

ARCHAEOLOGY

The warriors were originally brightly painted, but the colors have faded over time. This model shows what one of them may have looked like.

ANCIENT ARMY

Were China's 2,200-year-old terra-cotta warriors based on real soldiers?

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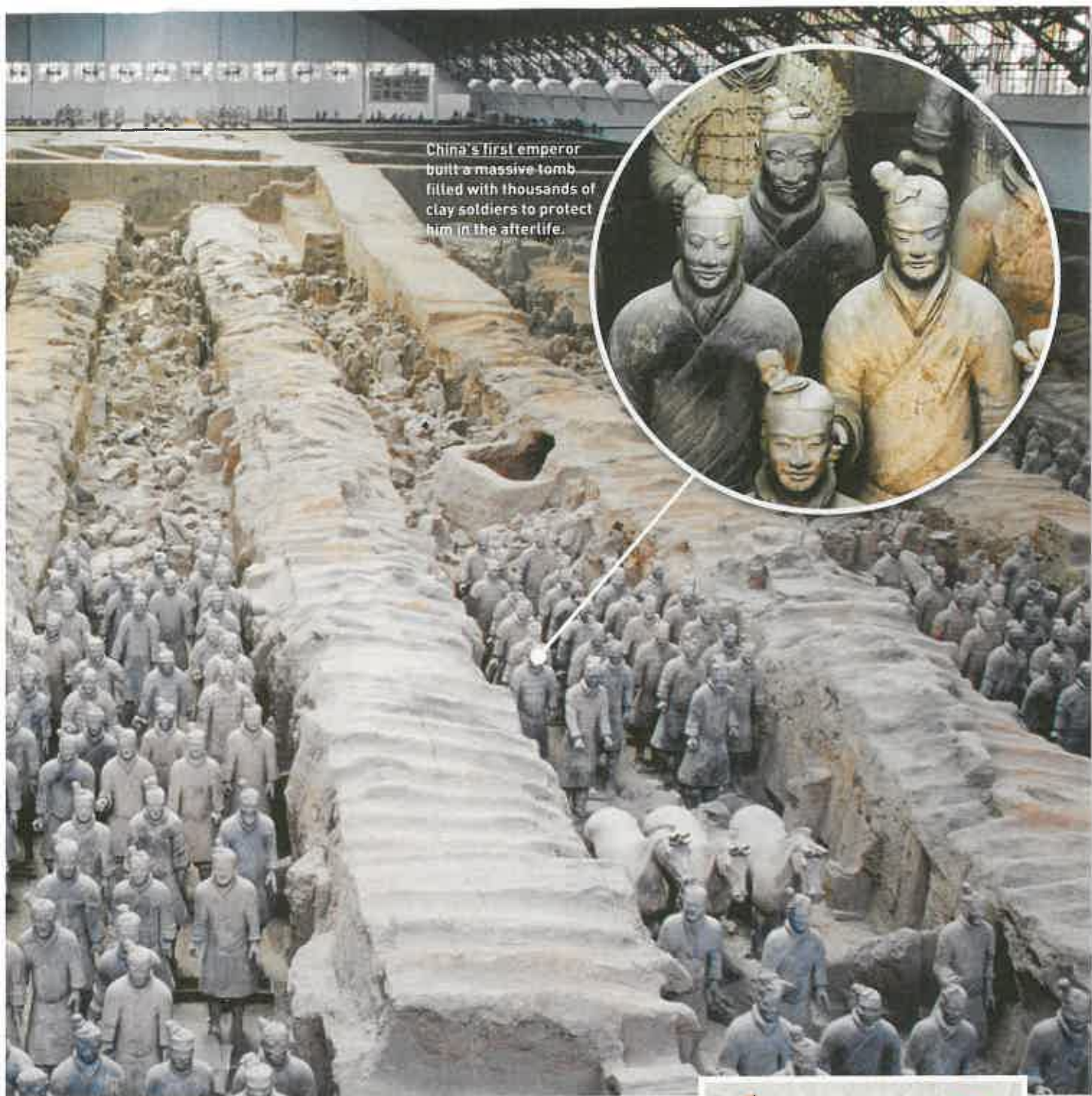
In 1974, workers digging a well near the ancient city of Xi'an (*shee-an*) found a life-sized clay warrior buried deep underground.

The 2,200-year-old statue turned out to be part of a massive army made of terra-cotta, a type of hard clay. In the 40 years since, **archaeologists** have uncovered about 2,000 terra-cotta warriors in the area.

The statues are buried near the tomb of China's first emperor, Qin Shi Huangdi (*chin shuh hwong-dee*), who ruled from 221 B.C. to 210 B.C. (See "China's First Emperor," p. 11.) Each warrior is dressed differently and has a unique hairstyle and facial expression.

Archaeologists say the terra-cotta army was meant to protect

PURE RENDERING: INTERNATIONAL GEOGRAPHIC CREATIVE
TERRA-COTTA WARRIOR: KRZYSZTOF DUDYNSKI/WIREIMAGE
PLANET IMAGES/GETTY IMAGES (CLAY SOLDIER TOMB)



China's first emperor built a massive tomb filled with thousands of clay soldiers to protect him in the afterlife.

the emperor in the afterlife. Some of the soldiers carry real weapons, including bronze swords, spears, and bows and arrows. But was each terra-cotta warrior modeled after a specific soldier in Qin's real army?

To try to find out, a team of archaeologists from England and China recently analyzed some of the statues' ears. Why the ears?

Because no two human ears are exactly the same.

"They act a bit like individual fingerprints," says team member Andrew Bevan of University College London.

To avoid damaging the statues, which remain in place at the burial site, the team took digital photos of



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An archaeologist cleans one of the terra-cotta warriors. Some of the statues have been damaged over the years.



30 warriors' ears. Then they used the photos to make 3-D models of each ear (*above*).

After studying the models, the scientists found that each statue *does* have unique ears. That means it's possible that ancient artists used actual soldiers in Qin's army as models.

"Based on this initial sample, the terra-cotta army looks like a series of portraits of real warriors," team member Marcos Martín-Torres told *National Geographic*.

Hidden Treasures

By studying the terra-cotta army, researchers have learned a lot about ancient Chinese culture.

Before Qin came to power,

Scientists made models of the soldiers' ears. No two ears were alike.

China was divided into seven states that were constantly at war. By 221 B.C., Qin had united all the states under his rule.

Soon after taking the throne, Qin built a vast army to protect his empire. He also ordered 700,000 workers to build the elaborate underground palace where he would be buried. It took the workers nearly 40 years to build the 22-square-mile complex. Experts say that Qin's tomb may be the largest in history.

The burial site includes several pits where terra-cotta soldiers are arranged in neat rows according to their military rank. Most of the figures wear suits of armor. Each statue stands about 6 feet tall and weighs more than 600 pounds. Some of the soldiers ride on chariots pulled by clay horses.

The warriors were originally painted with bright colors made from minerals, metals, or bone. Unless preserved, the paint

turns to dust when exposed to air. That's what happened when researchers unearthed the statues in 1974. Today, archaeologists can preserve any bits of paint on newly uncovered statues by spraying them with a special chemical.

Scientists estimate that there may be up to 8,000 figures in the burial complex. In addition to the terra-cotta soldiers and horses, archaeologists have uncovered clay dancers, musicians, and acrobats to entertain the emperor in the afterlife, as well as life-sized statues of geese, swans, and cranes.

So far, only a small fraction of the tomb has been **excavated**. Most of it remains underground, including the body of the emperor himself.

Before digging into the royal tomb, archaeologists want to make sure that they can properly preserve its contents. There's no telling what treasures remain hidden inside.

—Rebecca Zissou

YOUR TURN

Do you think it's important to study ancient artifacts? Explain.

IMAGE 10: O. LOUIS MAZZANTINI/NATIONAL GEOGRAPHIC STOCK (ARCHAEOLOGICAL SCIENCE (CLAY EARS); PAGE 11: PETER ADAMS/AWL IMAGES/GETTY IMAGES (GREAT WALL OF CHINA); THE ORANGER COLLECTION (FIRST EMPEROR OF QIN); EAGLETT IMAGES (CHINESE BOTTLE AND HERBS)

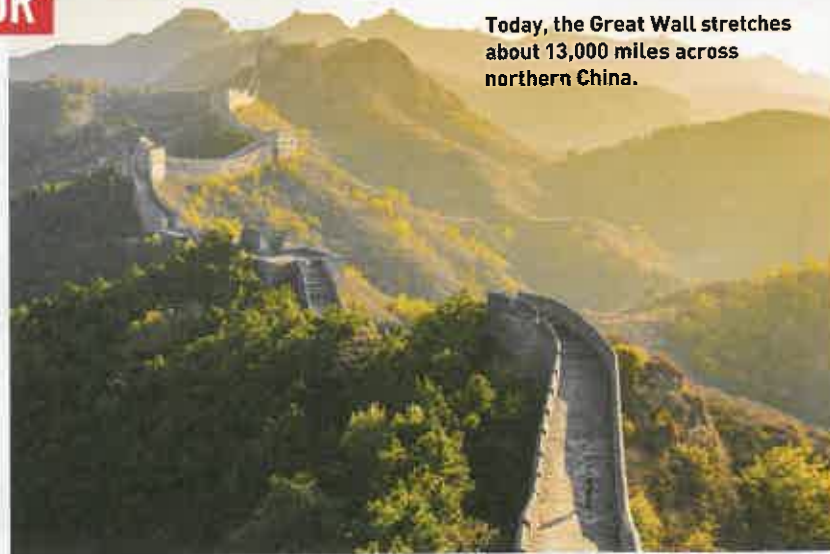
CHINA'S FIRST EMPEROR

Qin Shi Huangdi was born with the name Zhao Zheng (*jao jung*) in 259 B.C. After the death of his father when Zheng was 13, he became the king of the state of Qin.

At the time, there was no single nation of China, only a collection of seven independent states that had been at war for more than 200 years.

Early in his reign, Zheng began a campaign to conquer the other six states. By 221 B.C., he had defeated all the states and united them under his rule. To mark the occasion, Zheng adopted a new title, Qin Shi Huangdi, which means "First Emperor of Qin."

Qin then set out to unify the seven states into one empire. He ordered the construction of roads and canals to make travel and



Today, the Great Wall stretches about 13,000 miles across northern China.

trade easier. He also created a standard system of currency, measurements, and writing, which until then had varied widely across the states.

To keep out invaders from the north, the emperor ordered the construction of the first version of the Great Wall of China around 220 B.C. It took hundreds of thousands of people more than 10 years to build.

The Tiger of Qin

The emperor was a ruthless leader who sought to destroy anyone who opposed him. His cruelty earned him the nickname the Tiger of Qin. If people criticized him in public, he had them buried alive. He even had some of the

laborers who built his burial complex put to death so they couldn't reveal its location.

Qin was terrified of death. He went to great lengths to hide his whereabouts. The emperor had more than 270 palaces connected by covered walkways. Anyone who disclosed his location would be executed.

He also forced thousands of workers to look for herbs and potions that he thought would allow him to live forever. Qin himself traveled around the empire to find those herbs.

In 210 B.C., the emperor died on one of those trips, possibly by accidental mercury poisoning. Qin's son took over the throne, but he was a weak leader and rebellions erupted soon after he came to power. In 207 B.C., the empire collapsed.

Still, the **dynasties** that came after Qin's rule kept many of his political and economic reforms in place. In a way, the emperor achieved immortality after all. He remains the leader who united the place we know today as China.

