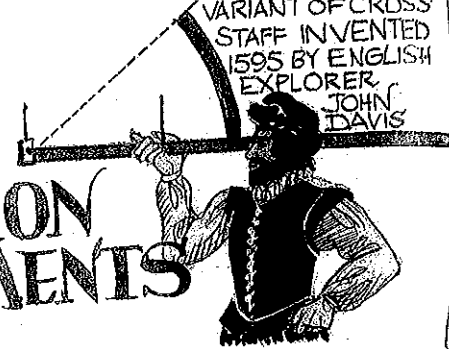


QUADRANT

REFINEMENT OF BACK STAFF
INVENTED SOON AFTER 1600

BACK STAFF

VARIANT OF CROSS STAFF
INVENTED 1595 BY ENGLISH
EXPLORER JOHN DAVIS



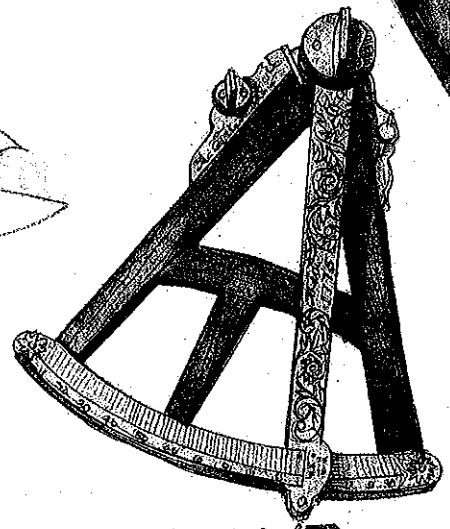
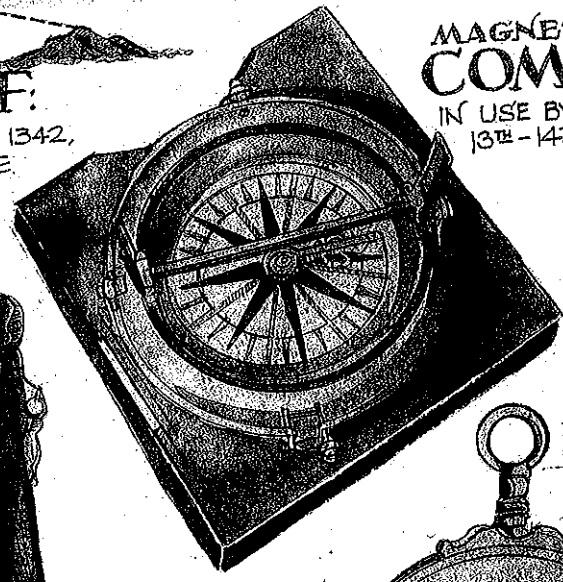
CROSS STAFF

1ST WRITTEN REFERENCE IS 1342,
BUT INVENTED LONG BEFORE

NAVIGATION INSTRUMENTS

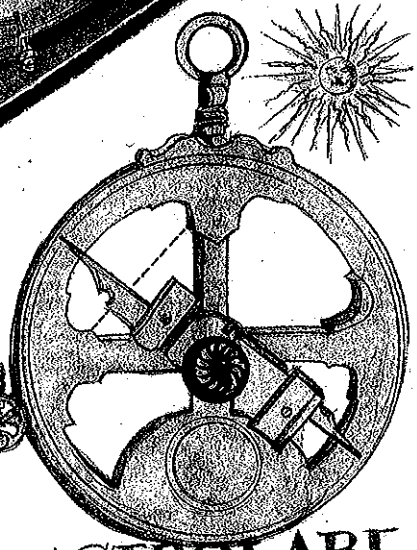
MAGNETIC COMPASS

IN USE BY MARINERS BY THE
13TH - 14TH CENTURIES



SEXTANT

INVENTED 1757
(REFINEMENT OF QUADRANT)



ASTROLABE

IN USE BY GREEKS 2ND CENTURY B.C.E. or EARLIER

New navigation instruments made it possible for people like Christopher Columbus to dream of long ocean voyages. For an invention even older than the cross staff, see page 69.

13 Let's Turn North



In a small boat, it was easy to believe that a big storm was a sea monster.

The first Europeans to discover America came from the lands of the north. Called Vikings or Norsemen, they were the terror of Europe. Their ships were fast, their seamen brave and bloodthirsty. Thor, Odin, and Loki were some of the gods they worshiped. They sacrificed animals to those gods, and sometimes they even sacrificed humans. Vikings told stories of elves and giants and trolls and believed they really existed. Norse stories are among the best you will ever read.

Viking means "sea raider" or "pirate," but not all Vikings were pirates. Most were farmers who kept cattle and sheep. Historians think that during the 9th and 10th centuries their homelands in Scandinavia became crowded, so Vikings set out for other places. Some sailed in search of loot, but others looked for fair lands and good fishing.

(This is a good time to check a map. Scandinavia is northern Europe: Norway, Sweden, Finland, and Denmark.)

The first Viking ship arrived in America by mistake. Bjarni Herjolfssohn (bee-YAR-nee HUR-yolf-sun) was a Norse sailor on his way to Greenland when the wind blew him off course. We think that was in the year 986. He went home and told his people what he had seen. One of his friends, Leif Eriksson, decided to explore the new land. Leif (LEEF) was called "Leif the Lucky" and was the son of Erik the Red, a famous explorer who had discovered Greenland (and had red hair).

Erik was fierce. He had gone exploring because he was wanted by the law. But Leif, according to some old writings, was a "fair-dealing man." Leif was "big and strong" and a great sailor. He followed Bjarni's route and landed in a place he named Vinland because it had wild vines. Vinland was probably Newfoundland, which is now

Loot is stolen goods, also called "booty."

Greenland, far to the north between Canada and Europe, is the world's largest island. It is still in the Ice Age. Much of it is covered by a glacier that is two miles thick.

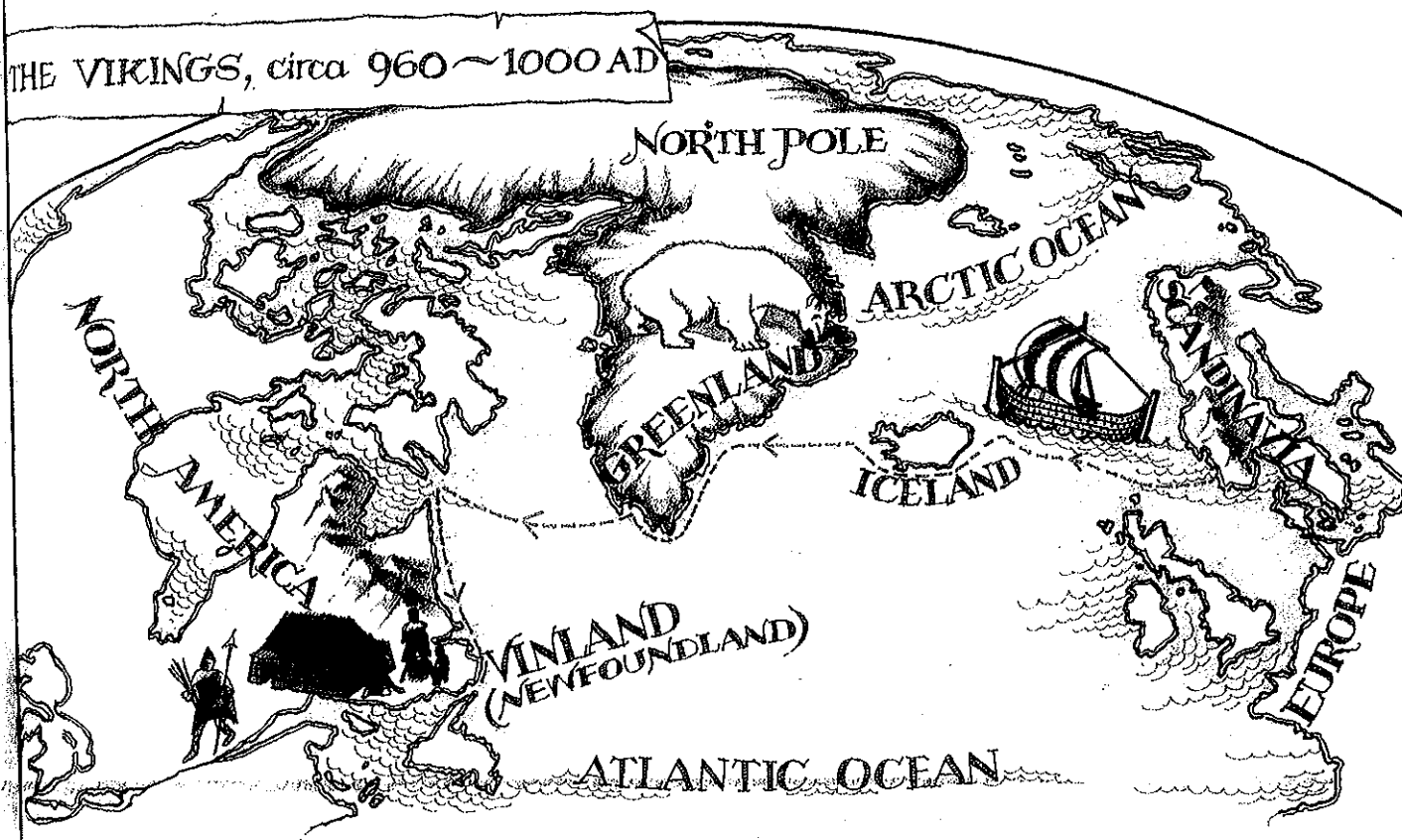
THE VIKING

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THE FIRST AMERICANS



part of Canada. (The vines were most likely berry bushes, not grapevines as people once thought.)

Leif's brother, Thorvald (TOR-vult), was the next Viking to come to America. He intended to stay. One day, while he was walking over the land looking for a place to settle, he spotted three mounds on the beach. They turned out to be three canoes. Under each canoe three men were sleeping. They were Native Americans. Thorvald killed them all, except one who escaped. The next day a large party of Indian men came in canoes and attacked with bows and arrows. Thorvald became the first white man to be killed by Indians. What if he had tried to make friends with the Indians? Do you think they would have made friends with him? Would history have been different?

Thorfin (TOR-fin) Karlsefni was a Viking who did settle in America—at least for a while. He was married to beautiful Gudrid (GOOD-