

A large-scale photograph of the Terracotta Army in Xi'an, China. The image shows numerous rows of terracotta soldiers and horses, arranged in a grid-like pattern within a deep, earthen excavation site. The soldiers are dressed in traditional Chinese armor and robes, and some are mounted on horses. The background is filled with more rows of figures, extending into the distance. A solid blue rectangular shape is positioned in the top right corner of the image.

THE  
WARRIORS  
OF

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The first emperor of China ordered the construction of a monumental mausoleum, guarded by a giant underground army formed by thousands of soldiers.

MARCOS MARTINÓN-TORRES





### **BATTLE READY**

Thousands of life-size terra-cotta soldiers stand in Pit 1, the largest repository of figurines at the third-century B.C. funerary complex of Emperor Qin Shi Huangdi, near Xi'an, China. Discovered in the 1970s, the terra-cotta army was created 2,200 years ago to protect China's first emperor in the afterlife.

OLEKSIY MAKSYMENKO/ALAMY/CORDON PRESS





**AT THE READY**

An archer is poised to strike despite his bow having decayed. This figure was found in the north section of Pit 2.

ALAMY/CORDON PRESS



The land belonging to farmer Yang Zhifa in eastern China was covered by fruitful orchards of persimmon and pomegranate trees. In 1974, while digging a well, his spade struck something unexpected in the soil: a man's head.

On closer inspection, Yang saw that the object was clay, not bone. He alerted the local authorities, and over the months that followed, Chinese archaeologists made an astonishing discovery. Under Yang's peaceful orchards lay a man-made army: thousands of life-size terracotta soldiers and hundreds of sculpted horses, along with bronze carriages and weapons.

The figures were unearthed less than a mile to the east of the third-century B.C. resting place of Qin Shi Huangdi, China's first emperor and one of the most important figures in its history. Today a UNESCO World Heritage site that attracts millions of visitors every year, the complex—including not only the vast terra-cotta army but also the tombs of real people—is regarded as the biggest funerary complex in the world, extending more than 25 square miles.

Four pits have so far been excavated: The first pit—by far the biggest—contains the infantry; the second pit contains archers, chariots,

infantry, and cavalry, and perhaps represents an encampment. The third pit, much smaller, contains high-ranking officials, and the fourth one is empty (some think the emperor died before its contents were completed).

More than 2,000 warriors have been recovered to date, but that's just a fraction of the army. The total number is believed to be around 8,000, and archaeologists suspect more pits still lie undiscovered. Once painted in vivid colors, the figures represent numerous military occupations and ranks and display a variety of different facial features and costumes. The vast resources and manual labor required to manufacture them 2,200 years ago has made them a global icon of the military and artistic achievement of the Qin dynasty.

**Unity and Tyranny**

The future emperor was born Zhao Zheng in 259 B.C. At age 13 he became king of the province of Qin. By 221 B.C. he had conquered several other provinces and proclaimed himself Qin Shi Huangdi ("the First August Emperor of Qin"). His short reign was marked by major advances in centralizing power as well as acts of tyranny. He standardized writing, weights and measures, and monetary and legal systems. During his reign, building the Great Wall began. The first emperor also won notoriety for burning books and persecuting intellectuals.

**THE BRIEF QIN DYNASTY**

**221 B.C.**

Qin Shi Huangdi becomes the first emperor of China after defeating rival kingdoms.

**215 B.C.**

A wall is begun, linking northern defensive fortresses, the origin of the Great Wall of China.

**213 B.C.**

The emperor orders the burning of classical books and has Confucian scholars executed.

**210 B.C.**

Qin Shi Huangdi dies and is buried in the Xi'an mausoleum near the underground terra-cotta army.

**206 B.C.**

Beset with internal crises, the Qin dynasty collapses. The new Han dynasty desecrates the Xi'an monument.



**BURNED AND BURIED**

An 18th-century painted album leaf depicts events chronicled by second-century B.C. historian Sima Qian, in which Qin Shi Huangdi burned Confucian texts and hurled scholars into a pit. Bibliothèque Nationale, Paris

GRANGER/AURIMAGES







秦始皇  
 姓嬴名政始自始皇乙卯即王位庚辰并天下稱皇帝  
 在位三十七年居王位二十五年即帝位十二年壽五十

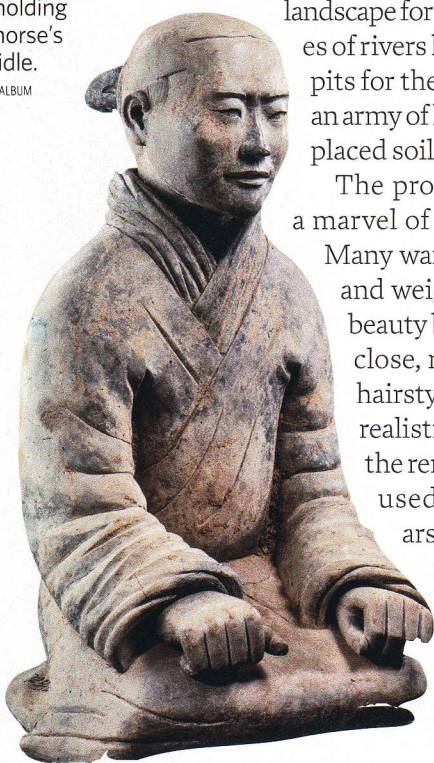
QIN SHI HUANGDI  
 19TH-CENTURY  
 PORTRAIT OF CHINA'S  
 FIRST EMPEROR.  
 NATIONAL PALACE  
 MUSEUM, TAIPEI  
 HERITAGE/SCALA, FLORENCE

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### READY FOR WORK

Found in Pit 2, a young squire (below) is positioned as if holding a horse's bridle.

AKG/ALBUM



The enormous mausoleum he built for himself near Xi'an speaks of the resources at his disposal: Sources say Qin Shi Huangdi employed hundreds of thousands to build the complex and its contents. He also altered the landscape for his funerary complex: Courses of rivers had to be altered. Digging the pits for the figures would have required an army of laborers to carry away the displaced soil.

The production of the figurines is a marvel of both logistics and artistry: Many warriors stand as tall as six feet and weigh about 450 pounds. Their beauty becomes more impressive up close, revealing the details of their hairstyles, their facial features, the realistic folds of their clothing, and the remnants of the pigments once used in their coloring. Scholars have long debated as to the methods behind their creation and have done hands-on experiments to try to reverse engineer the process.

The feat is even more impressive in the context of Qin Shi Huangdi's reign. Even assuming that he had ordered its construction before unifying China and proclaiming himself emperor in 221 B.C., there were only a few years to complete the work before his death, in 210 B.C. During his reign, China was a mosaic of cultures, ethnicities, and religions. The idea of a centralized and authoritarian political power giving orders from a remote capital through civil servants was still alien and highly difficult to communicate and implement.

### Seeking Immortality

The first emperor regarded himself as the ruler of an immense territory and a monarch who unified the world of the spirits. The written sources explain that Qin Shi Huangdi sought potions to extend his life and dispatched envoys to look for such elixirs. His great tomb is a testament to the quest of immortality, in that this great monument would remind future generations of his greatness.

Archaeologists have yet to excavate the emperor's burial mound itself. To create it, workers excavated to a depth of 100 feet, then constructed a sepulchre before covering it with a pyramid-shaped mound standing more than 165 feet high. Much speculation surrounds what might be inside. China's second-century B.C. historian Sima Qian recorded that the emperor's remains might be protected by rivers of mercury and traps to stop intruders.

Both the mausoleum's design and the materials used reveal the intention of surrounding himself with what he needed in the afterlife. Its construction was intended to reinforce his power while alive, an extraordinary display of the supremacy of a new sovereign, capable of mobilizing all the materials, workers, and knowledge needed to create something on an unparalleled scale and splendor.

News about this ostentatious project probably resonated all the way to the outer limits of Qin China. It contributed to the mystic aura of an emperor so rich and powerful he could create a life-size model army, drawn up and ready for all eternity, facing east toward the territories that he had so spectacularly conquered. ■

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#### TRUE COLORS

Since the 1974 discovery of the funerary complex of Qin Shi Huangdi, excavation has continued through the present day. Site worker Yang Jingyi (above) cleans away mud from a terra-cotta warrior. Bright colors (below) can still be seen on a soldier in the ground. Exposure to the air damages these pigments, so archaeologists are working to conserve the 2,200-year-old hues.





# METHODS OF MASS PRODUCTION

**HOW WAS IT POSSIBLE** to bring together the raw materials, the technical know-how, and the labor to build thousands of life-size soldiers in the third century B.C.? Producing the terra-cotta army required a standardized mass-production system, along with highly efficient project management. Reverse engineering studies carried out by a team of archaeologists (including the author of this article) have attempted to re-create how these

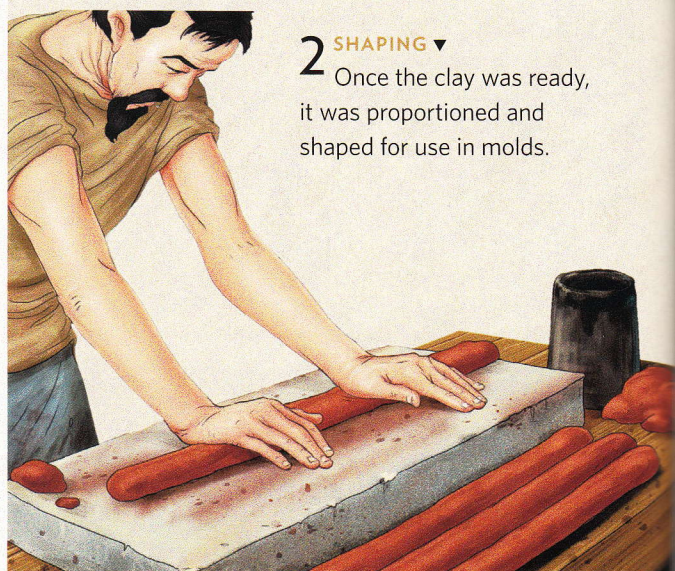
artifacts were made, based on their scientific analysis. They have proposed that the labor force was organized in relatively small teams, working in parallel to produce separate pieces.

The warriors were not produced and assembled in one workshop; instead, separate groups of artisans, each headed by a master, assembled the warriors one by one, which, once painted, would be taken down to the pits. Likewise, the weapons that the figures originally held were likely made in different armories, collected, and then "assigned" to their figure. The setting up and coordinating of numerous workshops requires huge investment, but it is better placed to face any unexpected complications: If there is a setback, a new team could be activated to resolve the issue.

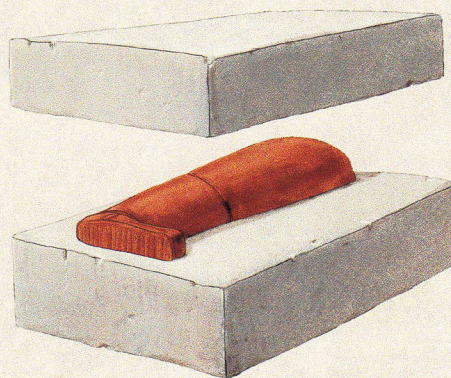
**SENIOR OFFICER**  
WHEN THE FIGURINES WERE FIRST PRODUCED, THEY FEATURED RICH, BRIGHT COLORS.



**1 KNEADING ▲**  
The terra-cotta warriors were made from earth sourced around the burial sight. First, workers would knead the clay until it was soft and pliable.



**2 SHAPING ▼**  
Once the clay was ready, it was proportioned and shaped for use in molds.



**3 CASTING ▲**  
Shaped clay was placed in molds to make the warriors' arms, legs, and feet. Precise proportions kept the structures uniform.

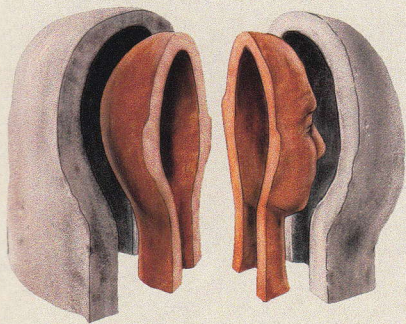




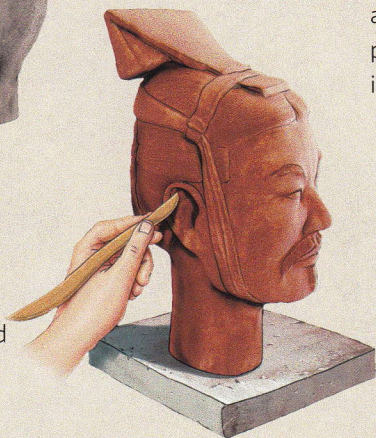
**4 SCULPTING THE BODY** ▲ Clay coils formed the foundation of the torso, which was placed on a pair of legs. Details on the torso, such as armor and clothing, were then sculpted, and the arms added. ▶



**7 ASSEMBLING** ▶ After firing, the pieces were put together to form a complete warrior, who would then receive a weapon: a crossbow, bow, spear, or sword.



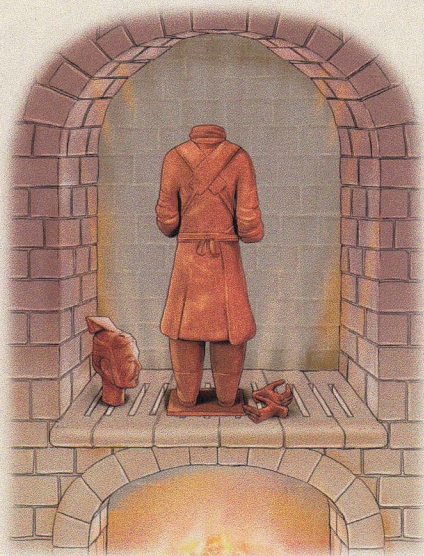
**5 FORMING THE HEAD** ▲ The warriors' heads were made using molds, and individual elements were added after casting. Artists would create the mouth, ears, eyebrows, facial hair, and headdresses (which varied according to the figure's rank).



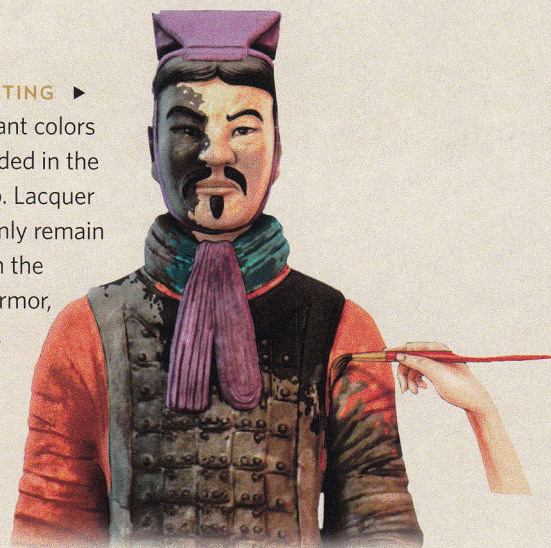
**8 LACQUERING** ▶ The entire figure was then covered with a layer of lacquer to protect the statue and its weapons.



**6 FIRING** ▶ The body and head were then fired separately in big kilns. It is possible that loess caves, common in this region of China, were used for this process.



**9 PAINTING** ▶ Vibrant colors were added in the last step. Lacquer would only remain visible in the shoes, armor, and hair.





## ARMY FOR THE AFTERLIFE

Pit 1 is the largest repository of figurines in Qin Shi Huangdi's mausoleum. Since their discovery in 1974, the figures at the front have been restored, while the toppled figures to the rear await their turn. So far, only a fraction of the vast funerary complex has been excavated, and researchers believe many other unexcavated pits remain.

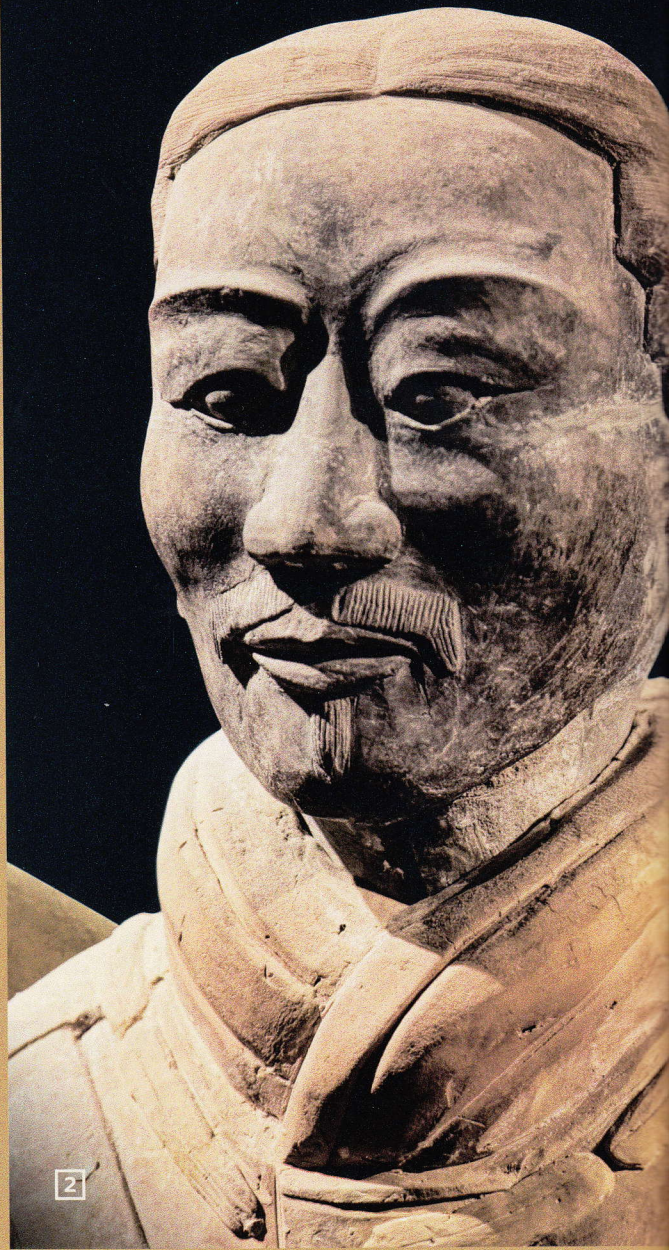
MASSIMILIANO DE SANTIS/FOTOTECA 9X12















emperor himself might not have experienced. After placing the groups of figures in their formations, these passages were covered with large wooden beams, sealed with reed mats, and buried under tons of soil. Despite Qin Shi Huangdi's desire for immortality, the monumental complex faced danger from the outset. Shortly after the emperor's death, the Qin dynasty fell apart, to be replaced by the Han. In the turmoil of that transition, there is evidence that the pits were damaged by flooding and fire.







### WORTH THEIR METTLE

Not all the forces of Qin Shi Huangdi's third-century B.C. army were made entirely of clay. Under a bronze umbrella, a driver steers this magnificent wooden and bronze open chariot, drawn by four bronze horses. It is one of two carriage sculptures unearthed in 1980 near the emperor's burial mound.

PANORAMA MEDIA/AGE FOTOSTOCK

