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The Forever Army: Qin Shi Huang Di's Terracotta Warriors

Qin Shi Huang Di's glory and military and architectural genius are represented beautifully by his Terra Cotta Army. It is a stunning display of warriors, horses, chariots, and weapons. Made of rammed earth and wood beams, the tomb is an architectural marvel. The fragile warriors have managed to survive for over 2,000 years despite the wood ceiling collapsing on them. The workers accomplished an amazing feat. They built the tomb, pottered the warriors, collected lacquer, painted, and made weapons all in one lifetime. The tomb mound is said to be a glorious array of bronze statues and rivers of mercury. The army is truly a wonder of the world.

Qin Shi Haung Di, the first man to unify China and the first Chinese emperor, was a great leader of ancient China. He became king of the state of Qin when he was only thirteen in the year 247 BC, and ruled a unified China from 221-207 BC. "At this time, China was divided into many contending states, or kingdoms, hence the period is often referred to as the 'Warring States.'"¹ He unified these contending states in 221 BC.

Emperor Qin is not only famous for his Terra Cotta Army; he is also famous for his work on the Great Wall of China, his book burning, and his establishment of a standard coin. "The first Emperor is commonly credited with the construction of the Great Wall, possibly the most enduring symbol of China."² The Great Wall snakes over the land for hundreds of miles and is dotted by several watchtowers and gates. The Great Wall of China, however, predates Emperor

¹ Wenli Zhang. 1998. *The Qin Terracotta Army: Treasures of Lintong*. London: Scala Books. Page 12

² Frances Wood. *China's First Emperor and his Terracotta Warriors*. New York: St. Martin's Press, 2008. Page 68

Qin by several hundred years. Qin's portion was built on the western and northern areas.³ As is well known, the Great Wall of China was created to keep out the northern barbarians. Qin Shi Haung Di's work on the Great Wall most likely consisted of building up and strengthening earlier portions of the Wall.⁴ Although many people of power before Qin had built most of the Great Wall, Qin is still the one associated with the building of it as a whole.

Qin is also famous for establishing a standard coinage, weights, and measures.

“Standardization of the coinage after the establishment of the empire in 221 BC made economic sense but it was also essential for the smooth running of the new bureaucratic administration.”⁵

The value of a coin was probably in its label rather than in the value of the metal. This is because although the metal was supposed to weigh eight grams, many did not weigh eight grams, but all had the same writing on the surface.⁶

The First Emperor of China was known for what he destroyed just as much as he was known for what he created.⁷ One of his most terrible acts was “The Burning of the Books.” It is believed that this act was a “terrible act of censorship and cultural vandalism.”⁸ It is also believed to have been an attack on Confucianism and literature in an attempt to destroy the past. It is thought to be one of Emperor Qin's worst acts. However, there were some books that survived. The books that were exempt from being burned were practical manuals of medicine and agriculture.

³ Ibid. Page 73

⁴ Ibid. Page 74

⁵ Ibid. Page 89

⁶ Ibid. Page 89-90

⁷ Craig Clunas. *Art in China*. Oxford; New York: Oxford University Press, 1997. Page 29

⁸ Frances Wood. *China's First Emperor* Page 78

In addition to Qin Shi Huang Di's Great Wall and standardized measures and currency, he was known for his brutality. Many workers and artists died during the construction of the tomb and others were killed to keep the tomb's location and treasures secret. "He ordered the killings of scholars whose ideas he opposed, and showed little regard for the life of the conscripts who built those public works projects, including his burial complex."⁹

During Qin Shi Haung Di's reign, he toured his unified China four times. During his fourth tour, he fell ill. In no source is there any reference as to what his disease might have been. This suggests that no one knew what his disease was. Regardless, the illness struck hard and fast.¹⁰ He died in 210 BC. When his body arrived in Xianyang, his funeral preparations began. His coffin was fit for a king. "Now in Sima Qian's words, 'they poured in bronze to make the outer coffin', and the workforce completes the basics, in a famous passage that has fueled imaginations ever since."¹¹ After the tomb was roofed and sealed, more digging was done. Dozens of pits were dug for sacrificial animals, bronze carriages, suits of stone armor, officials, horses, and more. Construction of these pits were put off until the tomb mound was complete. The tomb was shaped like a step pyramid. The tomb itself had to be cleared of 2.7 million tons of earth. It was not completed by the end of the dynasty four years after Qin Shi Huang Di's death.

It is recorded in Chinese records that the building of Qin's tomb began as soon as he became king. Over 700,000 men were hired as laborers from all over China. The work continued even after Qin's death because it took several weeks to return his body to the capital. His tomb

⁹ Sarah Pruitt. "5 Things You May Not Know About the Terra Cotta Army." <http://www.history.com/news/5-things-you-may-not-know-about-the-terra-cotta-army>. (September 6, 2015).

¹⁰ John Man. 2008. *The Terra Cotta Army: China's First Emperor and the Birth of a Nation*. Cambridge, MA: Da Capo Press. Page 161

¹¹ Ibid. Page 169-170

was built by convicts and lies between the Wei River and Mount Li. It is 35 kilometers east of his capital.¹²

Qin architecture used rammed earth and wooden beams as building materials. In the tomb of the Qin Shi Huang Di, the wooden beams of Pit 1 have collapsed, causing the warriors to break and chip. “Not a single one has been found intact.”¹³

The planning for the construction of the tomb would have been highly organized. Intricate plans would have been drawn. According to Man, the workers would have done several test digs before the engineers would have settled on the sight that is 700 meters further downhill from the first. There the soil was deep enough for the First Emperor’s underground palace.¹⁴ It is theorized that the Terra Cotta Army is a representation of the First Emperor’s army in life. Instead of having men sacrificed, who would rot and decay, to follow him into the afterlife, the First Emperor wanted an army that would last forever. That is one reason he had the warriors made of clay. The challenge of the Terracotta Warriors was not in the artistry, techniques, or expenses, but in the scale of the project.¹⁵ The tomb is truly fit for a king. “The historian [Sima Qian](#) (c. 145–c. 87 bce) wrote:

‘The labourers dug through three subterranean streams, which they sealed off with bronze to construct the burial chamber. They built models of palaces, pavilions, and offices and filled the tomb with fine vessels, precious stones, and rarities. Artisans were ordered to install mechanically triggered crossbows set to shoot any intruder. With quicksilver the various waterways of the empire, the Yangtze and Yellow rivers, and even the great ocean itself were created and made to flow and circulate mechanically. With shining pearls the heavenly constellations were depicted above, and with figures of birds in gold

¹² Frances Wood. *China’s First Emperor* Page 128

¹³ John Man. *The Terra Cotta army: China’s First Emperor and the Birth of a Nation*. Page 80-81

¹⁴ Ibid. Page 120

¹⁵ Ibid. page 130

and silver and of pine trees carved of jade the earth was laid out below. Lamps were fueled with whale oil so that they might burn for the longest possible time.”¹⁶

There are four main pits surrounding the burial mound. “As is widely known, Pit 1 of the Terra Cotta Army was discovered by accident by peasants digging a well; and Pits 2, 3, and 4 were discovered during archaeological investigations in the summer of 1976.” The warriors and horses are larger than life and stand a few inches taller than the models.¹⁷ The pits cover an area of almost 7.5 acres. Even with the expansive area, “There is absolutely no mention anywhere in the ancient texts of the Terra Cotta Army’s pit, or indeed any other....”¹⁸

Pit 1 is 260 meters long, 62 meters wide, and almost 9 meters deep. For this pit alone, the workers would have had to shift 217,000 tons of earth, or 1,000 tons of earth a day. Some of this dirt was used for the walls made of rammed earth that bore the weight of the rafters and made the 11 corridors where the soldiers stand. 45,000 tons of rammed earth, which was used extensively in Qin architecture, was used to form the walls that were 5 meters high and 2 meters across. Each rafter could hold 5 tons of earth. 3,000 tons of wood was needed to construct the ceiling of Pit 1. The floors were sealed with 256,000 grey-blue bricks.¹⁹ These bricks were decorated with a fine rope pattern. After the warriors were placed in the pit, logs and earth were used to seal the entrances.

¹⁶ “Qin tomb: Archaeological site, China.” <http://www.britannica.com/place/Qin-tomb> (November 18, 2015)

¹⁷ Roberto Ciarla ed. *The Eternal Army: The Terracotta Soldiers of the First Chinese Emperor*. China: White Star Publishers, 2005. Page 187

¹⁸ John Man. *The Terra Cotta Army: China's First Emperor and the Birth of a Nation*. Page 154

¹⁹ Ibid. Page 154

The Terra Cotta soldiers found in Pit 1 are arranged in a rectangular formation, which is a type of military formation. The archers are in the front facing east and are lined in three rows. Behind the archers are platoons of light infantry, followed by heavy infantry. Behind the heavy infantry are leading officers riding in chariots. In the chariots with the officers are the charioteers and the men that communicate the orders. “This arrangement – defended by archers and crossbowmen looking outwards – reveals a strategy based on the flexibility and power of attack.”²⁰ This pit contains 6000 warriors alone and is the largest of the four pits.

Pit 2 lies 22 yards north of Pit 1 and is L-shaped. This pit covers an area of 7,175 square yards. This pit was clearly designed in this specific shape to accommodate a particular military tactical formation of the Qin army.²¹ In this formation, there are four main blocks of soldiers. The first is the forward section of the north rectangle that is made up of 332 men that include unarmored archers surrounding kneeling crossbowmen supported by foot soldiers armed with lances. Behind this block are two parallel blocks. Each is made of light chariots, split by a platoons of horsemen, and behind the chariots is a squadron of 108 horsemen that are armed with crossbows. This is in all three corridors to the north. Three corridors to the south are 25 heavy support chariots that are followed by heavy infantry platoons that range between 11 and 32 men. “In the four-sided area to the south, divided into eight corridors, stands the squadron of 64 light war chariots, eight in each corridor.”²² In total there are about 1,000 soldiers, 89 chariots, and 400 horses. This formation was called Concentric Deployment.

Pit 3 is small compared to the other pits and lies east of Pit 2 and is shaped like a U. It spans an area of 622 square yards and it faces west. “Due to its small size, it is the only one of

²⁰ Roberto Ciarla ed. *The Eternal Army* Page 187 Page 190

²¹ Ibid. Page 206

²² Ibid. Page 206

the four pits to have been excavated entirely.”²³ Only 68 well-spaced men and 1 large command chariot pulled by four horses was found inside. This face-to-face formation’s purpose was to protect the high-ranking officer next to the chariot, which stands in the front center of the ramp.²⁴ The north arm of the U-shaped Pit 3 contains 22 warriors in two parallel lines. This formation is probably called *Jin Mu*. It is thought that this pit was meant to be the army’s command center.

Pit 4 is the least interesting of the four pits. This pit was the last pit to be found in this area of the tomb. It is rectangular and lies between Pits 2 and 3. Unlike the other pits, Pit 4 contained no treasures.²⁵ This is an indication that preparation for sacrificial pits was not completed. This suggests that more was going to be done on the tomb, but because of Qin Shi Haung Di’s short reign, there was not enough time to complete it all. Pit 4 is waiting for its contents that will never arrive.

There is only one clear answer to the question, “Why were the Terra Cotta Warriors created?” That reason is to protect and accompany the First Emperor into the afterlife and to guard his tomb from invaders and thieves. “The army of larger than life-size soldiers, archers, horses and chariots was stationed in military formation near Qin Shi Haung Di’s tomb in order to protect the emperor in the afterlife.”²⁶ Throughout history, royalty and nobility have built tombs with statues and/or sacrificed people and animals buried with them to accompany them in death. Qin Shi Haung Di’s tomb is no different, with the exception of size.

Although the tomb is itself impressive, the warriors involve a longer and more time consuming process. The Warriors were made of clay that is abundant in the North China plain.

²³ Ibid. Page 216

²⁴ Ibid. Page 216

²⁵ Ibid. Page 216

²⁶ Sarah Pruitt. “5 Things You May Not Know About the Terra Cotta Army.”

“It is not the material which is precious or reserved, but the scale of the operation.”²⁷ The process would have involved tons of firewood that would have been needed to fire the figures. They would need to be fired in a temperature of 950 and 1,000 degrees. Hundreds of kilns would need to be constructed, and an army of workers would have been needed to create the warriors. Their numbers would have paralleled the Terra Cotta Warriors. This great project would have required great organization in order to achieve it. “The army is a triumph of bureaucracy as much as art.”²⁸

Each warrior is composed of several sections. They are as follows: a plinth, legs, torso, two separate arms, two hands, and a head. All exist in limited types. There are three plinths, two leg sets, and eight torso and head types that are further customized by individually modeling the features and hair.²⁹ Molds were used to speed the production of the warriors, but only certain parts like hands were molded. The manipulating and combining of these elements is what gives warriors the appearance of infinite variety. The same manipulation of possible basic paint schemes for different components added to the effect.³⁰ The realism of the warriors that has been admired throughout the years in Qin Period art came from a practical and religious cause and not an artistic cause.³¹

It is said that each warrior has a different face, which suggests that they were modeled after real people. To add realism, the Terra Cotta figures were painted. Unfortunately, most of the paint has peeled off or faded. The horses were painted as well. All horses were painted brown with white eyes and black pupils, white teeth, and red mouth and tongue. Both men and horses

²⁷ Craig Clunas. *Art in China*. Page 30

²⁸ Ibid. Page 30

²⁹ Ibid. Page 30

³⁰ Ibid. Page 30

³¹ Ibid. Page 32

have hollow bodies supported by solid legs. “Research indicates that the sculptures were made by a process combining the use of molds and hand-modelling.”³² The different parts of the men and horses were molded and then finished by hand. After that, they were baked and painted. The first thing the craftsmen did was make the footboard. The legs and lower body were then molded from a single lump of clay. After that, the upper torso was added by the coiling technique so that the torso, when completed, would be hollow. Then the arms, hands, ears, and heads were made separately in different molds. The ears and heads were joined then finished by hand. Then the whole figure was put together. “Finally the clay figure was baked in a kiln and painted.”³³ On each warrior, a character was inscribed that indicated the provenance and name of the sculptor. This is the same as an artist signing a work of art. Some have two or three characters. The second character would tell where the warrior was made and the third would tell the first name of the sculptor.

Like the warriors, the horses were made in several parts. Their bodies were hollow and fitted together from several flat pieces of clay. The body was fixed to solid legs while the clay was wet. “The heads, tails, ears, manes and forelocks were also fixed on at this stage.”³⁴

Keeping the warriors balanced was a challenge. There were three ways in accomplishing this. The first is to make a base, the second is to make the warriors kneel like archers, and the third is make the legs heavy and the body light, creating solid legs and a hollow body. To avoid the body blowing up in the kiln, a hole was left where the head would go. The head was added on later. The warriors were produced from natural materials found in the area and worked by

³² Wenli Zhang, *The Qin Terracotta Army*, Page 72

³³ *Ibid.* Page 72

³⁴ *Ibid.* Page 74

artistry and heat alone.³⁵ The warriors were produced in a mass-production operation as in a factory from molds. The Terra Cotta Warriors needed between 1,200 and 2,000 tons of clay. Providing materials and kilns was no problem. The problem was getting enough workers. According to Man's observations, the army could have been created by one man in under five years. However, history tells us that there were many workers. "A team of, say, 80 master sculptors – and surely such a team could have been assembled, given that the emperor had the whole of his newly formed empire to choose from – could have had the molds for the whole army ready in three weeks."³⁶ Even if the First Emperor could only find 20 master craftsmen, the army still would have been finished in three months. If the First Emperor had 200 potters working on the statues, they could produce enough warriors to fill the main pit and the other pits with full-sized warriors in less than ten months. "...serial numbers suggest that figures were worked on and counted in multiples of five, which in turn suggests that sculptors worked in teams of ten."³⁷

The workers used tools like scrapers, shavers, and sharpened bamboo sticks to do the details on the warriors. The features such as ears, moustaches, buckles, hairstyles and shoes would have been done with these tools.³⁸ The idea that each warrior was modeled after a real man is not possible. For an artisan to move on to become an artist, portraying a real individual, was unthinkable at the time. The variety of the Terra Cotta Warriors was intended to achieve more than just the appearance of individuality. The variety stated the differenced in rank and specialty.³⁹ The details in clothing distinguish ranks. For example, the armor of lower ranks wore

³⁵ John Man. *The Terra Cotta Army: China's First Emperor and the Birth of a Nation*. Page 139

³⁶ Ibid. Page 140

³⁷ Ibid. Page 141

³⁸ Ibid. Page 143

³⁹ Ibid. Page 145-146

large leather plates that were not very flexible, but higher ranking officers wore little flexible plates of leather and all officers wore caps. “These gradations suggest seven divisions: High-ranking officer (seven so-called ‘generals’), middle-ranking officer, armored soldier, unarmored soldier, charioteer, cavalry-man and archer (kneeling or standing).”⁴⁰ Hairstyles were related to ranks as well as clothes. For example, infantrymen had the top-knot on the right side of their heads, and cavalrymen and charioteers had flat-knots on the back of their heads.

All the Terra Cotta Warriors were painted to look as lifelike as possible. Because there are only 8,000 warriors and the First Emperor’s army was made up of tens of thousands, “Color turns out to be a matter of much complexity and labor.” A shortage of clay, kilns, or sculptors was not what caused a limited number of warriors. It was the ambition to apply color to every warrior and horse.⁴¹ The Terra Cotta warriors were lacquered in bright reds, blues, greens, and purples. Their faces were lacquered as well. “An *authentic* warrior was a brightly colored warrior.”⁴² The lacquer used was a thick, light-grey sap of lacquer trees. The lacquer was collected by cutting through the outer bark and letting the sap bleed into a cup. Before the sap can be gathered, the lacquer tree must grow for six years and can only be tapped from June to September.⁴³ The collecting of lacquer was done extremely carefully because it is toxic. It causes a rash if it comes into contact with skin and a violent reaction if inhaled. When applying it to the warriors, each coat has to dry before another can be added. The lacquer does not really dry, “but reacts chemically with the water in damp air to harden into something like enamel,” and can be used on almost any surface. To coat all 8,000 warriors, sap would have had to have been

⁴⁰ Ibid. Page 146

⁴¹ Ibid. Page 148

⁴² Ibid. Page 150

⁴³ Ibid. Page 151

collected from 150,000 – 200,000 lacquer trees! Many times, tapping a lacquer tree kills it. This caused forests to die. It was not the production of the clay warriors that was costly and time consuming, but the collecting and processing of the lacquer and the painting of the warriors. In addition to the potters and painters, lacquer-men, sap-collectors were added to the army of workers. Alchemists were needed as well to figure out how to get the different colors of paint, particularly Chinese Purple.

Just as paint was added for realism, the soldiers possessed real weapons made of bronze and wood. “Although only sections of the three pits have been excavated, about 300,000 weapons of various kinds have been discovered to date.”⁴⁴ Most of the weapons were made of bronze and were for use in battle. However, some of the weapons found in pit three were ceremonial. Many weapons found were still sharp enough to cut a hair. Many other weapons were engraved with small characters that indicated the date they were made and the makers. “Swords, curved knives, dagger-axes, battle-axes, spears, halberds, long lances, crossbows, and bows have all been found although the wooden sections have mainly rotted away...”⁴⁵

The Terra Cotta Warriors of Qin Shi Huang Di are a spectacular symbol of his former glory, and it is also a beautiful display of his military and architectural genius. He made sure that he would be remembered forever. His workers worked extremely hard to create an architectural and artistic marvel using materials and processes that are still used today. It is amazing that they have survived for over 2,000 years, some with the paint still on them. Their techniques made the

⁴⁴ Wenli Zhang. *The Qin Terracotta Army*, Page 74

⁴⁵ Ibid. Page 74

warriors look as lifelike as possible. The memory of Qin Shi Huang Di will live on through the awesome presence and wonder of the First Emperor's Forever Army.

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Page 12.