THE ART OF THE DOUBLE PLAY P. 12 • MARCO POLO MYTHS P. 82

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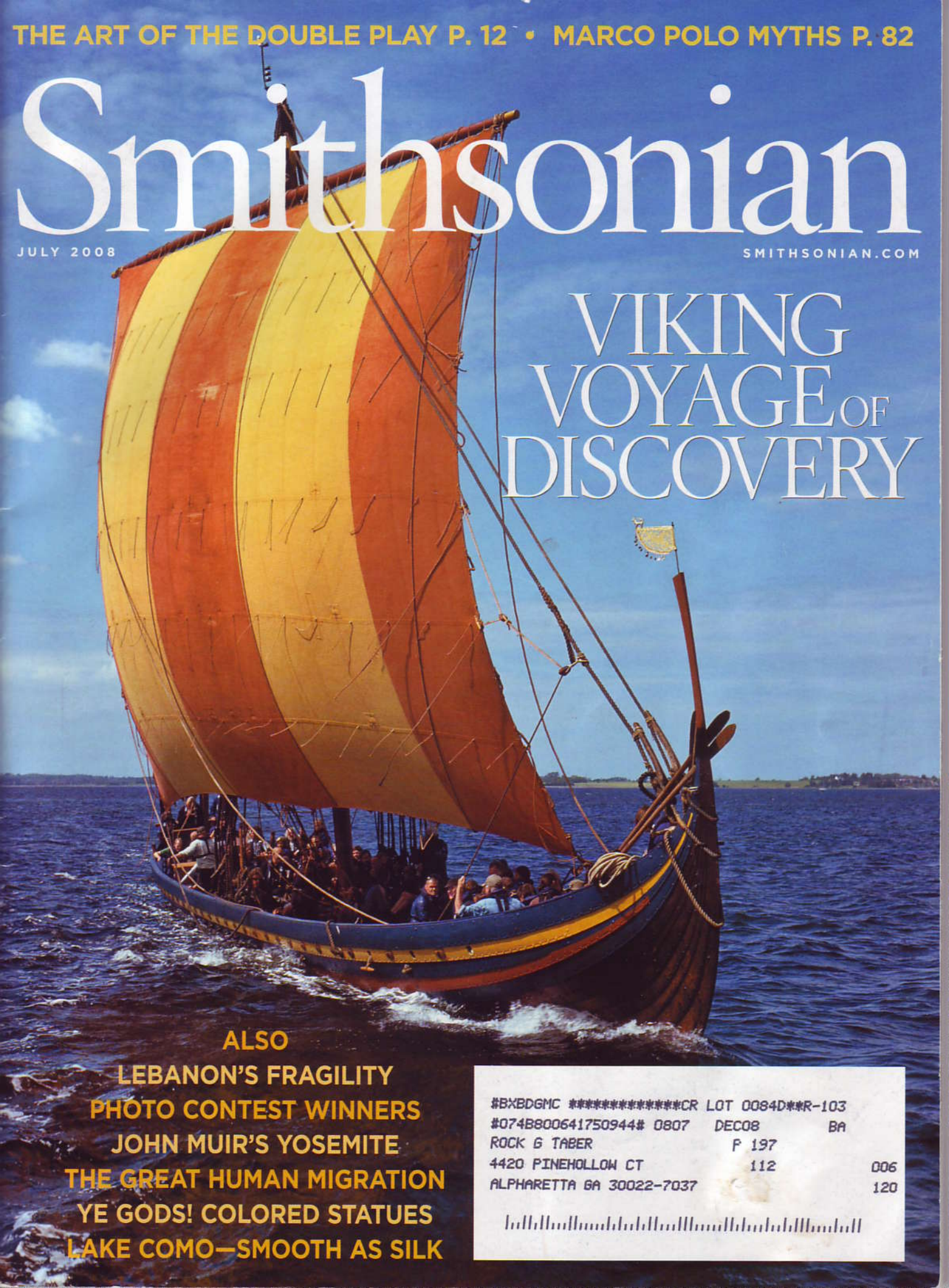

VIKING VOYAGE OF DISCOVERY

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LAKE COMO—SMOOTH AS SILK

From his bench toward the stern of the *Sea Stallion From Glendalough*, Erik Nielsen could see his crewmates' stricken faces peeping out of bright-red survival suits. A few feet behind him, the leather straps holding the ship's rudder to its side had snapped. The 98-foot vessel, a nearly $2.5 million replica of a thousand-year-old Viking ship, was rolling helplessly atop waves 15 feet high.

With the wind gusting past 50 miles an hour and the Irish Sea just inches from the gunwales, "I thought we'd be in the drink for sure," says Nielsen, 61, a retired geologist from Toronto.

It was August 6, 2007, and the *Sea Stallion*'s crew of 63 had been underway for five weeks, sailing from Denmark to Dublin on a voyage that would culminate 35 years' research—"the best living-archaeology experiment ever conducted anywhere," Pat Wallace, director of the National Museum of Ireland, calls it.

As Nielsen and some crewmates struggled to keep the *Sea Stallion* upright, four others went to work at the stern. Kneeling on the ship's heaving, rain-slicked deck, they hauled the 11-foot rudder out of the water, traded the broken leather straps for jury-rigged replacements made of nylon and reattached the new assembly.

Reducing the sail to a minimum, the crew sailed on at nine knots. As the ship plowed from wave to wave, a full third of the *Sea Stallion*'s hull was often out of the water. Ahead lay the Isle of Man, 15 hours away.

PP. 24-25 CARSTEN SNEJBJERG / WPN

After a nine-month stay at the National Museum of Ireland, the *Sea Stallion* is being readied for a return trip to Denmark, scheduled to begin June 29. In the meantime, researchers have been poring over reams of data from last summer's voyage, gathered from electronic sensors on the ship, to learn more about the Vikings' sailing prowess. Their findings will follow a host of discoveries in recent years by historians, archaeologists and even biologists that have led to a new understanding of the Vikings as a people who were as adept at trading as they were at raiding.

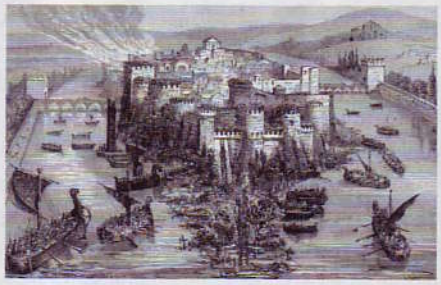
Norsemen have been seen as intrepid seafarers and fierce warriors—a sort of Hell's Angels of the early Middle Ages—since A.D. 793, when they raided the rich island monastery at Lindisfarne off the northeastern coast of England. "The ravages of heathen men miserably destroyed God's church on Lindisfarne," according to the annals known as the *Anglo-Saxon Chronicle*. In 845, the Viking raider and extortionist extraordinary Ragnar Lothbrok slipped up the Seine with 120 ships—an estimated 5,000 men—to Paris, where King Charles the Bald paid him 7,000 pounds of gold and silver to leave in peace. (A contemporary wrote that "never had [Ragnar] seen, he said, lands so fertile and so rich, nor ever a people so cowardly.")

> Ragnar said he had not seen "lands so fertile and so rich, nor ever a people so cowardly."

Viking raiders traveled thousands of miles to the east and south: across the Baltic, onto the rivers of modern-day Russia

and across the Black Sea to menace Constantinople in 941. "Nobody imagines they were there to capture the city," says Cambridge University historian Simon Franklin. "It was more terroristic—all about instilling fear and extracting concessions for trade."

At the same time, recent research has suggested that the Vikings pouring out of Denmark, Sweden and Norway 1,200 years ago had more on their minds than raiding, though they were not above using their martial reputation to their advantage in areas where they were vastly outnumbered. These adventurers also wove a network of trade and exploration that stretched from Russia to Turkey to Canada, buying and selling goods from places as distant as China and Afghanistan. "They were people without boundaries," says Wladyslaw Duczko, an archaeologist at the University of Uppsala in Sweden. "I think that's why Vikings are so popular in America."



The Vikings "were people without boundaries," a researcher in Sweden says—adept at seafaring (above: the *Sea Stallion* in Denmark last year) and fearsome on land (left: Ragnar's siege of Paris, in a 19th-century engraving).

Recent climate research has led Duczko and others to suggest that a warming trend around the ninth century led

PP. 26-27 CARSTEN SNEJBJERG / WPN; RUE DES ARCHIVES / GRANGER COLLECTION, NEW YORK

The *Sea Stallion* was built with period tools and techniques (left: an oak felled for the hull). A winter in dry dock (above) followed its sail to Dublin.

to a population boom in Scandinavia, and that landless young Norsemen, crowded out at home, sought their fortunes elsewhere. Not everyone agrees. Wallace, at the National Museum of Ireland, says the Vikings may have had a simpler motive: "They had the best iron in the world, trees to cut down and build ships, the best swords and edges on their blades," he says. "All the factors were there. They could do it, and they did."

In any case, evidence of the range of the Vikings' trading networks began turning up about 150 years ago, when their elaborate burial mounds were first excavated by archaeologists. Well-preserved graves in Birka, Sweden, for example, contained fragments of Chinese silk, and in Norway, the ships in which wealthy Vikings were customarily buried bore paint whose blue pigment may have come from Indian indigo or Middle Eastern lapis lazuli.

In the 1970s, archaeologists in Dublin found a Viking settlement spread over several acres—and in it more than 3,000 pieces of amber that were probably imported from Denmark. Excavation at Staraya Ladoga, outside St. Petersburg, has unearthed a multiethnic settlement that includes Viking jewelry, weapons and tools buried amid 1,000-year-old houses. Elsewhere in Russia, archaeologists have uncovered more than 400 complexes with Scandinavian graves and artifacts from the Viking era; as recently as 2006, they found one in the province of Kaliningrad, 500 miles from Norway.

Almost all the sites share a common artifact: thin, silver coins called dirhams. These were usually produced in Baghdad, which was the center of the Arab world from 750 to 950, and the coins were often stamped with the year they were minted. Vikings, it seems, traded such goods as furs, amber, ivory and slaves for dirhams, which they then brought back on their ships. The coins mark Viking trade routes like shiny silver bread crumbs.

In January 2007, metal-detector hobbyists in Harrogate, England, uncovered a treasure worth millions of dollars that a Viking or Vikings buried around 927; it included 617 coins, 15 of which were dirhams. Thousands of dirhams dating from 780 to 1050 have been found at several Viking sites near St. Petersburg. In Poland, archaeologists excavating at a Viking settlement near Gdansk found nearly 800 coins dating from 780 to 840, almost all of them Arabic. Still other Arabic coins made their way to France, Ireland, Iceland and Greenland. "What we're seeing is the remnants of an extremely intricate network of barter trade," says Cambridge University historian Jonathan Shepard. "It's a weird combination of coercion and tribute side by side and intermingled with bartering. That sort of weird mix is essential to Viking dominance of this huge area."

To illustrate the extent of Vikings' travel, Shepard cites the example of King Olaf II's youngest half brother, Harald

ANDREW CURRY *wrote about Japanese hot springs for the magazine's March issue.* **CARSTEN SNEJBJERG** *is a freelance photographer based in Copenhagen.*

Watch a video of the 2007 voyage at Smithsonian.com/viking

Hardrada, whose birth in Norway in 1015 is marked in Icelandic sagas. At 20, Harald sailed east to Constantinople (present-day Istanbul), where he turns up in Byzantine histories as an imperial bodyguard. By 1045, when he returned to Norway to assume the throne, he was a veteran of battles in Bulgaria, Sicily, Syria and North Africa. At the time of his death in 1066 in England, he was trying to claim the island as part of Norway. "Harald's career was a blown-up version of the experience of a lot of individual Scandinavians," Shepard says.

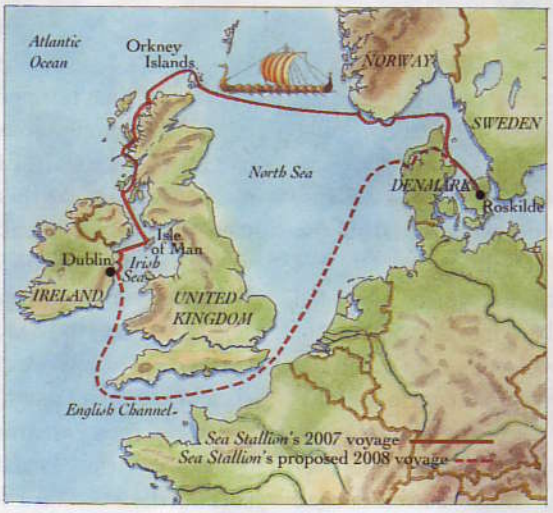
As time passed, however, not all Scandinavians made it home. After a few generations of fighting with local rulers, by the 11th century some Vikings began adopting the languages and customs of local peoples, even settling in with them in places ranging from Ireland to Russia. Researchers at the universities of Leicester and Nottingham, in England, have recently found that up to half of the DNA from men in northwest England matches Scandinavian genetic types.

All that wandering would have been impossible without ships—which is where Erik Nielsen and the rest of the *Sea Stallion*'s crew come in. For most of the 20th century, archaeologists assumed that all Viking ships resembled a vessel excavated in Norway in 1880. Known as the Gokstad ship, for the farm on which it was found, it dated to the year 900. The ship was "clinker-built," meaning that it was constructed of overlapping planks, which made it stout, flexible and light, with a sail and room for 32 oarsmen. "Gokstad was thought to be universal, whether trader or raider," says Niels Lund, a Viking historian at the University of Copenhagen. After a replica was built, researchers discovered it could indeed cross the Atlantic—Magnus Andersen sailed it from Norway to Chicago for the 1893 World's Fair. But a discovery in 1962 forced researchers to abandon the idea that the Vikings had only one kind of ship.

At the bottom of a fjord near the Danish town of Roskilde, archaeologists found remnants of five Viking ships piled one atop the other. Dubbed the Skuldelev ships, for a nearby town, each had had a specialized role. One had been a fishing boat; two were cargo ships, so easy to handle that a crew of eight or nine could move 20-ton loads; and one was a warship that could carry about 30 people. The fifth ship, a raider known as Skuldelev 2, was the biggest.

A 2006 find in Sweden included dirhams.

Arabic coins called dirhams mark Viking trade routes like shiny silver bread crumbs.



It was 98 feet long but just 12 feet wide. Its keel reached just three feet below the surface, and its masts and sail could be lowered so the ship could approach fortifications and settlements with stealth. It could accommodate 65 armed men. "This is a boat for warriors," says Soren Nielsen, head boat builder at the Viking Ship Museum in Roskilde.

Because only 20 percent of the Skuldelev 2 could be recovered, the only way to determine its capabilities for certain was to somehow resurrect it and put it to sea. In 2000, Nielsen and his colleagues at the ship museum began working with scientists to build an accurate replica. They used thousand-year-old methods and replicas of tools from that time, which meant carving each of the ship's 90 oak planks with axes, wedges and hammers. After four years and almost $2.5 million, the eight builders had their replica. They called it *Sea Stallion From Glendalough* for the Irish village where Vikings used to find oak for their ships. With its narrow beam and shallow draft, the *Sea Stallion* could have navigated just about any river in Europe. But how would it fare on the open sea?

In the summer of 2006, the *Sea Stallion* sailed under sunny skies and gentle winds to Norway and back in four weeks—a virtual pleasure cruise. A test sail in May 2007 around the Roskilde fjord enjoyed similar conditions. "We like to say we've been cursed with good weather," says Carsten Hvid, the *Sea Stallion*'s skipper. A tougher, six-week test was planned for July 2007, with the crew sailing from Roskilde north to Norway, west to Scotland and south to Dublin. Fully loaded, the ship weighed 24 tons—eight of ship, eight of rock for ballast and eight of crew and gear. In ideal conditions, the *Sea Stallion* could travel 160 nautical miles in a day; it could sprint at 13 knots, or almost 15 miles an hour. (A high-tech America's Cup racer might hit 20 knots.) "It ranks as one of the fastest warships in history," says Anton Englert, an archaeologist at the ship museum.

The ship set sail for Dublin on July 1 under dark skies that presaged Northern Europe's coldest and wettest summer in decades. Nighttime temperatures plunged into the 30s. Three days into the voyage, two crew members had been treated for hypothermia; weak

TOBIAS WALLSTROM / AFP / GETTY IMAGES; MAP: RODICA PRATO

winds forced Hvid to take a 24-hour tow across part of the North Sea to stay on schedule. "It kept on raining and raining and raining," says crew member Henrik Kastoft, a spokesman for a Danish political party in his day job. "There were so many nights I just sat there shivering for hours." Each member of the crew had only about eight square feet of space to himself. "I really suffered from being so close to people for so long. I got edgy, cranky," says Erik Nielsen. "Maybe the modern analogue would be a submarine."

"One of the fastest warships in history": the *Sea Stallion* was under full sail rounding Scotland (above), but approaching Dublin, crew members had to row against the wind (left).

The skies presaged Northern Europe's coldest and wettest summer in decades.

If the night the rudder broke was the low point of the voyage, sailing along the western coast of Scotland almost made up for it. For nearly two weeks, the crew had the dramatic scenery almost completely to themselves. But crowds grew as the ship neared Dublin. When it cruised up the River Liffey and into port on August 14, ships and cars blasted their horns, church bells pealed and throngs of people waved from the balconies and windows of riverfront buildings.

Days later, the ship was trucked to the center of Dublin and lifted by a crane over a four-story building into the courtyard of the National Museum of Ireland, where it would spend the winter. By then archaeologists at the ship museum in Roskilde had begun analyzing data generated during the voyage. As the crew's close call in the Irish Sea made clear, high speeds over long distances pushed the ship to its limits—and challenged some assumptions about how the original had been put together. "The sails are very stable and can take a lot of wind, but the problems with the rudder come up again and again, and haven't been solved yet," Englert says.

Information from the crew proved as valuable as technical data. Exhausted sailors told researchers that the close quarters made sleeping nearly impossible. Between the rough water, constant rain and their nautical duties, it was all crew members could do to nap for an hour or two during their rest periods. "That indicates the ship must have had an amphibious behavior—they had to land often just to get some rest," Englert says. Crossing the North Sea in a narrow ship like this one would have stretched a Viking crew almost to the breaking point, and crossing the Atlantic would have been inconceivable. A ship like this would have been used for coastal raiding.

On June 29, the *Sea Stallion* will put to sea once again, taking a possibly more challenging—and perhaps more revelatory—course: down the Liffey, out of Dublin harbor, south and then east around England to the cliffs of Dover. Then across the North Sea, following its Viking predecessors northeast toward home.

WERNER KARRASCH / VIKING SHIP MUSEUM, DENMARK; CARSTEN SNEJBJERG / WPN