, although at this time her interest in this business was far less than that of Nantucket, suffered from the capture of her whaling vessels.†

"Again did war put an effectual stop to the pursuit of whaling from every port of the United States save Nantucket, and again were the inhabitants of that town, knowing no business except through their shipping, compelled to strive to carry their commercial marine through the tempest of fire as free from complete destruction as possible. A new source of danger presented itself. Prior to the declaration of war between Great Britain and America our whalemen on the coast of Peru‡ had often suffered from piratical acts of the Peruvian privateers, being continually plundered and cut out from Chilian ports, whither they had gone to recruit. The chronic state of affairs on this coast being one of war, the Government of the United States had sent the Hon. Joel R. Poinsett, of South Carolina, to those parts to see that American commerce was suitably protected, but for several months his remonstrances had been worse than useless. The declaration of war between England and the United States gave the Peruvian corsairs a fresh pretext for the exercise of their plundering propensities. They claimed that they were the allies of England, and as such were entitled to capture the vessels of any power with which she was at war. An expedition was equipped by the authorities of Lima and sent on its marauding way. This army succeeded in capturing the towns of Conception and Talcahuano. In the latter port was a large number of American ships, many of them whalemen, who, having obtained their cargoes of oil, had put in to recruit with provisions and water before making the homeward voyage. Among these were the ships Criterion, Mary Ann, Monticello, Chili, John and James, Lima, Lion, Sukey, Gardner, President, Perseverance, and Atlas, of Nantucket.

"This was in April, 1813. These vessels were detained in the harbor by the Limian armament, which consisted of two men-of-war, with about 1,500 troops. Having found a bag containing about $800 on board the President, they carried her captain, Solomon Folger, ashore under a guard and imprisoned the remaining officers and crew, excepting the mate, one boat-steerer, and the cook.

"Learning of this condition of affairs, Poinsett immediately joined the Chilian army and directed its movements. On the 15th of May a battle was fought between the contending forces near the town of San Carlos, but when the day had closed neither side could claim the victory. Taking advantage of the cover of the night, Poinsett put himself at the head of four hundred picked men, with three pieces of light artillery, and, leaving the main body, marched directly to Talcahuano, whither the enemy had withdrawn. The town was immediately carried by storm and the detained whalemen were released.§ Some of the ships having had their papers destroyed, Poinsett furnished them with consular certificates. The friendly regard for the United States which diplo-

"* The Fame was used in the English fishery, and the Renown, under the name of 'Adam,' while engaged in the same pursuit under the same flag, went ashore on Deal beach and bilged in 1824 or 1825.

"In 1812 the brig Nanina, Capt. Valentine Barnard, of New York, sailed to the Falkland Islands on a sealing and elephant-oil cruise. The British ship Isabella having become wrecked, her crew were rescued by the Nanina, and showed their gratitude to Captain Barnard by seizing his vessel and setting him, with Barzillai Pease, Andrew Hunter, and E. Pease, of his crew, ashore on New Island, one of the group. A protest signed by the four was published in the Hudson Bee, and also in the supplement of Niles's Register for 1814."

"† The ship Sally, Clark master, was captured while homeward bound with 1,200 barrels of sperm oil on board. Value of vessel and cargo, $40,000. The Triton also was captured, involving a loss of $16,000."

"‡ These vessels belonged almost exclusively to New Bedford and Nantucket."

"§ See Nantucket Inquirer, August 9, 1824; also Inquirer and Mirror, September 14, 1872. In the latter paper is an account of the affair written by Capt. Nathaniel Fitzgerald, one of the crew on one of the detained whalers."

matic address and persuasion had been unable to obtain, were secured in a much shorter time and probably far more efficaciously by force of arms, and Lima yielded to muskets and cannon the respect she had been unwilling to concede to the seal of the Department of State. Her depredations on American commerce did not, however, entirely cease until the advent of Captain Porter in those waters.* Soon after this the United States Government, realizing the defenseless condition of our commerce in the Pacific, dispatched Porter to that locality to protect our interests, Up to the time of the capture of his vessel he had not only done all in his power in this direction, but had effectually destroyed the English whale fishery in those seas, and so turned the tables upon the enemy who had sent out his whale ships well armed and manned to perform the same kindly office toward our whalemen.‡

"Up to the latter part of the year 1813 the people of Nantucket had fished unmolested both for codfish and for humpback whales on the shoals at the eastward of the island, and by this means eked out a livelihood which was beginning to be quite precarious, but this resort was now taken from them. An English privateer, during the fall, appeared among the fleet, capturing one Nantucket vessel and driving away the remainder. In this dilemma a town meeting was assembled and a petition prepared and forwarded to Congress representing the situation there, and praying that some arrangement might be entered into 'whereby the fisheries may be prosecuted, without being subject to losses by war.' But no adequate relief was afforded, and the people found the history of their sufferings during the Revolution repeating itself with a distressing pertinacity and fidelity, and they bade fair to perish of starvation and cold. They eventually succeeded in obtaining permission to import provisions, but attempts to get leave to sail on whaling voyages, coupled with immunity from capture, were unsuccessful.

"The return of peace effected for them the protection that all negotiations had failed to secure. Early in February, 1815, news came to Nantucket that the war was over, and immediately all was hurry and bustle. The wharves, lately so deserted, teemed with life; the ships, lately dismantled, put on their new dress; the faces of the people, lately so disconsolate, were radiant with hope. In May two ships fitted and sailed on their voyages; by the last of June this number was increased to nine; by the 1st of August eighteen had gone, and by the 31st of December over thirty ships, brigs, schooners, and sloops were pursuing the leviathans in the North and South

"* The Walker, of New Bedford, was captured by an English armed whale ship, but recaptured by Porter. The Barclay, of New Bedford, also was captured by the Peruvians, and recaptured by Porter."

"† So far as operations in the Pacific were concerned, the English went out to shear but 'returned shorn.' Wherever our sailors went ashore in foreign ports and met English seamen, a melee was a frequent occurrence. An amusing instance is related of the officer of a whaling vessel incurring the displeasure of an English naval officer in one of the South American Pacific ports by his zeal in behalf of his country. A challenge was the result. The American being the challenged party, had, of course, the right to a choice of weapons, and being most familiar with the harpoon, chose that. They met according to the preliminaries and took their positions. For a moment the English officer stood before the poised harpoon of our whaleman, then gave in, and the proposed combat was deferred."

"November 26, 1813. Macy, 177. In an official report Captain Porter gives the following list of his captures, chiefly vessels, as he says, engaged in the British sperm-whale fishery:

	Tons.	Men.	Guns.
Montezuma	270	21	2
Policy	175	26	10
Georgiana	280	25	6
Greenwich	388	25	10
Atlantic	355	24	8
Rose	220	21	8
Hector	270	25	11
Catharine	270	29	8
Seringapatam	357	31	14
Charlton	274	21	10
New Zealander	259	23	8
Sir A. Hammond	301	31	12"

Atlantic, the Indian and Pacific Oceans. On the 9th of July, 1815, the first returning whaling vessel arrived at Nantucket; in all probability this was the first arrival at any port in the United States after the war. This vessel was the sloop Mason's Daughter, which, after a six weeks' voyage, returned with 100 barrels of oil."

8. WHALE FISHERY OF PROVINCETOWN.

By Capt. N. E. Atwood.

In early days the whale fishery was prosecuted off along the north shore of Cape Cod with small boats, and whales were very plenty in the first part of the present century. In 1820, owing to the scarcity of codfish on the Grand Bank, Provincetown ship-owners were casting about for new fields of industry to employ their vessels, and five schooners were fitted out to engage in the sperm-whale fishery. In most cases experienced whalers were engaged at Wellfleet and elsewhere, but one vessel, the Nero, sailed without having on board a man who had ever seen a sperm whale. These vessels left Provincetown about the 1st of April and went directly to the Azores, where they cruised for a month or two. In June they went to the northwestern ground, as it was called (situated from 100 to 200 miles northwest of Cowo and Flores), and staid there through the remainder of the cruise, coming home in the fall. These vessels did rather better than the codfishermen. In 1821 the codfishery was still low and the whaling fleet was increased to twelve vessels, quarter-deck schooners mostly, the largest of which measured 98 tons (about equivalent to 70, new measurement), and several were over 90 tons. There were the Neptune, the Nero, the Minerva, the President, the Mary, the General Jackson, the Charles, the Four Brothers, the Hannah and Eliza, the Vesta, the brig Ardent, and the brig Laurel. The fleet went on the same grounds as in the previous year, and in August went into the islands to recruit and afterwards cruised about the islands. They came home in September and October, having done a fair business, a little better than the cod fleet. The Nero had the best fare, obtaining 260 barrels of sperm oil, valued at $1 a gallon. In 1822 the fleet was increased to eighteen vessels, the Fair Lady, the Sophronia, the Olive Branch, the Seventh Son, and the Betsey being added. They accomplished very little, and all returned in the fall except the Laurel, which went to the West Indies, and the Fair Lady to the Gulf of Guinea. In 1823 the two vessels returned in March from the south, and the brig Ardent went to the Azores, obtaining 200 barrels of sperm oil, and was wrecked at sea on her return. The schooner Seventh Son went to Africa, obtaining very little.

In 1824 no whalers were sent out, nor in succeeding years, until 1830, when the schooner Fair Lady and the schooner Vesta went to the old ground about the Azores, the former getting 300 and the latter 140 barrels. In 1832 the brig Imogene, 170 tons, was bought in Boston for sperm whaling. She went into the Indian Ocean and was absent two years, obtaining 400 barrels of sperm oil. In 1835 the Imogene went another voyage to some of the Western Islands and the Gulf of Mexico. In 1836 the schooner Louisa (Flora?) was added to the fleet. They went to the West Indies, where they got some humpback whales, then to the Gulf of Mexico, and later to the Western Islands; the Louisa obtaining 175 barrels and the Imogene 560. In 1837 the Imogene got 450 barrels in the Atlantic and the schooner Louisa 100. In 1838 the Imogene went to the Gulf of Mexico, getting 400 of sperm and 200 barrels of whale oil. In 1839 the Imogene cruised in the Atlantic, getting 350 barrels of sperm and 250 of whale oil. In 1837 the Edward and Rienzi was bought for black fishing and went on the ground south of the Georges Banks and toward Cape Hatteras. No whaling vessels had ever been there before, and she found sperm whales abundant, and since that time the Hatteras ground and the Charleston

ground (the latter farther south) have been favorite cruising grounds for the Provincetown fleet. In 1840 the Imogene was condemned and four vessels were added to the fleet, the brigs Franklin, Fairy, and Phœnix, and a schooner (probably the Belle Isle). The Phœnix went to the Gulf of Mexico (where she obtained 300 barrels of sperm oil), the others to the Western Islands, where the Phœnix followed them. From that time the whale fishery began to increase. In 1841 there were nine vessels, one schooner, one bark, and seven brigs. In 1842 there were thirteen. In 1869 the fleet had increased to fifty-four vessels, at which time the whale fishery was larger than ever before or since. Ever since 1837 the Hatteras ground has been much visited. At one time many vessels went to the eastward of the Grand Banks, principally for black fish. Three or four went year after year. They would be gone from May to October, and sometimes got 250 to 300 barrels. During the war the whaling business prospered, but began to fall off from 1869 to 1871 as the whales became scarcer.

9. STATISTICAL REVIEW OF THE AMERICAN WHALE FISHERY.

The American whaling fleet was smaller in 1880 than at any time within the past sixty years, except in 1875 and 1876. The decrease in the number of vessels has been going on since the year 1846, when there were seven hundred and twenty-two vessels, measuring 231,406 tons, in the fleet. Accurate statistics for the period prior to 1840 are wanting. Just before the Revolutionary war a fleet of over three hundred and fifty sail was engaged in this business, but after the war the number was very greatly reduced. There was a gradual growth in the fleet from this time until the war of 1812, which proved another disaster to whaling commerce. After the war the business again revived and there was a steady increase in the size of the fleet.

On January 1, 1844, the fleet belonging to the United States numbered six hundred and seventeen vessels, valued at $19,430,000 at the time of sailing, and their entire value at that date, including the catchings at sea, was estimated at $27,784,000. The annual consumption by the fleet for outfits at that time was $3,845,000, and the value of the production of oil and bone in the year 1844 was $7,875,970. In 1846 the fleet of vessels had increased in number to seven hundred and twenty-two, the highest number ever employed in the fishery at one time, and was valued at about $21,000,000. The entire capital invested in the industry and its connections at this time was $70,000,000, and the number of persons deriving from it their chief support was 70,000.

After 1846 there was a rapid decrease till 1850, when the tonnage was 171,484 and the number of vessels five hundred and thirty-nine; then an increase till 1854, when there were six hundred and fifty-two vessels, measuring 208,399 tons; from 1854 till the present time the decrease has been almost constant, the tonnage in 1865 being reduced to 79,696 tons, and the vessels to two hundred and seventy-one; in 1875 the decrease was still greater, when there were only one hundred and fifty-two vessels, measuring 37,733 tons, and on the 1st of January, 1880, the fleet numbered one hundred and seventy-three vessels, of 39,433 tons measurement.

The most valuable production of the fleet was in 1854, when the value of the oil and bone was $10,766,521.20, against $2,056,069.08 in 1879, which was the lowest since the year 1828, when the production yielded $1,995,181.15. The year ending December 31, 1880, was somewhat more profitable than 1879 because of the success of the Arctic fleet, the yield this year reaching $2,659,725.03.

The largest fleet in the North Pacific and Arctic Oceans was in 1846, when two hundred and ninety-two ships were there, and obtained 253,800 barrels of whale oil, averaging 869 barrels to a vessel. The largest quantity of sperm oil was produced in 1837, 5,329,138 gallons, averaging in

price $1.24¾ per gallon. The largest quantity of whale oil was produced in 1851, 328,483 barrels, or 10,347,214 gallons, averaging 45$\frac{5}{16}$ cents per gallon. The largest quantity of whalebone was produced in 1853, 5,652,300 pounds, averaging 34½ cents (gold) per pound.

(*a*) TRADE REVIEWS.

The following extracts, taken from the Whalemen's Shipping List, published at New Bedford, Mass., showing the yearly condition of the whaling industry from 1868 to 1880, are kindly furnished by Messrs. I. H. Bartlett & Sons.

The words "imports" and "importations" in these reviews mean the receipts of oil from the American fleet, and do not mean imports of foreign production, but the catch of American vessels in the various oceans.

Review of the whale fishery for 1868.—The present year has witnessed the return of the usual number of whalers, and generally with satisfactory catches, and quite as favorable results as anticipated. The price of sperm oil ruled steady through the year, while in whale a generally advancing market was maintained, and in September (owing to telegraphic advices from the fleet as late as the middle of August, announcing a failure of the fishery up to that date) a marked advance was established, and holders of the small stock (17,500 barrels) demanded $1.25 and upwards. Whalebone, being similarly affected, sold in the summer as low as 85 cents, currency, but upon the unfavorable news advanced to $1.42½, with sales, and a further advance was demanded. A month later more favorable reports came to hand from the fleet in the Arctic, which cast a new feature over the prospects of prices and supply. The season up to August 23 was a failure, but a few whales having been taken up to that time, some of the ablest masters having taken no oil, and many vessels left for other grounds; those that remained were successful in taking extraordinary *cuts of oil; in one instance*, the bark John Howland, taking 1,000 barrels of oil in *four days in the latter part of September*, and many other vessels took an average of 1,000 barrels in thirty days, the largest catches being the ships Reindeer, 1,550 barrels, and the Florida, 1,700 barrels.

Owing to the low prices ruling for whale oil and whalebone, in the early and middle part of the year many of the ships returning from the North Pacific were put into the sperm and right whale fishery in the Indian and Southern Oceans, which will account in part for the small fleet to go north in 1869, and many ships will return home this spring, having completed three or more seasons. So that, as the whale fishery now stands, there will not probably be over fifty ships of all nationalities cruising in the North Pacific in 1869, a smaller number than since 1863; leaving the rest of the whale fleet, about two hundred and thirty-nine ships to pursue sperm whaling in whole or in part in every other ocean and sea.

We have no changes to note of employment of ships in the fishery, but add the port of San Francisco to our list as one of the ports of the United States engaged in the fishery.

The number of vessels from the Atlantic ports engaged in the fishery January 1, 1869, is 220 ships and barks, 23 brigs and 87 schooners, with 73,105 tonnage, showing an increase of only one vessel as compared with last year, but a falling off of 1,489 tons, of which 878 tons grows out of remeasurements by the new system, to which we add 6 vessels from the port of San Francisco, with 1,414 tonnage, making the total number of vessels from the United States, January 1, 1869, 336, with a tonnage of 74,519, being within 75 tons of that of 1868.

The schooner Etta G. Fogg, of Provincetown, and Money Hill, of Boston, are missing, and are supposed to have foundered at sea, the former not having been heard from since sailing, and the latter when only a short time out. The brig Georgiana, of New London, with 700 barrels of oil on freight from Cumberland Inlet whalers for New London, *has not been heard from since sailing from the inlet in October, 1868, and it is feared is lost.*

The Atlantic whale fishery has been carried on by about as many whalers as in 1867, with quite as favorable returns. The vessels from Provincetown and ports eastward, comprising nearly one-half the fleet, averaged about *the same quantity of oil as in 1867, but owing to the increased cost of the vessels added*, and the reduced price of sperm oil, the business was not, on the whole, as remunerative.

The "Commodore Morris Ground" proved a failure, but whales were found quite plenty on other grounds, though very wild, and several vessels were very fortunate; nine vessels averaging 400 barrels sperm oil.

The fleet in the Pacific Ocean was nearly as successful as in 1867, those that met with extraordinary luck in that year having continued to take large quantities of oil, more especially those cruising in the South Pacific, while some of the vessels cruising on the west coast of South America took good cuts of oil. The fleet will be somewhat increased the present year, being about sixty American ships, including some of the most successful which are expected to return home.

Panama has proved a convenient port for transshipment of oil home, there having been quite a number of whalers there the past year to receive supplies and to ship their oil, amounting to 3,250 barrels of sperm. The reduced price of freight to 6 cents, gold, per gallon, with prospects of a further deduction, will probably induce more vessels to visit there in future.

The sperm-whale fleet for 1869 *will be distributed about as follows: In the North and South Atlantic about* 150 vessels, the usual number for the past three years, exclusive of homeward bound vessels. In the Indian Ocean, 35 vessels, against 31 in 1868. In the Pacific Ocean, 54 vessels, against 46 in 1868. Total, 239 vessels.

The fleet cruising in the North Pacific consisted of 58 vessels, of which 7 were foreign, against 101 vessels in 1867; 2 vessels were lost, the Corinthian and the Hae Hawaii, the former having taken 1,050 barrels oil and 15,000 pounds bone, which were saved, and the latter, 1,200 barrels oil and 15,000 pounds bone, which were lost with the vessel. There were also 4 trading vessels that visited those waters and returned with 185 barrels oil and 22,500 pounds bone.

The Arctic Ocean fleet comprised 37 American and 4 foreign vessels, and caught 35,005 barrels whale oil and 575,200 pounds bone, an average of 854 barrels oil and 14,030 pounds bone; whereas, in 1867, 77 vessels caught 50,115 barrels whale oil and 807,800 pounds bone, an average of 651 barrels oil and 10,492 pounds bone.

The Ochotsk fleet comprised 7 American and 1 foreign vessel, and caught 4,960 barrels whale oil and 50,500 pounds bone, an average of 620 barrels oil and 6,312 pounds bone; whereas, in 1867, 14 vessels caught 9,320 barrels whale oil and 117,500 pounds bone, an average of 665 barrels oil and 8,393 pounds bone.

The Kodiac and Bristol Bay fleet comprised 17 American and 2 foreign vessels, and caught 7,635 barrels whale oil and 68,800 pounds bone; whereas, in 1867, 10 vessels caught 5,465 barrels whale oil and 47,700 pounds bone, an average of 546 barrels oil and 4,770 pounds bone.

The entire fleet of 68 vessels caught 47,600 barrels whale oil and 694,500 pounds bone, an average of 700 barrels oil and 10,213 pounds bone, showing a better average than in 1867, when 101 vessels caught an average of 642 barrels oil and 9,633 pounds bone.

The Cumberland Inlet fleet comprised 12 American vessels, of which 4 returned, bringing 2,250 barrels whale oil and 36,000 pounds bone. The bark Andrews was totally lost, having no oil on board. The fleet for 1869 will number about the same as in 1868; 7 vessels are wintering there, and had taken, up to the latest dates, but five whales.

The year opened with sperm oil dull at $2, and continued about the same for six months, when it dropped to $1.75 @ $1.80, at which it stood for nearly three months, when it was put to $2, where it remained for a brief period, and when wanted for export in October declined to $1.78 @ $1.75, at which 10,000 barrels were sold.

Whale oil opened at 65 cents, and steadily improved to 82 cents 1st of August, when, under unfavorable news from the northern fleet, rapidly advanced to $1.10, and, in consequence of the absence of further reports from the fleet, was still further advanced, with sales at $1.15 @ $1.25. After the news of the great success was received, in October, it was very dull, and closed with sales of 400 barrels at about $1.

Whalebone opened at 70 cents, gold, steadily declined until July, with sales at 60 cents, gold, when an improvement was established and the market, under the unfavorable reports, rose rapidly to $1.40 @ $1.42½, at which but few sales were made, and later, upon full reports from the fleet, the market became demoralized, and receded to 75 @ 80 cents, gold, at which large sales were made at the close of the year.

The imports in 1868 were 47,174 barrels sperm, 65,575 barrels whale oil, and 900,850 pounds bone, against 43,433 barrels sperm, 89,289 barrels whale oil and 1,001,397 pounds bone, in 1867, showing an increase of sperm oil, but a considerable decrease of whale oil and bone.

The exports for 1868 were 18,916 barrels sperm, 9,885 barrels whale oil, and 707,882 pounds whalebone, against 25,147 barrels sperm, 18,253 barrels whale oil, and 717,796 pounds whalebone in 1867, showing a marked decrease especially of sperm and whale oil, but it should be stated that about 4,500 barrels sperm oil purchased in December for export have not been cleared at the New York custom-house.

The home consumption of sperm oil in 1863 was 19,055 barrels; of whale oil, 72,390 barrels, and of whalebone, 246,968 pounds. In 1867 it was 22,986 barrels sperm; 58,836 barrels whale oil, and 181,600 pounds whalebone, showing a decrease of sperm oil, but a very satisfactory increase of whale oil and whalebone.

The stock of oils and whalebone on hand January 1, 1869, was 13,000 barrels sperm, 16,700 barrels whale oil, and and 200,000 pounds bone, against 8,000 pounds sperm, 33,400 barrels whale, and 274,000 pounds bone same time 1868.

TRADE REVIEW FOR 1869.

Review of the whale fishery for 1869.—The year 1869 has not proved a satisfactory one to those engaged in the whale fishery. It opened with good prices for oils and bone, which were well sustained through the summer, since which time, owing to increased stocks, depression in business everywhere, caused by the New York gold panic in September, and the favorable news from the Arctic Ocean, there has been a general decline to present quotations of $1.55 for sperm, 70 cents for humpback, 85 cents for Arctic oil, and 85 cents, gold, for Arctic bone, equal to about $1 currency, the decline for the year being about 25 per cent. During the summer about 25,000 barrels refined seal oil were imported from the provinces and brought here by our manufacturers, thereby displacing from consumption an equal quantity of whale oil, which is now held by our importers, and which accounts for the excess of the present stock over that of a year ago. The seal oil, which is of inferior consistency to whale, is said to have been largely mixed with whale and lard oils, thereby prejudicing the reputation of pure whale and lard oils. The increased import of whale oil in 1869 over 1868 was mainly owing to the sending home from the Sandwich Islands of oil caught in the previous years, only about 3,000 barrels having been carried north by the fleet in 1869, against 14,000 barrels in 1868. The generally unprofitable results of voyages terminated during the year, coupled with the low prices now ruling, are not favorable to the present fitting of the vessels in port which constitute over one-sixth of our small fleet.

Of the one hundred and two whalers that have arrived during the year, only about one quarter may be said to have made profitable returns; even those, at present prices, would barely have saved their owners from a loss.

The new year opens with another reduction in the fleet, both in number of vessels and tonnage. The whole number of American vessels engaged in the whale fishery January 1, 1870, is 218 ships and barks, 22 brigs, 81 schooners,

with 73,137 tons, against 223 ships and barks, 25 brigs, 88 schooners, with 74,519 tons same time in 1869, showing a *decrease of 15 vessels and 1,382 tons, only 25 of which grows out of remeasurement.* As showing the extraordinary falling off in ten years, we give the following figures:

	Ships and barks.	Brigs.	Schooners.	Tonnage.
1870	218	22	81	73,137
1860	508	19	42	176,842

This is an apparent difference of 103,705 tons, but owing to loss by remeasurement, the actual loss in tonnage is 93,095 tons; showing in the ten years a decrease of 55 per cent. We predict a further deduction in the fleet the present year, *unless prices materially improve. At present there are eight whalers at this port for sale, and a* large number of schooners at Provincetown and other ports.

The Atlantic fishery, taken as a whole, was less successful than in former years, the average catch being 12 per cent. less than for three years previous, while the instances of good catches *have been largely reduced.*

We give below a statement of the Atlantic sperm fishery for the past four years:

	Number of vessels.	Total catch.	Average.
		Barrels.	*Barrels.*
1866	150	20,594	137
1867	154	18,809	123
1868	150	18,206	122
1869	158	17,672	112

About one-fourth of the catch was taken in the South Atlantic.

The fleet to cruise in the North and South Atlantic will not probably exceed one hundred and twenty-five vessels, *against an average of three years previously of one hundred and fifty-four vessels;* this being brought about by the reduced average catch and reduced prices, and is chiefly shown in the Provincetown fleet, where seven have already been withdrawn and fifteen others are in port there, a number of which it is contemplated withdrawing.

The Indian Ocean, New Holland, and *Soloo Sea grounds* have been visited by the usual number of vessels, but only a few have been more than moderately successful.

The Pacific fleet has been well distributed on New Zealand and the West Coast, but has not been as successful as for a few years past; *some have done well but the average has been moderate. Five of the New Zealand fleet changed* their cruising grounds and went humpbacking, and were successful in taking an average of 750 barrels. A single vessel, the bark Camilla, has been cruising on the old Japan ground with fair success.

The North Pacific fleet of 1869 comprised forty-four American and six foreign ships, fifty in *all,* the number anticipated in our last review, against sixty-eight vessels in 1868. Owing to the scarcity of whales in the Arctic early in the season, many gave their attention to the capturing of walrus, and about 4,000 barrels of oil were taken from them, and, as in the previous year, it was not until late in August that the whales were found in abundance at Point Barrow, where all present got good fares of oil, the only barrier thereto being the extreme cold. The catch was large for the small fleet engaged, and gave an average of 990 barrels oil and 14,000 pounds bone. The fall short in bone is owing to the walrus oil (which has no bone with it) being included in the whale. Only one vessel went to Bristol Bay, where she got 500 barrels whale oil and 2,000 pounds bone, and but six to the Ochotsk Sea, where whales were scarce, the entire catch being 2,575 barrels oil and 21,800 pounds bone, the average being smaller than for many previous years. The bark Eagle, of New Bedford, was totally lost in the Arctic in September, having taken 1,600 barrels oil and 25,000 pounds bone, the only serious disaster to the fleet. For a number of years the coast whaling has been neglected, but it is expected that several whalers will *this winter visit* the bays there, which in *former* years have furnished good whaling. The entire fleet visited the Sandwich Islands last fall, except the Florida, which belongs at San Francisco. In this connection we would invite attention to the following article from the San Francisco *Commercial Herald:*

"Of the large whaling fleet engaged in the Ochotsk and Arctic Seas, but a single one visited this port last year, all the rest having rendezvoused at the Hawaiian Islands. A good many of them found fault with the treatment accorded by the American consul, and expressed a determination to come here next season. At least twenty-five will adopt that course, and it would be good policy to pass some stringent law by which the contracts made with their crews could be enforced. The Florida is the only vessel that entered the harbor from the Polar Seas. Her oil sold at a high figure, say 65 @ 70 cents. The bone was forwarded by rail to New York at a merely nominal rate, say 3½ cents per pound, currency. It is said by returned whalemen who passed through this city for New Bedford overland, in December last, that a considerable number of the whaling fleet will in future resort to this harbor for supplies, &c., presenting, as it does, advantages of markets and home advices by telegraph, besides monetary exchanges and facilities that are not elsewhere attainable."

The Cumberland and Hudson Bay fishery was very unsatisfactory, but one fair catch having been made of 650 barrels, after an absence of nearly eighteen months. Of the six vessels wintering there, five are owned at New London, the other at this port. The brig Oxford, of Fairhaven, was totally lost in the inlet, and the bark Odd Fellow, of New London, on her passage to the inlet.

The Desolation sea-elephant fishery has been satisfactory to those who have pursued it, it being a specialty at New London.

The Tristan, Crozettes, and Desolation grounds were visited by several of our whalers last winter, where they found few whales and bad weather, and in two instances only were good catches made.

The fleet the present year will be distributed about as follows: In the North and South Atlantic, 125 vessels; Indian Ocean, 41 vessels, and Pacific Ocean, 65 vessels, making 231 vessels, which are chiefly sperm whaling. In Hudson Bay and Cumberland Inlet, 6 vessels; on Desolation, elephanting, 5 vessels; and in the North Pacific, 44 American and 7 foreign vessels, a total of 62 vessels, exclusively right whaling. There are 13 vessels outward bound, and 11 homeward bound; and of the number to go north the coming season, 18 vessels will be on the fourth, fifth, and sixth seasons, an unusual number, involving a larger outlay than if fitted at home ports.

The year opened with a good demand for sperm oil at $1.75, and rose before the close of January to $2, and the market continued steady into June, when the price gradually receded to $1.75, after which there was a steady decline to the close of the year, sales being made at $1.55 per gallon.

Whale oil opened at $1 per gallon, and rapidly rose to $1.20, when, upon the spring arrivals with a large supply, the price gradually receded to $1 and $1.05, for northern, at which price it continued steady until the fall months, when it further receded to 85 @ 90 cents, which were the ruling prices at the close.

Whalebone opened at 75 cents, gold, for new, and 80 cents, gold, for old, Arctic, with considerable sales, and promptly advanced from 85 cents to $1, gold, early in March. During the summer months the market remained steady, at about $1.30, currency, until October, when sales were made at $1, gold, for Arctic, and 82 @ 83 cents, gold, for South Sea. Since then there has been a general decline, closing at 85 cents, gold, for Arctic, and 75 cents, gold, for South Sea.

The English review of their oil market for 1869 is encouraging, as it foreshadows a good demand for our staples. At the commencement of the year the stock of sperm oil was 5,300 barrels, and there was in transit from this side 10,000 barrels, whereas at the opening of this year their stock was but 6,000 barrels and nothing going forward. The import into London in 1869 was 7,200 barrels from the colonies and 25,500 barrels from the United States, a total of 32,700 barrels, all of which was cleared for consumption excepting 700 barrels. The information received here from their colonies as well as the Talcahuano fleet (from which they have drawn considerable supply) lead us to believe that their increased supply for the past two years of colonial oil cannot be relied upon for the future. About 4,500 barrels whale oil were imported during the year, and the market closed very firm at £39 @ £40 per ton, with but little remaining in first hands. We think we can safely anticipate a good demand for sperm oil the present year.

The imports in 1869 were 47,936 barrels sperm, 85,011 barrels whale oil, and 693,603 pounds bone, against 47,174 barrels sperm, 65,575 barrels whale oil, and 900,850 pounds bone in 1868, showing a marked increase in whale oil, owing to the sending home of oil taken in previous years, but a decrease in whalebone of about one-third.

The exports in 1869 were 18,645 barrels sperm, 3,842 barrels whale oil, and 311,605 pounds bone, against 18,619 barrels sperm, 9,885 barrels whale oil, and 707,882 pounds bone in 1868, showing a large decrease in whale oil and whalebone.

The home consumption of sperm oil in 1869 was 17,239 barrels, of whale oil 56,236 barrels, and of whalebone 197,098 pounds, when in 1868 it was 19,055 barrels sperm, 72,390 barrels whale oil, and 246,968 pounds whalebone. The decrease in the consumption of whale oil was consequent upon the large import (and consumption) of seal oil, which we have reason to believe will not be repeated.

The stock of oil and whalebone on hand January 1, 1870, was 25,052 barrels sperm, 41,633 barrels whale oil, and 294,900 pounds whalebone, against 13,000 barrels sperm, 16,700 barrels whale oil, and 200,000 pounds whalebone same time in 1869.

TRADE REVIEW FOR 1870.

Review of the whale fishery for 1870.—The year 1870, like its predecessor, has been one of poor returns to those engaged in the whale fishery. The prices for our staples, which at the opening were considered unremunerative, steadily declined throughout the year, closing at the lowest quotations of any year since 1861. The decline in sperm oil was owing to the limited consumption of the article, together with a large stock on hand at the beginning of the year, and the unexpected large import, being about 10,000 barrels in excess of the estimate for the year, while whale oil and whalebone were similarly effected by the introduction largely of cotton-seed oil, and a closed foreign market, caused by the European war, to which we export largely, especially of bone. We note that while the importation of seal oil has been restricted by a higher tariff, that cotton-seed oil has stepped into its place, and claims its share of consumption, which is by no means limited, 75,000 barrels, it is estimated, having been marketed the present year. But few of the returned whalers made profitable voyages, whereas most of the voyages were unremunerative, and many very much so.

Because of the poor results and low prices, combined with the high cost of outfits, many were deterred from fitting out their ships again, and the fleet at home ports on the new year was largely in excess of former years. Our merchants do not look upon the future of whaling with encouragement, and seem disposed to distrust it as to its pecuniary results, induced more by extraneous causes than inherent, having to add to the list of competitors lard, petroleum, and seal oil, that of cotton-seed oil, said by its advocates to be but in its infancy.

The decline in the number of the fleet foreshadowed a year ago has been realized, and we have not only a smaller number now engaged, but of that small number fully one-fourth are at home ports.

The Atlantic fishery has furnished less sperm oil than in former years, chiefly owing to the small number prosecuting the business there, though, as in former years, some good fares were taken, six vessels in the North Atlantic having averaged 350 barrels. The fleet to cruise there the present year will be much reduced from that of last year, and will probably not exceed one hundred vessels.

The whole number of American vessels engaged in the fishery January 1, 1871, is 216 ships and barks, 18 brigs, 54 schooners, with 69,372 tons, against 218 ships and barks, 22 brigs, 81 shooners, with 73,137 tons same time in 1870, showing the large decrease for the past year of 33 vessels, with 3,765 tons, which proceeds from the withdrawal of vessels from Newburyport, Wellfleet, Groton, and largely from Provincetown, the entire fleet at the latter port being 27 vessels against 49 a year ago, and of that number it is thought 7 will not be fitted.

We fear that a continuation of the present low prices for our staples will deter our merchants from fitting many of the whalers in port and to arrive, by which the vessels disengaged throughout the year will be larger than for many years past.

On the various sperm-whaling grounds the cases of marked success in 1870 were few. Whales were very scarce upon the grounds around New Zealand, which have been more largely visited the past year because of the previous marked success there. Many of the sperm whalers visited the several right-whaling and humpback grounds, and met with good success, more particularly in humpbacking. The Tristan and Crozettes grounds were poor, with heavy weather, the best cut being 780 barrels on Crozettes, while the average was not probably over 250 barrels.

The North Pacific fleet of 1870 consisted of forty-eight American and ten foreign vessels, of which two American, the Hibernia and Almira, and one foreign, the Japan, of Sidney, New South Whales, were totally lost, the latter supposed, with all her officers and crew, in the Arctic. As in the two years previous, the whaling was done in August and September, and the average catch was larger than for many years. Whales were small but very numerous, and it is said were never more abundant. The catch of walrus oil was very large, being nearly 10,000 barrels.

But one whaler visited the Ochotsk Sea, the Monticello, and took 200 barrels, and Bristol Bay, the George, and took 400 barrels.

Coast whaling seems to have been abandoned. Ten whalers visited San Francisco, the balance of the fleet going to Honolulu. A new feature in the transshipment of bone is that of sending it "across the continent" by rail, direct to New Bedford, at the small cost of 2 cents per pound, currency.

At Honolulu three foreign right whalers have been withdrawn, the business not proving remunerative, but in San Francisco there is a corresponding increase, and a disposition manifested to extend further in this branch of whaling.

The Hudson Bay and Cumberland Inlet fishery was fair, the Milwood doing the best, having come out with 1,000 barrels. The schooner Quickstep, of New London, is supposed to have been lost in coming out, with all on board.

The fleet is now distributed about as follows: North and South Atlantic, 51 vessels; Indian Ocean, 41 vessels; Pacific Ocean, 65 vessels, principally sperm whaling; Hudson Bay and Cumberland Inlet, 5 vessels; the remaining 51 vessels comprise the North Pacific fleet, 8 of which are outward and 20 homeward bound. The North Pacific fleet *for 1871 will comprise about 40 ships of all nationalities. The total number of vessels now at sea is 213.*

The export of sperm oil to foreign countries in 1870 was 22,773 barrels, mostly to London, against 18,645 barrels in 1869, showing an increase of 4,328 barrels; but the stock on hand at London, 1st instant, was 200 tons in excess of the previous year. The foreign consumption of this article has not increased under low prices, as was anticipated, *which it would seem was owing to the European war, causing a large falling off in the demand for manufactured* goods, but which we think an early peace will restore. The home demand has materially increased, and we think will be maintained under present prices.

The year opened with sperm oil at $1.50 @ $1.55, and advanced in February to $1.60, when, becoming in large supply, *it steadily declined throughout the year to $1.20, closing at $1.23 @ $1.25.*

Whale oil opened at 70 @ 72½ cents, and advanced to 80 cents in February, and in July the price had declined to 67 @ 68 cents, when it again advanced to 70 cents in August, after which it gradually declined to 65 cents, which was the nominal price at the close.

Whalebone was in *good demand early in the year at 85 cents per pound, gold, for Arctic, when in May and June* large sales were made at 80 cents, gold, and since July, when war was declared in Europe, the price has gradually declined to 65 cents per pound, gold, the decline in price and demand being consequent upon the two large and only consumers, France and Germany, being at war. The export to July 18, when the war broke out, was 285,000 pounds, being nearly equal to the entire previous year, and but *for this interruption we should have probably had a* large increased foreign demand, and soon after the declaration of peace we shall expect to see the foreign dealers in oils and bone turning their attention to our staples at the attractively low prices ruling here.

The imports in 1870 were 55,183 barrels sperm, 72,691 barrels whale oil, and 708,365 pounds bone, against 47,935 barrels sperm, 85,011 barrels whale oil, and 603,603 pounds bone in 1869, showing a large increase in sperm oil and *whalebone, but a large decrease in whale oil. Of the imports of whale oil, 4,013 barrels, and of whalebone, 66,000* pounds, were the catch of San Francisco vessels.

The export in 1870 was 22,773 barrels sperm, 9,872 barrels whale oil, and 347,918 pounds bone, against 18,645 barrels sperm, 3,842 barrels whale oil, and 311,605 pounds bone in 1869, showing an increase in each article.

The home consumption of sperm oil in 1870 was 28,812 barrels and of whale oil 64,812 barrels, and of whalebone 226,947 pounds, when in 1869 it was 17,239 barrels sperm, 56,236 barrels whale oil, and 197,098 pounds bone, showing a gratifying increase the past year.

The stock of oil and bone on hand January 1, 1871, was 26,650 barrels sperm, 36,000 barrels whale oil, and 400,000 pounds bone, exclusive of 3,750 barrels whale oil and 27,500 pounds bone held in San Francisco, against 25,052 barrels sperm, 41,633 barrels whale oil, and 294,000 pounds bone same time in 1870.

TRADE REVIEW FOR 1871.

Review of the whale fishery for 1871.—We have to record another year of poor success in the whale fishery, both as concerns oil taken and pecuniary results, only about twenty-four vessels out of ninety-one returned having met with good success in taking oil, and scarcely ten of the whole fleet having left their owners any gains in the net results of the voyages terminated; the average low prices ruling for oil and bone for the first ten months of the year, when most of our arrivals occurred, tending to this result, and the large advance brought about by the almost total disaster to our Arctic fleet coming too late to change such results. Sperm oil from its own weight of heavy stock on hand at the opening of the year, and the frequent arrivals during the first half of the year, continued to sag from $1.40 in February to $1.22 in July and August, when, under a good foreign demand and some speculative inquiry, it reacted in September and advanced in October to $1.30, and with a good home demand, stimulated by erroneous views of consumers in the manufacturing districts, as to the kind of disaster we had met with, it was put up to $1.60, where it stood at the closing day of the year. An impression gained credence with some consumers in this country and Europe that our sperm-whale fishery was the sufferer, and the whaling business severely crippled; whereas our wharves had thirty ships lying at them for sale, and which the loss of ships in the Arctic simply made a partial market for. With so great a loss of vessels, we have with us for sale at least ten good ships, the owners not feeling willing to embark in new voyages with them.

The consumption of sperm oil has been rather more than last year, say 56,000 barrels, of which 22,000 barrels were exported to Great Britain, more than usual going to Glasgow. The London market received from the colonies 800 tuns, which was more than for either of the three preceding years. The stock on hand in London, December 31, was 630 tuns, an average of the stocks for the three preceding years, and 200 tuns were also being landed from New York for refiners. The home consumption in 1871 was about 34,000 barrels, against 29,000 barrels in 1870, showing the increased consumption of 1871 over 1870 to have been in this country.

The import of sperm oil was 8,000 barrels less than was looked for at the beginning of the year, which is due rather to the poor whaling, and not to delay of the whalers out in returning home. We have a much smaller stock than for 1871 to open the year with, say 14,500 barrels, and can hardly expect as large an import in 1872 as in 1871, as the fleet is much smaller, and must so remain for the present, while some few sperm whalers may go to the Arctic Ocean and some whalers here may be sent to the same place this year. With the low prices ruling in 1871 for lard, cotton-seed, and petroleum oils, it would seem that sperm oil has its own place to fill at a fair price, regardless of substitutes, and better success in finding sperm oil would no doubt encourage some owners of vessels to fit them again at present prices. The sperm oil on board of whalers, already caught, is about 33,000 barrels, against 36,000 barrels the year previous.

There will be an increase in Provincetown whalers fitted this spring, several of them having been temporarily engaged in the coasting business.

The destruction of thirty-three Arctic whalers out of forty cruising in the Arctic in 1871 will work a new experience to us in the way of importation in 1872, as but two Arctic whalers will arrive this year, the ships Daniel Webster here, and Europa at Edgartown, and the arrival of Arctic oil will be only about 2,300 barrels. We can hardly hope to import more than 30,000 barrels whale oil from all quarters in 1872, which would only give a supply of 60,000 barrels for the year, against 110,000 in 1871. The market will be cleared before another import of Arctic oil can be caught, unless the extreme views of holders may lead to the importation of seal oil to be caught this spring, and a supply of cotton-seed oil, which shall make up for our large deficiency. Since the news was received of the Arctic disaster we have fitted and sent to the Arctic six ships, and one from New London, of which four were formerly sperm whalers. Of the eleven whalers fitted and which sailed for the Arctic previous to the news of the loss, five were sperm whalers; three sperm whalers have been ordered to the Arctic from sperm-whale grounds. The Faraway, owned in Sydney, New South Wales, has sailed from Honolulu, under command of Captain Herendeen, formerly of the Mary, of Edgartown, for the Arctic. The fleet of 1872 will comprise twenty-six vessels, of which only three Americans and one Hawaiian were there in 1871. San Francisco will probably have no whalers there, underwriters in San Francisco declining to insure on them; their past experience seeming to them almost a fatality, they having had to pay for every Arctic whaler that has heretofore fitted from that port.

Whale oil has been in good demand, both for home use and export, though the market was a declining one, from 65 cents in January to 50 @ 54 cents in July, and until the November news of the loss of the Arctic whalers, when the market was entirely demoralized, more from insurance and other questions pending solution than any other pressing want to buy or anxiety to sell at the advance. When the excitement was allayed sales were made of Arctic at 75 @ 80 cents, which is the current price. The consumption has equaled the previous year, 64,000 barrels being used here, and 18,000 barrels exported to France.

Seal oil has not interfered with us during the year, only one cargo American catch coming to this country. Cotton-seed oil has been in the market, but the low prices have unquestionably discouraged the manufacturers of it, with similar results in their experience as by our whaling owners.

Whalebone has continued in good demand during the year, although at low prices, the prices ranging from 65 cents, gold, early in the year, to 79 cents, gold, in October, when the ten months' sales having more than aggregated our imports, and the disastrous Arctic news having come to hand, holders being few in number, put their prices to $2 per pound. Sales were made of South Sea at $1.70 and Arctic at $1.75 @ $1.85, and the year closed with a stock of 290,000 pounds, held at $1.90 @ $2. There can be no import of bone in 1872 except of South Sea and Cumberland, and possibly an early arrival of Arctic, all uncaught as yet.

There has been a large reduction in our small whaling fleet, and of the thirty-four vessels now in port half are for sale, and some to arrive will probably change hands before being fitted again. Could present prices be assured for three years to come probably nearly every vessel would go to sea, but with the uncertainty in prices, partly from substitutes and low prices of them, only good prices can be hoped for and not counted upon. There were no whalers in Ochotsk Sea or on Kodiac last season. The Arctic fleet had done well up to the time of their having been lost; whales were plenty and the prospects good for a large average. The oil abandoned with the ships was about 12,000 barrels, and about 100,000 pounds of bone. The natives were at work saving the bone when last seen, and it is expected that by trading with them that at least 50,000 pounds may be got of them within three years. It is not improbable that some of the ships may be found near where abandoned, but not at a time nor in such condition as to make it an object to save them. The salvors would hardly expect to save more than half to themselves of the property recovered, and good whaling would offer better results.

The Atlantic fishery has been a fair one to the small fleet cruising there. The weather has been rugged late in the season. The best catch was made by the Commodore Morris, of New Bedford, 1,200 barrels sperm oil in nineteen months, 550 barrels this season; others have done well. The South Atlantic fleet have done well sperm whaling and humpbacking. The fleet took 3,000 barrels humpback oil on the coast of Africa. The Nautilus, of New Bedford, took 800 barrels, the best catch.

The Indian Ocean and Crozettes have furnished nothing extraordinary; nor have the Sooloo Sea and New Holland given their usual share of oil. The New Zealand fleet has done well sperm whaling and humpbacking, nearly 5,000 barrels of humpback oil having been taken on Brampton Shoals; the Cleone, of New Bedford, having taken 1,000 barrels. The West Coast whaling has been only fair sperm whaling, while in humpbacking some good cuts have been made, aggregating nearly 5,000 barrels. Panama Bay was alive with humpbacks in the season of them, and one coast whaler took 1,000 barrels. Margueritta Bay has not been visited, though in former years it furnished great attractions to our Arctic fleet between seasons.

Hudson Bay and Cumberland Inlet has barely sustained its average, though the Ansel Gibbs, of New Bedford, returned with 1,300 barrels of oil and 22,000 pounds of bone—the only good catch, and paying one, and perhaps the best paying one of the year in its percentage. The Scotch Greenland fishery was very successful; they report some catches of 2,000 barrels to a vessel—steamers.

The Desolation voyages have been a sharer with all the other kinds of whaling in having less oil taken and less price received than the owners found profitable. The year in a general view outside the Arctic disaster, which was unforeseen and unexpected, has been fully as discouraging as any former, and if extreme prices, caused by our loss, do not raise up enemies to our future interest in substitutes, then we may hope for better days to those whose courage keeps them in the way of whaling because they believe we shall see a return of prosperity in this branch of creative industry.

The promptness with which the Commercial Mutual Marine and Union Mutual Marine Insurance Companies have had their resources reinforced by stock notes, the former by $110,000 and the latter by $300,000, shows that our present and former owners in whaling, who have come to the rescue to replenish the enormous losses by the Arctic disaster, believe in a future of whaling, if not as extensive as in the past at least partially as remunerative.

TRADE REVIEW FOR 1872.

Review of the whale fishery for 1872.—The year just closed has been but a continuance of the former one in results, few prizes and many blanks. With a small and steadily declining fleet, we have been unable to proportionately gain in average quantity of oil taken or in reaching more satisfactory results. Those who began the year with the intention of selling whalers have seen nothing so encouraging in the business as to induce them to change their minds, and though only seven of the fourteen ships then for sale were sold during the year, yet others since arrived have been sold, and we have now at home ports some seventeen more good whaleships known to be for sale, their owners not intending to fit them again. The great loss of whalers in the Arctic in 1871 has been followed by the sale of twenty and loss of four whalers in 1872, exclusive of ships that have changed hands in the business, and still we begin the year 1873 with about one-third of the whalers at home ports for sale, or about seventeen out of forty-eight vessels. The continued purpose to sell whalers after so great a depletion in little more than a year shows the judgment of those who have long and successfully been engaged in the business, viz, that it has become too hazardous, and its results too uncertain to continue it, when capital is promised a safer employment and surer rewards in enterprises on the land, and in our own city, where the products of two large cotton mills equal very nearly the aggregate value of the imports of the fishery yearly. There are those who think that the Arctic whaling will be given up in a few years because of the perils attendant on whaling there, where ice has to be encountered, with extreme cold and severe storms, and from which causes shipwrecks and damage to hulls are very common. This view is confirmed by the recent action of our insurance companies in charging 8 per cent. extra each season on whalers visiting that ocean, a step long contemplated but now felt necessary by the insurance companies.

The fleet starts to-day with two hundred and three vessels in the business, against two hundred and eighteen a year ago and two hundred and eighty-eight two years ago, showing a decrease of 15 per cent. per annum for two years past. Another installment of 15 per cent. in sale of ships during 1873 we think would reconcile interested parties for the time to the present condition of the business. Of nine vessels (schooners) added to the fleet in 1872 seven had previously been temporarily withdrawn, and two were bought to engage in the South Shetland whaling and sealing business, which was revived last year with considerable profit, the skins being the finest fur seals known.

The 24 whalers sold and lost represented 5,192 tons, while the 9 schooners added show only 766 tons. The fleet at sea January 1, 1873, numbers 155 vessels, against 165 a year ago. We had employed in 1853 571 vessels, with a tonnage of 200,286, averaging 350 tons; in 1863, 357 vessels, with a tonnage of 103,146, averaging 288 tons; in 1873, 203 vessels, with a tonnage of 47,996, averaging 236 tons. The comparison shows a large reduction in number of vessels, also a reduction in the average size of the ships employed. The largest fleet in the Arctic Ocean was in 1854, when 232 ships were there and obtained 184,063 barrels whale oil, averaging 794 barrels. The largest quantity of sperm oil was imported in 1853, 103,077 barrels, averaging in price $1.24. The largest quantity of whale oil was imported in 1851, 328,483 barrels, averaging 45 cents. The largest quantity of whalebone imported was in 1853, 5,652,300 pounds, averaging 34 cents, gold.

These figures serve to show how great a change the whale fishery has undergone at home and among consumers. Our entire import of sperm and whale oil in 1872 was about three-fourths of our import of sperm in 1853 and about one-fourth of our import of whale in 1851; and our import of whalebone in 1872 was about one twenty-eighth of the import of 1853.

In twenty years the consumption of sperm oil has reduced one-half, at same prices, 103,000 against 45,000 barrels. In whale it is reduced five-sixths, at an increased price of 20 per cent., 328,000 barrels against 50,000 barrels; and in whalebone it is reduced nine-tenths, with an increased price of 100 per cent., 5,652,300 pounds against 500,000 pounds. We do not get oil and whalebone enough in the average to get our money back, and those who get the largest catches at competition prices have failed to make money. And so our oldest and most successful ship-owners are willing to sell their ships. But there are a few firms who, having fine ships and good and skillful masters, are resolute and determined not to succumb to the untoward elements in the business until they have tested the matter thoroughly, and to such we believe success will come and should come.

No whaling grounds have been abandoned; every sea and ocean is at present explored by our whalers. The Hudson Bay and Cumberland Inlet whaling was a failure, some seven vessels being there and obtaining only about 1,500 barrels oil. The bark Milwood was lost there, the crew being saved, also her cargo of 150 barrels oil and 1,600 pounds of bone. Three whalers are wintering in Hudson Bay and three in Cumberland Inlet.

The Arctic Ocean was visited by twenty-eight American and four foreign whalers, and though the September whaling, which is usually the best, was a failure, still the fleet averaged 700 barrels oil and 10,000 pounds of bone. Nearly 5,000 barrels walrus oil was taken in the Arctic, though some masters, who were disposed to give up walrusing, abstained from it. The bark Roscoe was totally lost, crew saved. The Helen Snow and Sea Breeze were abandoned; the former was found by the Jireh Perry, and a crew put on board of her, and sent to San Francisco, where she has since been sold to the Alaska Sealing Company. The latter ship was recovered again by her crew, and continued her whaling. The Live Oak, Joseph Maxwell, and Arnolda were badly stove, but reached port safely. The bark Florence went up to the wrecked whalers and secured the Minerva, also 250 barrels sperm, 1,200 barrels whale oil, and 15,000 pounds of bone, and brought them all to San Francisco. Other bone was traded for and came to San Francisco; in all about 50,000 pounds.

Humpbacking has been successfully carried on everywhere. In Panama Bay 10,000 barrels were taken; at Harper's and Tonga Islands and Chesterfield Shoals, 8,000 barrels; on the coast of Africa, 2,000 barrels; and around the West Indies, 2,000 barrels; in all 22,000 barrels and equal to the entire Arctic catch. Not much was done on Crozettes and Desolation. Only two whalers arrived from the Arctic Ocean in 1872, being of the seven saved from the fleet of 1871. A fair catch was made sea elephanting and sealing.

The Arctic fleet for 1873 will number about thirty-two vessels. Two whalers only return home, and one goes to New Zealand. Six ships left this port in 1872 to join the Arctic fleet. One or two ships may go to the Ochotsk Sea this year, which has not been visited by whalers since 1870. One firm, who lost all three ships in the Arctic in 1871, has sent out three to replace them in the season of 1873. There were no whalers on Kodiac in 1871 or 1872. It is possible Margueritta Bay may be visited this winter by one or two of our Arctic fleet.

Sperm whaling has been but partially successful in the Atlantic. Several good cuts were obtained, and the whaling was very fair, but it was poor in the South Atlantic. In Indian Ocean, on New Zealand, and the west coast of South America, with few exceptions, the sperm-whale fleet has been largely engaged in humpbacking between seasons, with good fares, as before stated. As nearly three-fourths of the fleet is sperm whaling, there is a reasonable prospect of having a good supply, at least so long as whales can be found; and this branch of our business promises to survive, as substitutes are not so readily found as for whale oil, and the fleet is well distributed on all the known grounds for sperm whaling. Some good catches have been secured during the year, and in most cases were needed to put their respective vessels in creditable position.

The stock of sperm oil on board of whalers now is about 27,000 barrels, against 33,000 barrels a year ago.

Last fall twenty-two out of thirty-two ships from the Arctic came to San Francisco and seven went to Honolulu, and two home to Sydney; fourteen of the San Francisco fleet were met there by their agents, comprising some ten of our merchants, part of them taking their wives with them. In part owing to difficulties in shipping oil home from there, five ships were ordered to Panama to land and ship home their cargoes; four were ordered direct to Honolulu,

and two, after refitting for the north, sailed to cruise and touch at the islands in the spring. The high rate offered for grain freights absorbed all the available ships. The whaler Minerva, saved from the wreck of 1871, was bought by two of our merchants, and loaded with oil for home. Also the Lagoda and Tamerlane took freight for home.

Sperm oil has been in good demand during the year. The import was 45,000 barrels, 5,000 to 7,000 barrels more than was anticipated. We consumed the entire amount, and drew on stock at the commencement of the year for 3,000 barrels. Yet there was a falling off of 7,000 barrels in the consumption as compared with the previous year. The price opened high at $1.60, and during the summer declined to $1.35, when in the fall it strengthened to $1.50, where it stood at the opening of this year. A few sales were reported at $1.52½ @ $1.55. The consumption has been about equally divided between home and foreign demand, and the fall off has been in this country, probably induced by the abundance and low price of lard oil. With the oil caught and at home we have promise of a good supply this year.

Messrs. Bowes, Game & Co.'s Annual Market Report, reports the importation of sperm oil into the United Kingdom in 1872 at 3,423 tons, against 3,811 tons in 1871. During the demand from January to April the price advanced from £91 to £100, and when that fell off it declined in September to £85. The consumption was 3,595 tuns in 1872, against 3,823 tuns in 1871. The stock on hand January 1, 1873, was 669 tuns against 849 tuns January 1, 1872. The consumption fell off in 1872 228 tuns, and the stock to open the year with was reduced 180 tons. Messrs. Maclean, Maris & Co.'s circular shows the imports from the colonies in 1872 to be 722 tuns, being nearly one-half of the import of the United States.

Whale oil has been in moderate demand with small supply. The import was very small, 31,075 barrels, consequent upon the loss of the Arctic fleet in the fall of 1871. Only two right whalers returned during the year, and the import was little more than one-third that of the previous year, when it was 75,000 barrels. The supply was 61,000 barrels whale, and consumption 45,000 barrels, against 80,000 barrels in 1871. The consumption of whale oil has not been reduced by seal oil, for none has come here from the provinces, nor from fish oils, for the catch has been a small one, not over two-thirds that of previous years, but rather from lard and petroleum, which have been plenty, good, and cheap.

The year opened at 73 cents for Arctic oil, and eased during the summer to 66 @ 68 cents, when humpback oil arrived in large quantities, and was taken in preference, because of its lower cost, say 60 @ 62½ cents. Since the Boston fire, in which 8,000 barrels fish oil were lost, causing tanners to buy some of our oil, rather better figures were obtained closing at 68 cents for Arctic, and a small stock of 16,500 barrels of all kinds. There was but little whale oil exported in 1872, say 1,528 barrels.

The London circulars call the import of whale oil there 80 tuns, and the stock on hand January 1, 1873, 47 tuns. Also, imports of seal oil there 822 tuns, and the stock on hand January 1, 1873, 152 tuns.

Whalebone was in good supply at the opening of the year, about 285,000 pounds; but with little to come during the year, or until the new Arctic arrivals late in the year, and which amounted to 132,000 pounds. Only about 60,000 pounds came from all other sources, including South Sea and Cumberland. Small sales were made early in the year, at $1.90 per pound and then it declined to $1.75 and $1.50 by May, and in June it was sold at $1, gold, to $1.20, currency, since which it has been steady at $1.15 @ $1.20, closing the year at $1.18 for old. The first six months the sales were about 50,000 pounds, but when prices got down to $1, gold, the sales for the remaining six months were about 200,000 pounds, of which consumption of 250,000 pounds about 180,000 pounds were exported. A circular issued by J. A. Sevey, of Boston, a large bone-cutter, shows that he lost by being burnt out in the Boston fire some 10,000 pounds of bone, but was at work again in twenty-two days cutting bone with tools patented by him, and which he claims are a great improvement on the old method of cutting. Some 60,000 pounds of bone were brought into San Francisco last fall, which was picked up from the wrecked whalers or traded for with the natives.

London circulars, aforesaid, report the importation, including the catch of Davis Strait and Greenland whalers, as 90 tons, against 101 tons in 1871. Stock in London, 357 tons, against 56 tons in 1871. Consumption 111 tons, against 91 tons in 1871, 107 tons in 1870, and 122 tons in 1869. The import of humpback bone was 22 tons, and the stock on hand January 1, 1873, was 27 tons.

TRADE REVIEW FOR 1873

Review of the whale fishery for 1873.—The opening paragraph of our last year's review might be copied and would be equally appropriate in commencing our present, for it has been a year starting with a small fleet, steadily reducing through the year by sales and losses of vessels, with moderate catches, meager net results, no change of purpose to sell whalers now here, and no new signs of encouragement in the business. A proposition for the sale of a whaler is more tempting than a proposal to fit one. Of the nineteen whalers in the port of New Bedford January 1, 1873, four were sold, five fitted for whaling, and ten still remain in port; of the seven at New London January 1, 1873, one has been sold and broken up, and the remaining six are still for sale. Of the eleven whalers now in this port that arrived in 1873, six are for sale; and of the twenty-one whalers now winnering here not over seven are likely to be fitted. Of forty whalers to arrive in 1874 probably about thirty will be sent to sea again.

The striking features in the business have been the steadiness of prices during the year, except during the panic, the absence of many good catches of oil in sperm and Arctic whaling, the good success in humpbacking in Panama Bay and coast of Africa, the loss of three whalers in Hudson Bay and Cumberland Inlet, and immunity from disaster in the Arctic Ocean, not a ship being lost or seriously damaged.

Our present fleet is 171, against 203 a year ago, 218 in 1872, and 288 in 1871. The 15 per cent. reduction which has been going on for three years, and which a year ago we ventured to think would relieve us of an anxiety to

further sell, has not been realized; for of the fifty-one whalers at home, we now want to sell twenty-five at least, which is still another 15 per cent. discount we would make on our fleet, and unless we get better catches and better results in 1874 than in 1873, we can now safely apply for another reduction in 1875 of nearly 15 per cent. The thirty-two whalers withdrawn, &c., represented 6,912 tons, and the one schooner added at Provincetown was 117 tons.

The fleet at sea January 1, 1874, was one hundred and twenty-three vessels, against one hundred and fifty-five a year ago.

FLEET.

Year.	No. of vessels.	No. of tons.
1854	668	208,399
1864	304	88,785
1874	171	41,191

ARCTIC FLEET.

Year.	No. of vessels.	Oil.	Average.
		Barrels.	*Barrels.*
1853	108	146,800	1,349
1863	42	36,010	857
1873	28	19,400	700

IMPORTED.

Year.	Sperm oil.	Whale oil.	Bone.
	Barrels.	*Barrels.*	*Pounds.*
1853	108,077	260,114	5,652,300
1863	65,055	62,974	488,750
1873	42,053	40,014	266,396

We have given these comparative figures to show the inclined plane down which whaling is at present going. Right whaling is not remunerative, and cannot be unless larger catches can be made with smaller expenses attending them.

The Arctic Ocean had in 1873 thirty-two whalers, and the Ochotsk Sea two, and yet the aggregate catch was about 21,000 barrels of oil and 250,000 pounds of bone, or an average of 600 barrels of oil and 7,500 pounds of bone, worth about $20,000, one-half of which is used up in drafts, refitting for another season, and the expense of getting oil and bone home. The past season was a poor one for whaling, being open, free from ice, whales very scarce until very late in the season, when they were plenty, but the weather became bad; the remaining fleet, after a week of good work, came out with a fair catch. Six whalers did not take a whale in the Arctic, and two got not even a walrus. In 1854 fifteen whalers out of forty-eight got nothing, and the season was a failure. The Progress found whales outside and took seven, making 750 barrels oil; also the Louisa found whales on Kodiac, and got five, making 550 barrels; and the Live Oak found whales in Japan Sea, and got nine, making 900 barrels. About 6,000 barrels walrus oil was taken in the Arctic in July. Whalers went farther north this season than ever before. Four Arctic whalers will return home, and not one has been fitted out during the past year to go to the Arctic, nor will there be during the year 1874. From present appearances, with the present feeling existing about Arctic whaling, we should doubt if any one of the fleet now out, upon their return home, would be fitted again to go there. About one-half of the fleet went to San Francisco to refit and the balance to Honolulu, it having become evident that the gains at San Francisco are not equivalent for advantages the Sandwich Islands have for getting and keeping crews and freighting home catchings. In the fall of 1872 five whalers went to Panama to ship their catchings home; owing to unavoidable circumstances the oil was long delayed at the Isthmus, and was, on arrival here, found to have much leaked. Panama Bay has been as good whaling ground the past year for humpbacks as in previous years, about 10,000 barrels being the catch there, some vessels getting 1,000 to 1,400 barrels each. But little has been heard from the sperm whalers humpbacking at the shoals and grounds in the Pacific Ocean. On the coast of Africa there were good catches of humpbacks, some vessels taking 500 to 700 barrels each.

The Crozette whaling was good, but two vessels visited the ground, the China and John P. West, taking 750 and 800 barrels, respectively. Cumberland Inlet and Hudson Bay whaling was disastrous; the schooner Abbie Bradford returned with a good catch, and brought news of the loss of the barks Ansel Gibbs and Orray Taft, of this port. The schooner S. B. Howes, of New London, was also lost there. Many seamen died with scurvy. The bark Glacier, of this port, returned with only about 70 barrels. South Shetland sealing and whaling was very successful, and another fleet has gone to complete the work of extirpation.

Sperm whaling has had hardly a better average result than right whaling, but while its catches are perhaps less in value, its expenses of continuing a voyage are also less. In the North Atlantic many good fares were taken, the largest being about 300 barrels, whereas in former years 500 to 700 barrels have been reached in a single cruise. In the South Atlantic less oil has been taken than formerly, though several good catches were made, one vessel taking 600 barrels in six weeks. In the Indian Ocean and on New Holland, with few exceptions, the whaling has been slim; whales were quite plenty early in the year, but the weather was bad; for the greater part of the year but few whales were seen. The New Zealand ground has been dry and deserted by whales, only a few ships having done fairly, while one or two have been fortunate in seeing and getting them. The fleet is small there. The West Coast has but few sperm cruisers there, and several have done quite well, others poorly. The bark Courser, with 700 barrels of sperm oil on board, was run down by an English steamer.

All around, the sperm-whaling grounds have not been up to former years in takings, and it would seem that a small fleet does not increase the chances of a great catch. At present prices for sperm oil, say $1.50, we think sperm whaling will outlive all other kinds, though even with a reduced catch we find a reduced consumption.

The fleet for the coming year will be distributed about as follows: North and South Atlantic, 50 vessels; Indian Ocean, 17 vessels; Pacific Ocean, 31 vessels; Hudson Bay and Cumberland Inlet, 3 vessels; North Pacific, 27 vessels.

The demand for sperm oil was good during the year. The import exceeded but very little the highest estimate, and by reference to the comparative statement of consumption of oils, it will be seen that the supply was 53,300 barrels, against 59,700 barrels in 1872, and that the home consumption was equal to that of the preceding year, while the export fell off about 8,000 barrels, a little more than the reported decrease in consumption of this kind of oil in the United Kingdom. The price opened at $1.50 and advanced to $1.57 in February, fluctuated between $1.52 and $1.55 until May, after which it gradually declined until June, when it touched $1.40, and remained steady until the middle of August, when it advanced to $1.45 @ $1.50, remaining at these figures until October 1, when, under the pressure of the panic, a small parcel of ordinary oil was sold at $1.31, but upon the return of an easier money market in November sales were made at $1.39 @ $1.42, and in December at $1.50, with a good demand and closing firm at this price.

The demand for whale oil seems to be affected by the large supply of other cheap oils, such as menhaden, cotton-seed, and petroleum which is unprecedentedly low. The home consumption was about 9,000 barrels less than in 1872, while the average price was lower. There has been very little life to the market, the cheap oils, such as humpback and South Sea, seem to be preferred at the lower prices which they can be bought at, Arctic of good quality being neglected in consequence, the rule seeming to be that the poorest oil is sought after because of the low prices. A demand sprung up at the close of the year for the cheaper oils, humpback, South Sea, and coast for export, 50 cents per gallon being paid for all qualities, in or out of bond, and the same price was offered for the poorest Arctic oil, but no sales were made. The year opened at 68 cents for Arctic and — cents for humpback, the market being steady until June, when 63 cents per gallon was the quoted price for Arctic, at about which the market ruled the rest of the year. The price for humpback ranged from 55 @ 60 cents per gallon during the year for manufacturing. The stock of this kind of oil on hand January 1, 1874, was about 2,000 barrels. The export the past year was 2,150 barrels, against 1,500 in 1872.

Whalebone opened at $1.15, currency, with a good demand, which continued into February and March, with a slight reduction to $1.10, currency, ruling at this price until May, when the demand was good at $1.08 @ $1.12, currency, for Actic, and 95 cents for South Sea. During the summer months the demand was good, sales reaching in August 51,000 pounds, when the price advanced from $1.08 to $1.20, currency; for the remainder of the year the demand was light, and prices receded to $1.10, currency, for old, and $1 for new Arctic. The home consumption was very good, reaching 155,000 pounds, against 74,500 pounds the previous year. The Scotch whalers did very well taking bone the last season, and the entire import has been sold, showing the trade in this article in England and on the continent to be in a healthy condition. About 25,000 pounds of new unculled bone, including 10,000 pounds Japan Sea bone, was sold in San Francisco at 87½ cents, gold, per pound for export.

TRADE REVIEW FOR 1874.

Review of the whale fishery for 1874.—Although the past year has not been one of large profits to our whalemen, we are able to state to-day that the business wears a more cheerful aspect, with a promise of a brighter future.

The number of profitable voyages arriving was not greater than during the previous year, but, with better prices prevailing, a more hopeful feeling has been engendered.

The decrease of the fleet (about 3,400 tons during the year) is gradually resulting in a better average catch, experience showing that any decided increase in the number of vessels engaged in the business must eventually bring about lower prices and small average catches.

Of the twenty-five vessels in the port of New Bedford January 1, 1874, three were sold, fourteen fitted for whaling, and eight still remain in port, of which five are for sale. Of the seven at New London January 1, 1874, four have been sold for whalers and three are still in port. Of the nineteen whalers now in this port thirteen will probably be fitted before the close of spring, and of the thirty-five vessels to arrive in 1875 nearly all will be sent to sea again.

The absence of any unusual features in the business is noticeable. There have been but few losses at sea, and vessels in the Arctic regions have been quite free from disasters.

Our present fleet is 163 vessels, against 171 a year ago, 203 in 1873, and 218 in 1872, and the number at sea January 1, 1875, was 119 vessels, against 123 a year ago and 155 in 1873.

The fleet in the Arctic Ocean the past summer met with good success during the latter part of the season, fifteen ships taking an aggregate of 17,480 barrels of oil and 189,500 pounds of bone, being an average of 1,165 barrels of oil and 12,633 pounds of bone, about double that of the previous year. Three vessels on Kodiak and in Bristol Bay took 2,625 barrels of oil, an average of about 875 barrels each, and 7,667 pounds of bone.

The Ochotsk Sea whaling was a failure, nine vessels taking unitedly but 2,805 barrels of oil and 34,600 pounds of bone, the whales, formerly plenty in that locality, apparently having been exterminated or gone to other parts. Although occasionally a season in the Arctic Ocean is partly a failure, judging from the present and past it would seem reasonable that a moderate number of ships could continue to prosecute their voyages in that ocean for many years to come, and considering the advancing price of the products obtained, particularly of whalebone, we do not believe our merchants will allow this branch of our business, once so remunerative, to be entirely given up.

Right whaling on Desolation and the Crozettes has been neglected during the past year, and the number of vessels in Cumberland Inlet and Hudson Bay has been very small, with a moderate catch.

Humpbacking has been prosecuted on the coast of South America, in Panama Bay, about the islands of the South Pacific Ocean, and on the coast of Africa, with about the usual success.

Sperm whaling has made rather a better exhibit than for two or three years previous, although good catches have been confined rather to certain localities, than general throughout the different oceans. The best account came to us from the North Atlantic, where a number of vessels took large fares, while many others on the same or adjacent grounds were not fortunate in finding whales, the distribution of catches being quite unequal. On the west coast of South America and the off-shore ground whales seem plentier again and vessels have done well. In the South Atlantic and in the Indian Ocean the fleet have met with average success, while on New Holland and the grounds in that vicinity whales have been unusually scarce. New Zealand has yielded but poorly during the past year, and but few vessels in that locality are doing well, which leads us to remark that at present there appear to be no whaling grounds that will support a large fleet for any great length of time; and in this respect our errors in the past should be guides for our future.

The fleet during the coming year will be distributed nearly as follows: North and South Atlantic, 68 vessels; Indian Ocean, 17 vessels; Pacific Ocean and New Zealand, 33 vessels; Cumberland Inlet and Hudson Bay, 4 vessels; North Pacific, 18 vessels.

The demand for oil and whalebone has continued good throughout the year, the markets having been without marked fluctuations, and with prices slowly but steadily advancing. With an increased importation of sperm oil during the coming year it would be natural to look for a decrease in price, but whale oil, considering the present prospects of lard and other oils, seems quite low; while whalebone, with a constantly reduced importation, ought to command good figures.

The price of sperm oil January 1, 1874, was $1.50, having been depressed by the recent panic. It rapidly recovered, however, and in a few weeks advanced to $1.67½ (the highest prices for the year usually prevailing about that time), dropping to $1.60 in April, continuing to decline till June, when it reached $1.50. During the remainder of the year its course was gradually upward, standing at $1.57 in August, $1.62½ in October, and closing the year at $1.70, the highest price reached since the month of October, 1869, a period of more than five years.

Whale oil opened the year at 61 cents for Arctic, slightly declining during the summer months, and closed the year at 67½ cents, at which price it would be difficult to purchase.

Humpback and South Sea oil during the year have varied from 54 @ 64 cents, closing at the latter figure.

Whalebone opened at $1 @ $1.10, continued firm throughout the year, and advanced during the fall months to $1.25, which price is still maintained.

It will be seen by our last annual review that our estimate of importations for 1874 approximated to the result, except in the quantity of whalebone, caused by shipments overland during the month of December (about 85,000 pounds), and received here in advance of the usual time.

TRADE REVIEW FOR 1875.

Review of the whale fishery for 1875.—The year just closed has been quite free from disasters to the fleet at sea, and no great changes have taken place in the business. Gains and losses have been about equally divided, the arrivals at this port during the year showing eighteen voyages that were fairly profitable and sixteen that resulted in quite a large average loss, but with a revival of business throughout the country we anticipate better results in the future.

Of the eighteen vessels in port at New Bedford January 1, 1875, sixteen have been fitted for whaling and two are now in port. Of the ten whalers now in this port eight will probably be fitted during the season, and of the twenty-five vessels to arrive here this year nearly all will go to sea again. Some vessels may possibly be added to the fleet from the merchant service; but as such ventures are attended with so heavy an outlay for repairs, alterations, and whaling inventories, it is not probable that many such additions will be made.

The present whaling fleet is 169 vessels, against 163 January 1, 1875, 171 in 1874, and 203 in 1873, and the number at sea January 1, 1876, was 137 vessels, against 119 a year ago, and 123 in 1874. Any further increase in the fleet must necessarily result in lower prices for oil.

Right whaling makes a good exhibit for the year, vessels in the Arctic Ocean having been very successful, thirteen vessels taking 18,000 barrels whale and walrus oil and 180,030 pounds whalebone, an average of 1,384 barrels oil and 13,848 pounds of whalebone. Three vessels on Kodiak and Bristol Bay took 3,980 barrels whale oil and 45,430 pounds whalebone, thus making for the fleet an average of 1,374 barrels whale and walrus oil and 14,091 pounds of whalebone, the largest average of any season since the year 1850.

As we stated in our review last year, we do not believe Arctic whaling will be given up, and certainly the whales have never been plentier on these grounds than during the past season. The fleet have all come out safely, except the bark Desmond, which is supposed to have been obliged to winter there.

A few vessels in Hudson Bay and Cumberland Inlet have had fair success, while right whaling in the southern oceans has been neglected. Humpbacking has been very successful on the coast of South America, while in other in other localities the catches have been moderate.

Sperm whaling has been only moderately successful, there having been but few large catches the past year. Vessels have done best on Chili and the off-shore ground, while elsewhere the average has been moderate. A summary is as follows: On Chili and off shore, seventeen vessels cruised, taking 7,010 barrels sperm, an average of 412 barrels; on New Zealand, seventeen vessels took 6,095 barrels, making an average to each of 358 barrels; in the Indian Ocean and on New Holland there were thirteen vessels, taking 4,335 barrels, an average of 333 barrels, and in the North and South Atlantic Oceans, eighty-seven vessels with a catch of 19,405 barrels, averaging 223 barrels, the last named being for an average period of about ten months, as many of the fleet winter in port. With any increase of the fleet a smaller average catch may be looked for, and it will be already seen by reference to our columns that the number of vessels at sea which have obtained 1,000 barrels or more of sperm oil is smaller than for many years.

The distribution of the whaling fleet for the present year we estimate as follows: North and South Atlantic, 77 vessels; Indian Ocean and New Holland, 15 vessels; New Zealand, 13 vessels; Pacific coast and off-shore ground, 23 vessels; North Pacific, 18 vessels; Cumberland Inlet, 4 vessels.

The number of vessels estimated to arrive at this port the coming year is twenty-five, of which apparently thirteen will be good voyages, while twelve will show a loss, the net results being much the same as for the past few years.

The demand for oils and bone has been fair throughout the year past. Sperm oil opened in January at $1.70, with a very small stock on hand, and was held at $1.80 @ $1.85 in March, and at $1.90 in April. Few sales could be effected at these figures, and the price gradually declined to $1.47 @ $1.50 in midsummer, remaining at about these figures until December, when it advanced to $1.60, closing the year at that price, at which, however, there were more sellers than buyers. Whale oil opened the year at 67½ cents per gallon for Arctic, advancing to 70 cents in January, declining to 63 @ 65 cents in May and June, and in September advancing again to 70 cents, at which price it continued to the close of the year. Humpback and South Sea oils have continued at 60 @ 65 cents through the year, with little variation. Whalebone opened at about $1.20 per pound for Arctic, and continued firm during the year, *advancing in the fall months, and finally closing at $1.30.*

By reference to our last year's review it will be seen that our estimate of importations are not far from the result, except in whalebone, caused by shipments overland in advance of the usual time. Our figures are made after careful consideration, and we are not swayed by the interests of either importer or purchaser.

TRADE REVIEW FOR 1876.

Review of the whale fishery for 1876.—During the year but few disasters were reported among whalemen until late in the fall, when news reached us of the destruction of a number of the Arctic fleet, and the probable loss of many lives, which cast a cloud of sadness over the community.

The success of the business the past year has been fair, the arrivals at this port showing nineteen profitable voyages, while fourteen resulted in a loss, this being fully up to the average of late years.

The building of ships for the whaling service marks a new era in the business, and is an encouraging feature. We welcome them as adding to the character of the fleet, which has suffered of late by the adding of worn-out merchant vessels which obtain insurance at the same rates as new ships just from the stocks.

The present whaling fleet, after deducting the recent losses in the Arctic Ocean, is 172 vessels, against 169 January 1, 1876, 163 in 1875, and the number at sea January 1, 1877, was 146 vessels, against 137 a year ago, and 119 in 1875. Five barks are being built for the business, and others will follow, while from the merchant service there is a prospect of adding a number of vessels, thus making the fleet larger than it has been for years. Should the catch be proportionate to the number of vessels in the business, the importation of oil would be in excess of the demand, but all our past experience has shown that, with an increase of the fleet, many of the whaling grounds are overcrowded, and the result is a smaller average to each.

The Arctic Ocean has again been a scene of disaster. Of a fleet of twenty vessels, twelve were lost or abandoned in the ice, and while the masters with most of the officers and crews *were enabled to escape, more than fifty men* were left behind who were unequal to the exertion necessary to save their lives. But the sad and fatal result of pushing too far north will, we hope, be a lesson to our whalemen in future not to venture where there seems hardly a chance of escape when opposing circumstances arise.

The average catch of the vessels not lost, including two on Kodiak and Bristol Bay, was 656 barrels oil and 4,225 pounds whalebone, aggregating to eight vessels 5,250 barrels oil and 33,800 pounds of bone. A few vessels cruised in Hudson Bay and Cumberland Inlet with fair results. Humpbacking has been neglected the past year, except on the African coast, where the catches were unusually good.

In sperm whaling the success has been varied, vessels having been fortunate in the North Atlantic, on Chili and the off-shore ground, while in other quarters the catch has been moderate or quite small. In the North Atlantic upwards of 13,000 barrels of sperm oil were taken, a larger yield than for many years. Whales were plenty, and many vessels took large fares. On Chili and the off-shore ground the fleet were very successful, nearly every one getting an unusual catch, while on New Zealand the results have been moderate. On the River Plate a few vessels did very well, but the majority took but little oil, and on the Congo River, with two or three exceptions, the fleet

has done poorly, it being a small ground and overcrowded with vessels. In the Indian Ocean we cannot report anything better, there being too large a fleet, and consequently the catch has been very small. There is a growing tendency of late years for ships to congregate on small grounds, in order to look for the oil which somebody caught the previous year, and a persistence in this course ruins our best whaling opportunities. The success of the vessels in the Pacific Ocean is largely due to their character and appointments. They are the crack ships of the fleet, have been many years in the service, and consequently have vastly superior opportunities for being well commanded, officered, and manned.

For the coming year the whaling fleet will be distributed about as follows: North Atlantic, 80 vessels; Congo River and coast of Africa, 20 vessels; Indian Ocean, 16 vessels; New Zealand, 15 vessels; Chili and off shore, 20 vessels; Sooloo Sea, 3 vessels; North Pacific, 20 vessels; Cumberland Inlet and Hudson Bay, 5 vessels.

The number of vessels expected to arrive at this port the coming year is twenty-two, of which nine will apparently make good voyages.

Oil and bone have been in moderate demand. Sperm oil opened the year at $1.60, declined to $1.42 in April, $1.36 in May, $1.25 in the summer months, and in the fall advanced to $1.40 per gallon, which was maintained to the close of the year. Whale oil opened at 70 cents, declined to 58 cents in the summer and fall months, and in October advanced to 70 cents, at which price the year closed. Humpback and South Sea oils have corresponded to the price of whale, selling generally at 5 cents less per gallon. Whalebone, from $1.30 in January, advanced to $1.60 in February, and $2 in March, at about which figure it continued till news reached us in October of the loss of the Arctic fleet, when it advanced to $2.50 and later to $3.50 per pound, at which price the year closed.

TRADE REVIEW FOR 1877.

Review of the whale fishery for 1877.—The past year has been free from especial disasters, and there have been no changes in the business worthy of note, except the continued additions made to the fleet.

Ship-building has revived, and twelve whalers were built during the year, it being now apparent that at the present prices new vessels can be built cheaper than merchantmen can be altered into whale ships.

The present whaling fleet is one hundred and eighty-seven vessels, against one hundred and seventy-two January 1, 1877, one hundred and sixty-nine in 1876, and one hundred and sixty-three in 1875; but, although the increase is mostly in the sperm-whale fleet, the catch of the past year is not greater than for 1876, on account of some of the grounds being overcrowded with vessels. The present tendency being to cruise on those grounds nearest home, so that the catchings may be shipped at the earliest moment, we find in the North and South Atlantic Oceans a fleet of one hundred vessels, while the more fruitful grounds of the Pacific Ocean, Japan, New Zealand, and Sooloo Sea are almost neglected. The constant shipments of sperm oil have been largely instrumental in reducing the price to the present figures, which are the lowest reached for many years, and are much below the cost of catching oil, excepting the vessels that are very fortunate.

The frequenting of ports in order to ship oil is the cause of a large part of the expenses to which whaling voyages are subject, and occasions the loss of officers and crews. In view of these facts and the low prices of sperm oil now ruling, we understand several of our merchants have advised their vessels to retain their oil on board when possible, and no doubt this example will be followed by others.

The North Pacific whaling fleet was very successful the past season. The catch was small until September, when whales were found plenty, and large fares were taken. Three vessels were lost, and sixteen vessels came out with an average of 1,065 barrels of oil and 8,550 pounds of whalebone. Arctic whaling is now safer, because of caution borrowed from the experience of the past, and we trust it will be long before we record any unusual losses in that ocean.

In Hudson Bay and Cumberland Inlet but few vessels have cruised. In the South Atlantic many sperm whalers, on account of the low price of sperm oil, have tried right whaling with good success, the value of the whalebone being the chief incentive. About a dozen vessels have cruised for humpback oil, with good success, their total catch being 5,500 barrels.

In sperm whaling the results were varied, the catch in the North Atlantic Ocean being 13,500 barrels by eighty-two vessels, the largest fare taken for many years. The vessels that were well pointed were generally successful, but the presence of so large a fleet in one locality will result soon in smaller catches, and the experience of ten years ago is likely to be repeated.

The fleet on Chili, the off-shore ground, New Zealand, and in the Sooloo Sea have taken good catches. In the South Atlantic vessels have had fair success, the fleet being rather large, and in the Indian Ocean, with too large a fleet, but little oil has been taken. At the present time not a vessel is cruising in the Western Pacific Ocean and Sooloo Sea, and those excellent grounds bid fair to be entirely neglected. Large catches of sperm oil are becoming infrequent, and it is noticeable that during the past year no vessel has obtained 1,000 barrels, while in previous years several vessels have generally exceeded that quantity.

Oils and bone have been in fair demand throughout the year. Sperm oil opened in January at $1.40 per gallon, declined to $1.31 in February, $1.28 in March, $1.18 in June, $1.12 in August, $1.10 in November, and to $1.03 in December, closing the year at $1.03½, the lowest prices that have ruled for more than twenty years. Arctic whale oil, from 70 cents in January, gradually declined to 60 cents in July, at which price it closed the year. Humpback and South Sea oils have ruled at from 5 to 10 cents per gallon less than Arctic.

Arctic whalebone opened the year at $3.50 per pound, declining to $2.50 in August, and to about $2 in October, closing the year at about the latter figure. South Sea whalebone has sold at from $1.25 to $1.70 per pound.

TRADE REVIEW FOR 1878.

Review of the whale fishery for 1878.—The result of the year's business is far from being satisfactory, the catches of the fleet having been moderate and the prices of oil low. Of the vessels arriving during the year a majority had taken too small a quantity of oil to reimburse their cost even at higher prices, and those which brought good voyages netted but little profit to their owners. The number of disasters to the fleet has not been large, good weather having generally prevailed except in the North Atlantic Ocean, where, during the past few months, storms have been unusually severe. The new vessels added recently have improved the general character and average quality of whale ships, but it is to be regretted that so many vessels in an unseaworthy condition are sent out upon whaling voyages.

The whaling fleet at present numbers one hundred and eighty-six vessels, against one hundred and eighty-seven a year ago, and one hundred and seventy-two in 1877. The increase during the past four years has resulted in losses to those engaged in the business, and the average catch on the different grounds has been sensibly diminished, while, to add to the existing depression, there has seemed to be almost a rivalry as to whom shall oftenest ship home their oil, and thus assist in reducing prices already too low.

The results of sperm whaling have not been encouraging. With too large a fleet on nearly all the grounds, catches have everywhere been small, with the exception of a few good fares in the high latitudes of the North Atlantic, and off Patagonia on either side of Cape Horn. The total amount of the catch reported during the year is several thousand barrels less than during 1877, and it is evident that with the continued scarcity of whales there must be a large reduction in the fleet to make the business profitable.

In right whaling, although the amount of oil and bone taken was not large, the result has been better on account of the unprecedented high price of whalebone. The Arctic Ocean fleet lost but one vessel, and averaged 856 barrels of oil and 7,322 pounds of whalebone. Whales were not abundant, but, considering the varied character of the different seasons, it may be presumed that, with occasional fortunate years, whaling in that ocean will continue to be profitable. South Sea right whaling is attracting increased attention, and there is no reason why the Antarctic grounds should not be compelled to disgorge their valuable stores of whalebone. We expect during the next decade to see profitable whaling grounds brought to light in the high latitudes of the south, and success reward those who are pioneers in the enterprise. A number of whalers are wintering in Hudson Bay and Cumberland Inlet, several of which cruised off Greenland for right whales during the summer, but without success. No doubt whales will yet be taken in great numbers around Spitzbergen and Nova Zembla, where the English and Dutch ships took such large quantities of oil and bone during the early part of the present century, and the field remains open for those who will assume the risk. Many vessels have been humpbacking during the year on account of the unusually low price of sperm oil, and have met with fair success.

We are pleased to note an increased traffic between New Bedford and the Azores, but regret to learn of greater stringency at those islands in the enforcement of tobacco regulations. When ships are detected in smuggling it is but just they should pay the penalty attached, but it seems a relic of by-gone ages to subject inoffensive vessels to a rigid search for tobacco, and to impose heavy fines on such as are found with small quantities in the possession of the crew, for which the master cannot be accountable. If such arbitary measures are persisted in, our whalemen will seek other ports for the transshipment of their oil and the recruiting of their vessels.

There has been no great change in the consumption of oil, the usual quantities having been consumed in this country and in Europe. In San Francisco there appears to be an increased demand, and all the importations through that port, both sperm and whale, find a ready sale.

The demand for sperm oil and whalebone has been good throughout the year, while whale oil seems to be neglected.

Sperm oil opened in January at $1.03½ per gallon, declined to 94 cents in April, 86 cents in June, advanced to 90 cents in July, and 92 cents in August, declined to 86 cents in September, 82 cents in October, and 80 cents in November, and advanced to 85 cents in December, closing the year with 87 cents offered, with no sellers under 90 cents. The price touched in November, viz, 80 cents, was the lowest known for thirty-five years.

Arctic whale oil opened the year at 60 cents, gradually declining to 39 cents at the close. South Sea and humpback oils have been quoted generally at about 5 cents per gallon less than Arctic.

The price for whalebone is without precedent. Opening the year at about $2 per pound for Arctic, it declined to $1.65 in February, from which figure it steadily advanced, closing in December at $3.25. South Sea whalebone has commanded about two-thirds the price of Arctic.

Referring to our estimate of imports for 1878, it will be seen, especially in sperm oil, that our calculations were correct, the predictions of dealers and correspondents in neighboring cities to the contrary notwithstanding. We find it more difficult than usual to calculate the importation for 1879, as the expressed determination of many of our merchants to retain sperm and whale oil on board their vessels, because of the low price at home, may possibly result in reducing the importation below our estimates. At the close of 1878 the quantity of sperm oil landed at the Azores and in transit was about the same as a year ago, viz, nearly 4,000 barrels. The import of whale oil for 1879 will be lower than in any previous year, on account of the sale at San Francisco of about one-half of the catch of the Arctic fleet.

TRADE REVIEW FOR 1879.

Review of the whale fishery for 1879.—The past year has not been marked with any unusual features, except the low prices of oil that have prevailed. More than the ordinary number of disasters has occurred, but no serious calamity has overtaken any special portion of the fleet. Of the arrivals, several have taken good cargoes of oil, but the majority have done poorly.

The continued depression in whaling interests has at length been checked by the retirement of a large number of vessels, now lying at our wharves, assisted by the general revival of business throughout the country, and it is possible that with a moderate number of vessels engaged whaling may again become fairly profitable.

The business, however, is subject to many serious drawbacks, some of which, if not corrected, bid fair to impair its success. Chief among these are the influences at those ports where officers and crews are constantly leaving vessels, causing a large expense in replacing them, and the frequency with which officers are sent out to join ships during their voyages indicates that the control of a whaleship is only to a limited extent in the hands of its owners. By united action among our merchants it is possible to check these disorders, and protect themselves against the losses occasioned by wholesale desertion from whaling vessels, which is too often fostered by those who are in duty bound to act otherwise. San Francisco being a port of discharge, the above would not apply to the Arctic whalers visiting that port.

The present whaling fleet consists of one hundred and seventy-eight vessels, against one hundred and eighty-six a year ago, one hundred and eighty-seven in 1878, and one hundred and seventy-two in 1877, showing a considerable net increase during the past few years.

Sperm whaling has not been attended with great success, the whales being scarce on nearly every ground, owing to the size of the fleet. No very large catches have been obtained, the best fares, perhaps, having been taken in the South Atlantic, off the coast of Africa.

Right whaling has yielded better results, the Arctic fleet averaging 951 barrels of oil and 11,000 pounds of whalebone, the best exhibit for many years. One vessel was lost, and two others are supposed to be frozen in the ice. Even should these vessels be lost no apprehensions are felt for the safety of those on board, as they are commanded by experienced Arctic navigators, who are equal to almost any emergency, and the near presence of the exploring steamer Jeannette is an additional safeguard. In the South Atlantic the fleet met with fair success, as did also some of the vessels in Hudson Bay and that vicinity. Humpbacking has been followed with average success, and is at present in better favor on account of the high price of the oil. The price of whalebone has stimulated both northern and southern right whaling, of which many vessels have availed themselves to their advantage during the continued scarcity of sperm whales.

The export of sperm oil has fallen off the past year, principally owing to the large purchases the previous year, 1879 opening in England with a stock of 20,000 barrels and about 7,000 barrels then being in transit. Of the 35,000 barrels estimated to arrive the coming year, it is probable the greater portion will be needed for home consumption. During the fall, when the price remained at 71 cents per gallon, our manufacturers purchased freely, it being very evident that it must advance in sympathy with other merchandise, and they were rewarded for their enterprise by largely increased sales to consumers at better rates.

Sperm oil opened the year at 90 cents per gallon, advanced to 94 cents in February, and from that time gradually declined to 70 cents in September, remaining at those figures during that month and through October, advancing in November to $1 and closed the year with offers at an advance on the latter figure, holders, however, asking from $1.05 to $1.10. Present prospects point to a gradual advance during the year, and as it has been proved that the oil cannot be produced at a less cost than $1.25 per gallon, owing to the heavy advance in the cost of outfits, owners of vessels arriving will not incline to send them to sea again unless they are confident a paying price can be obtained.

The present stock, consisting of about 16,000 barrels, a portion of which is of inferior quality and unsuitable for export, is probably sufficient to supply the demand until the new oil commences arriving in May, being at a period rather later than usual.

Arctic whale oil opened the year at 38 to 40 cents per gallon, at which figures it remained until October, when a gradual advance in oils having taken place, quotations gradually rose to 55 @ 60 cents at the close of the year, there being no stock on hand except some lots that have remained on our wharves many years.

South Sea and humpback oil opened in January at 35 cents per gallon, declined to 32 cents in June, gradually rose to 40 cents in October, to 50 cents in November, and 59 cents in December, closing the year at the latter figure, a most gratifying fact after the depression of the last two years.

Arctic whalebone from $3.25 per pound in January, declined to $3 in March, $2.50 in June, $2 in September, and to $1.90 in November, advancing in December to $2.25, at which price purchases could not be effected at the close of the year. South Sea whalebone from about $2.50 per pound in January, declined to $1.70 in June, $1.50 in September, and then advanced, closing the year with sales at $1.90 per pound.

Referring to our estimate of imports for the past year, our calculations were correct as regards sperm and whale oil. The importation of whalebone slightly exceeds our limit, it being difficult to foresee the success of the Arctic fleet.

TRADE REVIEW FOR 1880.

Review of the whale fishery for 1880.—The year 1880 will be long remembered as a remarkable period in the business enterprises of the country, and although the wave of prosperity that has swept over the United States has not placed whaling interests in a profitable position, we cherish the hope they may yet be benefited.

The business has been, to a certain extent, changed during the past two or three years by the constant retirement of vessels, of which twenty-eight now lie at our wharves and a few others have been sold. Of the number to arrive the present year many will be retired, and the fleet bids fair to be much reduced. Right whaling is now the order of the day, as its prospects appear better than catching of sperm oil at present prices, and if the sperm whales are neglected for a time, who knows but that we shall find them after a while as abundant as a few years since.

Large fares of whale oil are more easily taken than of sperm, and the business is of a more lively and exciting nature, while the usual high price of whalebone makes it more profitable. May success attend the efforts of the many vessels who are to follow that branch of the fishery during the present and coming years!

Our present fleet numbers 177 vessels at sea and in port, against 178 last year, 186 in 1879, and 187 in 1878.

Sperm whaling has not been a success, vessels in the North Atlantic making a fair average, and those on River Plate and Tristan doing poorly, while on the coast of Africa catches were good, and some vessels took large fares. On New Zealand the fleet met with poor success, excepting one vessel, and on Chili sperm whales were not so abundant as formerly. Near Gallipagos Island and vicinity two vessels did well, and the Indian Ocean and New Holland were entirely neglected. The continued low price for sperm oil and the scarcity of whales have discouraged many who have long followed this branch, and the success of right whalers induces them to change to that which appears more remunerative.

Right whaling has yielded good results. In the Arctic Ocean whales were very abundant, and the quantities of oil taken were limited by the size of the vessels and the number of casks, the fleet averaging 1,400 barrels of oil and 22,000 pounds of whalebone, being the handsomest return for many years. No traces were found of the two whalers missing the year previous. In the different southern oceans right whaling was prosecuted by a large number of vessels with varying success, and during the summer large catches of humpback were made on the coasts of South America and Africa, the high price compared with other oils stimulating many in that direction.

Sperm oil opened the year at $1 per gallon, advanced to $1.07 in March, declined to $1.02½ in May, and to 87 cents in July; advanced to 90 cents in August, to 95 cents in September, and to 98 cents in October, closing the year at the latter figure. The stock of crude oil in hands of importers, manufacturers, and others, both in Europe and this country, is much less than at this time last year. The quantity afloat is 4,500 barrels less.

The consumption of sperm oil has been fully equal to that of the past few years, and possibly somewhat increased, and in Europe it is expected the figures when received will show that the consumption there was nearly if not quite up to the average of previous years.

Arctic whale oil opened the year at 60 cents per gallon, declined to 50 cents in April, and to 46 cents in May, advanced to 55 cents in August, and declined to 50 cents at the close of the year. South Sea and humpback oils have sold at from 2 to 3 cents less per gallon than Arctic.

Arctic whalebone was at $2.25 per pound in January, $2 in May, and $2.30 in June, advanced further to $2.50 in August, but declined in November to $1.30, closing the year at that figure, the heavy catch weakening the market. The price of South Sea whalebone has ruled at about 25 cents per pound less than Arctic.

TRADE REVIEW, 1858 TO 1881.

The Oil, Paint, and Drug Reporter, of November 23, 1881, gives the following interesting review of the whale fishery in an article entitled "Whale and sperm oils":

The appearance of large bodies of whales in the Atlantic along the United States coast during the summer and up to a very recent date has suggested the possibility of resuming operations on the ground abandoned years ago. The reason, perhaps, that the presence of those whales has not attracted more attention is that they belong to the humpback [mostly finback] species, which produce no whalebone, and therefore are not a profitable catch except in times of high prices. The only demonstrations that have been made against them so far have been the shooting of a few in Provincetown Harbor, Massachusetts, and the fitting out of a schooner from that port. This vessel cruised along the coast of Maine during the summer and took about 100 or 150 barrels humpback oil. This result was not sufficiently alluring to induce others to follow the example of the owners of the schooner, though we believe a menhaden steamer did cruise in the neighborhood of Block Island for a time without making a haul. The recent appearance of a large school of sperm whales in the Middle Atlantic, however, suggests the idea that the whaling industry might be profitably revived in these waters at no distant day. There are many considerations to be taken into account before such a venture could be made, the most important of which are the prices that can be obtained for the oil. Since the time when whale and sperm oils began to be supplanted by cheaper illuminating and lubricating oils, the whale fisheries have been, naturally, on the decrease, as the result of competition has been to force prices down to a point barely covering the cost of catching. The cost of catching sperm oil largely depends, of course, upon the price of labor at the port where the vessel is fitted out and the cost of such fitting out, an important article of which is the provision, which, for a long voyage, such as is now made, is composed largely of salt pork, beef, and canned goods. The lowest prices at which sperm oil can now be laid down in New Bedford is variously estimated at 90 to 95 cents per gallon, which at the best prices at present obtainable for export or home consumption leaves a very small margin of profit to the whalemen. The profits in right-whale oil fishing are largely dependent upon a freak of fashion. At first sight such a statement might seem somewhat ludicrous to the ordinary reader, but nevertheless the change in the mode of female attire plays an important part in the market rates of whale oil. If it is the fashion to wear much whalebone in articles of dress, then the demand for that article becomes of such importance that the whale-catcher derives a sufficient profit from its sale to render the price of oil a matter of secondary importance. But it would require an enormous demand for whalebone to do away with the necessity of obtaining something for the oil, and although the fashion in dress for a number of years past has required the annual use of immense quantities of whalebone, still this has not been sufficient to keep the whaling industry from going into a decline, because a sufficient return could not be had for the oil. As sperm oil has to depend upon its own merits, the sperm whale yielding no other valuable product, its competition with other oils has seriously detracted from its importance, and at the same time reduced the profits of the industry to a point, as we said above, a little more than half the cost of catching. * * *

The annual report of the New York Chamber of Commerce for 1858, in commenting upon the condition of the whale fisheries during that year, says:

"The prospects for the coming year are far from flattering, but upon the whole, perhaps not less encouraging than at the commencement of the year that has now passed. There will, from present appearances, be a further diminution of vessels employed in the fleet, and with a diminished competition the business may again regain a healthy state. Other fields of enterprise now opened and opening present better opportunities for investment than are now offered in the whale fishery."

It was about this time that petroleum oils for illuminating and lubricating purposes were beginning to attract attention, but they had not yet attained much commercial importance. The same authority quoted above, in its review of the industry for the year 1861, says:

"The average price of whale oil has been something more than 5 cents per gallon less than the year 1860. This has been owing to the introduction of petroleum and kerosene oils, which have in a great measure taken the place of whale oil for illuminating purposes."

The first of hydrocarbon lubricating oils was produced at Mecca, Ohio. It is undoubtedly the best oil of its class ever put on the market; but, unfortunately, it did not last, and it is now almost forgotten. Small quantities of it are still produced by sand pumps, and find a ready sale at the wells at $40 per barrel. It was a natural oil, and when it first appeared on the market was of about 26 gravity. In 1866 or 1868, West Virginia natural oils first began to attract the attention of the oil trade. They were obtained mostly from shallow wells and were from 27 to 28 gravity. Their appearance on the market had a very serious effect on the sale of whale oil, for the railroad companies who had previously taken the latter for lubricating purposes, owing to the high cost of sperm oil, readily took the mineral oil at good prices, one road paying as high as $1 per gallon for it. The result was that whale oil steadily declined from $1.25 per gallon to about 70 cents, and it has never since (with the exception of a short time in 1869) got beyond that point. The West Virginia oils have deteriorated somewhat since then, and prices are, of course, much lower. The shallow wells are nearly all exhausted, and the oils now produced run from 33 to 40 gravity, though a small percentage of oil of a specific gravity as heavy as 29 degrees is still obtained. From the time of the introduction of the hydrocarbon oils, the importance of the products of the whale has steadily declined, and thus one of the largest industries of the United States has sunk, comparatively speaking, into insignificance. By the end of 1869 it began to be apparent that the business had entirely lost its former prestige, and very discouraging views of the future were entertained. From a review published at the beginning of 1871 we extract the following:

"The year 1870, like its predecessor, has been one of poor returns to those engaged in the whale fishery. The prices of our staples, which at the opening were considered unremunerative, steadily declined throughout the year, closing at the lowest quotation of any year since 1861. The decline in sperm oil was owing to the limited consumption of the article, together with a large stock on hand at the beginning of the year, and the unexpected large import, being about 10,000 barrels in excess of the estimate for the year, while whale oil and whalebone were similarly affected by the introduction largely of cotton-seed oil and a closed foreign market, caused by the European war, to which we export largely, especially of bone. We note that while the importation of seal oil has been restricted by a higher tariff, that cotton-seed oil has stepped into its place, and claims its share of consumption, which is by no means limited, 75,000 barrels, it is estimated, having been marketed the present year. * * * Our merchants do not look upon the future of whaling with encouragement, and seem disposed to distrust it as to its pecuniary results, induced more by extraneous causes than inherent, having to add to the list of its competitors lard, petroleum, and seal oil, that of cotton-seed oil, said by its advocates to be but in its infancy."

The importance of the competition with cotton-seed oil was not overestimated, as has been practically demonstrated since. Fish oil also has assumed an important place among the list of competitors. It is not astonishing, in view of all the circumstances, that the whale fishery should have ceased to exert an important influence upon the commerce of the country; but it has left many evidences of its former glory behind. Along our coast are a number of ports once teeming with life and activity, their inhabitants nearly all identified, in one way or another, with what was then one of the most remunerative industries of the United States. Now these ports are silent and deserted; their once busy wharves are vacant and fallen into decay; their streets are grass-grown, and most of their inhabitants have long since departed. In place of the numerous harbors affording shelter for the large fleet of whalers, one or two ports now suffice to shelter them all.

What possibilities there may be for a revival of the former greatness of the industry remains for the future to show; but so far as the immediate future is concerned there seems to be no good reason to believe that further depreciation in the value of whale or sperm oil will occur. Prices have at last touched "rock-bottom," and there are now indications of improvement. Foreign consumers manifest a strong prejudice in favor of these staples, and as long as they can be obtained at a reasonable price, an export outlet is assured. With regard to the home consumption, it is impossible, unless the production of mineral oils should greatly decrease, that it can ever again attain the prominence it once enjoyed. The hydrocarbon oils, which at first seriously interfered with the consumption of whale and sperm, now help it, as many of the manufactured mineral lubricating oils contain more or less of these products which are used to give body and weight to the lubricants. In this way, also, a certain outlet is assured. * * *

A factor in the whale-oil trade, which promises to attain some prominence in the future, is the shipment of oil by rail from San Francisco by tank cars. The project was first made known last fall at the close of the whaling season, but did not make much headway. This year it was renewed, but so far has met with little success, apart from exerting a depressing influence upon the Eastern markets. So far as we can learn there is not much oil to come that way, the bulk of the catch being shipped in the usual manner. It is likely that 5,000 to 8,000 barrels will be

marketed in San Francisco, and part of this may find its way East by tank cars. Some of this has already been sold, but it is impossible to tell how much. On its way to the East its arrival at different points on the route has been telegraphed here, and such information has usually been taken as indicating a new sale.

The following reviews for 1881, 1882, 1883, and 1884 are by Messrs. I. H. Bartlett & Sons, of New Bedford:

TRADE REVIEW FOR 1881.

Review of the whale fishery for 1881.—The year has been generally free of disasters, only four vessels having been lost. Otherwise there has been no special feature of note. Arctic whaling has yielded good returns, while sperm oil has not been found abundant. The most of the voyages closed during the year were successful, and the outlook for the future would be good if better prices could be obtained, and the business relieved of the many clogs and hindrances which have for many years oppressed United States shipping, and which have been so ably set forth in the recent *report of the committee appointed by the New York Chamber of Commerce. Prominent features in that* report were, the payment of three months' wages to discharged seamen, now exacted by no other nation, and the protection granted to deserters by consular authorities and foreign Governments.

The present whaling fleet numbers one hundred and sixty-one vessels, against one hundred and seventy-seven a year ago, a reduction of sixteen.

Sperm whaling continues to droop, and vessels have generally had but moderate success, those on the African coast and on Chili having made the largest catches, while in other quarters the year's work has been small.

Right whaling has been successfully prosecuted. The Arctic fleet took good fares of oil and bone, as our tables will show, remunerating those who invested their capital and labor in that direction, but we sadly record the evidence indicating there is no hope of finding alive the crews of the two whalers that were ice-bound two years since. We however welcome the news of the safety of a part or all of the Jeannette's company, and further tidings of them is now daily expected.

The price of sperm oil in January last was nominally 98 cents per gallon, but owing to the immense stock on hand sales could not have been effected to any extent at over 85 to 90 cents. The price declined to 80 cents in May and June, rose to 82½ cents in July, and gradually advanced till it reached 95 cents in October, at which price it closed the year, with some sales in the latter part at a slight advance on that figure. The incubus of stock that has for so long a time weighed like a wet blanket on our sperm-whaling interests has now been removed, and no mariner returning from a four years' voyage ever hailed with more satisfaction the sight of his home port, than do our merchants the contemplation of the fact that the stock of sperm oil for the whole of the present year will be less in quantity than the consumption of the last.

Whale oil opened the year at 48 cents per gallon for Arctic, dropped temporarily to 45 cents in May, advanced in June and July to 55 cents, and continued at about that figure the remainder of the year, closing at 53 cents. Humpback and South Sea oils have ruled at about 3 cents per gallon less.

The price of whalebone opened the year at $1.30 per pound, advancing soon to $1.75 to $1.90, and continuing at about these figures until fall, closing the year at $1.40. South Sea bone has sold for about 20 cents per pound less.

TRADE REVIEW FOR 1882.

Review of the whale fishery for 1882.—The year just closed has been without features of special note. Several vessels have been lost at sea, mostly in different localities, the only loss of life being the officers and crew of schooner Pilot's Bride, of New London. At home, the continued low price of sperm oil has discouraged those engaged in that branch of the business, and fast leading to its discontinuance.

The present whaling fleet numbers one hundred and forty-seven, against one hundred and sixty-one a year ago, of which number one hundred and five are now at sea. Many of those in port are to be withdrawn for merchant service, while others have become too dilapidated to warrant repairs.

Sperm whaling during the past year has continued to droop, only eight vessels having taken in excess of 500 barrels each, of which four cruised on the coast of Chili, and four in other localities. The owners, tired of small catches and ridiculously low prices, are changing their vessels to right whaling or withdrawing them from the business. Indications point to an import of 20,000 barrels for the present year, and a probable reduction in the future. As the oil cannot be produced at a less cost than $1.25 per gallon, we cannot blame our merchants for transferring their time and capital to other enterprises.

Right whaling has been prosecuted with fair success. Thirty vessels cruised in the Northern Pacific, averaging to each 767 barrels of oil and 11,730 pounds of whalebone, in addition to which they took on their between-season cruises an aggregate of 2,800 barrels sperm, 720 barrels whale oil, and 4,000 pounds of whalebone.

Two vessels were lost in the Arctic in the early part of the season by being crushed in the ice. If bad weather had not unexpectedly prevailed during the latter part of the season, the catch would have been much larger. Many additions are to be made to the fleet the coming year.

The Southern right whalers were quite fortunate, and fair catches were made on the Tristan grounds and other localities.

The consumption of our different products is an interesting subject, and one that requires from us some attention. It has always been our custom to report as the consumption for the year the amounts cleared from our import markets by the refiners and manufacturers, regardless of the stocks the latter were carrying at the close of the year. The

continuance of this custom led us to report for the year 1881 a consumption of sperm oil in this country of 25,275 barrels, and in England of 3,000 tuns or 30,000 barrels, an aggregate of 55,000 barrels, when actually the large stocks in refiners' hands a year ago makes it probable that the actual consumption was not much in excess of 40,000 barrels.

We give below a carefully made statement of the estimated actual consumption for 1882:

		Barrels.
Crude sperm oil in importers' hands January 1, 1882		16,275
Crude sperm oil in refiners' hands in United States and England		16,300
Crude sperm oil imported into United States in 1882		29,875
Crude sperm oil imported into England from the colonies, &c		3,850
		66,300
Less stock in importers' hands January 1, 1883	20,100	
Less stock in refiners' hands in United States and importers' and refiners' hands in England	6,000	
		26,100
Net consumption for the year		40,200

Whale oil is rapidly absorbed as soon as it arrives in market, and whalebone has been used during the past year to a greater extent than heretofore.

Sperm oil, from 95 cents at the commencement of the year, advanced steadily to $1.05 in February, $1.10 in April, $1 11 in July, and then gradually receded, touching 96 cents at the close of the year.

Whale oil, from 53 cents in January, gradually advanced, touching 59 cents in September, and declining in December to 55 cents.

Whalebone opened the year at $1.40 and steadily advanced, touching $2.25 in October, and closing the year at $2.

The quantity of sperm oil at present on board of the whaling fleet is 5,300 barrels, against 12,000 barrels a year ago, being the smallest amount known in our experience.

TRADE REVIEW FOR 1883.

Review of the whale-fishery for 1883.—The past year has been one of loss to those engaged in this business, and its results have been discouraging. The failure of the Arctic season, with small catches in other localities, has brought but small remuneration to those who risk their capital in the whale-fishery.

The fleet now numbers one hundred and twenty-five vessels of all classes hailing from Atlantic ports, against one hundred and thirty-eight a year ago, and nineteen from San Francisco, as against eight last year. The number of vessels engaged in sperm whaling has been considerably decreased, owing to the low prices of oil, while, on account of the value of whalebone, agents are inclined to send most of their vessels to the Arctic Ocean and other right-whale regions. Indications point to a steady decrease in the number of vessels sailing from Atlantic ports, and perhaps a small increase in the number sailing from San Francisco for the Arctic Ocean.

A new feature of the past year arising from the increase of Arctic whaling at San Francisco has been the establishment of extensive works at that place for the manufacture and sale of whale and sperm oil, thus enabling the owners there located, as well as others who import oils at that place, to find a market without paying the heavy cost of shipping the same to the Atlantic seaboard. It is understood that the whole Arctic catch of oil, about 10,000 barrels, has been purchased at San Francisco at increased prices. Their works, in addition to large facilities for the manufacture of sperm candles, have a capacity of 150 barrels of oil per day, and are to be enlarged if the imports at that place and the sales of their products shall warrant.

Sperm whaling continues to decline, and no catches of any amount were made during the year except a few in the Atlantic Ocean, and two or three off Patagonia. The number of ships and barks now in that fishery at sea is forty-eight, most of which will follow right whaling during half of the year. The continued low price of oil will soon prevent the business being followed to any great extent.

Right whaling has been unfortunate, and the season in the North Pacific, owing to prevalence of ice and bad weather, was a failure. Thirty-eight vessels cruised there, three of which were lost, and the remaining thirty-five averaged 274 barrels of oil and 4,350 pounds of whalebone to each. The southern right whalers were not as fortunate as in the previous year, and their general success was moderate.

The price of sperm oil from 96 cents per gallon on January 1 rose to $1.05 in April and May, and from that time steadily declined, closing the year at 90 cents.

Whale oil from 55 cents in January continued at about the same price, with the exception of a rise to 59½ cents in April, until December, when on account of the demand at San Francisco it advanced, closing the year at 60 cents per gallon asked.

Whalebone opened the year at $2 per pound for Arctic, and with a few variations steadily advanced, until at the close of the year it sold at $4.75 per pound.

The purchases of sperm oil for consumption during the year have amounted to 32,200 barrels; the purchases of whale oil to 23,600 barrels, and of whalebone, 376,000 pounds; all the above being bought at Atlantic ports, besides the purchases at San Francisco of all their importations, and quite an amount of oil and bone belonging to New Bedford vessels.

Our figures of imports for 1883 do not include the oil and bone purchased at San Francisco, it being difficult for us, at this distance, to obtain the information with accuracy.

TRADE REVIEW FOR 1884.

Review of the whale-fishery for 1884.—Another year has passed, and its results, like its predecessors, have been unsatisfactory and discouraging to those who have continued to risk their capital in the whale-fishery. With two or three exceptions the larger class of vessels that arrived during the year made losing voyages, and with the discouraging features which still exist it is doubtful if they are soon fitted out again. Of the vessels in port one-half at least are known to be for sale, and of those expected to arrive during this year it is now intended that a number will be offered for sale.

The North Atlantic fleet was more fortunate on the whole than during the year previous, the smaller vessels doing the best. Some good catches of sperm oil were made on the west coast of South America during the months from April to October, seven vessels averaging 700 barrels, one taking 1,200 barrels, and three or four vessels did quite well on New Holland.

The season in the Arctic was better than that of 1883, but not fully satisfactory, except to some having steamers that penetrated the ice, which the sailing vessels considered unsafe to enter, thereby obtaining good catches. Thirty-nine vessels cruised there, and the only loss was the steamer Bowhead, of San Francisco, the first one built by the Pacific Whaling Company, and a fine vessel. Her catchings had been previously shipped home. The fleet averaged 527 barrels whale oil and 8,380 pounds whalebone.

Three vessels on New Zealand did well right whaling, taking an average of 700 barrels.

The total number of vessels of all classes engaged in the business is one hundred and thirty-three, of which nineteen hail from San Francisco, and all but one engaged in Arctic whaling. The decrease of the catching power during the year was 1,912 tons, the greater portion of which had been engaged in sperm whaling.

The present tonnage of the entire fleet is 31,207, of which 3,432 is at home ports. Of the remaining 27,775 tons, about one-half is exclusively engaged in Arctic whaling, one-quarter exclusively sperm whaling, and the remaining one-quarter sperm and right whaling; showing the tonnage engaged in sperm whaling to be about 10,400 tons, which is about 20 per cent. less than last year.

The consumption of sperm oil was well maintained, notwithstanding the depressed condition of business all over the country during the year.

The consumption of whale oil was curtailed in consequence of lack of stock, but very little of the Northern catch of 1883 having been sent to the Eastern market.

In consequence of the high price of whalebone, the consumption was not as large as the previous year.

The exports were less than previous years, especially of sperm oil, a large stock having been carried over in London January 1, 1884. The consumption in Europe of sperm oil reached 13,650 barrels, and the stock remaining on hand January 1, 1885, 426 tons, is about one-half of that on January 1, 1884.

Sperm oil began the year at 90 cents, touched 76 cents in November, and closed at 77 cents in December.

Whale oil began the year at 66½ cents, touched 57 cents in November, and closed at 54 cents in December.

Whalebone began the year at $4.75, touched $2 in October, and closed at $2.35 in December.

Our figures of imports include that imported into San Francisco by vessels owned there, which in former years were omitted.

We estimate the import of sperm oil for 1885 at 17,000 to 20,000 barrels; that of whale oil and whalebone will depend on the success of the Arctic fleet.

(*b*) STATISTICAL TABLES OF PRODUCTS AND VALUES.

***Table showing the receipts from the American fleet, the exports, and the home consumption of sperm and whale oil from* 1860 *to* 1884.**

Year.	Sperm oil.			Whale oil.		
	Receipts.	Exports.	Home consumption.	Receipts.	Exports.	Home consumption.
	Bbls.	*Bbls.*	*Bbls.*	*Bbls.*	*Bbls.*	*Bbls.*
1860	73,708	32,792	38,507	140,006	13,007	143,009
1861	68,932	37,547	31,001	133,717	49,989	105,839
1862	55,641	27,976	27,759	100,478	68,583	67,254
1863	65,055	18,366	32,527	62,974	11,297	65,352
1864	64,372	45,000	30,190	71,863	12,000	62,528
1865	33,242	20,158	27,666	76,238	1,660	64,107
1866	36,663	10,630	19,133	74,302	618	69,534
1867	43,433	25,147	22,986	89,289	18,253	58,836
1868	47,174	18,916	23,258	65,575	9,885	72,390
1869	47,936	18,645	17,239	85,011	3,842	56,236
1870	55,189	22,733	23,812	72,601	9,872	68,452
1871	41,534	22,156	33,528	75,152	18,141	63,011
1872	45,201	24,344	24,052	31,075	1,628	42,852
1873	42,053	10,238	24,190	40,014	2,153	33,831
1874	32,203	18,675	21,768	37,782	3,300	44,367
1875	42,617	22,802	18,453	34,594	5,424	31,860
1876	39,811	23,600	14,473	33,010	10,300	22,620
1877	41,119	18,047	31,737	27,191	6,390	20,501
1878	43,568	32,769	11,124	33,778	14,271	12,557
1879	41,308	11,843	23,315	23,334	7,374	24,685
1880	37,614	12,283	13,750	34,776	4,395	23,856
1881	30,600	16,000	25,275	31,650	6,450	32,000
1882	22,884	13,006	13,053	23,371	4,421	21,425
1883	24,595	13,996	17,324	24,170	4,543	19,052
1884	22,099	5,143	15,481	24,670	2,343	20,777

Table showing the receipts from the American fleet, the home consumption, and the exports of whalebone from 1865 to 1884.

Year.	Received.	Consumed.	Exported.	Year.	Received.	Consumed.	Exported.
	Pounds.	*Pounds.*	*Pounds.*		*Pounds.*	*Pounds.*	*Pounds.*
1865	619, 350	394, 200	202, 000	1875	372, 303	142, 067	205, 436
1866	920, 375	420, 175	521, 400	1876	150, 628	150, 628	133, 400
1867	1, 001, 297	181, 631	717, 796	1877	160, 220	67, 820	70, 800
1868	900, 850	246, 986	704, 882	1878	207, 259	96, 859	113, 400
1869	603, 603	197, 101	311, 605	1879	286, 280	183, 565	75, 715
1870	708, 365	255, 347	347, 918	1880	464, 028	176, 770	171, 258
1871	600, 655	319, 856	387, 199	1881	368, 000	202, 000	106, 000
1872	193, 798	74, 141	177, 932	1882	271, 999	211, 529	175, 470
1873	206, 396	155, 351	120, 545	1883	254, 037	198, 423	175, 614
1874	345, 560	200, 807	165, 553	1884	426, 968	109, 144	113, 024

Table showing the value of oil and bone landed by the American whaling fleet, the value of the proportion consumed in the United States, and the value of the proportion exported during the years 1865 to 1880.

Year.	Value of oil and bone landed.	Value of oil and bone consumed in the United States.	Value of oil and bone exported.	Year.	Value of oil and bone landed.	Value of oil and bone consumed in the United States.	Value of oil and bone exported.
1865	$6, 906, 650 51	$5, 564, 786 26	$1, 848, 399 75	1873	$2, 962, 106 96	$1, 947, 037 50	$929, 247 94
1866	7, 037, 891 23	4, 766, 597 88	1, 591, 727 82	1874	2, 713, 034 51	2, 154, 638 63	1, 179, 286 32
1867	6, 356, 772 51	3, 189, 220 19	3, 034, 987 12	1875	3, 314, 800 24	1, 700, 823 45	1, 494, 727 64
1868	5, 470, 157 43	3, 568, 082 39	2, 106, 985 72	1876	2, 629, 463 31	1, 346, 828 00	1, 487, 533 00
1869	6, 295, 244 32	3, 013, 426 34	1, 554, 956 25	1877	2, 309, 569 60	1, 113, 681 00	924, 175 00
1870	4, 529, 126 02	2, 896, 883 19	1, 476, 864 85	1878	2, 232, 029 55	849, 043 12	1, 357, 162 34
1871	3, 091, 469 18	2, 798, 468 97	1, 479, 153 69	1879	2, 056, 089 08	1, 345, 582 05	582, 994 17
1872	2, 954, 783 00	2, 081, 468 87	1, 374, 098 37	1880	2, 659, 725 03	1, 165, 944 00	795, 657 78

Table showing the average prices of sperm and whale oil per gallon and whalebone each month from 1868 to 1880. *

	1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.
January:													
Sperm oil	$2 00	$1 85	$1 52½	$1 25	$1 55	$1 50	$1 50	$1 69¼	$1 60	.....	$1 04 5/16	$0 90	$1 04¼
Whale oil	64	1 10	60	65	.....	66	61	66½	67½	$0 70	55	35	.....
Whalebone	.....	1 03	.....	.....	.....	1 10	.....	.....	1 15	....	1 67½	3 00	2 39
February:													
Sperm oil	2 00	.....	1 54½	1 32	1 54	1 53	1 60	1 78	1 54	1 31	1 01 5/16	90	1 04
Whale oil	66	1 12	74	60	73	64	60	65	65	70	52	37	57
Whalebone	.....	1 14	.....	.....	.....	1 00	.....	.....	1 40	.....	1 69½	3 00	2 26
March:													
Sperm oil	2 00	1 93	1 54½	1 34	1 60	1 52½	1 66	1 84	1 50	1 28	1 03	85	1 06
Whale oil	70	1 13	75	62	71	68	63	60	62½	68	50	37	52
Whalebone	.....	1 28	.....	.....	.....	1 06	.....	.....	1 65	.....	2 10	2 95	2 10
April:													
Sperm oil	2 00	.....	1 40	1 28½	1 56	1 52	1 60½	1 80	1 43	.....	.....	81	1 02
Whale oil	73	1 05	69	58	69	60	63	65	62½	65	50	36	48
Whalebone	.....	1 20	.....	.....	.....	1 10	.....	.....	1 75	.....	2 65	2 82	2 02
May:													
Sperm oil	2 00	1 93	1 41½	1 26	1 53	1 48	1 55	1 70	1 37	1 20	94	77	1 02½
Whale oil	77	1 03	66¼	55	69	62	60	65	55	63	45	35	47
Whalebone	.....	.....	.....	.....	1 55	1 10	.....	.....	.....	.....	2 50	2 50	2 00
June:													
Sperm oil	2 00	1 85	1 38	1 22½	1 40	1 42	1 52	4 55	1 35	1 19	87½	75	93½
Whale oil	80	1 03	63¼	54	62	61	60	62	58	53	41	36	45
Whalebone	.....	1 25	.....	.....	.....	1 00	.....	.....	2 00	.....	2 40	2 50	2 13

* The following additional data have been received since the above was compiled: Average price of sperm oil per gallon in 1881, 88 cents; in 1882, $1.06; in 1883, 97 cents; in 1884, 85 cents. Whale oil in 1881, 48 cents; in 1882, 53½ cents; in 1883, 54 cents; in 1884, 56 cents. Whalebone per pound in 1881, $1.63; in 1882, $1.71; in 1883, $2.87; in 1884, $3.55.

Table showing the average prices of sperm and whale oil per gallon and whalebone each month from 1868 to 1880—Continued.

	1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.
July:													
Sperm oil	$1 89½	$1 79	$1 33	$1 23	$1 38	$1 40	$1 55	$1 50½	$1 31	$1 16	$0 88	$0 75	$0 88½
Whale oil	80	1 04	66⅓	55	64	62	58	64	.....	50	41	35	50½
Whalebone	.....	1 28	.....	.....	1 18	1 10	.....	.....	2 00	.....	2 83	2 50	1 88
August:													
Sperm oil	1 80	1 76	1 33	1 24	1 38	1 47	1 57	1 49	1 28	1 15	91 5/10	75	90
Whale oil	85½	95	69½	84	64	63	58	70	55	51	43	35	53
Whalebone	.....	1 24	.....	.....	1 15	1 15	.....	.....	2 00	.....	.....	2 30	2 45
September:													
Sperm oil	1 86	1 77	1 26	1 24½	1 35	1 50	1 61	1 48	1 27¼	1 11	87½	71	94
Whale oil	1 00½	1 00	64	55	64	61	57½	67	55	51	39	37	52½
Whalebone	.....	1 32	.....	.....	1 15	1 12	.....	.....	2 15	.....	.....	2 05	2 25
October:													
Sperm oil	1 95	1 75	1 23	26	1 35	1 42	1 64	1 48	1 40	1 09	82 7/10	77	98
Whale oil	1 12½	1 00	66½	66½	62	60	60	67	58	51	38 7/10	39	55
Whalebone	.....	1 35	.....	.....	1 20	1 10	.....	.....	2 50	.....	2 65	1 90	1 75
November:													
Sperm oil	1 80	1 72	1 23½	1 50	1 47	1 42	1 65	1 56	1 40	1 08	81½	1 00	98
Whale oil	90	92	63½	75	66	52	61½	68	70	54	37½	48	50
Whalebone	.....	1 30	.....	.....	1 20	.....	.....	.....	2 90	.....	3 00	2 00	1 30
December:													
Sperm oil	1 75	1 59	1 22	1 57	1 50	1 50	1 64	1 60½	1 40	1 03	83 6/10	1 00	98
Whale oil	85	84	64	.....	67	62	64	70	65	55	35	57	50
Whalebone	.....	1 10	.....	.....	1 18	1 02	.....	.....	3 25	.....	3 06	2 00	1 30
Yearly average:													
Sperm oil	1 92	1 78	1 35	1 35	1 45½	1 48	1 59	1 60½	1 40½	1 18	91½	84½	99
Whale oil	82	1 01¾	67½	60	65½	62	60½	65½	56	52	44	39	51
Whalebone	1 02½	1 24	85	70	1 28½	1 08	1 10	1 12¾	1 96	2 50	2 46	2 34	2 00

Table showing monthly receipts of oil and whalebone from the whaling fleet of the United States from 1868 to 1880.

	1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.
January:													
Sperm oil ..... bbls.	2,338	2,713	258	2,596	1,357	913	.....	2,036	182	1,259	1,085	2,138	588
Whale oil ..... do	395	201	648	700	73	.....	.....	440	893	2,290	1,857	449	65
Whalebone ..... lbs.	26,732	42,770	47,195	2,125	23,481	69,605	.....	179,425	72,403	21,944	48,757	21,528	12,123
February:													
Sperm oil ..... bbls.	1,004	763	.....	1,086	595	1,802	1,046	840	1,406	1,617	2,761	123	475
Whale oil ..... do	.....	400	217	1,100	115	2,037	1,208	17	3,014	22	893	5,815	3,361
Whalebone ..... lbs.	3,332	12,600	.....	124,000	.....	73,534	109,206	.....	.....	.....	.....	.....	9,967
March:													
Sperm oil ..... bbls.	720	708	1,817	486	1,014	864	38	.....	899	1,241	873	2,618	.....
Whale oil ..... do	7,997	2,174	8,975	2,980	1,182	2,557	120	117	353	3,078	3,095	350	1,396
Whalebone ..... lbs.	168,422	17,800	94,996	42,958	.....	2,212	.....	.....	.....	.....	395	.....	2,225
April:													
Sperm oil ..... bbls.	3,424	5,112	4,730	2,373	2,240	2,791	960	2,179	2,674	1,789	443	5,246	85
Whale oil ..... do	16,664	22,610	5,717	33,614	1,155	3,783	11,654	10,058	15,160	2,307	4,637	1,275	7,860
Whalebone ..... lbs.	257,565	365,763	105,765	319,967	2,855	4,850	18,709	2,940	14,600	.....	2,335	7,368	6,923
May:													
Sperm oil ..... bbls.	4,305	3,131	13,481	3,453	7,007	6,138	4,363	5,746	3,383	2,351	4,587	4,046	5,162
Whale oil ..... do	19,669	22,043	30,537	9,407	5,001	10,160	2,968	12,086	3,136	4,602	2,872	1,956	4,149
Whalebone ..... lbs	249,030	25,736	40,170	37,945	.....	3,977	7,250	.....	300	4,189	.....	2,574	11,046
June:													
Sperm oil ..... bbls.	5,324	6,301	7,498	4,200	6,883	11,369	4,024	3,468	3,954	8,693	8,221	3,513	8,182
Whale oil ..... do	5,745	5,684	17,203	7,642	8,839	7,298	7,088	1,905	9,228	4,915	2,709	1,400	6,877
Whalebone ..... lbs.	7,461	19,830	222,715	8,904	4,162	3,592	1,350	595	851	20,117	14,384	28,579	16,406
July:													
Sperm oil ..... bbls.	2,799	1,930	7,732	9,342	4,854	2,273	3,078	4,723	7,329	5,062	6,861	5,264	3,484
Whale oil ..... do	1,382	8,236	4,798	5,414	1,213	487	1,498	122	558	1,310	5,595	809	1,089
Whalebone ..... lbs.	9,698	13,000	250	10,798	1,951	.....	.....	.....	1,689	3,141	22,442	5,018	4,881

Table showing monthly receipts of oil and whalebone from the whaling fleet of the United States from 1868 to 1880—Cont'd.

	1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.
August:													
Sperm oil.....bbls..	7,742	6,629	4,203	8,557	9,557	4,811	3,669	4,599	5,293	3,441	4,409	2,226	2,916
Whale oil .....do...	6,105	9,256	3,941	3,862	5,662	3,501	2,547	804	816	1,911	4,459	1,969	1,624
Whalebone .....lbs..	21,042	28,608	.....	17,720	14,475	2,904	.....	.....	22,719	8,334	1,044	11,027	.....
September:													
Sperm oil.....bbls..	9,903	9,218	7,012	4,535	2,293	4,225	7,661	6,813	5,140	4,017	5,153	3,971	4,592
Whale oil .....do..	4,779	4,399	3,241	4,855	2,434	7,103	4,274	4,409	1,061	1,691	2,147	2,427	1,485
Whalebone .....lbs..	29,606	20,365	4,149	2,209	.....	25,422	9,967	16,652	.....	14,011	350	13,549	5,193
October:													
Sperm oil.....bbls..	6,690	3,444	7,368	2,017	5,182	3,295	3,646	3,395	3,844	4,279	3,520	3,695	4,228
Whale oil .....do...	1,972	5,401	3,237	1,950	4,013	1,604	4,383	1,858	2,683	3,576	1,555	210	3,561
Whalebone .....lbs..	2,932	22,795	41,105	27,244	9,877	.....	16,009	.....	1,460	18,411	15,290	59,650	19,150
November:													
Sperm oil.....bbls..	2,440	4,717	961	1,177	1,455	.....	4,318	79	3,215	5,266	4,740	2,074	3,519
Whale oil .....do...	866	3,194	3,953	3,589	704	260	772	2,344	1,431	750	1,982	5,308	605
Whalebone .....lbs..	13,630	29,336	66,000	7,696	2,002	.....	.....	28,295	22,655	3,300	42,629	31,534	135,600
December:													
Sperm oil.....bbls..	485	3,284	330	1,712	2,758	3,577	.....	6,739	2,492	1,910	1,345	6,394	4,383
Whale oil .....do..	.....	1,413	524	33	684	1,210	1,270	344	377	730	1,977	1,276	2,764
Whalebone .....lbs..	112,000	5,000	66,000	.....	133,900	20,360	99,669	142,396	14,920	66,773	59,633	105,453	240,512

RECAPITULATION.—*(Total receipts each year.)*

Sperm oil.....bbls..	47,174	47,936	55,183	41,594	45,201	42,053	32,203	42,617	39,811	41,119	43,508	41,308	37,614
Whale oil .....do...	65,575	85,011	72,691	75,152	81,075	40,014	37,782	34,594	33,010	27,191	33,778	23,324	34,776
Whalebone .....lbs..	600,850	603,603	798,365	600,655	193,793	206,396	345,569	372,303	159,628	180,220	207,259	286,260	464,028

The following statement shows the quantities of oil and bone landed by the American fleet and the total value of the same from 1804 to 1880.* The statistics are compiled from Starbuck's History of the Whale Fishery and from the Whalemen's Shipping List. The total yield of this fishery for the entire period is seen to be 166,604,496 gallons of sperm oil, 270,727,205 gallons of whale oil, and 76,386,148 pounds of whalebone, having a total value of $340,204,873.

Scammon estimates that sperm whales will average 25 and right whales 60 barrels of oil, and of the former 10 and of the latter 20 per cent. of those killed are lost. Upon that basis the above amounts of oil would represent the slaughter of about 232,790 sperm and 196,002 right whales.

* The following additional statistics have been received since this statement was compiled:

Year.	Gallons sperm oil.	Gallons whale oil.	Pounds whalebone.	Total value.
1881	963,900	996,975	368,000	$1,926,620
1882	941,346	736,186	271,999	1,861,779
1883	774,742	761,355	254,037	1,891,716
1884	696,118	777,105	26,968	2,542,614

Production of oil and bone by the American whaling fleet and total value of same from 1804 to 1880.

Year.	Gallons sperm oil.	Average price per gallon.	Gallons whale oil.	Average price per gallon.	Pounds whalebone.	Average price per pound.	Total value.
1804 to 1820	7,983,119	.....	18,159,836	.....	841,940	.....	$16,941,493 57
1821	1,357,618	67½	1,213,506	33	62,893	12	1,324,398 29
1822	1,351,350	65	1,619,951	32	50,799	12	1,402,857 70
1823	2,038,351	43	1,607,440	32	103,404	13	1,829,114 25
1824	3,091,064	45½	1,833,237	30	133,472	13	1,973,756 58
1825	1,924,303	70½	1,666,413	32	152,534	15	1,912,765 87
1826	919,800	75	1,108,233	30	79,368	16	1,035,018 78
1827	2,958,480	72½	1,119,037	30	106,255	18	2,499,735 00
1828	2,475,176	62½	1,591,790	26	137,323	25	1,995,181 15
1829	2,350,152	61½	2,256,502	26	563,654	25	2,172,947 50
1830	3,482,042	65½	2,831,315	30	514,991	20	3,487,949 56
1831	3,636,738	71	3,609,774	30	270,279	17	4,139,790 61
1832	2,290,563	85	5,703,894	23½	442,881	13	3,362,618 17
1833	3,289,765	85	5,153,148	26	286,432	13	4,170,754 89
1834	3,891,573	72½	4,144,633	27½	343,324	21	4,033,317 55
1835	5,181,529	84	3,950,289	39	965,192	21	6,095,787 35
1836	4,200,021	89	4,301,892	44	1,028,773	25	5,888,044 42
1837	5,329,138	82½	6,389,995	35	1,753,104	20	6,983,657 90
1838	4,076,100	86	7,204,365	32	1,200,000	20	6,250,842 80
1839	4,408,886	1 05	7,049,075	36	2,000,000	18	7,524,060 30
1840	4,928,017	1 00	6,408,391	30	2,600,000	19	7,236,534 30
1841	4,956,304	94	6,459,516	32	2,000,000	20	7,125,970 88
1842	3,256,155	73	4,876,239	34	2,500,000	23	4,379,812 03
1843	5,260,027	63	6,511,990	34	1,127,270	36	6,293,680 21
1844	4,239,711	90½	8,254,481	36 7/12	2,532,445	40	7,875,970 38
1845	4,967,550	88	8,593,483	33	2,195,054	34	8,283,611 75
1846	3,155,481	87½	6,589,737	33½	3,252,939	34	6,203,115 43
1847	3,803,719	1 00½	9,864,225	36	3,341,060	31	8,419,288 49
1848	3,401,274	1 00	8,840,663	33	3,003,000	25	6,819 442 78
1849	3,179,736	1 08½	7,827,498	39 11/12	2,281,100	21½	7,069,953 74
1850	2,926,098	1 20 7/10	6,319,152	49 1/10	2,869,200	32½	7,564,124 72
1851	3,137,116	1 27¼	10,347,214	45 7/10	2,916,500	34½	10,031,744 05
1852	2,484,468	1 23½	2,652,647	68¼	1,259,900	50½	5,565,409 89
1853	3,248,925	1 24½	8,193,581	58½	5,652,300	84½	10,766,521 20
1854	2,315,924	1 48¼	10,074,866	59½	3,445,200	39½	10,602,594 20
1855	2,388,443	1 77 3/10	5,796,472	71 3/10	3,707,500	45¼	9,413,148 93
1856	2,549,642	1 62	6,233,535	79½	2,592,700	58	9,589,846 36
1857	2,470,860	1 28½	7,274,641	73¼	2,058,850	96½	10,491,548 90
1858	2,583,142	1 21	5,740,025	54	2,571,200	92¼	7,072,227 31
1859	2,879,352	1 36¼	5,997,946	48½	1,923,850	88	8,525,108 91
1860	2,306,934	1 41½	4,410,158	49½	1,337,650	80½	6,520,135 13
1861	2,171,358	1 31½	4,212,085	44½	1,038,45	66	5,415,090 59
1862	1,752,692	1 42½	3,165,057	59½	763,500	88	5,051,781 64
1863	2,049,232	1 61	1,983,681	95¼	488,730	1 53	5,936,507 17
1864	2,027,718	1 89½	2,283,685	1 28	760,450	1 80½	8,113,922 07
1865	1,047,123	2 25½	2,401,497	1 45	619,350	1 71½	6,906,850 51
1866	1,154,885	2 55	2,340,513	1 21	920,375	1 87	7,037,391 23
1867	1,368,139	2 27	2,812,603	73½	1,601,997	1 17½	6,356,772 51
1868	1,485,981	1 92	2,065,613	82	960,850	1 02½	5,470,157 43
1869	1,509,934	1 81½	2,677,846	1 01½	603,608	1 23	6,295,244 32
1870	1,728,265	1 36½	2,289,707	67½	798,365	85	4,529,126 02
1871	1,308,321	1 31	2,367,288	64	600,655	77	3,691,469 18
1872	1,423,832	1 45¼	973,084	65½	193,793	1 28½	2,954,783 00
1873	1,324,609	1 47½	1,260,441	62¼	206,396	1 08½	2,962,108 96
1874	1,014,395	1 59	1,190,133	60½	345,560	1 10	2,713,034 51
1875	1,342,435	1 60½	1,089,711	65¼	372,303	1 20½	3,314,800 24
1876	1,254,047	1 40½	1,039,815	56	150,628	1 96	2,639,463 31
1877	1,295,249	1 13	856,516	52	180,220	2 50	2,369,589 69
1878	1,370,502	91½	1,064,007	44	207,259	2 46	2,232,029 55
1879	1,301,202	64½	735,031	39	286,280	2 34	2,056,069 08
1880	1,184,841	99	1,395,444	51	464,028	2 90	*2,659,725 05
Total	166,604,496	.....	270,727,205	.....	76,386,148	.....	340,204,873 86

* Year ended December 31, 1880.

(c) STATISTICS OF THE WHALING FLEET.

Number of whaling vessels belonging to the several ports of the United States on January 1 of each year from 1840 to 1880.

[Vessels fitted for Antarctic sealing are omitted. They belong mostly at Stonington and New London, and number from ten to twenty in each year. The details of the sealing fleet are given in a subsequent chapter of this volume.]

	1840.	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.	1850.	1851.	1852.	1853.
Barnstable, Mass								1	1					
Bath, Me				1										
Beverly, Mass											1	2	3	3
Boston, Mass	1	2	2	5	3	1	3	1	1			1	3	3
Bridgeport, Conn	3	3	3	3	3	3		3	2	2				
Bristol, R. I	6	5	5	10	7	6	6	6	1	1				
Bucksport, Me				1										
Cold Spring, N. Y		2	2	2	4	7	8	8	8	8	7	7	6	7
Dartmouth, Mass	3	3	3	2	1	1	1	2	1	1	1	1	3	4
Dorchester, Mass	2	2	2											
Duxbury, Mass				1	1	1								
Edgartown, Mass	8	8	9	13	10	11	10	9	8	8	6	6	9	9
Fairhaven, Mass	44	44	45	49	45	45	48	46	50	49	46	45	50	49
Falmouth, Mass	8	8	7	7	5	5	4	4		3	3	3	3	3
Fall River, Mass	7	7	6	7	7	7	7	7	6	5	2	2	2	3
Freetown, Mass				1	1	2		2	1					
Greenport, N. Y	5	5	4	5	8	10	11	11	11	10	10	10	9	9
Holmes Hole, Mass	4	4	4	3	3	3	4	4	3	3	3	3	4	4
Hudson, N. Y	8	8	8	2	2	1								
Jamesport, N. Y	1	1	1	1										
Lynn, Mass	4	3	2	2	2	2	3	3	2	2	2	2	2	2
Mattapoisett, Mass		8	8	5	10	9	10	11	11	10	9	9	13	15
Mystic, Conn	6	6	7	9	8	12	13	17	15	16	11	10	10	9
Nantucket, Mass	81	78	83	86	66	77	74	75	71	69	62	55	56	56
New Bedford, Mass	177	174	179	211	219	239	256	254	248	250	238	249	262	311
Newburyport, Mass	3	3	2	2	1	1					1			
New Suffolk, N. Y	1	1	1	1	1	2	2	2	1	1		1	1	
New London, Conn	39	36	31	42	46	64	70	7	59	48	44	42	41	45
Newport, R. I	11	10	10	12	12	11	11	9	6	6	4	4	5	5
New York, N. Y	3	3		2	3	2	1	1						
Newark, N. J	1	1	1	2	1									
Orleans, Mass												1	2	3
Plymouth, Mass	3	3	6	9	7	5	4	3	1	1				
Portland, Me	1	1	1											
Portsmouth, N. H	1	1	1	1	1	1	1	1	1					
Poughkeepsie, N. Y	6	6	6	4	1									
Providence, R. I	3	3	3	8	8	9	9	8	6	4	3	2	2	2
Provincetown, Mass	1		13	16	17	19	23	18	15	10	10	27	30	27
Quincy, Mass				1							1			
Rochester, Mass	15													
Sag Harbor, N. Y	31	31	30	44	49	60	63	62	50	41	23	15	18	19
Salem, Mass	14	14	12	12	6	5	2	2	2	1			1	1
Sandwich, Mass													1	2
Sippican, Mass		6	8	8	7	4	5	5	3	1	1			1
Somerset, Mass			1	2	2	2		1	1	1	1			
Stonington, Conn	11	8	9	14	13	26	26	27	24	20	18	16	17	16
Truro, Mass												1	1	1
Wareham, Mass	4	3	5	7	4	6	6	4	3	1	1	1	1	1
Warren, R. I	21	19	18	21	19	20	25	23	21	20	15	15	17	16
Westport, Mass	9	9	10	15	11	11	11	13	14	15	15	16	19	22
Wilmington, Del	5	5	5	3	3	1								
Wiscasset, Me	1	1	1											
Yarmouth, Mass										1	1			
Total	512	595	554	654	617	685	722	651	647	608	539	546	611	648

Number of whaling vessels belonging to the several ports of the United States, &c.—Continued.

	1854.	1855.	1856.	1857.	1858.	1859.	1860.	1861.	1862.	1863.	1864.	1865.	1866.	1867.
Beverly, Mass	5	5	4	2	2	3	3	2	1	2	2	2	2	2
Boston, Mass	1									5	3	3	4	8
Cold Spring, N. Y	7	7	5	5	5	4	4	2	2					
Dartmouth, Mass	3	6	9	10	10	10	9	6	5	4	4	4	3	3
Edgartown, Mass	10	12	13	17	19	18	18	16	12	8	7	6	6	6
Fairhaven, Mass	49	45	48	46	46	45	42	39	29	18	9	7	8	9
Falmouth, Mass	3	3	3	3	3	3	3	1	1	1	1			
Fall River, Mass	4	4	4	3	2	2	2	2	1					
Gloucester, Mass	1	1												
Greenport, N. Y	10	10	11	9	7	4	2							
Groton, Conn														1
Holmes Hole, Mass	4	4	5	4	2	2	2	1	1	1	1	1		
Lynn, Mass	1	1	1	1										
Marion, Mass														4
Mattapoisett, Mass	15	15	15	18	19	19	19	18	9	5	3	2		
Mystic, Conn	9	11	7	6	5	4	4	2						
Nantucket, Mass	47	43	42	41	38	34	21	18	13	13	10	7	2	6
New Bedford, Mass	318	314	311	329	324	316	301	291	260	220	197	175	164	161
Newburyport, Mass														2
New Haven, Conn						1	1	1	1	1				
New London, Conn	46	45	44	54	51	45	36	29	16	13	16	19	15	18
Newport, R. I	5	5	5	4	3	3	2							
New York, N. Y														1
Orleans, Mass	5	5	4	4	4	4	3	3	3					
Providence, R. I	1	1	1	1										
Provincetown, Mass	27	18	20	22	26	26	26	26	28	30	25	23	33	45
Sag Harbor, N. Y	20	19	16	18	20	20	19	17	11	9	6	8	8	7
Salem, Mass	1	1	1		1	1	1	1		1	1	1	2	3
Sandwich, Mass	2	2	2	1	1	1	1	1	1	1				
Sippican, Mass	2	2	2	3	5	6	6	5	4	3	3	2	2	
Stonington, Conn	15	14	16	6	5	4	4	1						
Tisbury, Mass														1
Truro, Mass	1													
Wareham, Mass	1	1	1	1	1	1	1	1						
Warren, R. I	17	16	14	15	15	13	10	4	3	2	2	1		
Wellfleet, Mass														1
Westport, Mass	22	21	21	19	20	20	20	17	15	15	11	10	9	9
Total	652	631	625	642	636	609	561	504	416	352	301	271	258	307

	1868.	1869.	1870.	1871.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.
Beverly, Mass	1	1	1	1	1	1	1						
Boston, Mass	11	10	8	7	6	5	4	6	7	6	5	5	5
Dartmouth, Mass	3	3	3	3	2	2	2	2	2	2	2	2	2
Edgartown, Mass	7	7	7	6	4	3	1	2	2	3	3	4	6
Fairhaven, Mass	13	12	11	8	6	5	2	3	2	2	1	1	
Groton, Conn	1	1	1										
Marion, Mass	4	7	6	5	2	3	3	2	2	2	2	2	2
Nantucket, Mass	7	8	8	6	3	1							
New Bedford, Mass	181	178	176	176	143	130	113	107	116	118	130	132	128
Newburyport, Mass	3	3	3										
New London, Conn	14	15	15	14	10	10	9	4	4	3	5	3	5
New York, N. Y	2	5	5	3	2	2		1	1	1	3	1	
Provincetown, Mass	53	54	49	27	16	19	17	18	19	21	22	23	19
Sag Harbor, N. Y	7	5	4	3	2	2	1	1					
Salem, Mass	4	4	3	3	1								
San Francisco, Cal		6	5	8	4	1	1	1	1	2	2	1	3
Tisbury, Mass	1	1	1	1									
Wellfleet, Mass	1	1	1										
Westport, Mass	10	10	9	9	9	8	8	5	8	3	4	4	8
Total	323	301	316	280	211	192	162	162	159	163	179	178	173

*Census statistics of the whaling fleet for 1880.**

Port.	Number of vessels.	Tonnage.	Number of crew.	Value of vessels.	Value of outfit.
Boston	6	926.64	131	$34,000	$36,000
Provincetown	20	1,938.92	331	68,800	66,350
Marion	2	175.38	34	6,500	6,000
Edgartown	7	1,446.82	211	48,000	80,000
New London	5	866.41	93	24,000	17,000
Westport	2	498.33	30	13,000	16,000
Dartmouth	1	231.59	28	4,000	18,000
New Bedford	123	31,568.83	3,226	891,000	1,501,500
San Francisco	5	980.46	114	27,000	36,500
Total	171	38,633.36	4,198	1,116,300	1,775,350

* Since the year 1880 the fleet has been greatly reduced. According to an annual review of the whale fishery, published by I. H. Bartlett & Sons, of New Bedford, the fleet on January 1, 1885, numbered 93 ships and barks, 6 brigs, and 34 schooners, aggregating 31,207 tons. The San Francisco fleet has increased to 17 vessels, this port having become the headquarters of most of the North Pacific fleet. Statistics of the North Pacific fleet for each year since the beginning of the fishery are given on preceding pages.

The names and other details of each vessel in the fleet are given in Section VI of this report. The total capital invested in the whaling fleet, wharves, store-houses, and whale-oil refineries in 1880, was $4,624,650.

Statement showing the tonnage of vessels employed in the United States whale fishery from 1794 to 1884.

[Compiled from the Report of the Commissioner of Navigation for 1884. The years, excepting 1835 and 1843, which end September 30 and June 30, respectively, close with December 31.]

Year.	Tons.	Year.	Tons.	Year.	Tons.
1794	4,129	1825	35,379	1856	189,461
1795	3,103	1826	41,984	1857	195,842
1796	2,364	1827	45,992	1858	198,504
1797	1,104	1828	54,801	1859	185,728
1798	763	1829	57,284	1860	166,841
1799	5,647	1830	39,795	1861	145,734
1800	3,466	1831	82,797	1862	117,714
1801	3,085	1832	73,240	1863	99,228
1802	3,201	1833	101,636	1864	95,145
1803	12,390	1834	108,424	1865	90,516
1804	12,339	1835	97,649	1866	105,170
1805	6,015	1836	146,254	1867	92,384
1806	10,507	1837	139,157	1868	71,343
1807	9,051	1838	124,866	1869	70,202
1808	4,526	1839	132,285	1870	67,954
1809	8,777	1840	136,827	1871	61,490
1810	3,589	1841	157,405	1872	51,608
1811	5,299	1842	152,990	1873	44,755
1812	2,930	1843	152,517	1874	39,108
1813	2,942	1844	168,614	1875	38,229
1814	582	1845	190,903	1876	39,116
1815	1,330	1846	187,420	1877	40,593
1816	1,168	1847	193,859	1878	39,700
1817	5,224	1848	192,613	1879	40,028
1818	16,759	1849	190,196	1880	38,408
1819	32,386	1850	146,017	1881	38,551
1820	36,445	1851	181,644	1882	32,892
1821	27,995	1852	193,798	1883	32,414
1822	48,583	1853	193,208	1884	27,249
1823	40,503	1854	191,901		
1824	33,346	1855	186,848		

10. LIST OF WHALING VOYAGES FROM AMERICAN PORTS, 1870 TO 1880.

The following statement gives the name, rig, and tonnage of each American whaling vessel since 1870; also the whaling ground, the date of sailing and returning, and the amount of oil and bone secured by each vessel during the years 1870 to 1880. The vessels are arranged in alphabetical order by ports, and according to the year of their departure on a voyage. Vessels fitted from Stonington and New London for Antarctic fur seal and sea-elephant voyages are not included.

These returns from 1870 to 1876 are corrected from the list given by Alexander Starbuck in his History of the Whale Fishery, and for later years are compiled from the files of the Whalemen's Shipping List and the custom-house records. In the report of the U. S. Fish Commission for 1877, Starbuck gives, as far as practicable, the details of each voyage from American ports since the beginning of the fishery, and also information as to the owner and master of each vessel.

The details of voyages of vessels in the North Pacific and Hudson Bay fleets are also given above, on pages 86 to 94 and 99 to 104.

Number of vessels sent out annually since 1860.

Years.	Number of vessels.	Years.	Number of vessels.
1860	126	1870	69
1861	75	1871	66
1862	124	1872	60
1863	90	1873	37
1864	98	1874	49
1865	131	1875	75
1866	131	1876	71
1867	130	1877	70
1868	113	1878	61
1869	103	1879	54

From 1870 to 1880 the number of individual vessels that participated in the whale fishery of the United States was 326, and the number of vessels lost while on their voyages was 67. From 1860 to 1880, 1,734 voyages were undertaken: 998 to the North and South Atlantic oceans; 271 to the Pacific Ocean; 201 to the Pacific, Arctic, and adjacent waters; 147 to the Indian Ocean; 117 to Hudson Bay and Cumberland Inlet.

From 1870 to 1880 615 vessels sailed from home ports on whaling cruises. Of this number 385 were fitted for cruising in the Atlantic, 96 in the Pacific, 49 in the Indian Ocean, 52 in the North Pacific and Arctic, 18 in Hudson Bay, 12 in Cumberland Inlet, 2 at New Zealand, and 1 in Sooloo Sea. None have been fitted for the Indian Ocean since 1877. The largest number of vessels fitted in one year during this decade was 75 in 1875, and the smallest number was 37 in 1873; 63 were fitted in 1880.

Voyages of American whaling vessels, 1870 to 1880.

	Rig.	Tonnage.	Whaling ground.	Date of sailing.	Date of return.	Result of voyage. Barrels sperm oil.	Barrels whale oil.	Pounds whalebone.	Remarks.
1870.									
New Bedford, Mass.									
Addison	Bark	285	Pacific Ocean	May 29	Apr. 19, 1874	99	659	3,555	Sent home 160 sperm, 590 bone.
Adeline Gibbs	do	327	Indian Ocean	Sept. 1 Oct. 19	Sept. 26, 1876 May 22, 1875	600	200		Captain Cleaveland died, and the vessel was damaged in a gale.
Alfred Gibbs	do	347	Pacific Ocean	May 25	July 20, 1875	819	299		Sent home 567 sperm, 1,730 bone; sold to New York 1875.
Ansel Gibbs	do	362	Hudson Bay	June 21	Oct. 6, 1875		1,300	22,040	
Avola	do	230	Pacific and Ind	Dec 7	Feb. 13, 1874	986	15		Sent home 491 sperm.
Awashonks	do	380	North Pacific	Oct. 19					Lost in the Arctic 1871.
Canton	Ship	239	Indian Ocean	Oct. 19	Sept. 22, 1874	991	4		
Cicero	Bark	226	Atlantic	May 9	Oct. 24, 1873	284	85		J. F. Mandonsa, third mate, dropped dead in his boat while fast to a whale, 1870; sent home 691 sperm, 290 whale, 1,300 bone.
Commodore Morris	Ship	338	do	Apr. 27	May 24, 1873	610			Sent home 1,215 sperm.
Contest	do	341	North Pacific	July 19					Sent home 97 sperm; lost in the Arctic 1871.
Gazelle	Bark	273	Indian Ocean	Oct. 26	June 2, 1874	954			Captain Gifford died August 26, 1873, at sea; sent home 25 sperm.
Gay Head	Ship	300	North Pacific	Oct. 26					Lost in the Arctic 1871.
George Howland	Bark	361	do	Sept. 29					Do.
Hedley	do	163	Pacific Ocean	Sept. 27	July 20, 1874	247	444		
Irving	Schooner	108	Atlantic	May 28	Oct. 2, 1871		301	5,201	Withdrawn 1872.
John Carver	Bark	319	Pacific Ocean	Aug. 23	July 2, 1874	1,081	4		Robert Saulsbury, fourth mate, died at Valparaiso, May, 1873; sent home 437 sperm.
John Dawson	do	173	Indian Ocean	July 6	Oct. 7, 1872	691	4		Sent home 278 sperm, 10 whale.
Massachusetts	do	356	North Pacific	July 10					Sent home 184 sperm; lost in the Arctic 1871.
Mary and Susan	do	327	Pacific Ocean	Aug. 6	June 4, 1874	975	6		Sent home 721 sperm.
Niger	Ship	412	do	Nov. 10	Aug. 10, 1874	481	1,346		Added 1870; formerly a freighter; C. W. Swain, second mate, drowned by a foul line while fast to a whale, May 7, 1872; sent home 870 sperm, 825 whale, 2,124 bone.
Ocean Steed	Bark	258	Atlantic	May 4					Transferred from New York 1870; sent home 501 sperm; sold to San Francisco 1873.
Oriole	do	280	North Pacific	Nov. 7					Sent home 93 sperm; stove by ice in the Arctic 1871.
Orlando	do	199	Sooloo Sea	June 28	Oct. 6, 1873	1,199	1		Sent home 171 sperm; sold to Port Jefferson for freighting 1873.
Osceola, 2d	do	158	Pacific Ocean	Aug. 1					Sent home 718 sperm; condemned at Mahe October, 1872.
Pacific	do	341	Indian Ocean	Oct. 5	June 19, 1873	930	70		
Petrel	Schooner	61	Atlantic	June 1	Oct. 11, 1871	119			
Progress	Bark	358	North Pacific	Oct. 19	May 10, 1875	434	3,225		Captain Dowden left at San Francisco; Captain Eldridge, formerly of Cherokee, took command; sent home 39,836 bone.
Rainbow	do	351	Pacific Ocean	Nov. 1	Sept. 1, 1874	287	419		Mr. Garrity, fourth mate, murdered by one of the crew May, 1873; sent home 309 sperm, 807 bone.
Reindeer	Ship	332	North Pacific	Oct. 4					Sent home 154 sperm; lost in the Arctic September, 1871.
Roscoe	Bark	313	Pacific Ocean	Nov. 1					Sent home 470 sperm, 319 elephant; crushed by ice in the Arctic August 19, 1872; had 800 sperm.
Robert Edwards	Ship			May —					Burned at sea July 24, 1870; fired by the crew.
Rousseau	Bark	305	Pacific Ocean	Oct. 26	May 2, 1875	1,180	650	2,500	Captain Hyland came home sick 1871.
Stafford	do	156	Indian Ocean	Oct. 21	May 5, 1873	860	141	1,707	Sent home 242 sperm, 58 whale.
Starlight	Brig	141	Atlantic	July 0	Aug. 12, 1873	128			Sent home 630 sperm, 372 whale; sold to Bangor, Me., for the African trade, 1873.
Union	Schooner	60	do	May 21	Aug. 11, 1871	39	135		Added 1870 from Fairhaven; sent home 129 sperm.
Vigilant	Bark	215	Indian Ocean	Oct. 25	Aug. 24, 1874	902	146		Sent home 506 sperm, 1,040 whale.
Xantho	do	200	do	May 4					Sent home 230 sperm, 800 bone; lost off Celebes July, 1871.
Fairhaven, Mass.									
Ellen Rodman	Schooner	73	Atlantic	Nov. 4	Sept. 14, 1872	83			Sent home 230 sperm.
George J. Jones	do	126	do	June 7	Aug. 6, 1871	109	135		Added 1870; sent home 39 sperm.
William and Henry	Bark	234	do	May 12					Sent home 414 sperm; condemned at Fayal November, 1871.

Voyages of American whaling vessels, 1870 *to* 1880—Continued.

	Rig.	Tonnage.	Whaling ground.	Date of sailing.	Date of return.	Result of voyage. Barrels sperm oil.	Barrels whale oil.	Pounds whalebone.	Remarks.
1870.									
Marion, Mass.									
Cohannet	Schooner	83	Atlantic	May 17	Sept. 24, 1870	.....	8	.....	
William Wilson	do	92	do	May 17	Sept. 23, 1870	173	.....	.....	
Westport, Mass.									
Sea Queen	Bark	195	Pacific Ocean	Nov. 22	Apr. 15, 1873	1,251	.....	.....	
Provincetown, Mass.									
Alleghania	Schooner	70	Atlantic	Feb. 7	Sept. 9, 1870	30	15	..	Withdrawn 1871.
Antarctic	do	101	do	May 12	Sept. 6, 1871	206	50	.....	Sent home 72 sperm.
Ada M. Dyer	do	87	do	Jan. 11	Sept. 5, 1870	11	189	.....	Sent home 100 whale.
B. F. Sparks	do	92	do	Jan. 11	June 27, 1870	10	124	.....	
C. L. Sparks	do	98	do	Dec. 24	Nov. 23, 1871	149	21	.....	
Elbridge Gerry	do	71	do	Feb. 12	June 21, 1871	30	170	.....	Sent home 250 sperm, 18 whale.
Ellen Rizpah	do	6.	do	Jan. 8	Aug. 28, 1870	148	151	..	
Gage H. Phillips	do	107	do	Oct. 24	June 11, 1873	109	66	.....	Sent home 180 sperm, 352 whale, 700 hump.
Gracie M. Parker	do	83	do	Jan. 11	Sept. 1, 1872	163	187	.....	Sent home 100 whale.
Mary G. Curren	do	102	do	Jan. 29	Aug. 25, 1871	123	.....	.....	Withdrawn 1871.
M. E. Simmons	do	107	do	Apr. 23	Sept. 16, 1871	135	36	.....	Sent home 220 sperm, 200 whale.
Montezuma	do	60	do	Feb. 22	Sept. 25, 1870	73	2	.....	
O. M. Remington	do	139	do	May 16	Aug. 9, 1871	120	325	.....	Sent home 315 sperm; withdrawn 1871.
Quickstep	do	94	do	Feb. 26	Sept. 19, 1870	21	180	.....	
Rising Sun	do	69	do	Jan. 4	Sept. 1, 1870	70	130	.....	
Sassacus	do	110	do	Feb. 12	Aug. 31, 1870	65	50	.....	
S. A. Paine	do	139	do	Jan. 11	July 29, 1871	151	329	.....	Withdrawn 1871.
William A. Grozier	do	117	Atl. and Ind	Apr. 26	June 6, 1872	556	66	.....	Sent home 50 sperm.
Boston, Mass.									
F. H. Moore	Brig	107	Atlantic	Oct. —	Oct. 16, 1872	192	316	.....	Sent home 295 sperm, 323 whale.
Heman Smith	do	123	do	Dec. 7	Oct. 4, 1872	540	40	.....	
Thriver	Schooner	69	do	Jan. 3	Aug. 22, 1870	38	69	.....	Sailed again soon after, and was lost at Aux Cayes February 3, 1873; sent home 45 sperm, 150 whale.
New London, Conn.									
George and Mary	Bark	105	Cum. Inlet	May 3	Nov. 20, 1871	.....	427	5,000	Sold to New Bedford 1873.
Peru	do	250	South Atlantic	July 9	June 1, 1871	18	771	.....	Do.
S. B. Howes	Schooner	101	Hudson Bay	July 7	.....	.....	.....	.....	Lost in Cumberland Inlet 1873; sent home 400 whale.
San Francisco, Cal.									
C. E. Foote	Schooner	156	Pacific Ocean	Oct. 7	June 30, 1872	.....	263	.....	Withdrawn 1872.
Carlotta	Bark	480	do	Dec. 31	.....	.....	.....	....	Added 1870; lost in the Arctic Ocean 1871.
Massachusetts	Ship	351	do	Dec. 22	.....	.....	.....	.....	Lost at Scammon's Lagoon February 6, 1871.
Menshikoff	Bark	223	do	Dec. 10	Aug. 14, 1872	320	.....	.....	Menshikoff withdrawn 1872.
Page	Schooner	110	do	Apr. 27	—— —, 1872	.....	.....	.....	Added 1870; withdrawn 1872; no report
1871.									
New Bedford, Mass.									
A. R. Tucker	Bark	120	Indian Ocean	May 2	Oct. 18, 1874	220	.....	....	Sent home 344 sperm.
Abm. Barker	do	380	Pacific Ocean	May 16	Sept. 21, 1875	1,450	2,050	.....	
Active	do	291	North Pacific	Nov. 11	.....	.....	.....	.....	Sent home 395 sperm, 1,079 whale, 22,215, bone; condemned at Yokohama 1874.
Alaska	do	340	Pacific Ocean	June 28	Oct 4, 1875	1,850	1,700	15,500	
Annawan	do	108	Atlantic	May 22	May 16, 1873	40	108	755	Sent home 202 sperm; sold to Fairhaven 1873.
Ansel Gibbs	do	303	Hudson Bay	Dec. 13	.....	.....	.....	.....	Lost on Marble Island, Hudson Bay, October 19, 1872; had 520 whale, 16,000 bone; saved 3,500 bone. Fifteen of the crew died of scurvy.
Barth. Gosnold	do	365	North Pacific	Nov. 2	Mar. 30, 1876	950	1,200	12,500	
Benj. Cummings	do	305	Pacific Ocean	June 26	Sept. 5, 1875	1,400	.....	.....	
Callao	do	299	do	July 15	Sept. 21, 1875	410	760	.....	
Camilla	do	326	North Pacific	Dec. 6	.....	.....	.....	.....	Abandoned in the Arctic 1876; had on board 190 sperm, 800 whale, 5,000 bone; sent home 75 sperm, 2,850 whale, 45,778 bone.

Voyages of American whaling vessels, 1870 to 1880—Continued.

	Rig.	Tonnage.	Whaling ground.	Date of sailing.	Date of return.	Result of voyage. Barrels sperm oil.	Barrels whale oil.	Pounds whalebone.	Remarks.
1871.									
New Bedford, Mass.—Continued.									
Charles W. Morgan	Bark	314	Indian Ocean	Sept. 29	Oct. 31, 1874	1,340	242	.....	Sent home 109 sperm, 1,600 pounds bone.
Cornelia	...do	203	Pacific Ocean	Oct. 10	.....	.....	.....	.....	Condemned at Paita, March, 1873; sent home 278 sperm, 408 humpback.
Courier	...do	259	...do	July 19	.....	.....	.....	.....	Run down by steamship Ytata October 26, 1873; abandoned with 200 sperm, 350 whale; sent home 170 sperm, 320 whale.
Emma C. Jones	Ship	307	...do	July 11	Nov. 6, 1874	2,137	3	.....	Sent home 415 sperm.
Europa	...do	323	North Pacific	Dec. 14	Apr. 17, 1876	50	4,290	32,386	Belongs to Dartmouth parties.
George and Susan	Bark	343	Atlantic	Aug. 21	May 2, 1874	647	1,019	.....	Sent home 572 sperm, 141 whale, 540 bone.
Glacier	...do	195	Cum. Inlet	July 9	Sept. 26, 1873	.....	75	1,600	Sold to Wiscasset, Me., 1873.
Helen Mar	...do	324	North Pacific	Sept. 26	Apr. 15, 1875	340	3,850	36,085	
Helen Snow	...do	215	Pacific Ocean	Oct. 17	.....	.....	.....	.....	Sent home 169 sperm; damaged by ice in the Arctic, August 19, 1872, and abandoned; afterward found, taken into San Francisco, and sold to pay salvage; sailed one voyage from San Francisco then under Russian flag.
Hercules	...do	311	Indian Ocean	Aug. 23	Aug. 4, 1875	1,410	965	.....	
Hunter	...do	355	Pacific Ocean	Sept. 27	July 14, 1875	2,700	1,100	.....	
Islander	...do	240	Indian Ocean	July 25	.....	.....	.....	.....	Sent home 695 sperm; sold at Albany, New Holland, March, 1873.
Jireh Perry	Ship	316	North Pacific	Dec. 21	Apr. 1, 1875	715	4,556	72,000	
John P. West	Bark	353	Indian Ocean	Sept. 9	Oct. 3, 1874	402	1,752	7,400	Sent home 37 sperm, 4,700 pounds bone.
Josephine	Ship	363	North Pacific	Sept. 26	May 22, 1875	540	4,175	53,900	
Kathleen	Bark	296	Indian Ocean	Oct. 16	Apr. 30, 1875	1,450	.....	.....	
Laconia	...do	158	Atlantic	June 20	Nov. 3, 1872	101	1	.....	Sent home 95 sperm.
Marengo	Ship	478	North Pacific	June 27	.....	.....	.....	.....	Sent home 230 sperm, 2,302 whale, 29,300 pounds bone; sold at San Francisco 1874; lost in the Arctic 1876.
Mary Frazier	Bark	301	Pacific Ocean	Nov. 7	Aug. 25, 1876	770	1,500	1,200	Sold to Edgartown 1876.
Milwood	...do	216	Cum. Inlet	Apr. 25	.....	.....	.....	.....	Sent home 20 sperm; lost on Black Lead Island, November 13, 1871; saved 140 whale; built in 1806.
Northern Light	...do	385	North Pacific	Oct. 10	May 17, 1880	350	1,150	.....	Sent home 530 sperm, 7,200 whale, 71,318 bone, 15,353 ivory.
Osmanli	...do	292	Indian Ocean	Oct. 4	June 15, 1875	535	1,235	.....	
Ospray	...do	173	Pacific Ocean	July 27	July 13, 1874	.....	156	.....	Sent home 655 sperm, 465 humpback.
Petrel	...do	257	Indian Ocean	July 20	May 1, 1874	1,338	69	400	Sent home 74 sperm.
Petrel	Schooner	61	Atlantic	Dec. 30	Sept. 1, 1872	11	12	.....	
Sarah	Bark	128	...do	May 24	May 12, 1873	185	311	.....	Sent home 696 sperm, 208 whale, 1,000 bone.
Sea Breeze	...do	323	North Pacific	Aug. 3	May 16, 1875	60	940	8,300	
Sunbeam	...do	255	Indian Ocean	Dec. 4	Dec. 6, 1875	560	.....	.....	
Trident	...do	422	North Pacific	Sept. 6	.....	.....	.....	.....	Sent home 397 sperm, 1,649 whale, 21,000 pounds bone; lost at Panama 1873.
Wave	...do	150	Atlantic	May 9	July 21, 1873	336	.....	.....	Sent home 416 sperm, 7 whale.
Young Phœnix	Ship	355	Indian Ocean	Oct. 3	June 14, 1875	340	400	1,000	Sailed under Capt. Silas G. Baker, who came home 1871.
Fairhaven, Mass.									
General Scott	Bark	315	Pacific Ocean	June 20	Apr. 1, 1875	650	650	.....	
Marion, Mass.									
Cohannet	Schooner	83	Atlantic	June 13	Sept. 17, 1871	150	.....	.....	
William Wilson	...do	92	...do	May 24	Sept. 13, 1871	175	.....	.....	
Westport, Mass.									
Mattapoisett	Bark	110	Atlantic	June 21	Sept. 1, 1872	438	88	.....	Sent home 115 sperm.
Platina	...do	214	Pacific Ocean	Nov. 6	June 26, 1875	1,805	865	.....	
Sea Fox	...do	166	Indian Ocean	Apr. 18	June 5, 1874	255	287	.....	Mr. Crocker, first mate, killed by a whale, December 12, 1873.
Edgartown, Mass.									
Clarice	Bark	183	Atlantic	Oct. 5	Sept. 4, 1875	1,040	.....	.....	Stocked $60,000; $15,000 profit.
Provincetown, Mass.									
Agate	Schooner	81	Atlantic	Jan. —	Sept. 24, 1871	106	100	.....	
Arizona	...do	79	...do	Jan. —	Aug. 30, 1871	.....	70	.....	

Voyages of American whaling vessels, 1870 *to* 1880—Continued.

	Rig.	Tonnage.	Whaling ground.	Date of sailing.	Date of return.	Result of voyage. Barrels sperm oil.	Barrels whale oil.	Pounds whalebone.	Remarks.
1871.									
Provincetown, Mass.—Continued.									
Ada M. Dyer	Schooner	87	Atlantic	Feb. 20	Sept. 11, 1871	42	210	.....	
B. F. Sparks	...do	92	...do	*Jan. —*	*Sept. 29, 1871*	*215*	*188*	.....	
D. A. Small	Brig	119	...do	Jan. 4	June 11, 1873	188	235	570	Sent home 160 sperm, 425 whale.
Ellen Hizpah	Schooner	67	...do	Feb. —	Sept. 8, 1871	78	61	.....	
Gracie M. Parker	...do	82	...do	Feb. 20	Sept. 7, 1871	75	240	.....	
Montezuma	...do	60	...do	Feb. 17	Aug. 30, 1871	60	25	.....	Towed into Vineyard Haven; dismantled in a gale, August 16.
Quickstep	...do	94	...do	Apr. —	Sept. 2, 1872	95	6	.....	Sent home 206 sperm.
Rising Sun	...do	69	...do	Mar. 23	Nov. 23, 1871	70	10	.....	
Boston, Mass.									
Rosa Baker	Brig	108	Atlantic	Nov. 28	Apr. 13, 1874	71	5	.....	Sent home 605 sperm.
Sarah E. Lewis	Schooner	98	...do	.....	Sept. 11, 1872	100	158	.....	
Beverly, Mass.									
Eschol	Brig	143	Atlantic	May 20	Aug. 14, 1872	150	.....	.....	Sent home 149 sperm.
New London, Conn.									
Concordia	Bark	217	Cum. Inlet	Apr. 25	Nov. 9, 1871	.....	.....	.....	Nothing but freight; broken up, 1873.
Isabella	Brig	192	...do	May 31	Oct. 28, 1872	.....	228	.....	
Sag Harbor, N. Y.									
Myra	Brig	116	Atlantic	July 17	.....	.....	.....	.....	Sent home 430 sperm, 590 whale, 700 pounds bone; condemned at Barbadoes, December 14, 1874; Sag Harbor's last whaler.
San Francisco, Cal.									
Mannella	Brig	128	Pacific Ocean	Feb. 4	.....	.....	.....	.....	No report; lost at Scammon's Lagoon, Lower California.
1872.									
New Bedford, Mass.									
Abbie Bradford	Schooner	115	Hudson Bay	May 28	Sept. 7, 1873	.....	878	13,181	
Arnolda	Bark	340	North Pacific	Jan. 2	May 1, 1876	620	1,175	16,200	
Atlantic	...do	291	Pacific Ocean	June 25	June 8, 1876	670	540	.....	
California	Ship	367	New Zealand	Aug. 7	Aug. 17, 1876	2,600	200	1,500	
China	Bark	367	Indian Ocean	June 5	.....	.....	.....	.....	Sent home 428 sperm, 1,170 whale, 8,000 bone; condemned.
Coral	...do	361	Pacific Ocean	Dec. 4	Mar. 5, 1877	630	1,320	12,000	Arrived at San Francisco.
Draco	...do	258	Atlantic	May 1	May 1, 1875	1,390	450	....	
Eliza Adams	Ship	408	Pacific Ocean	June 10	July 26, 1876	2,215	185	1,100	Mr. Severino, second mate, died March, 1875
E. H. Adams	Brig	107	Atlantic	June 18	*Aug. 10, 1874*	*225*	.....	.....	*Sent home 272 sperm.*
Falcon	Bark	285	...do	May 14	Aug. 5, 1875	1,205	360	....	
Illinois	...do	409	North Pacific	Jan. 9	.....	.....	.....	.....	Added 1871; collided with the Marengo and sunk in the Arctic April 18, 1876; sent home 587 whale, 26,590 bone.
James Allen	...do	349	...do	Jan. 3	.....	.....	.....	....	First mate John N. Norton and boat's crew lost 1874, *taken down by a whale*; abandoned in the Arctic 1876; sent home 150 sperm, 5,100 whale, 79,500 bone; had 1,600 whale, 10,000 bone on board.
Janus	Ship	276	Atlantic	May 28	May 21, 1875	1,650	1,150	3,572	
Java	Bark	309	North Pacific	Oct. 3	.....	.....	.....	.....	Captain Kelley came home sick 1875; had taken at last report (1877) 330 sperm, 3,200 whale, 32,930 bone; lost in Arctic 1877.
Java, 2d	...do	290	...do	Oct. 2	.....	.....	.....	.....	Abandoned in the Arctic 1876; had 800 whale, 3,000 bone; sent home 520 sperm, 2,050 whale, 20,000 bone.
John Dawson	...do	172	Indian Ocean	Nov. 26	Sept. 14, 1875	1,000	10	.....	
John Howland	...do	377	...do	June 4	May 27, 1877	1,150	2,000	.....	
Joseph Maxwell	...do	363	North Pacific	Jan. 10	.....	.....	....	.....	Sent home 1,203 whale, 24,000 bone; condemned and sold at Honolulu December 2, 1874.
Lætitia	...do	208	Atlantic	July 18	Aug. 18, 1875	1,500	.....	.....	

Voyages of American whaling vessels, 1870 *to* 1880—Continued.

	Rig.	Tonnage.	Whaling ground.	Date of sailing.	Date of return.	Result of voyage. Barrels sperm oil.	Barrels whale oil.	Pounds whalebone.	Remarks.
1872.									
New Bedford, Mass.—Continued.									
Martha	Bark	235	Pacific Ocean	Oct. 5					Condemned at Bay of Islands November 20, 1874; sent home 494 sperm, 365 whale.
Merlin	do	246	New Zealand	July 2	June 19, 1876	1,920			
Mt. Wollaston	do	325	North Pacific	July 9					Lost in Arctic 1879; 2,850 whale; 20,000 bone.
Ohio	do	295	Atlantic	May 28	Oct. 19, 1875	1,600	60	533	
Onward	do	339	Pacific Ocean	June 25					Abandoned in the Arctic 1876; had 1,400 whale, 14,000 bone; sent home 645 sperm, 856 whale, 47,200 bone.
Orray Taft	do	134	Hudson Bay	July 2					Lost on Marble Island (Hudson Bay) September 14, 1872.
Palmetto	do	215	Atlantic	Oct. 2	Sept. 4, 1875	1,350			
Petrel	Schooner	61	do	Oct. 21	July 22, 1873		Clean		
President, 2d	Bark	123	do	May 3	Sept. 20, 1874	499	18		Sent home 540 sperm, 10 blackfish.
Seine	do	234	Pacific Ocean	June 3	July 1, 1875	1,610			
Spartan	do	294	Atlantic	May 22	May 5, 1873	705			
St. George	Ship	392	North Pacific	June 4					Abandoned in the Arctic 1876; had 1,400 whale, 1,800 bone; sent home 295 sperm, 4,100 whale, 30,390 bone.
Triton	Bark	204	do	Jan. 8	June 6, 1876	255	2,700	43,600	
Union	Schooner	66	Atlantic	May 13	Sept. 21, 1872	87			
Fairhaven, Mass.									
Ellen Rodman	Schooner	73	Atlantic	Oct. 9	Sept. 1, 1873	73			
Geo. J. Jones	Brig	128	do	May 28					Sent home 278 sperm; condemned at Barbadoes April, 1873.
Marion, Mass.									
Admiral Blake	Schooner	84	Atlantic	May 22	Sept. 22, 1873	24	11		Added 1872.
Cohannet	do	83	do	Jan. 30 Dec. 4	Aug. 31, 1872 Sept. —, 1873	260 158	20 2		Sold to Fairhaven 1874.
Wm. Wilson	do	92	do	May 27	June 15, 1873	22	5	285	Sent home 200 sperm.
Dartmouth, Mass.									
Cape Horn Pigeon	Bark	212	Pacific Ocean	Aug. 8	May 11, 1876	1,070	3,200		
Westport, Mass.									
A. Hicks	Bark	303	Atlantic	July 23	Sept. 14, 1876	1,760			E. N. Briggs, first mate, drowned by a foul line 1872.
Greyhound	do	163	Indian Ocean	June 25	Oct. 18, 1875	1,620	500		
Provincetown, Mass.									
Agate	Schooner	81	Atlantic	Jan. 31	Sept. 2, 1872	93	221		
Alcyone	do	92	do	Feb. 22	Oct. 7, 1872	101	230		
Antarctic	do	101	do	Apr. 23	Sept. 14, 1872	128	28		
Arizona	do	79	do	Jan. 25	Sept. 6, 1872		221		
Ada M. Dyer	do	87	do	Jan. 25	Sept. 13, 1872	57	190		Withdrawn 1872.
B. F. Sparks	do	92	do	Feb. 7	Sept. 25, 1872	75	254		
C. L. Sparks	do	96	do	May 6	Aug. 28, 1873	107	169	1,438	Sent home 175 sperm.
E. H. Hatfield	do	89	do	Apr. 11	Oct. 5, 1872	143			Replaced 1872; sailed again in 1872, arrived September 16, 1873; 137 sperm.
Elbridge Gerry	do	71	do	Mar. 18	Sept. 25, 1872	47	72		Returned 1872.
Ellen Rispah	do	67	do	Feb. 22	July 16, 1872	112	214		
Gracie M. Parker	do	82	do	Jan. 25	Aug. 7, 1872	105	323		
John Atwood	do		Hudson Bay	May 29	Oct. 8, 1872		180	2,128	Formerly a freighter; added 1872; withdrawn 1872.
M. E. Simmons	do	105	Atlantic	Feb. 22	Sept. 1, 1873	163	156		Sent home 150 sperm, 250 whale.
Montezuma	do	60	do	June 13	Sept. 18, 1873	85	3		Sent home 105 whale; withdrawn 1874.
N. J. Knights	do	70	do	Feb. 29	Sept. 14, 1872	50	15		Returned 1872.
Rising Sun	do	69	do	Jan. 30	Sept. 21, 1872	58	80		
New London, Conn.									
Acors Barns	Bark	396	North Pacific	Jan. 16	—— —, 1874	35	130	22,740	Sold at San Francisco to New Bedford 1875.
Nile	Ship	279	Atlantic	Sept. 8	May 5, 1873	76	203		

Voyages of American whaling vessels, 1870 *to* 1880—Continued.

	Rig.	Tonnage.	Whaling ground.	Date of sailing.	Date of return.	Result of voyage.			Remarks.
						Barrels sperm oil.	Barrels whale oil.	Pounds whale bone.	
1873.									
New Bedford, Mass.									
Annawan	Bark								Lost near Bermuda July 8, 1873; five men lost.
Com. Morris	do	338	Atlantic	July 20	Sept. 24, 1876	2,930			
Desdemona	do	236	do	June 8	Apr. 29, 1876	1,600	875		
Edward Everett	do	187	do	July 21	Aug. 12, 1875	890	23		
Lagoda	do	371	Pacific Ocean	July 21	Oct. 5, 1877	3,330	2,700	14,500	
Marcella	do	166	Indian Ocean	Nov. 11	May 2, 1876	1,050			
Mercury	do	311	do	May 13	Nov. 6, 1876	1,260	500	1,200	
Milton	Ship	373	Pacific Ocean	Oct. 8	Oct. 24, 1876	2,360	290	1,363	
Morning Star	Bark	238	do	Nov. 13	June 28, 1878	1,910			
Pacific	do	341	Atlantic	Oct. 1	Nov. 5, 1876	1,670			
Pioneer	do	228	do	July 8	Sept. 20, 1874	851			
Sarah	do	128	do	Aug. 5	May 2, 1876	1,035	780		
Stafford	do	156	Indian Ocean	June 30	May 24, 1876	880	230		
Tamerlane	do	372	Atlantic	Aug. 6	Aug. 5, 1877	1,450	300	2,000	
Union	Schooner	66	do	Apr. 10	Sept. 26, 1873	170			
Dartmouth, Mass.									
Matilda Sears	Bark	231	Pacific Ocean	July 22	July 16, 1877	820	670		
Westport, Mass.									
Mattapoisett	Bark	110	Atlantic	June 10	Sept. 21, 1874	337			Sent home 102 sperm.
Mermaid	do	273	Indian Ocean	Aug. 28	Apr. 16, 1876	1,825			
Sea Queen	do	195	do	June 20	Aug. 20, 1875	1,210	80		
Provincetown, Mass.									
Agate	Schooner	81	Atlantic	Feb. 5	Sept. 15, 1873	37	55		
Alcyone	do	92	do	Feb. 20	Sept. 24, 1873	171	158		
Antarctic	do	161	do	Feb. 20	Sept. 16, 1873	117	45		
Arizona	do	79	do	Feb. 20	Sept. 9, 1873	125	258		
B. F. Sparks	do	92	do	Feb. 20	Sept. 26, 1873	357			
E. H. Hatfield	do	89	do	Dec. 30	Sept. 13, 1874	242			Sailed again in 1873 or 1874, arrived September 7, 1875, with 250 sperm.
Elbridge Gerry	do	71	do	Feb. 20	Sept. 10, 1873	121	191		Withdrawn 1874.
Ellen Rispah	do	67	do	Feb. 20	Aug. 12, 1873	105	207		
Gracie M. Parker	do	82	do	Feb. 20	Sept. 2, 1873	138	202		
N. J. Knights	do	70	do	Feb. 20	Sept. 14, 1873	32	210		
Quickstep	do	94	do	May 5	Aug. 20, 1874	175	22		Sent home 63 sperm.
Rising Sun	do	69	do	Feb. 20	Aug. 30, 1874	123	245	1,486	
Sassacus	do	110							Sassacus lost at Cape Negro (Nova Scotia), August 24, 1873.
Wm. A. Grozier	do	117	do	May 12	Aug. 17, 1874	487			Replaced 1873; sent home 180 sperm.
Boston, Mass.									
F. H. Moore	Brig	107	Atlantic	May —	Aug. 6, 1875	625			
Heman Smith	do	123	do	May 29	Sept. 24, 1874	187	11		Sent home 290 sperm.
Sarah E. Lewis	Schooner	96	do	May 14	Sept. 17, 1874	222	5		Sent home 151 sperm.
Beverly, Mass.									
Eschol	Brig	143	Atlantic	May 20					Condemned at Barbadoes 1874; Beverly's last whaler
New London, Conn.									
Isabella	Brig	193	Cum. Inlet	June 26	Sept. 2, 1873		Clean		
San Francisco, Cal.									
Florence	Bark	245	Pacific Ocean	Dec. 24	Nov. 12, 1874	80	260		Added 1872.

Voyages of American whaling vessels, 1870 *to* 1880—Continued.

	Rig.	Tonnage.	Whaling ground.	Date of sailing.	Date of return.	Result of voyage. Barrels sperm oil.	Barrels whale oil.	Pounds whalebone.	Remarks.
1874.									
New Bedford, Mass.									
A. R. Tucker	Bark	129	Atlantic	Nov. 26	Oct. 25, 1876	800			
Abbie Bradford	Schooner	115	Hudson Bay	May 12	Sept. 14, 1875	60	650	12,000	First mate and boat's crew lost in the ice September 5, 1874.
Avola	Bark	250	Indian Ocean	July 16					Nine hundred sperm to March 5, 1877, when she was condemned at Mahe.
Canton	do	239	do	Dec. 8	July 9, 1878	1,530	45		
Cicero	do	226	Atlantic	May 9	Dec. 6, 1875	250	300		
Cornelius Howland	Ship	333	North Pacific	Aug. 4					Abandoned in the Arctic 1876; had 1,400 whale, 8,000 bone; sent home 600 sperm, 1,220 whale, 10,000 bone.
Eliza	Bark	296	do	May 28	Out, 1880				October 25, 1880, had taken 486 sperm, 4,175 whale, 43,800 bone.
E. H. Adams	Brig	107	Atlantic	Oct. 1	Aug. 15, 1876	330	10		
George and Susan	Bark	343	do	Sept. 17	June 12, 1877	1,310	1,260		
Hadley	do	163	do	Oct. 29	July 25, 1877	910	36		
Janet	do	154			Nov. 27, 1874	172			Bought from Westport 1874.
James Arnold	Ship	346	Pacific Ocean	June 3	June 14, 1876	1,840	650	2,000	
Louisa	Bark	303	Atlantic	Aug. 11	May 3, 1878	1,000	1,700	1,400	
Lydia	do	329	Pacific Ocean	June 18	Oct. 24, 1877	1,380			Forty-seven pounds ambergris.
Mars	do	256	do	July 1	June 17, 1878	1,800	70		
Mary and Susan	do	327	do	Aug. 11	June 5, 1877	2,000			
Mattapoisett	do	110	Atlantic	Oct. 14	July 3, 1876	400	200		Bought from Westport 1874.
Napoleon	do	322	do	July 13	May 4, 1878	1,640	17		
Nautilus	do	277	Pacific Ocean	Aug. 14	Apr. 22, 1877	1,900			
Niger	Ship	412	do	Oct. 17	May 29, 1878	2,000	550	3,300	
Ocean	Bark	288	Atlantic	July 21	June 12, 1878	2,280	630	1,200	
Ospray	do	179	do	Nov. 10	Oct. 26, 1876	880			
Petrel	do	257	Indian Ocean	July 7	May 20, 1877	1,050	200	1,629	
Petrel	Schooner	61	Atlantic	May 9	Sept. 7, 1875	125			
President	Bark	257	Hudson Bay	June 9	Sept. 16, 1875		500	8,000	
Sea Ranger	do	273	Atlantic	July 1	Sept. 27, 1875	1,650			
Stamboul	do	260	Pacific Ocean	May 27	Sept. 22, 1877	1,520			T. F. Morse, third mate, killed by a whale June, 1874.
Union	Schooner	68	Atlantic	May 19	May 9, 1875	180	10		
Vigilant	Bark	215	Pacific Ocean	Nov. 3	June 24, 1878	1,410	475		
Wave	do	156	Atlantic	May 19	Oct. 5, 1876	750			
Fairhaven, Mass.									
Ella Rodman	Schooner	73	Atlantic	Apr. 21 Sept. 21	Sept. 3, 1874 Sept. 17, 1875	85 170	 190		
Marion, Mass.									
Adm'l Blake	Schooner	84	Atlantic	May 22 Oct. 27	Oct. 6, 1874 Apr. 17, 1875	78 85	 5		
William Wilson	do	92	do	June 11 Dec. 2	Oct. 9, 1874 Sept. 16, 1875	188 185	 35		
Edgartown, Mass.									
Perry	Bark	150	Atlantic	Aug. 12	Oct. 12, 1877	810			Bought from New London 1874.
Provincetown, Mass.									
Agate	Schooner	81	Atlantic	Feb. 12	Sept. 24, 1874	134	150		
Alcyone	do	92	do	Jan. 24	Sept. 10, 1874		275		
Antarctic	do	101	do	Mar. 30	Oct. 7, 1874	315			
Arizona	do	79	do	Feb. 28	Sept. 10, 1874	100	101		
B. F. Sparks	do	92	do	June 22	Aug. 9, 1875	285	140		
Charles Thompson	do	152	do	May 28	Oct. 14, 1874	34	6		Added 1874; sent home 145 sperm, 20 whale; sailed again 1874 or 1875; returned September 21, 1875, with 315 sperm, 10 whale.
C. L. Sparks	do	98	do	Apr. 14	Sept. 15, 1875	230	100		
Ellen Rispah	do	67	do	Feb. 28	Aug. 20, 1874	114	197		
Gracie M. Parker	do	82	do	Mar. 2	Sept. 13, 1874	148	222		
M. E. Simmons	do	105	do	Mar. 2	Sept. 6, 1874	19	290		

Voyages of American whaling vessels, 1870 to 1880—Continued.

	Rig.	Tonnage.	Whaling ground.	Date of sailing.	Date of return.	Result of voyage. Barrels sperm oil.	Barrels whale oil.	Pounds whalebone.	Remarks.
1874.									
Provincetown, Mass.—Continued.									
N. J. Knights	Schooner	70	Atlantic	Feb. 12	Sept. 9, 1874	92	63	.....	
Rising Sun	...do	69	...do	Feb. —	Sept. 19, 1874	140	210	.....	
Boston, Mass.									
E. B. Phillips	Bark	144	Atlantic	July 28	July 30, 1876	450	.....	.....	Added 1874 from New London.
Rosa Baker	Brig	108	...do	May 22	May 2, 1875	270	15	.....	
Wm. Martin	Schooner	92	...do	June 5 Nov. 13	Oct. 4, 1874 Sept. 21, 1875	56 320	.....	.....	Added 1874.
New London, Conn.									
Nile	Ship	293	Cum. Inlet	June 15	Dec. 9, 1874	.....	800	8,000	
New York, N. Y.									
Oak	Bark	152	Pacific Ocean	Dec. 22	Out, 1878	.....	.....	.....	Had taken at last report, November 30, 1879, 475 sperm, 2,025 whale.
1875.									
New Bedford, Mass.									
Abm. Barker	Bark	380	Pacific Ocean	Oct. 28	Oct, 1880	.....	.....	.....	Had at last report, November 4, 1880, 1,080 sperm, 2,920 whale, 39,000 bone.
Abbott Lawrence	Brig	160	Atlantic	Apr. 20	Nov. 5, 1877	505	.....	.....	Bought from Fairhaven 1874.
Acors Barns	Bark	296	North Pacific	Mar. 27	.....	.....	.....	.....	Bought from New London 1875; abandoned in the Arctic 1876; sent home 130 sperm, 1,650 whale, 13,450 bone; had on board 900 bone.
Adeline Gibbs	...do	327	Atlantic	Aug. 9	Apr. 3, 1878	900	1,300	.....	One hundred and thirty-two pounds ambergris.
Benj. Cummings	...do	305	Pacific Ocean	Nov. 17	.....	.....	.....	.....	Lost on the island of Fogo December 20, 1875.
Callao	...do	299	Indian Ocean	Nov. 30	.....	.....	.....	.....	Condemned at Mauritius October 27, 1878; had taken 775 sperm.
Catalpa	...do	202	Atlantic	Apr. 29	Aug. 24, 1876	250	.....	.....	Returned to whaling; fitted ostensibly for whaling, but was owned by parties who dispatched her to Australia, where she rescued the Fenian prisoners.
Charles W. Morgan	...do	314	...do	Apr. 23	May 17, 1878	850	90	.....	
Draco	...do	258	...do	July 1	June 8, 1878	600	1,300	1,200	
Edward Everett	...do	187	.....	Oct. 5	.....	.....	.....	.....	Lost in a gale five days out.
Emma C. Jones	Ship	307	Pacific Ocean	June 1	July 21, 1879	2,200	.....	.....	
Falcon	Bark	285	...do	Oct. 26	Apr. 21, 1879	1,400	175	.....	
Gazelle	...do	273	...do	June 29	Apr. 22, 1879	1,300	470	720	
General Scott	...do	315	Indian Ocean	July 7	May 27, 1878	980	60	.....	
George and Mary	...do	105	Atlantic	May 4	May 13, 1877	365	.....	.....	Bought from New London 1874.
Golden City	Schooner	89	...do	Dec. 9	Sept. 29, 1876	440	40	.....	Bought from Boston.
Greyhound	Bark	163	Indian Ocean	Nov. 30	Nov. 11, 1878	800	140	1,000	
Hercules	...do	311	...do	Oct. 19	Sept. 17, 1879	1,500	.....	.....	
Hope On	...do	191	Atlantic	Nov. 24	Nov. 17, 1878	750	1,000	2,000	Formerly a schooner; added from Boston and rerigged.
Hunter	...do	355	Pacific Ocean	Sept. 29	Out, 1880	.....	.....	.....	Had taken at last report, October 30, 1880, at San Francisco, 900 sperm, 3,650 whale, 15,500 bone.
Janet	...do	154	Atlantic	Apr. 14	Nov. 4, 1876	750	.....	.....	
Janus	...do	276	...do	July 20	Jan. 1, 1877	580	3,200	.....	
Jireh Perry	Ship	316	Indian Ocean	Sept. 27	July 3, 1879	2,150	.....	.....	
John Carver	Bark	319	Pacific Ocean	June 1	May 18, 1879	872	65	.....	Captain Dean died of heart disease July 28, 1876.
John Dawson	...do	173	Indian Ocean	Nov. 25	Aug. 19, 1878	490	.....	.....	
John P. West	...do	353	Pacific Ocean	May 4	July 9, 1878	2,250	.....	.....	
Josephine	...do	383	North Pacific	Aug. 24	.....	.....	.....	.....	Abandoned in the Arctic 1876; had 1,400 whale, 10,000 bone; sent home 190 sperm.
Kathleen	...do	206	Indian Ocean	July 19	May 6, 1879	1,560	70	.....	
Laetitia	...do	208	...do	Oct. 11	.....	920	.....	.....	Condemned 1879; sent home 670 sperm.
Lancer	...do	295	Atlantic	June 15	Sept. 13, 1877	.....	.....	.....	
Linda Stewart	...do	336	...do	July 7	Oct. 30, 1877	1,105	.....	.....	

Voyages of American whaling vessels, 1870 *to* 1880—Continued.

	Rig.	Tonnage.	Whaling ground.	Date of sailing.	Date of return.	Result of voyage. Barrels sperm oil.	Barrels whale oil.	Pounds whalebone.	Remarks.
1875.									
New Bedford, Mass.—Continued.									
Midas	Bark	319	Atlantic	Oct. 26					Condemned at Flores October, 1878; 700 sperm.
Norman	do	316	North Pacific	Oct. 9	Out, 1880				November 4, 1880; 600 sperm, 5,850 whale, 52,000 bone.
Ohio 2d	do	363	Atlantic	July 6	Oct. 18, 1878	1,800			
Osmanli	do	292	Pacific Ocean	July 26					Had taken at last report 210 sperm, 370 whale, 1,800 bone; lost off Altata March 8, 1878; value, $32,000.
Palmetto	do	215	Atlantic	Nov. 24	June 17, 1879	1,400	150	1,200	
Peru	do	259	do	Apr. 15	Aug. 5, 1878	940			Bought from New London 1874.
Pioneer	do	228	do	Apr. 10	June 13, 1877	975	3		
Petrel	Schooner	61	do		Sept. 16, 1876	120			
Platina	Bark	214	Indian Ocean	Oct. 28	Apr. 30, 1879	1,250			
President	do	257	Atlantic	Nov. 17	June 14, 1876	60			
President 2d	do	123	do	Apr. 29	July 5, 1877	900			Returned leaking.
Rainbow	do	351	North Pacific	Jan. 21	Out, 1880				At San Francisco October 30, 1880, 445 sperm, 8,950 whale, 86,000 bone.
Rousseau	do	305	Atlantic	July 14	Oct. 7, 1878	700	910		
Sappho	do	263	do	Dec. 1	May 14, 1879	1,490			
Sarah B. Hale	do	183	do	Apr. 27	Aug. 22, 1877	680			Bought from Portland, Me., 1874.
Sea Breeze	do	323	Pacific Ocean	Oct. 2	Out, 1880				Sold to San Francisco October, 1880; had taken 530 sperm, 5,975 whale, 49,500 bone.
Sea Fox	do	166	do	June 1	July 9, 1878	1,425	75		Bought from Westport 1874.
Seine	do	234	Atlantic	July 30	Oct. 22, 1876	575	25		
Spartan	do	294	do	May 12					Condemned at St. Michael's November 6, 1876; sent home 380 sperm.
Three Brothers	do	357	North Pacific	Oct. 12					Lost in Arctic 1877. Had taken 30 sperm, 2,313 whale, 14,920 bone, 2 casks ivory; value, $40,000.
Union	Schooner	66	Atlantic	June 8	Sept. 12, 1876	67	7		
Young Phœnix	Ship	355	Indian Ocean	July 8	Oct. 1, 1878	825	900	3,000	
Fairhaven, Mass.									
Cohannet	Schooner	33	Atlantic	May 1	Nov. 16, 1875	14			Bought from Marion 1874.
Marion, Mass.									
Admiral Blake	Schooner	84	Atlantic	May 26	Oct. 4, 1875	195	10		Sailed again in 1875; arrived March 31, 1876, with 80 sperm, 20 whale.
Westport, Mass.									
Sea Queen	Bark	196	Atlantic	Oct. 25	May 17, 1879	955			
Edgartown, Mass.									
Clarice	Bark	183	Atlantic	Nov. 3	Sept. 14, 1878	914	5		
Provincetown, Mass.									
Agate	Schooner	81	Atlantic	Mar. 25	Aug. 2, 1876	310	100		
Alcyone	do	92	do	Apr. 10	Oct. 4, 1875	200			
Antarctic	do	101	do	Mar. 12	Oct. 21, 1875	100			
Arizona	do	92	do	Mar. 19	Sept. 22, 1875	160			
D. A. Small	Brig	119	do	Mar. 25	Aug. 16, 1876	300			Returned to whaling 1875
Edward Lee	Schooner	110		Mar. 11	Sept. 27, 1875	90			Bought from Newburyport 1874.
E. H. Hatfield	do	89	Atlantic	Jan. 23	Sept. 4, 1876	190			
Ellen Rizpah	do	67	do	Mar. 19	Sept. 21, 1875		220		
Gage H. Phillips	do	107	do	Jan. 8	Sept. 7, 1875		450		Resumed 1875; sailed again on December 15, and arrived September, 1877; 515 sperm.
Lottie E. Cook	do	82	do	Mar. 19	Sept. 21, 1875	20	190		Bought 1874.
M. E. Simmons	do	105	do	Mar. 30	Sept. 26, 1875	170			
Quickstep	do	94	do	Jan. 22 Dec. 18	Sept. 24, 1875 Sept. 22, 1876	100 175	 15		
Rising Sun	do	89	do	Mar. 27	Sept. 22, 1875	159	60		
Wm. A. Grozier	do	177	do	Mar. 25	Aug. 20, 1876	680	30		

Voyages of American whaling vessels, 1870 to 1880—Continued.

	Rig.	Tonnage.	Whaling ground.	Date of sailing.	Date of return.	Result of voyage. Barrels sperm oil.	Barrels whale oil.	Pounds whalebone.	Remarks.
1875.									
Boston, Mass.									
F. H. Moore	Brig	107	Atlantic	Oct. 12	Aug. 19, 1877	690	19	.....	
Louisa A	Schooner	122	do	..... / Dec. 1	Sept. 23, 1875 / Oct. 4, 1876	160 / 290	..... /	..... /	Replaced 1875.
Rosa Baker	Brig	108	do	June 22	Sept. 14, 1876	450	.....	.....	
Sarah E. Lewis	Schooner	96	do	Oct. 11	Sept. 22, 1876	135	.....	.....	
New London, Conn.									
Isabella	Brig	192	Cum. Inlet	June 8	Aug. 27, 1877	.....	400	4,000	Transferred to New Brunswick 1878.
Nile	Ship	293	do	May 4	Jan. 11, 1876	.....	380	5,000	
San Francisco, Cal.									
Florence	Bark	245	Pacific Ocean.	Mar. 31	Nov. 3, 1875	.....	1,250	.....	
1876.									
New Bedford, Mass.									
Abbie Bradford	Schooner	115	Atlantic	May 4	Sept. 24, 1877	.....	750	10,000	
A. Houghton	Bark	219	Hudson's Bay.	May 23	.....	.....	.....	.....	Lost in Hudson Bay June 12, 1877; value, $24,000; rebuilt by the United States during the rebellion; had 200 whale, 4,500 bone.
Alaska	do	347	Pacific Ocean.	June 1	May 28, 1880	320	203	1,217	
A. R. Tucker	do	145	Atlantic	Dec. 12	May 19, 1879	950	.....	.....	
Arnolda	do	340	do	July 6	Dec. 2, 1880	300	2,450	15,254	
Amelia	Schooner	95	do	Dec. 27	July 25, 1877	260	.....	.....	
Atlantic	Bark	291	Indian Ocean	Aug. 8	Sept. 26, 1879	925	950	7,000	
Bartholomew Gosnold	do	365	Atlantic	May 23	June 27, 1880	1,050	1,000	4,000	
Bounding Billow	do	262	Pacific Ocean.	Sept. 13	May 21, 1880	650	170	600	Built at Chelsea 1854; sent home 1,975 sperm, 175 whale, 4,000 bone.
California	Ship	367	do	Nov. 8	Nov. 5, 1880	2,350	140	800	
Cicero	Bark	226	Atlantic	Sept. 6	Nov. 14, 1878	1,100	500	.....	
Cleone	do	340	North Pacific.	May 23	.....	.....	.....	.....	Captain Stanton came home sick 1876; returned to whaling 1876; had taken at last report 130 sperm, 900 whale, 12,000 bone; lost in St. Lawrence Bay 1877.
Desdemona	do	236	Atlantic	July 20	Aug. 31, 1877	700	1,250	3,000	
E. B. Phillips	do	144	do	Nov. 1	July 20, 1880	1,365	.....	.....	Bought from Boston.
Eliza Adams	Ship	408	do	Sept. 6	Nov. 13, 1878	1,150	.....	.....	
E. H. Adams	Brig	107	do	Oct. 3	Sept. 13, 1878	320	.....	.....	
Europa	Bark	323	Pacific Ocean.	Sept. 12	Nov. 9, 1879	1,032	3,079	23,684	
Franklin	Schooner	77	Atlantic	Aug. 29	June 11, 1878	150	.....	.....	Bought from New London.
Helen Mar	Bark	324	North Pacific.	July 6	Out, 1880	.....	.....	.....	November 4, 1880, had taken 470 sperm, 4,750 whale, 68,000 bone.
John & Winthrop	do	338	Pacific Ocean	July 19	July 24, 1880	2,000	280	1,650	
Laconia	do	157	Indian Ocean	May 30	.....	.....	.....	.....	Condemned at Mahe, March 7, 1879; had taken at last report, March 7, 1879, 815 sperm, 80 whale.
Marcella	do	168	do	Aug. 1	.....	.....	.....	.....	Condemned at St. Helena October 15, 1879; 840 sperm.
Mattapoisett	do	110	Atlantic	Aug. 7	May 4, 1878	960	142	.....	
Mercury	do	311	North Pacific	Dec. 14	.....	40	2,000	20,030	Lost in the Arctic October, 1879, with 1,000 oil, 4,000 ivory, 9,000 bone.
Merlin	do	246	Indian Ocean	Nov. 27	Aug. 19, 1880	1,100	.....	.....	Five pounds ambergris.
Milton	Ship	372	Pacific Ocean	Dec. 28	June 11, 1880	150	240	.....	Sent home 230 sperm, 40 whale, 2,100 bone.
Minnesota	do	243	do	July 11	June 27, 1879	1,150	70	600	Sold on the voyage 17 pounds ambergris; sold to Edgartown 1880.
Ohio	Bark	205	Atlantic	May 9	July 8, 1878	1,020	260	1,600	
Pedro Varela	Schooner	89	do	Nov. 6	Sept. 3, 1878	450	.....	.....	
Petrel	do	61	do	Nov. 16	Sept. 15, 1877	283	17	.....	
President	Bark	267	do	July 26	Aug. 20, 1879	243	25	150	
Pacific	do	341	North Pacific.	Dec. 13	Out, 1880	.....	.....	.....	September, 1880, had taken 260 sperm, 5,400 whale, 50,000 bone, 3,000 ivory.
Progress	do	358	do	Nov. 16	Out, 1880	.....	.....	.....	November 30, 1880, had taken 140 sperm, 4,800 whale, 58,000 bone.
Sarah	do	126	Atlantic	June 20	Sept. 3, 1878	720	.....	.....	

Voyages of American whaling vessels, 1870 *to* 1880—Continued.

	Rig.	Tonnage.	Whaling ground.	Date of sailing.	Date of return.	Result of voyage. Barrels sperm oil.	Barrels whale oil.	Pounds whale bone.	Remarks.
1876.									
New Bedford, Mass.—Continued.									
Sea Ranger	Bark	273	Atlantic	July 6	Apr. 13, 1879	1,150	1,290	11,000	
Seine	do	234	do	Nov. 9	Apr. 6, 1877	250	.....	.....	
Stafford	do	158	do	July 17	May 1, 1879	1,210	130	.....	
Sunbeam	do	255	do	May 2	May 29, 1878	1,280	.....	.....	
Swallow	do	326	do	Apr. 18	Sept. 4, 1878	1,100	.....	.....	Returned to whaling.
Triton	do	264	do	Aug. 26	Sept. 12, 1880	1,700	.....	.....	
Thomas Pope	do	231	North Pacific	Dec. 7	Out, 1880	.....	....	.....	At San Francisco October 29, 1880, 230 sperm, 3,700 whale, 50,500 pounds bone.
Tropic Bird	do	145	Atlantic	May 2	July 30, 1878	725	.....	.....	
Varnum H. Hill	Brig	126	do	Sept. 7	Sept. 13, 1878	335	.....	.....	Bought from Provincetown.
Wave	Bark	150	do	Nov. 15	June 30, 1879	700	.....	.....	
Fairhaven, Mass.									
Cohannet	Schooner	83	Atlantic	May 23 / Nov. 14	Sept. 22, 1876	75	.....	.....	
Ellen Rodman	do	73	do	Dec. 1	Aug. 3, 1878	263	5	.....	
Marion, Mass.									
Admiral Blake	Schooner	84	Atlantic	May 16	Oct. 8, 1876	90	.....	.....	Sailed again in December, and arrived September 22, 1877; 155 sperm.
William Wilson	do	92	do	Mar. 27 / Nov. 27	Sept. 14, 1876 / Oct. 2, 1877	100 / 85	..... / 125	..... /	
Dartmouth, Mass.									
Cape Horn Pigeon	Bark	212	Pacific Ocean	Sept. 5	June 22, 1880	660	3,050	.....	
Westport, Mass.									
A. Hicks	Bark	303	Indian Ocean	Oct. 18	Sept. 19, 1878	600	.....	.....	Fifteen pounds ambergris.
Mermaid	do	273	do	June 20	Apr. 12, 1879	1,700	.....	.....	
Edgartown, Mass.									
Mary Frazier	Bark	301	Atlantic	Oct. 25	Aug. 26, 1880	800	1,000	2,200	
Provincetown, Mass.									
Alcyone	Schooner	92	Atlantic	Apr. 20	Aug. 22, 1877	460	40	.....	
Antarctic	do	101	do	Jan. 22	Sept. 26, 1876	115	80	.....	
Arizona	do	79	do	Jan. 24	Sept. 15, 1876	80	90	.....	
B. F. Sparks	do	92	do	May 11	Aug. 30, 1877	310	150	.....	
Carrie W. Clark	do	116	do	Mar. —	Sept. 20, 1877	380	.....	.....	
Charles Thompson	do	152	do	Jan. 24	Sept. 11, 1877	420	20	.....	
C. L. Sparks	do	96	do	May 1	Aug. 20, 1877	310	200	.....	
Edward Lee	do	110	do	Jan. 24	Sept. 16, 1876	.....	180	.....	
E. H. Hatfield	do	89	do	Jan. 22	Aug. 29, 1876	194	9	.....	Sailed again in December, and arrived June 22, 1878, with 295 sperm.
Ellen Rizpah	do	67	do	Jan. 24	July 30, 1876	110	200	.....	
Gracie M. Parker	do	82	do	Feb. 21	Sept. 4, 1876	165	200	....	
H. M. Simmons	do	116	do	Apr. 20	Sept. 1, 1877	240	220	....	
Lottie E. Cook	do	82	do	Jan. 24	Aug. 17, 1877	75	200	....	
M. E. Simmons	do	105	do	Feb. 21	Sept. 15, 1876	150	200	.....	
N. J. Knights	do	76	do	Jan. 8	Aug. 25, 1876	160	125	.....	
Quickstep	do	94	do	Nov. 11	Aug. 5, 1877	430	.....	.....	
Rising Sun	do	69	do	Feb. 18	Sept. 12, 1876	160	200	.....	
Boston, Mass.									
Herman Smith	Brig	122	Atlantic	May 12	Sept. 11, 1877	50	25	.....	
William Martin	Schooner	93	do	May 8	Oct. 2, 1876	225	.....	.....	
Sarah R. Lewis	do	96	do	Dec. 16	Sept. 18, 1877	200	80	.....	
New London, Conn.									
Nile	Ship	293	Cum. Inlet	June 24	Nov. 17, 1876	.....	550	8,500	

Voyages of American whaling vessels, 1870 *to* 1880—Continued.

	Rig.	Tonnage.	Whaling ground.	Date of sailing.	Date of return.	Result of voyage. Barrels sperm oil.	Barrels whale oil.	Pounds whalebone.	Remarks.
1876.									
San Francisco, Cal.									
Clara Bell	Bark	196	North Pacific	Apr. 18					Abandoned in the Arctic 1876; had 650 whale.
Florence	do	245	do	Mar. 3	Oct. 22, 1876		700		Sailed again November 29, and returned October 26, 1877; 1,200 whale.
1877.									
New Bedford, Mass.									
Amelia	Schooner	95	Atlantic	Oct. 2	Oct. 3, 1879	170			
A. J. Rosa	Brig	197	Hudson Bay	July 17	Apr. 10, 1878		243	2,800	
Attleboro	Bark	179	Atlantic	July 31	Sept. 6, 1880	525	40	500	
Aurelia	Schooner	43	do	July 2 Oct. 6	Sept. 16, 1877 Aug. 13, 1878	40 120			
Catalpa	Bark	202	do	Apr. 25	July 1, 1879	300	80		Withdrawn 1879.
Com. Morris	do	338	do	Apr. 10	Dec. 12, 1880	2,690			
Daniel Webster	do	327	do	Apr. 17	Oct. 23, 1880	200	530	2,400	Sent home 950 sperm, 20 whale.
Fanny Brynes	Schooner	60	do	Dec. 3	Aug. 16, 1879	208	25		
F. H. Moore	Brig	107	do	Sept. 18					Condemned at St. Helena, October, 1879; 340 sperm, 30 whale.
Fleetwing	Bark	328	North Pacific	Nov. 6					October 29, 1880, at San Francisco; 175 sperm, 1,960 whale, 22,500 bone.
Frs. A. Barstow	Brig	128	Atlantic	June 27	Sept. 14, 1878	400			
Gay Head	Bark	265	do	Aug. 29	Out, 1880				September 29, 1880, at St. Helena; 1,140 sperm, 290 whale.
George and Mary	do	105	do	June 20	May 22, 1879	800	65		
George and Susan	do	343	do	Oct. 16	Out, 1880				August 27, 1880, at Montevido; 190 sperm, 2,730 whale.
Golden City	Schooner	80	do	June 19	Sept. 21, 1878	365	40		
Hadley	Bark	163	do	Sept. 4	Aug. 6, 1878	210	10		Broken up in 1878.
Horatio	Ship	349	Pacific	Aug. 7	Out, 1880				June 17, 1880, at Bay of Islands; 1,570 sperm, 250 whale.
J. A. Howland	Bark	355	do	Sept. 25	Out, 1880				September 10, 1880, off Talachuano; 1,700 sperm, 450 whale.
James Allen	do	348	do	Sept. 18	Out, 1880				September 3, 1880, at Valparaiso; 1,770 sperm, 340 whale.
Janet	do	154	Atlantic	Feb. 20					November 23, 1879, abandoned at sea; 900 whale.
Janus	do	276	Pacific	Mar. 27	Oct. 19, 1879	1,070	75		
John Howland	do	384	North Pacific	Dec. 26					November 4, 1880, at San Francisco; 190 sperm, 2,510 whale, 29,000 bone.
Josephine	do	385	Atlantic	May 15	June 21, 1880	800	3,400	21,000	
Lagoda	do	371	do	Dec. 18	Out, 1880				October 27, 1880, at Fayal; 1,420 sperm, 75 whale.
Lancer	do	295	do	Oct. 23	Out, 1880				August, 1880, at sea; 565 sperm, 400 whale.
Linda Stewart	do	236	Pacific	Nov. 27	Out, 1880				July 29, 1880, at Payta; 1,630 sperm, 50 whale.
Lucretia	do	312	do	July 17	Out, 1880				August, 1880, at sea; 1,640 sperm.
Mabel	do	188	Indian	Sept. 18	Out, 1880				January 30, 1880, at Hobartown; 495 sperm, 80 whale.
Mary and Susan	do	327	Pacific	Aug. 14	Out, 1880				April 25, 1880, at sea; 750 sperm.
Minerva	do	337	Atlantic	Apr. 17	Sept. 3, 1880	2,410	45	400	
Nautilus	do	277	Pacific	Aug. 7	Out, 1880				August, 1880, at sea; 1,600 sperm, 65 whale.
Osprey	do	173	Atlantic	May 29	Sept. 3, 1879	470			
Petrel	do	257	Indian	July 10	June 19, 1880	1,850	25	270	
Petrel	Schooner	61	Atlantic	Nov. 7	Oct. 3, 1878	85			
Pioneer	Bark	228	do	Aug. 15	June 15, 1880	870	60		
President 2d	do	123	do	Sept. 25	Out, 1880				October 13, 1880, at Teneriffe; 840 sperm, 370 whale.
Reindeer	do	357	do	June 12	Oct. 18, 1880	2,870			
Roman	do	379	North Pacific	Feb. 20					Bought from New London 1876; lost near Magdalena Bay, California, 1878; had taken 80 sperm, 700 whale.
Sarah B. Hale	do	183	Atlantic	Oct. 2					Condemned at St. Helena April, 1880; had taken 180 sperm, 590 whale.
Seine	do	234	do	May 25	Sept. 14, 1879	280	350		
Stamboul	do	260	Pacific	Nov. 21	Out, 1880				August, 1880, at sea; 1,015 sperm.
Tamerlane	do	372	Atlantic	Sept. 25	Oct. 6, 1880	300	200		

Voyages of American whaling vessels, 1870 *to* 1880—Continued.

	Rig.	Tonnage.	Whaling ground.	Date of sailing.	Date of return.	Result of voyage. Barrels sperm oil.	Barrels whale oil.	Pounds whalebone.	Remarks.
1877.									
Provincetown, Mass.									
Agate	Schooner	81	Atlantic	Apr. 6	Sept. 13, 1878	120	100	.....	
Antarctic	...do	101	...do	May 8	Sept. 14, 1878	340	100	.....	
Arizona	...do	79	...do	Apr. 6	Sept. 11, 1877	130	.....	.....	
Carrie W. Clark	...do	118	...do	Nov. 7	Mar. 31, 1879	480	.....	.....	
D. A. Small	Brig	119	...do	Mar. 15	Sept. 17, 1878	630	.....	.....	
Edward Lee	Schooner	110	...do	Feb. 15	Sept. 12, 1878	380	120	.....	
Ellen Rizpah	...do	67	...do	Feb. 15	Aug. 13, 1877	125	200	.....	
Gracie M. Parker	...do	82	...do	Feb. 15	July 25, 1877	175	250	.....	
H. M. Simmons	...do	116	...do	Oct. 30	Sept. 14, 1879	400	10	.....	
Lottie E. Cook	...do	82	...do	Feb. 15	Aug. 17, 1877	125	170	.....	
M. E. Simmons	...do	105	...do	Nov. 1	Sept. 14, 1877	160	300	.....	
N. J. Knight	...do	70	...do	Feb. 5	Sept. 1, 1877	55	70	.....	
Quickstep	...do	94	...do	Nov. 12	Sept. 21, 1878	240	130	.....	
W. A. Grozier	...do	117	...do	Mar. 15	Sept. 18, 1878	500	.....	.....	
Rising Sun	...do	69	...do	Mar. 1	Sept. 17, 1877	100	130	.....	
Boston, Mass.									
Herman Smith	Brig	123	Atlantic	Nov. 12	Oct. 6, 1879	150	.....	.....	
Louisa A	Schooner	122	...do	June 29	July 17, 1879	340	35	.....	
Wm. Martin	...do	90	...do	Apr. 16	Sept. 18, 1878	430	25	.....	
New London, Conn.									
Era	Schooner	*134*	*Hudson Bay*	*July 11*	*Dec. 4, 1878*	.....	20	.....	
L. P. Simmons	...do	89	Cum. Inlet	May 30	Nov. 27, 1878	.....	100	2,000	
Nile	Bark	292	Hudson Bay	July 11	Dec. 1, 1878	.....	350	8,000	Still in port, 1880.
Marion, Mass.									
Admiral Blake	Schooner	84	Atlantic	Nov. 21	Sept. 3, 1878	225	5	.....	
Wm. Wilson	...do	92	...do	Dec. 9	Sept. 18, 1878	90	.....	.....	
Dartmouth, Mass.									
Matilda Sears	Bark	231	Pacific	Aug. 28	Out, 1880	.....	.....	.....	Last report September 20, 1880; 510 sperm, 1,050 whale.
Westport, Mass.									
Union	Schooner	66	Atlantic	Feb. 27	Oct. 2, 1877	52	4	.....	Sailed again October 25, 1877; returned October 7, 1878, with 85 sperm.
Edgartown, Mass.									
Perry	Bark	149	Atlantic	Dec. 10	.....	.....	840	.....	Wrecked in hurricane at Bermuda, August 29, 1880.
New York, N. Y.									
Henry Trowbridge	Bark	176	Atlantic	Oct. 30	May 14, 1879	.....	200	.....	
San Francisco, Cal.									
Dawn	Bark	260	Pacific	Dec. 8	Nov. 15, 1878	.....	800	.....	
1878.									
New Bedford, Mass.									
Abbie Bradford	Schooner	115	Hudson Bay	May 8	Aug. 31, 1879	.....	550	8,000	
Abbott Lawrence	Brig	160	...do	May 4	Sept. 1, 1879	.....	190	3,000	
Adeline Gibbs	Bark	327	Atlantic	July 2	Oct. 26, 1880	800	120	660	
A. J. Ross	Brig	197	Hudson Bay	May 15	.....	.....	.....	.....	August 16, 1878, lost at Rose Welcome, Hudson Bay; 20 barrels whale.
Astoria	Schooner	73	Atlantic	May 23; Oct. 1	Sept. 7, 1878	45	350		Sailed again October 1, 1879; October 22, 1879, at Montevideo with 150 whale; condemned at Cape Good Hope March, 1880.
Bertha	Bark	177	...do	Jan. 15	Out, 1880	.....	.....	.....	September 13, 1880, coast of Africa; 735 sperm, 100 whale.
Caleb Eaton	Schooner	110	...do	June 25	Sept. 23, 1879	200	230	3,000	
Canton	Bark	229	Pacific	Sept. 12	Out, 1880	.....	.....	.....	July 1, 1880, at Auckland; 900 sperm.

Voyages of American whaling vessels, 1870 *to* 1880—Continued.

	Rig.	Tonnage.	Whaling ground.	Date of sailing.	Date of return.	Result of voyage. Barrels sperm oil.	Barrels whale oil.	Pounds whalebone.	Remarks.
1878.									
New Bedford, Mass.—Continued.									
Chas. W. Morgan	Bark	314	Atlantic	July 17	Out, 1880				September 27, 1880, at Kabenda; 960 sperm, 1,350 whale.
Chas. W. Morse	Schooner	112	do	May 14	Aug. 23, 1879	290	60	750	
Coral	Bark	361	North Pacific	Mar. 4					Sailed from San Francisco, where she had been idle for a year; condemned and refitted. October 28, 1880, at San Francisco; 3,850 whale, 37,000 bone.
Draco	do	258	Atlantic	Aug. 6					Condemned at St. Helena April 3, 1880; had taken 470 sperm, 590 whale.
E. B Conwell	Schooner	91	do	May 6	July 28, 1879	610	100	880	
E. H. Adams	Brig	107	do	Oct. 29	Sept. 7, 1880	450			
Frs. A. Barstow	do	128	do	Nov. 7	Sept. 12, 1880	460			
Franklin	Schooner	77	Hudson Bay	July 25	Aug. 31, 1879		40	218	
Golden City	do	80	Atlantic	Nov. 29	Mar. 18, 1880	340	60	500	
Isabella	Brig	132	Hudson Bay	May 14	Aug. 31, 1879		200	4,000	
James Arnold		346	Pacific	Oct. 8	Out, 1880				April 15, 1880, at Bay of Islands; 700 sperm, 180 whale.
John P. West	Bark	353	do	Oct. 8	Out, 1880				October 7, 1880, at Paita; 900 sperm.
Louisa	do	303	Atlantic	July 9	Out, 1880				July 27, 1880, at sea; 215 sperm, 580 whale.
Lydia	do	329	Pacific	Apr. 16	Oct. 21, 1880	965			
Mars	do	256	Atlantic	Oct. 8	Out, 1880				July 27, 1880, at sea; 525 sperm, 1,300 whale.
Mattapoisett	do	119	Cum. Inlet	May 26	Sept. 7, 1879		150	2,000	
Morning Star	do	238	Atlantic	Oct. 15	Out, 1880				October 13, 1880, at Teneriffe; 430 sperm, 110 whale.
Napoleon	do	322	Pacific	Aug. 1	Out, 1880				September 20, 1880, at Panama; 300 sperm, 600 whale.
Niger		412	do	Aug. 7	Out, 1880				September 25, 1880, at St. Helena; 735 sperm, 1,130 whale.
Ocean				July 1	Sept. 26, 1878	40			
Ohio	Bark	205	Atlantic	Sept. 3	Out, 1880				September 24, 1880, at Montevideo; 255 sperm, 835 whale.
Ohio, 2d	do	363	do	Nov. 19	Out, 1880				July 15, 1880, at sea; 665 sperm, 875 whale.
Pedro Varela	Schooner	90	do	Oct. 22	Oct. 12, 1880	760			
Peru	Bark	259	do	Nov. 12	Out, 1880				October 11, 1880, at Fayal; 1,120 sperm.
Petrel	Schooner	61	do	Nov. 5	Aug. 20, 1879	87			
Sarah	Bark	128	do	Oct. —					Lost, seven hours out from home; only three men saved.
Sea Fox	do	168	Pacific	Oct. 1	Out, 1880				September 19, 1880, at Panama; 750 sperm, 750 whale.
Sunbeam	do	255	Atlantic	July 9	Out, 1880				August 28, 1880, at Mayumba; 495 sperm, 850 whale.
Surprise	Schooner	53	do	Oct. 15	Aug. 23, 1879	157			
Swallow	Bark	326	Pacific	Oct. 15	Out, 1880				October 16, 1880, at Montevideo; 470 sperm, 1,070 whale.
Tropic Bird	do	145	Atlantic	Sept. 3	Out, 1880				September 30, 1880, at Fayal; 845 sperm, 70 whale.
Varnum H. Hill	Brig	126	do	Oct. 29	July 20, 1880	380			
Wanderer	Bark	303	do	June 4	Out, 1880				September 15, 1880, at sea; 1,280 sperm, 550 whale.
Marion, Mass.									
Admiral Blake	Schooner	84	Atlantic	Nov. 19	July 21, 1879	40			
Wm. Wilson	do	92	do	Nov. 25	Oct. 2, 1879	120			
Edgartown, Mass.									
Clarice	Bark	188	Atlantic	Nov. 7	Out, 1880				Had taken, October 5, 1880, 725 sperm.
Tropic Bird	Brig	176	North Pacific	Oct. 14	Out, 1880				Had taken, October 21, 1880, 195 sperm, 1420 whale, 16,300 bone.
Provincetown, Mass.									
Alcyone	Schooner	92	Atlantic	May 3	Sept. 1, 1879	170	25		Lost at sea August, 1879; last report, 300 sperm, 40 whale.
Arizona	do	73	do	Apr. 15					
B. F. Sparks	do	91	do	May 1	Sept. 1, 1879	325			
Chas. Thompson	do	132	do	Feb. 16	July 22, 1879	225	40		

Voyages of American whaling vessels, 1870 *to* 1880—Continued.

	Rig.	Tonnage.	Whaling ground.	Date of sailing.	Date of return.	Result of voyage. Barrels sperm oil.	Barrels whale oil.	Pounds whalebone.	Remarks.
1878.									
Provincetown, Mass.—Continued.									
Clara L. Sparks	Schooner	95	Atlantic	May 3	June 5, 1879	200			
E. H. Hatfied	do	82	do	July 6	Sept. 18, 1878				
Ellen Rizpah	do	67	do	Feb. 4	Sept. 7, 1878	80	170		
Express	do	61	do	Mar. 14	Sept. 10, 1878	25	200		
Gage H. Phillips	do	106	do	Apr. 25	Aug. 26, 1880	1,000			
Grace Parker	do	81	do	Jan. 30	Sept. 12, 1878	90	210		
Lottie E. Cook	do	82	do	Mar. 14	Aug. 22, 1879	300	100		
M. E. Simmons	do	104	do	Feb. 4	Sept. 14, 1878	100	250		
M. G. Curren	do	102	do	Feb. 6	Sept. 16, 1878	90	300		
N. J. Knight	do	69	do	Feb. 14	Sept. 1, 1878	70	220		
Boston, Mass.									
Rosa Baker	Brig	108	Atlantic	July 17	June 3, 1879	385			
Sarah E. Lewis	Schooner	86	do	May 1	Nov. 23, 1878				
San Francisco, Cal.									
Florence	Bark	245	North Pacific	April 18					Lost in Arctic 1878; had taken 650 whale.
1879.									
New Bedford, Mass.									
Alice Knowles	Bark	302	Atlantic	June 10	Out, 1880				July 12, 1880, at sea; 550 sperm, 240 whale.
Amelia	Schooner	95	do	Nov. 2	Sept. 16, 1880	160	5		
Caleb Eaton	do	110	do	Nov. 1	Out, 1880				October 4, 1880, at Bermuda, dismasted; 200 sperm.
Chas. W. Morse	do	112	do	Oct. 30	Out, 1880				October 6, 1880, at St. Michael's; 325 sperm, 310 whale.
Cicero	Bark	226	do	May 22	Out, 1880				August 17, 1880, at Mayumba; 330 sperm, 450 whale.
E. B. Conwell	Schooner	91	do	Oct. 13	Sept. 3, 1880	380	20	200	
Ellen Rodman	do	73	do	May 14	Aug. 18, 1880	205			
Eliza Adams		408	do	Sept. 17	Out, 1880				September 25, 1880, at St. Helena; 425 sperm, 100 whale.
Falcon	Bark	285	do	June 3	Out, 1880				July 27, 1880, at sea; 450 sperm, 80 whale.
Fanny Brynes	Schooner	66	do	Oct. 30	Out, 1880				September, 25, 1880, at Fayal; 25 whale.
George and Mary	Bark	105	Hudson Bay	June 23	Sept. 22, 1880		70	2,400	Mate froze to death while going for food; brought home remains of Dr. Irving, of Sir John Franklin expedition.
Greyhound	do	178	Atlantic	May 14	Out, 1880				July 26, 1880, at sea; 105 sperm, 35 whale.
Hercules	do	311	do	Oct. 14	Out, 1880				October 16, 1880; 815 sperm, 510 whale, 540 bone.
Janus	do	276	Pacific	Dec. 16	Out, 1880				September 2, 1880, at Montevideo; 170 sperm, 200 whale.
Jireh Perry	do	316	Atlantic	Sept. 1	Out, 1880				September 1, 1880, off St. Helena; 535 sperm, 135 whale.
John Dawson	do	173	do	June 12	Out, 1880				September 21, 1880, at Panama; 170 sperm, 480 whale.
Mary and Helen	Steamer	420	North Pacific	Sept. 9	Out, 1880				October 10, 1880, at San Francisco; 265 sperm, 2,350 whale, 45,000 bone.
Mattapoisett	Bark	110	Atlantic	Oct. 25	Out, 1880				September 30, 1880, at Fayal; 175 sperm.
M. E. Simmons	Schooner	105	do	May 14	Oct 7, 1880	300	9		Transferred from Provincetown.
Ocean	Bark	288	Pacific	May 22	Out, 1880				October 13, 1880, at St. Catherine's; 750 sperm, 280 whale.
Platina	do	214	Atlantic	June 11					July 20, 1880, at sea; 200 sperm.
Petrel	Schooner	61	do	Oct. —					Lost in gale when few days out; all but five lost.
President	Bark	257	do	Sept. 30	June 19, 1880	243	25	150	
Sappho	do	263	Pacific	Aug. 5	Out, 1880				August 15, 1880, at Talcahuano; 220 sperm.
Sea Ranger	do	273	Atlantic	June 4	Out, 1880				June 15, 1880, at sea; 280 sperm, 285 whale.
Stafford	do	156	do	Sept. 3	Out, 1880				June 15, 1880, at sea; 370 sperm.
Surprise	Schooner	53	do	Nov. 1	Aug. 21, 1880	65	85	1,000	
Union	do	68	do	May 13	May 18, 1880	18			

Voyages of American whaling vessels, 1870 to 1880—Continued.

	Rig.	Tonnage.	Whaling ground.	Date of sailing.	Date of return.	Result of voyage. Barrels sperm oil.	Barrels whale oil.	Pounds whalebone.	Remarks.
1879.									
New Bedford, Mass.—Continued.									
Vigilant	Bark	215	North Pacific	Jan. 22					Lost in Arctic 1879; up to October 10, 1879, had taken 400 whale, 6,000 bone.
Wave	do	150	Atlantic	Aug. 20	Out, 1880				October 16, 1880, at Fayal; 290 sperm.
Westport, Mass.									
A. Hicks	Bark	303	Atlantic	June 24	Out, 1880				September 25, 1880, at Fayal; 860 sperm, 140 whale.
Edgartown, Mass.									
Emma Jane	Schooner	86	Atlantic	Nov. 30	Out, 1880				Had taken, November 6, 1880, 640 sperm, 90 whale.
Boston, Mass.									
Rose Baker	Brig	168	Atlantic	July 30	Aug. 18, 1880	350			
Sarah E. Lewis	Schooner	86	do	Mar. 20	Sept. 9, 1879	50			
Wm. Martin	do	90	do	May 15	Sept. 18, 1879	150			Sailed again November 17, 1879, and returned September 8, 1880, with 100 sperm, 12 whale.
New London, Conn.									
Delia Hodgkins	Schooner	95	Cum. Inlet	June 15	Nov. 22, 1879		300		
Era	do	134	Hudson Bay	June 23	Nov. 24, 1880		550	8,000	
Provincetown, Mass.									
Agate	Schooner	81	Atlantic	Feb. 3	Aug. 23, 1879	60	260		
Antarctic	do	100	do	Mar. 20	Sept. 29, 1879	204	120		
Carrie W. Clark	do	116	do	July 10	Out, 1880				October 9, 1880, at Teneriffe; 360 sperm.
Clara L. Sparks	do	95	do	July 11	Sept. 12, 1880	160			
D. A. Small	Brig	119	do	May 7	Oct. 3, 1880	430	40		
Edward Lee	Schooner	109	do	Feb. 3	Aug. 3, 1880	70	190		
Ellen Rizpah	do	66	do	Feb. 3	Aug. 3, 1879	135	180		
Gracie M. Parker	do	81	do	Jan. 14	Sept. 13, 1877	320			
Mary G. Curren	do	102	do	Feb. 3	Sept. 7, 1879	150	350		
W. J. Knight	do	69	do	Feb. 3	Aug. 26, 1879	40	200		
Rising Sun	do	69	do	Feb. 4	Sept. 1, 1879	330	80		Sailed again November 12, 1879, and returned September 12, 1880; 65 sperm, 80 whale.
Wm. A. Grozier	do	116	do	Apr. 24	July 12, 1880	735	35		
Quickstep	do	93	do	July 3	Sept. 5, 1880	220			
San Francisco, Cal.									
Alaska	Schooner	149	North Pacific	Mar. 28	Dec. 3, 1879	400	6,000		1,200 pounds walrus ivory.
Dawn	Bark	260	do	Mar. 16	Nov. 17, 1879		850	4,000	
Francis Palmer	do	195	do	Sept. 8	Nov. 17, 1879		500	3,500	
Hidalgo	Brig	175	do	Apr. 2	Nov. 11, 1879		120		
1880.									
New Bedford, Mass.									
A. R. Tucker	Bark	145	Atlantic	Apr. 13					October 25, 1880, at Fayal; 15 sperm, 45 whale.
Abbie Bradford	Schooner	115	Hudson Bay	May 6					Previous to August 13, 1880, Hudson Strait; 40 whale.
Abbott Lawrence	Brig	160	do	Apr. 6					August 13, 1880, Hudson Strait.
Adelia Chase	Schooner	85	Atlantic	Feb. 16					July 3, 1880, sailed from Bravo.
Alaska	Bark	347	Pacific	Sept. 14					October 14, 1880, at sea; 135 sperm.
Atlantic	do	291	North Pacific	Nov. 2					
Attleboro	do	179	Atlantic	Oct. 26					
Belvedere	Steamer	440	North Pacific	Aug. 17					August 27, 1880, at sea, latitude 41°, longitude 56°.
Cape Horn Pigeon	Bark	212	Pacific	Aug. 24					September 13, 1880, at sea; 160 sperm.
Daniel Webster	do	..	North Pacific	Nov. —					
E. B. Cornwell	Schooner	91	Atlantic	Nov. 12					
E. H. Adams	Brig	107	do	Sept. 22					October 6, 1880, at sea, latitude 36°, longitude 30° 20'.

Voyages of American whaling vessels, 1870 *to* 1880—Continued.

	Rig.	Tonnage.	Whaling ground.	Date of sailing.	Date of return.	Result of voyage. Barrels sperm oil.	Barrels whale oil.	Pounds whalebone.	Remarks.
1880.									
New Bedford, Mass.—Continued.									
Europa	Bark	323	Atlantic	Apr. 7					October 24, 1880, at Teneriffe; 300 sperm.
Franklin	Schooner	77	do	June 14					September 29, 1880, at St. Michael's.
Gazelle	Bark	273	do	May 11					September 27, 1880, at Teneriffe; 90 sperm.
Golden City	Schooner	85	do	June 2					No date, at sea, latitude 31° 05′, longitude 76° 34′; 105 sperm.
Isabella	Brig	132	Hudson Bay	May 31					August 10, 1880, in Hudson Bay.
John Carver	Bark	319	Atlantic	May 18					October 5, 1880, at Fayal; 130 perm.
Josephine	do	385	do	Oct. 7					
Kathleen	do	206	do	May 5					September, 1880, at Fayal; 265 sperm.
Lottie E. Cook	Schooner	82	do	Feb. 11 Oct. 21	Sept. 12, 1880	65	150		Transferred from Provincetown. No report to October 20, 1880.
Lydia	Bark	329	do	Nov. 23					
M. E. Simmons	Schooner	105	do	Nov. 12					
Mermaid	Bark	273	do	June 1					October 25, 1880, at Fayal; 280 sperm.
Milton		373	do	Oct. 6					
Northern Light	do	385	North Pacific	Sept. 22					
Ospray	do	173	Atlantic	May 4					September 28, 1880, at Teneriffe; 20 sperm.
Palmetto	do	215	do	June 3					September 3, 1880, at Fayal; 70 sperm.
Petrel	do	257	do	Oct. 19					
Pioneer	do	228	do	Aug. 17					August 26, 1880, at sea, latitude 36° 08′, longitude 55° 04′.
Seine	do	234	do	July 22					October 3, 1880, at Teneriffe; 500 sperm.
Surprise	Schooner	53	do	Oct. 19					November 6, 1880, at sea; 1 sperm whale.
Varnum H. Hill	Brig	126	do	Sept. 29					October 28, 1880, latitude 32° 30′, longitude 78° 40′; 4 whales.
Marion, Mass.									
Admiral Blake	Schooner	84	Atlantic	May 26	Oct. 12, 1880	170			
William Wilson	do	92	do	June 24					October 19, 1880, at Teneriffe; 30 sperm.
Edgartown, Mass.									
E. H. Hatfield	Schooner		Atlantic	June 15	Oct. 27, 1880	90			
Mary Frazier	Bark	301	do	Nov. 3					
Minnesota	do	243	do	Nov. 18					
Robt. Morrison	do	314	do	Apr. 16					Had taken, August 28, 135 sperm.
E. H. Hatfield			do	Nov. 30					Arrived from previous trip October 27, 1880, with 90 sperm.
Provincetown, Mass.									
Agate	Schooner		Atlantic	Feb. 6	Sept. 13, 1880	70	260		
Alcyone	do	92	do	Mar. 17					October 6, 1880, had 85 sperm.
Antarctic	do	101	do	Apr. 28					November 4, 1880, at sea; 165 sperm.
B. F. Sparks	do	92	do	May 3					October 14, 1880, at St. Michael's; 30 sperm.
Crown Point	do	96	do	May 3					
Edward Lee	do	110	do	Nov. 1					
Gracie M. Parker	do		do	Jan. 19	Sept. 17, 1880	85			
H. M. Simmons	do	116	do	Jan. 19					October 20, 1880, at Teneriffe; 225 sperm, 200 whale.
Ellen Rizpah	do		do	Feb. 14	Aug. 27, 1880	130	180		
N. J. Knight	do		do	Feb. 11	Sept. 17, 1880		220		
Mary G. Curren	do	102	do	Feb. 16	Sept. 16, 1880	80	115		
Boston, Mass.									
E. F. Herriman	Bark	395	North Pacific	Nov. 6					
Heman Smith	Brig	123	Atlantic	Oct. 6					
Sarah E. Lewis			do	Jan. 23	Sept. 8, 1880	100	12		
New London, Conn.									
Delia Hodgkins	Schooner	95	Atlantic	Nov. 23					No report to December, 1880.
Pilot's Bride	do	194	Desolation	Apr. 27					No report to December, 1880.

Voyages of American whaling vessels, 1870 *to* 1880—Continued.

	Rig.	Tonnage.	Whaling ground.	Date of sailing.	Date of return.	Result of voyage. Barrels sperm oil.	Barrels whale oil.	Pounds whale-bone.	Remarks.
1880.									
New London, Conn.—Continued.									
Roswell King	Schooner	134	Desolation	May 11					Last report June 14, 1880, at Flores with 85 whale.
Trinity	Bark	317	do	June 1					No report to December, 1880.
Wanderer	Schooner	151	Atlantic	Aug. 12					
San Francisco, Cal.									
Alaska	Schooner	149	North Pacific	Mar. 13	Oct. 15, 1880		500	22,900	Also 270 walrus in number, and 2,000 pounds walrus ivory.
Francis Palmer	Bark	195	do	Mar. 17	Sept. 25, 1880		1,000		
Dawn	do	260	do	Mar. 2	Oct. 27, 1880		1,400		
Hidalgo	Brig	175	do	Mar. 13	Oct. 4, 1880		800		

11. REVIEW OF WHALE FISHERY OF FOREIGN NATIONS.

In 1846 the combined whaling fleet of the world numbered nearly one thousand sail, of which number seven hundred and twenty-nine were under the American flag, the others hailing from Great Britian, Germany, France, and other foreign countries.

In 1880 the entire fleet numbered not more than two hundred and fifty vessels, one hundred and seventy-one of which were American. The only foreign country that now has a fleet of large vessels in the whale fishery is Scotland, which employs about twenty large steamers in the whale fishery of East Greenland and in Davis Strait. Norway has a fleet of small-sized steamers and sail vessels employed in whaling chiefly along shore. Australia and New Zealand have a few vessels engaged in whaling in the vicinity of those countries, and Chili owns a few vessels cruising along the South American coast. Canada and Newfoundland also employ a few vessels in whaling, though most of their time is spent in sealing.

It is impossible to tell when and where the fishing for whales originated. In many of the ancient records there are references to these great animals and accounts of their capture. Most writers on the subject think that the Norwegians were the first to make a business of catching whales, and the account of a voyage to Norway by one Othere, a native of Heligoland, is frequently quoted to show that before the year 890 they had been captured on the coast of Norway. The Norwegians may have been the first to engage in the whale fishery, but they pursued no systematic plan, and their work should be regarded the same as the fishing expeditions of the Eskimos. The Biscayans were probably the first who prosecuted the fishery as a regular commercial pursuit, and they carried it on with great vigor in the twelfth, thirteenth, and fourteenth centuries.

The whales taken by the Biscayans were probably the finback species, which doubtless frequented the bays and seas of Europe in pursuit of herring. As they became scarce near home they were hunted in other parts, as at Iceland, upon the banks of Newfoundland, and in the Gulf of Saint Lawrence.

The first authentic account of the English people engaging in whaling is in 1594, when several vessels were sent to Cape Breton fitted for hunting the walrus and whale. One of these vessels, the Grace of Bristol, brought home to England a quantity of whale fins or whalebone,

which was found at Saint George's Bay, where it was said to have been left three years before by a wrecked Biscayan ship. This whalebone is supposed to be the first ever imported into England. There are no records to show to what extent the fishery was carried on at this early period by either the Biscayans or the English. If the industry had been very important some historical data would remain. When this fishery by the French ceased is a matter of doubt, but it was probably about the close of the sixteenth century.

EARLY WHALING AT GREENLAND AND SPITZBERGEN.

The Spitzbergen whale fishery was the first of great importance. It was begun by the English in 1611, when two vessels made voyages there under the direction of Capt. Jonas Poole, who had previously visited the coast. The island of Spitzbergen had been discovered about the year 1596 by explorers in search of a passage to India, who, though they failed of their main object, made known the haunts of the polar whale. Although the English were the first to enter upon the new fishery, they were not the most energetic, for the Dutch soon outstripped them in the number of vessels engaged and the profits of the voyages. The first effort of the English was to obtain supreme control of whaling in the seas about Spitzbergen on the pretext that the island had been discovered by an Englishman. The Muscovy Company, under whose auspices the first English whalers were sent out, obtained a royal charter prohibiting all other nations from fishing in the seas round Spitzbergen. Efforts were made to enforce this charter by force, and several encounters took place between the Dutch and English vessels, until it was finally agreed to divide the island and adjacent waters into districts that were assigned, respectively, to the English, Dutch, Hamburgers, French, Danes, &c.

Whales were so abundant that extra vessels were sent out to bring home the oil and bone, and a village was built on the island of Spitzbergen, where the blubber was tried out. "Nothing can give a more vivid idea of the extent and importance of the Dutch fishery in the middle of the seventeenth century than the fact that they constructed a considerable village, the houses of which were all previously prepared in Holland, on the Isle of Amsterdam, on the northern shore of Spitzbergen, to which they gave the appropriate name of *Smeerenberg* (from *smeeren*, to melt, and *berg*, a mountain). This was the grand rendezvous of the Dutch whale ships, and was amply provided with boilers, tanks, and every apparatus required for preparing the oil and bone. But this was not all. The whale ships were attended with a number of provision ships, the cargoes of which were landed at Smeerenberg, which abounded during the busy season with well furnished shops, good inns, &c., so that many of the conveniences and enjoyments of Amsterdam were found within about eleven degrees of the pole. It is particularly mentioned that the sailors and others were every morning supplied with what a Dutchman regards as a very great luxury, *hot rolls* for breakfast. Batavia and Smeerenberg were founded nearly at the same period, and it was for a considerable time doubted whether the latter was not the more important establishment."*

From 1611 to about 1700 the Spitzbergen fishery was important, and was participated in by most of the northern nations of Europe. About 1680 the Dutch whale fishery in those seas was at its height and employed some two hundred and sixty ships and fourteen thousand sailors. Whales finally became scarce about Spitzbergen and were pursued along the east coast of Greenland. From here it was found more convenient to bring the blubber home and not try it out on land, as they had been accustomed to do. As whales became less and less numerous on the old grounds, new

* De Reste, Histoire des Pesches, &c., tome 1, p. 42.

places were constantly being sought for. About 1719 Dutch whaling vessels first entered Davis Strait and established a fishery that continues to this day to employ fleets of Scotch and American whalers; the latter began whaling in this strait about the year 1737.

Scoresby,* in his account of the Arctic regions, gives a history of the northern whale fishery from its commencement till 1820, and accurately describes the methods employed in the capture of whales. He also gives valuable statistics of the Spitzbergen, Greenland, and Davis Strait fisheries, in which he shows that the Dutch sent 17,331 ships to the northern fisheries between 1669 and 1778 and captured 64,576 whales. The following statement shows these facts by decades:

Dutch whale fishery, 1669 to 1769.

Period.	Greenland.*			Davis Strait.		
	Number of ships.	Ships lost.	Whales taken.	Number of ships.	Ships lost.	Whales taken.
1669-1678	993	83	6,314			
1679-1688	1,932	113	10,559			
1689-1698	955	82	4,864			
1699-1708	1,652	62	8,537			
1709-1718	1,351	51	4,645			
1719-1728	1,504	40	3,439	748	20	1,251
1729-1738	858	13	2,198	975	14	1,929
1739-1748	1,350	21	6,193	868	10	1,162
1749-1758	1,239	30	4,770	840	6	513
1759-1768	1,324	25	2,078	296	4	818
1769-1778	903	31	3,493	434	8	1,313
Total	14,167	561	57,590	3,164	62	6,986

* Greenland included Spitzbergen and east coast of Greenland.

"This fishery, when in its most flourishing condition, was principally carried on in the seas and bays round Spitzbergen, and there the Hollanders constructed the village of Smeerenberg, where they boiled the blubber and prepared the oil and whalebone. The havoc made among the whales, and their dispersion to the coasts of Greenland and Davis Strait, put an end to the establishment, and with it to the golden age of the whale fishery. In 1842 there was only one vessel engaged in this once flourishing fishery; in 1853 there were five, and in 1854 there were three."†

"The history of the Spitzbergen country," says Nordenskiold, "has not yet been written in a satisfactory way, and is in many respects very obscure. It is supposed that after the discovery of Spitzbergen in 1596 by Barents, the hunting in the polar seas began during Bennet's first voyage in 1603, and that the whale fishing was introduced by Joanu Poole in 1610. But already in the following year Poole, whose vessel was then wrecked on the west coast of Spitzbergen, found in Horn Sound a ship from Hull, to which he gave charge of saving his cargo, and two years after the English were compelled, in order to keep foreigners from the fishing field they wished to monopolize, to send out six men-of-war, which found there eight Spanish and a number of Dutch and French vessels (Purchas, iii, pp. 462, 716, &c.). Even in our days the accounts of new sources of wealth do not spread so rapidly as in this case, unless, along with the history of the discovery which was written by Haklayt, Purchas, De Veer, &c., there had been an unknown history of discovery, and the whale fishing, of which it may still be possible to collect some particulars from the archives of San Sebastian, Dunkirk, Hull, and other ports.

* Account of the Arctic Regions, &c., London, 1820, 2 vols.
† Ency. Britannica, vol. xi, 583.

"However this may be, it is certain that the English and Dutch northeast voyages gave origin to a whale fishery in the sea round Spitzbergen, which increased by many millions the national wealth of these rich commercial states. The fishing went on at first immediately along the coasts, from which, however, the whales were soon driven, so that the whale fishers had to seek new fishing grounds, first farther out to sea, between Spitzbergen and Greenland, then in Davis Strait, and finally in the South Polar Sea, or in the sea on both sides of Behring Strait.

"Spitzbergen, when the whale fishing ceased in its neighborhood, was mostly abandoned, until the Russians began to settle there, principally for the hunting of the mountain fox and the reindeer. Of their hunting voyages we know very little, but that they had been widely prosecuted is shown by the remains of their dwellings or huts on nearly all the fjords of Spitzbergen. They seem to have often wintered, probably because the defective build of their vessels only permitted them to sail to and from Spitzbergen during the height of summer, and they could not thus take part without wintering in the autumn hunting, during which the fattest reindeer are got; nor could the thick and valuable fur of the winter fox be obtained without wintering. But the hunting voyages of the Russians to Spitzbergen have also long ceased. The last voyage thither took place in 1851–'52, and had a very unfortunate issue for most of those who took part in it, twelve men dying out of twenty. On the other hand, the Norwegian voyages to Spitzbergen for the seal and walrus hunting, begun in the end of the last century, still go on."*

NORWAY.

About the year 1864 Capt. Svend Foyn, of Tönsberg, established a whaling station on a small island in the Varanger Fiord in Finmark. The whales were captured with harpoons thrown from a swivel gun expressly constructed for the purpose, and mounted at the bow of a small steamer. This harpoon was charged at the lower end with an explosive ball that burst when the harpoon had penetrated the flesh, and killed the animal instantly. From the first this enterprise proved successful, and about 25 similar stations have since been started at different places on the Finmark coast, east and west of North Cape.†

* Voyage of the Vega, translated by Alexander Leslie, 1881, vol. i, pp. 291–293.

† Capt. Niels Juel, in a letter to Prof. S. F. Baird dated Bergen, Norway, September 22, 1884, gives the following information about the whale fishery of Norway:

"The whale fishery began in 1864 and was carried on till 1869 by a single company with one steamer, and from that date till 1877 by two steamers, belonging to the same company. In 1877 the number of companies increased to two, in 1881 to five, in 1882 to eight, employing twelve steamers, and in 1883 to fourteen, with twenty-three steamers. Of these companies eleven are in Ostfinmarken, east of Cape North, and three in Vestfinmarken, between Cape North and the town of Hammerfest. The catch has been as follows:

Year.	No. of whales.	Year.	No. of whales.	Year.	No. of whales.
1866	0	1873	36	1880	145
1867	1	1874	51	1881	279
1868	30	1875	37	1882	386
1869	17	1876	42	1883	506
1870	36	1877	32	1884	416
1871	20	1878	130	Total	2,327
1872	40	1879	123		

"In 1872, 1877, and 1878, whaling was tried in the Strait of Davis by one vessel, but without success. In 1883 Mr. Svend Foyn, who is the creator of the Norwegian whale fishery in Finmarken, put up an establishment in Iceland. This year he got twenty-two whales there. Whales are also occasionally taken by fishermen, who shoot them with arrows. In the waters of Spitzbergen there are taken every year, by vessels fitted out from Tromso, from 150 to 250 so-called white whales (*Delphinapterus leucas* Pallas), by means of nets, 1,100 to 1,200 meters long with meshes of 0.16 meter.

Prof. G. O. Sars, who visited Captain Foyn's station in 1874, says that the kind of whale captured almost exclusively is the blue whale (*Balænoptera Sibbaldi*). A smaller whale (probably *Balænoptera laticeps*) is also abundant, but, being smaller and less fat than the blue whale, is not captured. Two other species of whales are said to come there in small numbers during the season of the herring fisheries, *Balænoptera musculus* and the *Megaptera boops*.

The condition of the whale fisheries of Norway in 1881 is told by United States Consul Gade, of Christiania, in a report dated January 7, 1882. He says: "The floating ice in 1881 extended much farther to the south and nearer to the coasts of Norway than usual. It was even found between 15 and 20 Norwegian miles north of the North Cape. This circumstance was not without its influence on the temperature of the year, as the summer was unusually cold, but at the same time the opinion has been expressed that it was advantageous to the whaling on the coasts of Finmark, which was very considerable. It is supposed that ice drove such a supply of food into the fiords of Finmark that whales, fish, and sea birds were drawn there in crowds. During the month of March the Varanger Fiord is said to have offered a splendid spectacle; several thousand whales flocked in and carried on the wildest antics. The sea was covered with columns of spray, and the heavy sound of the whales breathing could be heard as far as Vadso. The whale is, however, protected during this month, and the fishing could only begin at the end of May, from which time it continues through the summer. Two hundred and eighty whales were caught in 1881, the largest number ever killed in one year off the Norwegian coasts. Some of the whales were described as having a length of 90 feet and a circumference of 40 feet. Such whales are not met with every day, but neither are they of exceeding rarity.

"The whaling business in Norway increases and engages larger capital every year. Whalers are now fitted out from several ports in Southern Norway, as well as from ports east and west of

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"The whales taken in Finmarken belong to the two species: Blaahvalen (*Balænoptera Sibbaldi* Gray), yielding 90 hectoliters of oil, and Finhvalen (*Balaenoptera musculus*), yielding 45 hectoliters; the Knolhval (*Megaptera boops* Fabricius) is also sometimes taken.

"The steamers used are built of iron, have a burthen of 32 R. T. nette and an engine of 25 to 35 nominal horse-power. The length is 22.5 to 26.7 meters, the breadth 4 to 4.3 meters, and the draught 2.5 to 2.8 meters. They are rigged as fore and aft schooners. Below deck are only the engine, the cabins, and a place for the cordage, as the whales are always towed ashore either by the steamer or by a tugboat. The crew consists of nine men, viz, the captain, one gunner, three engineers, one steward, and three sailors. The speed is 9 knots.

"The guns used are muzzle-loaders, of steel, with steel-coils and mounted on swivels. The length 1.2 meters and caliber 0.078. The charge 0.34 kilograms. They are fired at a distance of 20 to 40 meters. The gunner tries to hit the whale between the ribs as near the spinal column as possible.

"The gun-harpoon used was invented by Mr. Svend Foyn about 1860 and patented till 1882, when the patent ran out in Norway. It consists of: The shell, 0.104 meters in diameter, length 0.319, and charge 0.5 kilograms; the barb holster, length 0.319; the pole, length 1.307.

"The shell is screwed to the barb-holster, which contains a glass filled with sulphuric acid. To the pole is attached the rope, 0.143 in circumference and 733 meters long, with a ring running on the pole. The weight of the rope, which is of hemp, is about 1,450 kilograms.

"When the harpoon is to be used, the barbs, that are pivoting, are secured to the pole by rope-yarn, and the shell screwed on the holster. As the number of barbs are 4, the shell and the holster, that turn in the ring at the end of the pole when they are free, now form with the pole a solid mass. When the harpoon penetrates into the whale the rope-yarn slips off, the barbs turn as to make an angle with the holster, crushing the glass tube, and the sulphuric acid, that communicates with the powder in the shell through a channel in the screw, makes it explode.

"Most whales sink. When they do not sink, several whalers are of the opinion that the respiratory organ is filled with coagulated blood, impeding the inhaled air to get out again. The reason for this theory is that there comes very little blood through the nostril of a whale that do not sink. No hand-harpoons are used.

"The manner in which the fishermen kill the whale by means of arrows and cross-bow is the following: When a whale enters a bay the passage is barred with a strong net, and the whale shot. They let him go for two or three days inside. The arrows contain no poison, but later investigations have led to the discovery of a peculiar bacilla that lives on arrows already used, and which poisons the blood. Old arrows (of iron) are only esteemed, and now we know the reason why. After some days the whale becomes dying, and is dispatched with knives and harpoons. The flesh is eaten, with exception of the parts round the wounds, where is formed a tumor. The whale ordinary taken in this manner is the Vaagehval (*Balænoptera rostrata* Fabricius). The number may amount to 15 to 20 a year."

the North Cape, and five different companies were in 1881 represented by steamers. The first promoter of the whale and seal fishery in Norway, Capt. Svend Foyn, alone caught last summer one hundred and seven whales, and is now building two new steamers for whaling. Another vessel caught sixty whales on the same fishing grounds. Though it appears that whales are abundant on the shores of Finmark, it must be borne in mind from previous experience that these animals must finally be exterminated.

"The present fishing grounds are circumscribed, and there may come a time when these giant animals, who propagate but slowly, may disappear from the waters where they resort while devouring the masses of fish they drive in front of them.

"The value of an ordinary whale has been estimated at about 2,000 crowns [about $536], which, for two hundred and eighty whales killed last summer, gives a total sum of over half a million crowns [about $150,000]. To draw a comparison, we may state that the eleven steamers fitted out this year from Dundee, Scotland, for whale fishing off Greenland, caught forty-eight whales, valued at £35,000 or 630,000 crowns [$169,000, or an average of about $3,520 per whale].

"The fishermen engaged in the important cod fisheries off the Finmark shores have protested strongly against the whale fishing on their usual fishing grounds, and to the south of this country we find the same prejudice against whale fishing among the Swedes, who are this winter engaged in large herring fisheries. They have lately opposed the approach of a Norwegian whaler in the waters where they are engaged. The Norwegian whaler, which had been hired by a Swedish firm, was driven off on the plea that it was unlawful in Sweden to shoot where herring are being fished."*

GREAT BRITAIN.

The British whale fishery dates from about the beginning of the seventeenth century, as above stated in the discussion of whaling at Spitzbergen.

"Greenland was first discovered by the English; but in this, as in other branches of navigation, we long allowed the Dutch to take a lead. It was not till after 1750 that, Government having granted a bounty of 40*s.* a ton on every vessel employed in the whale fishery, a considerable increase took place in this branch. In 1750 the vessels employed were only nineteen; in 1756 they had increased to sixty-seven. The war soon caused a decrease of one-half; but at the return of peace, in 1763, this fishery revived, and in 1770 the vessels employed amounted to fifty, in 1773 to fifty-five, in 1775 to ninety-six. The American war again caused a decrease, and in 1782 the vessels so employed were only thirty-eight. In 1784 they increased to eighty-nine, and in 1785 to one hundred and forty. After this they exceeded two hundred annually till 1793; but the long continuance of the late war reduced them below half the number employed previously. In 1852 the whale fishery employed ships of the aggregate burden of 16,113 tons."†

The first whale ship to enter the Pacific Ocean is said to have sailed from England in 1787, and was sent by the colony of Nantucket whalemen who had gone to England at the close of the Revolutionary war. "Capt. Archelus Hammond," says Mr. F. C. Sanford, of Nantucket, "was first officer of that ship, and struck the first sperm whale ever known to be taken in that ocean. He afterwards sailed from London in the ship Cyrus, which ship he gave up to Paul West, his second officer, in 1801, and West made a fortune in her and left her to join his family in America, arriving in 1813. Captain Hammond came home to Nantucket in 1830."

The British whale fishery reached its greatest prosperity in 1815, when there were one hundred and sixty-four whalers on the ocean. About the year 1850 there were twenty-three British vessels in

* Commercial reports, State Department, No. 16, February, 1882, p. 293.
† Encyclopædia Brittanica.

the southern whale fishery, cruising chiefly on the Brazil Bank. In 1855 there were about fifty vessels in the Greenland and Davis Strait fishery. About the year 1865 some thirty-five vessels were employed in the northern or Greenland fishery. The southern fishery gradually declined until it is now practically abandoned. The northern fishery, however, has continued of importance, though the number of ports from which vessels are fitted has decreased. The vessels are now mostly fitted at Dundee and Peterhead.

The Scotch whale fishery at Greenland and Davis Strait is combined with sealing, and is carried on with the most powerful steamers, specially equipped for battling with ice.

The number of vessels in this fishery has decreased very much since 1830, as appears from the following statement of the size of the fleet in 1830, 1857, and 1868:*

Cities.	1830.		1857.		1868.	
	Ships.	Tons.	Ships.	Tons.	Ships.	Tons.
Peterhead	13	3,720	30	8,397	12	2,946
Fraserburgh			5	1,245	2	549
Aberdeen	10	3,035	6	1,482	1	239
Dundee	9	3,033	4	1,394	12	4,618
Kirkcaldy	5	1,507	3	1,058	1	452
Burrowstounness			1	357		
Hull	33	11,009	11	2,805	2	530
Whitby	2	686				
Newcastle	3	1,103				
Berwick	1	310				
London	2	642				
Montrose	4	1,302				
Burntisland	1	280				
Leith	7	2,426				
Greenock	1	316				
	91	29,459	60	16,738	30	9,336

In a communication to the State Department, under date of November 16, 1877, United States Consul McDougall, at Dundee, Scotland, gives some information concerning the British whale and seal fisheries in Davis Strait. He says: "The success of the whaling fleet belonging to this port was considerably greater in 1876 than in 1875. All the vessels, twelve in number, prosecuted both seal and whale fishing in 1876. The only change in the course usually followed was by one vessel, which went to Labrador instead of Greenland with the other ships. The total catch at the seal fishing was in 1876, 57,776 seals, yielding 625 tons of seal oil. Seal oil last year was valued at £32 per ton, and the average price for skins was 6*s*. Taking the 625 tons of oil at £32 gives £20,000, and 57,776 skins at 6*s*. each produces the sum of £17,332 16*s*.; so that the value of the seal fishing in 1876 was £37,332.16*s*. Only one vessel returned clean from the seal fishing.

"The total catch at the whale fishing was, in 1876, 64 whales, yielding 824 tons oil and 45 tons bone. The selling price of whale oil in 1876 was £35 per ton, and although as high as £1,200 per ton was got for bone, £800 was the average price. The 824 tons of oil produced £28,840 and the 45 tons of bone £36,000; total for the whale fishing, £64,840; total for the seal fishing, £37,332 16*s*.; total for both fishings, £102,172 16*s*. Of course from this sum must be deducted the expenses of the fleet, which are very heavy.

"In 1875 the value of the seal fishing was computed at £27,026 7*s*. 6*d*. and the whale fishing at £50,325; total for both fishings, £77,351 7*s*. 6*d*. This shows an increase in favor of 1876 in the seal fishing of £10,306 8*s*. 6*d*. and in the whale fishing of £14,515; total increase in both fishings for 1876, £24,821 8*s*.

* MORITZ LINDEMAN: Die arktische Fischerei der deutschen Seestädte, 1620–1868.

"This year two vessels went to the seal fishing in Labrador compared with one in 1876; and they were so successful, that the Dundee Seal and Whale Fishing Company have resolved to form a branch establishment at Newfoundland, and next spring two of their largest and most powerful screw steamers, instead of going to Greenland, will be dispatched to the Newfoundland seal fishing. The company has acquired a piece of ground, on which they are erecting the necessary buildings for carrying on the work connected with the fishing, including boiling-house, &c. There being no docks for the accommodation of the vessels, the company is constructing a wharf in close proximity to its premises, so that the steamers will be enabled to discharge their catches almost at the doors of the establishment. With the two steamers sent out by another company here (those which went this year), this will now make four Dundee vessels that will prosecute the Newfoundland seal fishing next spring. The effect of this change will of course be to give the remainder of the Dundee vessels going to Greenland a better chance of success, and it is hoped the results will prove satisfactory to all concerned.

"As all the vessels of the Dundee whale fleet have now arrived from Newfoundland and Greenland seal and whale fisheries for the year, I am able to give the number of seals caught and other particulars. The whole of the vessels (now thirteen in number) went both to the seal and whale fishing this year, two going to Newfoundland instead of to Greenland with the other ships. The number of seals caught in Newfoundland (Labrador) this year was for two vessels 46,600 seals, yielding 750 tons of oil; last year one vessel, 4,000 seals, yielding 47 tons oil; increase in 1877, 42,600 seals, 703 tons oil. The number of seal caught in Greenland this year was for eleven vessels, 29,400 seals, yielding 342 tons oil; last year for eleven vessels, 53,776 seals, yielding 578 tons oil; decrease in 1877, 27,376 seals, 236 tons oil."

*Statement of the British Davis Strait and Greenland whale and seal fishery, 1865 to 1877.**

Years	Ports.	Vessels.	Seals.	Whales.	Seal oil.	Whale oil.	Whalebone.
			Number.	Number.	Tons.	Tons.	Cwt.
1865	Peterhead	10 sailers	17,291	5	195	71	
	Do	3 steamers	10,284	6	113	84	
	Dundee	7 steamers	64,041	50	734	546	650
	Kirkcaldy	1 sailer					
	Hull	1 sailer					
	Do	1 steamer		5		40	60
	Frazerburgh	2 sailers	12,219		156		
	Aberdeen	1 sailer					
1866	Peterhead	9 sailers	16,188	31	187	269	
	Do	3 steamers	16,632	9	210	100	
	Dundee	11 steamers	48,418	30	674	333	372
	Hull	1 steamer					
	Do	1 sailer		2		16	40
	Frazerburgh	2 sailers	4,571		62		
	Aberdeen	1 sailer		9		100	100
1867	Peterhead	8 sailers	13,208	16	160	151	
	Do	4 steamers	21,368	4	287	29	
	Dundee	12 steamers	53,822	2	619	22	20
	Hull	1 steamer		2		26	40
	Frazerburgh	2 sailers	8,217		124		
	Aberdeen	1 sailer					
1868	Dundee	13 steamers	16,458	107	199	856	944
	Do	1 sailer		1		7	5
	Peterhead	5 sailers	†13,774	16	165	262	90
	Do	4 steamers	18,038	4	228	23	17
	Frazerburgh	2 sailers	3,986		33		
	Aberdeen	1 sailer		6		30	108

*Report on Commercial Relations of United States with Foreign Countries for 1877, p. 449.
†Also 845 white whales.

Statement of the British Davis Strait and Greenland whale and seal fishery, 1865 to 1877—Continued.

Years	Ports.	Vessels.	Seals.	Whales.	Seal oil.	Whale oil.	Whalebone.
			Number.	*Number.*	*Tons.*	*Tons.*	*Cwt.*
1868	Hull	1 steamer	230		3		
1869	Dundee	11 steamers	44,424	9	458	118	128
	Peterhead	9 sailers	*8,868	8	125	118	40
	Do	4 steamers	16,021	4	256	25	25
	Aberdeen	1 sailer					
	Hull	1 steamer		1		5	5
1870	Dundee	10 steamers	87,768	61	862	734	871
	Peterhead	7 sailers	8,373	18	132	125	144
	Do	4 steamers	32,087		487	5	5
	Aberdeen	1 sailer				98	91
1871	Dundee	10 steamers	64,497	133	652	1,163	1,313
	Peterhead	6 sailers	17,047	11	194	105	155
	Do	5 steamers	34,837	8	481	80	76
1872	Dundee	11 steamers	40,391	105	410	969	3,002
	Peterhead	5 sailers	1,851	9	25	131	132
	Do	6 steamers	8,442	24	129	293	292
1873	Dundee	11 steamers	25,480	158	262	1,303	1,344
	Do	1 sailer	4,131		46		
	Peterhead	7 steamers	37,827	2	754	16	16
	Do	3 sailers	6,784	12	73	110	115
1874	Dundee	11 steamers	44,087	190	575	1,419	1,436
	Peterhead	5 steamers	8,113		196	95	91
	Do	3 sailers	615		2	148	153
1875	Dundee	12 steamers	44,445	79	418	706	729
	Peterhead	6 steamers	†27,198	6	355	113	77
	Do	2 sailers		13		156	164
1876	Dundee	12 steamers	57,776	64	625	824	900
	Peterhead	5 steamers	‡4,180	13	75	222	138
	Do	3 sailers	371	5	5	69	94

* Also 859 white whales. † Also 360 white whales. ‡ Also 700 white whales.

The following additional account of the Dundee whale and seal fishery is from a report to the State Department by United States Consul Winter,* of Dundee:

"Nine steamers left Dundee for the Greenland seal fishing in 1881; their catches were 12,721 seals, yielding 201 tons of oil. Eight steamers went to this fishing in 1880; their catches were 29,100 seals, yielding 489 tons of oil, showing for 1881 a decrease of 16,379 seals and 288 tons of oil. Six steamers left Dundee for the Newfoundland seal fishing in 1881; their catches were 139,985 seals, yielding 1,797 tons of oil. Five steamers went to this fishing in 1880; their catches were 58,940 seals, yielding 726 tons of oil, showing for 1881 an increase of 81,045 seals and 1,071 tons of oil. Greenland, 1881, total catch, 12,721 seals, yielding 201 tons of oil. Newfoundland, 1881, total catch, 139,985 seals, yielding 1,797 tons of oil.

"At both fishings, 1881, total catch, 152,706 seals, yielding 1,998 tons of oil.

"At present the value of seal oil is about £29 per ton, while the skins average about 5*s.* each. Taking the 1,998 tons of seal oil got this year at £29 per ton gives £57,942; and the 152,706 skins at 5*s.* each gives £38,176 10*s.*; so that the total value of the seal fishery for 1881 is £96,118 10*s.* For 1880 it was computed at £52,385. There is therefore an increase for 1881 of £43,733 10*s.*

"Eleven steamers left Dundee for the Greenland whale fishery in 1881; their catches were 48 whales, yielding 514 tons of oil and 24¾ tons of bone. Twelve steamers went to this fishery in 1880; their catches were 712 whales (white, 600; black, 112), yielding 1,077 tons oil and 46½ tons of bone, showing for 1881 a decrease of 664 whales and 563 tons oil and 21¾ tons of bone.

* Commercial Reports, No. 17.

"The present selling price of whale oil is £33 per ton and of bone £720 per ton. The value of the 514 tons oil got in 1881, at £33, would be £16,692, and of 24¾ tons of bone, at £720 per ton, £17,820. The total value of the whale fishing for 1881 is £34,782; for 1880 it was computed at £62,706; there is therefore a decrease for 1881 of £27,924.

"Greenland and Newfoundland seal fishing: Total value for 1881, £96,118 10s. Greenland whale fishing: Total value for 1881, £34,782. Total value of both fishings for 1881, £130,900 10s. (From this sum the heavy expenses of the sealing and whaling fleet must be deducted.) Total value of both fishings for 1880 was computed at £115,091; accordingly there is an increase for 1881 of 15,809, which is attributable mainly to the success of the Newfoundland seal fishery this year.

"From the figures I have given it will be seen that the Greenland seal and whale fishings for 1881 have proved a failure, due, it is said, to the terrible severe weather that has prevailed in Greeeland this season. Dundee is the headquarters of this industry in this country, and has fourteen excellent screw steamers, whose total tonnage is 6,999, and nominal horse-power 1,008, engaged in the fishing. In addition to this there was another vessel (steamer) of 396 tons, but she was lost this season in Davis Strait, but the crew were all saved and distributed amongst the other Dundee ships, which brought them home. All accounts concur in representing the weather experienced in Greenland this year as being exceptionally stormy, for weeks gale succeeding gale, blowing the vessels in upon a body of heavy ice, and some of them have thereby been more injured than usual this year. However, there has been no loss of life except from natural causes. Seventy to eighty men go to make up a Greenland sealer's crew, and one hundred and twenty to one hundred and fifty that of a Newfoundland sealer, and fifty for a Greenland whaler. From forty to fifty men accompany the vessels from Dundee; others are got in Shetland and at Saint John's, Newfoundland. These men are paid in wages about £2 per month and an allowance of so much per ton as may be fixed upon for oil money; so that if the voyage does not turn out well, as is the case of the Greenland seal and whale fishing this year, the men and their families are badly off during the winter. Only two vessels will return anything to their crews in the shape of oil money this year. Formerly all the seal-skins that came to Dundee had to go to London to be cured or tanned. One large firm engaged in the seal-fishing business here has been erecting commodious and improved premises for carrying on the tanning process themselves, and they have an immense stock of skins of their own to commence operations upon. This is a new industry added to Dundee. A matter of interest in connection with the whale fishing has been discussed this year, viz, the use of steam for propelling the vessels while in the fishing grounds. The noise of the propeller scares the fish within a distance of a few miles, and a master of a ship, by ill-judged eagerness to approach a whale, may deprive a whole fleet of a rich harvest from the object of their common pursuit. An agreement between the captains of the Dundee ships, regulating the use of steam to meet the necessities of the case, was drawn out and subscribed by them, and was, it appears, fairly adhered to this year. The following is a complete detailed comparative statement showing the value of the seal and whale fishings to the community of Dundee for twelve years, and the yearly average value of same:

Dundee whale and seal fisheries, 1870 to 1881.

Year.	Number of steamers seal fishing.	Number of steamers whale fishing.	Number of seals caught.	Number of whales caught.	Tons of seal oil.	Tons of whale oil.	Tons of whalebone.
1870	9	6	45,450	61	870	760	43 11/16
1871	9	8	65,485	133	648	1,165	65 13/16
1872	11	10	40,621	105	429	1,010	53 3/16
1873	11	10	25,594	158	265	1,352	67 4/16
1874	11	9	46,252	190	577	1,290	71 13/16
1875	12	12	45,295	79	455	765	36 9/16
1876	12	12	57,776	64	625	824	45
1877	13	13	76,000	* 1,016	1,092	955	42 1/4
1878	12	13	77,411	6	1,106	114	6
1879	15	13	96,710	68	1,168	729	36 3/4
1880	13	12	88,640	† 712	1,215	1,077	46 1/4
1881	15	11	152,700	48	1,998	514	24 3/4
Total	143	129	817,840	2,640	10,448	10,555	541 3/16
Average per year	11	10	68,111	220	870	879	45 1/16

* 81 black, 935 white. † 112 black, 600 white.

Year.	Average value of seal oil per ton.	Average value of seal skins, each.	Average value of whale oil per ton.	Average value of whalebone per ton.	Total value of seal fishing.	Total value of whale fishing.	Total value of both seal and whale fishing.
	£	s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1870	37	3 0	44 0 0	450 0 0	39,007 10 0	53,037 10 0	92,045 0 0
1871	33	3 6	37 0 0	500 0 0	32,843 17 6	75,930 0 0	108,773 17 6
1872	40	4 0	42 10 0	510 0 0	25,284 4 0	70,006 0 0	95,290 4 0
1873	40	3 6	43 0 0	460 0 0	15,078 19 0	89,048 0 0	104,126 19 0
1874	37	5 0	39 0 0	540 0 0	32,912 0 0	89,082 0 0	121,994 0 0
1875	34	7 6	36 0 0	500 0 0	32,455 12 6	45,765 0 0	78,220 12 6
1876	33	6 0	35 0 0	800 0 0	37,332 16 0	64,840 0 0	102,172 16 0
1877	32	5 0	35 0 0	1,400 0 0	53,944 0 0	92,925 0 0	146,869 0 0
1878	32	5 0	35 0 0	1,500 0 0	54,744 15 0	12,990 0 0	67,734 15 0
1879	30	5 0	33 0 0	1,200 0 0	59,217 10 0	70,377 0 0	129,594 10 0
1880	25	5 0	28 0 0	700 0 0	52,385 0 0	62,706 0 0	115,091 0 0
1881	29	5 0	33 0 0	720 0 0	96,118 10 0	34,782 0 0	130,900 10 0
Total	401	57 6	440 10 0	9,280 0 0	531,324 14 0	761,488 10 0	1,292,813 4 0
Average	33 1/3	4 9 1/2	36 14 2	773 6 8	44,277 1 2	63,457 7 6	107,734 8 8

The distribution of the bow-head whale in these regions and the movements of the Scotch whalers is discussed as follows by Mr. R. Brown:

"Whales appear on the coast of Danish Greenland early in May, but are not nearly so plentiful as formerly, when the Davis Strait whaler generally pursued his business on this portion of the coast; but they are now so few that they are generally gone north before the arrival of those ships which have first proceeded to the Spitzbergen sealing. It is rarely found on the Greenland coast south of 65° or north of 73°; indeed I have only heard of one instance in which it has been seen as far north as the Duck Island near the entrance of Melville Bay, and even for a considerable distance south of that it can only be looked upon as an occasional straggler. However, after crossing to the western shores of Davis Strait, it occasionally wanders as far north as the upper reaches of Baffin's Bay. The great body, however, leave the coast of Greenland in June, crossing by the 'middle ice,' in the latitude of Svarte Huk (Black Hook), in about latitude 71° 30′ N. The whaler presses with all speed north through Melville Bay to the upper waters of Baffin's Bay, and across to the vicinity of Lancaster Sound. If there is land-ice in Baffin's Bay at the time they arrive (about the end of July), there are generally some whales up that sound and Barrow's Inlet; but

they accumulate in greatest numbers in the neighborhood of Pond's Bay, and even up Eclipse Sound, the continuation of the so-called Pond's Bay, which is in reality an extensive unexplored sound opening away into the intricacies of the Arctic Archipelago. The whales continue 'running' here until the end of June, and remain until about the end of August or the beginning of September. The whalers think if they can reach Pond's Bay by the beginning of August they are sure for a 'full' ship. The whales now commence going south, and the whalers continue to pursue them on their austral migration, halting for that purpose in Home Bay, Scott's Inlet, Clyde River, and the vicinity. As the season gets more tempestuous and the nights darker, most of them towards the end of September, to avoid the icebergs dashing about in this region at that time of the year, anchor in a snug cove, or *cul de sac*, lying off an extensive unexplored sound, not laid down on any map, in the vicinity of Cape Hooper; others go into a place known by the euphonious name of 'Hangman's Cove';* whilst others go south to Kemisoak (Hogarth's Sound of Penny), Northumberland Inlet, or other places in the vicinity of Cumberland Sound and the Meta Incognita of Frobisher—localities intimately known to many of these hardy seamen, but by name only to geographers. Whilst the good ship lies secure in these unsurveyed and unauthorized harbors (each master mariner according to his predilection), the boats go outside to watch for whales. If they succeed in capturing one, frequently, if possible, the vessel goes out and assists in securing it. Though they are supposed to return to the ship every night, yet at this time the men are often subjected to great hardship and danger. This is known as the 'autumn' or 'fall fishing,' and this method of pursuing it as 'rock-nosing.'

* * * * * * *

"Where the whale goes in the winter is still unknown. It is said that it leaves Davis Strait about the month of November, and produces young in the Saint Lawrence River, between Quebec and Camaroa, returning again in the spring to Davis Strait. At all events early in the year they are found on the coast of Labrador, where the English whalers occasionally attack them; but the ships arrive generally too late, and the weather at that season is too tempestuous to render the 'southwest fishing' very attractive. Later in the year the ships enter Cumberland Sound in great numbers; and many of them (especially American and Peterhead vessels) now make a regular practice of wintering there in order to attack the whales in early spring. It is said that early in September they enter Cumberland (Hogarth's) Sound in great numbers and remain until it is completely frozen up, which, according to Eskimo account, is not until the month of January. It is also affirmed by the natives that when they undertake long journeys over the ice in spring, when hunting for young seals, they see whales in great numbers at the edge of the ice-floe. They enter the sound again in the spring and remain until the heat of the summer has entirely melted off the land-floes in these comparatively southern latitudes. It thus appears that they winter (and produce their young) all along the broken water off the coast of the southern portions of Davis Strait, Hudson Strait, and Labrador. The ice remaining longer on the western than on the eastern shore of Davis Strait, and thus impeding their northern progress, they cross to the Greenland coast; but as at that season there is little land-ice south of 65 degrees, they are rarely found south of that latitude. They then remain here until the land-floes have broken up, when they cross to the western shores of the strait, where we find them in July. I am strongly of belief that the whales of the Spitzbergen Sea never, as a body, visit Davis Strait, but winter somewhere in the open water at the southern edge of the northern ice-fields. The whales are being gradually driven farther north and are now rarely found, even by their traces, so far south as the Island of Jan-Mayen (71 degrees north latitude), round which they were so numerous in the palmy days of the Dutch whaling trade.

* From an Eskimo being found here hung by an allunak over a cliff.

I am not quite sure, after all that has been said on this subject, that the whale is getting extinct, and am beginning to entertain convictions that its supposed scarcity in recent times is a great deal owing to its escaping to remote, less known, and less visited localities. It is said to be coming back again to the coast of Greenland, now that the hot pursuit of it has slackened in that portion of Davis Strait. The varying success of the trade is owing not so much to the want of whales as to the ill luck of the vessels in coming across their haunts. Every now and again cargoes equal to anything that was obtained in the best days of the trade are obtained. Only seven years ago I came home to England ('shipmates,' as the phrase goes), with no less than thirty 'right whales,' in addition to a miscellaneous menagerie of Arctic animals, dead and alive, and a motley human crew—a company so *outré* that I question if ever naturalist, or even whaler, sailed with the like before."*

In 1877 the Scotch whaling and sealing vessels began the capture of the bottle-nose whale (*Hyperoodon rostratus*); in 1878 this fleet killed 9; in 1879, 8; in 1880, 32; in 1881, 111, and in 1883, 403. These whales are found in Davis Strait and adjacent waters and eastward of Greenland from Cape Farewell to Iceland, Jan-Mayen, and Bear Island, and as far north as seventy-seven degrees north latitude. They are about 30 feet long, and yield an excellent quality of oil.†

RUSSIA AND RUSSIAN AMERICA.

In a pamphlet by Dr. Grimm on Russian fisheries the whale fisheries of that country are thus discussed: "The beluga or white whale (*Delphinopterus leucas*) is from 14 to 25 feet long. Beluga fishing is carried on in the White Sea, where the beluga lives all the year round; also in the gulfs of the N. Dvina, Onega, Kondolon and Mezen; in the Arctic Ocean it is found to the east of the White Sea, near the mouth of the Petchora, along the Timan coast, chiefly near the river Piosha; near Nova Zembla, at the mouth of the Obi, and farther on. In chasing fish, it goes very high up the rivers, for instance, up the Obi. It is caught in nets, with which it is surrounded, drawn to a shallow place and killed in what is called the dvor, or yard; from four to six boats take part in the work. The quantity of oil got from the beluga is various. Sometimes a herd of large animals have been killed, each of which yielded about 12 poods [432 pounds] of blubber, and at other times one meets belugas that yield only some 4 to 5 poods [144 to 180 pounds]. The exact number of beluga caught in a year is not known, as in the statistics of the fisheries the beluga is classed with all the walrus, seals, whales, &c. The dolphin (*Delphinus delphis* and *D. phocæna*) is found in considerable numbers in the Black Sea. From this sea, in chasing fish, it enters the various gulfs and bays and into the Sea of Azof. The Turks come into the Black Sea after the dolphin, chiefly visiting Pischoonda. Our fishermen sometimes catch it, but generally content themselves with a stray dolphin that may get in among the fish. *Delphinus phocæna* is sometimes met with in the Baltic, and even has come up as far as Cronstadt, but very rarely.

"There are four kinds of whales in the Arctic Ocean: *Megaptera boops*, *Balænoptera laticeps*, *Balænoptera musculus*, and *B. Sibbaldii*. The last is the one that whalers chiefly kill, the first three being killed now and then. Notwithstanding the efforts of the Russian Government to increase whaling, it is still in a very primitive condition here. The Laps and Pomors, it is true, use whale-blubber, but it is procured from the carcasses of whales that are often driven ashore. They never kill whales, owing, perhaps, to the false idea that the whale drives the *moyva* (*Mallotus arcticus*) to the shore, and that therefore whales are useful to the fisheries, and that they ought not to be

* Notes on the History and Geographical Relations of the Cetacea frequenting Davis Strait and Baffin's Bay. By Robert Brown, F. R. G. S. Proc. London Zoolog. Soc., 1868.

† For a full discussion of this fishery see papers by Mr. Thomas Southwell in London Zoologist, and in Transactions of Norfolk and Norwich Naturalists' Society, vol. iii. In 1883 Mr. Southwell reports the Scotch fishery as fallen off in consequence of the number of small Norwegian vessels attracted to this new fishery.

exterminated. However, from one hundred and fifty to two hundred whales a year are killed on the Mourman coast by Norwegian whalers, who have their oil-works in Finmarken. How profitable whaling is will be seen from the fact that all the expenses of the trade are covered by the sale of the secondary products, such as whalebone, &c., and that the oil, of which each whale yields some 1,000 roubles' [$750] worth [from 36,000 to 72,000 pounds of blubber], forms the clear profit of the whaler. At present there is a company with a considerable capital being started in St. Petersburg, which intends next year to start whaling along the Mourman coast.

"We have no information as to the number of whales in the eastern part of the Arctic and in the Bering Straits. Putting aside the products got by the inhabitants of the Arctic coast, which, at any rate, is of some consequence, and only counting the products of regular whaling and seal fishing, we remark the very extraordinary fact that the wide-spreading Arctic Ocean, with its many gulfs, and the White Sea, yield a great deal less than the smaller Caspian does by nothing but its seals. As there are more animals (even seals) than in the Caspian, this can only be accounted for by the thorough way in which the business is carried on in the Caspian, where it is aided by natural conditions, by the comparative ease of killing seals, and by the presence of capital and enterprise. In the north, on the contrary, the danger and difficulty of the trade, and the absence of a population, counteract the possibility of its yielding as great a quantity of useful products as it might well do without destroying the natural abundance.

"In consequence of this, one cannot help wishing that whaling, &c., would increase in the north, and that more care would be taken in seal fishing in the Caspian, where seals may be completely exterminated in a considerably short time. We may remark that as many very valuable animals, for example, the Greenland whale, Kamtchadal otter, &c., are gradually dying out, and are in danger of the fate of their cousin, the sea cow (*Rhytina Stelleri*), and as it is next to impossible for one state to prevent it, it is very desirable that a committee should be formed for the working out of a set of rules for hunting, trapping, &c., which would be binding on all countries."*

RUSSIAN WHALING AT ALASKA AND THE OKHOTSK SEA.—In discussing the condition of the territory of Alaska prior to its cession to the United States, Mr. Petroff says of the whale fishery:

"The American whalers frequenting the Bering Sea previous to entering the Arctic through Bering Strait had frequently been the object of complaint to the Russian Government by the Russian-American Company. It was claimed that these whalers made a practice of landing on the Aleutian Islands to try out blubber, and that the offensive smoke and stench resulting from this operation had the effect of driving away the precious sea otter from the coast. In 1842 Chief Manager Etholin reported that in his tour of inspection throughout the colonies he had encountered several American whalers close inland, but that they refused to answer his questions or to obey his orders to leave the Russian waters. Some of the whalers learned that in 1841 fifty ships from New Bedford and Boston had been in the vicinity, and that they had succeeded in capturing from ten to fifteen whales each. From 1842 these complaints concerning the whalers were renewed every year, and during Tebenkof's administration he proposed to the company to go into the whaling business in the waters of Bering Sea and the North Pacific as the best means of keeping out foreigners. His plan was to hunt whales in boats from the harbors of Aleutian Islands, and to engage at first a number of American harpooners and steersmen until the Aleutians had been sufficiently trained to do the work.

"Under the terms of the treaty with England and America no vessel of either of those two nations was allowed to hunt or fish within 3 marine leagues of the shore; but as there was no armed Government craft in the colonies the provisions of the treaty were totally disregarded by the

* Dr. O. GRIMM: Fishing and Hunting on Russian Waters; St. Petersburg, 1883.

whalers, until at last the company proposed to the Imperial Government that if a cruiser were sent out from Russia to guard the colonial coast against intruders the company would bear the expenses of such a vessel. The Emperor agreed to the proposal, and gave orders to the naval authorities to prepare estimates as to cost and expenditure. In reply a report was received stating that the sum of 270,000 rubles was required to fit out the ship for the cruise, and 85,000 rubles annually for its maintenance. This sum the company found itself unable to pay and the project fell through. At last, in 1850, the corvette Olivitza was ordered to the Sea of Okhotsk, and did some service in keeping foreign whalers out of that sea and breaking up their principal station near the Shanta Islands. In the mean time Tebenkof's suggestions concerning the fostering of Russian whaling interests in the Pacific had borne some fruit; a few of the shareholders of the Russian-American Company, together with some ship-owners in Finland, concluded to fit out whaling ships in Finland or at Cronstadt and send them around into the waters of Bering Sea and the Arctic beyond the straits.

"A capital of 100,000 rubles was quickly contributed, and active operations began as early as 1849. By order of the Emperor a sum of 20,000 rubles was appropriated from the special fund of the province of Finland to aid in the construction of the first whaling ship, and a sum of 10,000 rubles to be paid the company for the construction of each succeeding ship of the same class. The company also obtained the privilege of importing, free of duty, all the material necessary for building and fitting out the first twelve ships and to carry on the business without payment of duties for a period of twelve years. The name of this branch company was 'The Russian-Finland Whaling Company,' and its charter was approved on the 13th of December, 1850.

"The first ship, the Suomi, of 500 tons, was built in the port of Abo, Finland, in the year 1851. The command of the vessel was intrusted to a German captain, Hagshagen, and a crew of thirty-six men was engaged, which consisted principally of foreigners, among them three steersmen, three harpooners, and three coopers. The whale-boats had been imported from New Bedford. The cruise of the Suomi in the Okhotsk Sea in the year 1852–'53 was very successful, the catch being 1,500 barrels of oil and 21,400 pounds of whalebone; the cargo was sold in the Sandwich Islands, realizing 88,000 rubles, a sum that covered the price of constructing the vessel and fitting it out and left a clear profit of 13,000 rubles. Unfortunately the war with England and France broke out about that time and interfered with further operations in this line.

"The Suomi had sailed for home before the news of the war reached the Sandwich Islands, and consequently knew nothing of the circumstances when she made the first port on the English coast. The pilot came off and, strange to say, warned the captain of his danger, and gave him an opportunity to make his escape to Bremen. The presence of French and English cruisers in the channel made it necessary to sell the ship at Bremen for the comparatively small sum of 21,000 rubles.

"The second whale-ship dispatched by the new company was the Turko, which left for the Okhotsk Sea in 1852, having been fitted out altogether at Åbo. The captain was a German by the name of Schäle, and the crew consisted of twenty-five Finlanders, many of whom had served on American whaling voyages. A cargo of goods for the Russian-American Company was also forwarded in this ship, but by various disasters the vessel was delayed and did not arrive at Sitka until late in 1853. Shortly before reaching port a few whales were killed, 150 barrels of oil and 650 pounds of bone being secured.

"Early in the following spring the ship proceeded to sea under command of the first mate, Sederblom, the captain being disabled by disease. The voyage was very successful, resulting in a catch of 1,700 barrels of oil and 23,000 pounds of whalebone.

"During the siege by the Anglo-French fleet the Turko was in the harbor of Petropaulovsk, but succeeded in making her escape, discharging her valuable cargo at Kadiak for safe keeping, and finally reached Sitka, where she remained safely until the end of the war.

"The third whale-ship dispatched to the North Pacific from Finland was the Aian, 540 tons. She was commanded by a Finlander, Captain Enderg, and reached the sea of Okhotsk in 1854. The catch during the first year was not great, and in the spring of 1855 the naval commander of Kamtchatka ordered the captain to land his cargo and to transport the families of officers and soldiers from Petropavlovsk to the Amoor, and during this voyage the ship was captured by an English frigate and burned. At the end of the war the whaling company discovered that, though no actual loss had been incurred, the profits of the business were not what they had expected, and the subsequent operations do not seem to have been pushed with energy or vigor.

"A few more ships were fitted out, but as soon as they returned with their cargoes of oil and bone they were sold for whatever price they would bring. It was perhaps unfortunate for the interests of the Russian whaling industry in the North Pacific that the company engaged in the business was so closely connected with the Russian-American Company, which was then becoming more deeply embarrassed every year."*

WHALE FISHERY OF FRANCE.

"The whale fishery was established in France in 1784, by means of encouragements held out by Louis XVI, who ordered that no duty should be collected on the articles exported, and that the produce of the fisheries should pay no import duty. He guaranteed the adventurers against loss, and ultimately paid, in addition to £12,500, which he advanced without interest, an additional sum of £6,695, being the balance of loss on seventeen voyages; but notwithstanding these encouragements, the whole project was abandoned in 1787. In 1816 the offer of bounties attracted new adventurers into this branch of trade. The premium offered by the Government was 50 francs (£2) per man, and two-thirds of the crews were allowed to be foreigners. In 1819 40 francs were allowed to foreign vessels having a crew half French, 50 francs when the captain and one-third of the crew were French, the premium to be doubled if the vessel passed Cape Horn. In 1829 a new ordinance granted 90 francs per ton on vessels wholly equipped by Frenchmen, 40 francs when only two-thirds were Frenchmen, and 30 francs if the captain was a foreigner. The premium was doubled if the vessel passed Cape Horn. A supplementary premium was allowed to vessels fishing to the southeast of the Cape of Good Hope, and the double premium was given to all vessels fishing at a higher northern latitude than 60 degrees, and as the fishing is seldom or never prosecuted at a lower latitude, this premium of 180 francs per ton (£7 4*s.*) was invariably paid. The law of 1832, which regulates the whale fishery of France, established a bounty of 70 francs per ton from March, 1832, to March, 1833, if the whole crew were French; the bounty to be diminished 4 francs yearly till it reached 54 francs. If one-third of the crew be foreigners, the bounty to be 48 francs per ton, to diminish 2 francs yearly till it reached 40 francs per ton. A supplementary bounty to be given of 50 francs per ton if the crew be French, decreasing 3 francs per annum per ton; and 24 francs if one-third be foreigners, decreasing 1 franc per annum, to be paid to vessels doubling Cape Horn, or reaching 62 degrees of south latitude, if returning with less than half a cargo or after an absence of sixteen months; 500 tons to be the minimum for a single whaler.

"With these extraordinary encouragements capital was attracted to this new line of industry, and in 1831 three vessels cleared out for the Greenland whale fishery and thirteen for the South

*Report on the Population, Industries, and Resources of Alaska, by Ivan Petroff, special agent U. S. Census Office, Washington. 1884.

Sea fishery, which employed 6,412 tons of shipping and were manned by five hundred and fifty-one men. Notwithstanding all the bounties given to the whale fishery, France has very few vessels engaged in it. There were only seventeen ships in the trade in 1849, and seven only re-entered French ports. There were but five vessels left Havre in 1853, of a tonnage of 2,045 tons, and with a crew of one hundred and twenty-seven men. The return of the products was 112,485 kilograms of the whale, 1,589 of the cachalot, and 81,712 kilograms of the whalebone.

"It was estimated by the minister of commerce, in his report on this subject to the Chamber of Deputies more than twenty years ago, that the five hundred and fifty seamen employed in the whale fishery do not cost the state less than 1,000,000 francs, at the rate of £72 12*s.* per man, or £— a month. The wages granted by the budget to seamen employed in ships of war amounted to £1 per month, so that the allowance to the seamen employed in the Greenland fishery is six times the ordinary allowance of seamen in the public service. It is remarkable that France was granting these extravagant allowances for the encouragement of the whale fishery exactly at the time that Great Britain was withdrawing the bounties by which she had formerly endeavored to promote this branch of trade as a nursery for seamen. Yet in 1830 the number of vessels that cleared out for the fishery in England was one hundred and twenty-three, consisting of 40,166 tons, navigated by five thousand and forty-four seamen, being thus about eight times the quantity of tonnage employed by France. The Government of Louis Philippe, alarmed at the large outlay in bounty, endeavored to lessen it and to render it transitory and temporary only. M. d'Argout, the minister of commerce, insisted that those bounties exhausted the resources of the state, and decreasing bounties were after a period adopted, but M. Cunin Gridaine, who was minister of commerce, relapsed into the old error by introducing supplemental bounties. The provisional government of 1848 by one decree argumented the bounties, and by a second extended the term of the law to December 31, 1851. On the 22d of July, 1851, the National Assembly voted for the continuance of the bounties to 1861."*

AUSTRALIA, TASMANIA, AND NEW ZEALAND.

Shore whaling has been practiced to a limited extent on the south and west coast of Australia, under the direction of Americans who had left their vessels while cruising in that vicinity. One of these whaling stations was at Vasse, in Geographe Bay, on the southwest coast of the island, and another was at Bunby, some 30 miles farther north. "At certain seasons of the year the right and humpback whales resort to various bays on this coast for the purpose of producing their young. A lookout is stationed on an eminence ashore, and several boats' crews being near at hand, at the appearance of a whale the alarm is given and they start in pursuit. At times their work is very easy, but if the whale should run out to sea, after being struck, they are obliged to tow him to the shears, and frequently a day and night are consumed in this arduous employment. If the whale is attended by a calf they always fasten to the latter first, knowing that the mother, in her solicitude for her offspring, is very careful not to use her tremendous flukes, or, if a humpback, her sweeping fins; but woe betide the boat, unless an experienced boat-header directs it, that is in the vicinity when she discovers that her calf is dead. She then remains close to the lifeless body, striking right and left with flukes and fins to avenge her loss, and, as the slightest tap from these formidable weapons would cause destruction, it requires all the boat-header's adroitness to avoid them. The officers, boat-steerers, and, if they can by any means be procured, two-thirds of the crews are Americans. We have a world wide reputation for skill in this pursuit." †

* Ency. Britannica, vol. x, p. 266. France has had no fleet since 1866.

† W. B. WHITECAR, jr., : Four years aboard the Whale Ship : Phil., 1860, p. 91.

Decennial return showing the number, tonnage, and crews of Tasmanian vessels engaged in the whale fisheries; also the number and tonnage of such vessels entered inwards, and the quantity of oil, &c., which they brought into port.

[Compiled from statistics of the colony of Tasmania for 1879.]

Year.	Vessels employed.			Vessels entered inwards.		Produce brought into port.					
	No.	Tonnage.	Crews.	No.	Tonnage.	Black oil.		Sperm oil.		Whalebone.	Value.
						Tuns.	*Gallons.*	*Tuns.*	*Gallons.*	*Pounds.*	
1870	15	3,146	376	(*)	(*)	1	0	448	0	.....	£35,880
1871	19	4,917	470	18	4,275	5	0	659	0	100	46,350
1872	19	4,917	488	13	3,070	14	18	339	0	.....	27,420
1873	18	4,765	444	18	4,612	13	18	558	0	.....	44,000
1874	16	4,088	389	13	3,405	.....	.....	352	0	.....	30,780
1875	13	3,525	315	6	1,628	.....	.....	139	28	.....	12,465
1876	13	3,525	315	15	3,955	9	126	470	0	.....	41,740
1877	12	3,295	324	11	3,054	.....	.....	451	126	.....	31,605
1878	11	3,156	321	11	2,733	.....	.....	282	0	.....	16,920
1879	11	3,156	326	8	2,317	.....	.....	268	126	.....	13,425

* Not given in the returns prior to 1871.

The whale fisheries of New Zealand are discussed as follows in a report to the Department of State by U. S. Consul G. W. Griffin, dated Auckland, New Zealand, May 16, 1881:

"The presence of a fleet of American whaling vessels from New Bedford, Mass., now in the waters of New Zealand, has directed my attention to the condition of the whale fisheries of this colony. The principal ports of New Zealand for whaling vessels are Russell and Mangonui. There appears to be no just reason why these ports should be preferred to others of the colony, unless it is that Russell and Mangonui are small places and do not offer as great inducements for the men to desert their ships as the larger cities, and that it is always difficult to supply the loss of trained men for whaling purposes.

"The whale fisheries of New Zealand, like those elsewhere, have declined rapidly during the last thirty years, but they now appear to be rallying again. The cause of their decline has doubtless been the substitution of other material for whalebone and the discovery of kerosene and other lubricating oils which have taken the place of whale and sperm oil. A large number of whaling stations were established along the coast of New Zealand as far back as 1825. The industry has been a very lucrative one. Few ships that ventured to those shores were unsuccessful in obtaining full cargoes of oil and bone.

"I find that the industry was most successfully pursued by what was known as 'shore parties,' who located themselves at eligible points all round the coast of the islands. The method of catching whales by shore parties was first started in New Zealand by some of the rough white adventurers from the Australian colonies, who had for many years previously pursued the arduous life of catching seals in boats and small crafts along the coasts of the Middle Island and Foveaux Strait. They were encouraged to engage in the pursuit of the whale and to form establishments for that purpose on the shores of Cook Strait. Upon hearing of the success of these shore fisheries the people established whaling stations at Wellington. Some also were started at various points on the west coast of the North Island, near New Plymouth, and a large number at various places on the east coast of the North Island, between Cape Palliser and East Cape.

"These stations were fitted out for the capture, chiefly, of the black or 'right' whale (*Balæna antipodum*), which approached the shores of New Zealand in large numbers during the calving season, from May to October, inclusive. Very frequently the sperm whale, the humpback, the pike-headed, and other species came near enough also to be captured by the shore parties. The stations were generally established near a projecting headland, close to which there was deep

water, and where, from the lofty summit of the headland, a good view could be had of the offing and of any whales which might chance to sport there. The advantages rendered the site an eligible one. The season for which the men engaged themselves began with the month of May and lasted until the beginning of October, extending through a period of five months, which in New Zealand includes the winter season. During these months the cow whales resort to the coast with their young calves.

"It required a large sum of money to equip a whaling station. A pair of shears, such as are used for taking out or putting in the masts of ships, had to be erected in order to raise the immense carcasses above water, so that they could be more conveniently and expeditiously cut up. It was also necessary to build 'try-works,' as they were called, being furnaces for melting the blubber. Storehouses were erected and well supplied with spirit, cord, and canvas. Three or four well-built and well-found boats completed the outfit. All these establishments seem to have been conducted on the same system. The men employed in the active part of the work received a certain per cent. of the oil procured, and the remainder was the share of the merchant at whose expense the station had been fitted up, and who had also the advantage of taking the oil at his own valuation, which very generally was largely in his favor. In looking over some old records kept at one of the stations near the East Cape I find that in one year forty-one whales were caught, which yielded 145 tons of oil and 1½ tons of bone. I have been informed by old whalers here that as much as 14 tons of oil had been obtained from one whale. A breeding cow and calf produce about 1 cwt. of bone to 1 ton of oil, but a small fat whale a much less proportion.

"The flourishing condition of the fisheries attracted vessels from all parts of the world. In 1843 as many as twenty whaling vessels were seen at one time in the harbor of Otago, Middle Island. At a later period Russell, Bay of Islands, became the favorite resort of the whalers. The fisheries, however, began to decline rapidly, notwithstanding the employment of an increased number of boats and men. The places which were once the favorite haunts of whales soon became entirely deserted by them. The country at that time was without a representative form of government, and no laws were enacted to protect the fisheries. The whales frequenting the coast of New Zealand were soon extirpated or driven off to other regions. They were attacked by the shore parties the moment they reached the coast, when they had generally by their side a calf too young to support itself without being suckled by the mother, and which perished as a natural consequence of her loss. Had an act been passed making it unlawful to kill the whale until a later period in the season, many of the calves would have been spared to return the following year.

"In 1858 the legislative assembly of New Zealand, with a view of improving the condition of the whale fisheries, passed an act, which is still in force, requiring the proprietors of whaling-stations to give valid security on future produce of oil and bone. There had been very general complaint among the whalers that the merchants would not advance money or goods without legal security. The act enabled the merchant to receive a mortgage on the oil and bone which the proprietors of the whaling stations might obtain during the ensuing season. The mortgage must be in duplicate, and recorded, so that no subsequent sale by the whaler can affect the security. If the whaler should refuse to deliver the oil and bone specified therein the owner of the security can take possession of the same.

"This security is made transferable by deed, and by indorsement, and every transferee has the same right, title, and interest as the person in whose name such security was originally taken. The security can also be canceled by the registrar at any time at the request of the owner. The act further provides that if fraud should be practiced on the owner he can recover double the amount of the consideration named in the mortgage, and every one found aiding or abetting such frauds shall be fined double the amount of the consideration.

"The proprietor of one of the whaling stations on the North Island has described to me the method of catching the whale by the shore parties. The men are enrolled under three classes, viz, headsman, boat steerer, and common man. The headsman is the commander of the boat, and his post is at the helm, except during the time of killing the whale, which honor also falls to his lot. The boat-steerer pulls the oar nearest to the bow, always steering under the direction of the headsman, and fastens the harpoon to the whale. The headsman then kills the whale. The common men have nothing to do but to ply their oars according to orders, except one called the tub-oarsman, who sits near the tub containing the whale line, and sees that no entanglement takes place.

"The wages are the shares of the profits of the fishery, apportioned to the men according to their rank. The headsman gets more than the boat-steerer, and the boat-steerer more than the common man. The leader of the party commanding the boat is called the chief headsman. A certain code of etiquette or laws exists among the whalers. This code has been handed down by tradition, and is in all cases faithfully adhered to. It regulates and settles the various claims to the whale. Each station has its own laws and customs. It is a fundamental rule, however, among all of them that he who once made fast has the right to the whale even should he be obliged to cut his line, provided his harpoon still remains in the whale. Each harpoon has its owner's private mark, and there can be no dispute about the ownership of the weapon. The boat making fast to the calf has a right to the cow, because it is well known that the cow will not desert her young. A boat demanding assistance from a rival party must share equally with the party granting the assistance. These unwritten laws are universally recognized among whalers. A dispute seldom occurs as to the ownership of the whale. Should such a dispute arise it is always satisfactorily settled according to the code.

"The whale-boat used by the shore parties differs in size and construction from those used by whaling vessels. The former is clinker shaped, sharp at both ends, and is higher out of water at the bow and stern than it is amidships. It is usually about 30 feet long and narrow in width, and especially adapted for riding on the surf. A platform is erected at the stern, reaching forward about 6 feet, even with the gunwales. To this is attached a cylindrical piece of wood used for checking the whale-line, and it is a custom to cut a notch in this wood for every whale killed by the boat.

"A constant lookout for whales is kept from a site near the station, and when a whale is sighted three or four boats are immediately launched and proceed at racing speed, the spout of the whale, like a small column of smoke on the horizon, indicating the direction to be taken. When the fastest boat reaches the whale, the boat-steerer drives the harpoon straight into the animal. A turn is taken around the loggerhead to check the rapidity with which the line runs out, and the boat flies through the water, forming ridges of foam above the sides. The skill of the headsman is now shown in steering and watching the course of the whale. Other harpoons are thrown into the animal, which, after diving several times, soon becomes exhausted. The headsman then lets fly his lance into the spot where life is said to be. The animal soon afterwards spouts thick blood and is a sure prize. This method of catching whales is, however, not so satisfactory or profitable as that pursued by whaling vessels, and is principally practiced now by the Maori, or native race.

"The sperm whale is more frequently met with in the New Zealand waters than any other kind of whale. Mr. Eldridge, the first officer of the American bark Janus, informed me that during last March he saw forty or fifty of these whales near the East Cape. The sperm whale travels at the rate of 4 or 5 miles an hour. Adult females or those with young in their company evince a strong affection for each other, and when one is killed or sustains injury the parents or companions hover about, and even render assistance. The whalers take advantage of this trait and kill a number before the others make off. When, however, a company of male whales are found, and

one is attacked, all the others desert their wounded companion. The whale will sometimes lie with its mouth wide open, as if waiting for the 'squid,' its principal article of food, and will close upon it like a trap. Some say that the squid is attracted by the pearly teeth of the whale. The sperm whale is known by the act of blowing, which is performed with regularity every ten minutes. The spout sent up can be seen at a distance of 3 miles. Mr. Eldridge tells me that when one is sighted the boats leave the ships very quietly, the men making as little noise as possible with their oars and paddles. When struck, the whale generally sounds, or descends to a great depth, taking out the lines belonging to the boat. When spent with the loss of blood it becomes unable to sound, but passes rapidly along the surface, towing after it the boats. If it does not turn, the men draw in the line and dispatch him. When a whale is killed, the boats are fastened to its body and brought alongside the ship. A hole is cut back of the head, a hook is inserted, and the fat or blubber is cut in long, spiral-shaped strips and hoisted on deck. The head is then opened and the spermaceti taken out. The fat is then boiled on board in the furnaces, the scraps serving as fuel. The oil is then put in casks. It is generally supposed that it is water which the animal propels through its vents, but such is not the case. It propels the vapor of water, just as all animals expire their breath, only the vapor on coming in contact with the cold air immediately condenses, at first in a white cloud and afterwards in a small fine rain. The volume of air thrown up along with the surrounding moisture and condensed vapor often rises in a great jet. Sperm whales travel the seas in great herds, from one hundred to three hundred, and they are said to acknowledge a leader, who swims in advance and gives the signal of combat or flight by uttering a peculiar roar. It can remain under water for an hour and twenty minutes at a time; sometimes it leaps out of water fully 25 feet into the air and shows its entire body. The neck vertebræ of the sperm whale are fused together. The upper surface of the broad, shoe-shaped skull has a large, basin-like cavity, wherein the spermaceti is lodged.

"The sperm whale is also remarkable for the ambergris which is sometimes found in it. Ambergris is the most precious of all the ingredients used in the manufacture of perfumes. It is now very generally acknowledged to be a morbid secretion of the liver of the spermaceti whale. It is remarkable that the two most precious products of the sea, ambergris and pearl, are the results of disease. Ambergris is found floating on the ocean and is sometimes washed ashore. It is a little lighter than water and bears some resemblance to the bark of a tree. It is described as of a waxy ure, streaked with yellow, gray, and black, and emitting a peculiar aromatic odor. It fuses at 140° and 150° F., and at a higher temperature gives out a white smoke, which condenses in a crystalline fatty matter. It varies in size from 1 to 30 pounds, but occasionally pieces are found in whales weighing from 100 to 200 pounds. Its use in the manufacture of perfumes is not so much on account of its fragrance as its peculiar property of causing other ingredients to throw out their odors. It is compared in this respect to mordant in dyes, without which the color would fail to become permanent. Perfumes that contain ambergris are very expensive, and those made without it smell of alcohol. It varies in price from $12 to $50 per ounce.

"Among the whales peculiar to this colony is the New Zealand *Berardius*. It is a species of ziphoid whale. One was captured not long ago off the coast of Canterbury. It was described by Dr. Julius Haast as 30½ feet long, of beautiful velvety color, with a grayish belly. The female *Berardius* gives birth to a single young one in the autumn. They feed chiefly on cuttle-fish. The skull is most peculiar in having two crests at the occiput, of most unequal size and figure, and the cheek-bones at the roof of the beak are raised into a pair of huge elevators. The upper jaw is toothless, and the lower jaw has only two or three small teeth. The neck vertebræ are united, and, moreover, the stomach is remarkable, even among cetacea, for the number of chambers it contains there being six or seven divisions.

"The right whale (*Balæna antipodum*) is often caught in the New Zealand waters. In this animal the baleen plates take the place of teeth and hang suspended from the roof of the mouth. Captain Grant, of Horatio, is said to have captured a whale off this coast, New Zealand, yielding over 2 tons of whalebone. The baleen plates vary in size from a few inches to 12 feet in length. Their chemical composition is albumen, hardened by small particles of the phosphate of lime. In their natural state they are of a bluish black color, striped with white. They are covered with small fibers, which are carefully scraped off; the plates are then boiled until they are soft enough to cut; the color being objectionable, they are dyed black before being sent to market. The dyeing is generally done during the process of boiling.

"In 1878, the number of American whaling vessels which arrived at the various ports of New Zealand was thirteen, with an aggregate tonnage of 3,422. In 1879, the number was fifteen, and the tonnage 3,792. Captain Fisher, of the American whaling bark Alaska, now at Russell, Bay of Islands, New Zealand, informs me that he has cruised off the coast of these islands for a period of six years, and during that time he has taken over 7,000 barrels of sperm oil, which he thinks is above the amount taken by any other vessel in the same length of time. He took home with him on his last voyage, according to the New Bedford Republican Standard, the most valuable cargo of sperm oil ever brought to that place, which is a good deal to say, inasmuch as New Bedford is the largest port for whaling vessels in the world. Captain Fisher writes me at Russell, Bay of Islands, New Zealand, under date of the 13th of May last, 'that he will sail for New Bedford on the 20th instant with 930 barrels of oil (800 sperm and 130 whale oil) and about 600 pounds of whalebone.

"I give below a table showing the quantity and value of whalebone, whale oil, and sperm oil exported from the various parts of New Zealand for each year since 1869 to 1880:

Year.	Whalebone.	Whale oil.	Sperm oil.	Value in American currency.
	Pounds.	*Gallons.*	*Gallons.*	
1869	5,143	.....	.....	$1,525
	.....	18,509	.....	17,190
	.....	.....	7,640	5,835
1870	5,959	.....	.....	1,698
	.....	23,769	.....	20,095
	.....	.....	29,978	33,500
1871	3,017	.....	.....	1,260
	.....	3,893	.....	2,840
	.....	.....	42,920	58,625
1872	6,712	.....	.....	3,800
	.....	40,670	.....	41,285
	.....	.....	2,982	3,160
1873	3,544	.....	.....	560
	.....	5,787	.....	4,205
	.....	.....	6,958	10,285
1874	6,234	.....	.....	2,200
	.....	11,799	.....	9,650
	.....	.....	6,964	10,550
1875	.....	14,108	.....	10,500
	.....	.....	12,812	24,470
1876	.....	4,536	.....	2,250
	.....	.....	22,827	32,275
1877	.....	.....	15,004	20,160
1878	.....	.....	18,488	25,205
1879	.....	4,640	.....	3,640
	.....	.....	15,717	18,725
1880	3,584	.....	.....	3,015
	.....	3,861	.....	2,395
	.....	.....	20,969	26,255

WHALE FISHERY AT BARBADOES.

Mr. Alleyne S. Archer, in an article in The Field, the Country Gentleman's Newspaper, for October 22, 1881, thus refers to the whale fishery at Barbadoes:

"The whale fishery was started by me some fourteen years ago in this island, and I have carried it on every year up to the one last past. I find that the whales have not decreased, nor do they appear any wilder or harder to be caught; on the contrary, with the improved weapons that have been introduced of late years, and with the experience that has been gained by all who engage in it, the catching and killing of them may now be considered as pretty easy, although at times a very tiresome work. When first I engaged in it Demerara offered a very remunerative price for the oil, which is made from what we call the black or humpback whale. I then readily obtained 5*s.* 6*d.* per imperial gallon for the oil, which at that time was largely used there for lubricating as well as for burning. Year by year has witnessed its decline in value in every market in the world. A few years after I had first started, Demerara rejected it, and would not purchase it at any price, kerosene having superseded it as a burner, and lard oil as a lubricator. Trinidad for a year or two then afforded a good market; but from the great influx of oil from Grenada, St. Vincent, &c., the market became glutted, and the price has never gone back to anything like a remunerative figure. The United States was then tried, but the heavy duty of 20 per cent. ad valorem on foreign catch entirely hindered any further exportation to those shores. The only market now where the oil or bone can be sold to any advantage is the English, that is to say, in London. This oil is of much the same value as that procured from the large 'right whale,' which sometimes yields 150 barrels of oil, while these humpbacks never give more than 90 to 100 barrels, 45 being the average. Right whales and sperm whales are never seen in these waters, but the latter are often taken amongst the Leeward Islands. The bone obtained from the humpback is about from 1 to 3 feet long, while the bone from the right whale is from 6 to 12 feet long, and now worth £500 per ton. The carcass of the whale has recently been utilized for the purpose of manure manufacture, and all the bones thereof have been used up; and this, with the oil and baleen (or bones from the mouth), would make the business profitable, notwithstanding the low quotation of oil and bone as given before.

"The fishery is carried on now in the central part of the island (to leeward). The boiling-house, where we try out the blubber, is on the shore, close to the beach; the boats are hung on davits on a jetty, which is about 200 feet long, and built in very smooth water. The whale is taken to the end of the jetty, where we have a depth of water of 2 fathoms. A large whale is generally about from 50 to 60 feet in length, and makes from 50 to 60 barrels of oil; and we rarely catch larger. This is cut in in about twenty-four hours, and then boiled out in forty-eight hours. Four boats lower every week day; two go north, and two go south. Each boat has seven men: one officer, who sticks and kills the whale; one boat-steerer, who steers and attends to the line when the whale is struck; and five men to use the paddles and oars, &c.

"Whales make their appearance here in January and leave in June, but we do not employ men to go after them until March; we, however, keep the boats ready in January, and if an opportunity offers we avail ourselves of it; and I have many times killed whales in January and February. In the month of March they begin to arrive pretty plentifully, and the cows then begin to calve, or bring their young calves with them to feed close in shore in smooth water. Whenever we see a cow and calf we generally succeed in taking them; but when the bull is with them our chances are not so good, as he seems to keep a first-rate watch, so that we cannot approach as we otherwise should do. However, the way we set to work is this: the boat is provided with 300 fathoms of manila whale-line, four toggle-irons (harpoons), three hand-lances with spear-shaped

heads (the lance being six feet long on a wooden pole 5 feet long), one breech-loading bomb-gun and five or six explosive-bomb lances. All the whaling is done under sail when there is wind enough to propel the boat; otherwise we use oars and paddles. We endeavor to keep a little behind the whale, but on one side or the other, and when we get a favorable chance to get onto it unperceived, we do so. We always strike the calf first if there is one; if not, strike any whale we get near enough to; the officer puts two irons in if he gets a chance, if not only one. He then directs the men to haul the boat close up to the whale (right on top of it very often), when he shoots a bomb into it and darts his hand-lance as near the heart as he can get it, some two or three times, when he slacks off the boat to allow the whale to kick and tumble about in the agony produced by the lances. When the lancing has been effective the whale generally at once spouts blood (but not at all times) and soon expires, perhaps in ten minutes; again, perhaps not in twelve hours, as I have known them spout thick blood at sunrise, and to get away at sunset, but such cases are now very rare, half an hour being about the average time required to kill it.

"It is very interesting to see the whale at feed in the shallow and clear water, and to notice the manner in which the mother protects her offspring and the way it suckles her. A whale on being struck darts off with velocity, and the men have to be very careful in their movements, otherwise they may lose their lives. I was once taken out of the boat by the line getting round me while I was in the act of shooting a large 70-barrel whale, yet I managed to get off safely; but such an escape is very rare, as the line takes the man down so quickly that he is at once drowned.

"Sometimes the boats get knocked to pieces by the flukes of the whale, then the other boat comes to the rescue. Six years ago we struck a calf at daylight close in to the shore, and soon after we fastened to the cow. She spouted blood in a few minutes, notwithstanding which she took us to the windward of Saint Lucia before dark; she then died after we gave her some sixteen bomb lances. I happened to be in the boat that killed her, and directed the whale to be taken into Martinique, where we boiled it out, getting 8 tuns of oil. The flesh of the whale is very much consumed here by all classes, and is considered to be not unlike beef, and is preferred by many to the bad cattle usually slaughtered in the leeward parishes of Barbadoes. I give an abstract of the catch for ten years past."

Abstract of whale oil taken at Barbadoes from 1869 to 1878.

[Tuns whale oil of 252 gallons each.]

Year.	Tuns.	Year.	Tuns.
1869....	10	1874...	65
1870.....	5	1875.....	60
1871.....	80	1876	55
1872.....	50	1877.....	60
1873.....	47	1878...	40

WHALE FISHERY OF CHILI.

There are several whaling stations or shore parties along the south coast of Chili. A small fleet of whaling vessels is owned by some Chilian companies. Their cruising grounds extend from Panama Bay to Chiloe, in latitude 47° south, and from the coast as far seaward as 120° west longitude. The sperm oil is chiefly shipped to England and the other oils consumed in Chili.

WHALE FISHERY IN THE GULF OF SAINT LAWRENCE.

The Canadian fisheries yield annually about one thousand white whale or porpoise hides, and about $15,000 worth of whale oil. The skins are prepared as leather, producing an excellent article, largely used for sportsmen's boots and for other purposes.

In the report of the Commissioner of Fisheries of Canada for the year 1875 is the following reference to the whale fishery:

"Whaling expeditions on our coasts began only when the New England loyalists settled on the shores of Gaspé, after the peace of 1763. Experienced in whale hunting, which they had practiced on the coast of New England, these settlers were not long in discovering what profits could be made by following a pursuit which they were well versed in. Such were the beginning of the first whaling expeditions. Vessels engaged in them were not at first numerous, being composed of small craft, but their number became larger by degrees, and in a short time not less than one dozen fine large schooners were reckoned as being engaged in that fishery. This was the golden time for Gaspé, and the oldest inhabitants, who still remember the enormous profits realized in these expeditions, cannot sufficiently condemn the improvidence of whalers who were not prudent enough to secure at that time the wealth and abundance which was pouring on them. The number of schooners engaged in this pursuit has gradually decreased until it is now reduced to three.

"The waters of the Gulf of Saint Lawrence are frequented by three kinds of whales, but the species most sought after is that called the humpbacked, so named from the peculiar formation of their backs. Whales had been so eagerly pursued for some years past by Gaspé fishermen that they disappeared for the same causes, I presume, which led them to abandon the shores of Europe and America. This fishery having become unremunerative was abandoned. Helped by this short breathing time whales had an opportunity to reproduce their species, and during the past two years they have been noticed in as large quantities as formerly. Whalers engaged in fishing this season state they saw thousands of them in the Gulf, but that bad weather prevented the making of a large catch. Three vessels fitted out at Gaspé Basin during the month of June, and had fair success—the Admiration, Captain Tripp; the Lord Douglass, Captain Baker, and the Violet, Captain Suddard. The results of these expeditions were as follows:

Name of vessel.	Oil.
	Barrels.
Admiration	240
Lord Douglass	220
Violet	120

"The fishing mostly took place on the coast of Labrador and in the Strait of Belle Isle; the cargo of the Violet was secured within a short distance from Gaspé. This fishery would have been twice as productive had not rough weather and floating ice made navigation dangerous during the summer and fall. Oil sold for 50 cents a gallon."

For the season of 1880 the following report is made by Mr. George H. Hall, United States consul at Gaspé Basin:

"Whaling has proved so unremunerative a pursuit for a number of years past that there remains but one small vessel employed in that business. The voyage occupies the summer months, and generally is in the vicinity of the Strait of Belle Isle. About 9,000 gallons of oil, a few hundredweight of small whalebone, and a few barrels of whale meat were the product of this summer's cruise. Price of oil, 45 cents per gallon; whalebone (small), $10 per cwt."

The condition of the whale fisheries within the Gulf of Saint Lawrence in 1852 is discussed by Mr. M. H. Perley, as follows:*

* Reports on the Sea and River Fisheries of New Brunswick. By Mr. M. H. PERLEY, Fredericton, 1852.

"The extent to which the whale fishery is carried on within the Gulf of Saint Lawrence by vessels from Newfoundland is very little known, nor is its value appreciated. The Jersey houses who have fishing establishments in Gaspé also fit out vessels for this fishery, which cruise about Anticosti and the northern shore of the Saint Lawrence. Mr. MacGregor, in an official report to the Board of Trade, thus describes this fishery:

"'The whales caught in the Gulf of Saint Lawrence are those called humpbacks, which yield on an average about 3 tons of oil, some having been taken 70 feet long, which produced 8 tons. The mode of taking them is somewhat different from that followed by the Greenland fishers; and the Gaspé fishermen first acquired an acquaintance with it from the people of Nantucket. An active man, accustomed to boats and schooners, may become fully acquainted with everything connected with this fishery in one season. The vessels adapted for this purpose are schooners from 70 to 80 tons burden, manned with a crew of eight men, including the master. Each schooner requires two boats, about 20 feet long, built narrow and sharp, and with pink-sterns; and 220 fathoms of line are necessary to each boat, with spare harpoons and lances. The men row towards the whale, and when they are very near use paddles, which make less noise than oars. Whales are sometimes taken in fifteen minutes after they are struck with the harpoon. The Gaspé fishermen never go out in quest of them until some of the smaller ones, which enter the bay about the beginning of June, appear; these swim too fast to be easily harpooned, and are not, besides, worth the trouble. The large whales are taken off the entrance of Gaspé Bay, on each side of the island of Anticosti, and up the river Saint Lawrence as far as Bic.'

"Mr. Bouchette, in his work on Lower Canada, represents the whale fishery of the Gulf as meriting the attention of the legislature, and needing encouragement, by which, he says, the number of vessels employed would be considerably increased, and this important branch of business would be as effectually carried on by the hardy inhabitants of Gaspé as to compete, in some degree, if not rival, that of the Americans, who were, at the time Mr. Bouchette wrote, almost in the exclusive enjoyment of it, and carried on their enterprising fisheries in the very mouths of the bays and harbors of Lower Canada.

"Sir Richard Bonnycastle, in his work entitled 'Newfoundland in 1842,' says, 'The coast and Gulf whale fishery is now being of much value to Newfoundland.' Sir Richard states that the vessels employed are large schooners, with crews of ten men each; that the fishery is pursued during the whole of the summer months along the coast of Labrador, and in and through the Straits of Belle Isle, and that whales of all sizes are taken, from the smallest 'finner' up to the largest *mysticetus*, or great common oil whale of the northern ocean, which occasionally visits these regions.

"It is believed that hitherto no attempt has been made by the people of New Brunswick to enter into this whale fishery, and it is a very proper subject for inquiry, whether it might not be profitably conducted by New Brunswick vessels, and the active and enterprising fishermen of the Bay of Chaleur, who are equally well placed for carrying it on as their hardy comrades on the Gaspé side of the bay."

WHALE FISHERY OF GERMANY.

Bremen and some other German ports were formerly largely interested in the whale fishery. An excellent historical review of this industry is given by Dr. Lindeman, in his work entitled "Die arktische Fischerei der deutschen Seestädte, 1620–1868."

The whale fishery of Bremen in 1864 employed five vessels, in 1865 three vessels, and in 1866 four vessels. The imports of oil and bone into Bremen in 1865 and 1866 were as follows:

	1865.		1866.	
	Quantity.	Value.	Quantity.	Value.
Whale oil ..... gallons	427,050	$293,380	386,190	$259,444
Whalebone ..... pounds	169,212	192,428	252,722	304,249

Some German vessels have engaged in the North Pacific whale fishery. Among these vessels were the ship Comet, cruising from 1861 to 1868; the Oregon, from 1864 to 1867, and the Julian, from 1865 to 1868.

2.—THE WHALEMEN, VESSELS AND BOATS, APPARATUS, AND METHODS OF THE WHALE FISHERY.

By JAMES TEMPLEMAN BROWN.

1. THE WHALEMEN.

NATIONALITIES.—As to the nationality* of the crews now employed in the whale fishery, I should say that the captains are almost always of American birth, usually residents of the New England States, and rarely a native of the Western Islands. The mates are usually New Englanders, but occasionally Portuguese, or perhaps a half-breed Indian from Gay Head, Mass., or Montauk Point, Long Island, may fill the office. As a rule the boat-steerers are foreigners, principally Portuguese, Indians, or Kanakas. Formerly the crews were composed almost entirely of Americans, and were made up, for the most part, of residents of New Bedford or the New England States, with an occasional delegate from almost every State in the Union. Subsequently there seemed to be a gigantic funnel, with its nozzle inserted in New Bedford, through which all classes and conditions of men from all parts of the United States found an outlet to the broad ocean. Still later, the intelligent American-born citizen withdrew from the forecastle of the whaler, and his place was supplied by a foreign element from the various islands and coasts visited by the vessels during their voyages. Though the foremost hands are representatives of almost all nations, they are mainly natives of the Azores, or Western Islands, Cape Verde, Annobon, St. Thomas, or some of the numerous other little islands on the west coast of Africa, with a sprinkling of Kanakas, Guamies, Lascars, New Zealanders or Maories, West Indiamen, half-breeds—a mixture of Spaniard and Indian—from the coasts of Peru, Colombia, and other parts of the South American coast, English, Dutch, Scotch, Irish, Italian, French, and occasionally an American. A more heterogeneous group of men has never assembled in so small a space than is always found in the forecastle of a New Bedford sperm whaler.

In case of death or desertion during the voyage vacancies are filled by some of the above-named classes, or by an amalgamated class of comparatively worthless men of different nationali-

* Of the three thousand eight hundred and ninety-six men composing the crews of the New Bedford whaling fleet in 1880, it is estimated that one-third were American born, one-third Azorean and Cape Verde Islands Portuguese, and the remainder negroes, Kanakas, and other nationalities.

ties, known as "seasoners,"* "beech-combers," and "shoalers." Some of them may be engaged for the season, and others for the balance of the voyage; although the terms are specified when the papers are signed, they are seldom respected or observed by this class of men. Upon their arrival at New Bedford the crews are not disposed to ship again as whalemen, preferring to try their luck with the coasters in the carrying trade, or perhaps in the fisheries. But these branches of the service rarely suit them, and as they are constitutionally opposed to manual labor ashore, being accustomed in their native islands to the open sea, many of them are compelled to ship again in self-defense as whalemen, or to be shipped, *nolens volens*, by their boarding masters for debt. They rarely return to this country, however. No one seems to know or care where this vagabond element goes or how it disposes of itself.

The natives of the Azores, Cape Verde, Annobon, and St. Thomas, though of the negro element, speak a corrupt form of the Portuguese language. The "Cape Verdes," as they call themselves, are mulattoes—a mixture of negro and Portuguese—and more intelligent than the Brävas, Fogoes, and Annobons, who are exceedingly black. Both classes may mingle freely in business matters, but socially the Cape Verdes consider themselves superior. The Kanakas, Maories, Guamies, Lascars, Annobons, West Indiamen, and some of the Portuguese, make good whalemen, but indifferent sailors. On their native islands their eyes have been educated in distinguishing remote objects on the surface of the sea; hence they are especially desirable at the lookout of a whaling-vessel, since they can often detect the slight puff of the sperm whale's breath amid the surface mist peculiar to low latitudes. More especially is this true of the Kanakas. They know no fear and never hesitate to approach a whale and harpoon it; but on the vessel they are lazy and shiftless.

The remnants of the Chilmark Indians (half-breeds) at Gay Head (Martha's Vineyard) and Montauk Point (Long Island) furnish excellent material for the whale-fishery, and upon them New Bedford relies more or less for her boat-steerers. The mate and two boat-steerers of ship Niger, which sailed from New Bedford in October, 1882, were Indians. In the early days of whaling, and indeed after this industry had established a solid footing, the white man relied in part upon the Indian to man his boats and to perform other duties in this fishery.†

Few Americans below the rank of mates and captains are to be found on whaling-vessels now sailing from our ports. In former days, New England's best sons were trained in this nursery; commencing as they did as cabin boys or foremast hands, they worked their way through the various gradations of promotion. The sons and other male connections of the commission mer-

* The "seasoners" are men who may be obtained on any coast to ship for the season, but the term is, in a measure, synonymous, or nearly so, with "beach-combers"; the principal difference is, that if there is any respectable element at all in either class it may be found in the former. Many of them are adventurers, growlers, and deserters from whale ships. They prowl about the shores of the various islands in the Atlantic and Pacific, and can only be induced to again enter the service when necessity drives them to it. It is seldom they can be depended upon to discharge their duties, even after they sign the articles. The "beach-combers" may also be found about the shores. They are a lazy, shiftless, degraded class of men who have no respect for themselves and, consequently, receive none from others. They embrace different nationalities, many of them are deserters, and the majority of them are unreliable. They are at times compelled to ship as whalemen to obtain means of subsistence, but as soon as they get several "able-bodied meals," and receive supplies of clothing from the "slop chest," they desert at the first opportunity, and sacrifice their lays, being no better off than before, excepting that they have had a temporary home in the ship and leave with better clothing on their backs. The "shoalers" are half-breeds, a mixture of Spaniard and Indian, frequenting the coasts of Peru, Chili, and Colombia. They are usually engaged for the season, and are fair whalemen. Formerly masters of well-regulated whaling vessels declined to ship any of the above-named classes; but at present they are compelled to make up their crew from this element when they are short-handed on the voyage.

† In 1672 the town of Southampton, Long Island, passed an order for the regulation of whaling and the employment of the "Indyans to go a-whaling," in which it is stated that an Indian should not receive "for his Hire above one Trucking Cloth Coat, for each Whale hee and his Company shall Kill, & halfe the Blubber, without the Whale Bone, under a Penalty therein expreat."—ALEXANDER STARBUCK: Hist. Amer. Whale Fishery.

chants and ship-owners of Nantucket were not deemed competent as business men until they became familiar, by actual experience, with every detail of the fishery; and, according to "Miriam Coffin," so strong were the prejudices against any man who was not a whale-fisherman, that the daughters of Nantucket formed an organization of "female Freemasons," and refused to marry a man who had not first killed his whale.*

The New England fleet at this time was manned almost exclusively by American-born citizens. Crews for the New Bedford vessels were made up from neighboring towns. Capt. Isaiah West, now eighty-six years of age, tells me that he remembers when he picked his crew within a radius of 60 miles of New Bedford; that oftentimes he was acquainted, either personally or through report, with the social standing or business qualificalions of every man on his vessel; and also that he remembers the first foreigner, an Irishman, that shipped with him, the circumstance being commented upon at that time as a remarkable one.

The Provincetown vessels are engaged exclusively in the Atlantic fishery, and consequently the natives of the numerous islands of the Pacific Ocean are seldom found in this fleet. The main dependence is placed upon Portuguese† from the Cape Verdes and Azores, and a small percentage of white men from Maine, Vermont, New Hampshire, and Massachusetts. Occasionally an Irishman is shipped. Probably about one-fourth of the Provincetown crews is composed of Americans. The crews shipped at San Francisco are composed of negroes, Mexicans, Kanakas, and Americans, and, rarely, an Indian from Cape Flattery.

DISCIPLINE ON THE VESSELS.—There is a certain kind of relaxed discipline on all whaling-vessels; for, as might be expected from the character and morale of the present crews, if the captain once "looses his grip on his men," the voyage will result in a failure. Manacles and handcuffs are usually carried, though seldom used, the captains preferring in all cases to rule and govern their men by moral suasion. Occasionally, however, it may be necessary to iron an insubordinate, pugilistic, or drunken man. He is then placed in the run of the vessel, or between decks in the blubber room, and kept on bread and water until willing to comply with the rules of the

* The author of Miriam Coffin, in continuation of his remarks in regard to Freemasonry upon the island of Nantucket, says:

"It was never fairly understood what were the secret obligations of these female Masons; and it was even doubted whether they had any 'secrets worth knowing,' inasmuch as no important operations, either of good or evil tendency, were known to be put in practice in the little town of Sherburne [Nantucket], or to disturb the world at large. This much, however, came afterwards to be divulged: an obligation, if not under the solemnity of an oath or affirmation, was at least assumed by the novitiate under the charge of the officiating mistress, that she would favour the courageous whale-fisherman, under every circumstance, in preference to a stranger and a landsman, if the alternative should ever occur. The letter and the spirit of this charge were for a long time pertinaciously adhered to by the unmarried members; and some of them were known to carry it so far as to make it a *sine qua non* in permitting the addresses of their suitors, that they should have struck their whale, at least, before the smallest encouragement would be given or a favouring smile awarded as the earnest of preferment.

"It has been shrewdly suspected that the chivalric ordeal, thus enforced by the fair maidens of the isle, was set on foot by some of the patriotic whale-fishermen and oil merchants of the place, in order to perpetuate a nursery of peculiar seamen; while in doing so, they were sure to secure valorous husbands, and a certain competency for their daughters, as well as a monopoly of the trade to the island. The intermarriage of so many whale-fishermen with the daughters of whale-fishermen, until almost all the inhabitants did, in reality, claim near relationship, and call each 'cousin,' at all events would seem to point that way, and to favour the presumption. Certain it is, that the daughters of some of the wealthiest men of the island had already formed a compact not to accept the addresses of sighing swains, much less to enter into the holy bonds of matrimony with any but such as had been on a voyage, and could produce ample proof of successfully striking a whale."—*Miriam Coffin, or The Whale-Fishermen*, pp. 57, 58.

† The Portuguese are gaining a foothold on some parts of the eastern coast. Through an increasing importation by whaling-vessels, they are becoming quite numerous in New Bedford, and have quartered themselves in one section of the city which is known as "Fayal." Some of them are property-holders, and make good citizens, and, like the true negro, believe in the unfailing powers of conjuration. The Cape Cod Portuguese usually engage in the cod fishery, and as they find this branch of industry remunerative, they rarely ship as whalemen again, unless they do so purposely to invite a difficulty with an officer at sea and to seek redress at the end of the voyage, the law for the protection of seamen being very stringent.

ship. When a rebellious seaman is guilty of a misdemeanor, it lies within the province of the captain, so long as he keeps within the bounds of the law, to determine what punishment should be commensurate with the offense. In early days complaints of harsh treatment were frequently entered against overbearing masters; but such is rarely the case now. The present captains in the fleet are intelligent men with broad and enlightened views, and kindly disposed towards their men. By the judicious system of pay which grants each man a certain interest in the proceeds of the voyage, the men are kept in a better state of subordination than would be the case if they received stipulated sums in compensation for their services. On the one hand, they have every motive to promote the interests of the ship; in doing this, they contribute to the success of the voyage and put money in their own pockets; on the other hand, they would naturally feel as a wage-earning people, whether they worked early or late, their pay would still go on, and the successful termination of the voyage would be a matter of indifference to them.

LIFE ASHORE.—One word in regard to the ordinary whaleman's boarding-house. I visited several of these institutions, both in the day-time and at night. Those located in the section of New Bedford known as Fayal are two-story frame structures with no pretensions whatever to anything but plainness and simplicity. On an average, they compare favorably with other cheap boarding-houses patronized by the laboring classes in almost any section of the country. The fare is plain and substantial, and while there are no superfluous articles of domestic furniture, there is no lack of such articles as the actual necessities of a boarder require. I noticed a marked difference between the houses kept by the Cape Verdes and those kept by the Brävas. The former were cleaner, better furnished, and more homelike and inviting. The Cape Verdes also are more particular as to the kind of men they entertain, while the Brävas indiscriminately take any one who applies for board, provided he is able to pay for it. The price for board and lodging varies from $3 to $5 a week. The boarding-house keepers "drum up" customers in different ways. Some of them write letters to their friends or relatives in their native islands, requesting them to notify the whalemen who ship on American vessels that touch at their ports for supplies and men that board and lodging can be obtained upon their arrival at such and such a number on a certain street in New Bedford. As soon as a whale-ship is reported, the boarding-house keepers and outfitters charter a small vessel and board the whaler, usually after she gets into the harbor. In some cases, I am told, the foreigners arriving in this country for the first time, have letters from parties in their native islands addressed to the New Bedford boarding-house keepers. In this case, the immigrants gladly avail themselves of their opportunities; but if they have no letters, they become the prey of the "sharks."

The Portuguese have their regular weekly dances on certain nights. The spare moments of late arrivals seem to be occupied in sitting idly about the wharves or stores, or in standing in little knots or groups about the streets, awaiting the settlement of the voyage. Those who live at a distance sometimes take the train, shortly after the arrival of the vessel, for their homes, and return within a few days for their lays; those who have no homes repair to the boarding-houses, and impatiently wait for their money, and hasten to ship again. The truly unfortunate and indigent whaleman may find a temporary abode at a charitable institution, the Mariner's Home, until he is enabled to shift for himself, provided he does not stay too long. The Seamen's Bethel is open for divine service every Sunday.

THE PERSONNEL OF A WHALING VESSEL.—The personnel of a whaling bark or ship carrying four boats consists of the captain, four mates, four boat-steerers, a cooper, a blacksmith or carpenter, a cook, a steward, a cabin boy, and about sixteen or eighteen foremast hands, making all told about thirty-one or thirty-two men. Sometimes an ordinary seaman, or a green hand, may also be shipped

as a carpenter or blacksmith. Three-boat vessels usually have about twenty-one men, and two-boaters about sixteen. A fifth mate is usually shipped on steam whalers to head the starboard bow-boat. He is shipped as "fifth mate and boat-header," but does not receive as profitable a lay as the other mates, although he ranks as an officer. He may sometimes be required to stand watch, more especially if another officer is sick. The steam whalers usually carry a cabin steward and a cabin boy. A whaling vessel does not always leave New Bedford with her full complement of men, since she may obtain the balance of her crew at the Western Islands, where she almost always stops for supplies on her way to the Pacific.

The captain.—The captain has of course absolute command of the ship, and is responsible for her well-doing and safe return to port. When the wide nature of his functions are taken into consideration, it is not surprising that he should be a man above the average ability, and peculiarly adapted to his profession; for he has sometimes to serve in the capacity of physician, surgeon, lawyer, navigator, peace-maker, and *pater familias**; besides, he must have good executive ability. The captain's is also an office of both dignity and responsibility, and if he acquits himself in it zealously and circumspectly, he may, in the course of time, be enabled to retire to private life with all of the honors of his profession.

Formerly the captain always participated in the capture of whales, but at present, especially on large vessels, he remains on board when the boats are down. It was the custom, and I believe it is now practiced on some ships, for the master to lower during the first part of the voyage. The captains of the steam barks in the Arctic regions seldom if ever engage in actual capture. There seems to be a diversity of opinion as to the captain's place at such times, but it is generally conceded that when the boats are down he should remain on his vessel, as the boat-crews have more confidence in him as a ship-keeper than they would in a subordinate who takes his place in his absence. The master can, of course, take upon himself more responsibility in managing the ship and in directing the movements of the boats.†

The mates.—There are as many mates on a whaling vessel as there are boats for active duty, or, to use a technical expression, "on the cranes." The mates are the executive officers of the vessel, as is well known, and also the officers in charge of the boats when engaged in the capture, and in this capacity they are known as "boat-headers." They are, of course, subordinate to the captain and act under his orders; but when down for whales they oftentimes exercise their own discretion and carry out their own plans, subject, however, to the directions of the master signaled from the ship.

The mates kill the whales, cut off the blubber, superintend the "boarding," and have direct charge of boiling out the oil and of stowing it away.

The boat-steerers.—The boat-steerer has several names. His legitimate title is perhaps harpooner; but his comrades, and others intimately connected with the fishery, seldom call him by that name. If shipped to enter immediately upon the duties of his office, his name is recorded on

* The captain is known to his own crew, behind his back, as the "old man"; but to the crew of another vessel as captain or skipper. A man serving on one vessel recognizes his commander as his "old man"; but when he ships on another vessel, his present commander becomes the "old man" and his former commander the captain.

† The Provincetown captains sometimes lower with their boats, but usually only on rare occasions, as when they strike a large school of whales or when the boat gets fast to a vicious whale. If a Provincetown captain lowers he takes charge of his own boat, and the third mate strikes the whale; should the captain decide not to lower, the third mate heads the captain's boat, and either the ship-keeper, steward, or one of the foremast hands, usually the former, if competent, strikes the whale; but on three-boat vessels the mate usually lowers his boat first and "takes the lead of the whaling."

If the captains from New Bedford think it policy to lower for whales, they leave the vessel in charge of a competent person, usually the cooper—the office being known as "ship-keeper"—who takes entire charge for the time being, assisted by about six men, when all the boats are down, to "work ship."

the ship's papers simply as boat-steerer*; if shipped to take the place of a regular boat-steerer, who may be disabled by accident, or whose office may become vacant by death, he is entered as "spare boat-steerer" or as "preventer boat-steerer."† He is known in the fishery as boat-steerer, and out of it as harpooner. He should be a man of unusual personal courage, and with firm and steady nerves. This class of whalemen has won a name and record which, for bravery and the faithful performance of duty, is honored and respected throughout the fleet; so much so, that the expression "coward harpooner" would seem at once contradictory and out of place. But the harpooners of the fleet have degenerated with the fishery. In the palmy days of whaling the flower of New England's sons won the right to dart the harpoon by that spirit of fearlessness and gallantry‡ which characterized the early American patriot; but now almost every harpooner that sails from New Bedford is the representative of an inferior race.

The boat-steerers are petty officers and rank next to the mates. Their duties are manifold; they are required to stand their watches at the mast-head on the lookout for whales, to act as oarsmen in approaching whales, to dart the harpoon, to go down upon the whale while "cutting in," to stand before the try-works when "boiling out", and during the intervals they are expected to keep the boats and apparatus always ready for the capture. They take great pride in their boats and equipments, more especially the harpoons. They are in the line of promotion, and if capable and efficient both as whalemen and seamen, the chances for commanding whaling vessels are in their favor. Great care is exercised by the captains in the selection of their harpooners. As a rule they are picked men, who have made one or more voyages, who are skillful in managing boats, and courageous enough to face death without shrinking. If they become confused or frightened, and miss their whales, they may be deposed until they have an opportunity to regain their former prestige, provided the captain gives them the chance. This is what might be termed "hard luck," but it is one of the cast-iron rules of the fishery. Some captains may perhaps give their boat-steerers two or three "chances," as they are termed, but if they miss several chances in succession, other men are put in their places. The success of the voyage depends in a great measure upon the boat-steerers, and the captains cannot have a personal preference in their appointments.

The office of harpooner has always been one of prominence and importance, and the scarcity of suitable men or the incompetency of incumbents has often occasioned serious drawbacks. Both the English and Dutch relied solely upon the Biscayans for their harpooners when they first embarked in the Greenland fishery. England soon found it to the interest of her fleet to prescribe certain laws in regard to the selection of her harpooners.

Scoresby says that at the inception of the Greenland fishery the English harpooners commanded the whaleboats, harpooned the whales, and killed them with the lances. Also that they

* It is but natural to suppose from the terms "boat-header" and "boat-steerer" that the position of the former was at the head of the boat, and that of the latter at the stern simply attending to his duties of steering the boat, as the term would imply. Such, however, is not the case when approaching a whale, and to avoid the confusion of these terms I will more fully explain the duties of these two men in a subsequent account of the capture of the whale.

† Although the term "preventer" is more generally used in the Provincetown fleet, some of the vessels hailing from New Bedford record their extra harpooners as "preventer boat-steerers"; but the crew invariably call them "spare boat-steerers." The terms "spare" and "preventer" are employed for anything held in reserve. The term "boat-steerer" owes its origin to the fact that the harpooner, after striking the whale, takes the steering oar and so directs the movements of the boat as to enable the officer to kill the whale. The term "slewer," a slang expression, is also sometimes used.

‡ In the prosperous days of this industry the "chock-pin," a slender wooden peg for holding the whale-line in its proper place at the head of the boat when fast to a whale, was the badge of the harpooner, the emblem of his office, and attested his fitness for the position he proudly maintained and his skill and courage in striking whales. More particularly, I am told, was this the case at Nantucket. When the fortunate boat-steerers returned from successful voyages, they inserted chock-pins in the two upper button-holes of their coats as insignia of rank, to distinguish them from the common foremast hands or "deck wallopers"; they walked the streets of their native island, attracting the attention of the fair Tucketers in their sea-girt home.

ranked next to the captain of the vessel, and "had unlimited control of the people of the fishery," while the captain acted properly as navigator during a whaling voyage to the Greenland seas.*

The same author also speaks of the consideration with which the English harpooners were treated: "All the harpooners (seven in number) were invited to dine with me. I usually call them together on our entrance into fishing stations, to deliver to them such instructions as my own views of the business, the success of our exertions, and the liberal treatment of other adventurers who may happen to become our competitors, seem to require. On this occasion I urged them to activity, perseverance, and unanimity among themselves; to a benevolent exertion for the assistance of all ships, of all nations, to whom it might be useful, whenever that assistance could be rendered without evident detriment to their own prosperity; and gave them a code of rules to assist their judgment in cases of difficulty or danger."†

During the wars between the Dutch and English in the middle part of the seventeenth century, Holland endeavored to cripple the British whaling fleet by issuing a proclamation prohibiting, among other officers, the Dutch harpooners from engaging in the whale trade of any foreign country.‡

Oarsmen; foremast hands.—In the whaleboat the foremast hands are the oarsmen. Commencing at the bow of the boat, the oarsmen are placed as follows: (1) the harpooner, or boat-steerer, who has the extreme forward thwart; (2) the bowman, who occupies the bow-thwart, pulls the bow-oar, assists the boat-steerer in setting the mast and taking it in; makes himself useful in various ways to the boat-steerer, or boat-header, as the case may be, and also attends to the line when bowing on. Among the oarsmen his is the most important position, as will hereafter be seen, and the best-trained man on the ship is usually selected for the position. (3) The midship oarsmen occupies the midship thwart, and pulls the midship oar. (4) The tub-oarsmen has the tub-thwart, and manipulates the tub-oar, his duties being to "wet line" when the whale is running or sounding; and (5) the stroke oarsman, who is usually the lightest man in the boat; he occupies the after-thwart, and pulls the stroke-oar; he also assists the boat-steerer in coiling the line when recovered from the whale, and in disposing of the mast after the whale has been struck; he also bails the boat, keeps the water-kegs supplied with fresh water, and assists the boat-steerer in "rigging" the boat.

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* All the early adventurers on the whale-fishery, both English and others, were obliged to be indebted to the Biscayans for their superintendence and help. The office of harpooner requiring great experience as well as personal courage, was only suited to the Biscayans, who had long been inured to the dangers and difficulties attendant on the fishery of the fin-whale. The Biscayans were likewise looked to for coopers, "skillful in setting up the staved cask." At this period, each ship carried two principals; the commander, who was a native, was properly the navigator, as his chief charge consisted in conducting the ship to and from Greenland; the other, who was called by the Dutch *specksynder*, or cutter of the fat, as his name implies, was a Biscayan, and had the unlimited control of the people in the fishery; and indeed every operation belonging to it was entirely confided to him. When, however, the fishery became better known, the commander likewise assumed the superintendence of the fishery. The office of specksioneer, as it is called by the English, was nevertheless continued, and remains to this day, though with a more limited prerogative. The specksioneer is now considered the principal harpooner, and has the "ordering of the fat," and extracting or boiling of the oil of the whale; but he serves entirely under the direction of the commander of the vessel.—SCORESBY: vol. 2, 38-40.

Whence also are derived the terms *speck-trough* (a receptacle for blubber) and speck-falls (the cutting falls used in hoisting in the blubber), peculiar to English whalemen.—*J. T. B.*

† Whale ship *Baffin*, of Liverpool, William Scoresby, jr., commander; on her third voyage to the Greenland whale fishery, in the spring of 1822.—SCORESBY: N. Whale Fishery, 1823, p. 33.

‡ The Dutch being at war with England in 1653, and having neither men nor ships of war to spare for the protection of their whale fishery, this lucrative branch of commerce was obliged, for the season, to be suspended. In the war of 1659, as well as in that of 1665 and two following years, the fishery was also conditionally prohibited. As at such times their unemployed fishing officers might be induced to engage in the service of foreign nations, and thus carry the trade abroad to the disparagement of their own country, a proclamation was issued, prohibiting, under severe penalties, all commanders, harpooners, boat-steerers, &c., from embarking in the whale-fishery trade in the ships of any other nation during the war.—SCORESBY: Arctic Regions, Vol. 2, p. 56.

The foremast hands, besides performing all kinds of work incident to the life of a common seaman, stand watches aloft and below, heave at the windlass when cutting in a whale, assist in stowing away the blubber, in preparing it for the try-pots, stowing it down, and scrub decks after the fare has been boiled out.

THE MANNER OF SHIPPING A CREW.—The crews at New Bedford are generally furnished by a class of merchants known as "outfitters," assisted by boarding-house keepers. The outfitters keep stores containing different kinds of merchandise, usually ready-made clothing, men's furnishing goods, boots, shoes, hats, and the cheaper grades of dry goods, and the latter keep the common sailors' boarding-house. Both of these classes are known locally as "sharks." When the agent of a ship wants a crew he notifies the outfitters, who draw upon the "shipping masters" in New York or Boston, or the boarding-house keepers in New Bedford, for the number of men required. The expenses of men coming from a distance are paid as far as New Bedford; the outfitter meets them at the depot and conducts them to a boarding-house. If the men go on the voyage, the shipping-master receives $16 per capita, which amount, as well as the cost of their outfits, is charged to the men individually, and at the end of the voyage deducted from their profits; but upon their arrival in New Bedford, if the men refuse to go on the vessel, the shipping-master loses the fares to New Bedford, as well as his bonus, and the outfitter may be the loser on account of the men's board bill. The men are therefore placed under the closest surveillance, but they sometimes depart clandestinely with a portion of their outfit at the eleventh hour. An outfitter's business is attended with great risk. His profits, however, must be large, to cover deficiencies, for all of the men engaged in this business seem to prosper. Some of them also have the patronage of the citizens of the community, keeping, as they do, a general stock of goods. When the ship is about to sail, the outfitter, having every confidence in his men, furnishes each with a small wooden chest, or "donkey," of clothing, a straw bed, and other necessary articles; but he never permits the men to acquire a title of possession until they go aboard the ship; nor does he pay the boarding-house keepers the amounts due them until he is satisfied that the men are on board. The "outfit" of a whaleman consists of money, board bills, and clothing advanced by the outfitter; and the stock and trade of the latter consist of the profits he makes on the supplies, which profits are large, the goods being almost invariably charged above the regular prices. The agents may select a captain and mate; but oftentimes it is difficult to find competent officers, and the outfitters, taking advantage of this situation of affairs, furnish both officers and men, the profits being derived mainly from the officers. If a four-boater is fitting out, and the outfitter is granted the privilege of furnishing the captain or first mate, time-honored custom gives him the right to ship four additional men, either able-bodied seamen or green hands, and to supply the five with outfits. If he furnishes a second mate, he is entitled to outfit three men; if a third mate, two men; if a fourth mate, boat-steerer, cook, or steward, one man each. The "outfit" of a foremast hand varies from $75 to $125; of a boat-steerer, from $100 to $200; and of a mate, from $100 to $800, depending altogether upon the desires or actual necessities of the men, or what they think may be their necessities in the future. The "outfit" of each man is charged to his account with the vessel, and deducted from his profit at the end of the voyage; but the outfitters having expended both labor and cash in obtaining a crew, or part of a crew, and furnishing them with the necessary supplies—acts of kindness which are duly appreciated, under the circumstances, by both the agents and owners—are not compelled to wait until the ship receives its equivalent from the men, but settlements are usually made from thirty days to six months after the departure of the vessel. The outfitters therefore look to the agents for their pay, and the agents, in behalf of the owners, run the risk of getting their money from the men at the expiration of the voyage. Some of the

crews, both officers and men, more especially those living at New Bedford or near by, among whom may be numbered the thrifty, intelligent, and expert whalemen, purchase their outfit on their own account, thereby saving about one-half the amount it would cost them if their supplies were furnished by an outfitter; but the green hands, owing to their inexperience, must be initiated into the mysteries of the whale fishery, and whether they are so disposed or not, they fall into the toils of the outfitter, and must pay their fees without grumbling for their first degree. The improvident and reckless whaleman who has just returned from a four years' voyage is almost always compelled to ship again, and, although he "knows the ropes" as well as the outfitter does, on account of his straightened circumstances, he must, in self-defense, but contrary to his own inclination, go to the men who dispense favors.

So much has been said concerning the character and practices of the "sharks"—this term should not be so construed as to refer to outfitters only—I deem it of sufficient importance to say that the former method of dealing with seafaring men at the port of New Bedford and elsewhere has been so leavened with the ennobling spirit of civilization and the influence of Christianity that the past and present should not be associated. The modern outfitter is simply a sharp, shrewd tradesman, who, like many others in this broad land, resorts to every means to induce a liberal supply of patronage, and to dispose of the largest stock of goods at the best profit.

The outfitters are also "infitters," that is, they furnish the men with such supplies and articles of clothing as they may need when the vessel returns. A whaleman purchasing supplies under such conditions is merely a customer who requires goods, but has no money to buy. He was also a customer when he entered the service, but his vessel, after he had signed the "articles," was his surety, and the agent held him as a hostage. The merchant is as anxious to "infit" as he was to "outfit" him, but the man must now bring an order from the agent or owner of the vessel. If a poor voyage has been made, or if the man has drawn on the "slop-chest" during a voyage to such an extent as to ruin his credit, he becomes bankrupt ashore, and may be obliged to change his mind instead of his raiment; for, instead of "infitting" himself with long togs, consisting of ready-made suits, the luxurious white shirt, collars, cuffs, gay-colored neckties, handkerchiefs, gloves, scarf-pins, and other jewelry, fine shoes, and fashionable hats, for all the outfitters keep an abundant supply of these things, he must "outfit" himself with wearing apparel of coarser materials suitable for voyage at sea, and ship for another voyage.

QUARTERS ON THE VESSELS.—The captain, mates, and boat-steerers are quartered in the after part of the ship. The former, on large vessels, has a state-room on the starboard side, and a private cabin or kind of office in the central portion of the after part of the vessel. Both rooms are plainly but comfortably furnished, and the cabin usually contains a bedstead, the only one, by the way, on board ship, the balance of the ship's company occupying bunks. The captain is sometimes accompanied by his wife and children, and his apartments have a home-like and comfortable appearance. The state-room, or bunk, of the first officer is just forward of the captain's quarters on the port side adjacent to the pantry; forward of the latter are the bunks of the third and fourth mates, and just opposite, on the starboard side, is the second mate's cabin. The boat-steerers, cooper, and carpenter occupy separate bunks on the port side. The foremast hands are confined to the forecastle. Their bunks are arranged in tiers about the forward end and on either side of the ship as far aft as the forecastle extends. They are made of ordinary plank, and usually painted when the ship is fitting for a voyage, but during the cruise they become well worn and greasy enough. The first man on board ship has the first choice of bunks, and writes his name, or initials of his name, on the side with chalk, or pre-empts the spot by depositing his bed-sack, and retains possession during the voyage. The conveniences of living and the accommodations

of the quarters for both officers and men depend upon the size of the vessel; in schooners and brigs the apartments are necessarily circumscribed, and the domestic felicity is sometimes marred by too intimate association or unfriendly contact, while on barks and ships there is much more latitude.

MESSING.—The modes of life and customs of whalemen are essentially in keeping with their surroundings, and common to the majority of seafaring men engaged in the mercantile marine service in all quarters of the globe. The bills of fare are not varied or comprehensive, since the vessels are confined principally to what may be termed out-of-the way places. Seldom touching a port, the men are deprived of those things which, though called by landsmen the necessaries of life, are regarded by whalemen as luxuries. Although wanting in variety, ample provision is otherwise made; for well-cooked, wholesome food, and plenty of it, such as it is, constitutes a bond of sympathy between the men and the ship, and while there is a disposition on the part of some men to "growl," the majority feel satisfied that the best that can be done under the circumstances is being done for their welfare, and so accept it.

A whaling vessel is furnished with all the large and small conveniences known in the housekeeper's economy. Since the improved methods of preserving fish, meats, vegetables, and other food stuffs have been introduced, the vessels sailing from New Bedford are provided with all of the modern conveniences in the way of provisions that may be kept in any climate; but the mainstay after all is salt beef, salt pork, commonly known as "salt horse," or "salt junk," and ship-bread. The last-named article occupies an important place in the whaleman's dietary. It is better known perhaps as "hard tack," to distinguish it from the bread sometimes made on board ship, which is called "soft bread." About 50 barrels of flour produce 100 barrels of bread, which amount was usually included in the outfit of a vessel of the largest class; but at present so large a quantity is seldom taken by one vessel, since fresh bread may be "freighted" by others.

When fitting the ship for a voyage several casks of bread, pork, beef, and other provisions "in bulk," are placed in accessible places where they may be opened as required, the remaining and larger number being brought to light from time to time during the voyage when stowing down the oil or as they may be needed. A careful and closely calculating master will order the entry in his log of every cask of bread, pork, beef, and the like, opened during the voyage. Beef and pork for immediate use are oftentimes kept on deck in a wooden receptacle called a "harness-cask," lashed to the deck in a convenient place for the cook, who draws his daily supplies from it. There are two apartments in such a cask; one for pork and the other for beef; and as fast as their contents are exhausted, they are replenished from the original packages. Potatoes and other vegetables may in warm latitudes be kept in a wooden compartment called a "potato pen," a structure which is made with a view to a thorough ventilation.

The cook is an important personage on board a whaler, as he is indeed everywhere. He is usually a colored man, and generally known as "Doctor," or perhaps "Skillet." The "cook's office," or galley, is furnished with all the modern appliances in the way of "cooking gear" for vessels, which embraces a range or "caboose," and the accompanying boilers or steamers, usually called "coppers," cast-iron baking-pans, and articles of this kind. The captain and the mates mess together in the forward cabin; their tables are furnished with glassware and chinaware; the boat-steerers, cooper, and carpenter, mess in the steerage. The foremast hands mess in the forecastle; their meals are cooked in the galley and served to them on the commonest tinware. They use their "donkeys" as tables and keep their pans and dishes in a locker in the after part of the forecastle. They wash their own dishes and clean up everything after meals.

The hours of meals for all hands are as follows: breakfast, 7 a. m.; dinner, 12 m.; and supper, 5 p. m. These are the regular hours, but they may often be changed when the boats are down for whales, or when the men are cutting in a whale under stress of weather. The bill of fare also varies, but rarely.

The officers' breakfast is usually salt beef, pork, hard bread, soft bread or "lobscouse"*—or perhaps bread hash, or if potatoes are plentiful potato hash, coffee, sugar, and butter, when it is to be had, and sometimes slapjacks. The boat-steerers' bill of fare embraces about the same, except they do not always have sugar and butter, which is served regularly in cabin. The breakfast of foremast hands consists mainly of salt beef, salt pork, hard bread, scouse, bread hash, coffee, and molasses.

For dinner in the cabin: salt pork, salt beef, and hard bread. Tea or coffee, and sugar are not usually served for dinner; the boat-steerers have about the same as the cabin, and for the forecastle salt junk and hard bread. For supper in the cabin: salt beef and pork, warm soft tack, butter, sugar, tea, and sometimes hash, and probably pie. The boat-steerers have the same, and the foremast hands, salt beef, pork, and hard tack, and occasionally pie.

To the above-mentioned fare should be added, when they can be had, the "manarolins" of the whalemen—that is, fresh meat, vegetables, milk, butter, eggs, and fruits, which may be obtained when the vessel touches upon a foreign shore, but these are the luxuries of life that cannot always be had. Duff† is served generally three times a week for dinner fore and aft, and perhaps "lobscouse," "dandy-funk," "sea-pie," or "dough-boys" (a kind of flour dumpling with the flesh and bones of porpoise), but the foremast hands do not usually get as much of these dainties as the officers. When a porpoise is caught, all hands are regaled with "sea-pies" and "forced-meat balls."

Captains of all whaling vessels discourage the use of whisky by the crew. Formerly it was the custom to include in the outfit of a whaler, about seven or eight barrels of whisky or New England rum. This was dealt out from time to time as grog. Some vessels carry whisky now, but principally for trade. Liquors are also carried in the medicine chest, but they are under the immediate supervision of the captain, who dispenses them as he sees fit. Capt. Isaiah West was the first master sailing from the port of New Bedford, who refused to carry whisky on his ship. This was in 1831, in consequence of continued intoxication of one of his officers on a previous voyage. Such a thing at the time was unheard of; the owners thought that it was impossible to ship a crew or to make a voyage, but Captain West adhered to his resolution and carried his point. Since that time whisky has not been included as a part of a whaling outfit.

* Lobscouse is the most common of the fancy dishes. It is made of hard bread and salt meat, seasoned with pepper. For a mess of this kind for all hands, about three buckets of hard bread, seven pounds of pork and beef, and about a quarter of a pound of pepper are required. The meat, usually the remnants of a former meal, is cut into small pieces and the bread is broken into fragments. Water is added and as the pot boils and simmers, the ingredients are mixed and stirred together with a large iron spoon; pepper is added, and the dish is served smoking hot in a wooden vessel, called a "kid," by one of the watch who carries it forward to the forecastle. Potato-scouse is similar to the above except that a smaller quantity of bread is used, potatoes being highly esteemed as a substitute.

When potatoes are plentiful potato hash or lobscouse is usually made for breakfast; but when the vessel has been out for two or three months, bread hash is mainly relied upon.

† Duff is served to all hands; one for the cabin, one for the boat-steerers, or steerage, and one for each watch forward. It is the favorite dish, and Sunday is always a "duff day," duff and molasses being served for dinner. Dandy-funk, dundee-funk, or dundee pudding, is made of hard bread, molasses, and a little salt fat pork. The bread is broken up and the pork chopped and deposited in a copper; a little water is added, and when the mixture becomes lukewarm, enough molasses to sweeten it is poured in. It is then stirred until the boiling point is reached, at which time the copper is removed, and the dish is served hot in a kid. About two pounds of fat pork are usually required for a mess for all hands. Dundee pudding was also a favorite dish with the fishermen of the eastern coast frequenting Georges Bank in 1830, but is only occasionally used on fishing vessels now. It was made of hard bread pounded up, sweetened with molasses, with enough flour added to give it adhesiveness.

CHOOSING THE WATCH.—When fairly under way the ship's company is told off in two divisions, or parties, which alternately relieve each other in the performance of the duties connected with the vessel during the voyage, in order that one-half of the crew may obtain recreation, while the other half is at work. Each subdivision is known as the "watch;" reckoning from 12 m. there are seven watches; five of four hours each, and two of two hours each; called dog-watches.

The divisions of the crew are known as the starboard and larboard watches, commanded respectively by the first and second mates or the second and third mates, who are known as "watch-headers." The officers select their own men when the subdivision is made. These divisions are again divided into boats' crews. One watch, or half of the crew, is always on deck, except at the beginning of the voyage, when both watches are usually employed during the day in rigging the boats, besides standing their watches at night. When a ship is making her passage the crew stand whole watches, or sea watches, four hours on and four off, usually called "watch and watch." On the whaling ground in the southern fishery, when a ship is hove to in mid-ocean they stand "quarter-watches," one-fourth of the working hands, or half of each watch being on duty, headed by the boat-steerers; but in the Arctic regions when near the shore the usual watches are kept.

In the southern fishery the men in bad weather stand four hours on deck and eight below on a three-boat vessel, and four hours on deck and twelve below on a four-boater.

On three-boat vessels they stand "boats' crews" watches, the time being divided between supper and breakfast when outward bound and sometimes on whaling grounds. When not engaged in whaling the watch may be employed in making sennit of spun yarn, mats for chafing-gear, overhauling cutting gear, and in many other duties connected with the vessel.

The day on a whale ship begins at an early hour; the crew usually get breakfast at sunrise, after which sail is set, the decks scrubbed, and men sent aloft to look out for whales. The duties of the men at the mast-head will be mentioned elsewhere.

At 4 p. m. the decks are swept and washed off; from 4 to 5 being the first hour of the dog watch, all the watch, except the men on the lookout for whales and the man at the wheel, engage in this work. At 5 p. m. the watch has supper, and at 5.30 the men at the mast-heads and the wheel are relieved. From 5 to 7 the watch is allowed to loaf, smoke, and spin yarns, the only time for such liberties during the day.

On the whaling ground in the southern fisheries the men are recalled from the mast-heads at sunset, and all hands—both watches—are summoned to shorten sail; the starboard watch takes in the main and the mizzen sail and the larboard watch the foremast and head sails. During this work the mate has charge of the forward part of the vessel and the second mate the afterpart, and in reefing the topsails the boat-steerers haul out the earings and the foremast hands knot the points.

SELECTION OF BOATS' CREWS.—One of the first duties to be attended to is the selection of the boats' crews. If the vessel has four boats on their cranes, her crew must be subdivided into a corresponding number of boats' crews. The captain and his mates select their own crews; and the men are chosen with reference to the positions for which, in the opinions of the officers, they are best adapted.

The following account of the manner in which boats' crews and watches are selected may vary somewhat when applied to all vessels; but it is the custom usually adopted on the average New Bedford sperm whaler. The captain has first choice, and picks his harpooner; the mate, second mate, and third mate, severally and consecutively in the order of their rank, select their boat-steerers, and the fourth mate takes "Hopkins' choice" from the remaining material available for harpooners, and, as is sometimes the case, gets the best man after all. The oarsmen are selected

in the same manner in their regular order, the captain commencing with the bowman for his boat, and so on with the rest of the crew. The supernumeraries help the ship-keeper to work the vessel when the boats are down for whales.

The boats' crews and watches being disposed of, the captain makes a short address * to the ship's company, explaining the nature and object of the voyage; defines the positions and duties of all on board; establishes his rules and regulations to which he enjoins strict obedience, and also calls attention to the penalties of disobedience. He reminds each one, man and officer, that he has certain positions to fill and duties to perform, and endeavors to impress upon him the importance of a strict compliance with every law he may see fit to establish at the outset.

RIGGING BOATS.—As whales may be raised at any time by an outward-bound vessel, one of the first duties of the captain, after the watches and boats' crews have been chosen, is to rig his boats for the capture. This work is usually commenced on the first or second day of sailing, provided the weather is propitious, and some captains keep all hands engaged in this work until the boats are properly equipped.

There is considerable work to be done even in rigging old boats; but when an entirely new vessel is under foot, this kind of work is vastly augmented and the time proportionately extended. Everything is new and "stiff"; and the feeling seems to be unanimous with the officers and men, that, so far as the labor of rigging the boats is concerned, they prefer to sail on an old vessel rather than on a new one. The officers "cun"† their own boats when getting them ready for whaling; the boat-steerers perform most of the skilled labor, in which they are assisted by the oarsmen. The officers generally have the care of the hand-lances, and the boat-steerers of the harpoons.

On vessels that have made one or more voyages, the greater part of the apparatus may again be used, but it must be carefully overhauled. When making the home port, the smaller implements of capture, and accessories, are stowed away in a large cask, and marked "boat gear." The harpoons lances, boat-spades, and boat-hooks, are bundled and stowed away. On arrival, the casks and bundles are placed in the lofts of buildings usually belonging to the owners of the ship. When, the vessel is about to leave for another voyage, these implements are again placed aboard, and as everything belonging to a whale-boat has its proper place and appropriate marks, there is no trouble in redistributing the gear. The harpoons and lances are "set up"—that is, they have their poles and necessary ropes attached—and sharpened, and placed in the boat as soon as possible. Everything necessary for the capture of the whale, except the heavy line-tub, is kept inviolate in its proper place in the boat when on the cranes.

If the vessel is an old one, the boat-sails may be rigged up and used until time and opportunity is offered for making new ones. If it is necessary to make new sails, cotton drilling is gotten out, and as many good sewers, as can be spared from the crew, are sometimes set to work upon them,

* The following is about the style of speech delivered by the captain on such occasions: "Now, my men, I suppose you all know what we are here for. We have started for a cargo of oil, and I expect that every man will do his best. First, I want good, sharp, lookouts kept, and sing out for everything you see. Go, when you are sent, and come when you are called, and always repeat the order that's given you. You shall have enough to eat of what is in the ship; but I want nothing wasted. If your food is not properly cooked, or if you do not get enough of it, come to me, and I will see that *you do have enough* and that it is properly cooked. I want no growling with the cook. No fighting on board. If any of you want to fight, come to *me*, and *I* will attend to your *case*. Now, boat-steerers, your place is abaft the try-works; bear that in mind. I want you to sing out for everything you see at the masthead, if it is nothing more than a porpoise. You will have two *chances*; if you *miss* them, you can't have *any more aboard* this ship."

† To *con* (or *cun*, as it is more generally pronounced), implies to direct the movements of the vessel, or more properly, to direct the helmsman in steering the vessel; and in this instance means to oversee or have general charge and direction of equipping the boats.

but generally the officers and boat-steerers make the sails themselves. Meantime the carpenter is busily engaged in fitting the boat-masts, and the cooper makes or overhauls the line-tubs, boat-buckets, lantern-kegs and other like utensils.

The green hands are allowed a certain time to become familiar with their duties. At the expiration of the given time those who have failed to improve their opportunities lose their watch below during the day until they learn more thoroughly. There is always plenty of work on an outward-bound whaler, and it is of a varied character, and any one disposed to learn may soon become master of the situation.

PASTIMES.—When not at work the men amuse themselves during week days according to their several dispositions, by patching and mending their clothes, playing cards or back-gammon, spinning yarns, smoking, reading, and manufacturing various articles of utility and fancy. As a rule the captains do not allow card playing; but some of the crew usually provide themselves with cards and manage to have games in the forecastle, the only available "stake" being tobacco. The owners of the vessel usually furnish the men with illustrated papers, magazines, and books, and many of these, like the playing cards, become so well worn and greasy from excessive manipulation that scarcely a trace of legibility is left by which they may be identified. But the greatest delight of the whaleman was on the Sabbath day, when in olden times it was his custom to overhaul his chest of clothing and trim his ditty box.* This was called the "sailor's pleasure." All of the "sea clothes" were taken out, unfolded, shaken, examined for holes or rents, carefully folded again and put away in their accustomed places; the "home clothes," or "long togs," were also taken out and viewed with a feeling of peculiar delight; the photographs of friends and relations were brought to light, and old letters were read again and again. Every Sunday was alike in this respect. On the Sabbath day also the whaling captains of the old school, after certain routine work had been performed in the forenoon, distributed Bibles, tracts, or other religious publications, among the men; some of whom, in good weather, in the southern fishery, congregated about the deck in little knots, and digested the contents of the books and papers, while others, not so disposed, showed their outward and invisible sign by gentlemanly demeanor and polite conduct, in letting those who wished to do so, read in comfort.

One of the most fruitful sources of amusement to a whale-fisherman, and one which often so engrosses his time and attention as to cause him to neglect his duties, is known as "scrimshawing."† Scrimshawing, which, by the way, is the more acceptable form of the term, is the art, if art it be, of manufacturing useful and ornamental articles at sea; and its chief aim is to fight off the dull monotony, which, at times, environs the life of the whaleman. Many of the objects produced in this manner, however, prove valuable to the makers as souvenirs, or trophies, of their exploits and adventures, or useful to themselves and families in the economy of the domestic household; and also possess a certain degree of interest, as well as intrinsic value, to curiosity-seekers, besides forming interesting acquisitions to museums. One of its most prominent features is the development of the ingenuity and artistic tastes of the whalemen; and some of them attain a high degree of skill in the production of numerous articles of this kind. Some of these have an appreciable

* A small wooden box for needles, buttons, thread, pieces of cloth for patches, bits of wax, an old brass or steel thimble, and a pair of scissors. In addition to these necessary domestic utensils and material, the ditty box contains the most varied collection of pieces of old iron or wood, shells, probably an old pack of cards, or may be a New Testament, small stones or minerals, foreign nuts, and curios obtained from the natives of the islands in the Southern Pacific.

† This word appears to be of doubtful orthography, being variously written "skrimshoning," "scrimshorning," "skrimschonting," and "skrimshander," and has, like many of the idioms that form the very pith and essence of the whaleman's language, gained currency at the leading whaling centers, though seldom heard in the interior of the country. As to its etymology, I can only say that I have traced its antecedents to the island of Nantucket, and although I am unable to substantiate my theory, I am of the opinion that it is a corrupt form of an Indian word.

artistic merit; while others, for example, implements made at sea for use in whaling, for the ship's use, and for the use of the men during the voyage, are generally improvised under stress of circumstances; therefore, many of them are exceedingly rough and ungainly in appearance.

Scrimshawing has been principally confined to the southern fleet, mainly the sperm whalemen, as the voyages were longer and the men had more leisure time; but it is also indulged in, to a certain extent, by the men in the Arctic fishery. In the first-named fishery, a vessel may often cruise for weeks, and even months, without "raising a whale," and, in fact, without encountering anything to break the monotonous routine of life at sea.

It would appear that the officers have much better opportunities and facilities for promoting the art of scrimshawing than the foremast hands, since the latter are not allowed, except on duty, in the after part of the ship, where the material available for this or other like purposes is kept; they are therefore compelled to rely upon their own fertile imagination and fruitful genius for the ways and means of carrying out any cherished plan, and to make the best of what may accidentally fall in their way. Some of the common seamen, however, excel in this work.*

2. THE WHALING VESSELS AND THEIR OUTFIT.

The American whaling fleet in 1880 numbered one hundred and seventy-one vessels, measuring 38,633.38 tons, and valued with outfits at $2,891,650.† In the fleet there were one hundred and seven barks averaging 264.10 tons each, seven ships averaging 358.88 tons, nine brigs averaging 138.11 tons, forty-six schooners averaging 98.08 tons, and two steam barks averaging 430.06 tons. The average size vessel in the entire fleet was 225.95 tons. The largest vessel was the steam bark *Belvedere*, measuring 440.12 tons,‡ and the smallest employed in ocean whaling was

* Let us examine some of the scrimshaw work. We find handsome writing desks, toilet boxes, and work boxes made of foreign woods, inlaid with hundreds of other pieces of precious woods of various shapes and shades; cribbage boards and chess boards, inlaid with rare wood or mother-of-pearl; work tables for ladies, or center tables for the whaleman's parlor at home, veneered with mahogany and finished in the most approved manner; wall brackets and pockets made of satin wood, walnut, or mahogany; picture frames made of ivory of the sperm whale teeth or walrus tusks; photograph frames, made of the same material, suspended upon two or three finely finished and highly decorated walrus tusks, ready for the photographs of the maker, await the wife or sweetheart when the vessel returns to her home port; canes made of baleen wrapped spirally with highly polished cords and strips of the same, surmounted by fanciful or grotesque designs, carved from the tooth of the sperm whale or a section of walrus tusk; canes made full length from the ivory of the "pan" of the sperm whale, turned and polished, with a hand-piece of the same material, and a ferrule of copper or perhaps silver; canes made of the tusk of the narwal, or from the backbone of the shark—the vertebræ being strung on an iron rod and turned in a lathe, or from a piece of wood of some favorite ship, the handle inlaid with ivory or pearl; folding and expanding reels, or "swifts," for winding yarn, elegantly made of strips of ivory, and decorated with bits of gay-colored ribbon; whips made from the long elastic and gracefully tapering slabs of baleen; useful articles for the writing desk, rulers, pen holders, paper cutters, as well as butter knives, jagging knives, chopping knives, finger rings, collar and sleeve buttons, bodkins, watch stands, jewelry caskets, charms for watch chains, masonic emblems, small blocks and pulleys, man-rope stanchions, splicing fids, and small toggles, made of ivory and bone, and various other implements whose mention would form too long a list.

† Messrs. Swift & Allen, commission merchants and ship owners of New Bedford, tell me that the whaling vessels of that port are seldom wholly owned by their agents; but the agent is usually the largest owner, and conducts the business affairs of the vessel on commission without the aid of the other owners. At present, 1883, the only incorporated whaling company that they know of is in San Francisco; it has six steam whalers and one sailing vessel. They think all the other whalers are owned by individuals, seldom less than five, and often ten in number, and each owner, however small his share may be, is responsible for any deficiency on the part of the other owners in the payment of the ship's bills or drafts during the voyage. They also say they know of an instance where two owners who held only one-sixteenth each had to make up for the deficiencies of the others. At Provincetown, the vessels are owned for the most part by private parties. Perhaps fifteen or sixteen stockholders have as many shares or "pieces," as they are called, in one vessel. When the vessel is at her home port the captain is her agent; but on a voyage one of the resident owners, called the "shore agent," on whom the captain may draw in foreign ports for money or necessary supplies, is appointed, whose duty it is to transact all business connected with the vessel. The whaling vessels at San Francisco are also owned each by several parties who hold shares, and each vessel has its own agent.

‡ Some larger steam vessels have since been added to the fleet. One of these, the steam-bark Bowhead, 533 tons, was lost in the Arctic in 1884.

the schooner Union, 66.22 tons. Most of the schooners and smaller vessels of the other classes were employed in the Atlantic Ocean whaling, while the largest and best equipped vessels were sent to the Pacific and the Arctic Oceans.

The typical whaler in the southern fleet may be a little old fashioned, and perhaps a trifle more rusty and greasy when on a cruise, than her sister ships in the merchant service, and becoming well saturated in oil she lives to a green old age, unless some fatal talisman finds a place aboard of her. She is heavily built, full bodied, with bluff bows, and high square stern, and designed more for seaworthiness and carrying capacity than for speed or graceful lines; consequently we do not find in this fishery the graceful type of the modern fishing vessel peculiar to the Gloucester fleet. Some of the whaling schooners have the old poop deck and an after house for the officers, but the tendency has been for many years to supersede the former by a flush deck, and to place the quarters of the officers below. The steam whaler, however, possesses all of the advantages and improvements that have been applied by modern science to naval architecture. The old whale ships frequently cruised in unfamiliar waters and visited unknown and hostile shores; they therefore adopted the plan of painting their sides to resemble the ports of men-of-war, to give them a formidable appearance and intimidate the natives, by whom the crews were sometimes attacked. This custom is also adhered to at the present time, but it is confined to the old ships.

The vessels composing the present fleet may roughly be divided into two classes—the sailing craft and steamers. The former, embracing vessels of all types except the sloop, are employed in the southern fishery, and the latter exclusively in the Arctic fishery. At the inception of open-sea whaling, sloops, such as were used at that time in the coasting trade, were principally relied upon; brigs and schooners were subsequently introduced, and these three types were mainly depended upon until deep-sea whaling began; at which time larger vessels were needed, and although ships and barks were employed, the former were more popular. At present there is not a sloop in the whaling fleet; brigs and schooners are employed principally in the Atlantic fishery and in the Hudson Bay region, ships and barks in the Southern Pacific, and steam barks in the Arctic regions on the western side of the continent.

The Atlantic fishery was formerly prosecuted with the smaller class of vessels known as "plum pud'ners," which made short voyages called "plum-pudding voyages," leaving their ports in early spring, and returning, if possible, before the September gales "came on to blow;" but in some instances the cruises were more extended. The crews therefore had fresh provisions and an abundant supply of plum pudding, or plum duff; a kind of dish though sometimes made of "Nantucket raisins," that is, dried apples, has always been relished by seafaring men. Hence we have the origin of the term "plum-pudding fleet."* As the fishery increased in magnitude and importance, and the green pastures of the vast feeding ground of the sperm whale in the Pacific were disclosed to the whalemen, the "plum pud'ners" of New Bedford gave way to larger vessels, principally ships This change brought a system of discipline in the whaling fleet. The master became a commander, and occupied his cabin and state-room in the after part of the ship; the mates and boat-steerers also lived aft, and were not allowed to mingle familiarly with the foremast hands; the latter bunked and messed in the forecastle and were not tolerated socially on the quarter deck, and the former name of the fleet was transferred to the schooners of Provincetown, which are still sometimes called "plum pud'ners," though the term is now becoming obsolete.

* I have been told that in the old Provincetown fleet the men had an abundance of duff and plenty of raisins, or other dried fruit; but the New Bedford owners for sanitary reasons prohibited fruit, but sanctioned the use of plain duff; and for this reason the term was applied to the Provincetown fleet.

When making her passage, a whaling vessel may readily be distinguished by her large wooden davits and the unusual display of boats suspended over her side, as well as by the square set, bulky try-works on the forward part of her deck, and by the presence of the large number of men comprising her crew. When cruising for whales, in addition to the above-mentioned peculiarities, she is rendered conspicuous by having her sails shortened, and men at her mast-heads on the look-out for whales; or perhaps by the absence of a topmast which may have been sent below; or she may have "grease alongside," or boiling out the oil, which last are unmistakable signs of her profession. Going aboard such a craft when she is outward bound, or even on her home passage, you may be somewhat surprised to find her deck so free from oil, and that she is as clean and as ship-shape as the average merchantman. It is only when the whale is being cut in, or when the oil is cooking, that we find her decks objectionable. After these processes, the first duty of the whalemen is to scrub the deck and wash the bulwarks, and between catches she is as clean as any other vessel. I have seen the decks of some whalers that had been scrubbed until they were, as the whalemen expressed it, "as white as chalk." As might be expected, her rigging, spars, and sails may be somewhat begrimed with smoke from the try-works, or perhaps her mainmast and cutting-falls may have a greasy appearance, or probably be coated with pieces of black skin. On the home passage, however, the ship is painted, masts are scraped, rigging overhauled, and a new suit of sails bent; for the average captain takes pride in going into his home port with all the becoming honors and dignity appropriate to the occasion.

The main hatch is used as a temporary store-room for the blubber; and the fore, main, and after hatches for stowing away provisions and supplies at the beginning of the voyage and oil during the voyage. A long, stout wooden strip extends fore and aft inside the bulwarks on either side of the vessel. This is called the "lash rail," and is peculiar to whaling vessels. When cooling the oil to be stowed away in the hold, the casks are rolled to the side of the vessel out of the way of the bustling and hurrying gangs of men, and lashed to this rail to prevent them from rolling in heavy weather. The main deck is always sheathed; an after house on barks and ships is built over the quarter-deck for the transportation of spare boats, and sometimes a forward house is erected over the try-works.

The terms "blubber hunter" and "whaler," sometimes applied erroneously to the men employed in this fishery by landsmen, are the legitimate titles of the whaling vessel. The vessel also has a name, peculiar to whalemen, which she derives from the number of boats carried on her cranes, such as a "three boater," or "four boater," and some of the old Nantucket whalemen used the name "hooker."

The quarters of both the officers and men on the larger vessels are as cleanly as it is possible to keep them during a voyage of three or four years' duration. The ventilation being defective, we must expect an odor more or less mephitic, to which, however, the men become accustomed through the remarkable power of association. The quarters of some of the schooners, however, that I have seen, more especially the forecastles, which are filled by the most degraded types of man, were fairly reeking with filth, and the most abominable stench fairly arose through the companionway in a cloud of putrid vapor. This should not condemn all the small vessels, for the quarters on many of those I visited, more especially in the fleet hailing from Provincetown, were as cleanly, comfortable, and home-like as on most of the larger vessels of New Bedford.

Formerly all the oil obtained by any one vessel during her voyage, more especially when she cruised beyond the Western Islands, was conveyed to this country in her own bottom. Later, however, it was found more profitable for the vessel to ship her cargo by returning whalers or by

common carriers, and continue her voyage in pursuit of other whales. Oil shipped in this manner is known as "freight oil," to distinguish it from the oil the vessel herself has derived from her own captures. A vessel may be spoken at sea and report 1,425 barrels of sperm oil and 380 barrels of whale oil, "all told," and 500 barrels of whale and 150 barrels of sperm "on board." This would make her total catch, at the time she was spoken, 1,805 barrels, 1,155 of which amount had been shipped by another vessel. Or a vessel may arrive at her home port and hail for 1,200 barrels; 500 barrels of this amount may be freight oil and belongs to another firm, upon which the owners of the vessel realize merely the cost of transportation, and the balance, 700 barrels, the property of the vessel, upon which her owners realize the full market value.

Taking into consideration the great distances traversed by whaling vessels, sometimes circumnavigating the globe during their voyages; the dangerous localities visited in both the northern and the southern hemisphere, the treacherous coral reefs and the insidious teredo of the South Pacific, and the dangerous ice-fields of the Arctic regions; the unusual risks to which they are exposed from the nature of their calling, the imminent danger of attacks on the part of revengeful and ferocious whales, or of complete destruction by conflagration through fire communicated by the try-works, or by the act of incendiarism at the hands of mutinous crews, it is a matter of surprise that so few are lost at sea.* Unless, however, some fatal talisman has found a place aboard the whaler, her life on the average is as long as that of other vessels employed in other branches of the service. The destroying angel, the emissary of three several wars, has done more to annihilate our whaling fleet than all the elements combined. Harassed and annoyed in its infancy by the depredations of French and Spanish privateers upon the English commerce in 1741, when the fleet was excluded from the grounds of the Davis Strait fishery, and crippled by the French privateers in 1755 and the ensuing years, it was again despoiled by the French and Spaniards in 1771. Paralyzed by the Revolution, it had scarcely regained its footing when it was exposed, in 1798, to the ravages of the French privateers, which ravages gave rise subsequently to the French spoliation claims. It was then kept in a state of feverish excitement and annoyance until just prior to the war of 1812, when the Pacific fleet was exposed to the depredations of the Peruvian pirates, who plundered the vessels and prevented them from entering Chilian ports where the fleet was accustomed to obtain its "recruits."† The war of 1812 burst upon the American whaling fleet like an angry storm-cloud, and so disastrous were the effects when the cloud passed over, that, with the exception of a few vessels belonging to Nantucket, it may be said the whale fishery was practically abandoned; but the whalemen with their characteristic energy built and equipped other vessels, and when the late rebellion came upon us like a thief in the night, the majority of the vessels were scattered over the seas in all parts of the world; or, with a sense of security under the American flag, those which were at that time in port were fitted out and dispatched on their accustomed voyages; but in both cases they were exposed to the attacks of the Alabama or Shenandoah, whose commanders lay in wait for them on the highways of commerce, and by making bonfires of some, attracted others to the scene in order that they might be treated in a similar manner. During this war some of the ships were also transferred to the merchant service, and forty were purchased by the Government and sent with the two "stone fleets" which were sunk off the harbors of Charleston and Savannah to blockade these ports. Scarcely had the fleet recovered from the disastrous effects of the rebellion when the news of the terrible destruction of the Arctic fleet in 1871 reached our ears. Thirty-three vessels were crushed in the ice off Point Belcher, representing a loss that exceeded $1,000,000.

* The reader is referred to a chapter of accidents, by Alex. Starbuck, entitled "The Dangers of the Whale Fishery," in Report of Commissioner of Fish and Fisheries, Part IV, p. 114 *et seq.*

† Provisions, supplies, &c.

STEAMERS.—The American whaling fleet was composed entirely of sailing vessels until the hazardous fishery of the Arctic regions, as well as the ever-increasing demand for quicker trips from one whaling ground to another, and for rapid transportation to market, suggested the steam whaling barks now successfully used in the North Pacific. The first steam whaler from the United States was the bark Pioneer, 212 tons, Ebenezer Morgan master. She was originally built at Charlestown, Mass., as a Government transport, and rebuilt in 1865 for the whale fishery. The projectors of this enterprise were Messrs. Williams & Havens, of New London, Conn., whose names are prominently connected with the Grinnell Expeditions. The Pioneer sailed from her port April 28, 1866, for the Davis Strait fishery, and returned November 14, 1866, with 340 barrels of whale oil and 5,300 pounds of bone. During her second season, in July, 1867, she was crushed in the ice and abandoned. I am indebted to Mr. John A. Tibbits, collector of customs, New London, Conn., for the above particulars in regard to the Pioneer. The bark Java sailed from New Bedford October 2, 1872, with a donkey engine, which was used as a power for hoisting purposes. This gave rise to the report, which gained currency in the fishery, that she was the first steam whaler from America; but, after diligent search, I am convinced that the Pioneer has the precedence.

The most prominent vessel of this type, however, both so far as the initial step in the North Pacific is concerned, as well as in a historical point of view, was the late Rodgers, formerly the Mary and Helen, which was lost in the search for the Jeannette in 1881.

In 1879 William Lewis, of New Bedford, as agent and part owner, with others, caused to be constructed a bark with all modern appliances, including auxiliary steam-power as a motor, which, among other advantages, enabled her to make quick passages in calms, as well as to proceed through the ice at a rate of from 6 to 8 miles per hour when necessary. The space occupied by the boiler and engine was about one-eighth of the vessel. She was also provided with a separate engine forward for working the anchor and rotating the windlass when hoisting in blubber. She was christened Mary and Helen, in honor of the daughters of Edward Haskell, and granddaughters of Alexander H. Seabury, who was also one of the owners, all of New Bedford. She sailed from her home port September 12, 1879, and was sent into the ice in 1880 under the command of Captain Leander C. Owen. After a successful cruise she was sold to the United States Government for $100,000, and under the name of Rodgers proceeded in search of the missing research steamer Jeannette and the whalers Mount Wollaston and Vigilant. She went into winter quarters at St. Lawrence Bay, Siberia, in 1881. On November 30 of that year, a fire broke out in her fore-hold and she was abandoned. Her officers and crew were rescued by Captain Owen, her former commander, then master of the steam whaler North Star. The North Star, in a remarkable succession of events, was afterwards, during the same season, crushed by ice while cruising for whales, at an almost total loss to her owners. Immediately after the sale of Mary and Helen to the Government, orders were given to build a twin ship, and Mary and Helen (No. 2) is now afloat in the whaling service. She is a counterpart of her predecessor.*

* The steamer Bowhead, 553 tons, lost in the Arctic in 1884, was in her day the largest vessel afloat in the whaling service. The Mary and Helen (No. 2), 508 tons, ranked next in size. The Orca, 462 tons, of San Francisco, is now the largest steam whaler, and the Lucretia, 276 tons, of New Bedford, the smallest. Eight steam whalers are now employed; six of them hail from San Francisco and two from New Bedford.

The following particulars respecting the dimensions and the construction of the present steam whalers were supplied by Messrs. Goss, Sawyer and Packard, Bath, Me.

Length between perpendiculars, 150 feet; length over all, 160; breadth of beam, 31½ feet, and depth of hull, 16 feet; tonnage, 512 tons gross and 343 tons net. The engines are single, direct-acting, with two boilers of the Scotch type. Either anthracite or bituminous coal may be used; 7 tons are consumed in twenty-four hours' steaming. The rate of speed is about 10 knots an hour. The propeller is non-hoisting, has two blades, and is made of yellow metal. In the ice it is protected by the stern and rudder posts, the blades being in a line. The planking is of oak and yellow pine. The bow is sheathed with three-eighths of an inch yellow metal, and solidly timbered. Provisions are made for thirty

England, however, preceded the United States in the use of steamers in the whale fishery. She dispatched a vessel of this character to Davis Straits in 1857, a note of which event was made at the time by one of our Eastern papers.* Mr. Southwell records this event, together with other items of interest in connection with the seal fishery, which I quote in full. He says:

"Steam was first introduced into the whale fishery in 1857, when the iron steamship Innuit was sent out to Davis Strait, and the following spring she proceeded to the Greenland seal fishery, returning to Peterhead after a voyage of three weeks with 150 tuns of oil. Her success raised the cupidity of the iron steamship owners of Hull and Newcastle; and as the Baltic, where most of these steamers were employed, is often closed during the months of March and April, it is not surprising that the prospect of earning some £10,000 in about thirty days was irresistible to them. The consequence of this was that in 1859 fifty-two vessels were lying in Bressay Sound, bound for the seal fishery. So difficult was it to make up their complement of men that some of the vessels had to go on to Orkney to complete their crews. The result of the voyage has been given above.

"Iron steamships, however, had but a short reign. In due course they sailed, but some never returned. Meeting with rough weather several of them came in contact with the ice, and the Empress of India, the Recruit, and the Innuit went to the bottom. Since this disastrous voyage (with one exception, the River Tay, from Dundee, which met with a like fate in Davis Straits in 1868, her first year), no iron steamships have ventured to brave the thick-ribbed ice.

"The Dundee whaler Tay, a fulled-rigged ship of 600 tons, was fitted with an auxiliary screw in 1858; and the introduction of steam soon proved so advantageous that new wooden steam-vessels were speedily built, and the old sailing vessels converted, so that in 1869 the whole of the Dundee fleet were screw-steamers. At first the crews of the steam-vessels, from want of knowledge of the habits of their prey, were not very successful; but after a time it was discovered, that if the seals were sighted in the water and followed till they took to the ice to produce their young, by allowing two or three days to elapse, they became so reluctant to desert their offspring that both parent and young fell easy victims. The men were then let loose, and shot down every mother seal which ventured upon the ice to suckle its young or even showed its head above water; the young seals being of little value so early in the season were allowed to crawl away and die. It need hardly be said that this mode of hunting the seals simply meant extermination, and rapidly produced most disastrous effects."†

OUTFITS FOR A WHALING VOYAGE.—When a whaler goes into commission, she is overhauled inside and out; her rigging is set up, new sails are made and bent, and the wood and iron work is painted. If an old vessel, she may be beeled over, and her bottom and sides planked and calked; old masts are unstepped and new ones put in, and the spars and rigging critically examined. Meantime the cooper has taken measurements of the ship's hold, and his gang of men are busily

men in the crew, and the quarters are heated by pipes leading from the boilers. The Thrasher, to which the above measurements refer, was the last steam whaler constructed, and is the most complete in her equipment. She has patent try-works and iron tanks in the lower hold; her engines are single, direct-acting, with independent condenser and pumps. The cylinders are 22 by 36 inches. This type of engine is, in the opinion of the firm, better adapted for whaling purposes than the compound engine, and more economical. The bow of the Thrasher is protected and strengthened in every way possible, and the vessel is a great improvement on the steamers Mary and Helen, Belvedere, and North Star, which were also built by this firm for the Arctic whale fishery.

* WHALING BY STEAM.—*During the present year, steamers fitted with the screw have for the first time been engaged in the Greenland fisheries from England. Last month an iron vessel of 600 tons, fitted with a propeller, left the Tyne for Davis Straits, and it is anticipated that she will be able to penetrate many of the haunts of the whale and seal in the small bays and inlets into which sailing vessels are unable to find their way.—Gloucester Telegraph, June 17, 1857.*

†On the Beaked or Bottle-nose Whale (*Hyperoodon rostratus*). Seals and the Seal Fishery. By Thomas Southwell, F. Z. S., read 19th December, 1882. pp. 448–489. Reprinted from the Transactions of the Norfolk and Norwich Naturalists' Society, Vol. III.

engaged pounding away at the enormous casks in a neighboring shop. While the ship is "abeam ends," and the carpenters are pottering away at her bottom and sides, there is little of interest to the outsider. But when she has been righted upon an even keel, and the carpenters, calkers, painters, riggers, and blacksmiths, swarmed about her sides, decks, and masts, the scene becomes a lively one. It is not, however, until the mechanics have progressed far enough in their different kinds of work to permit the approach of the stevedore, with his troup of never-tiring longshoremen, with their incessant tramp, tramp, tramp, up and down the gang-plank, carrying packages of provisions of all kinds, that the actual busy scene commences. During the operation of fitting out a whaler for a four years' voyage, her wharf presents a scene of unusual bustle and activity; and when one sees the vast amount and variety of provisions, and the great quantity of domestic utensils stowed away in the different parts of the ship, the idea of housekeeping on a gigantic scale naturally suggests itself. The long rakish oil-jiggers, drawn by two stout horses, come rumbling and jolting along, laden with oil-casks, try-pots, cutting-tackles, blubber-hooks, and other heavy articles; the light jobbing wagons, with parties who are interested in fitting the vessel or, perhaps, filled with provisions or clothing, drive along cautiously, keeping clear of the strong wheels of the jigger; light express wagons, with packages from Boston or elsewhere, endeavor to deliver their loads and get away; wagons of all descriptions—from shops, stores, factories, and warehouses, representing almost every branch of the industries, hasten to deposit their loads and depart; or perhaps the outfitters, owners, or agent of the vessel, in their light and stylish buggies or carriages, persist in threading their way carefully through the blockade of incoming and outgoing wagons, to see what is going on, or to give an order to the "ship-keeper" or "boss stevedore." Letter-carriers hasten to deliver their mail, and the swiftly running Western Union Telegraph boys hunt in vain the owners or agent. In the mean time, also, comes the long skeleton boat-wagon, drawn by one horse, consisting of a light running gear with slender upright recurved arms extending from the axles and embracing the whale-boat as it is transported from the shop to the vessel.

The outfits for a whaling voyage consist of the ordinary vessel supplies, provisions, clothing, domestic utensils, carpenters', coopers', and blacksmiths' tools, apparatus for the capture of the whale, for removing the blubber and hoisting it in, for preparing it for the try-works, and for boiling out the oil, and for stowing the oil away.

The oil-casks must be stowed away carefully and compactly; and in order to economize space, they are filled with salt water, both to ballast the ship and to preserve the wood, with fresh water for the ship's use, provisions, clothing, and other supplies, consisting of the heads and hoops of other casks, spare sails, and cordage. To convey an intelligent account of the manner in which the hold is broken out to stow down a fare of oil at sea, it will first be necessary to describe the manner in which the casks are stowed away at home. Oil-casks are always stowed lengthwise, or "fore and aft," as it is called, and never athwartships, with bung-holes up.* The largest casks are laid off in the ground tier, and filled with fresh water from the Acushnet River, by means of a flexible hose attached to a hydrant on the wharf. The water is then "salted," about three pecks of salt being the proper amount for a 44-inch cask, and proportionate quantities for the other sizes. The manner of stowing away the riding casks is practically the same on all of the large vessels belonging to New Bedford; but the positions of the casks which contain fresh water and other supplies vary to a large extent, depending upon the desires of the master and upon the size of the vessel. It is important that the fresh-water casks should be stowed in accessible places.

* "Bung up and bilge free" is the Excelsior of the whaleman in stowing his cargo. This expression, originally applied to a well-stored cask, has become an idiomatic phrase as applied to a person in good health or in a prosperous condition.

Sometimes all of the riding casks contain fresh water, and as fast as they are emptied they are either filled with oil, if the vessel has "greasy luck," or, if not, with salt water from overboard to preserve the wood, to prevent them from falling to pieces and to ballast the ship. Two large tanks, with a capacity of from 50 to 100 barrels each, were formerly used on the largest ships for fresh water. At present some of our northern barks have such tanks; but as a smaller class of vessels is now employed in the southern fisheries, the captains, though they appreciate the convenience of such receptacles, feel that they cannot spare the space these tanks would occupy; therefore the oil-casks are temporarily utilized for the purpose. When the large full-rigged ships were fitted out from Nantucket and New Bedford three tiers of casks were stowed in the lower hold; but the present vessels, even of the largest size, can stow only two tiers in the lower hold The largest vessels were rated as "three-tier ships," and the smallest as "two-tier ships." In the former class the ground-tier casks were always salted; some of the second-tier casks were filled with salt water and some with fresh water, and those in the third tier with fresh water, hard bread, slops, shooks, cask-heads, and other supplies not immediately needed. Although the ground casks in a modern "two-tier ship" are usually filled with salt water, they may sometimes be filled with fresh water; the second tier contains fresh water and other dry and wet supplies. In this tier the shooks, spare heads and hoops of the oil-casks may be stowed forward of the fore hatch; packages of meat, molasses, and other provisions abaft the mainmast, and fresh water forward of the fore hatch. Between decks the casks are usually stowed "on the head." They contain a general assortment of ship's stores. The empty casks are carried under the main hatch. The fore-hold abreast the hatches contains a miscellaneous assortment, and often in the most dire confusion, of cutting-gear, such as blocks, falls, hooks, chains, and toggles, spare rigging, spare pots, old craft, or junk, and bears the same relation to the ship that the garret does to an old dwelling-house. Lumber, oars, spare harpoon poles, and boat boards may be stowed between the carlines on each side of the vessel between the fore and main hatchways. The small stores, tobacco, soap, canned meats and vegetables, articles for trade, duplicate harpoons, and other similar material may be stowed in the run.

There are two ways of stowing casks, technically known as stowing "bilge and cuntline," and "stowing square tier"; both processes being essential in fitting ship. The process of stowing the casks, when fitting a ship for the voyage and when stowing down the oil is practically the same; the principal difference is that, with the exception of the ground tier, which always receives the strictest care and attention in both cases, greater care is taken in "chocking off a hold" than with supplies.

From the time the vessel arrives at her wharf until she sails, unless she is laid up for a considerable length of time, she is in charge of a ship-keeper, who has absolute control. He never leaves his post of duty or relinquishes his command until the vessel leaves her wharf. The day of sailing is made a day of rejoicing and festivity aboard the whaler. The day before her departure the crew are sent aboard; the vessel leaves her wharf and swings into the stream and anchors to prevent the crew from going ashore. The whale-boats are sent out to the ship, and hoisted on the cranes. The next morning, the sailing day, the owners with a goodly number of invited guests go aboard; the steam-tug "hooks on" and the vessel is towed out of the harbor, and well out to sea. The owners and guests, the stay-at-homes on a pleasure trip, are as jolly as can be, and the whalemen who are to endure the hardships of a long voyage affect an air of jollity, but their countenances belie it. There is an abundance of eatables, wines, and cigars; it is a gala day, and every one is free to mingle with the happy crowd of smiling faces and to partake of the good cheer of the occasion.

Towards night the guests are transferred to the tug, the lines are cast off, and with farewell greetings of good luck, and a boisterous hurrah, the tug steams back to the harbor of New Bedford; the whaler heads for the Pacific, and the whaleman realizes for the first time, perhaps, that he is just commencing a voyage of four years' duration; but he feels that the unpleasantness of leaving home has been tempered by a warm "send off" of friends and acquaintances who have accompanied him at least part of the way.

3. THE WHALE-BOAT.

GENERAL DESCRIPTION.—The vessel being too large to take an active part in the capture of the whale, carries boats to the cruising grounds and sends them off to kill the cetacean and to bring back its body. The whale-boat, therefore, becomes the most important factor in the capture. Owing to its unparalleled seaworthiness and peculiar adaptation to the whale fishery, this type of boat has been employed in almost its present shape for over a century. It was formerly "clinker-built"; a term arising from the noise made when going through the water; but as the whales grew wary, it was found unsuitable, and therefore a smooth-bottomed boat, to glide comparatively noiselessly upon the unsuspecting animal, was suggested and finally adopted. As this kind of craft must be propelled backward, the moment the harpoon is darted the stern should necessarily be sharp. It is therefore a "double ender," progressive motion being obtained with equal facility by either head or stern. The boats originally built for the whale fishery were heavy, unwieldy, and much shorter and narrower than those of the present; but it is very generally conceded from the outset that they were made sharp at both ends. They had round or canoe bottoms also, and were made without center-boards.

BOAT EQUIPMENT.—Few people outside the whale fishery have an adequate idea of the number, character, and varieties of implements of all kinds employed on the various vessels engaged in this industry. When we look into a whale-boat which is almost filled with utensils scattered here and there, we naturally feel slightly incredulous, when we are told that six men must get into it before the outfit is completed. Such a craft should of course carry not only all the instruments required for the capture, and for working the boat, as well as those necessary for the comfort of the men when separated from the ship, but other instruments which may be termed accessories. We have in such a boat six long oars, the largest and heaviest used steadily in any branch of the service, varying from 16 to 22 feet in length; six paddles; two tubs, one of them almost as large as an ordinary wash-tub, for the whale-lines; one bucket for wetting the line to prevent friction when carried out by a whale; one wooden keg for fresh water; one piggin for bailing the boat; one utensil, in the shape of the frustrum of a cone, termed the lantern-keg, for the lantern, tinder-box, matches, candles, pipes, tobacco, hard bread, &c.; one drag, or "drug" as it is called, to impede the motions of a wounded whale or calf; a "blackfish-poke" and several small flags with very long poles for "waifing" dead whales; several pairs of canvas nippers for handling the whale-line; one boat-hatchet for cutting harpoon handles from dead whales and other purposes; one fog-horn; two knives to cut the whale-line should it "null" or foul when fastened to the whale; one bomb-gun or a darting gun; a bag containing bomb-lances; five or six harpoons; three hand-lances; a boat-spade for cutting holes in the lips of the whale to reeve the tow-rope; one large mast, a mainsail, and jib. We should also remember that the boat has a center-board and five thwarts which take up considerable room, and 300 fathoms of whale-line, a portion of which must be led both fore and aft over the oars, and around the loggerhead to communicate with the harpoons. Yet when the boat is lowered from the side of a vessel, every man takes his place, and she skims over the water without the least confusion, provided the men are trained.

The harpoons, hand-lances, and boat-spades, are usually called "craft," and the other implements "gear." Each boat has its own crew, consisting of the "header," "steerer," and four oarsmen, and its own gear and craft.

DIMENSIONS OF THE WHALE-BOAT.—According to early records the length of the whale-boat used in 1724 was 20 feet; and from the statements of our oldest builders we learn that it was increased to 25 feet before 1800. Mr. James Beetle, of New Bedford, tells me that in 1827 he built boats from 27 to 28 feet long, and that they remained of this length until 1840. Meantime, however, the boats carried by the smaller class of vessels were 25 feet long. During the decade of 1840–'50 Mr. Beetle made whale-boats 36 feet long, with 7 pulling oars, for the whaler Sallie Ann, of New Bedford. That vessel used the boats in Delago Bay whaling, but they were employed chiefly for towing and were finally condemned, being too heavy and unwieldy. Mr. George W. Rogers, boat-builder, of New London, tells me that he made 9-oared whale-boats 38 feet long, 6 feet beam and 2 feet and 2 inches deep amidships. These boats were used by the ship Hannibal, of New London, Captain Royce, for capturing sulphur-bottom whales near Spitzbergen and Nova Zembla. These, however, are exceptional lengths. In 1860, when the Arctic fishery made a successful footing, the length of the whale-boat was increased to 28 and 29 feet, and since that time to 30 and occasionally to 31 feet. The 28 and 29 foot boats are now more generally used, and it may be said that the largest boats are used in the Arctic fishery, and the smallest ones in the Southern fishery. The small schooners generally carry 28-foot boats. Mr. Eben Leonard, boat-builder, of Long Plain, Mass., tells me that the usual dimensions of whale-boats are as follows: The 28-foot boats are 6 feet 2 or 3 inches wide and 26 inches deep; the 29-foot boats, 6 feet 4 or 5 inches wide and 27 inches deep, and the 30-foot boats 6 feet 6 inches wide and 27 or 28 inches deep. He also tells me that he has made whale-boats 30 feet 6 inches long, 7 feet wide, and 28 inches deep, but the large boats are not popular. Capt. J. W. Beaty, in 1880, sent me the following dimensions of the Provincetown whale-boat: Length on top, 28 feet; length on keel, 20 feet; keel, 4 inches in rocker; width of boat, 5 feet 8 inches; depth, 26 inches. Forty-eight timbers are used in the straight-keel boat, and fifty-eight in a center-board boat. The keel, gunwales, timbers, stem and stern post, are made of the best white oak, and the outside planking of half-inch white cedar with galvanized fastenings. The boat has two sets of ribbons made of oak, and twelve knees made of white oak or hackmatack steamed.

BOAT WORK AND MATERIAL.—White oak, yellow bark or gray oak, cedar, spruce, and northern pine are employed in the manufacture of the whale-boat. Mr. James Beetle, of New Bedford, the oldest whale-boat builder in America, speaking of the New Bedford boat trade, tells me that the white oak, from which the stems and the timbers are made, and the cedar for the planking and ceiling, are obtained principally from Bristol County, Massachusetts; the yellow bark oak, although found in Massachusetts and Rhode Island, is for the most part obtained from Connecticut, in the region between Hartford and Norwich. The boat-builders claim that the timber from that section is better suited for their work as it is free from knots for a length of 30 feet or more. Cedar is invariably used for the strakes. It is not so hard as oak, but more durable; and although it "splinters" when dry, it is tough and leathery when wet; besides it has the necessary qualification of lightness.

THE SAIL AND SPEED OF THE WHALE-BOAT.—The locomotive appliances of the whale-boat are common to all small craft, embracing oars, sails, and paddles. The steering-gear consists of an unusually long and heavy oar and a light rudder; the former is used when "laying the boat on the whale," and the latter when sailing free. The tireless, never-complaining motor, steam, has been employed in the larger craft, such as launches and schooners, for "going on to whales,"

but, for reasons which we shall presently have occasion to mention, it has never, as a rule, come into general use. Few sails were used in whale-boats in early days, but now they are exclusively used. The rate of speed varies with different boats. Whalemen take pride in having a fast sailer, and as it is a difficult matter to combine both sailing and pulling qualities, they prefer the former in all cases. The present boat is capable of making about 7 or 8 knots per hour in a smooth sea with a good fresh breeze well aft on the quarter. Under favorable conditions some whalemen claim a speed of 8 knots under sail and others 10; but from 4 to 6 knots per hour perhaps would be a fair average when down for whales. Sails are invariably used in connection with the paddles whenever the wind gives a rate of speed of about 2 miles an hour in approaching a whale, as the boat moves much more quietly under sail than when propelled by oars. As to the speed by means of oars, a well-trained crew may in smooth water pull at the rate of 5 knots an hour during the first hour when lowered from the ship, but generally they do not make more than 4 during the second. Pulling to windward with a fair breeze, they would probably make about 4 knots an hour; with a green crew probably not over 3 knots.

THE LIFE OF A WHALE-BOAT.—As to the durability or life of this kind of boat I should say that some vessels return with the same boats they took out, which have, however, undergone many repairs during the voyage; but usually the boats are so much disabled in the service as to render substitutes imperative. One of the most destructive agents is the flukes of the whale. In the Arctic regions the boats are frequently stove by collision with ice. As a rule, however, they suffer the greatest damage when hoisted and lowered to and from the vessel, particularly in rough weather. This has a tendency to split the strakes, break the gunwales, and rack the boat to pieces generally. Towing dead whales to the ship also weakens the boat and sometimes "starts" the nails.

THE COLOR OF A WHALE-BOAT.—When finished the boats are generally painted white unless otherwise ordered, since this color is more popular. But the color depends upon the localities in which the ship is expected to cruise; for example, the boats used about the Gulf Stream are sometimes painted of a leather or salmon tint, and others may be painted of a lead color or a light blue. White is preferable in the Arctic regions as it assimilates to the color of the ice and diminishes the chances of "gallying" the whales. Some builders simply prime the boats and the whalemen paint them on board ship. The top strake is usually of a color differing from that of the rest of the boat; it is green, black, or perhaps blue, dependent upon the fancy of the officer in charge. Previous to 1818 I am told it was not customary to paint whale-boats at all; they were, however, pitched with hot resin.

THE WEIGHT OF THE WHALE-BOAT.—Messrs. Reeves and Kelley, boat-builders of New London, tell me that the boats of their manufacture weigh from 500 to 550 pounds. The whale-boat in the U. S. National Museum, the gift of Messrs. I. H. Bartlett & Sons, of New Bedford, weighs, with the masts, sails, oars, and all necessary apparatus of capture and accessories, 1,528 pounds. If we add to the above the weight of a crew of six men, we shall have the average weight of a whale-boat when engaged in the capture.

THE PRICES OF THE WHALE-BOAT.—In 1880, the 28-foot boats sold for $90 and the 30-foot boats for $100 each, at New Bedford; at Provincetown the price was from $110 to $120 each. When the smooth-bottom boats were first made, the difference in price between them and the lap-streak boats was $10 each in favor of the former.

TRANSPORTATION OF BOATS ON WHALING VESSELS.—Ships and barks in the whale fishery carry four boats for immediate use, and two or perhaps three spare boats; the former on the cranes suspended out-board and the latter with reversed bottoms lashed to the after deck house.

These vessels are denominated "four-boaters," and carry one boat on the starboard side and three on the port. The Arctic steamers, however, carry five boats on the cranes,* two on the starboard and three on the port side. Schooners and brigs carry from two to three boats for immediate use and a spare boat at the stern on projecting timbers called "tail feathers." The captain's boat (so called from courtesy and habit, but usually headed by the fourth mate) occupies its position on the starboard quarter; the mate's boat on the larboard† quarter; the second mate's boat at the waist, and the third mate's boat on the larboard bow. They are familiarly known as (1) the starboard, (2) larboard, (3) waist, and (4) bow-boats. Steam barks carry a fifth boat‡ on the starboard bow. Boats are not carried at the starboard waist, as this portion of the vessel is used on all whalers, for cutting in the whale.

On a three-boat vessel the captain has the starboard boat, the first officer the port-quarter boat, the second officer the waist boat, and a third man is shipped as a "third mate and boat steerer," to take charge of the captain's boat or to steer the captain as the case may be. On a two-boat vessel the captain has charge of the starboard boat and the mate the port boat. The boats are lowered from and raised to the parts of the ship in the order just referred to; but on short vessels the third mate's boat may be lowered from the starboard side, forward of the waist.

The manner of transporting the boats for active use to the whaling grounds is by means of davits and cranes. The principle of suspension is common to all vessels; on whalers the boats are invariably suspended outboard. The attention of the reader is directed to the accompanying plate, which represents the manner of carrying the starboard-quarter boat and the spare boats,§ one of which latter is visible.

The davits (*d d*) are made of white oak "butt timber," squaring about 8 or 9 inches when dressed, with a length varying from 12 to 16 feet. Two scarfs are sawed lengthwise in the upper end, in a wedge-like form; the timber is steamed, bent on a frame, and fastened with iron bolts to retain the curve from the perpendicular.‖ On the starboard quarter (of a ship) the distance between the davits is from 21 to 24 feet, as the requirements may be, in order that boats of varying lengths may be accommodated. On the port side the interval between each pair is about 9 feet, affording sufficient room for the boats to "swing" without coming into collision. The heads of the davits, about 10 feet above the main rail, are mortised for sheaves with friction rollers. The falls (*f*) are of manila, 2½ inches in circumference, and connect with a two-sheaved 9-inch block, which hooks into the "hoisting straps" (*e e*). The hoisting straps are the iron rods or "boat-iron," with rigid eyes at the head and stern of the boat respectively.

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* Triangular-shaped wooden brackets upon which the keels of the boats rest.

† The whalemen are the only class of seamen who have not adopted the term port instead of larboard, except in working ship. The larboard boat was this boat to their great-grandfathers and it is so with the present generation. More especially is this the case in the Atlantic and South Pacific fleets; but recently the term port-boat has come into use in the Arctic fleet.

‡ Some of the new steamers built since 1882 carry sixth and seventh boats.

§ Nomenclature of starboard quarter of a whale ship, showing the manner of transporting the captain's boat and the spare boats: *s*, starboard quarter of the ship; *a*, whale-boat on cranes transported to the whaling grounds; *b b b b*, bearers against which the inboard side of boat rests; *c*, *c*, cranes upon which keel of boat rests; *d d*, davits. These are the usual form of davits, although two pieces of conjoined wood have been used; *e e*, hoisting straps into which the fallen hooks of davit-tackle are inserted when lowering or hoisting the boat; *f f*, davit-tackle falls for hoisting and lowering; *g g*, gripes for lashing boat to prevent chafing, &c.; *h h*, iron braces to hold cranes in position when boat has been hoisted; *i i*, spare boat on skids or gallows-frame; *j*, end of skid resting on stanchion; *k*, lashing to hold boat in position; *l l l l*, shrouds; *m m m m*, back-stays, topmast, topgallant, and royal back-stays; *n*, main brace; *p p p p p p*, running rigging; *q*, mizzen mast; *r r*, ratlines; *s*, spanker-boom; *t*, spanker jack-stay; *u*, channels; *v*, chain-plates.

‖ The davits on whalers are usually made of wood; iron davits have been tried, but were found too stiff.

These rods are strong enough to bear the weight of the boat and its necessary apparatus when suspended. The irons now in use are technically termed "long irons," in contradistinction to those formerly used, which were called "short irons." The boats may be hoisted and lowered, as it is termed, "loggerhead and clumsy cleat," or "by the ends." This depends upon the positions of the hoisting straps in the boats, and it very materially affects the distances between the davits.*

During an ordinary gale the cranes may be fleeted up,† *and the boats "davy-headed." During* a heavy gale the lee boats may be turned up on their sides, especially if the davits are short, by means of tackles from aloft, and lashed with their gunwales resting on the cranes, to prevent them from filling with water when a heavy sea comes aboard, or they may be turned up on both sides of the ship when running before a gale.

The cranes (c c) have the form of a right-angle triangle, and are made of pieces of oak from 3 to 4 inches square; the cross-piece, upon which the keel of the boat rests, is about 3½ feet long. The upright piece at the back is fastened to the bearer with pintles and eye-bolts. This triangular contrivance swings freely to either side. When the boats are hoisted, the cranes, two to each boat, are swung under and held in position by iron braces (*h h*). In some cases the top pieces of the *cranes have cleats with notches, or "jogs," from 1 to 1½ inches deep, covered with mats for the* keel to rest in, while in others cleats are dispensed with and mats only are used.

Slide-boards (*b b*) are bent over the channels (*u*) to prevent the boat from fouling when hoisted and lowered. The lower ends of these boards are bolted to the ship, and the upper ends usually to the bottom of upright tapering pieces of timber called "bearers."

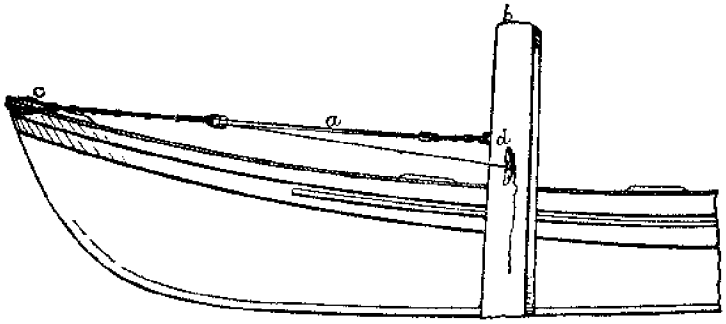
When the boats are in position on the cranes the heavy line-tubs are removed and placed upon wooden gratings, which are made fast to the bearers and the stanchions of the after-house, to relieve the bottoms of the boat from unnecessary weight. The grating is triced up when the boat is hoisted, and then lowered and fastened with two laniards. Sometimes, however, the tubs are transferred to the after-deck house and lashed.

To prevent the boats from chafing when the vessel pitches, they are held by the head with gig-tackle, and to prevent them from chafing when she rolls, they are lashed with gripes. The former consists of a double and single block connected by a 9-thread manila rope. The long strap, made fast to the double block, has a crupper-like arrangement at the forward end, covered with leather, which fits over the bow-chocks of the boat. The short strap, made fast to the single block at the after-end, has a small hook, which, when in use, should be inserted in an eye attached to the bearer. The tackle being adjusted, the falls are hauled taut. A reference to the illustration will better explain this contrivance. The bearer is represented by *b*; the crupper or loop of forward strap, hitched to the port bow-chock, by *c*, and the falls fastened to the cleat *d*, by *a*. Some of the gig-tackles are plain and commonplace enough, while others are made with extraordinary care and taste, and are quite attractive in appearance. The boat-steerers make them usually on board ship, and formerly they took great pride in this work. The blocks and sheaves were often-

*The forward iron strap was formerly inserted in the eyes of the boat, and ruffed to the stem; the after one pierced the stern about 4 inches from the head of the stern post and was ruffed to the toe of this post. This arrangement rendered it imperative that the boats should be hoisted "by the ends" or "stem and stern." But on account of the heavy strain brought to bear upon them, the mechanical and philosophical principle of which is obvious to the reader, it became necessary that the hoisting tackles should be brought closer together; consequently, some builders shortened the distance between the irons by running them through the clumsy cleat and cuddy board respectively, and boats were hoisted "clumsy cleat and loggerhead." Other builders, however, instead of the removing the first-named set, placed the additional set in the parts of the boat I have just named. By this arrangement boats of this construction may be adapted to any davits, which are not always placed at regular intervals from each other.

†Two or three gudgeons are inserted in each bearer, and the cranes may be raised in this manner.

times made of ivory—the teeth or pan of the sperm whale; the straps were nicely laid, covered with canvas, grafted, and fancifully painted. The "boat gripes," about 8 feet long, are made of a 2¾-inch rope, double, and seized together with canvas. The middle portion is covered with leather



HEAD OF WHALE-BOAT, SHOWING GIG-TACKLE.

to prevent chafing. One end is made fast to a hook on the side of the vessel, and the other, with a laniard attached, is passed around the boat and hauled taut.*

From one to three spare boats are held in readiness to be lowered in case of accident to the boats on the cranes, one on schooners and brigs, and two or three on barks. It is also customary to carry duplicate parts of boats, such as keels, knees, gunwales, timbers, stem and stern posts, and boat boards, as well as boat nails, for repairing boats which may be stove by whales or broken when lowered or hoisted. During the voyage, as the boats are destroyed by accident, others may be purchased at some convenient port where whaling supplies are kept, and usually at exorbitant prices; but they are of American manufacture, having been sent out to supply the demand, or they may be obtained from homeward-bound ships. The manner of transporting the extra boats on barks and ships is inboard on skids or deck-houses, and on schooners outboard at the stern.

The skids or gallows frames are merely a timber frame-work. Four wooden stanchions, two on each side of the ship in the after part, resting upon the plank-shear on the outside of the vessel, are bolted to the bulwarks. Two pieces of timber, extending athwartships, rest upon the stanchions, and are held in position by a mortise-and-tenon joint. To impart additional strength, some of the frames are kneed at the junction of the overhead timbers and stanchions. Such a frame is high enough above the deck to "clear the head of the longest man of the crew." The spare boats are turned upside down, with their heads and sterns resting upon the transverse timbers, and lashed. The skeleton frame is seldom found on the present New Bedford ships; and it is my impression that it was one of the peculiarities of the craft belonging to Nantucket and Edgartown. The storage-house, with which I am familiar, may be found on the largest vessels hailing from the first-named port. It is a kind of shed called the "after-house," or "after-deck house," built over the quarter deck. Its roof and sides are weather proof, and the ends are open. It affords an excellent shelter for the after deck. On its top may be found the spare boats, harpoons, lances, boat-sails, rudders, oars, and other articles of boat-gear; and under it, implements with long poles, such as cutting spades, flukers, porpoise irons, and grains.

Although the spare boats are carried at the stern of brigs and schooners, they are never lowered from the after part of the vessels, as, in heavy weather, great difficulty would be expe-

* After the boats have thus been provided for, spreaders are, in some instances, placed transversely in them. The spreaders are merely wooden sticks, which, in the words of an old Provincetown whaleman, are "just as long as the boats are wide," with shoulders or notches cut in each end to hold them in their proper positions on the gunwales, to keep the boats from warping. They are used in the southern fishery only, where the boats are exposed to the powerful rays of a tropical sun.

rienced. This is the method of transportation on small vessels, the object being to economize space by placing the boats outboard. The manner of carrying a spare boat on a schooner is as follows: Two pieces of timber, or "bearers," bolted to the stern-frame, project outboard perhaps 4 or 5 feet. These projections are facetiously termed "tail-feathers." On some vessels the boat merely rests head and stern upon the bearers; but on others, the keel of the boat rests upon a heavy plank extending athwartships and fastened to the outboard ends of the bearers. The boats are held in position by means of a piece of plank at each end bolted to the bearers.* Spare oars, harpoon poles, and other implements of this kind, are also stowed outboard with the boats.

THE STEAM CUTTER.—Owing to the noise made by the escape of steam, boats propelled by this motor have not, until very recently, been used to advantage in approaching whales. The Norwegians employ steamers in the capture of the whale, heavy guns placed on deck being used to throw the projectiles. Americans have also used steamers entirely decked over, as the Whitelaw and the Rocket, off the San Francisco heads, in the capture of fin-backs, and I am told that the Northwest Whaling Company employed a small steam launch on the south coast of Alaska for fastening on to whales by means of the whaling rocket, a weapon also used by the California steamers. It should be borne in mind that the above-mentioned steamers operated near the coast and used pieces of ordnance or rocket guns, and consequently were enabled at times to prosecute this branch of the fishery successfully; but the necessities of open-sea whaling require small boats that may be lowered from the vessels to intercept the whales, as such large objects as ships would galley them. The desideratum of the whaleman is to fasten his whale to the boat by means of the harpoon and line, in order that the animal may, in a measure, be under control. Having accomplished this object the whale may be dispatched with bomb-lances. The early method adopted for the capture in deep-sea whaling was to approach the whale in boats propelled by oars, or, whenever the whales evinced the slightest timidity, by the use of paddles. As little noise as possible should be made at such times. It soon became evident, however, that speed in "going on to a whale" was of the utmost importance; and although sails were suggested, it was believed that such conspicuous objects would not only frighten the whales, but probably also be the means of swamping the boat, or otherwise endangering the lives of the crew during the actual capture. But James Beetle, of New Bedford, applied the patent mast-hinge to this kind of craft; sails were set, the boat swiftly approached the whale, and the mast and sail were lowered together with the greatest ease soon after the harpooner darted his instrument into the whale. All whales are now struck under canvas, and a whaleman who does not sail on his whale under favorable conditions does not understand his calling. But the whales are becoming educated or getting their eyes open, so to speak, to the present system of warfare waged upon them; and it now becomes necessary to introduce a motor for facilitating the transit of boats to the objects of capture. To this end Prof. Spencer F. Baird, United States Commissioner of Fish and Fisheries, and Lieut. Z. L. Tanner, United States Navy, Commander United States Fish Commission steamer Albatross, suggested the use of one of the Herreshoff steam-cutters as an experiment in this fishery. Acting upon the advice of these gentlemen, Messrs. I. H. Bartlett & Sons, of New Bedford, introduced one of the proposed launches in the North Pacific during the year 1882. This launch is 28 feet long, with a beam of 7 feet. It has an upright boiler, uses "arctic coal" as fuel, and is of the same kind as those now employed by some of the steamers of the Navy. It was not intended, however, by the projectors of this scheme that the launch should be used in the actual capture; its object being solely to

*According to Manby's account (Voyage to Greenland, 79) English whalers carried spare boats at the stern. "While on the English ship Baffin, the Greenlandman Vigilant, of London, homeward bound to that port, was spoken. In the boat hanging over her stern was a coffin containing the remains of one of her boat-steerers who had been killed by a whale."

tow the whale-boats nearer the whale, thereby economizing time, and to afford means of approaching whales during calms, when they might otherwise be inaccessible, and afterwards to tow dead whales to the vessel. But from the account of Capt. Bernard Cogan, who first used this cutter in connection with the bark Rainbow, in the Arctic regions, it appears that the steamer has been employed in killing wounded whales as well as in getting fast "second boat." In a letter to Mr. William H. Bartlett, Captain Cogan says that the cutter was "used to advantage towing boats to windward and towing whales to ship in light winds. Found her most useful in chasing wounded whales that got loose. It is hard for a wounded whale to get away from her in open water, and she always got fast second boat. We used the darting gun, hand lance, and bomb lances. We got two whales with her, and saved one wounded whale that we would have lost if we did not have her. Used properly, one steam-launch is a big advantage to a ship." The career of this little craft will be watched with much interest, not only by the whaling fraternity, but by sea-faring men of every nation, and as it is the first attempt in this direction, it will undoubtedly prove an important record in the history of the American whale-fishery.

4. THE APPARATUS OF CAPTURE.*

IMPRACTICABLE SCHEMES.—NETS, PRUSSIC ACID, AND ELECTRICITY.

It was my first intention to describe only the ordinary methods of capture; but in arranging and elaborating the results of my investigations, I find that I have several accounts of extraordinary and impracticable schemes for the destruction of the whale.

Among the most remarkable schemes that have fallen short of successful application should be mentioned (1) nets, (2) prussic acid, and (3) electricity.

THE CAPTURE OF WHALES WITH NETS.—Attempts have been made by both English and American whalemen to capture the "white whale," or white dolphin, in nets. So far as the English are concerned, or were concerned, I have no data except that which has been published by Scoresby, who tells us that this species was taken in the large rivers flowing into Hudson Bay and Davis Straits by "harpoons or strong nets"; but in regard to the steps taken in this direction by American whalemen I am prepared to speak more definitely. Mr. H. L. Crandell, home manager of the firm of Messrs. C. A. Williams & Co., New London, Conn., tells me that the old firm of Williams, Haven & Co. made two attempts to capture the white whale with nets at the mouths of the large rivers in Cumberland Inlet. The nets were made of manila lobster twine capable of lifting 200 pounds. This net had a 9-inch mesh and was 500 fathoms long, 3 fathoms deep in the bunt, and tapered to 2 fathoms at the ends. It was hung on manila whale-line with weights and corks, and cost $1,000. It was used by bark Concordia, in 1871, at Kingann, Cumberland Inlet. It was set from a platform built across two whale-boats and towed from shore to shore by five boats of the same type. At one setting five hundred white whales or "white grampuses," as they are also called by whalemen, were entrapped and killed with guns and lances in less than an hour. This catch stowed down 750 barrels of oil. Thirty-seven men were employed at each ebb-tide, and 1,000 barrels of oil were taken during the season. A second net was made of the same material and with a mesh of the same size; it was 1,000 fathoms long; the bunt was 300 fathoms long, and fished 4 feet deep; the next 300 fathoms on either side fished 3 feet, and the remaining 400 fathoms at each end fished from 2 feet to 1 foot. It was also strung with whale-line, and had adjustable cast-iron sinkers weighing from 8 to 24 pounds each. This net was used in 1872 at the locality above mentioned by the steamer Tigress, of St. John's, Newfoundland,

* For more detailed description of apparatus see the section of this report on APPARATUS OF THE FISHERIES.

chartered by Williams, Haven & Co. This steamer was accompanied by the schooner Helen F., owned by that firm. The net was set from a seine-boat, made at St. John's, at a cost of $500, with a carrying capacity of 25 tons and a deck 24 feet wide. This craft was towed into position by six whale-boats. At the first setting the net was cut into three pieces by the sharp rocks and for the time being rendered useless. The men endeavored to keep the whales in deep water until ebb tide, when they could have an opportunity of mending the net. It appears, however, that the cunning dolphins did not like this mode of imprisonment; the entire school made a violent rush, and carried away 150 fathoms of the bunt, and almost swamped the whale-boats. The net was again rigged and a second attempt was made; but operations were delayed by the boats running afoul of the rocks, and the whales escaped. It is estimated that about 2,000 dolphins were in the net each time, but only about two hundred were captured. Neither of the above experiments was regarded with much favor by the projectors of the scheme, and they have since practically abandoned nets.

In the fall of 1882 I met Capt. Josiah Ghenn, the veteran Provincetown whaleman, and he told me that when he was master of the schooner Council, about the year 1848, he was cruising off the coast of Labrador, and undertook to capture a bowhead whale by means of a net. The net was made of whale-line on board his vessel; it was 159 fathoms long, 8 fathoms deep, and with meshes of extraordinary size. It was set from the shore 50 fathoms in a straight line in an easterly direction; turning at right angles the remaining 100 fathoms were carried north parallel to the shore, leaving the northern end open for the whales to enter. A bowhead whale entered this trap at night and carried away the entire net; and Captain Ghenn added that he has "never seen the whale or net since."

The fishermen of the Faroe Islands have been very successful in their captures, by means of nets, of the "grind-whale" or blackfish (*G. melas*) at Vestmanhavn. This fishery is discussed in the next chapter.

It is altogether possible that nets may be used locally under favorable conditions to capture the smaller species of cetaceans, such as the white whale and blackfish, but for the larger members of the order they are without doubt impracticable.

PRUSSIC ACID.—Hydrocyanic acid has been used to destroy the life of the whale; but its deleterious effects soon abolished its use. In low latitudes the men at work in the blubber-room cut off the bottoms of their trousers and with bare feet and legs stow away the unctuous pieces of fat. Several men, who possibly had sores upon their hands or feet, were fatally poisoned by the blubber of a whale that had been killed with prussic acid. The news soon spread through the fleet, and the beginning and end of this method of capture occurred almost simultaneously.

As to the origin of the use of poison in the whale fishery there are many conflicting reports. The American whalemen unanimously attribute the inauguration of this enterprise to the French, from the fact that several of our ships fell in with French whalers that carried the so-called "prussic acid harpoon"; but so far as I can ascertain the harpoons were not generally used. Mr. F. O. Sanford, of Nantucket, Mass., tells me that poisoned harpoons were carried by the ship Susan Swain, which sailed from Nantucket November, 17, 1833; but Charles E. Allen, an "apothecary" in Nantucket, who was mate on the Susan on that voyage, says the crew never used them, as they were frightened by reports concerning the death of whalemen from handling poisoned blubber. Captain Allen also says that during a subsequent voyage on the northwest coast he shipped a Frenchman who reported that some of his countrymen killed a whale with a prussic-acid harpoon, and that when "cutting-in," the man who was working on the whale received a flesh wound and died from the effects of the poison. Mr. Samuel Tuck, eighty-three years of age, of Williamsburg,

N. Y., formerly agent of the Susan, says that a harpoon similar to the old double-barbed iron was made by a Nantucket blacksmith, with slots for bottles of acid, but it was not used at all during the voyage.

My correspondents, among whom are numbered some of the oldest whalemen, tell me that they are of the opinion that prussic acid has never been used in the American fleet. While collecting objects of interest connected with the whale fishery in the fall of 1882 for the London Fisheries Exposition, I obtained two harpoons intended to be used with prussic acid. They were presented by Mr. Joseph B. Macy, of Nantucket, and are now displayed in the fisheries section of the U. S. National Museum (Nos. 56,260 and 56,261).

It would appear that the method of destroying the whale by means of poison originated in Scotland, and that Dr. Robert Christison, of Edinburgh, was instrumental in promoting this novel enterprise. An exhaustive paper on the subject was read by him before the Royal Society of Edinburgh, in 1860.*

In a communication to Prof. Spencer F. Baird, U. S. Commissioner of Fish and Fisheries, Capt. William Adams, of the Scotch whaling fleet, gives the following account of a whale killed with prussic acid.

"During the winter of 1861 a large two-grooved rifle was made by Messrs. Dixon, of Edinburgh, from plans and instructions of Mr. James Miln, of 'Murie.' The weight of the rifle was 28 pounds. Shells were made for it and filled with one-half ounce concentrated prussic acid and a small charge of powder fired by a 10-second time-fuse. The prussic acid was made for me by Dr. Stevenson McAdam, of Edinburgh.

[Extract from Journal.]

"MAY 12, 1862. (Off the island of Disco.)

"10 a. m. Saw a whale and lowered away two boats.

"10.30 a. m. Saw several whales; called all hands and lowered five more boats.

"11 a. m. The mate, Scott, got fast with the gun harpoon; whale sounded and took four lines (480 fathoms).

"11.30 a. m. Lowered the S. quarter boat, Captain Nicoll being in tow with the large rifle.

"12 noon. Whale came up and a shell (prussic acid) was fired into her. She went under for four or five minutes, and on coming up another shell was fired into her. She then seemed quite helpless.

"Three gun harpoons were then fired into her as she lay on her side.

"At 12.30 p. m. she was quite dead.

"We had no difficulty with the men in regard to the poison, but we never got another chance to use it."

ELECTRIC WHALING APPARATUS.—In presenting an account of this apparatus it is not to be inferred that it has ever been brought into practical use, for as far as I can ascertain it has not; but it is interesting to know that modern science has not overlooked the needs of the whale fishery, and I mention it merely as one of the curiosities of the subject. In 1852 letters patents were granted by the United States Patent Office to two gentlemen living in Germany for an electric whaling apparatus. According to the specification this contrivance consisted of a magneto-electric rotation machine, a metallic wire attached to the harpoon, and a coppered whale-boat constructed in such a manner that the electric current might be reconducted from the whale when

* On the capture of whales by poison, by Robert Christison, M. D., Professor of Materia Medica in University of Edinburgh. Edin. New Phil. Jour., 69, new series, xii, 1860, pp. 72-80.

harpooned through the water to the machine. The boat was made 2 feet longer than usual to make room for the apparatus. The harpoon was of the ordinary pattern, but so constructed that the wooden pole might be easily detached with a small line. The harpoon was intended to be darted by hand, and when the pole was withdrawn the head and the conductor should remain in the whale; then the machine should be set in motion and the electric current circulated through the body of the whale. At each revolution of the machine handle it is claimed that the whale receives about eight tremendous shocks, or 960 strokes per minute—"so formidable a power that no living being can resist the same."

THE ORTHODOX AND CUSTOMARY METHODS OF CAPTURE.

"FASTENING ON TO WHALES."—In considering the various methods and appliances that have been employed from time to time in the capture of the whale, the primitive style, by means of the harpoon, line, and hand-lance, is of first importance. The next step was the introduction of the harpoon-gun, which finally gave way to the bomb-gun and suggested the system now universally employed of discharging explosives in the vital parts of the whale. But the initial step now taken in the capture is identical with that of the early days of whaling, for the harpoon is still relied upon to fasten the whale to the boat. The hand-lance, formerly the only instrument available in giving the death blow, has been almost entirely superseded by the bomb-lance, and its discontinuance is merely a question of time. An implement called the boat-spade was formerly used to disable a running right whale by severing the tendons which connect the body and the flukes; but, so far as its legitimate duty is concerned, it also has been virtually displaced by the explosive lance.

The practice of "fastening on to" whales is as old as the fishery. It was resorted to by the Biscayans, from whom both the Dutch and English borrowed their ideas, and has been adopted by all nations that have engaged in whaling. The Indians of Cape Flattery, the only representatives of their race south of Alaska who capture the whale, first fasten on to the animal, and then murder it with lances and other rude implements; and according to their traditions this method of capture has been handed down through countless ages. As early as 1613, Purchas says, in an account of "a hunting spectacle of the greatest chase which nature yieldeth," that the "harping iron principally" serves "to fasten him to the shallop;" after which "they strike him with lances made for that purpose, about 12 feet long." For over two hundred and fifty years this method of capture has passed from generation to generation, and is rigidly practiced at the present writing. Frederich Marten, in his account of a voyage to Spitzbergen in the ship "Jonas in the Whale" (*Jonas im Walfisch*), during the year 1671, says, in his quaint style, that they fastened the long-boat to the whale "that he might not run away," and then "launced" him until he was dead.

THE HARPOON.—The harpoon is of primary importance, for to this instrument the whalemen look for success and profit. The primitive or typical harpoon, forms of which are still preserved, is sagittate, and known to whalemen as the "two-flued iron;" the next step was the harpoon, with one fixed barb, the "one-flued iron," and the third, the instrument now in use, with a movable barb or toggle which acts upon the principle of the lily-iron of the sword-fishermen. The lily-iron, which was evidently suggested by the adjustable bone and ivory harpoon heads of the Eskimo tribes, was used on whaling vessels for striking porpoises when "sea-pies" were needed, and for other purposes, but it was not strong enough for whaling. Considerable complaint was lodged against the old harpoon from the fact that oftentimes it would "draw" and let the whale escape, and the urgent need of a new and better instrument became apparent daily. The "one-flued" harpoon was introduced, being made with the diameter of the neck smaller than the shank, to

produce a weak place, which would bend without breaking when the whale started off harnessed to the boat; but this was also found unsatisfactory. Finally Lewis Temple, a colored man, of New Bedford, conceived the idea of the toggle-harpoon. He manufactured his first iron in 1848, and since that time it has been used by the American whalemen to the exclusion of all others.*

The shanks of the harpoons are forged by hand in blacksmith shops from the best and toughest Swedish iron and not of steel; the heads, though usually cast from annealed or malleable iron, are sometimes wrought. I have seen shanks of harpoons that have been twisted into the most questionable shapes by the actions of dying whales; some had complete circles or loops bent in them, and none of the instruments could be used until forged anew. When the whale is towing the boat the shanks of the harpoons, usually the portions known as the "necks," are sometimes reduced in diameter by tractile force. That the fibers of cold iron can be drawn out in this manner has been doubted by skeptics, but it does not seem improbable to persons who are familiar with the ductility of metals, or with the great strain brought to bear upon the harpoon when the boat is towed through a heavy sea, and more particularly when the harpoon is fastened under a rib of the whale. I have seen very interesting specimens of this character, and in the fall of 1882 I sent three "stretched" harpoons to the National Museum. Sometimes the harpoon breaks, and the portion which remains in the whale may long afterwards be cut out by the crew of the same or another vessel. Owing to the marks, subsequently referred to, the instrument may be easily identified. The wound becomes cicatrized, and perhaps after many years, by attrition, the projecting shank may be worn to a mere shred. A boat-steerer belonging to the Ansel Gibbs, of New Bedford, threw his harpoon into a bowhead whale in Hudson Bay, and several years afterwards the ship Cornelius Howland, also of New Bedford, captured the same whale in the Arctic regions on the western coast. The whale had traversed the great northwest passage, which is as yet unknown to man, and carried with it the harpoon, which was branded with the names of the Gibbs and of the blacksmith who made it.†

It is the popular impression that the harpoon is employed solely to kill the whale. This is also erroneous. It is used mainly to fasten the whale to the boat by means of the line in order that the animal may be killed with either the hand-lance or the explosive lance. I am aware that in many cases whales have been killed by the harpoon when it penetrated a vital spot, but these are the exceptions rather than the rule.

MARKED CRAFT.—The harpoons are marked with the initials of the names of the vessels and the boats to which they belong. Thus, the irons belonging to the mate's boat or bow-boat of the ship Susan should be stamped with a cold chisel, S, or S...., B. B., and as long as such a harpoon remains in a whale no ship of any nation can legitimately claim the whale or its product. On some vessels, instead of using the initial of the boats, straight marks or a series of dots are made; thus, S on one side and | | | | or : : : : on the reverse has the same meaning as above noted.

Capt. W. H. Macy, author and whaleman, of Nantucket, in the "Log of the Arethusa," says that "marked craft claims the 'fish' so long as it is in the water, dead or alive." Also that if the captain of one ship is found in the act of cutting in a whale with the marked harpoon belonging to another, the claimant has a right to cut off the blubber even with the plankshear of the vessel and take what is below, but cannot claim anything that has been hoisted into the ship. This is the whale-

* To convey some idea of the magnitude of the harpoon trade, I should say that the books of Mr. James Durfee, the veteran harpoon-maker of New Bedford, show that from 1828 to 1868, inclusive, he made and sold 58,517 harpoons. Of this number 45,103 were the old-fashioned irons, including both the double and single barbed, and the remainder were the improved toggle-irons. We should also take into consideration that during this time there were about eight or ten harpoon-makers at work in New Bedford.

† Jireh Swift, New Bedford.

men's law, as determined by custom, and nothing better could be devised. In March, 1688, the universally recognized law of whalemen that "craft claims the whale" was placed on the colonial records of Massachusetts Bay, wherein, among other things, it is specified "6ly, that each company's harping Iron & lance be Distinckly marked on ye heads and socketts with a public mark: to ye prevention of strife." *

THE HAND-LANCE.—Next in importance to the harpoon was the old hand-lance, which has been superseded by the bomb-lance. Its head is made of steel and its shank of the best wrought iron. The total length, including the handle, is about 12 feet. The lance itself is from 5½ to 6 feet long. It is used by the officer of the boat to kill the whale after it has been harpooned. Notwithstanding hand-lances are rarely employed at present, three of them are always included in the outfit of a whale-boat to be used in cases of necessity. Capt. William Martin, of Provincetown, tells me he always kills his sperm whales with the hand-lance, but uses the bomb-lance for right whales and humpbacks.

THE WHALE-LINE.—It is essential that the whale line or "main-warp" should be of the best quality of its kind, for should it "part" the whale would of course escape. It is loose laid, soft, pliable, and may be stretched until its diameter is greatly reduced before it breaks. Unlike cordage, it is free from tar, but during the process of manufacture the tow is sprinkled with whale oil as a preservative. It is made of the fibers of the "manila hemp" or wild plantain (*Musa textilis*), an endogenous plant, indigenous in the Philippine Isles, and the islands of the Indian Archipelago, and known as *Abaca* to the natives of the first-named group.

The whale-line is laid in Flemish coils in two tubs, 225 fathoms in the large tub and 75 fathoms in the small tub. The upper and lower ends of each line are exposed and provided with eye-splices in order that one end of the line may be made fast to the harpoon and the other end to the other line when fast to a whale. Each boat carries 300 fathoms of line, and if a whale by running or sounding a great distance takes it all out another boat is signaled and assists in the capture. It is, however, unusual for a whale to take out over two-thirds of the 300 fathoms belonging to a boat; but of course much depends upon the disposition of the whale and the skill of its captors.

One end of the whale-line is made fast to the "first iron," that is, the first harpoon darted at or into the whale, and the "second iron" is connected with the main line by a short warp attached by a running bow line. The harpooner, having darted the first iron, endeavors to dispose of the second in a similar manner as soon as possible; but if the whale gets beyond darting distance he "heaves" it overboard anyhow to prevent it from fouling with the main line. During the capture harpoon No. 2 is towed, and usually found near the head of the boat.

THE WHALING-GUN.—The whaling-gun was primarily intended to impel harpoons, but as the weight of the line deflected the instruments from their true course of flight it became necessary that a missile should be so constructed as to be used with the gun for killing the whale instead of merely fastening to it. The gun-harpoon has therefore given way to the bomb-lance. We must give the English the credit for inventing the whaling-gun, that is, the heavy swivel-gun. The eminent whaleman and author, Scoresby, tells us that this gun was invented in 1731, but was little used, and also that in 1771 or 1772 it was again brought forward, having been improved so much that it was regarded as a new invention. The Society of Arts urged its introduction in the Greenland fishery, and offered rewards for whales killed with it. But the early English and Dutch, particularly the latter, apparently feared the gun more than they did the whales. American

* Hist. Amer. Whale Fishery, Alexander Starbuck; published in U. S. Fish Commission Report, part iv, p. 8, and Mass. Col. MSS., Treasury, iii, p. 60.

whalemen, however, have never regarded the swivel-gun with much favor, although it has occasionally been used by them on the California coast in devil-fishing, or elsewhere in humpbacking, finbacking, and right whaling, and sometimes in bowheading in the Okhotsk Sea, as well as in humpbacking on the southern coast of Africa, but principally on soundings. They preferred the light shoulder-guns, which oftentimes "fired aft" with more emphasis than they did forward. The consequence was that the gunner was kicked as far aft as 'midships, and it was found necessary then, even as it is now, to tie the gun to the boat with a laniard in order that it could be regained when it was "hoisted overboard." The recoil of the old shoulder-guns was immense. I have heard of two men who had their collar bones broken by a heavy gun.

The shoulder-guns which are now in such general use are of American invention and manufacture. The first were muzzle-loading, and Provincetown still clings to this type, one of which, the Brand, they prefer. The New Bedford whalemen prefer the improved breech-loading guns. Of the latter there are two kinds now in use, the "Pierce & Eggers" and the "Cunningham & Cogan." The first named is made of gun metal throughout, and the second has the stock of cast iron and barrel of steel. Central-fire cartridges are used. The Eggers requires a Winchester cartridge No. 8, the bomb-lance being loaded separately, and the Cunningham has a bomb-lance and cartridge combined, made expressly for it, which are placed in the gun simultaneously. A rifle has been used, but it was found impracticable.

When fire-arms were introduced into this fishery there were, as might be expected in regard to any innovation, many arguments against them, but the necessities of the occasion demanded their use, and now the echo of the whaling-gun bounds over the billows in every clime.

The Brand bomb-gun is worthy of mention as being the first gun successfully used in the American whale fishery. There are three sizes, all of which are muzzle-loaders. The caliber, length, and weight are as follows: No. 1, 38 inches long; weight, 23 pounds; caliber, seven-eighths of an inch; No. 2, 36 inches long; weight, 19½ pounds; caliber, $1\frac{1}{16}$ inches. The length and weight of No. 3 have been lost among my notes, but its caliber is 1¼ inches. Some of the barrels are "blued" and others "browned." The ramrods are made of hickory, with brass thimbles and screws. Three drams of powder, sea-shooting FFG, are recommended by the manufacturer as a charge for impelling a bomb-lance.

The Pierce & Eggers gun is one of the latest improved shoulder-guns, and the most popular and effective that has ever been introduced in the whale fishery. It may be used with either the Pierce or Brand explosive lance. It is also one of the most attractive whaling guns in appearance. It is made entirely of gun metal, with a skeleton stock and reinforced barrel. Charge, 2½ drams of powder. Its length is 36½ inches and its weight 24 pounds. It is manufactured by S. Eggers, New Bedford, Mass.

The Cunningham & Cogan gun is manufactured by Patrick Cunningham, under the direction of William Lewis, New Bedford, Mass. It is used principally by the crews of the steam barks in the Arctic regions in connection with the Cunningham & Cogan bomb-lance. Its total length is 33 inches and its weight 27 pounds. The stock is made of gray iron, skeleton; the stock and breech-piece are cast in one piece with a small rigid eye at the rear of the guard-plate for the laniard. The barrel is steel, with a bore of 1 inch, reinforced and screwed to the stock. The breech-block, containing the firing-pin, is hinged to the stock, and when closed is held by a snap-spring. The bomb-lance and cartridge combined is loaded at the breech.

At sea the mates usually have charge of the shoulder-guns and the boat-steerers of the darting-guns. On board ship these weapons are kept in the state-rooms suspended over the bunks. In the whale-boat the shoulder-gun is carried at the starboard bow in a long box covered with a

piece of canvas, extending under the head sheets or perhaps simply under a flap of oiled canvas nailed to the boat. It is made fast to the forward "hoisting-strap,"* by means of a laniard to prevent its loss overboard, as its recoil is often so great as to prostrate the gunner. It is discharged from the bow by the officer, and is aimed and fired in the same manner as the ordinary shotgun or rifle.

THE DARTING-GUN.—It has been the custom of American whalemen for the past three decades to "fasten on to" the whale with the harpoon, and then, standing off at a safe distance, kill it with a bomb-lance. But the great bowhead, which yields excellent baleen and the next best oil to that of the spermaceti whale, has been the means of bringing about a change in the modern art of whaling. When fastened to in the Arctic regions—the home of this cetacean—with the ordinary harpoon, the great polar whale may dart under the ice, and if the crew do not care to follow it they must "cut line" and lose the whale and such material as it carries away. Capt. Eben Pierce and Mr. Patrick Cunningham, of New Bedford, have respectively perfected an instrument, known as the "darting-gun," expressly for this fishery. This weapon consists of a stockless gun-metal barrel (*a*) attached to an ordinary harpoon pole (B). A harpoon (C), with the whale-line attached, fits loosely in two brass projections or lugs (*d d*) on the gun. The apparatus is loaded with a cartridge or charge of powder and the bomb-lance (*b*) and darted at the whale. The harpoon entering the blubber brings a long wire rod (*g*), projecting over the muzzle of the gun, in contact with the whale. This rod is the trigger, and by impact the bomb-lance is automatically thrown into the very soul of the cetacean, as the harpoon simultaneously fastens it to the boat, and if mysticetus is not killed he is thoroughly disgusted and willing to succumb. Were it not for this kind of gun, ice-whaling could not be successfully pursued.†

THE WHALING ROCKET.—The whaling rocket is of recent invention, and is intended to be projected from the decks of vessels. The "gun," so-called, is merely a rest from which the rocket is discharged; it is supported by an iron standard, and fired while resting on, and not against, the shoulder. The projectile is a large rocket, harpoon, and bomb-lance combined, weighing 18 or 20 pounds, and is pre-eminently the most powerful and destructive agent ever used for killing whales.‡

Mr. C. D. Voy, of California, in a letter to the Secretary of the Smithsonian Institution, cites an instance where a rocket at short range was fired entirely through the body of a whale and toggled itself on the side. He also says that during a series of experiments with the bombs on the beach one of them "carried a whale-line almost 60 fathoms, which shows what power they have, since a bomb and 20 fathoms of line weigh about 55 pounds."

THE BOMB-LANCE.—Robert Allen, of Norwich, Conn., invented the first explosive lance in America for killing whales. This occurred in 1846. The lance, a type of which is preserved in the National Museum, is long and slender, and the absence of guiding-wings rendered it uncertain in its effects. It was just as liable to strike the whale, as the whalemen express it, "broadside" as with the point; hence it failed in its mission. In 1852 C. C. Brand, also of Norwich, made improvements in the Allen lance, and was mainly instrumental in introducing the present form into the whaling fleet, thus inaugurating a new mode of capture, which in part revolutionized the process.

* An iron rod or strap, with a projecting eye at each end of the boat, by means of which the boats are hoisted and lowered to and from the vessel.

† When darted at a whale the gun is regained by means of a laniard attached to the shank of the socket.

‡ This weapon, like the darting-gun, serves two purposes; it both fastens on to the whale and kills or seriously wounds it. Both actions are simultaneous. The chain and toggle are released when the bomb is exploded to prevent the implement from withdrawing.

The system of manufacturing the modified forms is for the most part based upon the principles embodied in the Brand lance, differing, however, in the internal detonating mechanism.

The magazines, or shells, of the Brand lances are cast iron, annealed, cast with heads or points which have three cutting edges, and resemble in appearance an engraver's scraper. This lance is exploded by a time-fuse ignited by the detonation of a primer, to which fire is communicated by a firing-pin, the latter being operated upon by the discharge of the gun. The wings are of vulcanized rubber.

The shell or chamber of the Pierce lance is composed of seamless brass-tubing; the instrument has metal wings; the internal operative mechanism for exploding the lance is placed in or near the anterior end, and the explosion is caused by the concussion of the discharge of the gun, which ignites a time-fuse by means of a percussion cap.

The Cunningham & Cogan lance is composed of iron piping, to which is affixed (screwed) a malleable cast-iron point with three cutting edges. The instrument has rubber wings, and is exploded by a time-fuse ignited by a central-fire cartridge rigidly fixed to the lance and forming a part of it.

The above lances differ in their internal construction and arrangement; and, with the exception of the Brand No. 4, which is especially designed for Greener's swivel-gun, they may be used in connection with the shoulder-guns.

The Allen lance prevented the egress of water by the issue of flame in its rear caused by the burning of the fuse; the present lances are rendered impervious to water, either by tight screw-joints or by being hermetically sealed.

Pierce's and Cunningham's lances weigh, each, 1¼ pounds, and the Brand No. 2 (new model, for example) 2 pounds. These weights do not include the amount of powder required for the charges.

The retail price of the Brand lance is from $3 to $5 each; the sizes are determined by numbers varying from one to four, inclusive. The charge for the smallest size is 1 ounce and 5 drams of powder. The Cunningham lance is 17 inches long and sells at retail for $3. Two ounces of powder constitute a charge for the magazine or bomb, and 3 drams for a cartridge. The Pierce bomb is 19 inches long, and the charge 2 ounces and 4 drams of powder.

All of the bomb-lances are cylindro-conoidal in shape, and the mechanism for exploding the magazines is always concealed. The powder is fired by a fuse ignited by concussive force or by the flash of the gun when discharged. Explosive lances, called "darting-bombs," without wings are used in connection with the darting-gun. They are 14 or 16 inches long, and made of brass tubing or malleable cast-iron piping.

5. THE METHODS OF CAPTURE; ACCIDENTS.

RAISING WHALES.*—When cruising for whales, watches, consisting of the mates, boat-steerers, and foremast hands, are stationed at the lookouts, standing upon the cross-trees and supporting themselves by iron hoops and the rigging at the main top if rugged weather, and at the mainroyal or maintop-gallant if smooth weather. The men "stand their mast-heads from sun to sun," being relieved every two hours. In the southern fishery they stand usually on the horns, the projecting ends of the cross-trees, and sometimes on small planks which are placed across the projecting ends; but in the Arctic regions they stand in a "crow's-nest" made of canvas, painted so

* The whalemen are "quaint compounders of expressions," and as these expressions are singularly pertinent and remarkable for their terseness, I propose to employ them as head-lines for the different subjects in this part of my report. The idioms peculiar to whalemen are as legitimate perhaps as the provincial or national idioms, and justice could not be done the subject if they were omitted.

as to exclude the chilling blasts. In the latter fishery such a receptacle accommodates comfortably about three men—an officer, a boat-steerer, and a foremast hand; and when the captain desires to go aloft, the latter goes out in the rigging during the interview, or, if very cold and the consultation prolonged, he goes below. In this fishery the inconveniences of standing mast-head are vastly augmented by the extreme cold, and in the southern fishery by the rays of a tropical sun.

When whales are raised from the mast-head the species may be determined by their apparently sportive actions as well as by their spouts. In the latter case they are of course easily recognized, as the cachalot has one spiracle and the others two.*

The sperm whalemen sometimes cruise for months in succession without seeing whales, consequently there is great rejoicing, more especially if the vessel has been a long time from home with a "clean hold," or if there have been unusually long intervals "between catches," when an individual makes its "rising" within the range of vision, and by the vaporous column ejected from time to time indicates its whereabouts to the men on watch. The expressions employed by the men on the lookouts to notify the crew that whales are near have apparently changed with the times. Hector St. John, describing the methods of whaling adopted by the "first proprietors of Nantucket," says that, "as soon as they arrive in those latitudes where they expect to meet with whales, a man is sent up to the mast-head; if he sees one he immediately cries out 'Awaite Pawana!'† They all remain still and silent until he repeats 'Pawana' (a whale), when in less than six minutes the two boats are launched, filled with every implement necessary for the attack."

Capt. N. E. Atwood, of Provincetown, tells me that the cry used by some of the old Cape Cod whalemen from the mast-head to notify the crew was "Towno!" and Captain Davis‡ makes use of this cry in a sense signifying help. His statement is corroborated by the old whalemen of New Bedford, who tell me that it was the custom when they encountered a larger turtle on the Gallapagos Islands than they could manage, they invoke the assistance of the crew by shouting "Towno! Towno!" This term is also mentioned by Bennett, who, speaking of the English south seamen, says: "It was formerly the custom in this fishery to announce the spouting of a whale by the cry of 'Town, oh,' which, although not very clear in its derivation or meaning, is yet employed by some amongst the crew of a whale-ship, when seeking turtle, &c., on shore, to announce the view of a prize, and establish an individual claim to the discovery."§

Frederick Marten says, in his journal of a voyage to Spitzbergen in 1671, that when the Dutch whalemen saw whales, "or when they heard them blow or spout, they call in to the ship 'Fall! Fall!'

* The nostrils of the sperm whale are on the left side of the cranium, and coalesce in one passage, which communicates with an external fissure near the front and upper extremity of the head, which portion is known to whalemen as the "noddle end." Through this orifice the animal ejects the column of expired air from its lungs. The "spout" may at times, as the animal makes its rising, when the spiracle is submerged by the waves of a rough sea, be composed of or mingled with surface water, which is elevated by the column of breath as it escapes upward; otherwise the "spout" is merely a condensation of warm air from the lungs as it comes in contact with the colder air of the atmosphere.

The right whale has two "blow-holes" at the summit of the large protuberance on the back of the head, familiarly known as the "crown;" and the vaporous emissions, which are thrown up vertically, part at the top and fall on either side. The bifurcate appearance of the column has given origin to the name "forked spout," applied to this species by the Nantucket whalemen. It is all the more apparent as the whale approaches—provided you take time to investigate the matter—or recedes from you, in a direct line. The finback whale also has two spiracles; but as the columns unite near the base, it has, at a distance, the appearance of one spout. But to the experienced eye the spout of this whale can never be confused with that of the sperm whale; the former ascends at almost right angles with the horizon, and the latter is thrown forward at an angle of about 45 degrees, or, as the whalemen say, about a "four-point course."

† Which is probably a "Nattick" expression, signifying "Here is a whale."—(J. T. B.)

‡ Nimrod of the Sea, p. 104.

§ Whaling Voyage Around the Globe, 1840, vol. ii, p. 202.

then everybody must be ready to get into the long boat that he doth belong to." Scoresby says it was customary with the English fishermen when a whale was sighted to call out "A fish! A fish! or a fish mine!" and when it was harpooned a small flag or jack was displayed in the fast boat. When the men on watch on the ship perceived this signal, they immediately shouted "A fall! A fall!" and at the same time stamping on the deck to give the alarm to the sleeping crew below.*

The present well-known cry of "There she blows!" has long been employed by American whalemen, the feminine being used as the epicene gender of whales. The direction of the whale from the ship is then indicated by the men on duty. If the cetacean, instead of pursuing the even tenor of its way, should happen to be indulging in some of its queer antics, these are also reported.

LOWERING FOR WHALES.—The New Bedford captains rarely lower for whales, especially in the Arctic fishery, as they prefer to remain on board to look out for the ice, which momentarily threatens their vessels, and to direct the movements of the boats by means of signals, previously agreed upon, made usually with the light sails. The code of signals is entirely arbitrary, and varies, of course, on different ships, as it would not be policy for a master of one vessel to make known his orders to the commander of another.† Lowering the gaff-topsail or spanker on one vessel may, therefore, mean that whales are "astern," and that the officers of the boats should proceed in that direction to intercept them; but the same signal displayed by another vessel may have an

* At this alarm the crew jump from their beds, rush upon deck, with their clothes tied by a string in their hands, and crowd into their boats, with a temperature of zero. The crew, under such occasions, are shielded only by their drawers, stockings, and shirts, or other habiliments in which they sleep. They generally contrive to dress themselves, in part at least, as the boats are lowered down; but sometimes they push off in the state in which they rise from their beds, row away towards the fast boat, and have no opportunity to clothe themselves for a length of time afterwards. The alarm of a "Fall" has a singular effect on the feelings of a sleeping person, unaccustomed to the whale-fishing business. It has often been mistaken as a cry of distress. A landsman in a Hull ship, seeing the crew, on an occasion of a "fall," rush upon deck, with their clothes in their hands, when there was no appearance of danger, thought the men were all mad; but with another individual the effect was totally different. Alarmed with the extraordinary noise, and still more so, when he reached the deck, with the appearance of all the crew seated in the boats in their shirts, he imagined the ship was sinking. He therefore endeavored to get into a boat himself, but every one of them being fully manned he was always repulsed. After several fruitless endeavors to gain a place among his comrades he cried out, with feelings of evident alarm, "What shall I do? Will none of you take me in?"—*American Natural History. Godman. vol. iii, p. 166. Compiled from Arctic Regions, vol. ii.*

† CODE OF SIGNALS.—It is the custom of the captain of every first-class whale ship to employ a code of signals for the guidance of the boats' crews when lowered for whales. The signals vary on the different ships, or, in other words, there are as many codes as there are ships. In many cases they are entirely arbitrary, as it is only intended that they should be understood by the crews belonging to the vessel that uses them; but whatever code may be agreed upon, the more simple and comprehensive it is the better, as complicated signals are apt to mislead or bewilder the officers. It is the prerogative of the master of the vessel to determine what signals shall be employed, and after the code has been perfected he explains its significance to the boat-headers. Some masters employ the ship's sails, while others use balls or flags, or a combination of all may be utilized. There are published accounts of the signals employed by the English as well as American whaling vessels. Capt. G. B. Borden, of New Bedford, who at present is engaged in whaling, has furnished the following system for this report: "A very common code consists of the red, white, and blue colors—one flag each of these colors, and a fourth of the three combined. These four flags represent the four boats, the starboard, port, waist, and bow boats. These are the same kind of flags used in the boats, and when so used they are called waifs (duplicates). The four flags also represent the four important bearings from the ship. Red for starboard quarter (corresponding to the positions of boats on the cranes); white for port quarter; blue for waist or beam; and red, white, and blue for bow. By using the flags separately and by combining them the boats can be directed very easily in any direction. Every vessel uses a flag called the whaling signal. It is an attention signal. It may be of any color, and when set at either fore or main mast head it indicates that the whales are up. At mizzen peak it calls the boats on board. If the whales are not seen by the boats when the attention flag is set, their bearings are pointed out by the code thus: If on starboard beam the red and blue—red first, or blue under red. For port beam white and blue, and so on through a combination of colors and a series of positions of flags.

"By the use of the flags or waifs in the boats they can be identified when fast to a whale or need assistance, and by their use on board a master can call any particular boat to assist another, and can also direct its movements to a desired point. By the use of the four flags separately and combined at different mast-heads an excellent code may be established; but often in calm weather, or when the boats are a long way from the ship, the signals or flags cannot be distinguished. It then becomes necessary to adopt other means of signaling. The light sails answer this purpose

entirely different meaning. The master arranges the system of signals and explains its significance to the boat-headers. Some of the Provincetown masters lower with the boats, especially when an "ugly" whale or a large school is attacked, and some prefer to take an active part in the capture. On large vessels it is to the interest of all concerned that the commander should remain on board; for when he lowers, the office of "ship-keeper" devolves usually upon the cooper, and, as might be expected, the officers, when detached from the vessel, prefer to rely upon the judgment of the commander. The master can also take upon himself more responsibility than the cooper, or any other subordinate would dare or care to assume. Great skill and experience is required at times in directing the movements of the boats, and such tactics may be compared, on a smaller scale it is true, to handling a body of men in attacking a wily enemy. The captain, by staying aloft with the marine glass, has better opportunities than the men in the boats for ascertaining the positions of the whales and for observing their movements; and he can telegraph his orders by means of sails or flags to the boat-headers, and direct the movements of the vessel *viva voce* of the men below.

The men at the first alarm come swarming up the companion-way of the forcastle. In the extreme southern fishery they divest themselves of superfluous articles of clothing and scatter them indiscriminately about the deck; rolling up their trousers and girding their loins with their leather belts, taking a double reef until supper time, they hold themselves in readiness to go over the side of the vessel at the word of command. There is a certain order, or systematic action, observed on all first-class whaling vessels, however imperfectly disciplined some of the boats' crews may be. The captain indicates the boats he wishes to attack the whales; the boat-header and the boat-steerer take their proper positions in the boat—the former at the stern and the latter at the head—while suspended from the davits. At the proper moment the davit-tackles are run out by men on deck, and the boats drop with a lively splash. The sprightly oarsmen meantime leap the ship's rail, and swinging themselves down the side of the vessel, partly assisted by the chains or channels, and jump into the boats just about the time the latter strike the water. *Although it may be said there is a general scramble, there is not the least confusion; every* person and thing has the proper place assigned to it in a whale-boat.

GOING ON TO A WHALE.—When squarely in the water the sail may be set, or the men spring lively to their oars. If they approach a whale during a calm, oars are thrown aside and the boat propelled with paddles. As soon as the boat leaves the ship the order is to line the oars. It is important that this should be attended to before the whale is harpooned or a capsized boat may be the result. The whale-line is passed forward and arranged in such a manner* that it may be taken out by the whale without fouling.

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very well. We will suppose a vessel to be under top-gallant sails (the royals are seldom, if ever, used on a cruising-ground), and nearly or quite calm; the boats down after whales which may come up ahead of the ship, a long distance from and not in sight of the boats; the flying-jib being hauled down, signals for ahead, and the boats then proceed in this direction. If the whales are going quickly, the flying-jib should be run up and down rapidly for the boats to go faster. Gaff-topsail or spanker down, whales astern. Should the whales come up on the weather bow, say four points, the weather clew of foretop-gallant sail goes up; on weather-beam, maintop-gallant sail; weather quarter, say four points, mizzentop-gallant sail, or if the vessel is a bark, the gaff-topsail, in connection with weather clew of main-top-gallant sail. Either of the gallant-sails lowered on the cap is a signal for the boats to heave to—gone far enough; and so on, by working the light sails, separately and conjointly, a very comprehensive code may be established.

"In right whaling a pointer in connection with the whaling-signal is often used. The pointer is a large basket or frame of wood covered with canvas and painted black, placed at the end of a 12-foot pole, used at mast-head and pointed in the direction of the whale. This does not answer the requirements of sperm whaling. The sperm whales are very timid, and we cannot approach near enough with the ship to make the pointer understood without danger of galleying them.

"I have also seen large balls (canvas-covered baskets painted black) worked on the fore and aft stays for signals, but can give but little information regarding them."

*The top end of the line in the large tub is led forward, and about 3 or 4 fathoms coiled in the box of the boat. This is a box-warp. The bight of the line is carried aft and thrown over the loggerhead. The line runs fore and aft

The officer, or boat-header, is at this time in the stern sheets manipulating the steering oar, or, as the term implies, he "heads the boat," or lays the harpooner on the whale. He has standing room only, being the only one for whom a thwart has not been provided. His duties are, among others, to so shape the course of the boat as to get within "darting distance" without "gallying" the whale. As the sail oftentimes obstructs the view of the officer, preventing him from seeing the whale, he must rely upon the harpooner for instructions to steer the boat.

The boat-steerer is at the head of the boat attending to his duties as oarsman. When the proper moment arrives he springs to his feet, sometimes at the word of command from the boat-header, and, with his harpoon well in hand, darts it into the whale. When the animal has been fastened to "good and solid" the harpooner and officer immediately change places. The former attends to steering the boat, while the latter proceeds to kill the whale with the hand-lance, if such an instrument is used. If the whale is to be towed to the vessel, the header and harpooner again shift ends, the former taking the steering oar; but when the ship goes to the whale, they remain in the positions they occupied when the lancing was done, and the header passes the tow-line to the ship. In traversing the distance between the ship and the whale, the boats may move in single file or *en échelon*, with a total disregard, however, to the order of these evolutions, since it is not intended that such tactics should be employed. As may naturally be inferred, there is, even among the boat's crews that belong to the same ship, sharp competition in getting fast to whales. Many whales are lost in this way. This is called by the New Bedford whalemen "whaling for victory," or "victorious whaling," and is merely the result of the desire of certain officers to kill whales themselves or prevent others from doing so. This utter disregard, which some of the boat-headers seem to have had in olden times, for the success of the voyage may be attributed to that desire on the part of many men, in all stations of life, to be the leading spirits in certain exploits or movements, without regard to their own ability or the consequences. As an illustration of this kind of whaling, I shall merely say that when the three port boats are lowered, they usually proceed systematically and cautiously to the windward of the whales, with favorable chances of success; but when the starboard boat is ordered down, if its officer, a "victorious whaleman," instead of following the same course taken by the other three and coming in behind, takes a shorter course for the whales, he invariably gallies them. The result will be, in a majority of cases, that none of the boats will get fast. This practice, though universally condemned, is oftentimes resorted to, and can only be broken up by the strictest discipline. As Capt. W. H. Seabury remarked, in conversation with the writer on this subject, "the first duty that an officer of a whale-boat should be taught is that he is on a voyage for oil and not for whales."

Notwithstanding there is, more or less, a spirit of rivalry among the boat's crews, and a sharp competition among the captains of the vessels, it is oftentimes imperative as a mutual protective policy that harmonious action should be paramount to all others. When down for whales the boats belonging to the same vessel are obliged to assist one another. Sometimes two or more crews belonging to different vessels unite in the capture, and if successful an equitable division of the oil is afterwards made. This is called "mating." Two vessels may be gamming* when whales are raised, and in order to render the capture certain, and for the purpose of working together harmoniously and effectively, the vessels generally mate. "If there has been no previous

of the boat over the oars. This is done after the oarsmen have taken their seats. The extreme end of the line is first carried through the chocks, then brought inboard and bent into the eye-splice of the rope strap of the first harpoon.

*Exchanging visits, getting the latest news, or probably letters from home, and otherwise extending the courtesies befitting the occasion when two whalers meet on the broad ocean and "speak" each other.

agreement to meet the exigency, a flag is hoisted at the peak of the captain's ship [upon which they are gamming], which familiar sign, especially on sperm-whale ground, is readily understood, and when the boats are lowered for the chase, the visiting captain takes charge of the mate's boat of the ship he is on board, and the executive officer visiting heads the captain's boat."

When two boats belonging to different ships which are not mated approach the same whale the officer who desires to enter into a copartnership with the other sets a waif in his boat. This signal is readily understood, and if answered by the officer of the other boat it signifies that the terms of agreement are ratified, and the whale if captured shall be divided equally between the vessels.

Two vessels belonging to different nations also sometimes mate. The American and English vessels cruising on the same ground at times, perceiving that it would be to their interest to jointly capture a whale, enter into friendly relations and divide the proceeds.

In dismissing this subject I should perhaps say that usually the same spirit of acquisition, and the same competition and sharp dealing that characterizes men on land, is also characteristic of whalemen afloat. He who can get a whale without exceeding those bounds which hedge us in all branches of life's industries, usually accomplishes his ends with but little compunction of conscience as to the means; otherwise, under ordinary circumstances, he would at times fare badly during a cruise.

The swiftest boats, or those lowered under the most favorable circumstances, do not always plant the first iron or kill the greatest number of whales. It may be that a boat's crew consists of an expert officer and harpooner, but the oarsmen, or the majority of them, may be green. Under these conditions, more especially if they must rely upon the oars as a motive power, the boat may be behind the others in reaching a school; but from the experience of the boat-steerer and officer, they may strike and kill more whales than when the crew is composed entirely of veteran whalemen, who may so manage their boat as to be the first to attack the school; yet their harpooner may either be gallied or miss his chances, and probably not strike as many whales as the slow boat. As a rule, however, the fastest boats kill the most whales. The boats from one ship may attack a lone whale, which, peaking its flukes, may reappear on the surface closer to one boat than the other; or they may strike a pod of whales, and the several boats may attack as many whales, and the results will very materially depend upon the actions of the cetaceans and the skill and good fortune of the harpooners.

Having overtaken or intercepted a herd of whales, the manner of "going on to them," which signifies the act of approaching and harpooning them, is so varied as to preclude a system of rules. The elements of success, however, in performing this feat are introduced in the stereotyped rule of the whalemen, "Never gally your whale." Attention to the practice of the most skillful whalemen, joined with his own experience, must be the guides of the officer who directs the movements of his boat. Much depends upon circumstances, the kind of whale attacked, and many other considerations, which, arising on the spur of the moment, must be taken in hand and carried out by the officer as opportunities are offered. The training and courage of the crew is also a question of no little importance; for, with some green hands, the first impulse, when the boat-steerer is about to dart the iron, is to jump from the boat to the water. Some whalemen prefer to sail over a right whale, striking it about midships, and throwing the toggle-iron when they are "wood and blackskin," that is, when the boat and whale are in contact, or nearly so, at which moment the cetacean immediately "settles," with a marvelous rapidity, thus affording an opportunity for the boat to sail over without injury to itself or crew. Some whalemen also approach the right whale "quartering," on the starboard side, to give the boat-steerer a right-handed dart; this latter is

always a desirable point to be gained; for, on the contrary, the harpooner will have a left-handed thrust over the second iron, which, even with a left-handed man, would be an awkward movement. An officer of a boat never follows the wake of a right whale, for the moment the boat strikes the "suds"* it is maintained that the whale is immediately made acquainted with the fact through some unknown agency, and will be gallied, without fail, and soon widen the distance between itself and the crew.

So far as I can glean reliable facts from intelligent whalemen, I am of the opinion that the majority of whales do not willfully or maliciously attack the boats, and that most of the accidents now on record are due chiefly to the violent convulsions of the whales in their eagerness to make their escape rather than to their ferocity or pugnacity. A whale may be quietly and peaceably making its passage, it may be asleep, or it may be feeding or perhaps cruising over its ground, when suddenly it is arrested by a harpoon buried several feet in its flesh. There may be times, when thus suddenly aroused and smarting under or angered by their wounds, if a sperm whale, it has rushed headlong upon the boat and demolished it instantaneously. Usually the whale is terrified beyond measure by this unexpected thrust, and its first impulse is to get out of the way immediately by burying itself in the depths of the ocean, or to escape by running. The moment a whale is struck a violent thrashing of the flukes ensues, and they are just as apt to cut down a boat as not, should it be in the way, and, of course, the work of destruction would be as complete as if the whale had premeditated the attack. Several whales of this species, however, have not only attacked the small boats but have gone "head on" to vessels and disabled them, and Capt. Isaiah West tells me he has had them to chase him "like a dog" in the whale-boat. The remarkable loss of the Essex will ever be fresh in the memory of the whalemen of all nations, as evincing the terrible anger and revenge of the mighty cachalot.

While in New Bedford I met Capt. Martin Malloy, who was the master of the bark Osceola 3d when she was attacked by an angry sperm whale after it had demolished three boats. Captain Malloy tells me that this occurred to the west-northwest of Cape Verde Islands, latitude, 190 degrees north, longitude 28 degrees, December 16, 1866. A large bull sperm whale was raised; the waist boat and the starboard boat struck it and were "stove." The mate picked up the crews of the two "cracked" boats and took them to the ship. The whale in the mean time continued to fight the portions of the boat and the boat gear, angrily seizing pieces of wood and other articles and breaking them to pieces with his jaws. Captain Malloy did not think it prudent to attack the whale in the small boats, and went on it with the ship. When within 300 feet of the whale it turned on one side and made for the ship, with its mouth wide open, as is the habit of the species in making an attack. The whale struck the vessel on the bluff of the port bow, knocking off the the cut-water. The ship trembled from stem to stern, and so great was the concussion that many articles on board, such as crockery and glassware and other small utensils, were dislodged from the places where they are usually kept. As the whale crossed the bow two hand-lances and a bomb-lance were thrown into it. The vessel made for the whale the second time, but it kept off. All this time the two tow-lines and a portion of one of the stove boats were fastened to the whale, the lines being entwined about its body. Captain Malloy, with a picked crew, finally approached the whale and killed it after a desperate fight of twelve hours. The whale stowed down 115 barrels

* Another peculiarity of the whale is the "glip." When the sperm whale is alarmed or on the alert against pursuit, on going down for a run beneath the surface it emits a portion of oil, or its equivalent, which, for a considerable period of time, causes a smooth, bright surface on the water. This is termed the glip or wake. The mystery of the glip is in a real or supposed communication between this smooth spot and the whale occasioning it. Should the boat-header incautiously pull his boat into this glip, or cross the line between the retreating whale and his glip, the effect will be to gallie the animal.—Capt. WILLIAM M. DAVIS, Nimrod of the Sea, p. 181. This is maintained and substantiated by whalemen generally.—(J. T. B.)

of oil. The jaw measured in a straight line from extreme forward end to socket 19 feet and 2 inches, and the flukes 16 feet 4 inches from point to point. Captain Malloy also tells me that when cut in, the bones of the head of the whale were fractured from the concussion of the severe blow, which evidently *disabled the animal and probably saved the ship*.

It sometimes occurs that the boats are lowered and the crew eagerly engage in the chase, but without success. The whales may perhaps disappear altogether from view, or it may be necessary to "cut line"* and abandon a whale at the approach of night after a long and fierce struggle. The chase may be postponed on account of fog or rough weather, or a harpoon may "draw" and the animal escapes for that time at least. Trouble may also arise from entanglement of the line (foul-line) as it runs from the boat; the whale may be extremely vicious or "ugly," or it may escape by running under ice. Again, the whale may be lost by what is known as "opposition whaling," when the crews of the small boats belonging to the same vessel infringe upon the rights of others in going on to a whale, to which we have already referred.

GETTING FAST.—The "fast boat," in the whaleman's dictionary, signifies the boat actually engaged in the capture, fast to the whale by means of the harpoon and line. A loose boat, on the other hand, is, as the term implies, one that has not succeeded in striking a whale. The duty of a loose boat, if near by and not certain of a capture, is to keep within hailing distance of the fast boat. Still there is no rule laid down for such a procedure. Two boats may fasten to the same whale, unless it sounds. If one boat is fast and the whale goes below, the second boat usually lays by. It is sometimes the custom, when a vessel carries four boats, for three of them to get fast to as many whales as possible, and for the fourth to "play loose boat." When a whale takes out all of the 300 fathoms of line carried in one boat, it would escape if assistance were not rendered on the spot. The "fast boat" is therefore made "loose," and the loose boat fast. The latter comes to the rescue either by call or signal, provided it has not been taken in tow by the fast boat, which is sometimes done. When *it is necessary for the loose boat to assist, the officer in charge casts* one end of his line to the officer of the fast boat. The latter bends the line to his own with a rolling hitch over the head of the boat. When the line of the fast boat is almost out—about 1 "fake" or so *remaining in the tub—the officer tightens his hitch and lets it go. Often the hitch* slips to the end of the line where it is brought up by the eye-splice, and the line of the fast boat is thus attached to the line of the loose boat while the whale is running. This process may be repeated as long as more line is wanted by the addition of more boats. A fast boat may also become loose by accident, the iron may draw or break, the line may part, or, on account of ice, or in very rough weather, or at the approach of night, it may be necessary to "cut line."

The actions of whales, when attacked, vary with both the species and the individuals. Superficial wounds annoy them and internal ones destroy them. Suffering from the blow of the harpoon, they endeavor to escape the hand that inflicts it, or to rid themselves of the instrument that irritates and tortures the flesh. To accomplish their ends they can resort only to the most violent physical exertions and contortions. At such a time, and subsequently, as the boat approaches to afford the officer an opportunity to use the hand-lance, the imminent danger of one's life is *oftentimes* unparalleled; but the danger diminishes when the lance penetrates the sensitive lungs or convoluted intestines, for the unhappy creature then weakens, and becomes quiet under the soothing influence of departing life.

As a means of defense, the right whale depends solely upon its flukes, which measure from 12 to 15, and sometimes 20 feet, in expansion, and in depth 5 or 6 feet, and weigh several tons.

* When the whale is about to take the end of the line the drug is bent on, forward of the chocks with a rolling hitch, with the expectation that when the trouble is over the whale may be found.

This immense creature uses its caudal fin with remarkable dexterity, and often with the most frightful results. The northwest coast whale, or the Pacific right whale (*Balæna japonica*), is the most dangerous of the bone-bearing whales to encounter. When attacked, or surrounded by obnoxious objects, it performs an evolution with its flukes commonly called sweeping, that is, swinging them from side to side, and indeed, when greatly incensed, it "sweeps from eye to eye," churning the water into mountains of foam, and demolishing everything in range. Although the whalemen anticipate this defensive and offensive maneuver, they oftentimes permit their passionate ardor in the capture to exceed the bounds of prudence, and as a penalty sometimes lose the whale, boat, apparatus of capture, and even their own lives.

The sperm whale, on the other hand, is, as the whalemen express it, "dangerous at both ends." Although it does not sweep with its flukes, as the right whale does, it gives them up and down motions, bringing the broad surface with tremendous force and startling effect upon the water; yet the caudal member should not be disregarded. If disposed to show fight, it relies mainly upon its long, slender, treacherous lower jaw, studded with glistening teeth, and to this dangerous habit, sometimes called "jawing back," may be attributed the death of many whalemen and the demolition of many boats. Owing to the position of its eyes, it commands a wide oblique vision, and consequently guards against premeditated attacks on both sides, but while it may congratulate itself upon so wise a provision on the part of nature, it seems oblivious to the fact that for the same reason—the peculiar position of its eyes—it cannot perceive an object immediately in front or behind. To this oversight of nature, the sperm whale may attribute its defeat and destruction, and the sperm whaleman his success and profit. The favorite method of capture is to "take it head and head," or to "go on the flukes." In either case, it is better to keep the "hump," a functionless adipose dorsal fin, and the spout in a line of vision; for in so doing the boat cannot deviate far enough from its course to "get on the eye" of the whale. Going on head and head is therefore considered a better plan and is always carried out when practicable. As the boat and whale are moving in opposite directions, they come together more rapidly than when the crews follow the flukes. A few moments are of the utmost importance to a man about to strike a whale. Though large, this animal is exceedingly quick in its movements when alarmed. Suddenly the whale may change its position from a horizontal to almost a perpendicular one, and disappear beneath the surface; it may "settle" away like a corresponding mass of lead, disappearing rapidly from view, or with a dexterous movement of the flukes it may strike and demolish the boat. Many sperm whales are lost when the boat "goes on their heads," because the harpooner darts the iron prematurely, and striking the impenetrable headskin, known as "white horse," bends his harpoon. This happens, however, usually when an inexperienced or "gallied" boat-steerer throws the iron and loses his whale because he did not wait for the orders of his officer. An expert harpooner, on the other hand, need not be told when to dart, as he "chooses his chance" and buries his harpoon abaft the head as the boat is laid off. In following the flukes, the rule is, of course, first to overtake the whale. Having accomplished this, the boat is laid off, say to the starboard, to give the harpooner a right-handed dart, and ranged alongside the whale. When far enough forward, and about 1 or 2 fathoms, or possibly 3 or 4, from the whale, and moving in a line parallel with it, the boat-steerer has an excellent opportunity for darting the harpoon into the back, or "bilge," and the chances of "drawing" will be lessened if the iron gets fast to one of the costal bones. It was the old custom with some of the whalemen to carry a small air-tight oil cask in the boat. When they perceived that a sperm whale, usually an old patriarch, was disposed to show fight, the cask was thrown overboard, and the ferocious animal immediately proceeded to attack it. From its buoyancy and the facility with which it revolved on its axis in the water, the cask became

at once an object of interest and annoyance to the whale, which was too much engaged with this little nuisance to notice the boat as it stealthily approached. Some sperm whales, when mortally wounded, more especially after eating heartily, are seized with a violent vomiting, and eject from their capacious stomachs immense "slabs" of the *Octopus*, upon which this species largely feeds.

If the whale is swimming "top-water," the harpooner has a better target to dart at; but if swimming under the "rim of the water," or about to sound, he must make the best use of his time and opportunities and exercise his discretion. Again, the whale may be "scooping" or feeding—a more horrible sight has never been witnessed ashore or afloat than a large right whale with contracted upper lips, exposing the long layers of baleen, taking in his food—and while thus engaged at times pays little attention to surrounding objects, and may be struck with comparatively little trouble. And yet again, the whale when approached may "turn flukes" and sound; but the men know by experience about the location where it may make its "rising," which it is compelled to do for inhalation. It may reappear suddenly under the boat and smash or upset it, or it may come up within a short distance from the men, in which case the boat is layed on and the boat-steerer strikes him "wood and blackskin." Or, as is the case very often in right whaling, the boat may sail over the whale broadside, striking it about midships at the very time the harpoon is thrown. As before remarked, the right whale has the power to "settle" like a lump of lead when an offensive object comes in contact with it, and the boat sails over without injury. Whales may also be approached "quartering," the harpoon being thrown as the boat crosses the angle of the flukes. All these conditions more or less influence the distance the harpoon is thrown, which is commonly known as "darting distance." In many cases some of the "long-dart men" have thrown their harpoons effectively as far as 4 or 5 fathoms. There is one case on record in which a remarkable dart is mentioned. Two boats belonging to different ships, American and English, were chasing the same whale, when one harpooner threw his iron over the crew of the other boat and "fastened on to" his whale. The distance the harpoon may be darted, though varying, as a rule, from close contiguity to 16 or 18 feet, depends mainly upon the actions of the whales and the most favorable opportunities offered by them for burying the iron deep enough to take effect without "drawing" when the tension is brought to bear upon the line by the actions of the cetaceans as they either sound or run. The boat-steerer "chooses his chances," and, by the way, if he "misses his chances" several times, that is, fails to strike two or three whales in succession, under favorable conditions, the captain deprives him of his office, and he may or may not have another "chance" on that ship. This is what may be termed "hard luck;" but the success of the voyage depends in a great measure upon the skill and ability of the boat-steerers.

Stopping a running right whale with the boat-spade is at once the most dangerous and thrilling feat ever executed in the varied career of the whaleman; but this method of capture has been superseded by the bomb-lance. The old whalemen never tire of telling us, as their eyes sparkle with the fire of youthful daring, how they "fought under the flukes of the whale." A whale when about to "sound," that is, to descend into the water, must first get a purchase with its broad, flat tail and then throw it high in the air, in order to dive head first; the officer of the boat, taking advantage of this evolution, known as "turning flukes," would thrust the sharp-edged spade into the "small," in which are inclosed the tendons that connect the body and the flukes, and having severed some of them, the tail became useless, like the disabled screw of a propeller; progressive motion was arrested, and the whale became a comparatively easy prey to its captors. Some of the whalemen were very skillful in this feat, even when the whale was swimming, or "running," on the water, and it required powerful arms and courageous hearts to crown their efforts with success. There is one case on record that has come under my observation, where an

officer actually unjointed the flukes by a tremendous and well-directed blow of the spade. The whale was in a favorable position, the uplifted flukes producing a tension, and the caudal fin, though still connected, "hung to one side."* Spading flukes is one of the lost arts of the fishery, and may never again be revived, but will live with the whalemen from generation to generation. We should naturally think that it would be far preferable to stand off at a safe distance and kill the huge floundering cetacean with an explosive lance projected from a gun, rather than to approach it while it is lashing the water in its terrible agony, and kill it in close encounter with the hand-lance. Not so with the broad-chested, white-headed whalemen of the old school, who regard the modern gun as a travesty upon their forefathers; yet they always acknowledge that if it were not for the bomb-guns few whales could be taken at present in any ocean.

When the whale has been harpooned, the first order given is "Stern all!" to clear the boat from the whale, and the next is "Wet line!" to prevent the friction from the outrunning line. The officer and boat-steerer quickly "shift ends," the latter taking down the sail as he goes aft.

As soon as the whale is struck with the harpoon it will endeavor to escape either by sounding or by running, or, as Marten says, "it runs away with the long-boat as swift as the wind." If the whale sounds, the crew lay by awaiting its reappearance upon the surface for respiration, and as fast as the slack-line is retrieved it is laid in loose coils on the after platform. Although the line is not coiled as carefully the second time as it was in the first place, considerable care must be taken, for should the whale again take it out it should run as freely as before.

When the whale returns to the surface from its soundings it usually comes up with a bound, and it is at such a time that accidents should be avoided. To warn the boat's crew of approaching danger the whale-line is sometimes marked with a bit of colored cloth or flannel, which, as the line is hauled in, signifies look out for whale when it appears above the water. If the whale runs, the boat, of course, is taken in tow, and the excitement of the chase is prolonged until the animal is tired out, or stopped by means of the boat-spade or bomb-lance.

RATE OF SPEED.—As to the running speed of a whale when first harpooned, I can only say that it has not been accurately determined. Few of the whalemen can be induced to give an opinion on a subject upon which they all widely differ, and those who give an opinion are not willing to be held responsible for it. Bennett† says of the sperm whale that when first pierced by the harpoon it will tow the attached boat at the rate of more than 15 miles an hour; but this velocity of motion is the effect of extreme excitement and does not continue long. Under ordinary circumstances of alarm, as when conscious of being pursued by enemies, its speed averages about 8 or 10 miles an hour. Scorseby says that the Greenland whale swims with a velocity, at the greatest, "of 8 or 9 miles an hour."

Capt. William M. Davis publishes a statement, which I transcribe herewith, condensed from a series of questions submitted to some of the New Bedford captains. He says:

"The running speed of the sperm and right whales, when gallied, is supposed to be from 10 to 12 miles an hour. When struck he will frequently go 20 to 25 miles per hour for a short time, when he will generally stop or 'bring to,' and give the 'boat-header' a chance to kill him. Sperm whales have been known to run out 300 fathoms of line in four minutes, and sometimes to run out 600 fathoms in sounding."‡

Twenty or twenty-five miles per hour is rather a high estimate of the speed of a whale. When a whale first feels the prick of the harpoon it starts off with an almost astonishing velocity, and it may then run at the rate of 25 miles per hour, but most assuredly it could not actually make that distance in the time named.

*This is vouched for by several whalemen of Edgartown.

† BENNETT: Whaling Voyage Round the Globe, vol. 2, p. 172.

‡ Nimrod of the Sea, p. 396.

Very little attention also seems to have been given to the rate of speed when the whale sounds. Captain Scoresby, however, notices the latter as follows: "When fish have been struck by myself, I have on different occasions estimated their rate of descent. For the first 300 fathoms, the average velocity was usually after the rate of 10 miles per hour. In one instance the third line of 120 fathoms was run out in sixty-one seconds; that is, at the rate of 8½ English miles, or 7½ nautical miles, per hour."*

DIFFICULTIES OF CAPTURE.—At times one fast boat may kill a whale, and again, if the animal shows fight, two or three boats, and sometimes more, may be required. In one instance a vigorous whale took in tow from four to six boats, and ran out 1,600 fathoms (9,600 feet) of line. All endeavors to haul up and lance it proved abortive. The loose boats were moored to those that were fast, the whale all the time towing them steadily on. This occurred, writes Cheever, on May 28, 1817.†

Bennett, speaking of the remarkable endurance of a sperm whale during its capture, says:

"It occurred to Capt. T. Stavers, of the Tuscan, to lose a large whale under circumstances that exemplified the power of the cachalot in carrying off incumbrances of this kind. The whale in question, at the time he escaped from the boat, had attached to his body seven harpoons, three entire boats' lines, (or 1,320 yards of cordage), a line-tub, and numerous drogues; and, with all these powerfully resisting bodies impeding his progress, ultimately escaped by superior speed. Two days after the same whale was encountered, and killed with difficulty, by the ship John Palmer, which, at a subsequent meeting in port, restored to the Tuscan her harpoons and lines found on the dead whale."‡

It is worthy of remark that as soon as a sperm whale is harpooned the news is telegraphed through some invisible agency to others of the same species, though at a great distance; a general stampede ensues, and with noses in the air they all rush to windward.§

The right whale of the northwest coast is extremely shy as well as dangerous, and from repeated attacks is approached with difficulty. This whale practices a *ruse de guerre* by hollowing its back, causing the blubber to become loose, or "slack," as it is termed, and preventing the harpoons from entering. Many a boat-steerer has been dismayed by this maneuver; and although the harpoon may have been thrown with all the force that could be summoned, the impetus was inadequate to penetrate the relaxed blubber and flesh.

As to the capture of the California gray whale, I am indebted to Scammon's account, which has been paraphrased from his "Marine Mammalia." This species is known to the whalemen as the devil fish, on account of the great danger attending its capture; the pursuit is called devil fishing, and the whaleman who engages in the capture a devil fisherman. It is one of the most dangerous whales to encounter. The fishery for the most part has been conducted in the shallow inland waters or lagoons on the California coast which this species frequents from November to May. The cows enter the lagoons to bring forth their young, and the bulls generally remain on the outside. The several ways of capturing these whales is known as "lagoon whaling," "kelp whaling," "whaling among the breakers," and "whaling out at sea," the first named being accompanied with the greatest danger. When struck at sea, an opportunity may be had for keeping

* *Op. cit.*, Vol. 2, p. 544. † The Whale and his Captors, p. 211. ‡ BENNETT: *Op. cit.*, pp. 207, 208.

§ Bennett, in writing on this subject, says: "It is a confirmed fact, and one often noticed with suprise by southern whalers, that upon a cachalot being struck from a boat others many miles distant from the spot will almost instantaneously express by their actions an apparent consciousness of what has occurred, or at least of some untoward event, and either make off in alarm or come down to the assistance of their injured companion. But, without attributing to the cachalot an extraordinary acuteness of sight or hearing, or any more mysterious sensibility, we may, perhaps, find that the violent agitation of the sea produced by the plunges of the harpooned whale, and the more rapid and distinct conveyance of sound in water than in air, are sufficient to account for the above phenomenon."

the boat clear of the whale; but in the swift tide of the shallow and turbid waters in the narrow passages of the lagoons, the dangers are greatly augmented by the terrible lashings of the ponderous flukes, and scarcely a day passes in this fishery but there is a general upsetting and staving of boats, and occasionally the loss of a limb, severe cuts, and bruises. These whales have been attacked and escaped so repeatedly that they have become remarkably shy and wary, and the *greatest strategy must be practiced* by the whalemen to insure a capture. Some of them assume positions which leads their captors to believe that they are dead, or at least tractable; but upon the approach of the boat within shooting distance they are on the move again, and out of sight in a moment. When an officer of a boat discovers a whale he sets a waif in his boat and gives chase; the boats belonging to another vessel will not interfere, but go in pursuit of other whales.*

Many whales float along the rim of the water, their backs a little above the surface, while others swim "top water."

Accidents during the capture of the whale may be attributed primarily to the energetic actions of the huge cetaceans to get out of the way of their pursuers or hide themselves from them; secondarily, to carelessness or inexperience of the men, and to the vain desire of some officers of the boats to be the first to strike the whale, or to strike more whales than any one else—a practice known to the old New Bedford whalemen as "whaling for victory," which every commander should condemn; to unavoidable accidents which may occur with the utmost care, and, finally, to the disposition of "ugly" whales to attack and destroy the boats. Not that all whales are vicious or pugnacious—some are; but when these immense creatures endeavor to hide themselves in the depths below, they must get a "purchase" with their horizontal flukes to "round out" in order that they may go down head first, and when these enormous caudal attachments crash through a frail cedar boat containing six men, lives and limbs are in danger. It makes no difference whether the whale strikes a boat intentionally or accidentally, the effect is substantially and emphatically the same.

The capture of the whale, full of perils at all times, has been shorn of some of its dangers by the introduction of guns and bomb-lances. At least, it would seem so. Still, the record of accidents shows that the mishaps of the old style of fishing and those of the new are about evenly balanced. The dangers incident to "hamstringing" *a whale with the boat-spade and killing* it with the hand-lance may be offset by accidents resulting from the use of fire-arms.

MANNER OF USING SHOULDER-GUNS.—The distance from the whale at which it is customary to discharge the shoulder-gun depends upon the skill of the gunner and the position and actions of the "fish." The officer prefers to get as close to the whale as possible without gallying† it; not that the gun will not shoot accurately at a greater distance, but because the whale swims so low as to cause the bomb-lance *to traverse a considerable* distance through water. Capt. William M. Barnes tells me that in killing bowhead whales, the shoulder-gun should be fired at from 20 to 50 feet from the "fish," sometimes a greater distance; and also that a bomb fired at a distance of 100 feet would in most cases prove ineffectual. As a matter of choice the whalemen prefer to be as near the whale as 18 feet in order that the bomb may penetrate that part of the animal called the "life" (lungs), which is usually submerged; but there are instances on record where whales have been almost instantly killed with bomb-lances at a distance of 30 feet. Captain Scammon says‡ that the Brand gun does good execution within a range of 25 yards, and Messrs. Wright, Bowne & Co.,

* Marine Mammalia and American Whale Fishery, p. 25.

† This word "gallied" is in constant use among whalemen in the sense of frightened or confused. It is perhaps a corruption of the obsolete verb *gallow*, to be found in old writers. Thus Shakspeare has, in King Lear, "The wrathful skies gallow the deep wanderers of the dark."—W. H. MACY There She Blows, p. 72.

‡ Marine Mammalia and American Whale Fishery, p. 226.

of San Francisco, tell me that they use the Cunningham & Cogan shoulder-gun in killing bowhead whales, and that the bomb-lance may be fired effectively from 60 to 90 feet. The Pierce & Eggers gun is sighted for 20 yards, and will shoot accurately at that range, but I am told it is also effective at 40 yards.*

MATERNAL AFFECTION OF WHALES.—The implement known as the "drug," or "drag," is often used successfully during the capture. It may be fastened to a wounded adult by means of a harpoon, called a "drug-iron," to retard the progressive motion of the animal in order that it may more easily be killed; or it may be used advantageously when a school is attacked, by fastening it to a calf whale to attract the mother or other sympathizing cows. Such a process is called "drugging a whale." The harpooner never throws his "drug-iron" into the calf with the intention of killing it, for if the little "sucker" dies the females forsake it. If alive and struggling energetically in the water, the dam swims about it and endeavors to assist it in making its escape. It is very generally conceded that the same maternal devotion for the young that characterizes both the higher and lower orders of land animals is also shared by the marine mammalia, and the whalemen, taking advantage of this, oftentimes make captures that could not otherwise be effected. Paul Dudley says: "The care of their young is very remarkable; they not only carry them on their tails, and suckling them, but often rising with them for the benefit of the air; and however they are chased or wounded, yet as long as they have sense and perceive life in their young, they will never leave them, nor will they then strike with their tail, and if, in their running, the young one loses his hold and drops off the dam comes about, and passing underneath, takes it on again. 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 her, till they have first secured the cow. For so soon as ever the calf is dead the cow perceives it, and grows so violent that there is no managing her."†

Captain Manby gives an interesting account‡ of the maternal affection shown by cow whales. He says:

"Nothing can surpass the tender attachment and maternal attention which a female whale will sometimes manifest if her young one be harpooned; she joins it at the surface whenever it has occasion to rise for respiration, encourages it to swim off, assists its flight by taking it under her fin, and seldom deserts it while life remains. She is then dangerous to approach, but affords frequent opportunities for attack. She loses all regard for her own safety in anxiety for the preservation of her young; dashes through the midst of her enemies; despises the dangers that threaten her; and even voluntarily remains with her offspring after various attacks on herself from the harpoons of the fishers. An extraordinary instance of this is related by Captain Scoresby: 'In June, 1811, one of my harpooners struck a sucker, with the hope of its leading to the capture of the mother. Presently she arose close to the fast boat, and, seizing the young one, dragged out of the boat about 100 fathoms of line with remarkable force and velocity; again she arose to the surface, darted furiously to and fro, frequently stopped short and suddenly changed her direction, and gave every possible indication of extreme agony. For a length of time she continued to act thus, although closely pursued by the boats; and, inspired with courage and resolution for the welfare of her offspring, seemed regardless of the dangers which surrounded herself. At length one of the boats approached so near that a harpoon was thrown at her; it

* With a load of 2¼ drams of powder the Pierce & Eggers gun discharged a Pierce bomb-lance three times into a solid pine block 11 inches square at a distance of 20 yards. Twice the lance penetrated the block 9 inches and once 9½ inches.—FRANK E. BROWN, New Bedford, Mass.

† Philos. Trans., vol. xxxiii, 1726, p. 261. Paul Dudley is in error when he says whales carry their young as he has mentioned.—J. T. B.

‡ Voyage to Greenland, 1822, pp. 33, 34.

struck, but did not attach itself; a second was thrown; this also failed; but a third was more effectual, and yet she did not attempt to escape, but allowed three other boats to approach, so that in a few minutes three more harpoons were fastened, and in the space of an hour afterwards she was killed.'" *

Captain Scammon,† referring to the manner of capturing the California gray whale, says it is rare that a dam will forsake her young; when first struck she momentarily forgets the calf in her endeavor to escape, but instantly she recovers her self-possession, will suddenly "bring to" and "sweep" around in search, and when the boat approaches her she sometimes demolishes it.

FINNING OUT.—The "flurry" is the whaleman's name for the dying actions of the cetacean, and "finning out" is the death. As the old style of killing the whale with the hand-lance was not only more dangerous but more exciting, I shall briefly refer to the manner in which it was accomplished. The whale being well harnessed to the boat by means of the tow-line, which is fastened to the flesh-embedded harpoon, it may either "turn flukes" and "sound," or, bellowing at times like a bull—with a great volume of voice, however—it may "run," as it is termed, taking the boat in tow at a rate, it has been estimated, all the way from 15 to 25 miles an hour, when it first starts off, but settling down to about 8 or 10 knots per hour when it gets warmed up to its work. This is the old "Nantucket sleigh ride." The whale having tired itself by running, the boat is hauled up by the line and the affrighted whale, startled anew by the close proximity of so strange a load, rushes through the surging and fast receding waters. The officer "gets a set" with his hand-lance and plunges about 5 or 6 feet of cold steel into the lungs of the victim, and persevering without ceasing in the up and down motions, familiarly known as "churning," as the boat persistently clings to the whale, until the "spout" of the unfortunate cetacean is tinged with the crimson of its own life-blood dyeing the waters in the vicinity; the muscles of the strong arms now relax upon the lance; the boat is laid off, and the dying whale swims round and round in an unbroken circle. This is the "flurry." Death is now merely a question of time. In intense agony the huge cetacean follows its circumscribed course, laboriously plowing its way through the bloody water, until the throes of death are about to convulse its enormous frame. The blood ejected through the spiracles now becomes as "thick as tar." It is not only believed by whalemen, but it is usually the case, that the whale during its dying moments so times its encircling path as to place the head to the sun; it makes a heavy lurch; the sea is lashed into a maelstrom of angry, bloody water, and the ponderous whale rolls heavily on its side, or partly on its back, with its dorsal fin projecting above the water. This is "finning out."

To use a paradoxical expression, some dead whales are not always dead. It may be in a comatose state but averse to vivisection; but as the men again approach it and cut holes through the lips to make the line fast, when the whale is to be towed to the vessel, a demolished boat or loss of life and limbs may be the result. Hence the more cautious whalemen "prick his eye," by inserting about a foot or so of the hand-lance into the eye-ball, and if the whale does not flinch it is supposed to be dead. A dead whale may be towed more easily head first, and it is also

* But Bennett, on the other hand, says (Whaling Voyage Round the Globe, 1840, p. 180): "I believe that we have seen the female purchase her own safety by the desertion of her young. On several occasions our boats destroyed a suckling calf, in the midst of a school, without sufficient interference on the part of the mother to lead to her being identified by the harpooner. In one instance, the boats, while pursuing a school, killed a calf with a single lance wound; the body of the little whale remained floating on the water, but none of the adults discontinued their flight. On another occasion we noticed a herd of females make off with great rapidity, and leave a small calf swimming in an anxious, bewildered manner in the vicinity of the ship; it continued thus deserted for some time, but was ultimately rejoined by the mother, when they both set off to overtake the main body of fugitives."

† Marine Mammalia and History of the American Whale Fishery.

worthy of mention that a dead whale, when cast adrift, will beat to windward, the natural motions of the flukes having a tendency to propel the body.

SUNK WHALES.—Since the whale is very nearly of the same specific gravity as the water of the ocean,* some individuals sink when dead, and others float heavily as if water-logged, the line of flotation being considerably above the axis of the body. Hence it is difficult to locate a freshly-killed whale. Subsequently, as it commences to decompose, the animal becomes more buoyant. When several whales are killed, therefore, the "floaters" are conspicuously marked by attaching a small flag, previously referred to as the boat waif, the blackfish poke, or perhaps an implement termed a "waif-drug." When the waif is used, a hole is morticed in the blubber with a boat-spade, and the pole, which has several notches at the lower end to retain its hold, is planted therein. A whale is said to be "waifed" when this flag is hoisted over it; it then becomes the property of the ship whose agents were instrumental in its death, and in case it floats off during the capture of other whales, its whereabouts may be ascertained by means of the flag, either from the boats or from the mast-head of the vessel.

When the "pokes" are used, the officer gives the order to "Blow up! Blow up!" and a man with sound lungs grasps one of these membranous pouches and inflates it until it has the external appearance of an "overgrown hypertrophied dropsical spider." It is then attached to the whale, and being of a white color may be readily seen at quite a distance from the ship.

The "waif-drug," or "flag-drogue," may be used to impede the flight of a wounded whale and to waif a dead whale as well. This kind of drug consists merely of a flag rigidly fastened by its pole to a small piece of plank; the latter is loaded with lead to retain the flag in an elevated position. It is fastened to the whale with a harpoon and line.

It is not unusual for the right whale to sink when killed; the sperm whale sometimes sinks, but the humpback and finback almost always go to the bottom.

Bowhead whales sink oftener than right whales, but it is seldom they descend so far below the surface that they cannot be hauled up by one or two boats' crews. They are generally captured in shoal water, where the carcasses may be anchored or buoyed, and usually rise a day or two afterwards, while whales that sink in very deep water may never come to the surface. Some whales float when first killed, but shortly afterwards commence to sink gradually until they descend so far that the boats have to cut their lines.

In consequence of their great tendency for sinking, the capture of humpbacks and finbacks, in order to be accomplished successfully, must be conducted on soundings. The humpbackers go prepared for this contingency. Some of them use the large harpoons, previously described,

* Scoresby says that the whale being very nearly of the same specific gravity as sea water the weight may be calculated with considerable precision. The body of the whale may be divided into three segments, forming tolerably regular geometric solids. First, the head, a parabolic conoid, which, in the sucking whale, is 4 feet in diameter and 5¼ feet in height; its solid content about 34¼ cubic feet. Secondly, the middle segment, extending from the head to the thickest part of the body; this is a frustum of a cone, in the sucking whale, 3 feet in length and 4 to 5 feet in diameter, producing a solid content of 48 cubic feet. Thirdly, the posterior segment, extending from the greatest circumference to the tail; this segment is a paraboloid, or parabolic conoid, with its smaller end truncated. Its length in the sucking whale is 8 feet, its diameters 1 and 5 feet, and its solid content 81¼ cubic feet; and to these products may be added about 10 cubic feet, the estimated bulk of the fins and tail, which make an amount of 174 cubic feet; this sum divided by 35, the number of cubic feet of sea water in the Greenland ocean in a ton weight, gives the weight of the animal 5 tons within a cubic foot.

One of the largest mysticete, of 60 feet in length, the head 20 feet in length by 12 feet in diameter, the middle section 6 feet by 13 diameter, the third section 26 feet in length by 12 and 2 feet diameter, will appear (if calculated the same way, with an allowance of 5 tons for the fins and tail) to be of the prodigious weight of 114 tons! But as the last section is somewhat more slender than the body to which it is referred, this calculation may be a little in excess. The largest animals of this species may, however, I conceive, be safely stated at 100 tons in weight, and an ordinary full-grown animal at 70 tons!—SCORESBY: Journal of a Voyage to the Northern Whale Fishery, pp. 155, 156.

to raise sunk whales to the surface. When a wounded whale is about to "turn up," the humpback-iron, with a stout line attached, is thrown into the so-called "neck"—properly speaking, the whale has no neck, since there is no constriction at the junction of the head and body—or into the region about the spout holes, where the blubber is unusually tough. The whale remains at the bottom for several days, and becoming somewhat buoyant by the gases generated by incipient decomposition, it is very materially aided in making its reappearance upon the surface by the men who haul upon the large lines attached to the harpoon. Weights are also used to drive the large harpoon into the blubber of a sunk whale. For this purpose the pole of an ordinary cutting-spade is "rigged" to a humpback-iron. Two iron hoops nailed to the pole, one near the butt and the other about 6 feet from the other extremity, act as guides in directing the instrument in its descent. A piece of pig-iron, weighing about 30 pounds, to overcome the density of the water, is lashed to the forward end of the pole with spun yarn. A line by which the whale is to be hauled up is made fast to the harpoon. The whale-line, which was used in the capture, is rove through the iron hoops on the second harpoon and hauled taut in a perpendicular position. The large harpoon with weight attached is held as nearly as possible over the whale and dropped from the boat. Accelerated by the iron weight, and guided by the whale-line and hoops, the barbed head penetrates the blubber of the whale. This operation, however, may have to be repeated before the iron enters.

An apparatus for raising sunk whales to the surface of the water was patented by Thomas W. Roys, of New York, June 3, 1862, but I have no account of its use. This was termed by the inventor a "whale-raiser," and consisted of a harpoon-like instrument about 10 feet long and weighing about 200 pounds. It had two movable wings or toggles at the forward end, which closed when entering the flesh and expanded when the line was drawn upon. This instrument when released from its position in the whale-boat, was intended to fall by its own gravity, being guided by the harpoon-line upon which it traveled, and bury its point into the whale. By means of a cod-line attached to the "raiser," before its release from the boat, a hawser may be made fast under water and attached to the ship's windlass which applies the power for floating the whale. I have not heard of any occasions upon which this device has been applied.

Captain Scammon* mentions another method of raising whales. He says: "We have known many whales to be recovered when sunk in from 40 to 60 fathoms of water. The *modus operandi* in hauling these decomposing subjects to the surface is: If the water is rough, the line is taken into the bow-chocks of the boat, then uniting two crews in the after part of one boat they either haul on the line by hand or with a tackle until the boat's bow is nearly submerged, or the whale is lifted; or, if in a smooth bay, two boats are sometimes used, by laying a spar across both, and taking the line between them over the spar, which serves as a sort of windlass purchase. If the dead animal has been long down, in a considerable depth, care is taken to avoid its coming up under the boat; for as the carcass nears the surface its velocity is so much accelerated that in some instances the animal rises with a bound which equals its sprightliest actions before life became extinct."

TOWING-IN.—The labors of the men, however, do not end with the death of the whale. The dead inert mass must be conveyed to the ship in order that the commercial products may be secured. Let us now return to our capture as it lies partly on its side.

Some whalemen tow the whales to the vessel "flukes first," while others tow it "head first"; but the majority of them claim that the whale may be towed with greater facility in its natural position, the action of the flukes driving it forward. If the ship is near by, the boat that first

* Marine Mammalia and American Whale Fishery, p. 46.

struck the whale conveys one end of the tow-line to her, and the whale is hauled alongside. In transporting a sperm whale to the vessel a hole is made through the tough covering of the head at or near the spout-hole, through the nib end, or the lower forward corner of the junk. A "short-warp," a piece of whale-line about 5 fathoms long, is rove through the hole, doubled and knotted. About 200 feet of the line used in the capture is cut off, rove through the strap, and doubled. In towing the right whale the lips are triced together over the scalp with a warp; the whale is then rolled over and the warp "parbuckled". The fins are "sewed up" with a rope which is rove through holes made in the thin parts and lashed under the dolly; a hole is cut through the chin, and the tow-rope rove through. Several boats take their positions in tandem line, the tow-ropes are properly adjusted, and the men, with merry boat song, commence the laborious and monotonous task of towing the whale to the vessel. If the ship is to windward of the whale she runs directly for it; if she is too far to leeward and the weather is calm or nearly so, the boat, or boats as the case may be, tow the whale in the direction of the ship. The rate of speed under these circumstances, which varies perhaps from 1 to 3 miles per hour, depends upon the number of boats in tow and the velocity of the wind. The ship in the mean time works toward the whale. As she approaches it, if the wind is strong, sail is shortened, the head-yards are squared in so as to throw the sails upon them aback, and the ship's headway is stopped as much as possible. The whale is hauled alongside and fastened.

ACCIDENTS.—The life of a whaleman is full of danger at all times. Aside from the perils incident to the career of all seafaring men, he is exposed to the dangers incident to his calling. When "cutting-in" in lower latitudes he has the sharks to contend with as well as the sharp-edged cutting spades to avoid. In boiling out, a foaming or bursting pot may envelope the ship in flames, or in a heavy gale the immense casks upon the deck may break from their lashings. When down for whales, he is exposed to many perils which neither a landsman nor a sailor in the merchant marine service know of. The captures are attended, in many cases, with the most frightful calamities in the way of loss of life or limbs. Lives are jeopardized by such risks as a "foul line" or perhaps, in some cases, though seldom, the logger-head may be wrenched from its position;* by the premature explosion of lances in gun barrels; by the heavy recoil of the immense shoulder-guns, which has knocked the men down, or "kicked" them pretty well aft in the boat, and perhaps breaking a collar-bone, or the boat may be broken into many pieces or capsized by the whale. Few accidents, however, now occur from the guns and lances. When the guns were first used they were charged with powder from cans, horns, or flasks, and instead of following the printed instructions furnished by the inventors or manufacturers, the men would often charge the guns too heavily, and in many cases neglected to keep the barrels clean. Under such circumstances, together with the weight and unwieldiness of the weapons, many accidents ensued. At present the improved guns, aside from being lighter and perfected otherwise, are provided with cartridges, and it is seldom an accident is reported, except in those extreme cases when such a thing is brought about in an unaccountable or unavoidable manner, or possibly the result of carelessness. The bomb-lances, owing also to their present state of perfection, seldom if ever explode before entering the whale.

The dangers more to be feared by whalemen when down for whales are such accidents as foul line, stove boat, or lost at sea. A foul line, as it leaps like a thing of life from its coils in the tub, is the most treacherous; smoking hot by a brisk confrication with the wood-work, it travels the full length of the boat, and if it catches the arm or leg of one of the crew, as it sometimes does,

* This has occurred, and in one instance very severely injured one of the oarsmen, inflicting a severe wound on the head.

the unfortunate man would be carried out before any assistance could be rendered him; or by fouling in the chocks the danger of being towed under the water is imminent. We have many published accounts of instances where men have been snatched from the boats so suddenly that the survivors were not aware of their sudden removal. Cheever mentions instances where two boats were carried down and the entire crews lost. One was lost on "False Banks," and another, belonging to the whaling bark Janet, of Westport, with the captain, who was acting as a boat-header, and the crew of five men, were all carried down and drowned by the boat-line getting foul while fast to a whale. It is seldom, however, that a whole boat's crew is lost in this manner.

It is not my intention to reduplicate the long list of accidents that has been made up by the various writers in whaling literature, but I shall refer to several mishaps that have occurred to whalemen with whom I am more or less acquainted.

Capt. Amos C. Baker, the present keeper of Clark's Point Light, near New Bedford, was badly used up by a right whale, and from him I obtained the following account of his accident and subsequent sufferings. He says: "When I was third mate of bark Awashonks, of New Bedford, we were cruising for right whales on the coast of Patagonia. On October 13, 1864, we raised two about noon; the first, by the way, we had seen since we left Port St. Catharine's, Brazil. We got dinner and lowered three boats—the mate's, the second mate's, and the third mate's. The whales were together, coming toward the bark and boats, and we took them head and head. The second mate got slightly fast to one by the lip. Both whales sounded, and shortly afterwards broke water together, the fast one fighting hard and sending the white water almost mast-head high. I tried to strike the loose whale, but he would settle every time that I got within two dart's of him. Meantime Mr. Norton, the mate, having struck the fast whale, he and the second mate sterned off to wait for the whale to get quiet. I got tired of trying for the loose whale, and went into the suds and struck the fast one; but I came very near getting cracked. The whales sounded at a short distance; when the loose one broke water he was comparatively quiet. I asked Mr. Norton if I should cut line and strike the loose one again. His answer was, 'I don't like to say either way.' However, I cut my line and chased the loose whale a short distance, but finally gave it up and came back to the fast whale, which was fighting hard, and sending the white water in all directions. I pulled in ahead and took it quartering on the head, and Tom, my harpooner, sent two more irons into him. Tom and I shifted ends; I set my lance down in his life twice—and the next thing I remember I was lying on one-half of the boat. I felt no pain at first, but could not move. It so happened that the part of the boat I was on did not roll over with me; had it done so, I should have been drowned. But it was not to be so. I was in the most trying and dangerous situation. The part of the wreck I was on was foul in the line. I tried to cut the line, but I could not move, and every time the whale kicked, he would 'yank' me and the wreck of the boat right up to his flukes. I expected that he would crush me every moment. I then noticed the after-oarsman hanging on the steering-oar, which was attached to the part of the boat I was on. I implored him to cut the line. He crawled up and cut us from the whale. I next saw the whale spout thick blood. About this time the mate's boat ran alongside of me. He was still fast. I told him I was badly hurt and could not move. He replied, 'Mr. Fisher'—the fourth mate, who had come down in the starboard boat—'will pick you up. He is right here.' I saw Mr. Fisher with the rest of my crew, excepting the one who was with me. The bow-oarsman was badly cut and bruised. When they took hold of me to lift me into the boat I began to realize how badly I was hurt. I thought that they would kill me. Of course they handled me as gently as they could; but it seemed to me that they were very rough. The ship was about 2 miles off, and every stroke the oarsmen made seemed like taking my life. We reached the ship at last, and Captain Wing said,

'Put a rope around him under his arms, and haul him up.' I was worked up to that pitch that it seemed to me I did not care much which way I went, up or down; but I said if you take me up at all I want to be hoisted in the boat. Captain Wing then saw how badly I was hurt. I was carried below to my berth, my clothes were cut off, and the lower part of my leg bound up in splints. Meanwhile the whale had 'turned up' and the men left me to take it alongside. Mrs. Wing, the captain's wife, was very kind to me, and did all she could to make me comfortable. I sent the steward for the captain, and told him my leg was broken above the knee, and he said at first 'No;' but I told him it surely was, because I could feel it. He then concluded that it was, and bound up the upper portion of my leg with splints, and kept the bandages wet with rum and salt water. The blood was washed from my head and beard. My head was cut badly and my chin split open. All my wounds were dressed, and, taking it altogether, I thought I was about used up. My bunk was very dismal, and after lying there for two days Mr. Norton gave me his room; I found it much lighter and better ventilated than my berth. The cooper made a box for the lower part of my leg, and for eighty days I lay upon my back. Old Tom, my boat-steerer, a Cape Verde Portuguese, came to see me often. During his first visit he said, 'You killed that whale, Mr. Baker; that whale most killed you.' Tom is still alive, and was afterwards promoted to second mate, as high as he could get. Mr. Fisher, the fourth mate, took my boat's crew while I was sick and killed a right whale. Tom gave the whale two irons to the hitches, and three of the crew jumped overboard just before he darted his first iron; they must have been frightened. We did not make land for seven months after my leg was broken, when we touched at St. Catharine's. I was then walking on crutches, and some of the officers frequently told me that I would never kill another whale. During our homeward passage, on June 30, 1865, latitude 10° 30′ north, longitude 39° west, we raised two schools of sperm whales. Captain Wing did not want me to lower, but I insisted upon it. The mate and myself went for one school and the second and fourth mate for the other. A whale came up just right for me to strike him, and I went for him, keeping the hump and spout-hole in range. I was still on crutches. We were right over his flukes when Tom darted the iron, and the boat was cut in two about 'midships, and all of us were sent up into the air. I have often wondered how I got clear without breaking my leg again; but it did not happen to strike anything. The boat was stove so badly we did not think she was worth picking up. On my next voyage I went out as second mate of bark Stafford, and my boat-steerer got his line riding while the first whale I struck was sounding, and down went the boat. This made three times in succession that I got a good soaking, and I began to think I was a Jonah; but I had better luck afterwards. When I was before the mast, in the John Dawson, we struck a large sperm whale off Madagascar; he smashed up three boats, and even 'shooked' some of the line-tubs. One man was badly hurt."

In 1879 I met Capt. J. T. Dunham, who was at that time keeper of the light-house on the extreme tip of Cape Cod. He lost a leg by a foul line and was carried under water a considerable distance. I am indebted to Mr. R. W. Swift, of Provincetown, who has kindly forwarded Mr. Dunham's account of the accident. When he was boat-steerer on the schooner Clara L. Sparks, of Provincetown, he struck a whale near the island of Bequia, West Indies. As soon as the whale felt the iron he struck the boat with his flukes, stove it, and half filled it with water. Mr. Dunham was precipitated into the water and one of his legs was entangled with the line. The whale sounded so suddenly that Captain Sparks, who headed the boat, did not notice Dunham's disappearance, but afterwards missing him concluded that he must have been caught in the line, and taken overboard. The crew pulled ahead with the hope that the whale would stop sounding before the line came taut. The whale, on the other hand, continued his downward motions and the line straightened out. In a few moments Mr. Dunham came to the surface more dead than

alive. The crew pulled up to him, and the captain hauled him into the boat. Until he got into the boat Mr. Dunham did not know that one of his feet was gone. It appears that his right foot was foul in the line when the whale started off, the half turn rapidly revolving around his ankle, cut its way through the flesh to the bone, and when the line straightened out the bone snapped off. Captain Sparks set a signal for the mate to come to his assistance. Dunham was transferred to the vessel and all sail made for Bequia. Arriving at Bequia, a doctor advised Captain Sparks to take Mr. Dunham to St. Vincent, where he would have the proper care and attention. Captain Dunham, after this experience, sailed as master of several vessels.

In 1881 an article was published in the newspapers to the effect that Capt. James R. Huntting, of Bridgehampton, Long Island, had the presence of mind, resolution, and bodily strength to double up, reach forward, and with a sheath knife cut the line beyond his foot, and come alive to the surface, when the whale was sounding at the rate of 20 miles an hour. In the first place, this may be considered an almost impossible rate of sounding speed for a whale; in the second place, Captain Huntting, in a letter to the writer, dated October 2, 1881, denies the statement. He says:

"I know of no instance of a man cutting himself clear of line with the whale descending at the rate of 20 miles an hour, neither do I believe it ever has or will be done. In my own case, I was taken out by foul line and carried some distance under water, but the whale rose to the surface and stopped his headway, and I was then able to cut myself clear. Had the whale continued to sound, I could not have done it. My own case occurred July, 1846, in the Japan Sea. I was on ship Portland, of Sag Harbor, Capt. J. R. Corwin, and acting as mate at the time. I will give you an instance of a man who was caught in a foul line by the upsetting of a boat, and carried almost instantly 50 rods under water. He was picked up with his foot and hand gone, torn off by the line. I amputated the limb above the ankle, and took out the crushed bones of the hand, and the man lived at least ten years after, and may be alive at this day. He was alive the last time I was in New Bedford. This occurred in April, 1853, on the coast of Chili, when I was master of ship Jefferson, of Sag Harbor. How this man could have lived under water so long is a most unaccountable thing. I could not have believed it had I not seen it with my own eyes."

Captain Cottle, who was once master of the Eugenia, of New Bedford, when second mate of the Champion, of Edgartown, was, in 1849 or 1850, taken out of his boat by a foul line. He cut the line while under water, and was almost dead when he was rescued.

Captain Baker tells me that one of his bow-oarsmen, Mr. Tinkham, got a turn around his ankle when the line was running out, but disengaged it as he was going over the head of the boat. He was badly hurt, but recovered, and has since made two whaling voyages as master.

During my investigations of the whale fishery, and more particularly while on my tour of collecting objects for the U. S. National Museum, I have from time to time met with discarded implements, or parts of implements, which brought me face to face with the dark side of the whaleman's life. In the fall of 1882 the schooner Admiral Blake, Captain Hathaway, of Marion, came into the port of New Bedford with a disabled boat, which was a silent witness of a remarkable tragedy enacted upon the high seas. It appears that on July 13, 1882, a whale was struck with a darting-gun, but the harpoon did not enter the blubber sufficiently deep to discharge the bomb-lance. As the first officer of the schooner, who thought the gun had been regularly discharged, was putting it away under the thwarts, it went off; the bomb passed through the body of James Alcom, killing him instantly, and then struck Charles Smith, the after-oarsman, in the back, and appeared on the other side above the right hip.

It is not often the case that a whale-boat, when down for whales, is unable to make the ship; yet there are far too many accidents of this nature on record. Separated from the ship, suffering *from exposure, and emaciated by the ravages of hunger and thirst, the unfortunate crew are* doomed to wander upon the face of the trackless ocean until rescued by a passing ship or relieved by death. While we write, the news of the loss of Captain Sparks, with a boat's crew, of the schooner Edward Lee, of Provincetown, Mass., comes to us; and while pondering over the mysterious ways of Providence, the safe arrival of the party is announced at Pensacola, Fla., almost simultaneously with the arrival of the schooner at Provincetown. Having been tossed upon the ocean for eleven days, they were picked up and brought to an American port by a German bark. A letter was immediately addressed to Captain Sparks, with the request that he would forward a detailed account of his wanderings and sufferings. The captain, after refitting his vessel, has again sailed on a whaling voyage, but before leaving port he kindly made the following statement to Mr. R. W. Swift, *of Provincetown, for publication in this report:*

"We raised a school of sperm whales at 12.30 p. m. May 14, 1881, in latitude 17° 50′ north and longitude 46° 50′. My mate and myself lowered and gave chase. The mate selected a 40-barrel *whale and fastened to him; I continued to chase the school, but could not get within darting* distance. Finding that I was getting too far from the vessel, I gave up the chase at 4 o'clock. At 5 o'clock I made the vessel, which was heading directly for me, and an hour afterwards her hull was plainly visible. Night coming on, we steered the boat by compass in the direction the vessel was last seen; but not seeing her lights, we hove to at 8 o'clock, and lay by until morning. At daylight we found nothing in sight; but we steered in a northerly course until 1 o'clock p. m., at which time I changed the course to southwest in hopes of finding the vessel. During the second night I again hove to. In the morning, under sail, we steered in a westerly course until noon, when our course was changed to the northwest until night. During all this time I had not seen a sail. I was then forced to believe that we were lost in mid-ocean, fully 1,000 miles from land. We were dressed in our shirts and trousers only—not a single coat or jacket—*and every one of us were barefooted. When we left the vessel the beaker was full of water, but* every drop was consumed before we gave up the chase for whales. I decided to head the boat for the West India group, with the hope that if we were not rescued by some passing vessel we might be able to reach some or one of the Windward Islands. On the sixth day of our wanderings May 20, we saw a school of sperm whales, and although every man in the boat was greatly reduced from exposure and his long fast, I thought it best to make an attempt at least to capture a whale to furnish us food. I placed myself in the head of the boat, holding the iron as well as I could, and selected a whale to strike; the momentum of the boat forced the harpoon into the whale, which fortunately was not an ugly one, and he was finally killed. While dying, however, he struck the boat so hard as to injure it and it sprung a leak. I cut 15 pounds of flesh from the whale, which we ate raw. This lasted us two days, *and we again suffered the pangs of hunger.* Rain-showers could be seen passing on each side of the boat, but very little fell on us. During the eleven days of our exposure I judged that about 2 gallons of water were caught in the boat; but being mixed with salt water we could not quench our thirst. Sometimes during the night the mist would wet our shirts and we greedily sucked them; sometimes we were compelled to drink salt water, but this had a very bad effect upon us. One night a flying-fish jumped into the boat; I divided it into sixteen pieces, all of which was greedily devoured by the half-starving men. We continued on our course for the land without seeing a single sail. On May 25, the eleventh day of our separation from the Edward Lee—all of us were prostrated from the want of food and water; one of the men was lying helpless in the bottom of the boat—we sighted a sail which proved to be

a German bark two days out from Guadaloupe, bound to Gibralter, loaded with sugar. I informed the captain of our situation, but he gave us no invitation to go on board. We had sailed 750 miles in an open boat without food, and his treatment seemed rather hard. I begged of him to give us food and water. He made no reply, but in about ten minutes his cook brought each one of us a drop of water and one sea biscuit. I then requested accommodations for myself and men aboard his ship, but he sternly refused. He told me to go aboard of another vessel which had just hove in sight. I told the captain that he might shoot me and my men and throw us overboard, but we would not willingly leave his ship and run the risk of not being seen by the other vessel, which was quite a distance off. Finally the bark was hove to, and a signal set, which was noticed by the other vessel. Shortly after this the captain insisted that I should leave with my men and pull for the other vessel, and promised to lay by until he was sure the second vessel saw us. With this promise we were helped into the boat, and as soon as our line was cast off the yards of the bark was squared and she was off. I did not learn her name, as I had neither time nor opportunity to do so. I only wish I had. The second vessel was about 2 miles away, and proved to be the German bark A. Klochman, Capt. Henry Abel, of Memie, who kindly took us on board. The fare on board this vessel, consisting as it did only of water and hard-tack, was hardly suitable for men in our condition; but we rejoiced in the hope of temporary relief and in the prospect of getting to land. We remained on board the Klochman twenty-two days, and finally landed at Pensacola, Fla., where we were kindly treated and cared for by the Masons and Odd Fellows, who provided us with the means to return to our friends. While in Pensacola I telegraphed to my agent at Provincetown for instructions, and received word that the Edward Lee had arrived home the day before. I sold my boat and deposited the money with Mr. Young, a notary public, Captain Abel having made a demand on me for $65 for bringing us into port. I had already given him $40 worth of whale-line before we landed, and I supposed that would satisfy him for what he had done for us. We had the coarsest of fare while on his vessel. Twice in the twenty-two days the captain gave me white bread, and the balance of the time I had the same as the foremast hands, which was, as I have before stated, merely water and hard-tack.

6. THE METHODS OF SAVING THE COMMERCIAL PRODUCTS OF THE WHALE.*

CUTTING-IN AND TRYING-OUT.

CUTTING-IN THE WHALE.—The process known to the English as "flensing," to the Americans as "cutting-in," and to the old Nantucketers as "flinching" the whale is the act of removing its oleaginous blanket and transferring it to the vessel; and the process of "trying-out" is the reduction of the blubber to oil.

When the ship-keeper perceives that a capture has been made, he makes sail, if possible, and endeavors to shorten the distance between the vessel and the boats. Meantime every preparation is made to save the blubber. The cutting-spades and boarding-knives are brought on deck, the officers' stages† are "slung" over the side of the vessel, the heavy cutting-tackles are sent aloft, and the bulwarks removed in the waist of the ship to make a gangway. The whale is brought alongside the vessel and fastened with its flukes forward to the starboard side with a

*The methods employed in "cutting in" the whale; the oil making; preparation of whalebone; ambergris, &c., will be more fully discussed in the section of this report on Preparation of Fishery Products.

†The cutting stage is a kind of platform suspended over the side of a ship by ropes, for the officers to stand upon while cutting-in a whale. Of the earliest form there are two kinds; they are known as the "forward cutting stage" and the "after cutting stage," from the fact that they are placed respectively forward and abaft the gangway. They are made of spruce plank about 12 inches wide and vary in length on different ships. Some vessels have discarded this kind altogether, while others still retain them, in addition to longer ones, known as "outrigger stages." The "outrigger" is from 18 to 22 feet long, 20 feet being about the average length, and 15 to

chain, which is passed around the "small,"* rove through a port-hole in the bulwarks, and made fast to the bowsprit or a small upright post in the deck, called a "bitt." The whale being thus secured, the order is to "Supper the watch!" or "Dinner the watch!" and immediately after the meal the process of "cutting-in" begins. It is necessary that the blubber should be removed as soon as possible, since it may "blast" on the whale, or in all probability rough weather may set in and delay the work, or it may be desirable to lower the boats for other whales. The men and officers take their proper positions. The first and second officers go into the forward and after cutting stages respectively. The captain, assisted by his first mate, usually decapitates the whale; the second mate "scarfs," or cuts the body blubber; the third mate has charge of the waist of the vessel and of boarding the blubber, in which duties he is assisted by the fourth officer, or perhaps the latter may be with the foremast hands at the windlass; one of the harpooners stands ready to go down upon the whale, (that is, if a sperm whale), to manipulate the blubber hook when necessary, and another harpooner has charge of stowing away the blubber between decks. On the quarter-deck the cooper, assisted usually by one of the laziest men on the ship to turn the grindstone, is kept busy sharpening the spades, which are dulled from time to time *by striking harpoons in the whale or the bones in cutting off the head. No one is allowed to "cut* on the whale" except an officer; it would be a presumption on the part of a foremast hand, at such a time, to go into a cutting stage.

The head of the whale is first cut off, and the process of removing the blubber from the body begins. The *manner of decapitating and dissecting the head of a right whale* differs somewhat from the method of decapitating a sperm whale. Removing the body blubber, however, has practically no distinguishing features that need to be explained here. In cutting-in a right whale the first officer, with a long-handled spade, makes a "scarf" around the eye and fin (from H to E and I, as shown in the accompanying illustration, Fig. 1). A chain is adjusted about the fin (B) and one of the cutting-tackles is attached to the ring (C); the men heave at the windlass and literally tear off both the fin and blubber, the former being skillfully unjointed by the officer before the huge cetacean rolls in the water. As the whale revolves upon its axis, a motion imparted by the cutting-falls which are manipulated by the men at the windlass, the officer continues to cut the blubber as indicated by the spiral lines † in the diagram, and the helical strip of blubber is peeled in a continuous piece the entire length *of the whale, from the fins to the flukes.* As it is hoisted on board it is subdivided into smaller sections, about 14 feet long and 6 feet wide, called "blanket-pieces." The subdivisions are made by the officer who stands in the waist of the vessel, with a long ensiform implement called the boarding-knife, the process being called "boarding the blubber." He severs the immense strip of fat whenever one of the cutting-tackles "comes two blocks"; the other tackle is made fast to the blubber before the officer severs it, and when the first tackle lowers the blanket-piece the second tackle "comes two blocks," and another piece is cut off. This alternating process continues until the blubber has been disposed of.

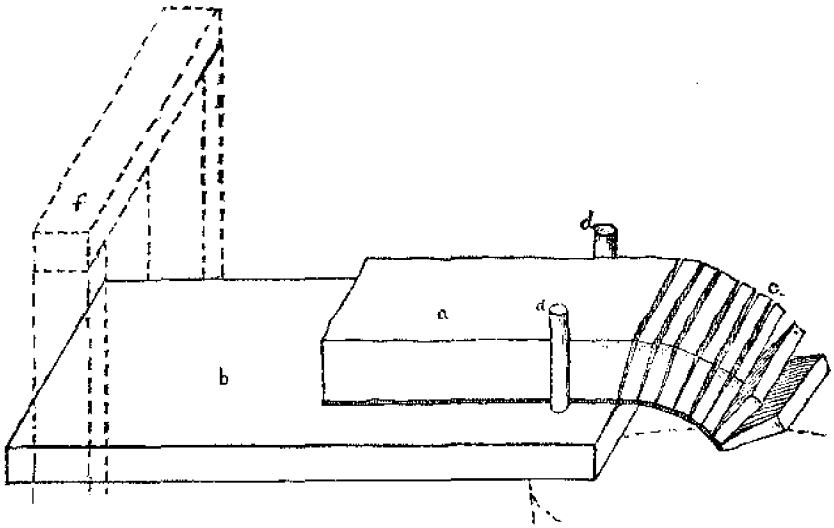
The blanket-pieces are lowered through the main hatch into the blubber-room, where they are subsequently reduced to smaller sections or "horse-pieces." The pieces of flesh and muscles or "lean"—the whaleman's name for the flesh of the whale—which adhere to the inside of the blub-

18 inches wide. The boards or "arms"—some call them "legs"—that brace the stage from the vessel, are from 7 to 10 feet long; some of them are bolted rigidly to the stage, while others are adjustable. This kind of stage is suspended over the vessel by two or three tackles from the mast-head or from davits. For convenience and safety of the cutters, when *at work, a long pole or rope, usually the latter, is lashed to iron stanchions from 3 to 3½ feet high, forming* a secure railing and support for the officers, the whale, of course, being between the stage and the ship. When not in use the "arms" are folded, and the stage is turned up alongside the ship and lashed securely.

* The slender portion of the body of the whale, at its junction with the flukes.

† The officer does not make a smooth cut as shown in the lines in the diagram. The actual incisions in the blubber of the whale form zigzag lines, gashes made by the perpendicular thrusts of the keen-edged spades.

ber, are removed by the blubber-room gang with sharp knives to prevent the discoloration of oil when boiled. This process is called "leaning." When ready to boil the blubber the "horse-pieces" (*a*) are pitched upon deck with forks and minced either with hand-knives or machinery.* The slices (*c*) are about half an inch thick, almost as long as the blubber is thick, and resemble

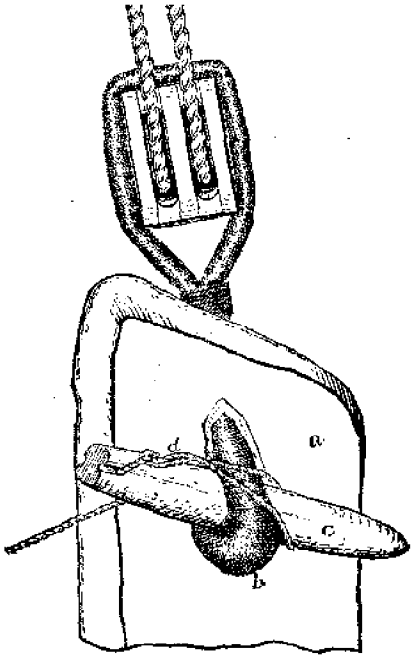


MINCED BLUBBER ON MINCING HORSE.

great pieces of fat pork. The pieces are called "books" or "bibles," from a fancied resemblance to the leaves of a book. In this condition the blubber is pitched into the try-pots and the oil extracted. The residuum, termed "scrap," is used in boiling out the "catch," the fires being first started with wood. Meantime the flukes of the whale are cut off, and at times hoisted on deck and the blubber saved. The carcass is cut adrift, and, surrounded by a school of ravenous sharks and a troup of greedy, garrulous birds, floats away and usually sinks. The head, which had in the first place been detached from the trunk and moored by chains to the vessel, should next be cared for. If the capture is an unusually large sperm whale, the head may be divided into two sections, the "case" and the "junk," and hoisted in separately. Previous to this, however, the lower jaw with the teeth is wrenched from its socket and hoisted in. If a small sperm whale, the entire head may be hoisted in and dissected on deck. The "head matter" or spermaceti is removed and placed in casks or other receptacles of a similar nature, and the worthless remains are pushed through the gangway into the sea. If a right whale, the upper part of the head, containing the whalebone, is hoisted on deck, and the baleen cut out with spades, cleaned, dried, and bundled for the market. The two lower lips are hoisted in separately and the blubber cut up and boiled. The body oil and head oil of the sperm whale are kept in separate casks and marked "H." and "Sp. O." The oil from all parts of the right whale is barreled indiscriminately, since there is no difference in the quality. As fast as the oil is cooked it is bailed from the try-pots into a large copper tank called the cooler, whence it is transferred to large casks, lashed to long rails on both sides of the vessel, and kept on deck until cool enough to stow away below. It is then run down into the casks in the hold of the vessel through a flexible pipe. The casks are "chocked off" or braced from each other and from the ship by pieces of wood called "beds," and remain *in statu quo* unless the hold is broken out to ship the oil by another vessel or when broken out in port.

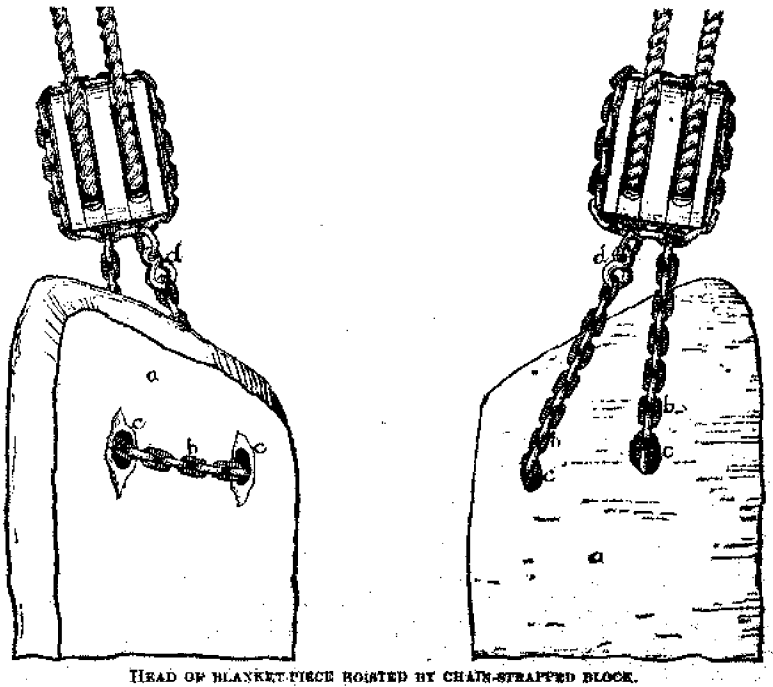
* The mincing-horse used in hand-mincing is simply a piece of two-inch plank (*b*) about three feet long and a foot wide, with several pegs (*d*) in the sides to keep the horse-pieces in place. One end slips with a cleat under the main rail (*f*) and the other end rests on the mincing-tub. As fast as the blubber is minced it falls into the tub.

The lower block of the cutting-tackle is usually strapped with rope. In boarding, the blubber hook is detached, and the strap, with a grommet, (*b*) is passed through a hole cut in the blubber (*a*) and toggled (*c*) on the opposite side, as shown in the accompanying illustration.



HEAD OF BLANKET-PIECE HOISTED BY ROPE-STRAPPED BLOCK.

An improvement, however, has been made, although it is not so regarded by some whalemen, by strapping the lower block with chain. Strapped in this manner, the obviously awkward rope attachment is dispensed with, and the chain tail (*b*) may be rove through holes (*cc*) in the blubber (*a*), as shown in the accompanying cut, and moused into the sister hooks (*d*) thus:



HEAD OF BLANKET-PIECE HOISTED BY CHAIN-STRAPPED BLOCK.

The above illustrations represent the under or "fat" side of the blubber with chain attached, and also the reverse or "blackskin" side.

The head of the right whale and bowhead may be hoisted by means of the rope-strapped blocks and fid, or by the chain-strapped blocks, the same as shown above for hoisting the blubber.

A word in regard to some of the implements used in manipulating a dead whale and removing its blubber.* The falls are made of manila hemp, composed of four strands, and measure in circumference 5¼ inches. The lower block is 18 by 12 by 10 inches, the upper blocks 18 by 12 by 6 inches and the guy-block 13 by 9 by 6 inches. The guy rope is 4¾ inches in circumference. The blubber hooks vary in weight from 75 to 150 pounds each, depending upon the size of the vessel. The cutting-tackles, when in position for active use, are suspended by pendants lashed to the main-mast-head above the eyes of the rigging. The pendants are large cables (*a*, Fig. 4), of a size that would be required perhaps to anchor a 300-ton ship. They are usually about 12 feet long; the variation in length, however, is governed by the size of the vessel. They are connected with the cutting-tackles by means of two immense iron shackles (Fig. 2, *a a*) 16 inches long 9 inches wide in the clear and from 1½ to 1¾ inches in diameter.

The implements with which the incisions are made in the blubber are called cutting-spades. The blades are made of Norway iron, faced with steel, and the poles, are of spruce. The total length varies from 12 to 20 feet. With these apparently awkward implements all of the cutting is done upon the whale. The narrow ones are used to cut through the blubber to the flesh and the wide ones to sever the muscles or pieces of flesh that persist in binding the fat to the body of the whale. The former process is called "scarfing," and the latter "leaning up." The half-round spade is used to mortice holes in the blubber in order that the cutting-tackle may be attached, as previously described.

DUTIES OF CREW.—In cutting-in a whale the same discipline is enforced on board ship that was observed in the boat when engaged in the capture. Next to making the home passage with a full ship, the disrobing of a whale of its oleaginous covering constitutes one of the most joyous occasions. When a whale is "raised," the exultations of the whalemen cannot be called genuine, for the capture may not be made; but when the prize is made fast to the ship, the most sanguine anticipations, barring wind and weather, may be realized. A violent storm may part the fluke-chain, or it may become necessary for the safety of the vessel to cast the whale adrift.

The captain has general supervision of all work, and may sometimes participate actively in cutting the whale. He may prefer, especially when the animal is to be decapitated, to accompany his first officer on the stage, and assisted by him, perform this operation, which is regarded a delicate and important one by whalemen; but he usually goes on deck when the head has been severed from the body and assumes general charge of matters there, leaving the details of the cutting to his first officer. Aside from the general work of cutting, which claims his close attention, he has the ship to care for, more particularly if surrounded by ice in the Arctic fishery.

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* *Index to illustrations of cutting falls.*

Fig. 1. Lower block strapped with rope (*a a a*) and blubber hook (*g*) shackled into the grommet (*d*). The rope beckets (*c c c*) are used for convenience in handling the block, and the back lashing (*h*) by the officer in directing the point of the hook into a hole in the blubber.

Fig. 2. Upper blocks (*b b*), guy block (*o*), pendant shackles (*a a*), and links.

Fig. 3. Lower block (*b*) strapped with chain (*d*) and sister hooks (*e*) into which the tail may be coupled by means of the link (2).

Fig. 4. Perspective view of the cutting-tackle, showing the position it assumes when suspended from the mast-head. It should be guyed out by means of the guy-block and rope (*o*), and the end of the cutting-falls (*e*) should lead to the windlass.

Fig. 5. An implement called the small blubber hook used to manipulate blubber on the vessel.

He may also, perhaps, visit the mast-head when whales are in sight, to ascertain if there is a prospect for lowering the boats for another capture. It may also happen that two or more boats are down for whales, in which case he performs the duties of the first and second officers on the stage. When cutting-in a sperm whale on a Provincetown vessel, if the mate is not skillful, the *captain, assisted by the first and second mate and boat-steerers, severs the head from the body.* On the New Bedford vessels, if the captain does not make his appearance on the stage, his first officer has sole charge and direction of cutting off the head. After the captain leaves the stage *the mate remains and "leans" the blubber from the carcass until the last piece has been hoisted* in. The second officer's post of duty confines him to the forward end of the outrigger stage, where he is engaged in "scarfing"* and "leaning up"; he also cuts off the flukes, and remains upon the stage till the last piece of blubber and the flukes, if a sperm whale, are hoisted in. The third mate has charge of the waist and the general directions of boarding the blubber; he uses the boarding-knife in cutting holes in the blanket-pieces for attaching the cutting-tackle; subdivides the blanket pieces into sections and sees that they are properly lowered in the main hatch. Although not actively engaged in cutting the whale, he occupies an important position, and upon him, in a great measure, depends the length of time consumed in this operation, with the exception, of course, of wind and weather. It is also his duty to see that the hatchway is kept clear, and that all implements necessary for carrying on the work are at hand and in their proper places. Some captains, especially in the olden days of whaling, after decapitating the whale took charge of the boarding; but they seldom do this now. Sometimes on the steam barks in the Arctic regions the third and fifth mates work in the waist, or the captain may, when "pushed," take charge of the boarding, and send the fifth mate between decks to stow away the blubber. The fourth mate on some vessels assists the third officer in the waist. If he is a person of good executive ability the latter is perhaps the best place for him. On some vessels it would be better, under certain conditions, for him to be at the mast-head on the lookout for whales, *but this is not usually the case. In sperm whaling he may be in the waist with the third officer,* when not on the stage cutting on the head; but, as before stated, he usually retires to the deck when the whale is decapitated. Three of the boat-steerers work in the waist of the ship, assisting the third officer, and the fourth takes it "overboard", and also has charge of stowing the blubber between decks. The captain's boat-steerer takes all the "overboards" on the first whale captured, and the others in the order of their rank on each whale subsequently taken, their duties being to insert the blubber hook in the hole made in the blubber, to reeve the head-needle, and to perform any other duty that may, under the circumstances, be required of them which could not be accomplished by the officers from the stages. The carpenter, or cooper, usually the latter, sharpens the spades and knives at the grindstone on the quarter-deck, assisted by one of the crew, who turns the crank. As the spades are frequently dulled by striking bones, especially while cutting on the head, there is very little cessation in this work. A common grindstone, with an elliptical wooden tub, full of fresh water to prevent iron rust, is always carried on the ship for this and similar purposes. The cook and steward are engaged in their regular duties, but may, at times, especially when hoisting in the heaviest parts of the whale, be called forward to the windlass. The majority of the crew heave at the windlass. One man is sometimes placed on the lookout for whales—though usually when cutting-in and boiling out, mast-heads are not kept—and two sharp, active, and wide-awake foremast hands are selected to "tend the falls,"

* The term *scarf*, usually pronounced *scaff*, has rather an elastic definition. A boat-builder *scarfs* two pieces of timber when he joins them permanently together; a whaleman, on the other hand, when he *scarfs* the blubber, separates it entirely by incisions made with the spade.

one man to each tackle, called "falls tenders." Two men in each watch belong to the "blubber-room gang," employed in stowing away the blubber. One man, on a sperm whaler, is stationed on the main or mizzen chains or in the starboard boat with a scoop-net, to "skim slicks" while the head of the whale is being severed from the body, that is, to save the small pieces of blubber and "loose" oil which float upon the water. On some ships, however, the man whose duty it is to assist the cooper has charge of the scoop-net, or is "captain of the scoop-net," and in this case, when his services are required, especially when cutting about the roots of the "case," whence the spermaceti flows, the cry of "Scoop-net! Scoop-net!!" calls him from his ignominious post at the grindstone to the more exalted position of "skimming slicks," the contents of the net being placed in a wooden receptacle on deck, called a scrap-tub, and afterwards boiled out.*

TIME CONSUMED IN CUTTING-IN.—The time consumed in the process of "cutting-in" depends upon the age of the whale, the condition of the weather, the kind of apparatus and accessories, and the skill and ability of the cutters. Under favorable conditions a small or medium sized whale might be disposed of in five or six hours, and a large one, a "one hundred barreler," perhaps in twelve hours; but in a rough sea the crew may be four or five days in cutting-in a whale which, in smooth weather, should be cared for in six or eight hours. Three days is about the average time for boiling out the blubber of a large sperm whale; but this also depends upon the weather, fatness of the cetacean, and size of the pots. Formerly, if a one-hundred-barrel whale were captured, cut-in, boiled out, and stowed down in a week, it was regarded fair work; but with the modern appliances the same work should, under favorable circumstances, be accomplished in less time. The blubber of right whales may be boiled out with greater facility than that of sperm whales. Less skill and time is required to cut a right or bowhead whale than a sperm whale; three or four hours

* During the process of cutting, as the crew heave away at the windlass they are urged to their work by the inspiration of song, peculiar to them. The order from the captain is to "heave away and chanty up," the word "chanty" meaning to sing, the songs being known as "shanty songs."

Touching this point I reproduce here the following extract from a letter from Capt. William M. Barnes:

"When a whale ship is so fortunate as to find whales, time becomes of importance, and as a ship when in the act of cutting is in a great degree motionless, whalemen are anxious to finish the work and to get under sail again. Often a storm is seen approaching, or the ice is close at hand to leeward, or night and darkness are near. Experience has shown that the men work more cheerfully at the windlass when their quite tiresome and monotonous labor is enlivened with a good song, and masters of whalers congratulate themselves if they find among their crew one who can lead off at the windlass with a rousing song. The men forget their fatigue; they quit grumbling, and with merry laughter join in a rattling chorus, while creaking falls and clanking pawls, and the frequent shout of 'Board, Oh!' tell them that the work is fast being accomplished. It will be a happy change when the tireless, uncomplaining power of steam is used in the 'cutting-in.' The work will be done more quickly, and the men will be available for other uses. I wish I could give you a few of the songs the 'shanty men' sing, but as a great part of the singing is extempore, and only suited to the occasion, one does not remember it unless himself a singer. Many popular tunes are brought into requisition, being often changed by the singers. The words seldom amount to much, unless the singer chances to be witty, when he may make happy allusions to passing events. The tunes are exhilarating and selected on this account. Among the songs, I may mention here, 'John Brown's body,' 'Dixie,' 'Marching through Georgia,' 'Old Dan Tucker,' with many variations, to which could be added many others. I think an Arctic whaleman would prefer a lively chorus at his windlass to the operas of the best masters. I can recollect when on my first voyage when the work was lagging the captain would hail the cook, with 'Doctor, where are you? Come! Wake 'em up there!' And the old darky would roll along forward, and opening a capacious mouth start a song and the work at the same time. His songs were few in number, but they were not injured by repetition. I remember a line or two:

Cook.—A dandy ship and a dandy crew,
All.—Hi ho, my dandy, Oh!
Cook.—A dandy mate and skipper, too,
All.—Hi ho, my dandy, Oh!
(Repeat with variations.)

Cook.—Oh, what shall I do for my dandy crew?
All.—Hi ho, my dandy, Oh!
Cook.—I'll give them wine and brandy, too,
All.—Hi ho, my dandy, Oh!"

being the average, under auspicious circumstances, for cutting one of the first-named species, whose yield would be about 100 barrels. Capt. G. B. Borden tells me he once picked up a bowhead whale, whose death was caused by "killers," which he took alongside, cut-in, and boiled out in twenty-one hours, making 140 barrels of oil.

SWEEPING AND FLUKING A WHALE.—When a whale has been towed alongside the vessel the fluke-chain is made fast to the "small." The preliminary steps for adjusting this chain are termed "sweeping the whale," and the act of adjusting it is known as "fluking the whale." The following is an account of the processes as well as a description of the implements employed:

The buoy-line, or as it is also called the "bob and line," or the "lead and buoy," consists of a piece of tow-line—usually about 7 or 8 fathoms in length—a buoy and lead. The buoy, bent on to one end of the line, is made of pine wood, which is often painted white in order that it may be more readily distinguished, as it is frequently necessary to use it at night. A small hand-lead, or "shot," about 6 pounds in weight, is also bent on to the line, about 1½ or 2 fathoms from the buoy. When the whale has been hauled alongside, the ship is so laid as to forge ahead a little and at the same to bring the cetacean along with it, flukes forward. The lead is now dropped overboard between the ship and the whale on the side of the "small" near the flukes. The lead, of course, takes the buoy under water. The line is then pulled up, which raises the lead, and the buoy, released, floats on the surface. If the buoy should come up on the opposite side of the "small" it is hooked up with the line-hook, or with a hook that may be improvised from a broken harpoon shank attached to a pole, and taken on board. If, on the other hand, the buoy should appear on the surface of the water on the same side of the "small" on which it descended, the lead will have to be dropped again and again, and the operation repeated, as is often the case, until the maneuver is successfully accomplished. Having passed a small line around the "small," the fluke-chain may be bent on and hauled around in a similar manner. One end of the fluke-chain is hauled up to the plank-sheer in the gangway and rove through a ring or shackle at the other end. The bowline is singled and the ring slacked to the "small."* The chain is stoppered in the waist, one end being led forward through a hawse-hole† or chain-pipe. On the bluff of the bulwarks, on the starboard side, a rope is made fast to the chain on which all hands haul, bringing the end of the chain forward. When the whale is far enough forward to be conveniently cut, the chain having been hauled up short, about 1½ fathoms, it is made fast to the bow-sprit or a bit made for the purpose, and the whale is said to be "fluked." If a fluke-rope is used it may have an eye-splice in one end; or, if not, a clinch may be made and slipped down to its place. The whale thus secured lies with its flukes to the bow of the ship and on top of the water, and the fluke-chain may be veered out as occasion may require during the operation of cutting-in. The after part of the whale's head, as it now lies, is nearly abreast the after part of the main rigging, provided the ship is about 110 feet long, and is made fast by a good stout rope to a bit or a ring in the deck. The whale is now made fast and everything is ready for cutting it in.

Recently some enterprising whaleman has improvised an instrument, termed a "fluker," from an old hand-lance, simply by cutting off the head and converting the shank into a large round-bend hook. A small laniard with a buoy at one end is "stopped" to the point, and the instrument is thrust under water between the whale and vessel. When low enough in the water the point is turned outboard, the instrument is hauled up under the "small," and the buoy with a line to which the fluke-chain is attached appears on the other side. The buoy is detached, removed with the line-

* See diagram of cutting-in a bowhead or polar whale, A.

† Many vessels have two hawse-pipes, several feet apart, to be used when two whales have been killed, and sometimes two chains are taken through one hawse-pipe.

hook, and the fluke-chain adjusted as before mentioned. This is a much better and quicker method than when the buoy and line is used, and although this instrument, which is also known as the "Joe Crook," is not familiar to the majority of whalemen, its importance will be very readily appreciated by them.

Large ropes were formerly used for fastening the whale to a vessel, but I believe very few of them, if any, are to be found now. Sometimes a large rope may be used when a vessel is towing a whale or in veering out a whale in heavy weather when it would be impossible for her to lay by it. This rope is made of manilla, usually manufactured for the purpose, and varies in size from 7 to 11 inches in circumference. It is slack laid and about the same kind as those carried by the large steamers on Long Island Sound, for instance, and is sometimes stradded to prevent chafing.

BOILING AND STOWING THE OIL.

DUTIES OF CREW.—During the process of boiling out the oil (described in the section on PREPARATION OF FISHERY PRODUCTS), which includes the preparation of the blubber before cooking, the master has general supervision of the work, but the mate attends to all business that requires active superintendence. Both the officers and men, with the exception of the cooper, stand their regular watches before the try-works day and night. On some vessels the first officer is exempt from such a duty. It is expected that the officers should only superintend the boiling of the oil, but oftentimes they perform as much manual labor as the petty officers.

The boat-steerers stand their watches before the works, and if they find time they also rig their boats for another capture.

The men perform the menial duties of the ship. Two in each watch are kept at work in the blubber-room preparing the blubber for the mincer. This is the blubber-room gang; it is headed by a man in each watch, who is regularly appointed to fill this position during the voyage; his assistant, however, is not regularly appointed, the selection being made from any of the foremast hands composing that watch. If the machine is used for mincing, three or four men may be needed: one to "feed," one to "hook off," or remove the blubber, one to trim the thick pieces of fat, and probably one or two to keep the apparatus in motion. But when the mincing is done by hand, the services of one man in each watch only are required for slicing the fat.

The other men of the watch carry horse-pieces from the main hatch to the mincer, lipper up decks, remove scraps, bail out oil, stand their mast-heads, serve their tricks at the wheel, or lend a hand wherever and whenever needed.

The cooper is seldom on duty at night, that is, if he is industrious and prepares a sufficient number of casks during the day to last the watch over night. It is also his duty, during the day, to grind the blubber-knives, or to bail the oil from the cooling tanks.

The Arctic ships have watch and watch (six hours each) when boiling. In sperm whaling, on some ships the watches are set, for instance, from 7 a. m. until 11.30 a. m. This gives the forenoon watch below half an hour for dinner; the other watch goes below at 12 m. and is called at 4 p. m. One watch gets supper at 6, and the other at 6.30. At 7 p. m. the watch is set for the night, dividing the time until 7 in the morning. In the morning the watch below is called at 6.30, in order that the men may get breakfast in time to be on deck at 7.

The duties of the crew during the operation of running down the oil into the casks in the hold of the vessel from the receptacles in which it cools on deck vary somewhat, both on the different vessels and in the sperm and Arctic fisheries. The sperm whalemen have more sea-room and more time at their disposal when stowing down than the Arctic whalemen. It is also important that they should exercise unusual care in this process, without involving the question of time, for

the oil usually remains in the holds of their vessels much longer than is the custom in the Arctic fleet. In sperm whaling, as a rule, the captain directs all work, measures the hold, and gives orders for the casks, which, in his opinion, should be coopered for riders, forelaying to run the casks of the proper size in order that they may be ready for coopering. The first officer generally has charge of all work on deck; at times, however, he may superintend the work in the hold, in which case the second mate remains on deck. One of the officers or boat-steerers also tends the hose-cock when filling the casks. The cooper has all he can do in coopering such casks as fast as they are called for. As the Arctic whalemen are usually beset by ice, which momentarily threatens their ship, and on account of the presence of ice they are unable to get as much sea-room as the sperm whalemen, they are in consequence compelled to store away their oil as speedily as possible, and at times under great difficulties. The master usually devotes his attention to stowing down, but at times he may shift the greater part of the responsibility on his officers, and will himself look after the ship, spending perhaps the greater portion of his time at the mast-head, "conning" his vessel and looking for whales. The first officer has charge of the deck, running down the oil, inspecting the cooperage, sending the casks below as fast as they are needed, and pushing the work with the utmost speed and vigor. This custom, however, often varies, for sometimes the first officer may stow the hold and the second mate may remain on deck. Since the oil cools rapidly in the Arctic regions, the crews under favorable circumstances are enabled to clear their decks much sooner after boiling out than in the southern fishery. Stowing down, boiling out, and the performance of other necessary work required in working the ship, may be carried on simultaneously; one man may be called upon to perform the duties which, in the regular order of things, properly belong to another, but the master, under all circumstances, feeling his responsibility, always satisfies himself that the oil casks are properly stowed away. If the mates in the Provincetown fleet are efficient and trustworthy, the captain devotes very little attention to the process of stowing down, other than to designate such casks as should be filled. The mate has charge of the deck; it is his duty to see that the casks are well swabbed out and free from water; that the oil is sufficiently cool; that no dregs have been transferred from the cooler, and that the work in all details is properly attended to. The second mate usually has entire charge of the hold. One boat-steerer bails the oil from the cooler, and one cuts off the oil as fast as the separate casks are filled.

MAKING-OFF; SCRUBBING.

MAKING-OFF.—Paring and barreling blubber, termed making-off, was, and is now, conducted by the Dutch, English, and Scotch whalemen. Commander Scoresby* and Laing† give a full account of the process. *Making-off* blubber was carried on at leisure hours when the crew were not engaged in the pursuit of whales. The blubber in this condition was transported to the English and Scotch ports and the oil extracted on shore, by which time the blubber was more or less rancid, and it is not much of a wonder after all that the odor should be offensive when the cargo was broken out in port, or when the oil was extracted.

The process of making-off is not practiced among the American whalemen. At the inception of the American whale fishery (as before referred to) it was the custom, in shore whaling, to bring the blubber home and extract the oil, but as the voyages were short, the blubber was comparatively in a good and healthy condition. In the Arctic regions, however, it is now customary with some ships, when they find whales abundant, not to delay matters by boiling out, but they stow away the blubber 'tween decks (where, in this cold climate, it will hold its own for a long time), and, when full, put out for Plover Bay and boil out at anchor. In Hudson Bay it is said by some

*Arctic Regions, vol. ii. †Voyage to Spitzbergen, pp. 133, 134.

whalemen that when a whale is taken among the ice and cannot be towed to the vessel, small tackles are carried in the boats to the whale, and where they are enabled to get sufficient purchase to roll the animal they take off the blubber, cut it into horse-pieces and drag it to the ship on sleds. In sperm whaling, however, no delay can be suffered in extracting the oil, which is attended to as soon as possible, or the blubber will blast, and when put into the pots will, as it is termed, run together, forming a consistency of, and almost as sticky, as glue, and in this condition the oil becomes black and unsalable. In the English sperm fishery, in 1820, the oil was reduced from the blubber shortly after it was taken on board, in the try-works, with which the ships engaged in this fishery were always provided. There were two coppers (kettles) in the try-works, placed side by side, near the fore-hatch. These, with their furnaces, did not differ from those now in use on American ships. They were made of brick-work, occupied a space of 5 or 6 feet in length by 8 or 9 in breadth (fore and aft, and athwart ship), and 4 or 5 feet in height. There was also a cistern for the water.*

SCRUBBING.—When cruising in low latitudes during warm weather many of the sperm whalemen deposit their blubber on deck, instead of stowing it away in the blubber-room. In this case the decks are infrequently washed when running the works; they are, however, "lippered up" regularly while boiling, for the sake of cleanliness and economy as well, it being desirable to save the oil which exudes copiously from the blubber. Except when whaling or boiling out, or when something of an extraordinary nature occurs to prevent it, the deck of the sperm whaler is scrubbed daily, Sundays excepted. Many of the southern right whalemen, instead of washing their decks, clean them by means of the ordinary scraper, a small triangular instrument with sharp edges and wooden handle, familiar to all seafaring men. There is always more or less fog on right-whale grounds, accompanied by a fine mist, called by some whalemen a fog-storm, since the water drips freely from the mast-heads, yards, ropes, and rigging, and rather gives the impression that the ship is in a state of profuse perspiration. During these light rains, the water being obtained from the cisterns of the clouds without manual labor, the decks are usually swept with brooms several times a day. After leaving the whaling grounds for the home port all right whalemen have a general scrubbing; many of them commence at the lower mast-heads and wash down, using lye and sand in abundance. On all whaling vessels the decks are well scrubbed after each fare has been boiled out and stowed away. A liberal supply of salt water is thrown on, and the scrubbing in the southern fishery is usually done with cocoanut brooms; the bulwarks are washed with lye made from the ashes of scraps, or perhaps with salt water and sand. Scrubbing the decks of a well-soaked blubber hunter in the lower latitudes is an ungrateful task, except in so far as the superficial filth is carried away, for the powerful rays of a tropical sun draws the oil from the planks and renders the condition of the deck almost as bad as before. In lippering up decks a man takes an oil scoop in one hand and the lipper† in the other, with which he brushes the refuse fluid into the receptacles and transfers it to the tubs.

Holy-stones, so extensively employed in the Navy, are seldom if ever used by whalemen. The latter rely solely upon their scrub-brooms and the calcined ashes of scraps for removing sperm oil, and upon the scraper for removing right-whale oil. Sperm oil in its natural condition when fresh may be washed off with comparative ease, but after being cooked it is removed with difficulty. Right-whale oil, on the other hand, has a tendency to glue up or gum up the decks—whence

* Godman.

† A lipper is a piece of thin blubber of an oblong shape, with incisions in one end for the men to grasp. The lippers best adapted to this purpose are cut from the posterior edge of the corner of the flukes, and sometimes pieces of the head skin are used. Sometimes a piece of leather may be used. Different vessels employ different utensils of this kind. A large metal ladle used for scooping up the oil from the deck is also called the lipper.

the name "right-whale glue" often given this kind of oil—consequently considerable labor and strong lye is required to wash it off. Humpback oil has the same effect, and should be treated in the same manner.

Some whalemen contend that it is bad luck to wash off the blackskin which has accumulated on the main-mast during the process of boarding the blubber, and indeed some of the old sperm whalemen will not permit it to be removed until the season is over. They will tell you that the presence of blackskin on the mast cannot possibly influence their catch of whales; that whales will be scarce or plentiful as the case may be, but they show that there is a discrepancy between their words and their actions by declining to remove the substance until a full ship is reported, or until the season is up. They contend that a mast patched with pieces of whale skin does not look so bad after all; on the contrary, their presence should be hailed as an emblem of industry and activity, and overwhelming proof that all hands have been hard at work. This is one of the whaleman's superstitions, to the influence of which he usually yields with becoming modesty and gracefulness.

7. THE HOMEWARD PASSAGE AND ARRIVAL.

MAKING THE HOME PASSAGE.—Should the ship be in the Pacific or in the Indian Ocean, very little, if anything, is done towards fitting the vessel for the home passage until "square away for home," and then it generally occupies nearly all of the passage, usually about three months, to get everything in ship-shape. The vessel now, it may be said, for the time being, loses her identity as a whaling craft, and becomes a carrier, and the captain is anxious to go into port with a clean and "smart-looking" vessel. The first thing to be attended to is the rigging, which is "set up" wherever needed. The *seizings are "squared" on the lower rigging; the rigging is "capped,"* "rattled down" (which expression signifies that it is "rattled up"), and finally "tarred." By this time, if the ship has "good luck," she may be in the Atlantic Ocean, probably well up to the "line," and, having been thoroughly washed, the crew, after cleaning the iron-work, get ready to "paint ship," including the outside (bulwarks), inside, and spars. This is usually done while running through the northeast trades. The mast-heads are manned during this time, unless the ship has her holds "chocked off," in which case it would not be necessary to keep the men on the look-out. As the ship nears the Gulf Stream it was formerly customary to "overboard try-works." When she strikes soundings all of the gear is taken out of the boats; the craft bundled up and stowed down overhead, care being taken to keep the gear of each boat separate. The boat sails are unbent, and, with the drags, *short-warps, lantern-kegs, boat-knives, hatchets, compasses*, rowlocks, and other smaller articles belonging to the boat are stowed away in a large cask and marked "boat-gear." The cutting-pendants in the mean time have been taken from the mast-heads. The craft is bundled up with canvas around the points. The boat-masts, paddles, and rudders are stowed on the afterhouse. The oars are usually left in the boats. The blubber-hooks, the cutting-falls, the blubber-tubs, &c., are stowed in the fore-hold.

A ship cruising in the Atlantic Ocean usually commences to fit up ship about a month before starting for home, tarring, rattling, and capping the rigging, but she waits until making her passage before she commences to paint. The spars, yards, and masts are painted while the sails are set, the crew taking advantage of a good "spell of weather" for the purpose. It often happens, however, as the whalemen express it, they "*get caught*," and are compelled to shorten sail before the paint has dried, which, as can be readily imagined, produces a very bad state of affairs.

The crews are always willing workers at such times, more especially if they have a good fare. "Getting home," an old whaleman tells me, "if a man has a home, from one of these voyages is the only real pleasant thing about the whole trip. The days of arrival have been the happiest I have ever seen."*

WETTING THE HOLD.—During the voyage it is important that the oil casks be kept wet in order that the hoops may fit tightly and remain intact to prevent leakage of oil. To this end the hose is brought to the hatches about three times a week and a copious supply of water is run down into the hold and deluges the casks. Sometimes in low latitudes the hatches are removed and water thrown down. The casks are also wet as soon as the hold has been stowed.

THE ARRIVAL HOME.—The return of a vessel is a signal for an animated scene upon the streets and docks of New Bedford. Perhaps a revenue cutter or some coasting vessel may sight the returning whaler off Block Island and convey the news directly or indirectly to New Bedford, or the vessel may bear down upon Clark's Point, particularly at night, before any one at her home port is aware of her proximity to the coast. The custom-house officials, who are always on the *qui vive* for arrivals, usually ascend the cupola of the building when an arrival is reported, and with marine glasses endeavor to recognize an old acquaintance in the vessel, whose identity can be established by certain peculiarities, which, to trained and familiar eyes, characterize every ship. The name of the vessel being known, her agent, or owners, immediately hire a tug and steam out to meet her, to hasten her arrival to the dock whence she sailed. Meantime the "sharks"—an immense school of them—which now consist of infitters, boarding masters, and cartmen, are among the most

* The following sailors' chanty for heaving at windlass has been forwarded by Capt. Amos C. Baker, Clark's Point Light, Massachusetts:

I thought I heard our captain say:
Good by, fare you well; good by, fare you well;
That to-morrow is our sailing day;
Hurrah, my boys, we're homeward bound.

We're homeward bound to New Bedford Town;
Good by, fare you well; good by, fare you well;
When we get there we will walk around;
Hurrah, my boys, we're homeward bound.

Heave away, my boys, heave away;
Good by, fare you well; good by, fare you well;
To-morrow is our sailing day;
Hurrah, my boys, we're homeward bound.

And now our ship is full, my boys;
Good by, fare you well; good by, fare you well;
We'll think of home and all its joys;
Hurrah, my boys, we're homeward bound.

With a flowing sheet we're homeward bound;
Good by, fare you well; good by, fare you well;
When we get there we can stand around;
Hurrah, my boys, we're homeward bound.

Its when you see those New Bedford girls;
Good by, fare you well; good by, fare you well;
With their bright blue eyes and flowing curls;
Hurrah, my boys, we're homeward bound.

When we are paid off, we'll have a good time;
Good by, fare you well; good by, fare you well;
The sparking of girls and the drinking of wine;
Hurrah, my boys, we're homeward bound.

We'll spend our money free when we're on shore;
Good by, fare you well; good by, fare you well;
And when its all gone we'll to sea for more;
Hurrah, my boys, we're homeward bound.

active and energetic. They are usually aware of the approach of the vessel before any one else knows of it; they can tell her name with greater ease and at a greater distance than any one else, and they always have the "smartest" and best-sailing sloop or schooner in the harbor. During the fall of 1882 I watched these maneuvers with a peculiar interest, and being myself a participant in the exciting scene in search of news and "curios" I was sometimes thrown rather too intimately in contact with them. It was to their interest financially to board every incoming whaler; it was to my interest as an investigator to be also among the first. Oftentimes I accompanied Capt. James V. Cox, the custom-house official, and again one of the reporters of the New Bedford papers, and sometimes I engaged a small boat with a Portuguese as a motive power. All of the boarding is done between Clark's Point and the dock. When the "sharks" stipulate for a vessel, they agree to pay a certain amount *pro rata*, and watching their opportunity their little vessel shoots rapidly alongside the swiftly incoming whaler, as the noisy little tug hurries it along; and without stopping, but upon the point of osculation, the "sharks" spring from the deck of their little craft to that of the whaler, and the boat that landed them, circling gracefully around like a bird upon the wing, makes a complete detour of the returning vessel, and shoots alongside her warf. The whalemen, many of whom are strangers to us and our customs, are idle spectators of the busy bustle of numerous little boats about them, their vessel being under snug sail and in care of the tug. The old hands know what to expect, but they cannot avoid it; and the new ones know not what to expect and have something to learn. All of them have packed their chests and tied their superfluous clothing in bags made of cotton duck, and both chests and bags are securely fastened with frequent turns of pieces of lance warp or whale-line. The men, leaning upon the bulwarks or main rail, gaze listlessly upon the little boats darting hither and thither; but the scene changes when the "sharks" swoop down upon them. One "shark" fastens upon a whaleman, another upon his chest of clothing, and a third upon his bundle; some exact promises for trade and others for board. The boarding-house keeper having induced a whaleman to sojourn at his house, marks its number and name of street upon the chest with a piece of chalk. Now the cartman comes in for his profit, which is 25 cents for every chest or bundle he conveys to the hotel, the sum being paid on the delivery of goods by the boarding-house keeper and afterwards collected from the boarder, for be it remembered that the whaleman under all circumstances foots the bills. The head cartman, therefore, who may be engaged by the "sharks," or a part of them, takes under his charge every package marked by the boarding-house keeper for whom he is working, all agreements having been previously made. A lively scuffle sometimes ensues; the "sharks" may show their teeth and snap at one another; sometimes there is a rough-and-tumble fight or a bitter war of words when plying their vocation, and even afterwards, for the defeated "sharks" generally evince their displeasure by abusing the more fortunate ones. At times a school of garrulous "sharks" may surround a pilgrim who has no knowledge of English nor of the manner of conducting matters upon the arrival of a whaler in an American port, but, amazed and confused by the surrounding incidents, in answer to perhaps a dozen calls upon him at once, not knowing what to say, he may nod assent to all, which the nearest "shark" takes in affirmative, and while "shark" No. 1 is searching for the chest, "shark" No. 2 may also approach the unfortunate and also receive a pantomimic answer signifying an unconditional surrender. Consequently, when number one returns with a writ of *habeas corpus* in the shape of a clothes chest, number two enters a *nolle prosequi* with a clothes bag, and the result will be a lively passage at arms. But to the victor does not always belong the spoils, for a third "shark" steps in, while the other two are fighting, and carries off the boarder and his baggage. During these exciting times I usually pre-empted a convenient spot where I could see and hear, and, as soon as the battle of the "sharks" was over, and sundry piles of baggage and plunder lay about the field, I interviewed the crew for news and "curios".

THE WHALEMAN'S SHARE OR LAY.

THE LAYS.—As the financial matters of a whaling vessel are conducted on the mutual co-operative system, none of the men receive wages, but are paid a certain proportion of the earnings of the vessel, drawing in the mean time such supplies as they need, which are charged to them and deducted from their profits at the end of the voyage when settlements are made. This system originated with the Dutch, in the early part of the seventeenth century, when they reorganized the Greenland fishery, in the interest of economy and efficiency, and it has ever been the basis upon which the settlements for whaling voyages have been adjusted in this country. The owners of the vessel provide all the necessary outfit of apparatus and food supplies and bear all the expenses of preparing the vessel for the voyage and of discharging the cargo on arrival home or for its transshipment from foreign ports. The shares, universally termed "lays," are the proportionate parts of the value of the cargo. "Short lays" are the perquisites of the officers, being graded according to rank, and are the most profitable; the "long lays" are received by the crew. The lays vary somewhat with the times, as well as at the different ports, and they also depend upon the disposition of the owners or agents of the vessels, and upon the abundance or scarcity of whalemen when the crew is shipped. The experience of a veteran whaling captain of New Bedford illustrates the system of lays, as well as the grades of promotion peculiar to whaling vessels. He says: "When I was a cabin boy in the old ship Messenger, a four-boater, I had the $\frac{1}{215}$ lay; the next voyage, before the mast, in the bark John Dawson, a three-boater, I had the $\frac{1}{165}$ lay; the next voyage, as boat-steerer in the same bark, I had the $\frac{1}{65}$; the next voyage, as third mate of the Awashonks, a four-boater, I had the $\frac{1}{65}$ lay; the next voyage, as second mate of the Stafford, a three-boater, I had the $\frac{1}{28}$ lay; the next voyage, as mate of bark Atlantic, a four-boater, I had the $\frac{1}{25}$ lay; the next voyage, as master of the A. R. Tucker, a three-boater, I had the $\frac{1}{16}$ lay, and the last voyage, in the same vessel, I had the $\frac{1}{14}$ lay. The captain sometimes receives as high as the 8th, 10th, and 12th lay, depending upon his experience, especial fitness for certain branches of the fishery, and the terms he can make with agents, and sometimes he gets a bonus besides."

The crews of San Francisco receive the following lays: Captain, $\frac{1}{12}$; mate, $\frac{1}{20}$; second mate, $\frac{1}{30}$; third mate, $\frac{1}{45}$; fourth mate, $\frac{1}{65}$; fifth mate and boat-steerer, $\frac{1}{65}$; boat-steerers, $\frac{1}{80}$; cooper, $\frac{1}{80}$; cook, $\frac{1}{120}$; steward, $\frac{1}{100}$; blacksmith, $\frac{1}{160}$; foremast hands (whalemen), $\frac{1}{165}$; and foremast (green), $\frac{1}{180}$.

Until within five or six years the agents charged the crew $12 to $15 each for loading the vessel and discharging the cargo, the work being done by outside labor. At the present time, however, the agents pay all expenses of getting the vessel ready for sea and of discharging cargo on her return.

While the oil is on the ship it is at the risk of the crew, but when it leaves the ship the owners of the vessel insure it for the benefit of the crew. Sometimes it is insured by the officers of the ship who are often large owners.

When a vessel is returning home with an amount of freight in addition to the regular cargo the crew may receive wages besides their lay or share in the voyage.

The following are the most common lays received by the New Bedford sperm whalemen:

The green hands in a four-boater get from the 180th to the 190th; in a three-boater from the 170th to the 180th. Those who have made a voyage would get in a four-boater about from the 160th to the 195th. The seamen get from 140th to 160th.

The cooper in a four-boater, if he has made one or more voyages and is a capable ship-keeper, would get about the 50th or the 55th lay, but if green, about the 75th. In a two-boater a competent cooper would get about the 45th lay and a green one about the 60th.

The steward in a four-boater would get from the 100th to the 150th, and in a three-boater the 30th.

The cook would receive about the same lay as the seamen, and, in addition, a certain percentage of the "slush."*

The boat-steerer or harpooner in a four-boater gets from the 75th to the 90th lay. If he is a "crack" man, and has "struck everything and never missed his chance," he would receive the 75th, if green about the 80th or 90th. In a three-boater a skillful harpooner would get about the 65th lay, and one less skillful the 75th.

The fourth mate gets about the 60th or 65th lay.

The third mate in a four-boater gets from the 45th to the 60th lay; in a three-boater, from the 38th to the 45th.

The second mate in a four-boater gets from the 30th to the 40th; in a three-boater, from the 28th to the 35th.

The mate in a four-boater gets from the 20th to the 25th; in a three-boater, from the 18th to the 23d.

The master gets in a four-boater from the 12th to the 17th and in a three-boater from the 10th to the 16th.

The men sailing from Provincetown receive shorter lays than the New Bedford whalemen. The vessels of the former port are of a smaller class, and instead of making extended cruises to distant points in the Pacific Ocean and the Arctic regions, make short voyages in the Atlantic, and consequently their outfits are not so expensive as those of the ships and barks of New Bedford, and the owners can afford to offer greater inducements to the crews.† Capt. N. E. Atwood, of Provincetown, kindly furnishes the accompanying data concerning the lays at this port.

The following is a sample of the lays paid by the owners to the officers and crews sailing from Provincetown in 1880:

Schooner Carrie W. Clark, 116.34 tons, three boats.			Schooner Clara L. Sparks, 95.76 tons, two boats.			Schooner Antarctic, 100.66 tons, two boats.		
No. of men.	Rank.	Lay.	No. of men.	Rank.	Lay.	No. of men.	Rank.	Lay.
1	Captain	10th.	1	Captain	10th.	1	Captain	10th.
1	Mate	16th.	1	Mate	12th.	1	Mate	12th.
1	Second mate	21st.	1	Boat-steerer	20th.	2	Boat-steerers	22d.
1	Boat-steerer	45th.	1	do	22d.	1	Ship-keeper	35th.
2	do	43d.	1	Ship-keeper	33d.	1	Steward	45th.
1	Ship-keeper	55th.	1	Steward	80th.	1	Cook	80th.
1	Steward	41st.	1	Cook	90th.	1	Seaman	100th.
1	Cook	80th.	1	Seaman	75th.	8	Green hands	140th.
2	Seamen	140th.	2	Seamen	90th.	1	Green hand	160th.
1	Seaman	125th.	1	Seaman	100th.	17		
11	Green hands	160th.	4	Green hands	120th.			
23			15					

* Various kinds of grease saved during the voyage in the galley. A sperm whaler will bring home perhaps four or five barrels of "slush," which are sold to soap manufacturers.

† The Provincetown vessels do not, however, bring in such large and valuable cargoes, but their trips are more frequent.

The profits of the whalemen have for many years been very uncertain. Many months may be spent in an unsuccessful cruise over many quarters of the ocean, and the vessel return home without a barrel of oil. Again, a voyage of short duration may result in very great success, and the officers and crew receive suitable recompense for their dangerous toil.

Among the most successful voyages may be mentioned that of the ship Envoy, which sailed in 1848. In a 55 days' cruise in the North Pacific this vessel secured 2,800 barrels of whale oil and 40,000 pounds of bone. This oil and bone was transshipped home, and a second cruise made, when 2,500 barrels of oil and 35,000 pounds of bone were secured. Including some oil purchased at a nominal price from a wrecked vessel, the profits of this voyage were about $138,000. The ship Corinthian sailed in 1862 from a four years' cruise, having secured a cargo valued at $275,000. In more recent years some profitable voyages have been made. The bark Alaska arrived at New Bedford in 1880, having taken 3,255 barrels of sperm-oil, the largest quantity ever secured on a single voyage. In 1878 the bark Adeline Gibbs made the remarkable find of 132¾ pounds of ambergris, which sold for $23,231.25.

As an example of the "hard luck" sometimes experienced by whalemen, Capt. Gurdon L. Allyn, a veteran sealer and whaler, who had made several successful voyages, tells me that he sailed from New London on the bark Tempest May 21, 1857, bound for Spitzbergen, with hopes of a successful voyage such as Scoresby and other early whalers used to make. On July 28 the Spitzbergen mountains were sighted, but no whales had been seen. "We crossed to East Greenland and after a month's unsuccessful cruising made sail for the Azores, which we reached September 8 without having seen a whale. Here we learned, much to our disgust, that the sperm whalers had been very successful. We cruised over the usual grounds, but the season being late we found none. We continued south, bound for the Indian Ocean, and on December 31 caught our first whale near the Crozette group." Captain Allyn continued his cruise from the Indian Ocean into the Southern Pacific, and thence to the North Pacific and Okhotsk Sea, but had little success. After three years' almost total loss of time the little oil secured was transshipped at Honolulu and the vessel turned over to another captain, but only after Captain Allyn, who was owner of the vessel, had suffered a loss of $7,000 by the voyage.