THE NORDIC IMPRINT IN THE CANADIAN ARCTIC Part II

A Finnish Captain closes a very long chapter and opens another

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After 400 years of trying to find a Northwest Passage across the Far North of the North American continent, it took Roald Amundsen three years on the small ship Gjoa to make his passage, and many of the waterways he chose were too shallow to carry commercial ships. By contrast, a century later it took another Norse seafarer, Finnish Captain Matti Westerlund of the MSV Nordica, just 15 days to travel 4,000 deep-channel-miles from Dutch Harbor in Alaska to the city of Nuuk in Greenland from October 16, 2015 to October 31, 2015.

In their corporate press release about the achievement of their ships Nordica and Fennica, the Finnish company Arctia, in typical Nordic understatement, laconically summarizes a millennium of trial, effort, and countless tragedies attempting to prove the existence of, and successful crossing of the almost mythical Northwest Passage: "Finnish multi-purpose icebreakers MSV Nordica and MSV Fennica completed their voyage through the challenging late-season ice conditions of the Northwest Passage and arrived in Nuuk, Greenland on October 31st. This marked the first time Finnish icebreakers have sailed through multiyear sea ice in the sound of the NWP. Both icebreakers returned from their summer season ice management missions in the Chukchi Sea, off the coast of Alaska." Just another day at the office?

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The ice problem

There is a difference between the natural and the legal attributes of Canada, as with all of the other seven Arctic nations. There is a history to their development as nation states that we cannot ignore if we are to truly understand current events. Nowhere is this truer than in the Arctic, where the status and sovereignty of the indigenous people continues to evolve. The mass migration of Europeans to the New World brought two different civilizations into contact with each other, and the results varied from place to place, from conflict to cooperation. The Europeans brought superior technology, especially with weaponry. But in the Far North, as we will see over and over again, ice was the great equalizer.

The indigenous tribes had developed a survival culture for the extreme climate that was completely foreign to the Europeans, and the early Europeans either learned from them and adapted; or abandoned the area to the natives or perished. The vanished Viking civilization in west Greenland is a good example, but more about that in a future issue of this magazine.

The Far North is a geographical, not political, term and in Canada it applies to the area between the main landmass in lower Canada and the North Pole, and this area is comprised of 36,500 islands separated by innumerable waterways, many of which are too narrow or shallow to allow for large ships to pass through, and most if not all, of these waterways at certain times of the year are impassable due to ice, either sheet ice or pack ice. Some of these waterways are impassable most months out of the year due to ice. The thickness of the ice may be just a few feet to multiyear ice of 12 feet or more.

Pack ice is when sheet ice breaks into large floating slabs that bump and grind against each other, and moved by currents and tides in the water beneath, pile up onto each other into small hills and mountains of ice that fail to melt entirely in the summer and grow larger with each successive winter, but still floating on the surface. Some of this ice may have exceeded the size of some of the sailing vessels of the 19th and early 20th centuries. Many a ship and its crew vanished when they anchored for the night and nearby ice locked them into place and then crushed them like a vise as horrific pressure turned their ship into kindling wood. The unlucky crew would be plunged into dark water so cold death came within minutes, or at best were thrown onto the ice where they starved or froze.

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Since we are talking about the Northwest Passage, let's take a brief look at the political development of Canada. Our thanks to *Scandinavian Press* reader Richard Bennett from British Columbia, who shares this with us:

"The provinces and territories of Canada combine to make up the world's second-largest country by area. In 1867, three provinces of British North America—New Brunswick, Nova Scotia and the Province of Canada (which, on the formation of Canada, was divided into Ontario and Quebec)—united to form the new nation.

"Since then, Canada's external borders have changed several times, and the country has grown from the original four provinces to ten provinces and three territories. The ten provinces are Alberta, British Columbia, Manitoba, New Brunswick, Newfoundland and Labrador, Nova Scotia, Ontario, Prince Edward Island, Quebec, and Saskatchewan. The three territories are Northwest Territories, Nunavut, and Yukon.

"The major difference between a Canadian province and a territory is that provinces receive their power and authority from the Constitution Act, 1867 (formerly called the British North America Act, 1867), whereas territorial governments have powers delegated to them by the federal government. This means that while a change to the division of powers between the federal government and the provinces requires a constitutional amendment, a similar change affecting the territories can be performed unilaterally by the federal Parliament or government. Moreover, in modern Canadian constitutional theory, the provinces are considered to be co-sovereign divisions, and each province has its own "Crown" represented by the lieutenant governor, whereas the territories are not sovereign, but simply parts of the federal realm, and have a commissioner who represents the federal government."

Pack ice

Sheet ice

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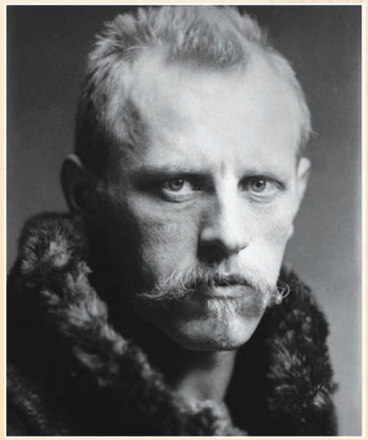
The USS Jeanette

A good example of this is the ill-fated expedition of the U.S. Navy Jeanette that sailed north from San Francisco towards the Bering Strait in July, 1879. Believing that certain warming currents from the Pacific passed through the strait and provided an ice-free water route to the North Pole, they quickly encountered ice conditions that worsened as they pushed north. By September 7, the ship got stuck in the ice and for 21 months the ship floated in a generally northwest direction at the top of the world, above Siberia, locked in place and moving randomly and erratically by the ocean currents beneath the ice. Imagine the sense of barely controlled panic and despair of a crew essentially under a house arrest imposed by nature as they drifted hither and about, backwards and forwards, towards no known destination, surrounded only by endless sheets of ice, a diminishing supply of food on board, and the encroaching long Arctic darkness. Almost two years from when they first set sail, on the night of June 12, 1881 the inevitable happened: the pressure of the ice crushed the ship. During that long, dark, and cold night the despairing crew offloaded provisions and equipment before the ship finally sank.

They had three small boats and supplies, which they loaded onto sledges, and which the men themselves then hauled across the ice, hoping to stumble across land and a settlement of indigenous tribal people. No sled dogs—human labor had to do. They did come across such a community in what is now called the New Siberian Islands, got food and rest, and then exchanged their sledges for their three boats for the next part of their return to civilization. Beset by a violent storm, the three boat parties got separated. One small crew found a native village and were rescued. A second boat capsized during the storm and all were lost. Of the third group, only two of the strongest men survived. The next spring of 1882 they went back and

The crew of the USS Jeanette abandoning the ice-trapped ship. Painting done in 1883 based on drawings of Captain De Long.

George Washington De Long, captain of the ill-fated USS Jeanette.



Norwegian polar explorer Fridtjof Nansen designed fortified ship, "Fram."

found the frozen bodies of their former comrades.

Polar drift

Incredibly, two years after that, on June 18, 1884 wreckage from the Jeanette was found on an ice floe thousands of miles to the east, on the southwestern coast of Greenland. This indicated there is a west-to-east current across the polar seas. This gave another polar explorer, Norwegian Fridtjof Nansen, the idea that a specially fortified ship shaped to prevent it from being crushed by the ice could intentionally sail into a pack of ice, inviting itself to be locked in place, and then just drift to the North Pole. To oversimplify, we could say, park the ship on ice and pass the time on board as best you can with observation and scientific measurements for several years, waiting for the ocean currents to take you to your destination.

A ship was actually built for this purpose, and Nansen led a failed expedition on the Fram from 1893-1896 to prove his theory. Later, this same fortified ship Fram was loaned to Roald Amundsen for his successful "discovery" of the South Pole (1910-1912). The Fram was an early precursor of an icebreaker, incorporating some of

Fortified ship Fram breaking through polar ice.

PHOTO: WWW.BESTTRAVELVIEW.COM

The Fram rests in the Fram Museum, in Bygdøy, near Oslo, Norway.

Polar explorer Roald Amundsen was loaned the Fram for his successful expedition to the South Pole, 1910-1912.

the basic principles of ships designed to survive hazardous voyages through ice fields. The Fram and Amundsen's earlier ship Gjoa and also Thor Heyerdahl's Kon Tiki are preserved in maritime museums in Bygdøy, near Oslo, Norway.

The Arctic still demands respect and extreme caution

What we know today about travel over and through ice has been learned at the cost of many lives and incredible suffering by people who knew the risks of exploration and did it anyway and passed on what they learned. Generations of men explored unknown regions, by sail, by sled, and by foot, and they charted, mapped, and measured coastlines, rivers, and landmasses and bequeathed this knowledge to those who followed.

Even with today's advanced technology, the Arctic is still deserving of great respect for would-be travelers and shippers. What was most remarkable about the brief voyage of the Nordica and Fennica was its daring timing, late in the season, when the waterways of the passage were freezing up again, and it gave the Finns a chance to display their confidence in their ships. Global warming notwithstanding, satellite photos indicate ice conditions are still severe and hazardous even in July and August, and passage by ships can never be taken lightly.

Due to a cold Canadian Arctic spring last year (2015), there was so much ice choking Frobisher Bay that even by the second week of July the Canadian Coast Guard icebreaker CCGS Pierre Radisson and the sealift cargo ships it was escorting sat nearby waiting for the weather to warm up and the ice to melt more before they could offload their resupply cargo to Iqaluit, the largest town (about 7,000 population) and capital of the territory of Nunavut. Iqaluit is about 200 miles south of the Arctic Circle. Depending on the weather, sometimes helicopters are sent out ahead of ships to better determine ice conditions. There are many smaller communities in the Arctic that are supplied by air or ship, and both of these can be and are limited by weather conditions.

There are seven routes that a ship can take through the Canadian archipelago, going either east or west. The route chosen will depend to a great extent on the size and ice capabilities of the ship, the time of the year, and current ice conditions. The Nordica and Fennica had made the Northwest Passage once before, crossing in 2012, but last year's crossing was by a different route, sailing directly into multi-year ice when entering the Passage from the Chukchi Sea.

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PHOTO: WWW.BESTTRAVELVIEW.COM

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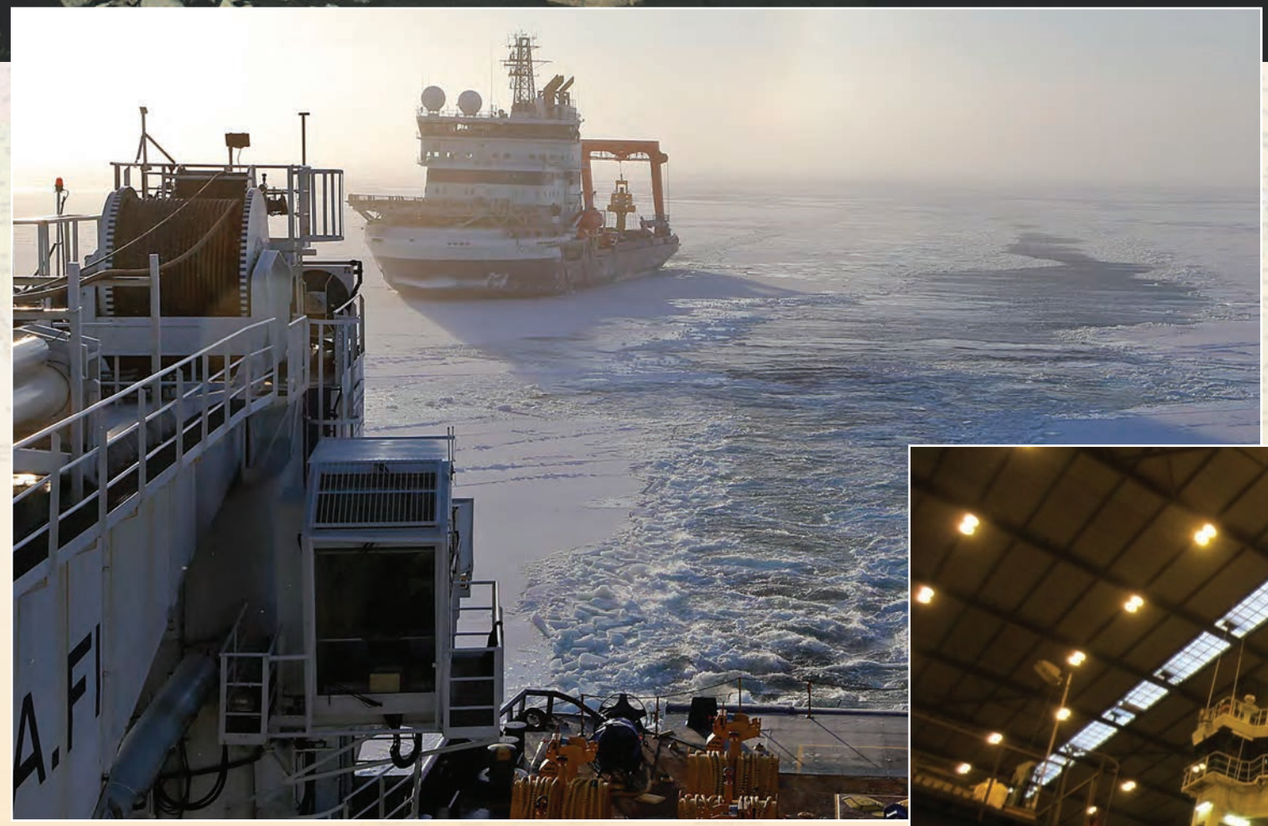
Ice management vessels

The fearsome conditions that awaited any mariners who sailed above the Arctic Circle still exist, and travel in the Far North remains extremely hazardous. Global warming may be melting some of the ice, but not equally in all areas, and may also be causing more violent storms and greater turbulence in the Arctic Ocean. But ice management can be a problem far south of the Arctic as well.

Take Finland, for example, which has no coastline above the Arctic Circle. A small country about the size of the greater Philadelphia area, with just 5.5 million people, it has 60 port cities in the south of the country, and it is vital to Finland's economy that at least a third of these ports be kept ice-free during the winter. So it may come as no surprise that Finland is a world leader in the technology, design, and manufacturing of icebreakers, those special-purpose ships designed to navigate ice-choked waterways, and to escort and rescue other ships attempting such transit.

Icebreaker technology has come a long way from the Fram. Today icebreakers look like a freak of the shipyard. Instead of a pointed bow designed to cleave through the open water at the highest speed possible, it has a spoon-shaped bow and a shallow keel. It is designed to ride up onto the ice and fracture it into pieces with the weight of the ship. The shape of the hull causes the ice to move around or under the ship.



Icebreaker technology has come along way from the Fram—Finland's sister icebreaker ships, Nordica and Fennica, wind their way through the ice.

If you have ever put your dry finger to the surface of ice, you know that it will stick to your finger. So icebreakers are also designed to be resistant to ice, for ice that bonded to the ship's hull could destroy its maneuverability in the water. So icebreakers often have multiple ballast tanks in their hold, abreast of each other, with powerful pumps that can move water from one tank to the next one to the next one, and in the process causing the entire ship to roll in the water, shaking off the clinging ice. Others have powerful water jets around the bow that shoot water and bubbles under pressure onto their own hulls, using water to shed ice.

Icebreakers need huge amounts of energy to power themselves as a maritime battering ram that charges at walking speed into exceptionally thick ice and powers itself right up on top of it. As the icebreaker crashes through the ice and moves forward, the loose pack ice follows and closes in behind it. Sometimes a cargo ship that has been freed by an icebreaker gets locked in again and has to be towed by the icebreaker to open water. The latest generations of icebreakers can move forward and backward with equal power. Typically an icebreaker can move through four to five feet of ice at a constant speed. An excellent video on how icebreakers function can be found on Arctia's website: http://arctia.fi/en/services/icebreaking/. The latest generation of icebreakers have as much as 75,000 horsepower.

Finland at the helm

Merchant vessels that routinely call on ports known for occasional or permanent ice conditions are also strengthened for ice during manufacture. They are not powerful enough to manage the ice conditions

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by themselves, however, and need to be escorted by icebreakers that open a route through ice fields for them to pass through. Icebreakers are often used as research ships by countries such as Argentina and South Africa, countries not usually associated with ice management needs. This is why many such vessels look like a ship with a small apartment building on the deck.

There has to be area available for cargo and scientific personnel on board.

There are about 100 icebreakers currently in use worldwide, and Finland claims that in whole or part it is responsible for the construction of over 60% of them.

Today, these icebreakers are very expensive. Both Canada and the U.S. require their icebreakers, as naval vessels, to be constructed by companies of their respective national origins. There is some discussion about looking to Finland to provide desperately needed new ships. While Congress is bandying around a price tag of one billion dollars for each, Finland's Arctia is talking a price tag of less than half that. The U.S. Polar Star, built by Lockheed in 1976 was recently refurbished at a cost of $90 million.

The voyage of the Nordica and Fennica last October through the Northwest Passage shaved 18 days and concomitant fuel, plus canal expenses off of the usual cost of traveling south from Alaska, past Mexico, and through the Panama Canal, through the Caribbean Sea and northward to Scandinavia. In the global economy, this could be worth far more than the tea and spices envied by 15th century European monarchs.

With a legacy of 1,000 years of Nordic record setting in exploration of the North American Arctic, how appropriate that the five Norse countries find renewed partnership with Canada, the U.S. and Russia in the Arctic Council to manage Arctic trade, transport, safety and rescue among other concerns. Out of a total of 4 million inhabitants of the Arctic, approximately 500,000 belong to indigenous peoples. Indigenous peoples' organizations have been granted Permanent Participants status in the Arctic Council. The past meets the future in the Arctic. Finland is set to chair the Council in 2017. A new chapter begins.

Nordica's Captain Matti Westerlund, right, and First Mate Harri Russian, at the helm.

Crew of the MSV Nordica, under the command of Finnish Captain Matti Westerlund, pose for a photo aboard the Finnish icebreaker while at Nuuk, Greenland. In addition to their excellent icebreaking characteristics, both Nordica and Fennica are well-suited to DP (dynamic-positioning) operations, towing merchant vessels in difficult ice conditions, and providing ice management services to the oil industry in Arctic areas. With the aid of winches, cranes and A-frames, the vessels can switch rapidly from one task to another. Thanks to Arctia's sizable investments, the ships meet all of the strict criteria and guidelines applying to offshore operations. Both vessels have decks reserved for passengers, including office premises with a local area network for workstations. Depending on the ship, accommodation capacity is 45 to 47 guests.

Russian nuclear-powered icebreaker, Rossiya, right, picks up an ice pilot from MSV Nordica. During the winter of 2012-2013, Rossiya was stationed in the Gulf of Finland.

John Bechtel is a professional freelance writer for the food, wine, and tourism industries; ghostwriting non-fiction books; and web content strategist for businesses.

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