

# Viking Ships

Ancient Europe, 8000 B.C. to A.D. 1000, 2004

## Viking Ships

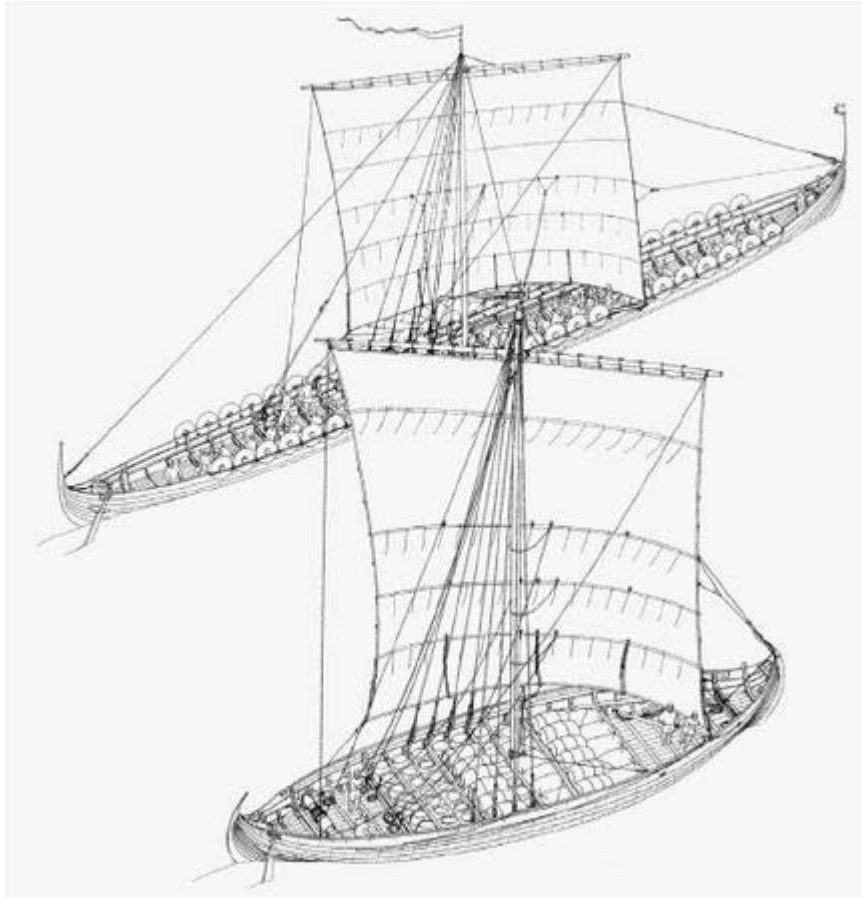
The region settled by the Vikings during the ninth to eleventh centuries consisted of the Scandinavian Peninsula and Jutland, the Danish archipelago, and islands in the Baltic and the North Atlantic as well as areas along the coasts and larger rivers of Britain, Ireland, northern France, and Russia. There were no overland routes connecting these areas, and consequently all communication relied on the ships and boats that rightfully became a trademark for Viking expansion as recorded in contemporaneous sources and in the archaeological record.

Several ships of the Viking period have been found in graves and as wrecks, and reused ships' parts have been excavated in Viking towns, giving a detailed insight into the boat- and shipbuilding traditions of the period. There are few remains found of Nordic ships from the fifth to eighth centuries, the crucial period during which ship design in this area changed from large rowing vessels of the Migration period to the ships of the early Viking Age, combining propulsion by oars and sail. In contrast, wrecks of the medieval period and later provide evidence for the study of the region's shipbuilding heritage and traditions from the Viking era to the twenty-first century.

All Viking ships were built by the clinker technique—that is, starting from a central keel, with identical stems fore and aft and with the overlapping edges of the planking riveted together. After shaping the lower planks to give the desired shape of the bottom, the floor timbers were inserted and fastened to the planking, with lashings in the early phase and later using treenails. The sides were supported by side timbers and by knees positioned on the deck beams (biti) over each of the floor timbers. A light, strong, and resilient hull was evidently the goal of Viking shipbuilders when constructing vessels for various purposes. Oak and pine were the primary materials for the hulls, with ropes of linden bast and sails of sheep's wool. The ships were steered with a side rudder to starboard and propelled primarily by a single square sail stepped amidships in a keelson, a longitudinal timber with the step for the mast. The sail was set from a horizontal yard and adjusted by means of several ropes to bring the ship forward with the wind from astern, abeam, or up to 60 degrees to the wind in tacking. Viking ships had no cabins or weather decks, and all water coming inboard had to be bailed out.

The ships from the large burial mounds in southeastern Norway at Oseberg (c. A.D. 820, excavated in 1904) and Gokstad (c. A.D. 895, excavated in 1880), now exhibited in Oslo, represent the early Viking Age multifunctional ship type. With a length of 21.6 to 24.2 meters, a beam of 5.1 meters, and sides 1.6 to 2.1 meters high amidships, these vessels were propelled equally well by their square-sail of about 90 to 110 square meters or by their 30 to 32 oarsmen. The Oseberg ship is considered the personal vessel for the high-ranking woman buried in it with her elaborately decorated belongings. The Gokstad ship has higher sides and is slightly more

robust, making it fit for deep-sea navigation with its crew and a moderate cargo of trade goods or booty.



Viking ships of the tenth and eleventh centuries have been found at several sites, the most important ones being Ladby (burial, c. A.D. 925), Hedeby (two wrecks, c. A.D. 985–1025), and Skuldelev (five ships in a barrier, c. A.D. 1030–1050). The Ladby ship imprint in the ground, excavated 1935, is preserved in the Kerteminde region of Denmark, whereas the Hedeby ships, excavated 1979–1980, and the Skuldelev ships, excavated 1962, are exhibited in the Schleswig region of Germany and at Roskilde, Denmark, respectively. Additional evidence comes from excavations in the Viking towns of Hedeby and Dublin.

These ships display the range of types and sizes of vessels that had been developed for different purposes in that period. The primary division was between the relatively long and low "personnel carriers," built primarily to satisfy the requirements for fast propulsion by rowing (demanded by longships used as troop transporters and by boats used for communication and fishing), and the broader and higher "cargo carriers" that required a proper cargo capacity, relying mainly or fully on sail propulsion. This specialization is not found in vessels dating before the tenth century.

The longships that served in the Danish waters, the North Sea, and the Irish Sea are represented by the Irish-built Skuldelev 2 ship and the Hedeby 1 ship (fig. 1) built locally, both about 30 meters in length but only 3.8 meters and 2.7 meters wide respectively and manning about 60 oars

each. Skuldelev 5 was a small 26-oared longship for local defense. These three warships represent different levels of craftsmanship, from the royal standard of Hedeby 1 to the "discount version" Skuldelev 5. In the longships, the oars were worked through holes in the ships' sides, and shields could be mounted along the rail. Figureheads were carried on prominent longships, and others had gilt weather vanes, but most longships probably had no decorative flourishes other than their stemposts ending elegantly at a point.

Smaller, boat-sized vessels had their oars mounted along the rails. They could be used as ships' boats, for communication, for general transportation, and for harvesting the sea, such as the Norwegian-built Skuldelev 6.

The cargo-carrying vessels range in sizes from the small Danish-built 14-meter-long general-purpose vessel Skuldelev 3 with a cargo capacity of 4 to 5 tons, to the 16-meter-long Baltic trader Skuldelev 1 (from western Norway) with a capacity of 20 to 25 tons, to the Hedeby 3 ship (fig. 1) with an estimated capacity of about 60 tons. The largest cargo-carrying ships were entirely dependent on sail propulsion, and their hulls were more solidly built than the longships. This type of ship was further developed in size during the eleventh and twelfth centuries to match the needs of trade in this period of urbanization around the Baltic and the North Sea.

The seaworthiness of the Gokstad ship was demonstrated as early as 1893 when a full-scale reconstruction of this ship crossed the Atlantic under sail. Since then several of the ships mentioned here, including all five Skuldelev ships, have been reconstructed at full scale and tested in order to study their potentials for the many needs of the maritime-oriented society of the Vikings.

See also [Viking Harbors and Trading Sites](#) (vol. 2, part 7).

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