

The *Fram*: Profile of a Famous Polar Exploration Vessel

On a site survey flight in late July 1978, our helicopter flew over a small protected cove opening out into Rice Strait facing Pim Island on the east coast of Johan Peninsula, Ellesmere Island. It was easy to see why Otto Sverdrup, captain and leader of the Second Norwegian Polar Expedition, chose to guide the *Fram* into this small harbour in the fall of 1898, away from the crushing pack-ice in Kane Basin and in preparation for their first over-wintering in the Canadian High Arctic. In Fram Harbour the ice quickly formed a land-fast connection with *Fram*, which settled comfortably into its role as winter quarters for the far-ranging expedition members. The role was a familiar one; she was designed and constructed for this very purpose.

In the annals of arctic exploration the fate of men became remarkably intertwined with the ships that served them both as a means of transportation and as a home during long, dark and very cold winters. It was not unusual for both men and ships to perish, a fact that, instead of discouraging other people, more often resulted in new ventures into the Far North. Such was the case with the loss of the *Jeanette* in the crushing polar pack north of the New Siberian Islands in June 1881, after having been trapped and drifting with the ice for about 21 months.

In 1884, Eskimos hunting off the south coast of Greenland found a number of relics from the *Jeanette* on an ice floe, including a provisions note written by its commander, De Long. The drift pattern of Siberian timbers and now the startling relics from the *Jeanette* convinced Fridtjof Nansen that a ship deliberately set into the grip of the polar ice pack

in the right place would drift with the ice over, or at least close to, the North Pole.

His plan for building a ship strong enough to withstand the massive ice pressures of the polar ice pack in a daring drift across the polar basin was first presented to the Norwegian Geographical Society in February 1890. Perhaps foreshadowing the eventual tension between Amundsen and Scott in their race for the South Pole, Nansen's expedition plans received harsh criticism from several members of the British Admiralty, notably from two impressive figures in arctic exploration, Sir Leopold M'Clintock and Sir George Nares. Nares declared the idea both impractical and foolhardy. This view was shared by M'Clintock, who had experienced an eight-month, 1200-mile, involuntary "ice drift" in the *Fox* during the winter of 1857-58.

The criticism, however, only served to further encourage Nansen, who could count many supporters, including another notable arctic explorer, Sir Edward Inglefield. Captain Otto Sverdrup, who had accompanied Nansen on the crossing of the Greenland ice cap in 1888, encouraged Nansen to contact a boat builder from the small town of Larvik, south of Kristiania (Oslo). The Scottish-born Colin Archer, then 58 years old, had been designing and building boats for 30 years and was best known for designing the lifeboats and pilot boats used by the Norwegian government. In 1890, Nansen, then 29 years old, contacted Archer with his plans for a boat that would be "strong as Norwegian granite," and the *Fram* was born.

She was massive indeed. The keel, which was 31 metres



The *Fram* being nearly crushed in the polar ice during the First *Fram* Expedition (1893-96). Photo courtesy of the Fram Committee, Oslo, Norway.
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long and protruded only 7 cm below the hull in order not to provide a grip for the pressing ice, was constructed of two hefty 35 x 35 cm timbers of American elm. She was double-ended and quite tub shaped in order to make her "slippery" in the ice. The bow was built of three sections of oak timbers, with a total thickness of 1.25 metres, and was further ice-strengthened with iron sheeting covered with iron "rails." The stem section was double-hulled and nearly as massive, being 65 cm thick and iron plated. A special well section was built into the stern so that the rudder could be pulled out of danger in case of ice jamming.

Nansen felt that the stern of a ship was the polar ocean voyager's Achilles' heel, and he insisted on strength above all else. The ribs were made of 30-year-old cured Italian oak and were covered with two layers of oak planking variously 7.5 and 10 cm in thickness. An outer "ice skin" made of 15-cm-thick green hearth-wood provided additional strength and protection. The Italian oak also provided the bedding for the original 220 hp triple expansion steam engine, which would consume $2\frac{3}{4}$ tons of coal in 24 hours while doing about 6 knots.

Overall, the *Fram* was 39 metres long, with a maximum waterline width (minus ice-hide) of 10.4 metres and a waterline length of 34.5 metres. When heavily loaded (800 ton displacement) she would draw only 4.75 metres, leaving a freeboard of 1 metre. The middle deck supports were placed just below waterline in order to gain maximum pressure strength, except over the engine, where the deck had to be raised. She was rigged by Christian Jensen as a three-masted fore-and-aft schooner, with a total sail area of 600 m². The crow's nest, so essential for ice navigation, was situated 32 metres above the waterline. Initially the quarters consisted of a main salon, four single cabins and two four-man cabins. The deck planks were 10 cm thick and the floor, walls and roof of the living quarters were well insulated with reindeer hair, felt and linoleum. Electricity could be generated through engine, wind or hand power, and she carried eight life- or ship's boats, including one motor-driven vessel. Fully loaded she could carry provisions for 13 men for five to six years.

The construction of *Fram* took approximately 18 months at a cost of about 250 000 Norwegian kroner. Funding was obtained by Nansen from a variety of sources, including the Norwegian government and, surprisingly enough, from the British Royal Geographical Society. With King Oscar, of Sweden and Norway, as a strong supporter of the project, the quest for private funding was greatly facilitated. Particularly outstanding in their moral and financial contributions were Nansen's good friends Axel Heiberg, the Ringnes brothers and Thomas Fearnly. On 26 October 1892, Nansen's wife, Eva, christened the *Fram*, while thousands of onlookers admired the already well-publicized ship.

On 26 June 1893, Colin Archer proudly bid farewell to *Fram* and her crew of 13 as they set out on the first epic voyage; the Norwegian North Pole Expedition was under way. For most of the men the vessel would not only be their home for the next three years but would constitute their only safe haven in the most severe environment imaginable on earth — the moving, thrusting and crushing ice pack of the polar ocean. Heading eastward through the Kara Sea, they soon encountered the first test of strength between the ice and the ship and eventually became locked in a frozen grip at about

79°N, 133°E, less than 500 km from where the *Jeanette* had sunk. By mid-December 1894, at 82°30'N, the crew could celebrate "farthest north," and eventually the ship reached 85°57'N. But this was not just a striving to reach a geographical point on the globe; this was very much a scientific venture, with the *Fram* serving as a floating observatory, as she would again on subsequent expeditions.

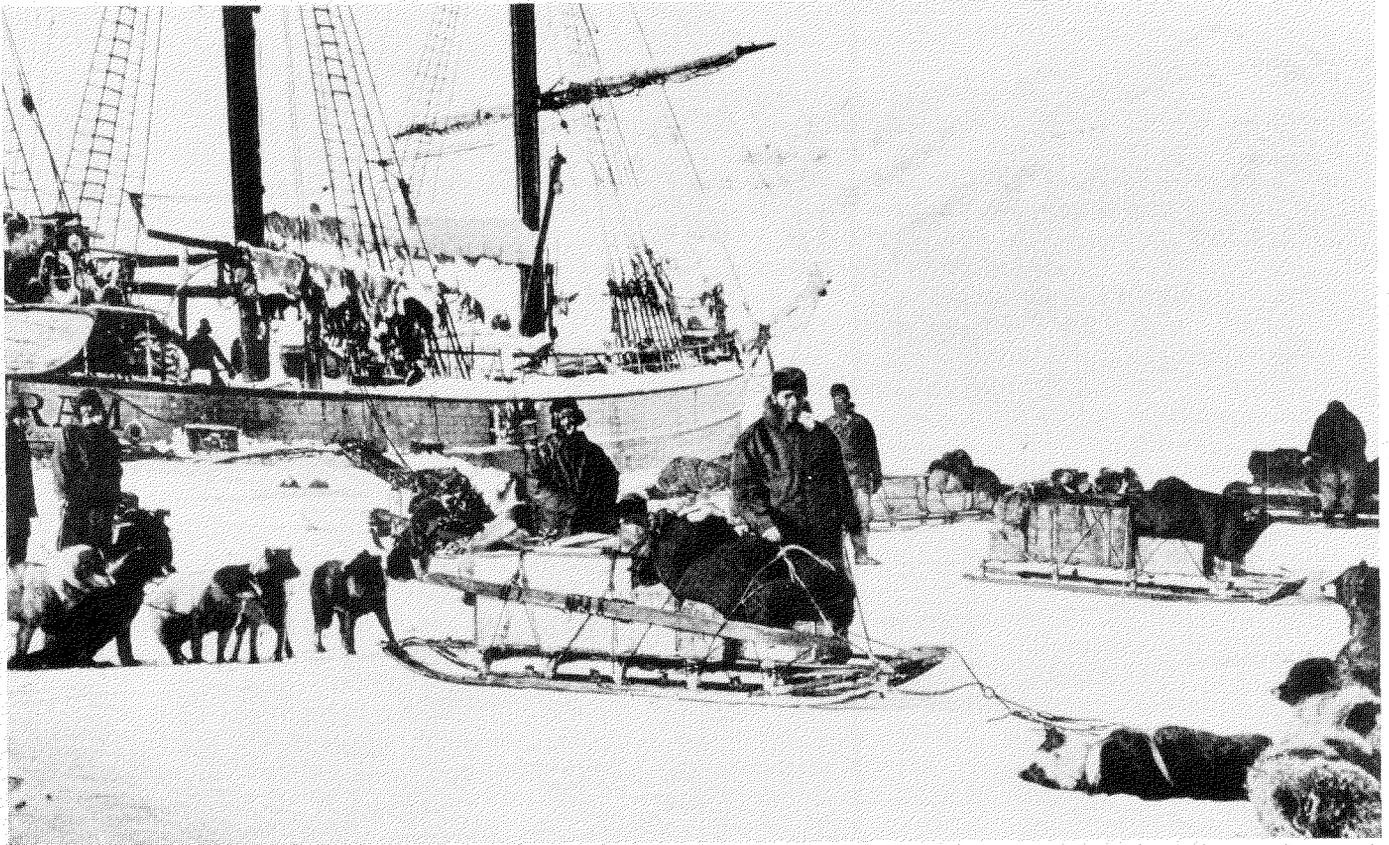
Colin Archer's design and construction was put to severe tests on many occasions during the drift. At times, the noise from the crushing ice was so loud that people couldn't hear each other inside the salon. On 4 and 5 January 1895, in tremendous pressure, with 10-metre-thick ice trying to crush the vessel, preparations were made to abandon ship — but Archer had done his job well and the *Fram* gradually rose out of danger.

Realizing that the drift would pass south of the Pole and becoming very restless with the dreadfully slow progress, Nansen decided to leave the ship and strike for the Pole. On 14 March 1895, he and Hjalmar Johansen left the ship with three dog sledges, 28 dogs and two kayaks. They managed to reach 86°14'N, but realized at that point that if they were ever to get home alive they would have to turn back. Their remarkable return journey included a wintering on Franz Josef Land and a most fortuitous meeting with the English explorer Frederick Jackson, who brought them back to Norway. Meanwhile, the *Fram* continued her drift with Otto Sverdrup in charge until, more than 1000 days after being driven into the polar pack near the New Siberian Islands, the ice finally released her on 13 August 1896, the same day that Nansen and Johansen reached Norway.

The *Fram* was not to remain in safe quarters at home for long. Soon after their triumphant return to Norway, Otto Sverdrup received permission to organize and lead a new scientific polar expedition. The original plan was to navigate the *Fram* northward through the Kane Basin, Kennedy and Robeson channels, as far north as possible before establishing winter quarters. From there, field parties would make sledge journeys along the north and northeast coasts of Greenland. Once again, Axel Heiberg and the Ringnes brothers provided funding to equip the expedition. The Norwegian government allocated 20 000 Nkr for necessary alterations to the now famous ice ship. Naturally, Colin Archer was contracted to make the changes, including adding a 38 cm false keel, which would make the *Fram* more seaworthy in heavy seas, yet would be easily separated from the hull in case of ice jamming. More cabin and work space was added and the freeboard was raised 2 metres. It is remarkable that, following the three-year ordeal in the polar pack, nothing on the ship had to be renewed.

On St. Hans' day, 24 June 1898 (the same departure day chosen for the polar drift voyage), heavily loaded with equipment, supplies, animals and people, the *Fram* set out on what was to be a remarkable four-year voyage of discovery and exploration in the Canadian High Arctic. The names of Sverdrup, Baumann, Isachsen, Bay, Schei, Svendsen, Raanes, Stoltz, Lindstrom, Fosheim and Archer denote prominent landmarks in the Arctic Islands that under different circumstances could have become part of the geography of a Norwegian territory.

Once again *Fram* served not only as a safe means of transportation but as a warm, secure home. Snug in *Fram*



The *Fram* in winter quarters, April 1901, at Goose Fjord, southwest coast of Ellesmere Island, during the Second *Fram* Expedition (1898-1902). Photo courtesy of the Fram Committee, Oslo, Norway.

Harbour, the Norwegians must have been struck by the difference in their circumstances as compared to the unfortunate members of the Greely expedition, most of whom slowly starved to death through the spring of 1884 in their cold stone hut on Pim Island, only about 10 km to the east. While *Fram* was in winter quarters in Fram Harbour, Peary, who was wintering on board the *Windward* about 75 km to the north, was no doubt disturbed by the presence of the Norwegian expedition. There was little reason to feel threatened; Sverdrup's was a scientific expedition, not preoccupied with the attainment of the North Pole.

Fram wintered in three places on Ellesmere Island between 1898 and 1902: Rice Strait, Harbour Fjord and two winterings in Goose Fjord. During the four years the expedition suffered its share of tragic and dangerous episodes. As fate would have it, two expedition members would not return to Norway on the *Fram*. The doctor, Johan Svendsen, age 33, died on Knud Peninsula in the spring of 1899 and was buried in Rice Strait. Ove Braskerud, at age 27 one of the youngest members of the expedition, died in the fall of that same year on the south coast of Ellesmere Island. The greatest moment of danger for the ship came not from the ice but from a fire that almost raced out of control on Sunday, 27 May 1900. The fire destroyed the deck tent, dry planks and the kayaks and nearly engulfed a 200 l tank of alcohol. It was extremely lucky that enough water could be scooped up from the sides of the ship to douse the fire.

After an unsuccessful attempt to escape the grip of the

fast ice in Goose Fjord in 1901, the *Fram* finally broke free on 6 August 1902. She carried with her back to Norway 53 boxes of scientific specimens, 50 000 plants and 2000 jars of organic specimens. The expedition members had explored and mapped about 300 000 km² of territory in the Canadian High Arctic. Nearly 60 000 people were on hand in Kristiania (Oslo) when the *Fram* returned. Among them, naturally, was Colin Archer, who could observe his masterpiece with quiet pride. Sverdrup spent the next 30 years fighting for possession of the High Arctic on behalf of the Norwegian crown. In 1933, only a few weeks before his death, the Canadian government finally decided to pay Sverdrup \$67 000 in compensation for expenses associated with the expedition's work.

After the return from the Canadian Arctic there was to be a longer period of rest for the aging ship. During this time Peary claimed the North Pole and Amundsen navigated the *Gjoa* through the Northwest Passage. Amundsen, who perhaps enjoyed the sensation of discovery and geographical attainments more than scientific investigations, had his hopes of being first on the North Pole dashed by Peary's claim of 1909. He began to formulate his own plans, which were shrouded in great secrecy for over a year. Central to his plans was the use of the *Fram*, which was now given a new 360 hp diesel engine and some needed repairs and minor alterations before setting out on what was to be her last major voyage.

On 10 August 1910, she supposedly headed for the Bering Sea via Cape Horn. Not until the departure from Madeira did Amundsen reveal to the crew their true destination —

the South Pole. On 14 January 1911, *Fram* reached the Ross Sea and finally made fast to the great ice barrier rising 30 to 40 metres out of the sea. The polar expedition members, tons of equipment and food, a prefabricated hut and 116 dogs were unloaded on the barrier, all in preparation and support of five men's quest to be the first people ever to set foot on the South Pole. On 14 December 1911, Amundsen, Hanssen, Bjaaland, Hassel and Wisting reached that goal well ahead of the doomed British expedition led by Robert Falcon Scott.

While Amundsen and his men were striving to reach the South Pole, the *Fram*, under Captain Nielsen, spent 20 months carrying out an impressive oceanographic research program in the often rough seas between Africa and South America. She now had the added distinction of having reached farthest south as well as north. Although not sea-kind, she was certainly seaworthy. Even heavily loaded, the *Fram* could cover a distance of 150 nautical miles in a 24-hour period. The storms were numerous and often dangerous and icebergs were a common occurrence. On 9 January 1912 she returned to the barrier, and on the 25th, Amundsen set foot on her solid decks once again. After much small talk, Captain Nielsen casually remarked, "Well, you have naturally been to the South Pole?"

On 30 January, with the expedition safely on board, *Fram* departed from the barrier, heading for Hobart, Tasmania, to telegraph the historic results — then on to Buenos Aires, where she was docked for over a year.

In the history of *Fram* there now followed a series of events that broke the pattern of well-planned and executed expeditions. Amundsen embarked on a half-hearted attempt to reach the Bering Sea first through the Panama Canal and then via Cape Horn. Eventually these attempts were abandoned, and on 16 July 1914, the *Fram* was ordered to return to Norway, where a survey discovered dry rot in her timbers. Repairs were deemed too expensive and she was ignominiously hauled to a buoy. While the insanities of the First World War were played out on distant slaughtering fields, she too sat awaiting her own demise.

For years the once proud symbol of Norwegian Viking ancestry was left to deteriorate. It is interesting to note that Amundsen, still pursuing plans for a polar drift voyage, quickly abandoned the *Fram* and ordered the construction of a new vessel built much along the same lines. He even obtained permission from the government to strip away mast, rigging, boats, anchors and engine from the *Fram* for use on his new ship, the *Maud*. Recalling that Amundsen also left his Northwest Passage ship the *Gjoa* to rot in San Francisco, one must surmise that he had little emotional attachment to the ships that brought him fame.

It is perhaps not surprising that Otto Sverdrup was the person who in 1916 began the long struggle to save the *Fram*. Sverdrup enlisted the aid of the Norwegian Sailors' Association, and soon the government provided funding for

the badly needed restoration of the hull and the making of a miniature model of the ship. Amundsen was ordered to return some of the items he had removed, but nothing further was accomplished. In 1929 Sverdrup suddenly had to fight a serious attempt to have the *Fram* broken up. The Fram Committee was revived for the purpose of restoring the ship to her 1898 lines and to "put her in house."

Fate would not permit Sverdrup to see the completion of his efforts, as both he and Nansen died in 1930. It was now left to Sverdrup's friend, shipowner Lars Christensen, to continue with the restoration plans. The government gave the ship to the Fram Committee and in 1933 a ten-acre construction site was purchased near Oslo.

In May 1935 the *Fram* was towed to the site and slowly pulled up on a concrete foundation. In the final analysis it took the contribution of 3833 people, institutions and companies to provide the 252 000 Nkr needed to get the job done. Outstanding contributions were made by Knud Ringnes, Lars Christensen, Knut Domaas and Oscar Wisting, among others. On 20 May 1936, King Haakon officiated at the opening ceremonies of the "Fram House." The event was attended by members of the three *Fram* expeditions, as well as scores of polar explorers. On the eve of 4 December of that same year, Wisting, who had stood on the South Pole with Amundsen, entered his old cabin on board the *Fram*. He died quietly during the night in familiar surroundings.

Today the impressive old ship is joined by other vessels, including Viking ships and Amundsen's *Gjoa*, which was also rescued from the scrap heap. There can be little doubt that the person most responsible for *Fram*'s rescue was the strong helmsman who navigated her through some of the most severe conditions a ship could face. Otto Sverdrup and the *Fram* will always be remembered together.

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