Terracotta Army

The **Terracotta Army** is a collection of [terracotta](https://en.wikipedia.org/wiki/Terracotta) sculptures depicting the armies of [Qin Shi Huang](https://en.wikipedia.org/wiki/Qin_Shi_Huang), the first [Emperor of China](https://en.wikipedia.org/wiki/Emperor_of_China). It is a form of [funerary art](https://en.wikipedia.org/wiki/Funerary_art) buried with the emperor in 210–209 BCE with the purpose of protecting the emperor in his afterlife.

The figures, dating from approximately the late third century BCE,[[1]](https://en.wikipedia.org/wiki/Terracotta_Army%22%20%5Cl%20%22cite_note-1) were discovered in 1974 by local farmers in [Lintong County](https://en.wikipedia.org/wiki/Lintong_District%22%20%5Co%20%22Lintong%20District), outside [Xi'an](https://en.wikipedia.org/wiki/Xi%27an), Shaanxi, China. The figures vary in height according to their roles, the tallest being the generals. The figures include warriors, [chariots](https://en.wikipedia.org/wiki/Chariot_%28Ancient_China%29) and horses. Estimates from 2007 were that the three pits containing the Terracotta Army held more than 8,000 soldiers, 130 chariots with 520 horses, and 150 cavalry horses, the majority of which remained buried in the pits near [Qin Shi Huang's mausoleum](https://en.wikipedia.org/wiki/Mausoleum_of_the_First_Qin_Emperor).[[2]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-FOOTNOTEPortal2007167-2) Other terracotta non-military figures were found in other pits, including officials, acrobats, strongmen, and musicians.[[3]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-:0-3)

History



The mound where the tomb is located

The construction of the tomb was described by historian [Sima Qian](https://en.wikipedia.org/wiki/Sima_Qian%22%20%5Co%20%22Sima%20Qian) (145–90 BCE) in [*Records of the Grand Historian*](https://en.wikipedia.org/wiki/Records_of_the_Grand_Historian), the first of China's 24 dynastic histories, which was written a century after the mausoleum's completion. Work on the mausoleum began in 246 BCE soon after Emperor [Qin](https://en.wikipedia.org/wiki/Qin_Shi_Huang) (then aged 13) ascended the throne, and the project eventually involved 700,000 conscripted workers.[[4]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-chinesetext-4)[[5]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-5) Geographer [Li Daoyuan](https://en.wikipedia.org/wiki/Li_Daoyuan), writing six centuries after the first emperor's death, recorded in *[Shui Jing Zhu](https://en.wikipedia.org/wiki/Commentary_on_the_Water_Classic%22%20%5Co%20%22Commentary%20on%20the%20Water%20Classic)* that [Mount Li](https://en.wikipedia.org/wiki/Mount_Li) was a favoured location due to its auspicious geology: "famed for its jade mines, its northern side was rich in gold, and its southern side rich in beautiful jade; the first emperor, covetous of its fine reputation, therefore chose to be buried there".[[6]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-FOOTNOTEClements2007158-6)[[7]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-7) Sima Qian wrote that the first emperor was buried with palaces, towers, officials, valuable artifacts and wondrous objects. According to this account, 100 flowing rivers were simulated using mercury, and above them the ceiling was decorated with heavenly bodies, below which were the features of the land. Some translations of this passage refer to "models" or "imitations"; however, those words were not used in the original text, which makes no mention of the terracotta army.[[4]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-chinesetext-4)[[8]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-FOOTNOTEPortal200717-8) High levels of mercury were found in the soil of the tomb mound, giving credence to Sima Qian's account.[[9]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-FOOTNOTEPortal2007202-9) Later historical accounts suggested that the complex and tomb itself had been looted by [Xiang Yu](https://en.wikipedia.org/wiki/Xiang_Yu), a contender for the throne after the death of the first emperor.[[10]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-10)[[11]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-11)[[12]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-12) However, there are indications that the tomb itself may not have been plundered.[[13]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-13)

**Discovery**

The Terracotta Army was discovered on 29 March 1974 by a group of farmers—[Yang Zhifa](https://en.wikipedia.org/wiki/Yang_Zhifa), his five brothers, and neighbour Wang Puzhi—who were digging a well approximately 1.5 kilometres (0.93 mi) east of the Qin Emperor's tomb mound at [Mount Li](https://en.wikipedia.org/wiki/Mount_Li) (Lishan),[[14]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-Agnew2010-14)[[15]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-15)[[16]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-16)[[17]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-17) a region riddled with underground springs and watercourses. For centuries, occasional reports mentioned pieces of terracotta figures and fragments of the Qin [necropolis](https://en.wikipedia.org/wiki/Necropolis) – roofing tiles, bricks and chunks of masonry.[[18]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-FOOTNOTEClements2007155,_157,_158,_160%E2%80%93161,_166-18) This discovery prompted Chinese archaeologists, including [Zhao Kangmin](https://en.wikipedia.org/wiki/Zhao_Kangmin), to investigate,[[19]](https://en.wikipedia.org/wiki/Terracotta_Army%22%20%5Cl%20%22cite_note-19) revealing the largest pottery figurine group ever found. A museum complex has since been constructed over the area, the largest pit being enclosed by a roofed structure.[[20]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-20)

Necropolis



View of the Terracotta Army



Mausoleum of the First Qin Emperor, Hall 1

The Terracotta Army is part of a much larger necropolis. Ground-penetrating radar and core sampling have measured the area to be approximately 98 square kilometers (38 square miles).[[21]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-21)

The necropolis was constructed as a microcosm of the emperor's imperial palace or compound,[*[citation needed](https://en.wikipedia.org/wiki/Wikipedia%3ACitation_needed%22%20%5Co%20%22Wikipedia%3ACitation%20needed)*] and covers a large area around the tomb mound of the first emperor. The earthen tomb mound is located at the foot of Mount Li and built in a [pyramidal](https://en.wikipedia.org/wiki/Chinese_pyramids) shape,[[22]](https://en.wikipedia.org/wiki/Terracotta_Army%22%20%5Cl%20%22cite_note-22) and is surrounded by two solidly built [rammed earth](https://en.wikipedia.org/wiki/Rammed_earth) walls with gateway entrances. The necropolis consists of several offices, halls, stables, other structures as well as an imperial park placed around the tomb mound.[*[citation needed](https://en.wikipedia.org/wiki/Wikipedia%3ACitation_needed%22%20%5Co%20%22Wikipedia%3ACitation%20needed)*]

The warriors stand guard to the east of the tomb. Up to 5 metres (16 ft) of reddish, sandy soil had accumulated over the site in the two millennia following its construction, but archaeologists found evidence of earlier disturbances at the site. During the excavations near the Mount Li burial mound, archaeologists found several graves dating from the 18th and 19th centuries, where diggers had apparently struck terracotta fragments. These were discarded as worthless and used along with soil to backfill the excavations.[[23]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-FOOTNOTEClements2007160-23)

**Tomb**

*Main article:*[*Mausoleum of the First Qin Emperor*](https://en.wikipedia.org/wiki/Mausoleum_of_the_First_Qin_Emperor)

The tomb appears to be a hermetically sealed space roughly the size of a football pitch (c. 100 × 75 m).[[24]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-channel4-24)[[25]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-25) The tomb remains unopened, possibly due to concerns over preservation of its artifacts.[[24]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-channel4-24) For example, after the excavation of the Terracotta Army, the painted surface present on some terracotta figures began to flake and fade.[[26]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-26) The lacquer covering the paint can curl in fifteen seconds once exposed to Xi'an's dry air and can flake off in just four minutes.[[27]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-27)

Warrior figures

**Types and appearance**



A terracotta soldier

The terracotta figures are life-sized, typically ranging from 175 cm (5.74 ft) to about 200 cm (6.6 ft) (the officers are typically taller). They vary in height, uniform, and hairstyle in accordance with rank. Their faces appear to be different for each individual figure; scholars, however, have identified 10 basic face shapes.[[35]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-national_geographic-35) The figures are of these general types: armored [infantry](https://en.wikipedia.org/wiki/Infantry); unarmored infantry; [cavalrymen](https://en.wikipedia.org/wiki/Cavalrymen) who wear a pillbox hat; helmeted drivers of chariots with more armor protection; spear-carrying charioteers; kneeling crossbowmen or archers who are armored; standing archers who are not; as well as generals and other lower-ranking officers.[[36]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-36) There are, however, many variations in the uniforms within the ranks: for example, some may wear shin pads while others not; they may wear either long or short trousers, some of which may be padded; and their body armors vary depending on rank, function, and position in formation.[[37]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-37) There are also terracotta horses placed among the warrior figures.





Terracotta Army General (Left), Mid-rank officer of the Terracotta Army in [Xi'an](https://en.wikipedia.org/wiki/Xi%27an) (Right)



Recreated figures of an archer and an officer, showing how they would have looked when painted



Pigments used on the Terracotta warriors

Originally, the figures were painted with: ground precious stones, intensely fired bones (white), pigments of [iron oxide](https://en.wikipedia.org/wiki/Iron_oxide) (dark red), [cinnabar](https://en.wikipedia.org/wiki/Cinnabar) (red), [malachite](https://en.wikipedia.org/wiki/Malachite) (green), [azurite](https://en.wikipedia.org/wiki/Azurite) (blue), [charcoal](https://en.wikipedia.org/wiki/Charcoal) (black), [cinnabar barium copper silicate mix](https://en.wikipedia.org/wiki/Han_purple_and_Han_blue) (Chinese purple or Han purple), tree sap from a nearby source, (more than likely from the [Chinese lacquer tree](https://en.wikipedia.org/wiki/Toxicodendron_vernicifluum)) (brown).[[38]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-azurite-38) Other colors including pink, lilac, red, white,[[39]](https://en.wikipedia.org/wiki/Terracotta_Army%22%20%5Cl%20%22cite_note-39) and one unidentified color.[[38]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-azurite-38) The colored lacquer finish and individual facial features would have given the figures a realistic feel, with eyebrows and facial hair in black and the faces done in pink.[[40]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-40)

However, in [Xi'an](https://en.wikipedia.org/wiki/Xi%27an#Climate)'s dry climate, much of the color coating would flake off in less than four minutes after removing the mud surrounding the army.[[38]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-azurite-38)

Some scholars have speculated a possible [Hellenistic](https://en.wikipedia.org/wiki/Hellenistic) link to these sculptures, because of the lack of life-sized and realistic sculptures before the Qin dynasty.[[41]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-41)[[42]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-42) They argued that potential Greek influence is particularly evident in some terracotta figures such as those of acrobats, combined with rare bronze artifacts made with a lost wax technique known in Greece and Egypt.[[43]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-43)[[44]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-44) However, this idea is disputed by scholars who claim that there is "no substantial evidence at all" for contact between ancient Greeks and Chinese builders of the tomb, and the bases of such speculation are often imprecise or false interpretation of source materials or far-fetched conjectures.[[45]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-han-sil-45)[[46]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-Xinhua_%E6%96%B0%E8%8F%AF%E7%B6%B2-46) They argue that such speculations rest on flawed and old "Eurocentric" ideas that assumed other civilizations were incapable of sophisticated artistry and thus foreign artistry must be seen through Western traditions.[[45]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-han-sil-45)[[46]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-Xinhua_%E6%96%B0%E8%8F%AF%E7%B6%B2-46)

**Construction**

The terracotta army figures were manufactured in workshops by government laborers and local craftsmen using local materials. Heads, arms, legs, and torsos were created separately and then assembled by [luting](https://en.wikipedia.org/wiki/Luting) the pieces together. When completed, the terracotta figures were placed in the pits in precise military formation according to rank and duty.[[47]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-47)

The faces were created using [molds](https://en.wikipedia.org/wiki/Molding_%28process%29), and at least ten face molds may have been used.[[35]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-national_geographic-35) Clay was then added after assembly to provide individual facial features to make each figure appear different.[[48]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-FOOTNOTEPortal2007170-48) It is believed that the warriors' legs were made in much the same way that terracotta drainage pipes were manufactured at the time. This would classify the process as [assembly line](https://en.wikipedia.org/wiki/Assembly_line) production, with specific parts manufactured and assembled after being fired, as opposed to crafting a figure as one solid piece and subsequently firing it. In those times of tight imperial control, each workshop was required to inscribe its name on items produced to ensure quality control. This has aided modern historians in verifying which workshops were commandeered to make tiles and other mundane items for the terracotta army.

**Weaponry**



Bronze *[jian](https://en.wikipedia.org/wiki/Jian%22%20%5Co%20%22Jian)* sword



A bronze helmet unearthed from the site.



An armor unearthed from the site.

Most of the figures originally held real weapons, which would have increased their realism. The majority of these weapons were looted shortly after the creation of the army or have rotted away. Despite this, over 40,000 bronze items of weaponry have been recovered, including swords, daggers, spears, lances, battle-axes, scimitars, shields, crossbows, and crossbow triggers. Most of the recovered items are arrowheads, which are usually found in bundles of 100 units.[[28]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-lecture-28)[[49]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-49)[[50]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-50) Studies of these arrowheads suggests that they were produced by self-sufficient, autonomous workshops using a process referred to as *cellular production* or *[Toyotism](https://en.wikipedia.org/wiki/Toyotism%22%20%5Co%20%22Toyotism)*.[[51]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-51) Some weapons were coated with a 10–15 micrometer layer of [chromium dioxide](https://en.wikipedia.org/wiki/Chromium_dioxide) before burial that was believed to have protected them from any form of decay for the last 2200 years.[[52]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-52)[[53]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-53) However, research in 2019 indicated that the chromium was merely contamination from nearby lacquer, not a means of protecting the weapons. The slightly alkaline pH and small particle size of the burial soil most likely preserved the weapons.[[54]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-54)

The swords contain an alloy of copper, tin, and other elements including nickel, magnesium, and cobalt.[[55]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-55) Some carry inscriptions that date their manufacture to between 245 and 228 BCE, indicating that they were used before burial.[[56]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-bm-56)

Scientific research

In 2007, scientists at [Stanford University](https://en.wikipedia.org/wiki/Stanford_University) and the [Advanced Light Source](https://en.wikipedia.org/wiki/Advanced_Light_Source) facility in Berkeley, California, reported that [powder diffraction](https://en.wikipedia.org/wiki/Powder_diffraction) experiments combined with [energy-dispersive X-ray spectroscopy](https://en.wikipedia.org/wiki/Energy-dispersive_X-ray_spectroscopy) and [micro-X-ray fluorescence](https://en.wikipedia.org/wiki/Micro-X-ray_fluorescence) analysis showed that the process of producing terracotta figures colored with [Chinese purple](https://en.wikipedia.org/wiki/Han_purple_and_Han_blue) dye consisting of [barium](https://en.wikipedia.org/wiki/Barium) [copper](https://en.wikipedia.org/wiki/Copper) [silicate](https://en.wikipedia.org/wiki/Silicate) was derived from the knowledge gained by [Taoist](https://en.wikipedia.org/wiki/Taoist) alchemists in their attempts to synthesize [jade](https://en.wikipedia.org/wiki/Jade) ornaments.[[57]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-57)[[58]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-58)

Since 2006, an international team of researchers at the [UCL Institute of Archaeology](https://en.wikipedia.org/wiki/UCL_Institute_of_Archaeology%22%20%5Co%20%22UCL%20Institute%20of%20Archaeology) have been using [analytical chemistry](https://en.wikipedia.org/wiki/Analytical_chemistry) techniques to uncover more details about the production techniques employed in the creation of the Terracotta Army. Using [X-ray fluorescence](https://en.wikipedia.org/wiki/X-ray_fluorescence) spectrometry of 40,000 bronze [arrowheads](https://en.wikipedia.org/wiki/Arrowhead) bundled in groups of 100, the researchers reported that the arrowheads within a single bundle formed a relatively tight cluster that was different from other bundles. In addition, the presence or absence of metal impurities was consistent within bundles. Based on the arrows’ chemical compositions, the researchers concluded that a [cellular manufacturing](https://en.wikipedia.org/wiki/Cellular_manufacturing) system similar to the one used in a modern [Toyota](https://en.wikipedia.org/wiki/Toyota) factory, as opposed to a continuous [assembly line](https://en.wikipedia.org/wiki/Assembly_line) in the early days of the automobile industry, was employed.[[59]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-rsc-59)[[60]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-60)

Grinding and polishing marks visible under a [scanning electron microscope](https://en.wikipedia.org/wiki/Scanning_electron_microscope) provide evidence for the earliest industrial use of [lathes](https://en.wikipedia.org/wiki/Lathe) for polishing.[[59]](https://en.wikipedia.org/wiki/Terracotta_Army#cite_note-rsc-59)

|  |
| --- |
| **Mausoleum of the First Qin Emperor** |
| [**UNESCO World Heritage Site**](https://en.wikipedia.org/wiki/World_Heritage_Site) |
| Terracotta Army, View of Pit 1.jpg |
| [**Location**](https://en.wikipedia.org/wiki/Table_of_World_Heritage_Sites_by_country) | [Lintong District](https://en.wikipedia.org/wiki/Lintong_District), [Xi'an](https://en.wikipedia.org/wiki/Xi%27an), [Shaanxi](https://en.wikipedia.org/wiki/Shaanxi), China |
| [**Criteria**](https://en.wikipedia.org/wiki/World_Heritage_Site#Selection_criteria) | Cultural: i, iii, iv, vi |
| **Reference** | [441](https://whc.unesco.org/en/list/441) |
| **Inscription** | 1987 (11th [Session](https://en.wikipedia.org/wiki/World_Heritage_Committee)) |
| **Website** | [www.bmy.com.cn](http://www.bmy.com.cn/) |
| [**Coordinates**](https://en.wikipedia.org/wiki/Geographic_coordinate_system) | https://upload.wikimedia.org/wikipedia/commons/thumb/5/55/WMA_button2b.png/17px-WMA_button2b.png[34°23′06″N 109°16′23″E](https://geohack.toolforge.org/geohack.php?pagename=Terracotta_Army&params=34.385000_N_109.273056_E_type:landmark_region:CN)[Coordinates](https://en.wikipedia.org/wiki/Geographic_coordinate_system): https://upload.wikimedia.org/wikipedia/commons/thumb/5/55/WMA_button2b.png/17px-WMA_button2b.png[34°23′06″N 109°16′23″E](https://geohack.toolforge.org/geohack.php?pagename=Terracotta_Army&params=34.385000_N_109.273056_E_type:landmark_region:CN) |
| Terracotta Army is located in ChinaTerracotta ArmyLocation of Terracotta Army in China |

|  |
| --- |
| **Terracotta Army** |
| [Simplified Chinese](https://en.wikipedia.org/wiki/Simplified_Chinese_characters) | 兵马俑 |
| [Traditional Chinese](https://en.wikipedia.org/wiki/Traditional_Chinese_characters) | [兵馬俑](https://en.wiktionary.org/wiki/%E5%85%B5%E9%A6%AC%E4%BF%91) |
| Literal meaning | Soldier and horse tomb-figurines |
|

|  |
| --- |
| show**Transcriptions** |

 |