

What led Europeans to set out on voyages of exploration?

Reading



Set a Purpose

As you read this section, look for reasons why Europeans set out to explore and what changes in technology allowed them to do so.

Today, if you can access the Internet, you can virtually explore anywhere on Earth within seconds. Now try to imagine a time when most people had very little knowledge of the world outside of their village, town, or city. Medieval Europeans had looked inward. They knew little about world geography and had a superstitious fear of the unknown. Renaissance people were different. They had a great appetite for knowledge, and they also hungered for wealth. They were eager to explore the world to find both.

As you saw in Chapter 5, Medieval map-makers drew the world with Jerusalem at its centre (see Figure 5-17, page 167). During the

Renaissance, an ancient manuscript entitled *Geographia* was rediscovered and translated into Latin. It had been written by the geographer and astronomer Ptolemy around 150 CE. Ptolemy used mathematical calculations to make his maps, and this idea revolutionized Renaissance map-making. Renaissance map-makers based their maps on Ptolemy's work as well as on tales told by travellers.



FIGURE 10-2 This map of the world was created in 1459 by the Italian monk Fra Mauro. Fra Mauro followed the convention of Muslim mapmakers of the time, who put south at the top of a map. What countries and continents can you identify on this map? What parts of the world are missing? Why?

TIMELINE

1325 CE

Aztecs establish city of Tenochtitlan in the Valley of Mexico

1325–1354 CE

Journeys of Ibn Battuta

1405–1433 CE

Voyages of Chinese explorer Zheng He

1420 CE

Prince Henry the Navigator sends out his first expedition

1453 CE

Fall of Constantinople

1488 CE

Dias sails around Cape of Good Hope



Beginning in 1325, Islamic scholar Ibn Battuta travelled from his home in North Africa through Africa, Asia, and even into Siberia. He followed overland trade routes established by Arab and Indian traders. In the 15th century, a Chinese admiral named Zheng He was sent on trading expeditions by the Ming government. He led a fleet of enormous ships called **junks** as far as Africa. (You will read more about Zheng He in Chapter 12.)

junk a Chinese sailing vessel, sometimes very large

Why did Europeans begin exploration at this time?

As you read in earlier chapters, more and more trade goods from Asia were pouring into Europe after the Crusades. Over time, luxury products such as silk, sandalwood, oils, gold, and spices (in particular, pepper) became necessities to the Europeans. As far as Europeans knew at this time, Asia could be reached only by travelling over land. This could take months, and traders were dependent on known overland routes and the cities that connected these routes.

Exploring to Find New Routes to Asia

Throughout the Middle Ages and the Renaissance, trade goods from Asia passed through the city of Constantinople to other cities of the Eastern Roman Empire (also known as the Byzantine Empire). Venice and Genoa, two port cities in northern Italy, had become wealthy by selling these goods to the rest of Europe. In 1453, trade with Asia came to a sudden halt when Constantinople fell to a Turkish army, marking the end of the Eastern Roman Empire. For European Christians, the door to Eastern Asia had been slammed shut.

Although the fall of Constantinople was a disaster for Venice and Genoa, people living in Spain, Portugal, France, Holland, and England held a different view. They had paid high prices for goods bought from the Italian merchant families. They believed that a sea route to the East, rather than an overland route, was the solution to their trade problems. A sea route would give them control over their supply of goods. They also hoped to get rich by bringing in spices and other trade goods to sell on the European market.

Did You Know?

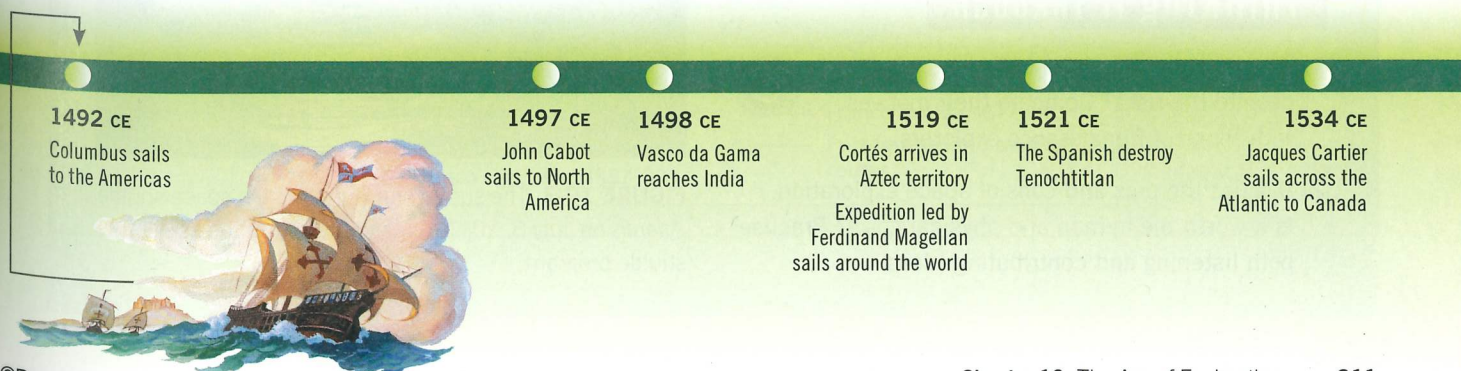
Constantinople (now called Istanbul) is located between the Black and Aegean Seas. This prime geographic location made the city a vital link between the eastern trade routes and Europe.

Reading



Ask Meaningful Questions

As you can see on the timeline, overseas exploration exploded over a hundred-year period. What questions would you ask these explorers if they were alive today? Make a list, and see how many of your questions are answered as you study this chapter.



How did improved technology allow Europeans to explore the world?

In the 15th century, European long-distance voyages and exploration were made possible by two technological improvements. The first was ship design, especially in the new and more **manoeuvrable** ship called a caravel. Caravels had **lateen sails**, which allowed for greater manoeuvrability. They also had large, rounded holds to carry supplies and cargo. These ships were much more suitable for long sea voyages. The second was the development of more accurate instruments for **navigation**. With these new technologies, European seafarers would become masters of the seas.

The winds of the world flow like rivers of air. In the northern hemisphere—the part of Earth north of the equator—the prevailing winds are from the west. Sailing west into the Atlantic Ocean meant that a ship had to sail partly into the wind. The development of the caravel would make that much easier and faster.

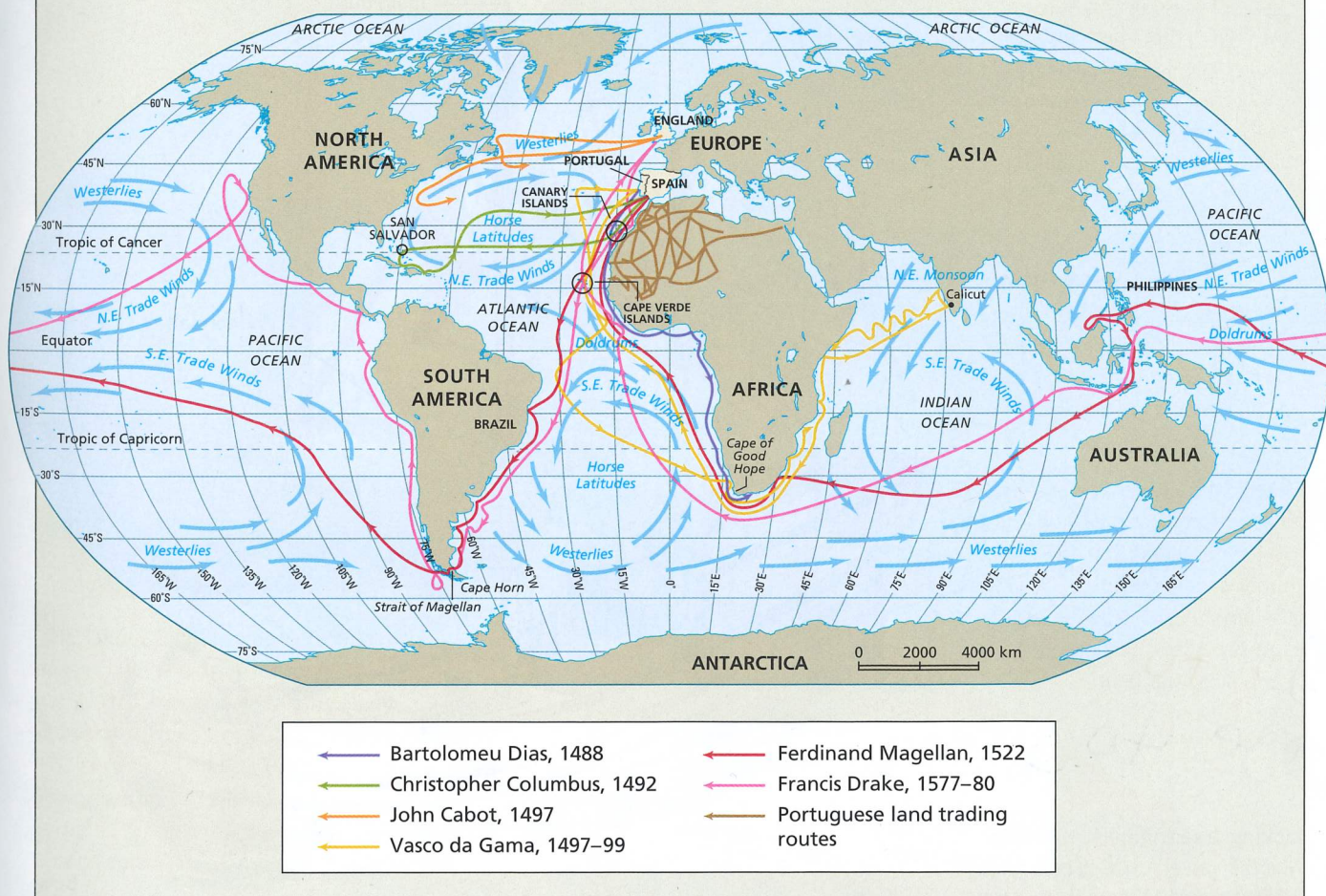
manoeuvrable easy to handle

lateen sails triangular sails on a short mast

navigation the science of guiding a ship

FIGURE 10-4 The routes of the early European explorers. You will read more about these voyages later in this chapter. This map also shows the directions of prevailing winds. Examine the directions of the winds. How does their direction affect the routes selected?

European Explorers, 1488–1580



WEB LINK

To learn more about the history of navigation, visit our website.

cartographer someone who makes maps

Pole Star a very bright and visible star very close to the north celestial pole; also called Polaris





FIGURE 10-5 Which of these instruments do you think was most important for navigation? Do you think these instruments made it easier for Europeans to travel into unknown territories? Explain.

Advances in Navigation Technology

Ship captains in the 15th century liked to sail within sight of land. Venturing into the open ocean was risky, because captains had very few navigational instruments to help them find their way on a long journey by sea. They depended almost entirely on their knowledge of particular areas, which they acquired through experience and from talking with other captains.

Prince Henry of Portugal, who became known as Prince Henry the Navigator, was very interested in navigational technology and exploration. He sponsored voyages of exploration along the west coast of Africa. He also established a centre where **cartographers**, mathematicians, astronomers, sailors, and navigators gathered to share their knowledge. They improved navigational instruments and created maps. They also created mathematical tables that helped sailors determine their latitude—their distance north or south of the equator.

Instruments for Navigation

Instrument	Use of Instrument	Origin of Instrument
FIGURE 10-5 a. Compass 	Used for finding the direction in which a ship is travelling; essential to navigation.	Thought to have been first developed in China about 1700 years ago; used by Arab travellers in navigation.
FIGURE 10-5 b. Astrolabe 	Used the Pole Star or sun to calculate latitude, the distance north or south of the equator. Helped sailors find their location in the open ocean.	Thought to have been developed by ancient Greeks; further developed by Arab mathematicians and astronomers.
FIGURE 10-5 c. Cross-staff 	Also used to measure the altitude of the Pole Star or sun to determine latitude. Required users to stare directly at the sun.	Invented around 1342 for astronomy and first used around 1514 for navigation.
 FIGURE 10-5 d. Back-staff	Used to measure the altitude of the sun or moon to determine latitude. Users kept their back to the sun to measure shadows.	Developed in 1594 as an improvement over the cross-staff.

scurvy a potentially fatal lack of vitamin C, usually brought about by a poor diet. Sufferers become weak, their skin gets splotchy, their gums swell and bleed, and their teeth loosen and fall out.

mutiny an open rebellion of sailors against their officers; usually punishable by death

colony a territory inhabited and ruled by settlers from another country

Did You Know?

The southern route around Africa was a Portuguese state secret. A Portuguese captain who guided any but an authorized Portuguese expedition would have faced execution.

Where did early European explorers travel?

Today, we can look at a map of the world to see how a ship might sail from Europe to Asia. Early Europeans had to explore in order to find routes that were as fast and as safe as possible. These long voyages of exploration were nerve-racking for the crew. Sailors had to have unshakable faith in their captain, who was typically the only person on the ship who was able to use navigational instruments. Daily life for sailors was very difficult. They often spent weeks with very little food and a steadily declining supply of fresh water. Hunger, diseases such as **scurvy**, and fear of the unknown could easily lead to **mutiny**.

Portuguese Expeditions

In the 15th century, Portugal was a relatively poor country with a small population, yet it led its larger, wealthier European neighbours in exploration. When you look at a map of Europe, you will see how Portugal's geographic position helped set it on this course. It is one of Europe's most westerly countries, and its coastline faces the Atlantic Ocean. Prince Henry the Navigator had also given his country a head start in the science of navigation.

Bartolomeu Dias

In 1488, Bartolomeu Dias accomplished what no European had ever done before: he sailed around the southern tip of Africa. He then began travelling north along the eastern coast, wanting to sail into the Indian Ocean. However, his crew was afraid. They rebelled and would not go on.

Vasco da Gama

In 1497, King Manuel of Portugal sent Vasco da Gama to explore the sea route around Africa. Da Gama was a tough and ruthless soldier and brilliant navigator. He was able to keep control of his crew. After 93 days at sea, his expedition sailed into the Indian Ocean. Following the guidance of Arab pilots, who were responsible for conducting ships into and out of port or through dangerous waters, he then sailed to India.

The sea route around Africa to the East had now been established. By 1550, Portugal had trading posts and **colonies** in Africa, India, Brazil, and Southeast Asia.



FIGURE 10-7 The southernmost point of the continent of Africa is Cape Agulhas. Today, the waters off the cape are known to be very dangerous, with strong currents and giant rogue waves.

The British

Northern Europeans also set out on their own voyages of exploration. In 1497, Henry VII of England gave Venetian explorer John Cabot and his three sons **letters patent** to sail to the west and north in search of new territories. These letters not only gave the Cabots permission to explore in the king's name, but to claim any new territories they found—no matter who might already be living there.

Cabot

The Cabots travelled to what is now eastern Canada, probably near Cape Breton or Labrador. They recorded what they saw there and reported back to the king. Later, England sent William Baffin, John Davis, and Martin Frobisher to the northern waters of Canada to search for the Northwest Passage. They thought that there must be a route to Asia through Arctic waters. This idea was very appealing to the English. Some European countries were already deeply competitive when it came to trade with Asia, and the English felt that they would be able to control a northern route if they found it first. While explorers such as Frobisher were not successful in finding the Northwest Passage, they did explore much of the western Arctic. They also made contact with Inuit peoples, and began trade with them.

letters patent an official document giving a person authority to do something

FAST FORWARD



The Northwest Passage

For centuries the Northwest Passage remained nothing but a theory, even though some explorers were obsessed with finding it. No one was able to completely wind their way through the Arctic islands until Roald Amundsen did so in 1905 (and that voyage took three years). Seasons when the waters were clear of ice were very short, and wooden ships were helpless once the ice set in.

However, climate change has started to make a difference. Until 2000, the winter pack ice still made regular shipping impossible. Warmer temperatures have now begun to melt the ice, leaving waters open for longer. The ice is also thinner, and ships can now break through. Climate change may make the Northwest Passage an important shipping route after all.



FIGURE 10-8 A sailboat passes by broken ice in the Northwest Passage.

Thinking IT THROUGH

1. Do some research on climate change and its impact on Canada's North. Choose one or two things you consider to be the most urgent. Share your findings with a small group. As a group, listen carefully to everyone's contributions, and then choose one issue to share with the class. Is there any action you might take to help remedy the issue? Consider what you might do on a personal level, as a class, or as a larger school community.



missionary a person sent by a church to convert people

The French and the Dutch

Beginning in 1534, Jacques Cartier made three voyages across the Atlantic to Canada. He sailed up the St. Lawrence River, claiming the land for France.

Dutch merchants also hoped to establish colonies and take part in trade. The first Dutch ships to complete a circumnavigation of the globe, led by Olivier van Noort, left Holland in 1598. For a small country, Holland quickly became powerful. The Dutch East India Company, founded in 1602, dominated the rich spice trade with Southeast Asia.

Spain

By 1492, Queen Isabella and King Ferdinand of Spain were eager to join the spice trade with Asia. A Genoese navigator named Christopher Columbus convinced Isabella that he could find a new trade route to Asia by sailing west. After about five weeks at sea, Columbus's expedition landed on a Caribbean island that he named San Salvador. There he encountered Arawak peoples, including the Taíno, who welcomed the Spanish and traded with them.

Other Spanish explorers, **missionaries**, sailors, and soldiers would follow. In time, Columbus's voyages would result in the creation of a vast Spanish empire in the Americas.

Did You Know?

On Columbus's second voyage to the Caribbean, he demanded tribute from the Taíno. Tribute is wealth given as a sign of respect or submission. Every person over the age of 14 was required to give Columbus gold or cotton. Those who did not were cruelly punished.

EXPLORING SOURCES

Images of Columbus

Thinking IT THROUGH

1. What perspectives are shown in these two images of Columbus?
2. What might account for the differences in these views of Columbus?



FIGURE 10-9 A modern poster of Christopher Columbus.

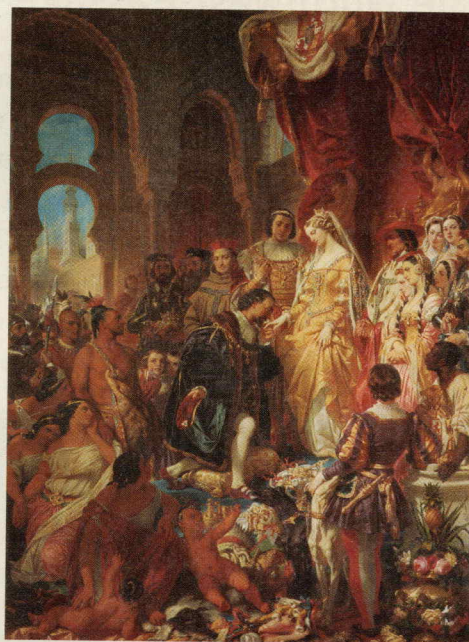


FIGURE 10-10 This painting of Columbus being received at the Spanish court after his first voyage was created by the French artist Eugène Devéria in the 1800s.