

# Welcome to the New Land, *Draken Harald Hårfagre*

by Ingeborg Louise 'Vesla' Adie

This past spring, the largest Viking ship built in modern times set sail from Norway, bound for North America, following in the wake of Leif Eriksson and his crew who landed here more than 400 years before Columbus's time. *Draken Harald Hårfagre* reawakened in many Scandinavian-Americans the Viking spirit in their blood and inspired them to find out more about their heritage. Louise Adie, an Antarctic kayak guide with strong Norwegian roots, made five visits to *Draken* this summer and even discovered a long-lost cousin on the crew. Here, she shares what she has learned about *Draken Harald Hårfagre* and the traditions this modern-day Viking ship represents.

In the years 800 to 1200 AD—the Viking years and the beginning of the fabled Nordic Sagas—the village of Haugusund on the west coast of Norway was a hub of shipbuilding activity, supplying fishermen, explorers, traders, and raiders with heavily built seaworthy craft, from small coastal boats to mighty ships more than a hundred feet long. More than a thousand years later, a resurgence of shipbuilding was taking place in the region, when a group funded and headed by Haugusund native Sigurd Aase, a Norwegian oil and gas entrepreneur, set to work constructing the longest Viking ship built in modern times. *Draken Harald Hårfagre*, named for King Harald Hårfagre, the first King of Norway, was launched in 2012 with the goal of sailing in the wake of Leif Eriksson to North America.

It was not until the 1890s that scholars outside of Scandinavia began to appreciate a widened view of the strengths of the Vikings, recognizing their seamanship, artistry, and technological skills—and there was a lot to study. By the late 800s, there were more than thirty small kingdoms existing in Norway, and Viking colonies appeared throughout Greenland and Iceland. During this time period, the southern and western reaches of Greenland and Iceland offered a more temperate climate, where agriculture could flourish and rich fisheries right off the coast could support a new populace. Many of these settlements were established by that famous Norwegian explorer, Erik Thorvaldsson, better known as Erik the Red. His son, Leif Eriksson, followed his father's path at sea and led a Viking expedition that reached the North American coast around 1000 AD, long before Christopher Columbus set out from Spain for his western voyage to the Indies. In all, more than 470 small Viking settlements were established over the course of several decades, until the Little Ice Age of 1400 sent them fleeing.



ALL PHOTOS COURTESY OF DRAKEN HARALD HÅRFAGRE

*Draken Harald Hårfagre* off Greenland. The ship and crew left Norway on 26 April and made stops in the North Sea and North Atlantic before crossing the ocean to Newfoundland. This summer, she participated in the Tall Ships Challenge events at several ports in the Great Lakes, before downrigging for her transit through the Erie Canal to New York City. The vessel is wintering over at Mystic Seaport, in Connecticut.

Small replica Viking ships can be found in nearly every fjord in Norway, but the sheer size of *Draken Harald Hårfagre* signals the start of a new phase of exploration—the modern-day repeat of the famous North Sea routes that brought the Vikings to North America. But just how far did the early Vikings travel into the continent? A lot of speculation surrounds these early Norwegian forays to North America, and historians are not in agreement about the details. This expedition sought to prove the widely held notion that perhaps they reached as far west as Lake Superior, or at least that they had the ability to do so. *Draken* made it as far west as Green Bay, Wisconsin—accessing the Great Lakes via the St. Lawrence River—and after making port calls at Shetland, Faroe Islands, Greenland, Iceland, and Labrador.

The Vikings were remarkably sophisticated when it came to designing and

building these graceful, sturdy, and beautifully crafted longboats. With a shallow draft and strakes built up from a stout oak keel, even sizable Viking ships could maneuver up shallow rivers and be beached onshore without damaging the hull. The Norwegians' technologic expertise, combined with a long and rich shipbuilding tradition, allowed them to create formidable vessels, which boasted both an elegant design and seaworthiness to successfully navigate the open and treacherous North Sea.

To recreate a Viking ship in the 21<sup>st</sup> century, Aase's team researched accounts from the Norse sagas, studied archaeological remains of Viking ships, and tapped into the wooden boatbuilding tradition that still thrives in the region. The hull was built with axes, adzes, and augers, among other traditional woodworking tools, with more than 17,000 riveted iron fastenings.

SEA HISTORY 157, WINTER 2016–17

Viking ships are distinguishable by their clinker-built, or lapstrake, hulls, with each plank overlapping the one below it. Tar and woolen-fiber caulking created a strong but flexible bond between the planks to keep the hull watertight.

In an oceangoing wooden vessel of *Draken's* size, flexibility amidships is crucial, but too much movement can cause excessive wear and tear on the planking and potentially loosen the fastenings. At 115 feet long, *Draken's* designers aimed to strike a delicate balance to be sure she could handle the stresses of the open ocean. Sea trials in home waters gave them the opportunity to make adjustments to her hull and rigging. Her captain, Björn Ahland, noted, "Before we added extra reinforcement to the hull, we could see the amount of flex in the midsection, and it was disturbing." After these sea trials, shipwrights added crossbraces to her framing, reinforced her deck, and built up her bulwarks. "Now there is a small amount of flex, still visible, but it's down to just a few inches."

It took ten of Norway's best wooden boatbuilders twenty months to build the ship. After months examining the remains of the original Viking ships *Gokstad* and the *Oseberg*—each found in burial mounds in Norway—and studying the boatbuilding techniques used to construct Nordlandsbåt fishing vessels still in use today, naval architects narrowed their choices down to three designs. They built three small rep-



*Draken Harald Hårfagre* being built in Norway. This photo shows some of the laborious notches and curves that the shipbuilders had to contend with in her construction.

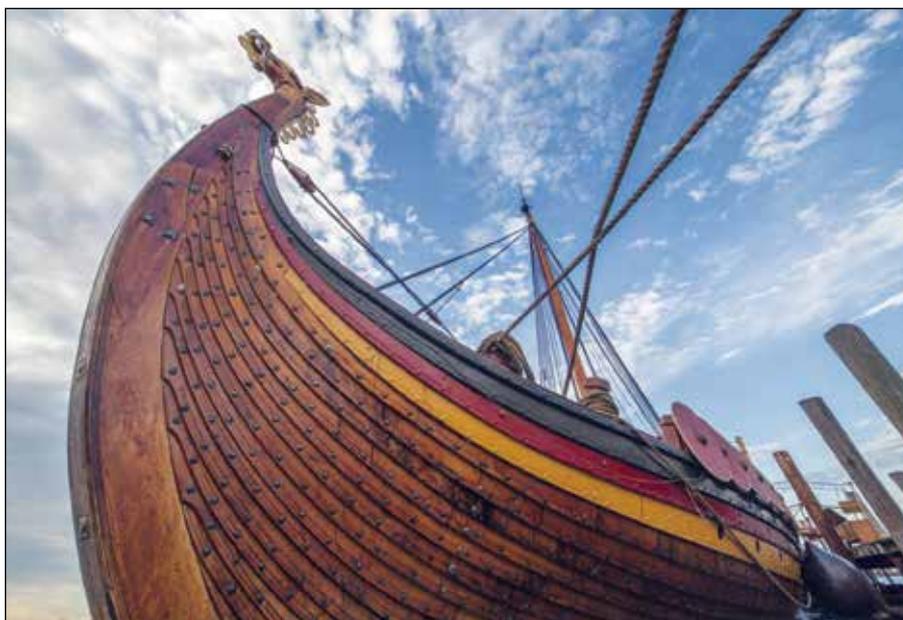
licas, each sixteen feet long, and conducted a series of tests and sea trials to settle upon a final design. From that experience, in 2009 they built a 40-foot version of one of the three for further sea trials. A crew of seven put to sea in the *Dragens Ving*, bound for the Shetland Islands, 190 nautical miles to the west across the North Sea. They didn't make it. Fifty miles from their destination, the one-third scale model swamped and sank in a gale and her crew had to be rescued by Shetland Coastguard helicopter. The team was undeterred; this

model would evolve into the final design, but with higher freeboard to keep green waves from breaking over the rail.

Construction began in 2010 in a cavernous warehouse on a tiny island off Haugesund. Oak timbers were brought in by barge, and work began in earnest. Traditionally, Viking shipbuilders used a variety of wood types in vessel construction; oak for framing was regularly used to take advantage of its natural curves and strength, but other wood types, such as pine and birch, were used as well. *Draken's* builders likewise used oak extensively throughout. The shipbuilders soon learned just how intense the job would become. The traditional Viking vessel has not a single straight line, and the ship's floors, frames, and planking had to be notched in multiple locations as it was fitted together. Fortunately, most of the shipwrights had prior experience building smaller versions of this type of vessel; although the scale was considerably larger, the techniques were not unfamiliar to them.

The size of an early Viking ship was determined by the number of rowers anticipated to be available in any given village. Rowing stations were sized by taking into account the height and girth of the typical

*Look at the number of riveted iron fastenings just in this bow shot.*



Viking warrior and his space requirements for leg length and arm reach. Longships carrying 100 warriors were not uncommon in the Viking heyday.

Most Viking ships sported dragonheads at their prows, and *Draken* is no different. The dragonhead was traditionally not installed until a ship was ready to embark on longer voyages; often they were detachable to safeguard them from damaging waves in the open ocean. Legend holds that the fearsome dragon would protect the ship and the crew from sea monsters, bad weather, evil creatures, and unforeseen raids. The intimidation factor played a part, too, when marauding and invading distant lands: the head was secured to the vessel's stem before going into battle or claiming/raiding new territory. The heads could be removed for travel, however, or when making landfall in a friendly place so that they did not scare the locals.

Students and instructors from a local folk art carving school carved *Draken's* ornate dragonhead. The ship's stern decoration is exquisitely carved as well, and even includes a tiny baby dragon tucked inside a curl of the tail. It's not visible from anywhere onboard the ship, but it can be viewed from outboard, either by boat or



from another pier when the vessel is tied to a dock. According to the chief engineer, Kristian Velle of Norway, much of the crew was unaware of the precious tiny dragon they transported all those months until a visitor pointed it out to them. Those who viewed the ship as it transited the Erie Canal and inland waterways of New York State last summer would not have seen the dragon at either end, as it was removed to navigate the many locks on the canal system, along with the mast, boom, sail and rigging.

Ballasting the ship after its launch took several days. A special chute was designed to allow the twenty-one tons of stone to be discharged into the bilge. About two-thirds of the ballast stones were loaded into the midsection of the open hull, with the rest going aft. Then, bucket by bucket, stones were added forward until the trim appeared right, as viewed from a boat several meters out from the ship. Stones continued to be schlepped around parts of the hull until all looked proper. Once *Draken* began sea trials, many of these stones were shifted aft when it was discovered that too much weight forward made it nearly impossible to tack under sail power alone.

In Viking times, the largest ships of the era were thought to travel five to six knots under oar power, and up to ten knots under sail. Once her trim and rig were properly tuned, her crew got *Draken* flying

along at a terrifyingly fast fourteen knots. Since most hands were uneasy with this speed, trial and error revealed that tucking in two reefs—and sometimes three in a strong wind—can reduce the speed to a more manageable nine knots.

According to the chief engineer, the ship now rides comfortably over and through the waves, seemingly cutting through the seas with its sharp bow, yet taking on spray, as it is a wide open boat. In high seas, sailing *Draken* is at best a discomfort and at worst dangerous, requiring that all hands stay on deck when the weather picks up, particularly in the North Sea. In making their plans to set out across the Atlantic in 2016, *Draken's* captain studied ancient Viking ship routes—as much as could be determined from both records and lore, modern meteorological studies, and old ships' logs to take advantage of the seasonal prevailing winds. It's a short window. April was determined to be the optimum time to depart; in May and June, the wind shifts to the south and tends to stay that way for months, which would have greatly added to their travel time.

In Viking ships, the steering oar was usually mounted on the starboard side aft. The term 'starboard' came from the use of this steering method: In Old Norse, the words *stýri* (rudder) and *borð* (side of a ship) were used to indicate the steering oar was on the right side (since most people were



*The tiny dragon carved in the stern "tail" section is only visible from outboard the ship.*



*Draken is ballasted with stones, which were loaded and shifted by hand.*

right handed). Coming about on *Draken* presented the crew with a surprise; the ship actually goes in reverse for several seconds as it comes through stays before settling onto a new tack and regaining forward momentum.

Sails in the Viking era were made from tightly woven wool; its natural lanolin served both as a water repellent and to reduce porousness in the cloth. *Draken's* naval architects went with silk, however, as they determined it is a durable and more lightweight fabric. They also liked that silk is a natural, organic, and ecologically sound material with superior tensile strength, when compared with steel yarn, for example. Like most natural-fiber sailcloth, it expands when wet but returns to its original size when dried, and it stores well. While the cloth may be lightweight, it is a 260-square meter sail bent onto a massive yard. It takes nine crewmembers on the windlass twenty minutes to nearly an hour to raise this beautiful red beast up the ship's single seventy-six-foot Douglas fir mast (its second—the first snapped east of Shetland).

*Draken only has one sail, but it's a beast at nearly 3,000 square feet and can take the better part of an hour to set. To reduce sail, it has multiple reeflines. It also has a bonnet, which can be added on to the foot of the sail to increase its sail area in light winds.*

*Draken's* rigging is from tarred hemp; traditional materials used in Viking ship rigs included horsehair and walrus hide. Indeed, when one approaches the ship from downwind, the smell of the tarred rig and caulking used on the hull is hard to miss.

According to one American gemologist, it's possible the Vikings used a coveted stone to find their way in Arctic waters. Steeped in ancient Nordic Sagas, these were simply called "sunstones." Their



use involved holding them up to the sky to determine location. *Draken's* crew, however, uses modern navigational instruments and methods.

I come from Norwegian stock, but I grew up knowing little about Viking mariners and their ships. Nonetheless, with Viking spirit surging in my blood, I came to a heightened awareness for this phase of Norse history. Since *Draken* arrived in the United States last summer, I had the pleasure of visiting her on five separate occasions, and it gave me the time and ambition to explore her many intricacies, too numerous to mention here. Visitors touring the ship or even seeing her from the dock can't help but notice the great care and artistry in every detail. The experience has given me a huge appreciation for the sophistication of these early seafarers, my ancestors. It is my hope that by reviewing these words, the reader will come to understand the depth of meaning behind this one simple phrase, found on the *Draken Harald Hårfagre* website: "The Vikings were accomplished navigators, artisans, traders and story tellers, but their greatest triumph was the ship they built." ⚓

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