

Gresham Lecture

**Dr Bernard Stonehouse
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“The Greenlanders: Arctic Whaling”

3 October 2011
Museum of London

This afternoon starts our 2011 series of Mondays at One. As many of you are aware, Mondays at One attempts to sustain a theme across a series of lectures drawing on the expertise of guest lecturers. In the spring we'll be looking at the Lost Hospitals of London, but starting today, this autumn's series comprises four lectures on the Great Days of Sail. Professor Connell who, with Professor Cox, organises Mondays at One couldn't be with us today, and desiring someone with a nautical connection asked me to introduce the series. As many of you may know, my wife and I own and run the Thames Sailing Barge Lady Daphne in the hopes of keeping some of these historic trading vessels alive.

I'm very interested therefore in at least two of the forthcoming lectures, “They Live By Trade: Britain's Global Trade In The Great Days of Sail” on 10 October, and “Why Conserve The Cutty Sark?” on 17 October. But the more ignoble bits of sail and trade cannot be ignored and on 24 October we'll be hosting our fourth lecture, “Slavery, Ships and Sickness”, while today's lecture covers whaling.

What of today's lecture? Well, I've never been to Greenland, but I have some tentative connections to the arctic and to whaling. I've been to the arctic or near-arctic a few times, but have only sailed as far north as 60 degrees (the arctic starts at 66 degrees, 32 minutes) before cold induced a near mutiny by

my crew in the Shetlands near Unst – and that was in the summer - but that’s another story. I’m on firmer ground on whaling, as I’m involved with two organisations trying to help whales. The first is Ocean Alliance, founded by Dr Roger Payne, who popularised humpback whale songs in the 1960s and 1970s, and inspired my undying love of Kate Bush’s music. In November 2008 Roger presented a performance of “Sea Change” at Gresham College with his wife Lisa Harrow. My second organisation is the International Fund for Animal Welfare which co-hosted Sydney Holt’s challenging 2008 Gresham lecture, “Shall Future Generations Eat Fish Or Whales?”

Today Dr Stonehouse is going to help us explore our history. In 1576 the Muscovy Company was awarded a monopoly to kill whales. While the 35 tonne *Grace* of Bristol went to Newfoundland in 1594 to trade whale products with the Basque, it wasn’t until 1611 that the Moscovy Company’s first whaling expedition set sail. Whaling today seems repugnant and uncivilised to many, but Dr Stonehouse’s British Arctic Whaling website reminds us:

“Few today regret the end of British whaling; fewer still would want to see it revived or encouraged in any form. For all its products there are now reasonable alternatives, and most nations agree that whaling is no longer needed. This was not the case in the 16th to mid-19th centuries, or even in the early 20th century when British whaling finally ceased. To judge whalers of those times by standards of today makes no sense at all. If we seek to judge, we must in fairness know more of the circumstances in which they worked.”

Whaling, particularly in the arctic, was tough and dangerous, and many ships were lost. As a professor of commerce, I have to ask – why did people risk so much, what did they gain, why did they stop? To answer those questions and



Gresham Lecture Arctic Whaling

tell us about the circumstances in which whalers worked, would you please welcome Dr Bernard Stonehouse.



Monday 3 October 2011

The Great Days of Sail

The Greenlanders: Arctic whaleships and whalers

Dr Bernard Stonehouse

Scott Polar Research Institute, University of Cambridge,
And Maritime Historical Studies Centre, University of Hull.

This presentation:

1. Tells of the ships involved in British Arctic whaling from 1750 to the mid 19th century, and
2. Outlines how whalers worked, and how whaling contributed to the ports and communities involved.

We start with artwork in the collection of the Hull Maritime Museum, showing whaling ships at work in Arctic ice. British Arctic whaling began on a small scale in the mid-17th century. From 1749 it became a major industry, stimulated by government bounty of 40/- per ship ton. At its peak in the 1780s over 200 ships and 10,000 men were sailing annually to the Arctic from many ports, notably London and Hull: but Liverpool, Newcastle, Whitby, Yarmouth, Kings Lynn, Exeter, Ipswich, Aberdeen, Dundee and many other ports were also involved. Both men and ships were called 'Greenlanders' because they operated in Arctic seas immediately north and north-west of Britain, west and east of Greenland.

Greenland whaleships were generally ships of 250-380 tons burthen, typically 'cats'. 'Burthen' was a measure of capacity derived from the length and beam (breadth) of the ship: 'cats' were strongly built sailing ships with round bow and square stern, produced mainly in Northumbria and Yorkshire, and capable of carrying up to 600 tons of coal or general stores. They were about 30-35m long, 9-10m wide, three-masted and ship-rigged (square sails on all masts) or bark-rigged (square sails on fore and main masts, fore-and-aft sails on the mizzen mast. Among the ice floes, with most of the crew off hunting in the whale-boats, they could be managed by two or three hands. HM Bark *Endeavour*, which took Capt. James Cook around the world in the first of his three voyages, was a Whitby-built cat – now to be seen as an Australian-built replica.

To convert a cat or similar vessel to a whaleship required doubling the planking on bow and waterline, fortifying the ship internally against pressure with 12" square-section oak beams, adding one or more crows' nests (shelters for spotting from the main mast), and adding davits for slinging the six or seven whaleboats. A ship that cost £7500 in the late 18th century might cost about £700 to strengthen: it could still be used as a cargo or passenger carrier between whaling voyages. (£1 in 1800 would equal c. £80 today.)

The industry was for many years sustained by a government bounty, awarded to ships that met particular requirements. The bounty was intended to encourage an industry that would provide skilled deep-water seamen for the Royal Navy in wartime. To qualify, the ship, crew (including a surgeon), stores and equipment had to be passed as satisfactory by customs officers before sailing, to depart and return between prescribed dates, and to maintain a detailed log showing day-to-day positions, weather, activities including whales taken, and keeping a record of other ships encountered. The bounty scheme generated logs, muster rolls and other records that now – when we can find them – provide material for much of our research into the industry.

The bounty was first offered in 1733 at a rate of 20/- per ton, encouraging only a few London ship owners who were already involved. Raising it to 40/- in 1749 tipped the balance: a bounty of £700 on a ship of 350 tons would pay for converting a cat or similar vessel for whaling, or meet the fitting-out costs of a 3-6 months' whaling voyage. Paid irrespective of success, essentially underwriting the voyage, the 40/- bounty attracted ship-owners at many other ports.

Though introduced as a temporary measure, the bounty persisted, varied by Acts of Parliament between 40/- and 20/- from time to time. It was finally discontinued in 1824.

Overall some 37 British ports were involved in Arctic whaling, most of them east coast ports with facilities for handling ships in the right size range. Some that started in the 1750s gave up during the Seven-years' War (1756-63) when government contracts offered more certain profits, but returned to whaling afterwards. Total numbers of ships sailing to the Arctic fluctuated violently between years (e.g. fewer than 50 in 1780, more than 200 in 1784), due to recurring wars, bounty changes and other causes.

Whalers were hunting Greenland Black or Bowhead whales *Balaena mysticetus*, following them north in their annual migration through slowly-melting sea ice toward Svalbard east of Greenland, and to Davis Strait in the west. In the west some of the whalers eventually penetrated to Baffin Bay, where the whales had found the best feeding grounds and were fattest. The whalers pressed north through the pack ice, often in company with each other, putting their boats down when they encountered whales. The boats were manned by crews of six or seven, each including a harpooner, boat steerer, line coiler and oarsmen. The whales were harpooned, lanced, towed to the ships, and stripped of their blubber and baleen (whalebone). Blubber was stowed in barrels for processing in boiling yards back home. An average-sized whale yielded products worth c. £440, a large whale twice as much: 5-10 such whales made a good season's catch, 15-20 made small fortunes for all involved.

For Whitby, a small northern town with fishing and boat-building trades, sending 10-20 ships to the Arctic each year involved well over half the workforce of the town, afloat and ashore. As in many other small towns, whaling offered an alternative to the intense rural poverty of the surrounding countryside, employing four times as many men per ship and paying more than freighting voyages. It helped to keep rope-makers, carpenters, chandlers, butchers, bakers, farmers and other local tradesmen in business, and brought home much-needed development capital that helped to shape the town and add value to its environs.

Further reading:

Scoresby, William, Jr. 1820. *An account of the Arctic regions, with a history and description of the northern whale fishery*. 2 vols. Edinburgh, Constable. Reprinted 1969 by David & Charles Reprints. [A contemporary survey by an unusually well-informed whaler and scholar.]

Jackson, Gordon. 1978. *The British whaling trade*. London, A. & C. Black. [A precise and readable general introduction, putting Arctic whaling into context with world-wide whaling.]

Lubbock, B. 1937. *The Arctic whalers*. Glasgow, Brown, Son & Ferguson. [A journalist's approach to whaling – very readable, packed with information and anecdote, not always entirely reliable.]

Further information on Greenlanders and Arctic whaling can be found on the British Arctic Whaling website <http://www.hull.ac.uk/baw/bibliography.htm>.



3 OCTOBER 2011

THE GREAT DAYS OF SAIL – THE GREENLANDERS;

ARCTIC WHALESHIPS AND WHALERS

DR BERNARD STONEHOUSE

This lecture, the first in a series of four on the theme ‘The Great Days of Sail’, concerns the sailing ships involved in the British Arctic whaling industry during the late 18th and early 19th centuries. It tells of the ships that served the industry between 1750 and 1824, how whalers worked, and how whaling contributed to the ports and communities involved.

The whaleships

The presentation started with paintings of Arctic whaleships from the splendid collection of the Hull Maritime Museum, showing whaling ships at work in Arctic ice. This collection is well represented in the book ‘**The Hull Whaling Trade**’, by Arthur Credland, a former director of the Museum, which is listed in ‘Further reading’ below, and available from the Museum.

Ships illustrated included:

Swan: a former naval ship of 320 tons burthen, with unusually delicate lines, that sailed from Hull 1823-40.

Isabella: 382 tons, built in Hull 1813 and sailed as a whaler from 1824. Lost in the ice of Davis Strait in 1835.

William Lee: 367 tons, built in Hull 1831, sailed from Hull as a whaler 1831-36, then in general trade until lost in 1847.

Vienforth of Kirkcaldy, *Jane* of Hull and *Middleton* of Aberdeen, trapped in the ice of Davis Strait in November 1835. (*Middleton* was crushed and sank: *Vienforth* and *Jane* over-wintered, returning to port in February 1836.)

The ships, the boats and the men are in general painted very accurately, though the backgrounds may be fanciful, with seals, walruses and polar bears scattered more freely than they might have been in reality. The number of ships shown in the background of the first three pictures is not fanciful: whalers usually hunted in company, always in competition for the whales, but ready to help each other in difficulties or danger. Despite the real hazards of navigating in ice-filled waters, in over 9000 voyages to the Arctic, sound seamanship ensured that surprisingly few whaleships or men were lost.

The start of ‘Greenlander’ whaling

British Arctic whaling began on a small scale in the mid-17th century, based largely on small land-based stations in Spitsbergen (Svalbard), in fierce competition with whalers from the Netherlands and Hanseatic towns. From 1749 it developed into a major industry, stimulated by a government bounty of 40/- (£2) per ship-ton. At its peak in the 1780s over 200 ships and 10,000 men were sailing annually to the Arctic, notably from London and Hull, but also at different times from Liverpool, Newcastle, Whitby, Yarmouth, Kings Lynn, Exeter, Ipswich, Aberdeen, Dundee and many other ports. Both men and ships were called ‘Greenlanders’ because they operated in Arctic seas immediately north of Britain, when Svalbard was thought to be part of Greenland. Among the mariners of their time, Greenlanders were a race apart, working longer voyages than the merchantmen, in harder conditions, and usually with more money to spend when they came home.

The ships used were generally of 250-380 tons burthen, typically but not exclusively 'cats'. 'Burthen' was a measure of capacity derived by a simple mathematical formula from the length and beam (breadth) of the ship. A 'cat' was a strongly built sailing ship with round bow and square stern, about 30-35 m long 9-10 m wide, three-masted and ship-rigged (square sails on all masts) or bark-rigged (square sails on fore and main masts, fore-and-aft sails on the mizzen mast). Built mainly in Northumbria and Yorkshire, a cat could carry up to 600 tons of coal or general stores.

Cats were extremely versatile and accommodating. When carrying cargo in the North Sea and Baltic, they were sailed with a crew of 10-12. As whalers they carried 50-55, the extra hands to man the five, six or seven 8-metre long whaleboats from which they harpooned the whales. In calm weather among the ice floes, with most of the crew in the boats, a mother-cat could be steered by two or three – perhaps the master, the surgeon and the cook. As privateers, which some cats became in wartime, they might carry up to 100, including gun crews and boarding parties. Shallow-drafted and almost flat-bottomed, cats could enter small harbours and sit comfortably on sand-banks at low tide. Like every other sailing ship, they required no fuel: a cat could sail round the world – certainly to the Arctic and back – without using an ounce of fuel, beyond the coal needed for the galley stove.

Formerly very plentiful, these and similar small ships were doing the work of today's articulated lorries on the motorways – carrying goods from one end of the country to the other. Cats have long disappeared from the scene. When steam began to replace sail, the primitive engines and the fuel they required took up so much of the internal space that cats and other cargo-carriers of similar size became uneconomical. Londoners looking for a picture of a cat might visit the Wapping pub 'Prospect of Whitby': its inn-sign shows a cat in full sail. *Prospect* was a Whitby-registered collier with a regular coal-carrying run from Tyneside to London. I know of only one cat afloat today – a full-scale, Australian-built replica of HM Bark *Endeavour*. The original was one of two Whitby-built cats that took Capt. James Cook around the world in 1772-74 on his first voyage of exploration. The replica still travels the world under sail: I was fortunate enough to board her just a few years ago, appropriately enough in her namesake's original home port of Whitby.

However, cats were not the only whalers: almost any strongly-built cargo ship of similar size could be converted for whaling. Ships of less than 200 tons were too small to force their way through ice, and limited in the number of boats they could carry and amount of blubber they could bring home. Those of more than 400 tons were too big and too expensive to equip and man. Many of the ships brought into whaling during this period had been taken as prizes in one of the frequent wars, bought cheaply and strengthened. Conversion for whaling required doubling the planking with hardwood on bow and waterline, placing 12" square-section oak beams internally to fortify the ship against external pressure from the ice, adding one or more crows' nests (shelters for spotting from high on the main mast), and ringing the deck with davits to sling the whaleboats, ready in a moment for dropping into the water. A good ship bought for £4000 to £7000 in the late 18th century might cost about £700 to strengthen. (£1 in 1800 is roughly equal to £80 today.) A strengthened ship could still be used as a cargo or passenger carrier between whaling voyages. A Whitby or Newcastle ship that returned from the Arctic in August might fit in a run to the Baltic for timber, or several to London with coal, butter, wheat or barley, before being laid up for the winter.

The bounty

The Arctic whaling industry was for many years sustained by a government bounty, awarded to ships that met particular requirements. The bounty was intended to make Britain less dependent on oil imported from the American colonies or Europe, and encourage a home-based industry that would provide skilled deep-water seamen for the Royal Navy in wartime. To qualify for the bounty, the ship, crew (necessarily including a surgeon), stores and equipment had to be mustered, inspected and passed as satisfactory by customs officers before sailing. The ship had to depart before prescribed dates in early spring and return after set dates in summer (if they had not amassed a satisfactory cargo beforehand). The master was required to maintain a detailed log showing day-to-day positions, weather conditions, activities including whales taken, and to keep a record of other ships encountered. Thus the bounty scheme generated accounts, logs, muster rolls of seamen, and other paperwork that now provides the material for much of our research into the industry.

Sadly, the records are not easy to track down. Spread over so many ports, the industry had no single geographical focal point where records were gathered and archived. Many that ended up in government or port offices have been destroyed by fires, bundled off for recycling or neglected for want of resources. Some, we hope, are simply lost and waiting to be found. For example, from an estimated 9000 voyages to the Arctic made in the course of the industry, we have only about 250 logs or authentic journals, now scattered across the world. Fortunately many that are now overseas are available in Britain on microfilm or Xerox. Other records are held in the National Archives at Kew, in regional museums, and in such unlikely places as the library and archives of the House of Lords. Rounding up whaling documents for study is a painstaking, difficult and expensive task. I can only wish I had started twenty years earlier.

The bounty was first offered in 1733 at a rate of 20/- per ship ton, encouraging only a few ship owners, mainly from London, who were already involved. Raising it to 30/- during the war with Spain attracted little more attention. It took a

further rise to 40/- in 1749 to launch what then became a large-scale industry. A bounty payment of £700 on a ship of 350 tons was enough to convert a cat or similar vessel for the Arctic, or to meet the fitting-out costs of a 3-6 months' whaling voyage. Paid irrespective of success, essentially underwriting the voyage, the 40/- bounty attracted ship-owners at some 37 ports throughout the country.

Though introduced originally as a temporary measure, the bounty persisted year after year, constantly under attack by a Treasury that saw no reason to continue it once the industry was established, but supported by a strong parliamentary lobby intent on maintaining a naval reserve. Varying from time to time between 40/- and 20/-, it was finally discontinued in 1824. Though the bounty played a key role in starting Arctic whaling and maintaining it through the turbulent decades of the late 18th century, its demise had little effect on the small, relatively strong remnant of the industry that survived after the Napoleonic wars.

The whaling ports

The ports that became involved in Arctic whaling included some of the biggest, and many small fishing and commercial ports, mostly on the east coast, that could handle ships within the right size range. The southernmost ports involved were Dartmouth and Exeter, both small-scale but persistent. On the west coast Bristol, Liverpool and Whitehaven sent ships north for some years, but found trans-Atlantic trade in tobacco, slaves and other commodities more reliable. Along the east coast of England the major players were London, Hull, Whitby and Newcastle, the latter operating mostly from North and South Shields, with many smaller ports from Ipswich to Berwick playing minor roles.

Hull and Whitby, among the early starters in the 1750s, gave up during the Seven-years' War (1756-63) when government contracts offered ship-owners more certain profits, but returned to whaling soon afterwards and continued for many years. Subsequent wars affected whaling to one degree or another at almost every port. Increasing demands for oil encouraged the industry, naval pressgangs and enemy privateers were severe discouragements, and the government Transport Service provided a profitable alternative. Ships that continued whaling carried guns and sailed to the Arctic in convoy, sometimes under naval protection. Several were captured and destroyed by American or French privateers, who in critical years proved a greater menace than the Arctic ice.

Scottish ports were slower to start, and three on the west coast – Campbeltown, Greenock and Port Glasgow – soon transferred their ships to other ports with easier access to the north. But over a dozen east coast ports from Dunbar to Kirkwall took up whaling, several for just a few years, others much longer. Aberdeen, Dundee and Peterhead eventually became dominant, lasting late into the 19th century to supply local markets long after other British ports had given up altogether.

Total numbers of ships sailing to the Arctic fluctuated violently between years (e.g. fewer than 50 in 1780, more than 250 just four years later), due to recurring wars, bounty changes, market fluctuations and other causes. There was no central organisation of whaleship owners to determine policies or plan long-term strategies: indeed there can have been little communication or contact between the many ports involved. Each port operated independently: every owner decided each spring, probably on the results of the preceding few seasons, whether to send his ships whaling or find alternative employment.

The whales and the products

Arctic whalers were concerned almost entirely with one species – the Greenland black or bowhead whale *Balaena mysticetus*, which measured up to 20 m long and weighed up to 120 tonnes. Bowheads were slow-moving, placid animals, well endowed with fat and baleen (see below). They were relatively easy to harpoon from small boats, and conveniently floated when dead. Atlantic stocks of bowhead whales made an annual migration northward every spring and summer, gathering at the southern edge of the winter ice and pressing northward as the ice retreated. Pods or groups of whales travelled along leads, finding gaps in the ice that allowed them to surface and breathe. The melting ice released nutrients and minute oil-rich, shrimp-like animals that swarmed in millions. These were the food that the whales filtered through sheets of horn-like baleen ('whalebone') in their enormous, bow-shaped mouths – the food on which they fattened in the course of the summer. The resulting fat or blubber, and the baleen itself, were the main products of Arctic whaling. Both were highly valued in their time.

The whalers followed the whales northward through openings in the slowly-melting pack ice, toward Svalbard east of Greenland, and to Davis Strait in the west. Conditions varied considerably from year to year. In some summers the winter ice dispersed quickly in May or June; in others it remained almost impenetrable until July or August. Winds that controlled the movements of the pack ice were often more critical than temperatures in determining seasons that were favourable or unfavourable for whaling. Ships seldom became frozen into the ice during summer, but might well be crushed between shifting bergs or fields of floating ice, or caught between the remnants of pack ice and the land. Some of the most

profitable hunting occurred far north in Baffin Bay in late summer, where the whales had reached the richest feeding grounds, and had time and opportunity to fatten.

Pressing northward, the whalers moved often in company with each other, seeking and following the groups of whales. Artwork showing a dozen or more ships together, five or six whales spouting, and half a dozen boats hunting in the foreground, are not necessarily exaggerating. When whales were encountered, the boats were lowered, manned by crews of six or seven. Each crew included a harpooner, a boat steerer, a line coiler and three or four oarsmen. The boat approached a whale to within a few metres, close enough for the harpooner to hurl his harpoon with a light but strong line attached. If the harpoon struck, the whale was 'fast'. It might attack the boat; more often it would dive under the ice, or swim off with the boat in tow. The line coiler's task was to pay out the line – sometimes joining five or six lines each of 120 fathoms (c. 350 m), then borrowing more from neighbouring boats.

Eventually, perhaps after a few hours, the whale would lie exhausted at the surface. The boat's-crew approached again, this time to kill it, with long, sharp lances finding the heart or other vital organs. This was often a moment of danger, for an exhausted whale could recover enough to flip its tail and send a boat sky-high. Once it was dead, the whale had to be towed tail-first back to the ship, sometimes by two or three boats rowing for several miles against contrary winds.

Alongside the mother ship the carcase was stripped of its blubber and baleen, a skilled and dangerous business in anything but the calmest water. Taken aboard, the blubber was chopped up and stowed in barrels for processing in boiling yards back home. The baleen was stripped from the jaws, rough-cleaned, bundled and stacked. The carcase was left to drift away, to the benefit only of seabirds and sharks. An average-sized whale might yield 10 tons of blubber and half a ton of baleen. A large end-of-season whale might yield twice as much of both.

Back home the blubber was boiled to extract a clear oil worth anything from £30 to £50 per ton, used for lighting towns, houses and mines, lubricating machinery, processing leather and fabrics, and in many other applications. Baleen, cleaned and sorted into categories of different quality and application, was used where spring steel or strong, springy plastics are used today, from umbrella spokes to door locks and corsets, from brushes and brooms to upholstery. However trivial these usages may sound, baleen was a highly-valued industrial raw material, at times selling for more than ten times the price of the oil per ton.

In the early days of whaling, two or three whales were deemed a good season's catch. Later, when competition was keener, five or more good whales would be regarded as successful, while 15-20 could provide small fortunes for owners and master, and bonus pay for all hands.

The communities

In small coastal towns of mid-18th century Britain, shipping offered an alternative to the intense rural poverty of the surrounding countryside. Whitby, a small Yorkshire township was just such a community, with a harbour reasonably sheltered by stone-built piers, a population of about 6000, and a well-established position in fishing, boat-building, the manufacture of alum, and ship-borne trading both along the coast and across the North Sea. James Cook was perhaps the most famous of the many north Yorkshiremen who crossed the moors to Whitby, in search of better prospects than their home village could offer.

Whitby ship-owners were among the first to take up whaling in the 1750s. Some ships were the property of a single owner, others divided in 64th parts among groups of shareholders. To an owner or group who were prepared to take chances, whaling offered advantages over coastal trade – some unprofitable voyages (with losses cushioned by the bounty), balanced by possibilities of bonanzas paying better than a dozen freight runs. To masters and crews it offered more, employing four times as many men per ship, in voyages that provided berths for three to six months. Muster rolls show that seamen who took to whaling tended to stay in it, returning year after year with the most successful masters they could find.

Throughout the 1770s and '80s Whitby sent five, ten and as many as 20 ships to the Arctic each year. At its peak in the 1780s whaling would have involved over half the town's workforce on-board and ashore. Afloat, 15-20 ships employed some 750-1000 seamen for up to half the year – seamen who brought home Greenland levels of pay. Ashore, whaling was extravagant in its requirements, helping to keep rope-makers, canvas-spinners, sail-makers, carpenters, ship-repairers, painters, chandlers, butchers, bakers, farmers and other local tradesmen in business. Successful voyages brought home much-needed development capital that helped to shape Whitby and add value to its environs. A walk round modern Whitby shows some of the legacy. Slum clearance has cleared the seamen's and fishermen's cottages from around the harbour, but Georgian mansions built on the hilltops for owners and masters, and decent cottages in the old town – now gentrified for summer visitors – show how some of Whitby's whaling money was spent.

Though loss of the bounty in the 1820s removed a significant support, the Arctic whaling industry was already diminishing in response to changing market pressures. Cheap coal gas, mineral and vegetable oils, and substitutes for baleen gradually eroded every market for whale products. Among the major ports, whaling from Liverpool ended in 1823, from Whitby in 1834, from London in 1836, from Hull in 1843, and from Newcastle in 1849. By this time most other English ports had lost interest. During the second half of the 19th century just a few of the Scottish ports remained in profit, using larger steel ships with steam engines, hunting seals as well as whales, and supplying such special and constant markets as the Dundee jute industry. By the early 1900s they too abandoned the trade, and the last of the Greenlanders – both ships and men – disappeared into history.

Further reading

Credland, A. G. 1995. *The Hull whaling trade: an Arctic enterprise*. Beverley, Hutton Press.

Jackson, Gordon. 1978. *The British whaling trade*. London, A. & C. Black. Reprinted by in 2005 in an enhanced soft-cover edition. [A precise and readable general introduction, putting Arctic whaling into context with world-wide whaling.]

Lubbock, B. 1937. *The Arctic whalers*. Glasgow, Brown, Son & Ferguson. [A god journalist's approach to whaling – very readable, packed with information and anecdote, sources seldom revealed, not always entirely reliable.]

Scoresby, William, Jr. 1820. *An account of the Arctic regions, with a history and description of the northern whale fishery*. 2 vols. Edinburgh, Constable. Reprinted 1969 by David & Charles Reprints. [A contemporary survey by an unusually well-informed whaler and scholar.]

For further information on Greenlanders and Arctic whaling see the University of Hull British Arctic Whaling (BAW) website <http://www.hull.ac.uk/baw/bibliography.htm>.

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