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BREAKING THE ICE

A century after Amundsen's historic Arctic voyage, Alvo Martin and the U.S. Coast Guard retrace the explorer's frozen route

BY ROBERT GILLESPIE



A century after Roald Amundsen's 1903-06 voyage across the ice-packed top of the world completed the last link in the search for a Northwest Passage to the Orient, the Coast Guard icebreaker and research vessel *Healy* traveled the same route in 12 days.

Amundsen headed into the forbidding world of ice to pin down the location of the North Magnetic Pole (actually it shifts, we know now), but even as a youth he'd hankered to find the Northwest Passage. His search for the pole "was kind of a ruse to get up there," said Alvo Martin '51, who last August made his second Arctic cruise with the *Healy* in two years and his third to polar regions.

In the 21st century, almost 400 years after the first expeditions began the quest for a Northwest Passage, the thrill of adventure doesn't top the list of expedition goals. Four Northwest Passages have been charted, and most voyages of discovery these days conduct studies of subjects like seafloor biology, climate and ocean currents. Since the *Healy*'s maiden scientific voyage in 2001, the ship, able to carry oceanographers, geologists, marine biologists and meteorologists supported by the National Science Foundation, among others, has played a key

role in helping the U.S. Global Change program answer primary questions about Arctic ice melt and global warming.

Currently, the American Meteorological Society's *Journal of Climate* is reporting that NASA's satellite images show dramatic shrinking of the perennial Arctic ice pack. Scientists don't know whether this shrinkage is caused by natural climate change, by human activity or by some combination of the two.

Put simply, scientists aboard the *Healy* are studying global warming by studying ice. They want to discover what is going on in the Arctic climate, ocean currents and ocean bottoms.

Media people are eager to learn what the scientists discover, and cruises like *Healy*'s occasionally carry journalists, on a space-available basis, from *The New York Times* and other front-line publications. "I don't have that kind of clout," said Martin, a retired Atlanta public relations consultant who produced a documentary on The Weather Channel Network following his first voyage on the icebreaker in 2001, "but I had a deep interest in what they were doing. Amundsen's big thing was finding the North Magnetic Pole. Ours was mapping the seafloor."

For six weeks last July and August, before heading west from Thule, Greenland, and entering Lancaster Sound on the 1,500-mile transit of the Northwest Passage to Alaska, the *Healy* worked along the far northern tip of Greenland, sweeping the ocean floor with sophisticated Seabeam sonar to generate pictures revealing bottom relief, slope and depth contours. Mapping identifies continental shelves and ocean basins where currents interact and enables comparison with earlier sonar findings recorded by submarines operating in the Arctic Archipelago.

Martin boarded the ship in late August, at Thule, on the northernmost coast of Greenland. Two months earlier he'd been invited to the *Healy's* change of command ceremonies in Seattle and met up with former shipmates. "I was on the *Healy* having a nice time. Maybe I said to somebody that my L.L. Beans were packed and ready," he said. Nobody had to shanghai him for a second crack at the Arctic.

Heading west from Thule, the *Healy* continued mapping the seafloor and began initial studies of major freshwater fluxes that exit the Arctic through the Nares Strait and enter the North Atlantic between Greenland and Ellesmere Island. As the ship transited the Northwest Passage on its way to map the seafloor of the Bering Strait in the Chukchi and Beaufort seas north of Barrow, Alaska, naturalists "counted noses" of birds, seals, polar bears and whales for comparison by future investigators.

Even with a dozen oceanographers, geologists and biologists aboard ship, the *Healy's* mission was only partly scientific. The ship's transit of the Northwest Passage commemorated the 100th anniversary of Amundsen's voyage, a historic feat that invited Martin to write up comparisons of the two expeditions. The articles were available on the Coast Guard public affairs Internet site (www.uscg.mil/pacarea/healy under Northwest Passage).

"To help earn my keep," he said, he produced human interest stories about a region that "remains one of the least known places on earth." Amundsen's ship, for instance, the *Gjoa* (pronounced Ur'ah), was a 70-foot, 47-ton herring fishing boat carrying a crew of seven. Only with the help of a 13-horsepower two-cylinder steam engine was the vessel able to wiggle through ice floes in its voyage through the Northwest Passage. Compared with the fragile *Gjoa*, the *Healy* braved conditions a good deal less challenging. Powered by a 30,000-horsepower engine and built with an ice-crushing 1 5/8-inch steel skin, the 420-foot *Healy* displaces 16,000 tons, a heft that explains the ship's 29-foot draft.



The U.S. Coast Guard icebreaker and research ship Healy, during its Northwest Passage voyage. The ship can ram through ice eight feet thick.

"*Healy* can bust through ice four feet thick while steaming at a speed of several knots," Martin said. By backing and ramming, "you can punch through ice pressure ridges up to eight feet thick. She's really a tough nut."

Amundsen, a tough nut himself, was confined for three winters either on his boat or in Eskimo igloo villages. The doughty explorer turned out to be something of an ethnographer as he and his men lived like the native inhabitants. For one thing, they adopted Eskimo clothing, especially caribou skins. Martin's article recounts how Amundsen "once negotiated with an Eskimo for his caribou undergarments. The Eskimo was so flattered that he offered to immediately exchange the underwear he was wearing. The transfer was made in front of the Eskimo's entire family." The wife "showed complete indifference," wrote Amundsen, adding that he nevertheless "veiled my charms as well as I could."

The explorer lamented the near decimation of the bowhead whale species solely for the use of whalebone to reinforce women's corsets. Following his expedition, Amundsen wrote, "A ladylike figure is an expensive thing. . . . I think that, after my experience as a polar resident, I would vote in favor of dress reform."

During two winters on King William Island (today called Gjoa Haven), Amundsen formed The Society, whose object, Martin writes, quoting Amundsen, "was to taste 'all the productions of the land.' Arctic fox steak was deemed 'one of The Society's finest dishes.' Frozen caribou tongue 'which melted in the mouth' was another favorite." Typical fare included "frozen caribou meat and

salmon served with small squares of seal blubber. This might be topped off with frozen caribou marrow as dessert. The fat around seal flippers, cooked or warmed over a blubber oil lamp, got high marks from the explorers."

"It is an invaluable quality in a man on such an expedition," Amundsen concluded, "that he be able to eat anything."

The *Healy's* cooks offer fare gastronomically if not geographically worlds apart from Amundsen's. Martin serves up one day's sample menu, beginning with a breakfast of fresh chilled fruit, grilled eggs to order, bacon, home fries, French toast and fresh-baked cinnamon rolls. For lunch, shipmates dug into chicken fajitas, chuck wagon-blend vegetables, a nacho bar and salad bar. And for dinner the chefs presented beef Wellington, fried shrimp, oven-roasted potatoes, clubbed baby spinach and assorted desserts. The mess is open 24 hours a day to accommodate the visiting scientists and marine science technologists, who work around the clock when the ship is engaged in polar research.

Polar icebreaking was shared by the Navy and the Coast Guard from the end of World War II until 1966. The Coast Guard's *Polar Star* and *Polar Sea* entered service in 1976, and *Healy* was launched in 1997 and entered service in 2000. All three serve as scientific platforms, but the *Healy*, the largest and most sophisticated of the fleet, provides comfortable accommodations for the ship's crew of about 80, which includes pilots of its two helicopters and as many as 50 marine science technologists on any given voyage. It's rustic, Martin says, but automated to the hilt with navigation and propulsion systems and computer connections, including e-mail. Designed specifically as an icebreaker/research vessel, the ship is equipped with six bio-chem, electronics, meteorological and photographic science laboratories.

Scientists and crew alike apparently have time to read, however, including *The Hungry Ocean* and *The Lobster Chronicles*, nonfiction books by Linda Greenlaw '83. Greenlaw "is read very well" on the polar ships, Martin said. "It's a big name in Arctic circles."

Amundsen spent 19 months on King William Island making magnetic observations in the vicinity of the North Magnetic Pole. On April 6, 1909, the U.S. Navy's Robert Peary became the first to reach the geographic North Pole, and Amundsen, the North Pole conquest lost to him, headed to the Antarctic instead. In 1911 he became the first to reach the South Pole, edging out by a few days Britain's Robert Falcon Scott, who perished on the return.

Mention the South Pole and Martin is surprised to acknowledge that his first polar voyage—to the South Pole in 1948 as a 20-year-old Navy journalist—contrasted with his *Healy* expeditions almost as much as with Amundsen's.

"There were no satellites, of course," he said. "We operated by Morse code and sent stories back by shortwave radio to the States. The biggest story had to do with the chief cook cooking seal flipper for the crew. Food papers picked it up." Today, he said, "It's crazy. You can stand at the North Pole and cell phone home. Communication is a whole new game."

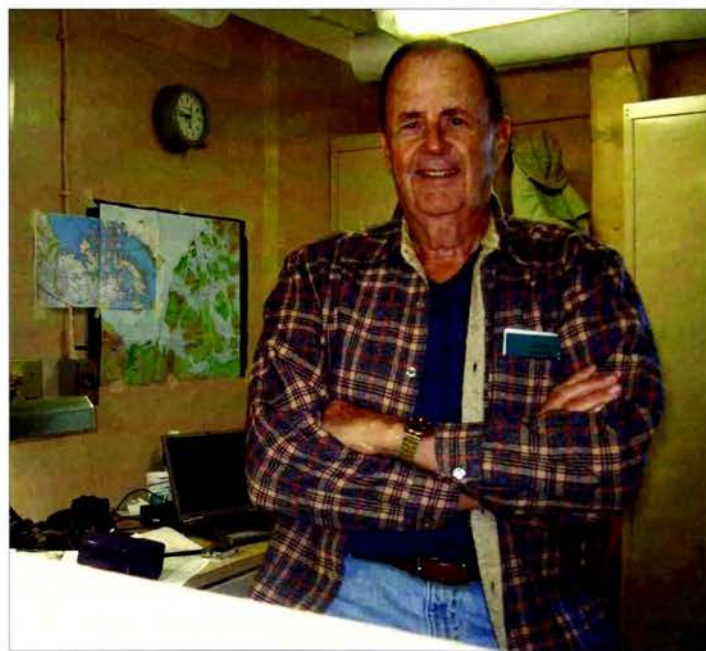
For nearly 50 years he hadn't reflected much about that first polar voyage, Martin says, but in the mid-1990s while on a business trip he visited the Arctic Center at the airport in Christchurch, N.Z. During the December to March austral summer, personnel and supplies fly from the Arctic Center to McMurdo Station, the largest year-round U.S. scientific base in Antarctica. From McMurdo, flights head to the Amundsen-Scott scientific base at the South Pole.

"I was smitten," Martin said. "An axiom about polar exploration: once you've been to a pole, you yearn to go back, if only to confirm what you saw there so spectacularly. It haunted me to go back. Images of icebergs, glaciers, seals, penguins." And mountain ranges, including the 12,000-foot Mt. Erebus, an active volcano at McMurdo Sound.

Those haunting images set Martin on a course toward the *Healy*.

Back in the States, he canvassed various branches of the National Archives and Records Administration in the Washington, D.C., area. Working by phone, fax and Internet, he got through to the Naval Historical Center, where he obtained logs and diaries from Operation Windmill, a 1947-48 expedition conducted by *Edisto* and *Burton Island*, two icebreakers in the Coast Guard fleet—Martin served on both—when they mapped half of the uncharted regions of the Antarctic coastline. From the Special Media Archives Services Division and U.S. Antarctic Resource Center he obtained photos of the expedition and the vessels, which penetrated the Antarctic ice pack dozens of times, landing geographers on the continent at a dozen geodetic sites hundreds of miles apart.

Martin's researches resulted in an August 2001 *Macon Magazine* article, "Captain Healy's Icebreaker." The *Healy* honors



Alvo Martin '51 aboard the *Healy*. Martin has traveled on two Arctic voyages as a journalist.



The Arctic icescape as seen from the deck of the Healy. The beauty of the Arctic still stuns explorers, though some of the region's mysteries have been unraveled through scientific study.

of the polar bear—has, to some extent, upset the feeding and reproductive regimes of this animal,” Martin said.

Norwegian scientists have produced a model indicating that if present trends continue, the Arctic may be ice free in summers by mid-century. “Others say this doomsday prediction is baloney,” Martin said. “The conservative side says change is natural. Is it natural or caused by us? Nobody is sure. But it’s definite: they all agree that things are changing.”

A report on Arctic warming published on November 1 in the American Meteorological Society’s *Journal of Climate* chillingly underscores the point that the perennial Arctic ice pack has shrunk. According to satellite data, the rate of warming in the Arctic between 1981 and 2001 was eight times the rate of warming over the last 100 years. During Arctic summers temperatures over sea ice increased by an average of more than two degrees Fahrenheit each decade. A team of Chinese scientists found that the thickness of the sea ice now averages 8.8 feet, down from an average of more than 15 feet in the 1980s.

“It’s on the alarmist side” of the evidence in the debate over global warming, Martin said.

At the same time, last November scientists in the Antarctic reported that two sections of the Larsen ice shelf collapsed in the past decade as currents of water deep beneath the surface melted

the floating ice shelf from below and surface meltwater running into crevices weakened the shelf’s surface.

As he reflects on “the alarmist side” of global warming, Martin notes a striking difference between the *Healy*’s scientific expeditions to the Arctic and his Antarctic voyage in 1948.

“In 1948 there was a disrespect for nature,” he said. “If there were penguins or seals sunning themselves out ahead of the ship, the quartermaster [helmsman] delighted in ramming the ice floes to try to knock them off. It was a deadly game because very often killer whales, the next notch up in the food chain, would be circling nearby.” The people driving the *Healy* display a different attitude and take great care to avoid disturbing “the locals,” Martin says. It’s not unusual for them to change course to avoid distressing a mother polar bear and her straggling cubs. “The reverence or respect for the biological environment is totally different now. We’ve become better citizens of the world, cautious, careful, considerate of the environment,” he said.

“Seldom have I been among . . . persons with greater respect for the environment, in this case a very hostile one. While unforgiving polar surroundings are undoubtedly reasons this crew is bound so closely, another is their dedication to exploration in parts of the world about which we have much to learn.”

Exactly. Because we have much to learn about the looming failure of the Larsen shelf within a century and the possibility of an ice-free Arctic by mid-century, scientists will continue to head off to the poles for answers—attended by journalists like Martin, who will follow in their wake to interpret the scientists’ discoveries.

If adventure in the frigid north is not high on the list of priorities on scientific expeditions, it still beckons. Despite the comforting advances of modern technology and accommodations, the challenge of navigating the icy maze of Arctic straits and channels still offers a facsimile of the hardships faced by Amundsen and his predecessors. Like the Russian tycoon who recently shelled out \$20 million for a ride in a space capsule, anyone who wants to go where few have gone before—anyone, that is, capable of forking over a cool \$20,000—can sail on a Russian ship from Spitsbergen to the North Pole.

“Ten days, five out and five back, and they’ll take you there,” Martin said, “assuming they can get through the ice.”

Assuming also that the ice to get through is still there.