



◀ With a large army, the first emperor of the Han dynasty marches toward his capital.

The Han Dynasty

23.1 Introduction

In Chapter 22, you learned about Qin Shihuangdi, China's first emperor. The Qin dynasty lasted only about 14 years. In this chapter, you'll learn about China's next dynasty, the **Han dynasty**. It lasted over 400 years, from about 206 B.C.E. to 220 C.E.

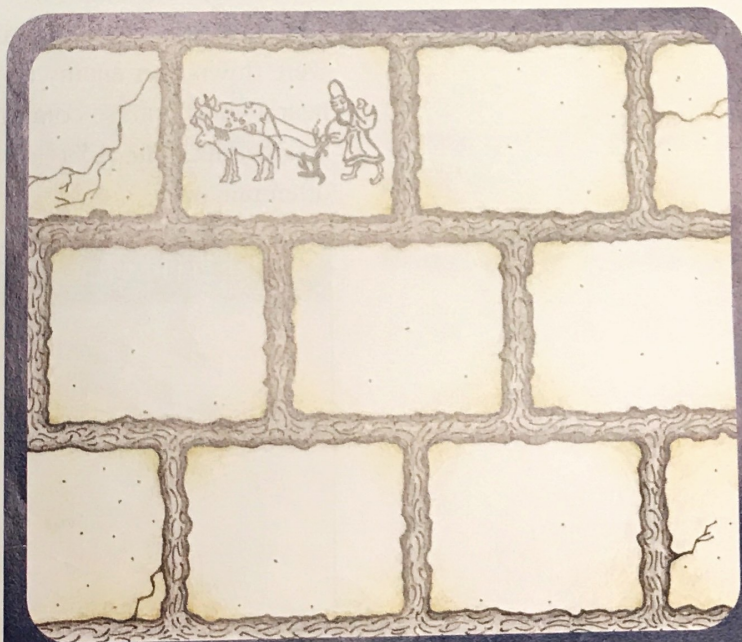
The Han (pronounced *hahn*) dynasty arose during a time of unrest. The Chinese people were unhappy with the harsh, Legalist government of the Qin. After the first emperor's death, they rebelled against their Qin rulers. The Han dynasty began when Liu Pang, a rebel who had gained control of the Han kingdom, conquered the Qin army and established his own empire.

Over time, Han emperors began to change the way China was ruled. Han leaders came to believe that they could not rule people with force alone. Gradually, they incorporated Confucian ideals of moral behavior into the government.

Under the Han, China enjoyed a golden age, a long period of stability and wealth. Education, literature, and art flourished. Many important practices, inventions, and discoveries improved people's lives.

The Han dynasty was also known for its military achievements. Han emperors expanded the empire as far as present-day Korea and Vietnam. Once Central Asia was under its control, the Han established trade relationships with the West.

In this chapter, you'll explore **warfare, government, agriculture, industry, art, medicine,** and **science** under the Han dynasty.



Use this Han wall of achievements as a graphic organizer to help you learn about the Han dynasty.

23.2 Warfare

The Han excelled in warfare. Their military tactics and new weapons helped them expand their empire. At its height, the empire reached west into central Asia, east to present-day Korea, and south to present-day Vietnam.

The Han had a large and well-organized army. All men from about ages 25 to 60 had to serve two years in the army. Historians estimate that Han armies had 130,000 to 300,000 men.

The army was helped by new technologies. Advances in iron making improved the strength and quality of armor. Han ironworkers produced a kind of fish-scale armor that flexed and moved with the body. The Han were among the first people to make iron swords. The strength of iron allowed them to fashion longer swords. With a long sword, a soldier could swing at an enemy from a safer distance.

Another favorite weapon of the Han was the crossbow. A crossbow is made of two pieces of wood in the shape of a cross. A string is attached to each end of the vertical piece. That string is pulled back in order to shoot an arrow from the crossbow.

The Han invented the kite and used it in clever ways for military purposes. According to one legend, a Han general once used a kite to measure the width of a heavily guarded wall. Kites were used to send messages from one part of an army to another. They were also used to frighten the enemy. Kites with bamboo pipes were flown over enemy camps at night. Enemy soldiers would hear a ghostly noise coming from the darkness above them. It sounded like “*fu, fu*” (“beware, beware”). The frightened soldiers often ran away.

The Han Empire, About 80 B.C.E.



23.3 Government

The Han made significant improvements in Chinese government. They adopted the centralized government established by Emperor Qin Shihuangdi. But they softened the harsh ruling style of the emperor and brought Confucian ideas back into government.

The emperor used many government officials to help him run his vast empire. The government of China during this time was a **bureaucracy**. A bureaucracy is structured like a pyramid, with a few people at the top and many at the bottom. At each level, people direct those who are below them.

The top Han officials lived in the capital and gave advice to the emperor. Lower-level officials lived throughout the empire. Their responsibilities included checking roads and canals. They also had to make sure that enough grain was produced and stored in case of famine.

One key improvement made by the Han concerned the way civil servants were hired. Before the Han dynasty, government officials were chosen based on their social status. Under the Han, they were chosen based on their ability and knowledge. To become officials, young men had to pass a long and difficult civil service exam. The exam was based on the classic writings. Candidates had to learn five books by heart. Legend says they spent several days in tiny rooms taking the exam. All the while, they were watched by guards to prevent them from cheating.

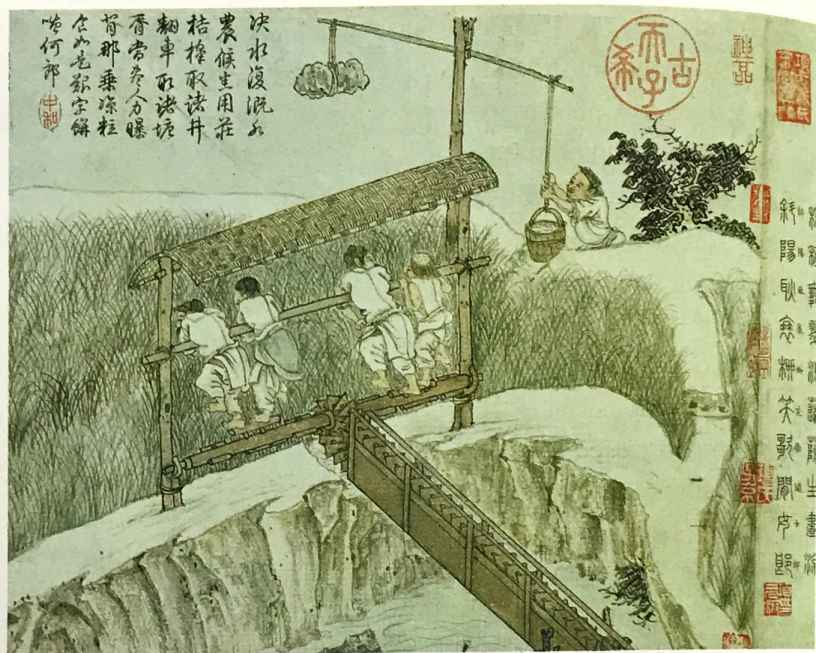
Once civil servants were hired, they were not allowed to serve in their home district. This rule was intended to prevent them from giving special favors to friends and relatives. Every three years, their work was evaluated. Based on their evaluation, they could be promoted or demoted.



This bronze statue shows a Han official riding in a chariot with an escort walking behind.

bureaucracy a form of government that is structured like a pyramid, with a few people at the top and many at the bottom

In this painting, a thatched roof shades men from the sun as they work the pedals of a chain pump, bringing water to their fields.



23.4 Agriculture

Ancient Chinese farmers faced many difficulties. Important advances in agriculture under the Han dynasty improved their lives.

Han farmers were expected to grow enough food to feed their own families and help stock the shared granaries, or grain storehouses. In addition to growing crops, farmers had to make their clothing, build their homes, and give one month of unpaid labor to the government for building projects such as canals and roads. All this was hard enough, but floods and drought often destroyed crops, presenting farmers with yet another challenge.

One invention that helped farmers was the chain pump. The chain pump made it easier to move water from low irrigation ditches and canals up to the fields. Workers used pedals to turn a wheel, which pulled a series of wooden planks. The planks moved water uphill to the fields.

The Han skill in ironwork also came to the farmers' aid. The Chinese were the first to learn how to pour melted iron into molds. This process made it easier to make strong iron plows. Han plows were designed to push the dirt away from the row being plowed so that it did not pile up in front of the plow.

Finally, the Han invented the wheelbarrow. The Chinese wheelbarrow had one large wheel in the center. Goods were carried on either side of the wheel. It was much easier for farmers to push a heavy load in a wheelbarrow than to carry it on their backs or in buckets suspended from a pole across their shoulders.

23.5 Industry

Like agriculture, industry benefited from advances made under the Han dynasty. The Han government controlled the two most important industries in China, silk and salt. Both industries were helped by new inventions.

Silk is a material produced from the fibers of a silkworm cocoon. For the ancient Chinese, making silk was difficult and time-consuming. During the Han dynasty, the Chinese developed a foot-powered machine that wound fibers onto a large reel, ready for use. Making silk production more efficient was important because silk was very valuable in trade with people outside of China. The silk trade began under the Han. You'll learn more about it in the next chapter.

Salt was an equally important trade item. Salt was valuable to people in ancient times because they used it to help preserve meat and vegetables. At first, people only knew how to get salt from the sea. During the Han dynasty, the Chinese learned how to mine salt from under the ground.

Salt water, or brine, exists deep beneath Earth's surface. The Chinese dug deep wells using iron-tipped bamboo drills. When they reached salt water (sometimes 1,000 feet below the surface), a hollow bamboo pole was dropped into the well. The pole had a valve that allowed the salt water to enter the pole. The valve was then closed, and the pole was brought back to the surface with the salt water inside. Workers placed the water in large iron pots. The pots were heated until the water evaporated, leaving just the salt. In this way, the Chinese could get salt even if they were far from the sea.

The production of silk was an important industry under the Han. This foot-powered reeling machine threaded silk fibers through a series of guides and onto a large reel.



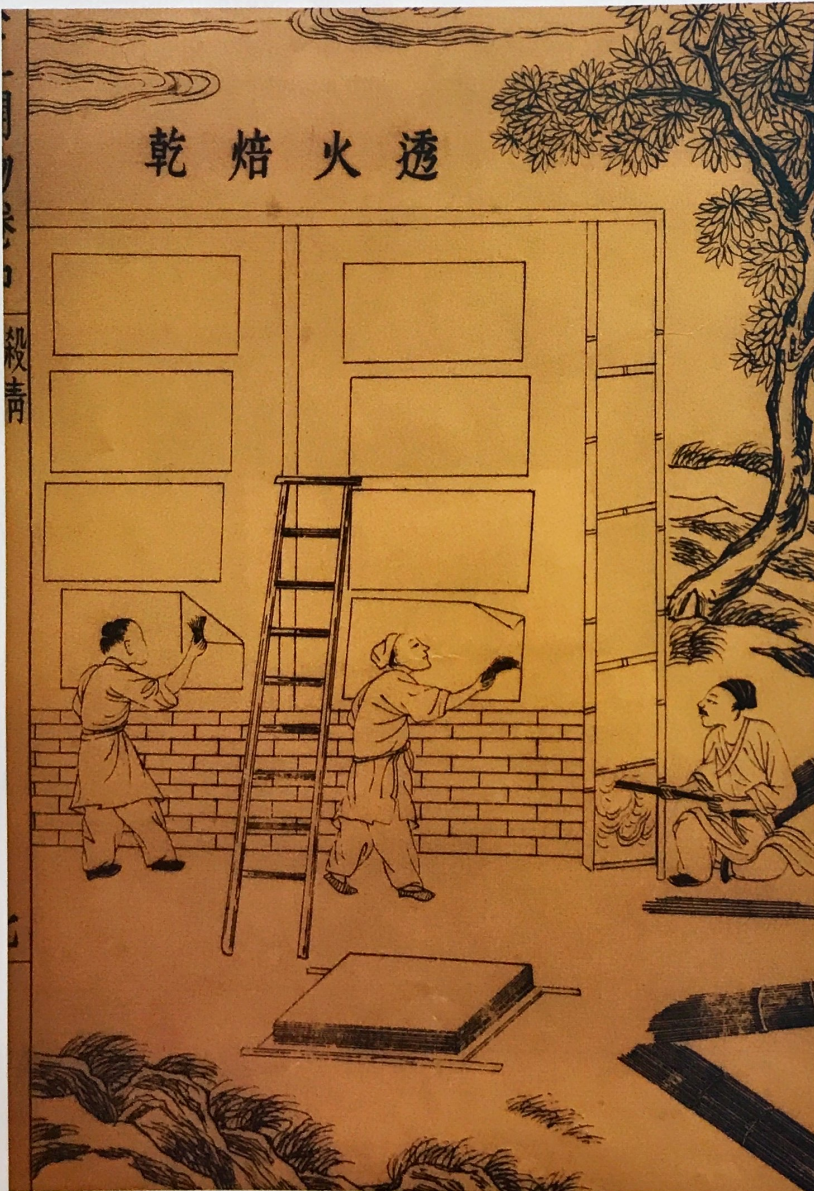
calligraphy the art of fine handwriting

23.6 Art

A key advance in art under the Han was the invention of paper. Paper was the ideal material for **calligraphy**. Calligraphy was an important art form to the Chinese. They particularly valued a style of writing that flowed naturally, as if inspired by nature.

Chinese scribes used some of the same tools and techniques as painters did. They wrote their characters by painting them with a brush and ink. Characters were created by one or more strokes, drawn in a particular order. The ideal stroke was done quickly and created both delicate and bold lines. Paper was perfect for this art because it absorbed the ink well.

This 19th-century woodblock print shows papermakers hanging sheets of paper on a wall.



Before the invention of paper, the Chinese wrote on silk. Silk could easily be rolled into scrolls, but it was very expensive. People also wrote on bamboo. They wrote their symbols vertically on bamboo strips. To make books, they tied a series of strips together in a bundle. Bamboo was cheaper than silk, but it was bulky and awkward to use.

The invention of paper in about the first century C.E. not only helped calligraphers but also changed the way people communicated. Paper was cheaper than bamboo or silk, so people could afford to write more. Paper was also easier to bind together into books.

A variety of materials were used to make paper, including silk fibers, hemp, bamboo, straw, and seaweed. Materials were boiled into a soupy pulp. Then a screen was dipped into the pulp and brought out again. When the pulp dried on the screen, the result was paper.

23.7 Medicine

The practice of medicine under the Han involved ideas and treatments that are still used in traditional Chinese healing today. The ancient Chinese believed that illnesses happened when the forces of yin and yang in the body were out of balance. Healers tried to restore the natural balance of these opposite forces.

One technique for this purpose is acupuncture. In acupuncture, thin needles are inserted into specific parts of the body. This is thought to rebalance the forces of yin and yang. Acupuncture is thought to be useful for curing illnesses that strike quickly, like headaches.

A second healing technique is moxibustion. In moxibustion, a small cone of powdered leaves or sticks called a *moxa* is placed on the skin and set on fire. The heat is believed to reduce pain and promote healing. This technique is used to treat long-term diseases, such as arthritis.

The ancient Chinese also made discoveries about how the human body works. For example, they learned to judge health by listening to a person's heartbeat or feeling his or her pulse. The pulse is the little throb in your blood vessels caused by the contraction of your heart as it pumps blood through the body. The Chinese also discovered that blood circulates from the heart through the body and back to the heart. Western science did not make this discovery until the 1600s C.E.

Finally, Han doctors discovered a type of wine that could be used as an **anesthetic**.



These doctors are performing the healing technique of moxibustion. This technique is still used today, often in combination with acupuncture.

anesthetic something that takes away the feeling of pain

23.8 Science

The Chinese under the Han made a number of scientific advances. Chinese astronomers closely observed the heavens. They recorded the appearance of comets, which they called “broom stars.” They discovered that the moon shines because it reflects the light of the sun. They also learned that solar eclipses happen when the moon blocks our view of the sun.

The Chinese of this period also invented two useful instruments, the seismograph and the magnetic compass. A **seismograph** is an instrument for detecting earthquakes. The first Chinese seismograph was a circular machine made of bronze. The machine had a pendulum in the center and was surrounded by eight sculpted animal heads. During an earthquake, the pendulum vibrated. The vibration triggered the release of one of eight balls. The ball would then fall in the direction of the earthquake. Using this ingenious machine, the Han were able to detect earthquakes up to several hundred miles away.

A magnetic **compass** is an instrument for determining direction, such as which way is north or south. The Chinese believed that it was important to place temples, graves, and homes in the correct position for luck. By the 200s C.E., they understood that a **lodestone** tends to align itself in a north-south direction because of Earth’s magnetism. With this knowledge, they used lodestones to make compasses. The lodestone was carved into the shape of a spoon with a handle that would always point south.

seismograph an instrument for detecting earthquakes

compass an instrument for determining direction

lodestone a type of iron ore

The Chinese “south-pointing spoon” is the oldest known compass.



23.9 Chapter Summary

In this chapter, you read about the Han dynasty. The Han ruled China for more than 400 years. Most of this period was a time of peace, wealth, and achievement for China.

Under the Han, the Chinese made advances in many areas. New weapons helped Han emperors succeed in war and expand their empire. The government was organized into a bureaucracy staffed by civil servants who were chosen for their ability. A number of inventions improved agriculture and the important silk and salt industries. The invention of paper advanced the art of calligraphy. Healers used techniques and practices that are still used today. Finally, Chinese scientists made important observations and invented the seismograph and the compass.

The many achievements of the Han left a deep impact on Chinese culture. In fact, in Chinese the word *Han* is still used today to describe the culture of the people of China.

In earlier chapters, you learned that at one time China was isolated from other cultures. In the next chapter, you'll learn how the silk trade encouraged an exchange of wealth and ideas between China and the cultures of the West.

Emperor Wudi, the figure in the center, improved government by setting up a university to prepare students for the civil service exam.

