TERRACOTTA WARRIORS

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The period between 221 and 206 BCE is what we refer to as the Qin dynasty. This was a time of conquest for China, as a series of warring states united under a single empire. The king of the Qin (pronounced chin) state was an ambitious ruler who intended on conquering all enemy states and achieved that goal in less than a decade.

Ying Zheng was born in 259 BCE, during what is known as the Warring States period. At the young age of 13, he was named king of the Qin kingdom. By age 21, he was an emperor who was intent on building a massive military intent on conquering all the land to the north of his kingdom. Ying Zheng had himself named the First Emperor of China, which translates to First Emperor. Names were often changed to reflect a person’s status in society.

The exhibit weaves the story of a young emperor’s rise to power, how he expanded the use of mass production techniques, and his legacy as an industrialist, organizer of labor, and a military leader.

Building an Empire

Ying Zheng established a highly efficient and organized military. Higher rank was based on productivity and getting things done, rather than on heredity or birth rights. In the Qin dynasty, military success was essential for maintaining order in the empire. The First Emperor relied on his officials to do the work of governance. By consuming mercury (which we now know to be poisonous), he believed he would escape death.

In case he failed, he still made careful plans for his afterlife. Ying Zheng had a second empire built underground, mirroring the one above. It included an estimated 8,000 life-size terracotta figures to serve and protect him as his guards for eternity. His quest for immortality failed, and he died in 210 BCE.

The Protectors: Why Were the Terracotta Figures Made?

The First Emperor used his power to seek immortality. But, he also had a background plan: the largest burial complex the world has ever seen. This complex was designed to mirror the First Emperor’s kingdom in every detail, with palaces and an army of life-size clay figures.

Why did the First Emperor think he knew that his warriors were now traveling across the Earth?

The construction occurred in stages, with the feet and legs fashioned first. Components like crossbow triggers were standardized and mass-produced using a combination of mass-production and hand-crafting techniques.

An army of laborers, craftsmen and supervisors worked for more than 30 years to complete the estimated 8,000 terracotta figures for the burial complex. The warriors were produced using a combination of mass-production and hand-crafting techniques.

The Workflow

The First Emperor brought 700,000 laborers, most against their will, to work at the burial site. Most of these workers were prisoners, some worked voluntarily, while others worked as a form of tax payment. Some were exiled. The history of engineering paved the way for human advancement and achievement that we can see today. This is the story of the building of roads, walls and more. It is the story of what happened during the right time, during the right place to go to the earth to create something greater.

The story of the First Emperor’s military success is told through the terracotta army in a military-tact and advance in weaponry.

Some parts of weapons were created through the melting and casting process. Crossbow trigger parts were made from gold. Crossbow triggers were standardized and mass-produced using a combination of mass-production and hand-crafting techniques.

Standarization during the Qin Dynasty

While standardization may be one of the First Emperor’s greatest achievements, it was an afterthought of what is most noteworthy. Announcing standardization to an estimated 700,000 population is one thing. Getting them to adapt and follow the new rules was another. How did he do it?

The First Emperor ruled his new empire with a strict hand. He implemented many standardizations through an empire of systematization and reporting. The newly formed Qin Empire, life was organized around the military and agriculture. The emperor aimed for propaganda awards to place in support to the success of both.

A centralized and efficient administrative system was essential for maintaining order in the Qin Empire. The First Emperor relied on his officials to oversee the administration of his vast and diverse territory. Every individual and ounce of grain was tracked through a careful record-keeping system.

TERRACOTTA WARRIORS OF THE FIRST EMPEROR

The building of an empiRE

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Archaeology & Conservation: Excavating History

In 1974, farmers in northwest China were digging a well when they found a startling discovery—a life-size torso, made out of clay. They finally found the hidden underground secret that was concealed for over 2,000 years. Archaeologists began to excavate the pits of the terracotta army shortly after the discovery. One year later, more than 600 figures had been unearthed.

The archaeological excavations helped scientists determine a wealth of information. They learned about life during the Qin dynasty. They also learned about the construction of the site itself and the labor needed to create it. Work is still ongoing, with the full scope of the burial complex still unknown even after more than 40 years of exploration.

The First Emperor's Burial Mound:
- At least 8,000 figures
- Almost 2,000 figures excavated to date
- 2.4 million pounds of clay
- More than 40,000 bronze weapons
- 600 pits
- 22 square miles
- More than 2,200 years old
- 40 plus years of excavation and discovery

Modern soil testing from the mound’s surface contain unnaturally high levels of mercury. Scientists have used radar to detect long passageways leading to a central rectangular chamber.

Opening the tomb carries great risk—to the scientists who might encounter a toxic environment but also to the tomb itself. Environmental changes can immediately destroy fragile remnants of the ancient past.

How Does Math and Science Help Solve the Mysteries of The Past?

Math is vital for archaeologists to gather and interpret data and they attach numbers to everything they find. The team first created small test pits to determine the best place to dig by measuring and marking the areas, using perfect square grids and coordinates. Then, they began peeling away the soil, layer by layer. They measure and calculate, sketch maps, take field notes, catalog items, take photos and use statistics to form hypotheses about future discoveries. A hypothesis is a possible explanation made with limited information. It will be supported or refuted by future data collection. As you can see, archaeologists do much more than dig. They develop and test theories about the world; this is where the magic truly happens.

They also analyze the soil and artifacts. All of this information helps them piece together the history and timeline of the site. An archaeologist’s detailed records preserve the context in which objects are found. Knowing where an object was unearthed and what was nearby is key to understanding history through archaeology.

Archaeology helps us understand how people lived on Earth in ancient times, examining changes and patterns that occurred in human culture throughout time. It gives the modern world a glimpse into the lives of early civilizations through what they created and left behind. They are able to make connections the world would otherwise have missed.

The Mystery of The First Emperor’s Tomb

Qin Shi Huangdi’s tomb complex already stands as the largest burial site in the world—the full size is still unknown. The current site measures more than 22 square miles and the burial mound above the Emperor’s tomb stands more than 255 feet tall.

Archaeologists believe that the emperor lies within a magnificent chamber beneath this man-made hill and its contents still remain a mystery, as the Emperor’s tomb has yet to be excavated.

Is it worth possibly destroying the contents to see what lies inside?

If and when archaeologists decide to open the First Emperor’s tomb, what do you think they will find hidden inside?

Please share your answer on Facebook, Twitter or Instagram using the hashtag #PacSciWarrior.