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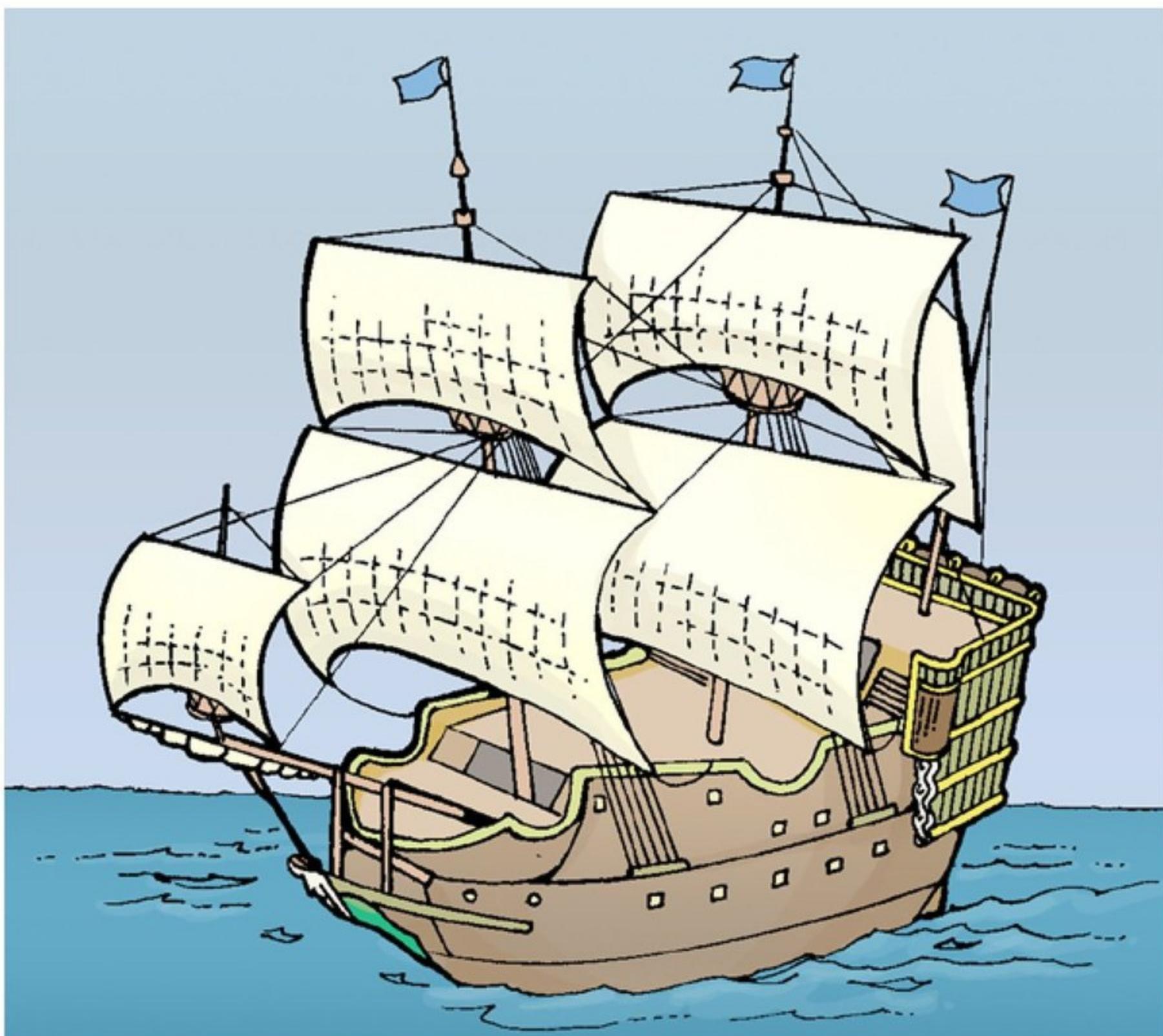
Ships of Discovery



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Written by William Houseman
Illustrated by Cende Hill

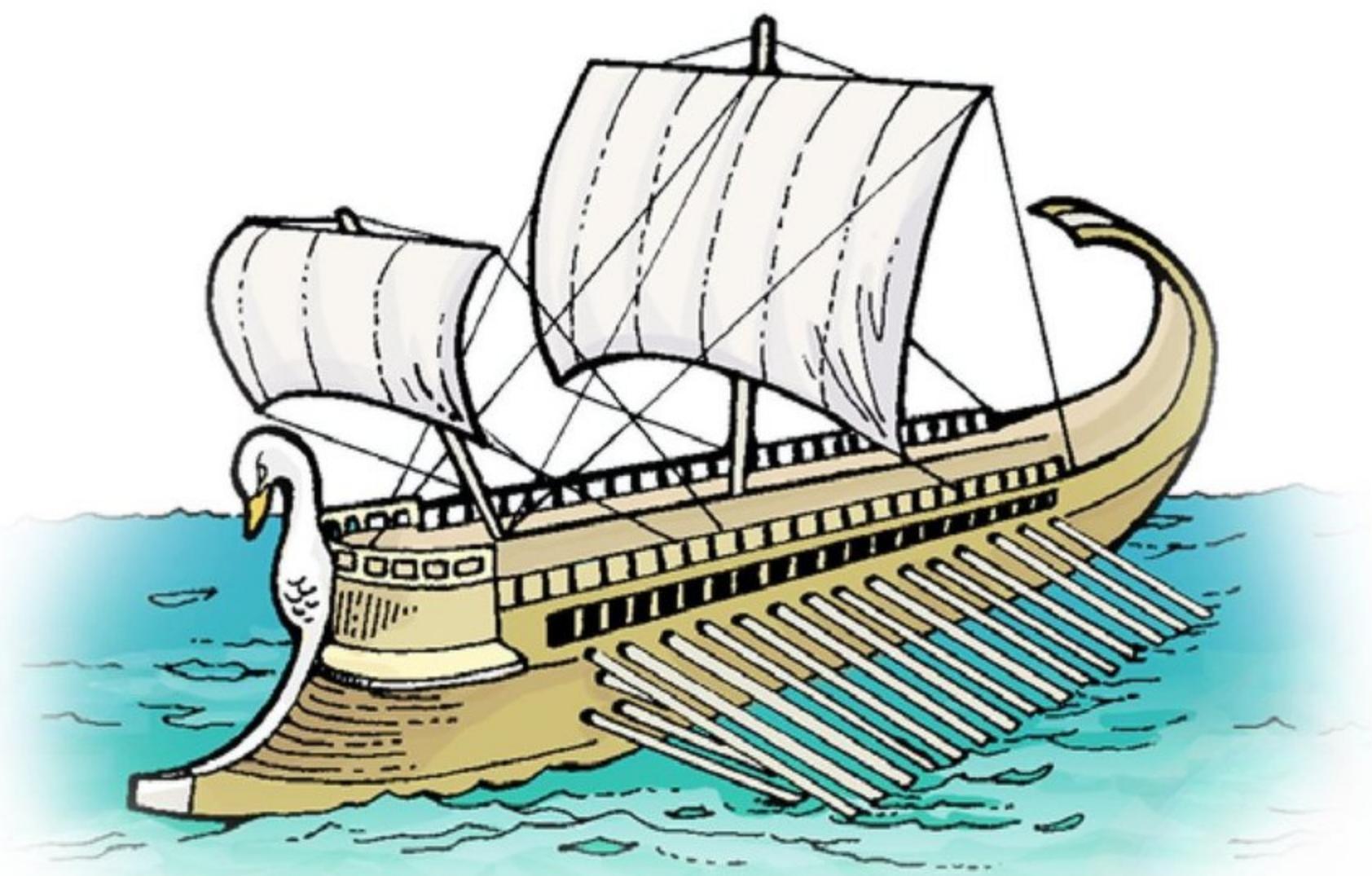
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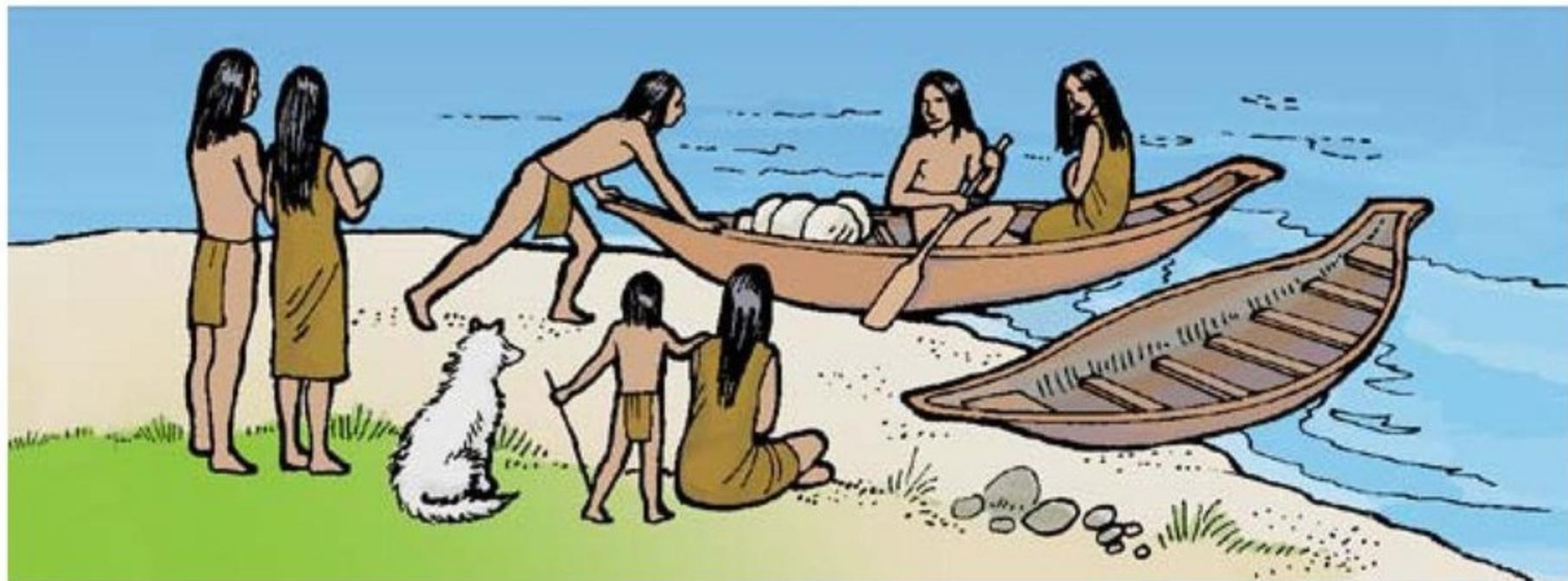


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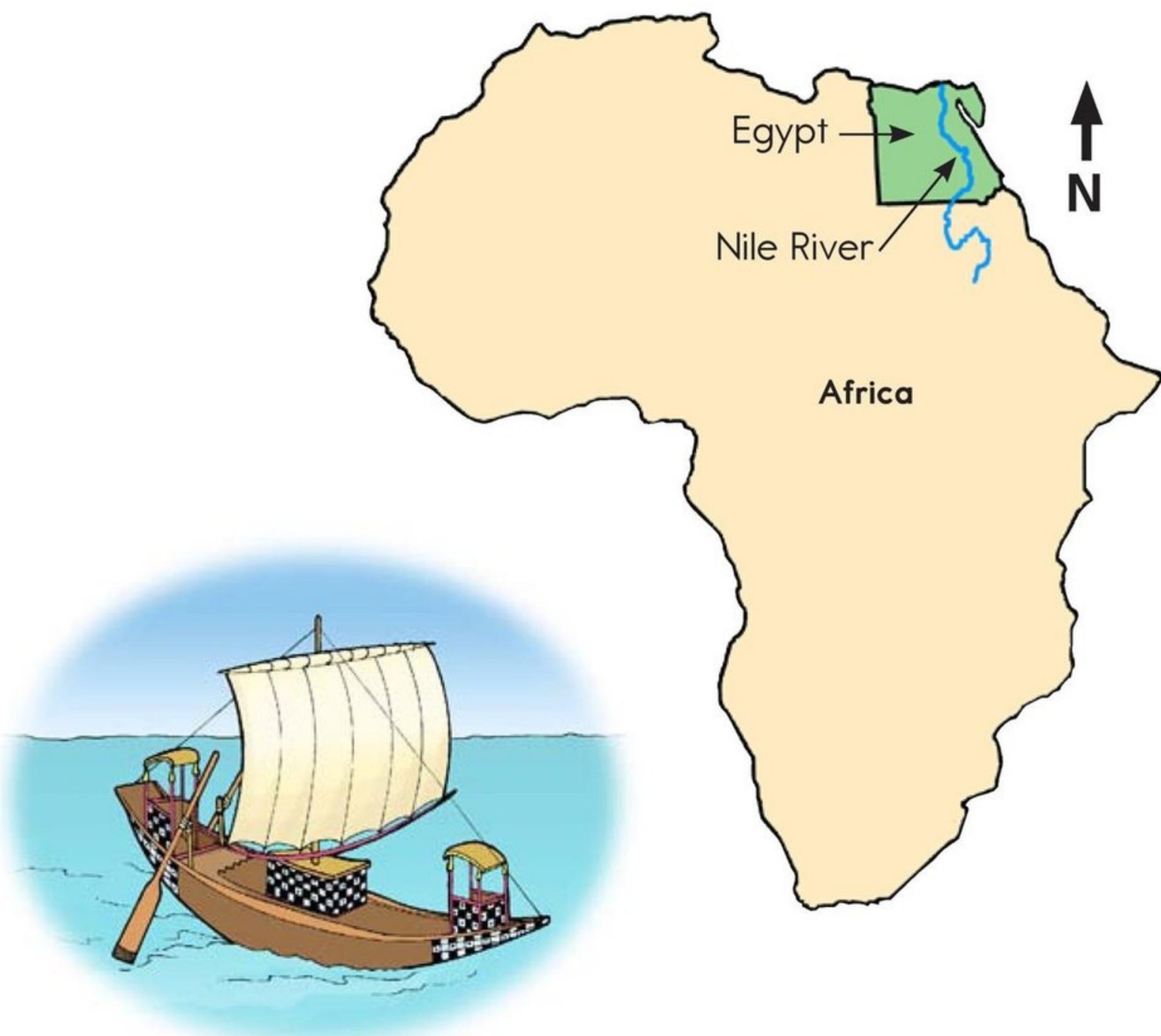




Introduction

People often settle along rivers, lakes, and seas. Long ago, people who lived near large bodies of water were curious about what was beyond the horizon. They also thought that traveling over water might be easier than traveling over land. These thoughts led to someone making a simple boat.

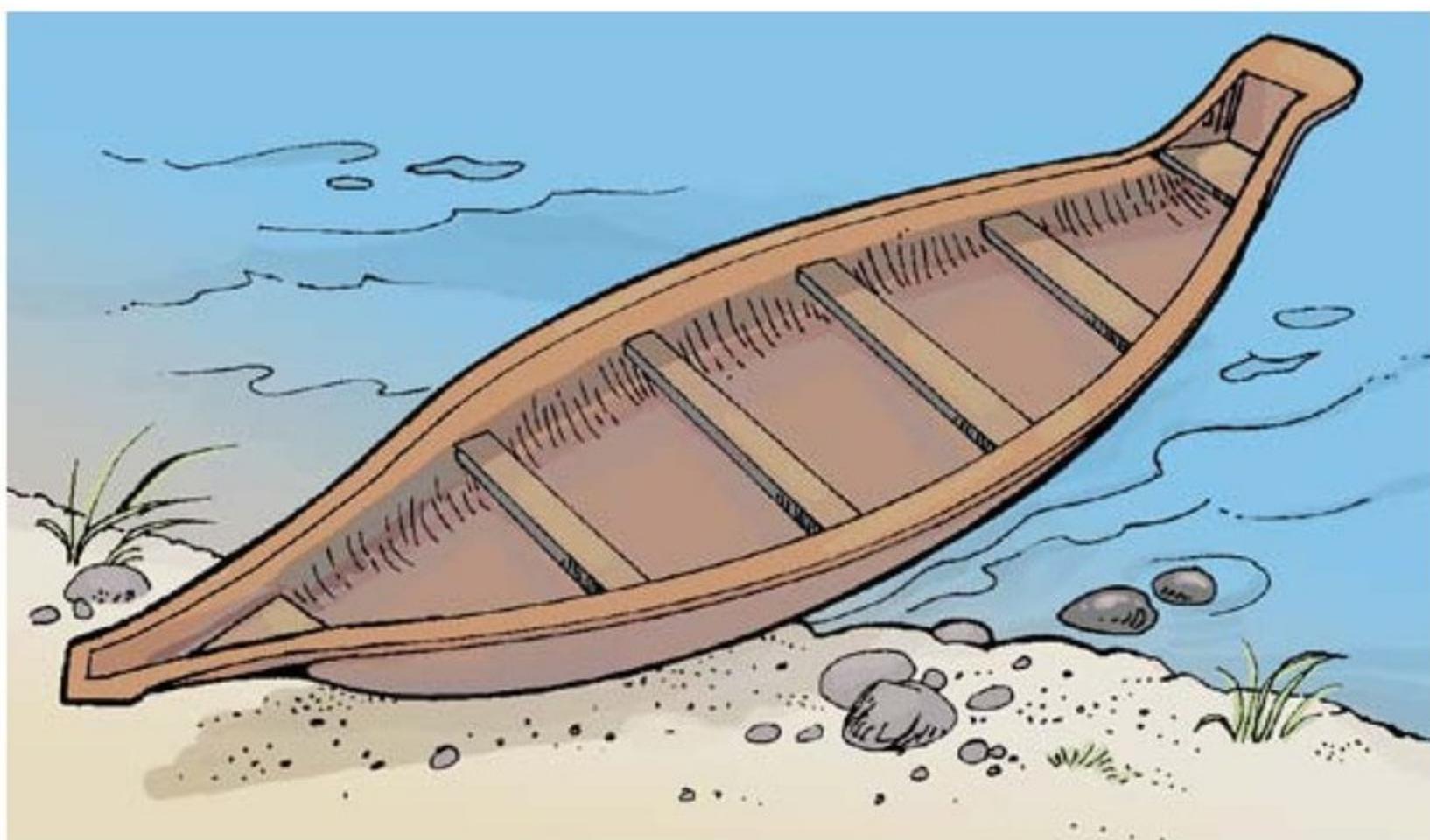
As boats and ships became more practical, people were able to travel farther from home. New types of boats were an improvement over the previous boats. They often were safer, carried more cargo, and were more comfortable. Up until about 150 years ago, boats were the main means of carrying goods and people from place to place. Let's look at how boats were used to explore the world and how they have changed over time.



Early Years

The oldest record of sea travel comes from Egypt. More than 6,000 years ago, Egyptians took to the water. They built boats by carving out the trunks of trees. But the Egyptians were not the only people to make boats from trees. Many other **cultures** that looked for ways to cross the water also carved boats from trees. These were sturdy boats, but they couldn't carry very much.

Over time, people wanted to move larger things over waterways. They wanted to build boats to carry many people as well as food, animals, and other items to trade. Canoes made from oak trees were good boats for crossing a lake or going down a river. However, they didn't work as well for carrying large things. Imagine trying to row a canoe across a lake with six sheep crammed around you. The space just wasn't big enough.



Dugout canoe

Humans have always been driven to improve things. So it was natural that long ago people looked for ways to build bigger, faster, and safer boats. People also realized that they needed better boats to explore places far from their homeland.

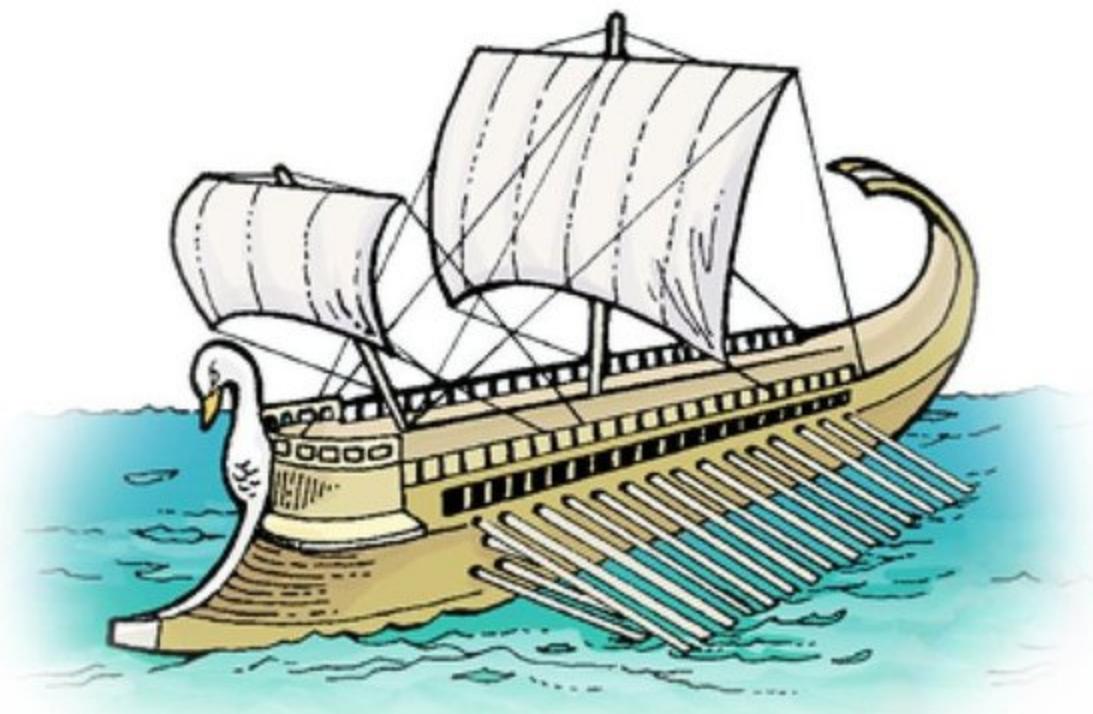


Birchbark canoe

The next step in boat building was using wooden beams to make a frame. The frame was then covered with wooden planks or bark from trees. Some cultures even used animal skins stretched over the frame. These boats were bigger and more **streamlined** and able to hold more cargo.

The Egyptians were the first to cover a wooden frame with long, flat pieces of wood to create a hull (the outer shell of a boat). Some of their boats were as long as 21.3 meters (70 ft). The Egyptians were also the first to use sails. Sails reduced the need for people to row the boats. Some larger boats used both rowers and sails.

Soon, the Greeks and other peoples around the Mediterranean Sea were building large boats powered by sails.



Greek ship

About 3,000 years ago, sailing ships were built with two masts, each one carrying a sail. The addition of a second mast made ships easier to steer and also made them much faster.

Five hundred years later, the Greeks developed a ship with four sails. This ship was safe enough to leave the Mediterranean Sea and travel down the west African coast.

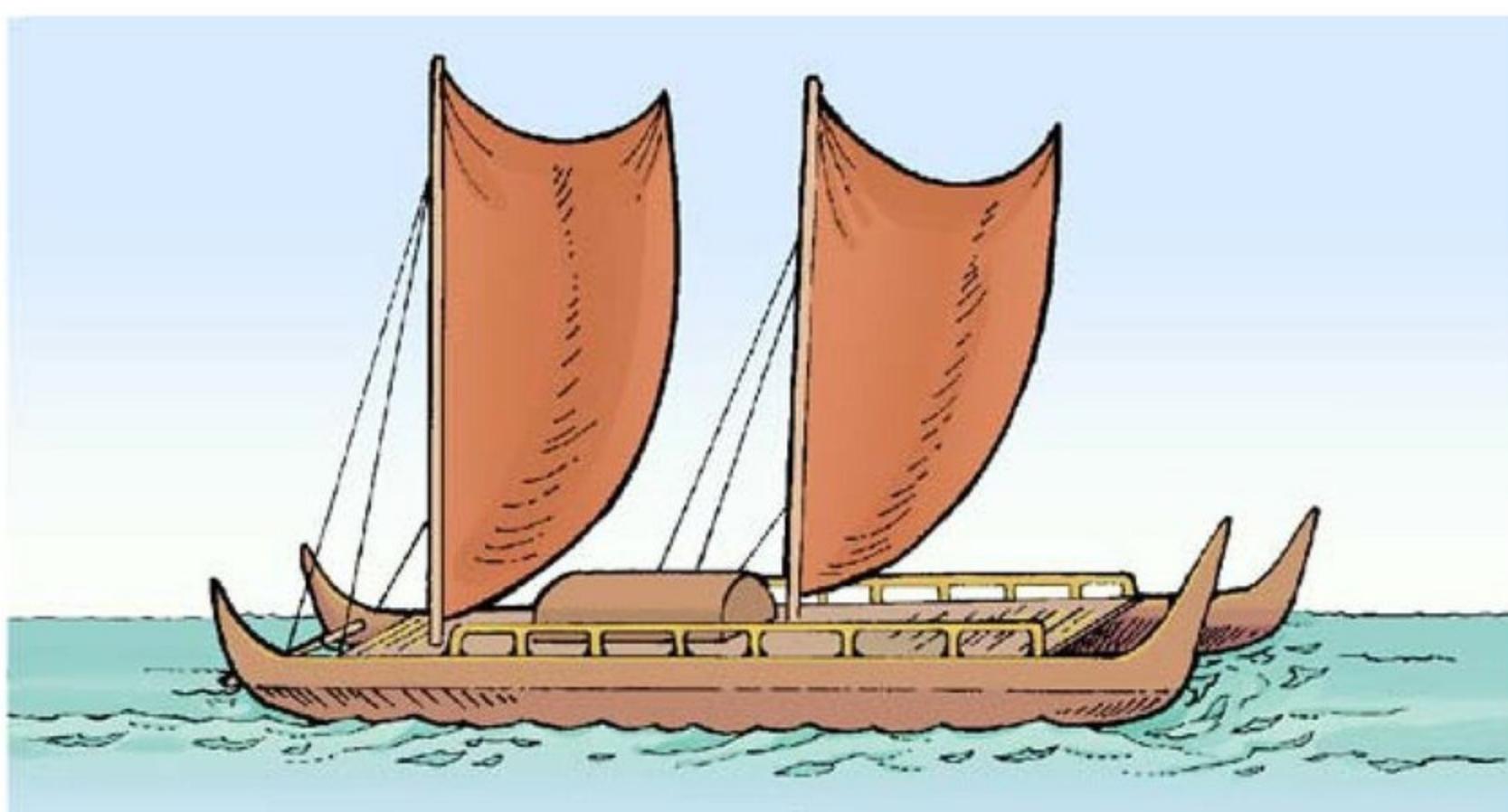
Some of the fastest ships at the time were built for battle. Some warships had as many as three levels of rowers on each side.

These larger ships allowed people to travel to and explore distant places. During this period, exploration and trade moved beyond the Mediterranean Sea.

The Polynesians

In the South Pacific, groups of Pacific Island peoples were building boats that could sail in the open ocean. Over 3,500 years ago, these people were traveling east, well beyond the islands where they lived. They also explored areas off the Asian mainland.

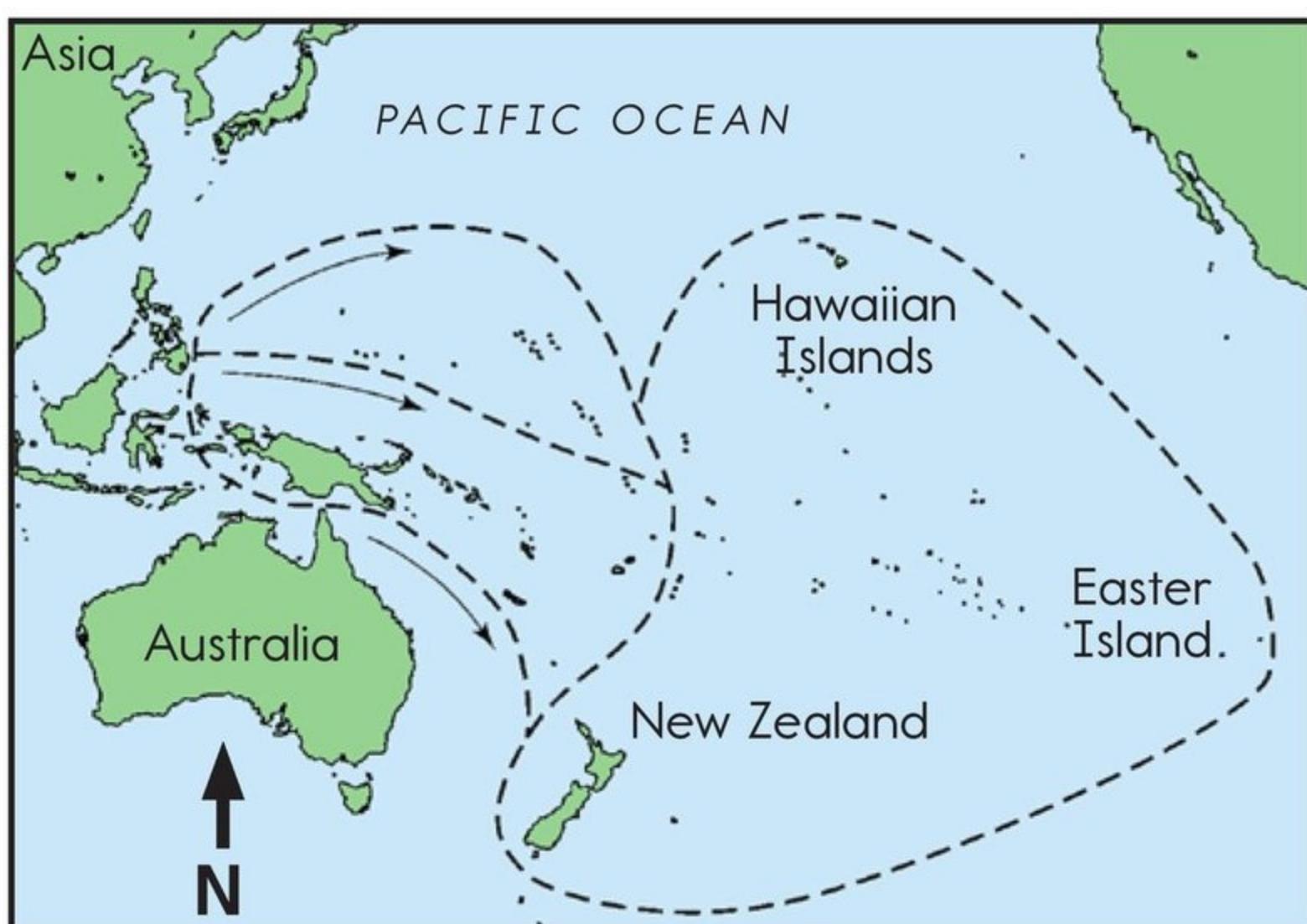
These Polynesian sailors built a boat that was an early version of the modern **catamaran**. They took two canoes and connected them using large wooden poles. A deck was then built to span the poles. These boats were usually about 15 to 18 meters (50-60 ft) long. The central deck held masts for sails and had enough space for several people and their supplies during a long voyage.



Polynesian catamaran

These early boats provided a means of safe travel from one island to another. The Polynesians settled each new island they discovered. By the beginning of the year AD 1000, they lived on nearly every island they could find in the Pacific Ocean. Their new homes included Hawaii, New Zealand, and Easter Island.

The Polynesians were skilled sailors. They became so familiar with the ocean that they could tell their location by the size and shape of the waves. They could easily travel great distances by going from island to island. The Polynesians grew to accept sea travel as a way of life.



Routes of Polynesian expansion

The Vikings

More than 1,300 years ago, a group of people in another part of the world began to build larger boats. These people were the Vikings. They lived in the northern part of Europe. The Vikings were well known as warriors and conquerors. The Vikings were **accustomed** to traveling over water. By the year AD 700, they were sailing boats that were better than any others on the ocean.

The boats they built, called *knarrs* (kuh-NARS), were used mostly for trading. These boats were up to 16.5 meters (54 ft) long and 4.5 meters (15 ft) wide.

Because they were flat bottomed, the knarr boats could carry heavy loads. They were also stable and could travel safely across the open ocean. Viking explorers were willing to travel into the unknown to claim new lands and seek adventure. They were also the first Europeans to visit North America.



Viking knarr

Vikings also built warships known as longships. It often was difficult to tell if a longship was coming or going because they looked the same in the front and in the back. Using this design, Viking attackers could easily change direction. Longships were able to travel as fast as 15 knots. A knot is a way to measure speed on water. Some of the larger longships carried as many as 200 warriors. The combination of large, speedy, easy-to-handle ships and a fierce fighting spirit made the Vikings tough to defeat. The Vikings ruled the ocean for nearly three centuries.

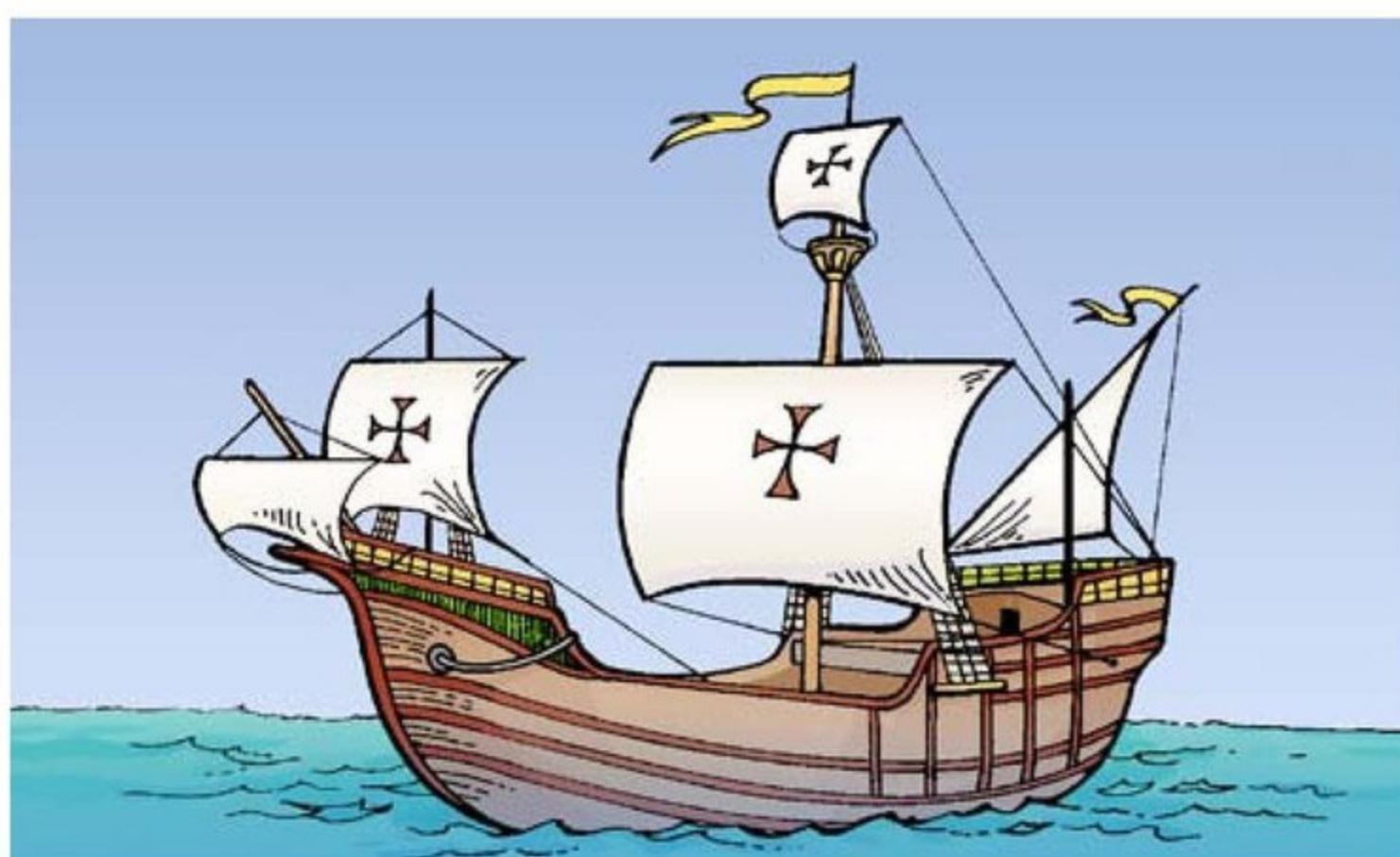


Viking longship

Age of Discovery

Until the 1400s, most sailors still kept close to their home waters. But with the coming of the Age of Discovery, things changed dramatically. Every European sailing country wanted to find new lands. The race was on, and the Americas were the prize.

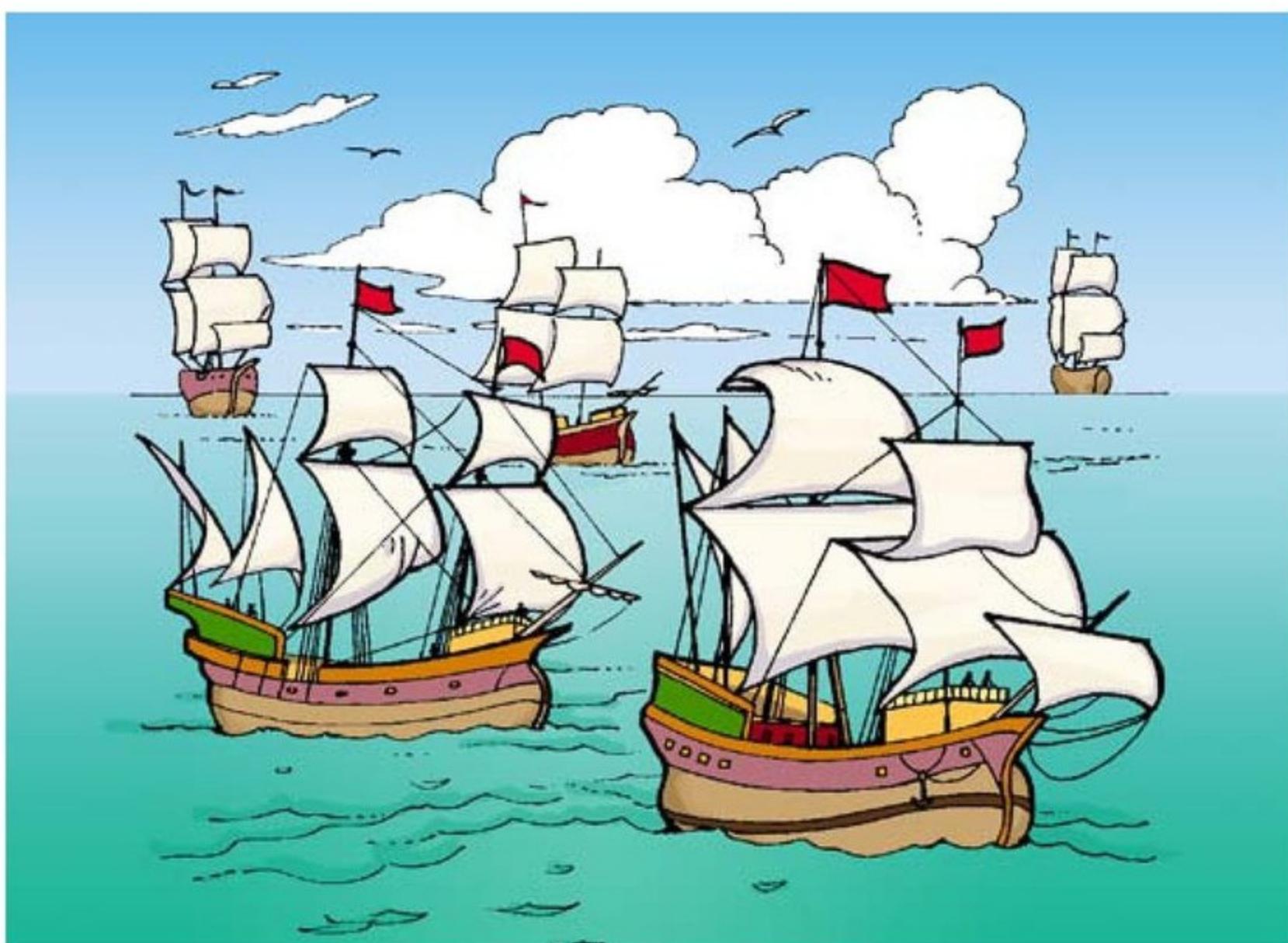
Shipbuilders had to find ways to build faster and safer ships. In the 1400s and 1500s, Christopher Columbus and other explorers used small, sturdy ships known as **caravels**. These ships had three masts to carry sails. This design made the ships fast and easy to steer. Caravels had square sails on the front and the middle masts and a triangular-shaped sail on the back mast.



Caravel

The largest of Columbus's ships was 27.4 meters (90 ft) long and 9.1 meters (30 ft) wide. Compared to modern ocean liners and cargo ships, caravels were tiny. But even though they were quite small, the explorer Ferdinand Magellan set out to sail five caravels around the world with a crew of 260 sailors.

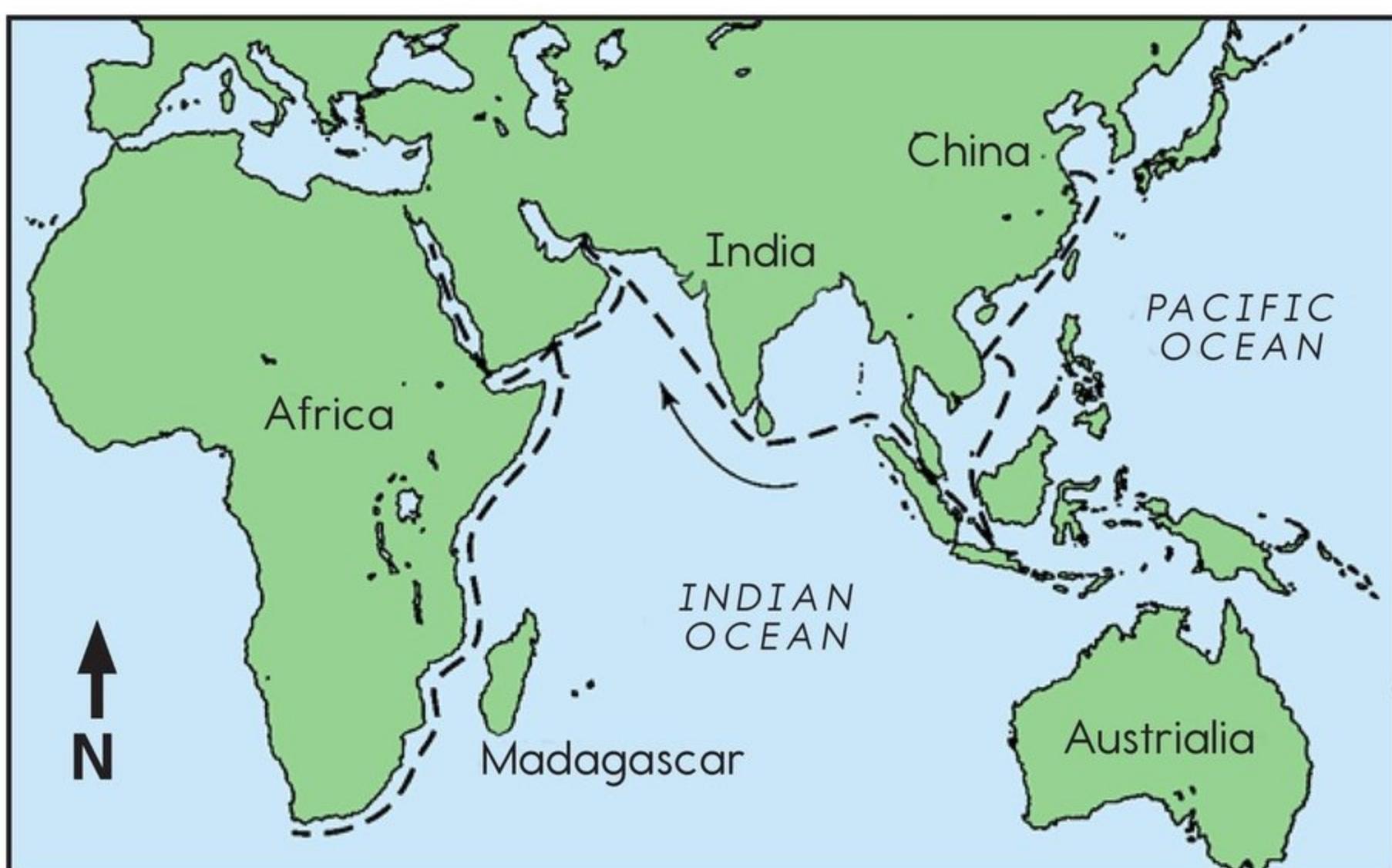
Almost three years after they began the trip, one of Magellan's ships and eighteen of the original crew members made it around the world. Magellan was not one of the survivors. He was killed somewhere in the Philippine Islands.



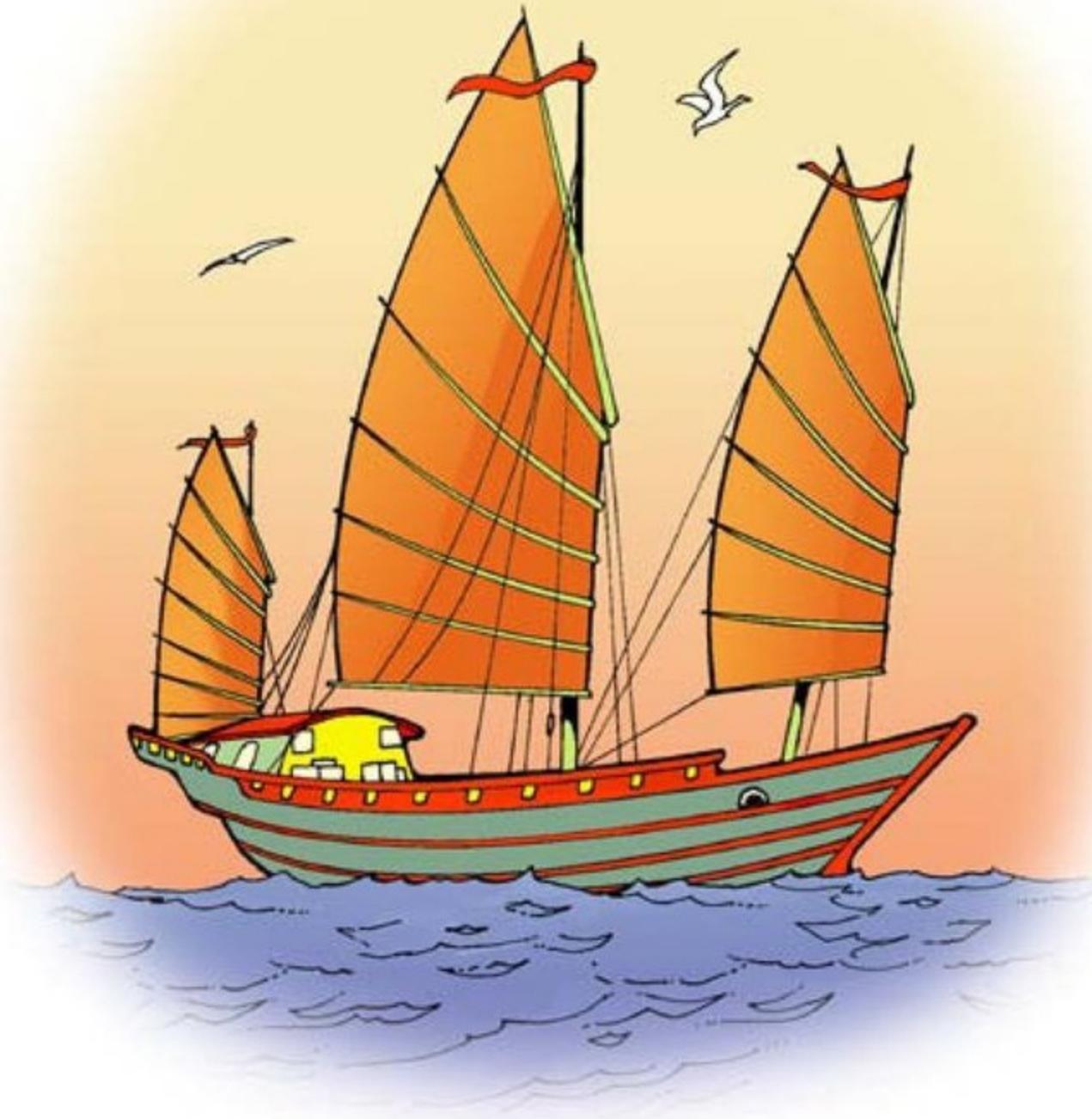
Magellan's ships

The Chinese

While European explorers were sailing the world, the Chinese had also taken to the sea in another part of the world. They were skilled sailors. Their most famous explorer, Zheng He, traveled in a fleet of sixty-two ships that were much larger than European ships. His largest ship was so big that it could have held all three of Columbus's ships on its deck. This huge ship was 121 meters (400 ft) long and 45.7 meters (150 ft) wide. In addition to the sixty-two main trading ships, more than a hundred smaller support boats were in the fleet. These Chinese explorers sailed all the way to Africa to trade.



Route of Chinese exploration and trading



Chinese junk

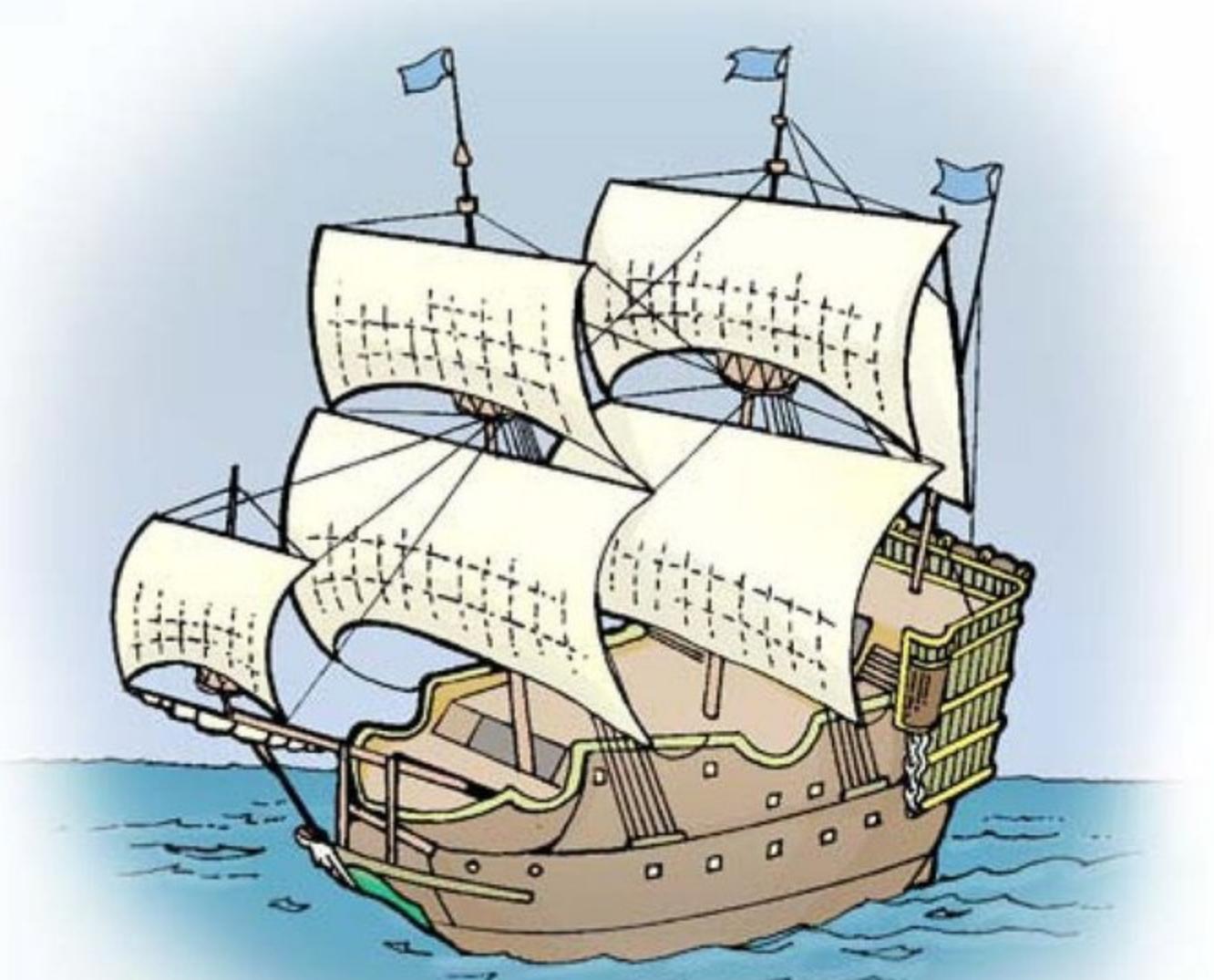
War with their Asian neighbors caused the Chinese to turn their attention away from exploration. If they had continued, we might be studying how China discovered America. And North and South Americans might be speaking Chinese instead of French, English, and Spanish.

Do You Know?

Christopher Columbus's entire crew was about 90 sailors on three ships. The Chinese explorer Zheng He had more than 162 ships and 30,000 sailors on one of his voyages.

Later Years

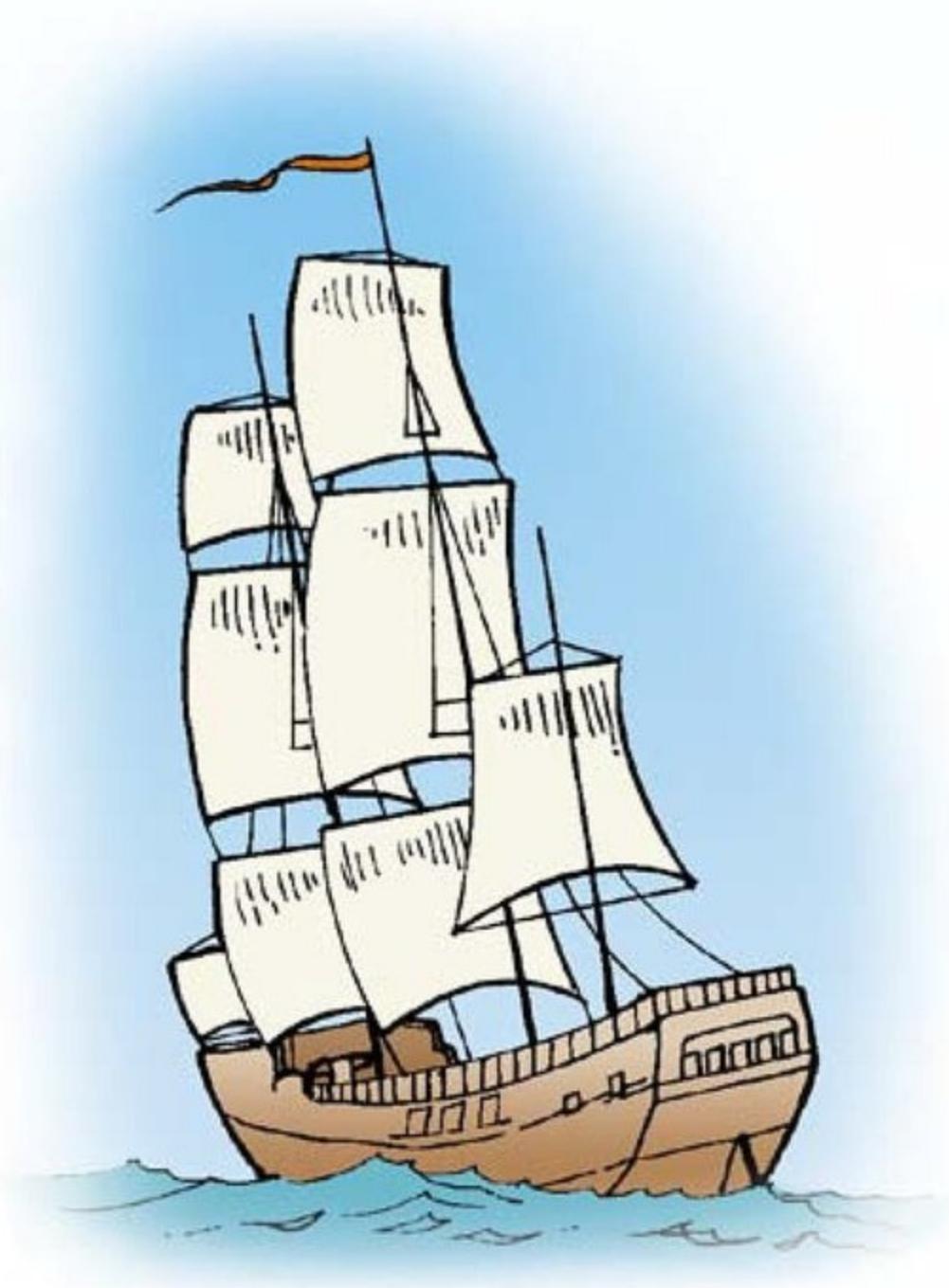
As sea exploration continued, the Spanish led the way. By the 1500s, European ship designs had improved. The newest ships, called galleons, were larger, faster, and more comfortable. These vessels were as long as 42.7 meters (140 ft), but were still small compared to the Chinese ships. Many of them had nice, comfortable living quarters. Galleons were capable of serving both as trading vessels and warships. Because of their size, galleons were able to carry many cannons on board, making them dangerous in battle.



Galleon

In the late 1700s, Captain James Cook undertook some of the greatest explorations of his time. On his first ship, the *Endeavour*, Cook sailed around the world. His ship was only 32 meters (105 ft) in length. It was smaller than many other ships and had a shallower draft, sitting only 4.3 meters (14 ft) deep when fully loaded.

Cook was not only a great sailor, but he also knew how to keep his crew healthy. He made them eat certain foods, such as limes and cabbages, to remain free from disease. Until Cook's time, up to one-half of the crew on a long voyage would die of **scurvy** or other diseases. Cook knew his success as an explorer depended on keeping his crew healthy.

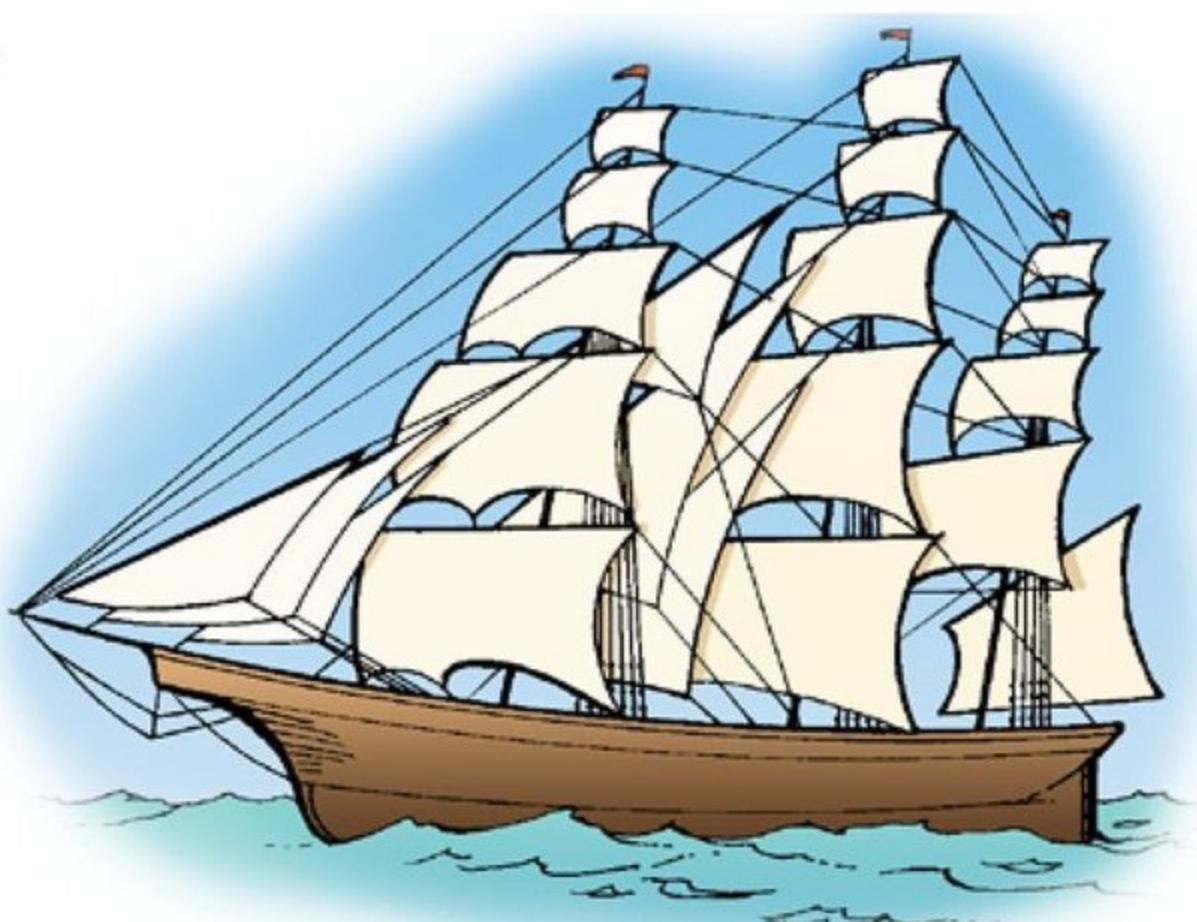


The *Endeavour*

Conclusion

By the middle of the 1800s, sailors had explored and mapped most of the world's coasts. As people settled farther from their homelands, better ships were needed to move people and supplies great distances. Fast ships called clipper ships carried people across oceans in a matter of days. Some of these ships had as many as thirty-five sails. In only a few years, however, the steam engine would replace wind power, ending the age of sailing ships.

When we look at some of the ships used by early explorers to sail across oceans, we have to admire their courage. Explorers and their ships of discovery helped create the world we live in.



Clipper ship

Glossary

accustomed (v.)	familiar with because of use or practice (p. 11)
caravels (n.)	small sailing ships used in the 1400s and 1500s (p. 13)
catamaran (n.)	a sailing vessel with twin hulls and a deck connecting the hulls (p. 9)
cultures (n.)	the ideas and customs of groups of people from different parts of the world (p. 5)
knarrs (n.)	Viking merchant ships (p. 11)
knots (n.)	units of measurement of a ship's speed equal to one nautical mile per hour (p. 12)
scurvy (n.)	a life-threatening illness common to early sailors that was caused by a lack of vitamin C (p. 18)
streamlined (adj.)	designed to move easily through air or water (p. 7)

Ships of Discovery
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