TEACHING GUIDE

THE HERITAGE OF THE

QIN AND HAN

DYNASTIES

THE XI'AN WARRIORS

CHINA

QIN

China is an amazing country that is full of natural and artistic wonders and boasts a long-lived civilisation which has culturally enriched many peoples. Numerous specialists define it as the oldest civilisation to have reached recent times, since the unification of its vast territory began with the First Emperor of Qin more than 2,000 years ago. Another feature of their culture, the writing system, has not changed substantially since its appearance some 4,000 years ago. Given this background, no exhibition on China could leave anyone indifferent. If, moreover, we focus the exhibition on one of the most impressive discoveries in the entire history of Archaeology, the Mausoleum of the First Emperor, it emerges as one of the most spectacular ever organised by the MARQ or hosted by the city of Alicante.

"The heritage of the Qin and Han Dynasties. The Xi'an Warriors. China" is not only an exhibition of archaeological objects and works of art of extraordinary quality. It is also the expression of a heritage that symbolises the essence of a country and a source of pride for China today. That is why the Qin mausoleum and its terracotta army have already come to be regarded as the Eighth Wonder of the World. We could hardly be more pleased to host so important a material legacy. We can only hope that this tour through the Ancient History of China, through the exhibition, the catalogue and this didactic material, contributes to bring us closer to so distant and so exciting a culture, and being able to do so with all of you, the youngest friends of the MARQ, is a special source of pride for me. Enjoy!

Julia Parra Aparicio
Vice President of the C.V. MARQ and the Alicante Provincial.
Council Deputy for Culture and Transparency

HAN

The Qin and Han dynasties are the first two in history to unify Chinese territory. This was a time of cultural, artistic and scientific splendour, in which China held a prominent place in the international scene of the ancient world. Mention should be made of the difficulty involved in unifying a multi-ethnic country of huge proportions. These two qualities, variety and grandeur, are perfectly captured in the exhibition taking place between 28 March 2023 and 28 January 2024: **"The heritage of the Qin and Han Dynasties. The Xi'an Warriors. China"**. There one may enjoy one of the all-time masterpieces of Chinese art: the terracotta army of the First Emperor. It needs no further introduction: since its discovery on 29 March 1974 and its subsequent museumization in 1979, these slightly larger-than-life figures have been a source of amazement for millions of visitors and continue to arouse the interest of researchers, archaeologists and specialists from all over the world, in their eagerness to unravel those secrets that have not yet been revealed. We will also have the opportunity to appreciate other spectacular objects from the period before and after the Qin dynasty, and learn everything that Science, Archaeology and Technology, in their current state, can contribute to the knowledge of the past.

I shall end my presentation by proposing the reading of this teaching material and the associated activity notebooks, which have been lovingly designed for all of you, whether you be teachers, students or members of the general public.

All that remains for me to do is invite you to share with us this great opportunity to admire some works whose spectacular artistic and historical significance earned them the title of UNESCO World Heritage Site in 1987.

Josep Albert Cortés i Garrido
Managing Director of the C.V. MARQ Foundation


車馬房
STABLE
CHAMBER
鹿角遺跡

The exhibition **"The heritage of the Qin and Han Dynasties. The Xi'an Warriors. China"** offers an exciting topic that may be unknown in its details. These are two dynasties spanning a large part of China's Ancient History. The Qin dynasty (pronounced /chin/), which apparently gave rise to the word "China", is famous for its "First Emperor", who unified the immense Chinese territory for the first time and bequeathed what may be the largest funerary complex in the history of humanity to be dedicated to a single person. In addition to his mausoleum, the large-scale construction projects he commissioned – the Great Wall, the palaces of the capital, the roads and irrigation canals – involved the mobilisation of a huge workforce composed, according to estimations, of more than 2 million people, many of whom had been sentenced to forced labour. The period of the Han dynasty can be said to have been one of cultural and scientific flowering that consolidated the concept and structure of the empire and one which, in many ways, lends itself to comparisons with its western contemporary, the Roman Empire.

Regarding the present teaching guide, with which we intend to gather the contents of the exhibition, it should be noted that it has been divided into two well-differentiated thematic blocks. In the first, we will try to put the ancient Chinese civilisation in context. We shall begin with some basic concepts about Chinese geography and a brief summary of its history and then focus especially on the historical period prior to the Qin unification. Next, we shall cover the Qin dynasty, the figure of the First Emperor and the organisation of his unified state. This section is capped by a summary of the four centuries of the Han period, with a special reference to the Silk Road.

The second block focuses on the tomb of the First Emperor and his famous terracotta army. We shall get to know about the whole of the mausoleum and the pits where the warriors appeared, and read a more detailed analysis of these: the different figure types, their manufacturing technique and their weapons. Another section describes two of the most important works of the funerary complex along with the warriors: the bronze chariots. This text would be incomplete without a brief summary of all the sciences that went into the study of this site and its archaeological objects. We shall conclude with a brief exposition of another magnificent mausoleum, in this case from the Han period, whose most recent discovery has also come as a surprise for scholars: the Yangling Mausoleum, which is a good example of the influence of the First Emperor's tomb in later times.

PART I

THE QIN AND HAN DYNASTIES IN THEIR CONTEXT

I. CHINA, GEOGRAPHICAL CONTEXT

China is the most populous country in the world (more than 1.4 billion inhabitants) as well as its third largest country, after Russia and Canada. This huge nation is organised into administrative divisions, some of which are huge regions while others are comparatively so small that they only encompass the district of a large city, say Peking or Shanghai. There are three geographical characteristics that we intend to emphasise above all others as they can help us to understand some peculiarities of its history:

- **Its enormous territorial dimension.** China has an extension of more than 9.5 million km^2, which is only slightly smaller than the entire European continent. To illustrate the magnitude of the country, one must bear in mind that 4 of its regions are much larger than Spain and Portugal put together, and that the largest of them (Xinjiang) could accommodate three Iberian Peninsulas. Such data must be taken into account to imagine the difficulties that have always been entailed in maintaining the unity of a vast country which encompasses a multitude of cultures and ethnic groups, although one must remember that not all the historical Chinese dynasties reached the current limits.

- **Its orography**. It is also an essential geographical fact that most of its territory is covered by mountain ranges or high plateaus. Only 12% of its surface, mostly the eastern half of the country, is flat (even so it amounts to more than 1 million km^2!). The rugged relief that surrounds China to the north (the Mongolian Plateau, Gobi desert, Altai Mountains) and to the west (the Pamir Mountains, Tibetan Plateau, Himalayas) represents an insurmountable natural barrier that has kept the country in relative isolation. These abrupt limits have also shaped its history, because the extreme environment of its peripheral areas (deserts, high mountains and icy plateaus), in addition to isolating the central core of China, favoured the trend among human groups from those border areas to go inland, where there were better weather conditions and more resources. This has been a constant historical feature: the perpetual struggle against the (non-Chinese) barbarians from abroad who threatened their ancient civilisation.

- **Its rivers.** Water, which is essential for the practice of agriculture and human settlement, undoubtedly constitutes China's greatest wealth. It is estimated that there are about 50,000 rivers and more than 2,800 lakes of at least some importance. Of all of these, the standouts are three large rivers that cross their territory from West to East: the Yellow River (to the North), the Yangtze River (in the centre) and the Pearl River (to the South). Its periodic floods, since time immemorial, have claimed many lives and left an indelible mark on Chinese history.

  - **The Yangtze River** is the longest river in China (6,300 km) and the third longest in the world, after the Amazon and the Nile. In the West it is sometimes known as the "Blue River" as opposed to the Yellow River. Its flow is 10 times higher than the Yellow River and it is navigable for most of its length. It has traditionally been regarded as the dividing line between North and South China. During the 20th century, the Yangtze's four most catastrophic floods killed more than 400,000 people.

  - **The Yellow River** (or Huang He River) is the second longest in the country (over 5,400 km) and is historically considered "the cradle of Chinese civilisation". Its name refers to the river's perennial colour in its lower course, which is due to the large amounts of silt it carries downstream. It is the most unpredictable and violent river in China due to its flow variations and, above all, its changes in course as it passes through the flat lands. Like the Yangtze and perhaps to a greater extent, the Yellow River is infamous for its violent overflows (more than 1,800 have been estimated in the last 2,000 years). The most serious of these occurred in 1931: between 1 and 4 million people are estimated to have lost their lives in what is considered the worst recorded natural catastrophe in history.

- **The Pearl River** (or River of the Pearls) is the third longest river in China and the second largest, five times more so than the Yellow River. It flows into a large delta between Macao and Hong Kong. Currently, the Pearl River Delta is one of the most developed regions in China, with a population of approximately 50 million.

Rivers have been of vital importance in the history of China: the need to carry out collective works to control their floods and extend agriculture has aided the development of civilisation along its banks and its dissemination through its courses. Moreover, rivers have also been the main means of transportation and communication in a country of China's dimensions.

II. A BRIEF OVERVIEW OF THE HISTORY OF CHINA

What follows is a chronological summary of Chinese history. It should be noted that the chronology of the first dynasties is an approximation that may not coincide with that of other authors.

PALEOLITHIC
(approx. up to 10000 B.C.)

Discoveries in the field of palaeoanthropology have shown that ancestors of modern humans already existed in China more than 1.5 million years ago. One of the first hominids to be found (in the first decades of the 20th century) and possibly the best known in China is the so-called "Peking man" (*Homo erectus pekinensis*), who lived some 500,000 years ago. When *Homo sapiens* arrived in China, it coexisted at some point with other species (Neanderthals and Denisovans). Ceramics appeared very early in the Terminal Palaeolithic, long before agriculture and livestock, and remain, so far, the oldest ceramic samples in the world.

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NEOLITHIC
(approx. 10000-2000 B.C.)

China stands out for being a very ancient agricultural focal point: rice and millet cultivation appeared about 10,000 years ago. The Chinese Neolithic is noted for its complex evolution. Particular importance should be attached, at the end of this period, to such highly advanced regional cultures as that of Longshan (middle basin of the Yellow River) or that of Liangzhu (lower course of the Yangtze), which show much evidence of development: extensive walled towns, social and settlement hierarchisation, large irrigation works and a high degree of specialisation in jade work. These societies could well have reached a state level at this stage.

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The period of the THREE SOVEREIGNS and the FIVE EMPERORS
(approx. 2850-2000 BC)

This is a mythical period in which legendary characters (the most famous of whom is the "Yellow Emperor") ruled for centuries and invented all the advances of civilisation: writing, agriculture, medicine, institutions, laws, etc… Archaeologically, it corresponds to the last Neolithic stages. From that moment onwards, "historical" dynasties followed one after the other.

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The XIA dynasty
(approx. 2000-1600 BC)

The first dynasty recorded in historical annals. Archaeologists identify it with the Bronze Age Erlitou culture, which already produced ritual vessels in this material.

The SHANG dynasty
(1600-1045 BC)

Its territorial extension included the Yellow River basin. Objects from this time that have been found include numerous inscriptions on bones and turtle shells, which are the oldest samples of Chinese writing. These are "oracle bones" for predicting the future: people would write the relevant question on them and then they were burned; the answer was found by interpreting the cracks and stains created by the fire. Likewise noteworthy are the magnificent bronze containers in the form of a "tripod".

The ZHOU dynasty
(1045-221 BC)

This period witnessed the establishment of a government system supported by feudal lords, which progressively degenerated into territorial fragmentation. This was the time of the great Chinese philosophers of antiquity, such as Confucius or Lao Tzu, and the oldest works of Chinese literature (although most of these were highly embellished by later tradition). There will be more about this period below.

The QIN dynasty
(221-206 BC)

This was the first dynasty that completely unified the country and created the figure of the emperor. Despite its short duration (15 years), it provided a solid foundation for the political and cultural configuration of China.

The Han dynasty
(206 BC- AD 220)

This lasted four centuries and was only briefly interrupted by a 14-year interregnum known as the Xin Dynasty. It is contemporary with the period of greatest splendour of the Roman Empire. More information about this and the previous dynasty can be found in this guide.

The THREE KINGDOMS period
(220-265)

Following the Han dynasty, China became disunited for about 400 years, during which regional dynasties arose in the South and North of the country. At an early stage, it fragmented into 3 kingdoms, each ruled by an emperor who claimed his rightful right of succession to the Han dynasty.

The JIN dynasty
(266-420)

China was unified, but not for long, as the unification was soon undone by internal strife and the pressure of the barbarian towns of the North.

The NORTHERN and SOUTHERN DYNASTIES period
(420-589)

Despite the division and clashes between the Northern and Southern dynasties, this period was noted by intense artistic activity, especially due to the spread of Buddhism.

The SUI dynasty
(589-618)

A second cycle of unification of all of China began. This was a time of great construction projects: the building of the Grand Canal and the repair of the Great Wall of China.

The TANG dynasty
(618-907)

This was one of the most durable and prosperous dynasties in Chinese history. Taoism, Buddhism and Islam coexisted during this period while literature, astronomy, medicine and the arts flourished.

The FIVE DYNASTIES and TEN KINGDOMS period
(907-960)

During this period of instability, 5 dynasties succeeded one another in the North and 10 kingdoms coexisted in the South. It is generally accepted that, at this time, the South of China surpassed the North in terms of economy, culture and the arts.

The SONG Dynasty
(960-1279)

This was a period of economic growth, social prosperity, and scientific and cultural progress. Printed books appeared and gunpowder was applied for the first time in war.

The YUAN dynasty
(1279-1368)

The Mongol dynasty, founded by Kublai Khan (the grandson of Genghis Khan). It is the first great dynasty of foreign origin in China and initiated a third period of territorial reunification that was to last until the communist era. It was the time of Marco Polo's travels. The new Chinese discoveries – gunpowder, the compass and paper– arrived in Europe, introduced by Arab intermediaries.

The MING Dynasty
(1368-1644)

A dynasty of Chinese origin that expelled the Mongols. This is the period of the great Chinese voyages through the Indian Ocean and the Red Sea, which came long before similar endeavours by Europeans. Portuguese and Dutch merchants settled on the Chinese coast. The Dutch were responsible for introducing tea in Europe. The first western missionaries (Jesuits) also arrived, exporting European knowledge, such as world maps and the European clock, to the imperial court. More than 400 Western works were translated into Chinese.

The QING dynasty
(1644-1912)

The Manchus, a tribe from the Northeast, founded this last Chinese dynasty, with which territorial expansion reached its current limits. At the end of the 18th century, other Westerners, British and American, joined the trade with China. The 19th century was characterised by international opening and the influence of the West: in the last years of the century the country was divided into areas of colonial influence (British, French, German, Russian and Japanese).

The REPUBLIC OF CHINA
(1912-1949)

The last emperor, still a child, abdicated and the Republic was established.
The Chinese Communist Party was founded.

The PEOPLE'S REPUBLIC OF CHINA
(1949-present)

On 1 October 1949, the leader of the Communist Party Mao Zedong proclaimed the People's Republic of China. China is currently one of the main powers in the world in the economic, military and technological spheres, as shown by its advances in the telecommunications market and in the "space race", to mention but two examples.

III. BEFORE THE UNIFICATION OF CHINA

An overall understanding of the unification of China requires going centuries back in time, long before the First Emperor: around 900 B.C., when the Zhou dynasty ruled China. At first, the dynasty maintained a certain unity while it expanded towards the East, along the Yellow River, multiplying the donations to relatives and faithful vassals, who were forming their own hereditary fiefs. The development of feudalism progressively intensified: according to sources, hundreds of fiefdoms came into being, some of them with more military resources than the king himself. In 771 B.C. nomadic tribes attacked the capital, forcing the Zhou dynasty to move its court further east. It is for this reason that the first centuries of the Zhou dynasty are also known as "Western Zhou" while that following 771 B.C. has been named "Eastern Zhou". The Eastern Zhou period (771-221 B.C.), during which the feudalisation process culminated in a multi-state system, is traditionally subdivided into two periods: the "Spring and Autumn Period" and "Warring States Period".

The "Spring and Autumn Period" (771 - 476 B.C.)

The multitude of fiefdoms became reduced as the weakest were absorbed by the strongest, leading to the formation of larger, more powerful lordships. The lords of these territories (dukes, marquises or counts) eventually created their own independent states with their court of officials, although they remained respectful and obedient to the Zhou monarch (considered the "Son of Heaven"), whose value was now merely symbolic and religious. Some of these lordships, in continuous struggle with their neighbours, enjoyed moments of supremacy, which is why this period is also referred to as that "of the hegemons". At this time, the Qin territory, the origin of both the dynasty and the unification of China, still remained a small border state on the upper reaches of the Wei River (a tributary of the Yellow River).

Warring States period (475 - 221 B.C.)

The authority of the Zhou dynasty finally collapsed when, at the end of the 4th century B.C., the leaders of each territory relinquished their feudal titles (duke, marquis,...) and called themselves "kings" of their states. These kingdoms, which had been reduced to a number of seven, sometimes struck alliances with one another to defeat the others and, at other times, changed sides according to their interests. None of them seemed able to completely prevail over the rest, but at the end of the 3rd century B.C. the situation changed: one of them, the kingdom of Qin, now one of the most feared and powerful on account of its conquests, came to impose itself on the six remaining kingdoms. Within one decade (230-221 BC) the king of Qin conquered his rivals one by one, sometimes with simultaneous campaigns against several of them. The state of Qi, the last of the independent kingdoms, fell in 221 B.C. This marked the end of the Warring States period of the Zhou dynasty and the beginning of a new phase: the unification of China under the Qin dynasty.

Before going any further, one may raise the following questions: Why did the kingdom of Qin prevail over the others? Where did its superiority lie? This cannot be said for sure. Specialists point to a conjunction of causes. The main factor may have been its border situation, one of constant alertness against the nomads, which endowed its inhabitants with a warlike character and a strong sense of survival. An economic circumstance has also been suggested: the abundant agricultural resources, favoured by large hydraulic works, that were available to the kingdom of Qin. To these factors, which could also be common to other states, one should add other typical conditions of Qin society: the encouragement of war as a form of social promotion and the determination of its rulers, ministers and generals. In other words, this was a more militaristic society and better organised for war.

THE EVOLUTION OF WAR BEFORE UNIFICATION

As we have seen, the general picture during the Eastern Zhou period (8th-3rd century B.C.) is one of a prolonged state of war. It is no coincidence that the oldest surviving military treatise, Sun Tzu's The Art of War, dates from this time, sometime in the fifth century B.C. (either late in the Spring and Autumn period or early in that of the Warring States).

Although armed confrontations were frequent during the Spring and Autumn period, these were small-scale conflicts, whose objectives were limited to defeating the neighbouring fiefdom. The small army was commanded by the nobles, who fought in chariots. One is tempted to imagine carts pulled by 2 or 4 horses, in which the aristocrats, accompanied by a driver and a lancer, shot the bow, while the foot soldiers served as support or covered the chariot in its defence. There were certainly codes of warfare in which the heroic values of the aristocracy predominated.

With the Warring States period, the intensification of fighting accelerated changes in the way of making war. It was a logical evolution: the larger the states became – as a result of conquering other territories – the greater the human resources available for the fight. Faced with the increase in the size of armies, war chariots could do little, especially when it came to besieging a city. The traditional army led by noblemen on chariots gave way to the infantry army led by expert, increasingly professional military strategists. The scale of battles multiplied considerably and armies, which according to ancient sources numbered hundreds of thousands of soldiers, could now be divided into long military campaigns.

In such a war context, it is understandable that, in order to gain superiority over a formidable rival, new tactics were developed (for example, the use of cavalry) as were improvements in weapons (thicker armour, the introduction of the use of iron, despite the fact that bronze weapons were still dominant...). But the most outstanding of all military innovations was undoubtedly the appearance of the crossbow, a much more effective weapon than the conventional bow.

IV. THE QIN DYNASTY AND UNIFICATION: THE FIRST EMPEROR

The year 221 B.C. marked an unprecedented milestone in Chinese history: the King of Qin emerged as the sole and undisputed ruler of all of China. To mark his new status, he decided to adopt a new, higher-ranking title: "First August Emperor of Qin" or "**Qin Shi Huang**" (or "Qin Shi Huangdi", as given in many Western books). For the sake of brevity, we shall hereinafter refer to him simply as the "First Emperor". His successors were to bear the title of "Second Emperor", "Third Emperor",… But who really was the First Emperor?

The figure of the First Emperor

The figure of the First Emperor. Before dealing any further with his figure, one must be aware that the main source of information about his life is the book "Records of the Grand Historian", written by the Chinese historian Sima Qian during the Han dynasty, one hundred years after the emperor's death. Quite apart from not being a contemporary witness to the events, Sima Qian was the chronicler of an antagonistic dynasty that was trying to discredit the Qin. It is thus understandable that he should give a negative image of the emperor as an ambitious, inhuman and highly superstitious tyrant. Current historians consider that many of the episodes and anecdotes about the First Emperor must be questioned because they were deliberately invented or exaggerated. In this regard, Archaeology must muster all its strength to recompose the past.

The First Emperor was called Ying Zheng and he took the throne at the age of 13 (in 246 BC), supervised and controlled by his mother and the minister **Lu Buwei**. When, at the age of 22, the young Ying Zheng came of age and now wielded power on his own, he rid himself of the regent Lu Buwei, who subsequently committed suicide, and replaced him with his new adviser **Li Si**, another very relevant figure in the life of the emperor and the true architect of the "philosophy of state". Li Si's political ideas boil down to one idea: strengthening the monarch to maintain a united and centralised state. His government project falls within a school of thought called "legalism", which was quite different from the ideas of Confucius (or Confucianism) that had dominated the previous period. For the sake of clarity, the legalistic doctrine may be summarised into three points:

- A weakening of the feudal lords in favour of a monopolised power by the emperor.
- A blind obedience to the law, which is the basis of the functioning of the state. The laws must be very severe, with harsh punishments for offenders and rewards for collaborators.
- An extremely bureaucratised system, in which all administrative operations are meticulously recorded

As mentioned above, after the unification wars, Ying Zheng became the first emperor of China at 38 and ruled as such for the next 10 years.

How was the great unified China organised?

The most decisive measures that characterised his reign and contributed to keeping the new state of the First Emperor together were essentially six:

- The elimination of all trace of seigneurial or feudal power. The most effective measure for abolishing feudalism consisted in eliminating inherited privileges: now all power belonged to the emperor and, in order to prosper, one had to serve the state. It was also decided not to grant aristocratic titles to any member of the imperial family. Another measure recorded in the sources was the deportation of the noble families of each ancient kingdom and their concentration in the capital (Xianyang) in order to keep them more under control. This town became a large city that brought together thousands of artisans and aristocratic families. In order to appease these nobles, the emperor had the palaces they had in their places of origin reconstructed in the capital. According to the chronicles, 270 palaces and pavilions were built, occupying a vast area.
- The organisation of a new territorial division. The empire was divided into 36 **provinces** (*zhun*), each headed by a civil and a military governor, both of whom were supervised by a superintendent who was only accountable to the capital. These three officials were appointed by the emperor, who was the sole person authorised to dismiss them. Each province, in turn, was divided into **districts** or **prefectures** (*xian)*, governed by a prefect. To avoid corruption, the system provided for the replacement of these officials from time to time.
- Unification in all fields. The **laws**, the **weights** and **measures**, the **currency** and the signs of **writing** were standardised. The unified writing system was the one in use in the kingdom of Qin. It is also necessary to include another measure that facilitated internal communications: the equalisation of cartwheel axes, as in the preceding period each state had had its own cartwheel width of separation.

- A network of **imperial roads** linking the entire country was created, thus making it easier to rapidly mobilise the army. There were 5 royal roads that stemmed from the capital (Xianyang), all about 15 m in width and lined with trees at regular intervals. They were equipped with posts for the replacement of horses and inns for the mail. These main roads branched into several minor paths, reaching the furthest corners.

- The construction of the first **Chinese Great Wall**, which was built to hold back the attacks of the nomads from the North. In addition to its protective function, it had a symbolic value: it was the place where civilised life ended and the world of the barbarians began. There had already been precedents for this type of works: during the time of the feudal states, various kingdoms were forced to build walls and palisades to stop the advance of nomadic peoples and for protection against other Chinese states. But the First Emperor's project was more ambitious and extensive, joining the different fortresses along the northern border with walls. By most estimates, it totalled more than 6,500 km. A huge army of convicts and prisoners was used for this project. Thousands of them perished during construction.

- The burning of books and persecution of intellectuals. According to Sima Qian, in the year 213 B.C. an order was issued to burn all books except the official Qin chronicles and treatises on divination, agriculture, and medicine. The public recitation of poetry or chronicles of the past was prohibited under penalty of death. The destruction of old historical documents was intended to erase all memory of the feudal era, a constant threat to the unified state. A purge of philosophers and scholars was also carried out, as their teachings were regarded as defiant of the government and liable to cause popular uprisings: 470 scholars were thus buried alive and a larger number were exiled to border territories (as was the crown prince Fusu, for opposing this measure).

V. AFTER THE FIRST EMPEROR: THE HAN DYNASTY

The end of the Qin dinasty

The end of the Qin dynasty. The First Emperor died in 210 BC, at the age of 49, during a trip to the eastern provinces. He had ruled for some 26 years as King of Qin and a further 11 as Emperor of unified China. Right after he died, his closest advisers (Li Si and Zhao Gao) kept his demise a secret and returned to the capital with the corpse in the emperor's covered carriage, hidden from view. They were thus able to manipulate the succession: taking advantage of their privileged position, they issued false edicts ordering the suicide of the successor prince Fusu. With another forgery they designated a successor in Huhai, the emperor's second son, who ruled as the "Second Emperor". After being crowned, he ordered the execution of the minister Li Si.

The Second Emperor remained on the throne for less than 3 years: the harsh living conditions of most of the peasantry, oppressed by high taxes, compulsory work and very severe laws, eventually generated popular uprisings in different parts of the empire. These rebellions were growing and weakening the military power of the dynasty. The Second Emperor was the victim of a conspiracy that ended his life and crowned his nephew Ziying, who did not take on the title of emperor. He only ruled for 46 days as rebel troops entered the capital at the beginning of 206 BC, burned it down, and executed the emperor along with the entire royal family.

The Han dynasty

With the Qin dynasty eliminated, power was divided among the rebel chiefs and rivalry soon arose between them. Finally, after 5 years of war, a victor emerged in Liu Bang, a man of peasant stock. Liu Bang –later known as **Gaozu** or **Gaodi**– founded the Han dynasty and proclaimed himself the new emperor. He established the capital in Chang'an (present-day Xi'an), not far from the destroyed Xianyang, the seat of the Qin dynasty. Gaozu won the support of bureaucrats and scholars by eliminating the authoritarian excesses of the "legalists" and created a more balanced state, integrating regionalisms and emerging noble families into a centralised state, under the control of imperial officials (modelled on the Qin).

The new Han dynasty (206 BC - 220 AD) has traditionally been divided into two stages: Western Han (206 BC - 9 AD) and Eastern Han (24 - 220 AD), which were separated by an interregnum of 14 years (Xian dynasty; 9 - 23 AD) under the rule of the usurper Wang Mang. In each of these periods the capital was variously located. For this reason, a geographical criterion has been maintained for differentiating them: it is called "Western" because the capital was in the west of the empire, in Chang'an, and "Eastern" because it later moved further east, to Luoyang. The periods are also usually defined by chronological criteria: Western Han or "Early" Han and Eastern Han or "Later" Han.

The best known and most prominent of this dynasty's 25 rulers may be the fifth Western Han emperor: Wudi (141-87 BCE). He reigned for 54 years, during which he extended his territorial domain: first, to the North, where he conquered the small western kingdoms of Korea and established relations with Japan; he was later to head south and subdue numerous independent kingdoms beyond the Yangtze River, as far as North Vietnam. **Wudi** was also very interested in promoting the "Silk Road". It was during his tenure that the historian Sima Qian (149-90 BC) wrote the *Records of the Grand Historian*, the first Chinese history, starting with mythical times and ending with the reign of Wudi, and which has already mentioned above as a fundamental source of information on the First Emperor of Qin.

The Han dynasty helped consolidate the unification begun by the First Emperor and created a merit-based administration, in which the most qualified persons for state positions were selected through a system of difficult examinations. This dynasty, moreover, was a period of prosperity in the letters, arts and science. In the scientific field, the most notable advances were those in medicine (surgical operations performed under general anaesthesia) and astronomy (accuracy of the calendar and the recording of sunspots, performed 1,500 years before Western astronomers). Regarding technology, the Han period produced blast furnaces for the forging of iron (1,300 years ahead of Europe) and such notable inventions as the compass (a tool for divination and for choosing the orientation of houses known as a "south-pointing needle", as it pointed towards that cardinal point), the wheelbarrow and the crank (which allowed a wheel or the axis of a machine to be turned with a short rotating movement). The most important invention, however, was that of paper, which was kept a state secret. It should be noted that not all Chinese scientific and technical knowledge was disseminated in the West, as many of these devices were "reinvented" or invented independently in another place and at another time, but they are a good example of the high degree of civilisation that China attained in ancient times.

Another highly remarkable event that occurred during the Han rule was the introduction of Buddhism. In the first century AD, the Mingdi Emperor of Eastern Han sent an embassy to India to bring sacred texts to China, along with Buddhist priests, who founded a temple dedicated to the Buddha on the outskirts of the capital.

After more than 400 years, the Han dynasty came to an end. As was to happen later with the Roman Empire, the decline was caused by multiple factors, including the peasant rebellions (resulting from the unequal distribution of the land and the increase in taxes), the internal power struggles at court, the increase of the local power of the landowners and the usual pressure from non-Chinese peoples on the Northwest borders. The powerful generals became independent from the central power and ended up fragmenting the empire into 3 independent kingdoms that were to engage in mutual struggles.

THE SILK ROAD

The "Silk Road" was a set of trade routes that connected the Far East with the Mediterranean. The phrase "Silk Road" is a modern concept, so named because silk was the most valued product that circulated through these routes. In addition to not being a single road, it was not a direct itinerary either, but rather a network of different routes with ramifications and a common objective: the circulation of products in two directions. In general, Chinese merchants did not reach the shores of the Mediterranean; rather, they exchanged their products with intermediaries (Sogdians, Parthians, Arabs...) who they met at a halfway point, and these intermediaries, in turn, would engage in similar deals with Western merchants until this chain of exchanges brought the products to the far ends of the Road.

It was the merchandise rather than the people that travelled the whole way. It is difficult to determine the origins of the Silk Road, but it certainly dates back to a time long before the Han dynasty. However, it was during this dynasty (under Emperor Wudi) that the Chinese state officially took an interest in taking part in and protecting the Road. Travelling through the Road required overcoming inhospitable regions over thousands of kilometres. Its consolidation occurred during the first centuries of the Christian era, when powerful empires controlled a large part of the territories along the way: the Han Empire in the Far East, the Kushan and the Parthian Empire in the central sector, and the Roman Empire in the far west.

The cultural impact of the Silk Road goes beyond the exchange of items as ideas and innovations flowed along its paths in both directions. Chinese inventions of universal scope, such as paper and the compass, reached the West. But China also benefited from advances made by the nomadic peoples of Central Asia, such as the taming of the horse. Furthermore, the art of the Asian continent could not be understood without acknowledging the role played by the Silk Road, since artistic forms and iconographic motifs in architecture and painting spread to different countries, sometimes producing an original mixture of styles.

VI. THE CONTRIBUTION OF THE QIN AND HAN DYNASTIES TO CHINESE CIVILISATION

This section would be incomplete without a brief assessment of the contributions made by both dynasties.

- The concept of a centralised empire favoured by the First Emperor served as a model for subsequent Chinese dynasties.
- The unification of the writing system under the Qin was of great importance for the future cultural unity of China.
- The model of territorial division of the Qin empire lasted until later times. Specialists claim that it has been maintained with slight variations until modern times.
- The Han's administration base, based on merit, served as an example for successive dynasties.
- The consolidation of the Silk Road in the Han era brought about a cultural impact of universal scope, since it became the means of disseminating religious ideas (such as Buddhism), forms of artistic expression and technical advances in the countries covered by the routes.
- The Han dynasty marked a period of flowering in scientific knowledge. Although some of its inventions did not reach Europe until much later, they influenced later stages of Chinese civilisation.

DID YOU KNOW THAT...?

The oldest surviving piece of written paper is dated to AD 110, during the Eastern Han period.

PART II

THE IMPERIAL TOMB AND THE TERRACOTTA WARRIORS

VII. THE MAUSOLEUM OF THE FIRST EMPEROR

The tomb of the First Emperor is located 35 km east of Xi'an, in a location scrupulously chosen in accordance with feng shui rules, and protected by the Wei River to the north and Mount Li to the south. It is an immense complex that, according to the latest surveys, takes up an area of about 100 km2. The pits with the terracotta army, unquestionably the most famous part of the complex, account for only a small portion: 0.05% of the total area.

Before going any further into the matter, it is worth noting that it was customary among the wealthy classes of ancient China, as in other ancient civilisations, to provide the tomb with all the necessary objects for the Hereafter (food, personal belongings, servants, concubines, animals,…). Starting at the time of Confucius, "representations" began to be used instead of animals, people and real objects, due to the enormous material and human cost of these great sacrifices. The mausoleum of the First Emperor combines both aspects: authentic objects, weapons and animals (for example, the horses of the imperial stables), but also representations of soldiers, officials and animals (for example, the horses of the terracotta army).

Sima Qian is the historian who provides us with information about the mausoleum. One must not lose sight of the fact that he was a chronicler from a later time under a rival dynasty, so we cannot rule out exaggerations and inaccuracies. According to Sima Qian, the future emperor began to prepare his tomb from the beginning of his reign, but starting in 221 BC, with China already unified and enjoying unlimited resources, the works were speeded up with the massive participation of more than 700,000 workers, mostly convicts and prisoners from all corners of the country. When the emperor died, after more than 38 years of work, it had not yet been finished and due to a rebellion that endangered the state, the works had to be completed in haste.

Sima also tells us that, at the time of his burial, the Second Emperor ordered all the childless concubines to be buried with his father. He also decided to eliminate the builders and artisans who knew of the riches inside to prevent their existence from being known: once the great funeral ceremony was over, the accesses were sealed, leaving the workers who had completed the tomb locked up inside.

We are also provided with some information about the mausoleum. It is described as a large palace: more than 30 m deep and with rooms full of sumptuous objects and a representation on the pavement of the map of China, in which the rivers and the sea were filled with mercury, while a dome on the ceiling dome symbolised the starry firmament. A crossbow device, loaded with arrows and ready to be shot against whoever dared to desecrate the tomb, was devised for its protection.

What is surprising about Sima Qian's text is that no mention is made of the Terracotta Army. Curiously, what is most striking to us us today (so far!) seems to go unnoticed by the historian. Only Archaeology will be able to verify its description in the future, but it must be anticipated that chemical studies in the mound have shown mercury concentrations 10 times higher than that of the surrounding land. Are these results due to the "rivers of mercury" cited by the Chinese historian? The mausoleum has two well-defined spaces, delimited by walls: an interior enclosure, whose main core is the burial mound, and an external enclosure that surrounds the interior one. The wall of the inner enclosure has a perimeter of more than 3,800 m, while the wall of the outer enclosure exceeds 6,300 m. Both are of enormous proportions: about 30 m high and with a width ranging from 16 to 32 m, such dimensions exceeding those of the Great Wall. Archaeologists have located more than 600 graves and structures around the mound and more than 50,000 archaeological objects have been found.

Some scholars, on the evidence of the content of the excavated graves, believe that the construction of the two walled enclosures was probably not accidental and have clearly made out three precise areas with particular functions: the inner enclosure is the emperor's private environment, the outer enclosure symbolises the administrative sphere and the space outside the set refers to the institutional sphere.

4 RITUAL DEPENDENCIES

Rooms for the emperor's funeral: rooms for banquets and ritual objects. In one of these there was a bronze bell inlaid with gold that was used as a musical instrument.

5 CEMETERY OF THE CONCUBINES

These are the tombs of 28 concubines.

3 PITS OF OFFICIALS

8 figures of officials were found. They are upright, with their hands inside their wide sleeves and looking as if awaiting orders. Each has an empty space for the placement of a bamboo roll between the left arm and the body. For their scribe tasks, they carry a small knife and a sharpening stone at their waist: the knife was used to smooth the bamboo or wooden tablets and engrave the signs. Along with the officials, there were 4 other figures of cart drivers and the skeletons of 20 sacrificed horses.

6 PIT OF SACRIFICED ANIMALS

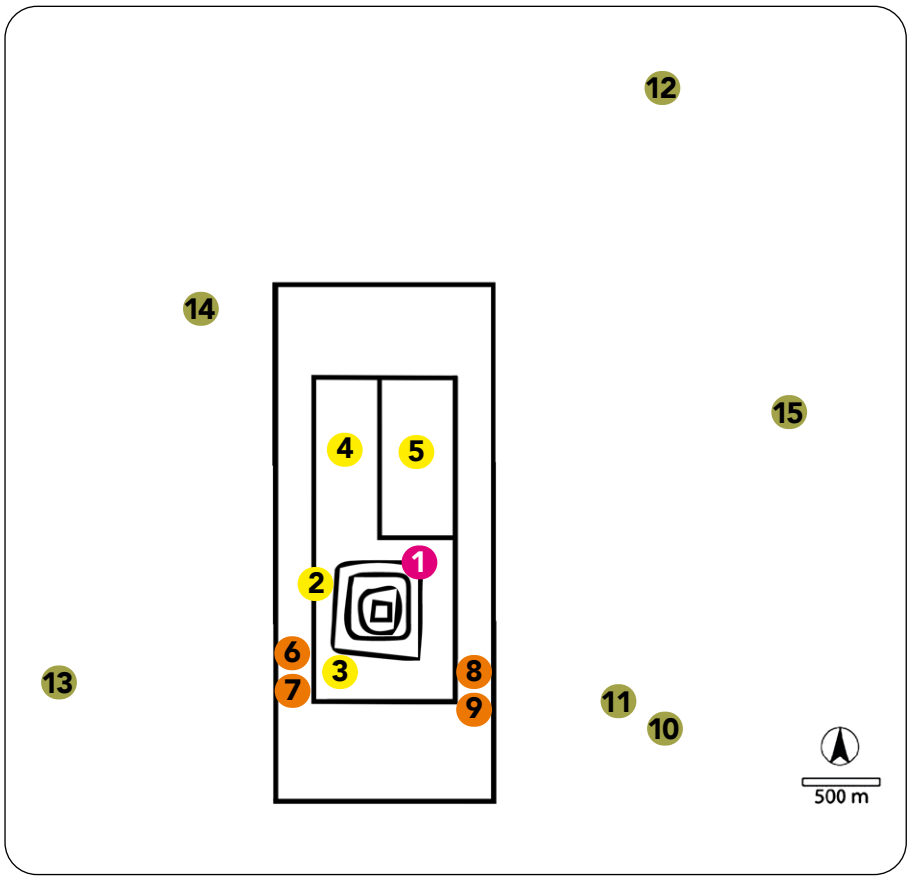
31 graves arranged into 3 rows were found, some of them containing a ceramic sarcophagus with an animal inside (birds and other exotic animals). Some of the others housed terracotta figures of servants sitting on their heels.

2 PITS OF THE BRONZE CHARIOTS

There were 2 medium-sized bronze chariots, almost attached to the tomb mound. A section below covers this in more detail.

7 PITS OF SACRIFICED HORSES

It is estimated that there may be hundreds of sacrificed horses. They may have been stables.



1 THE TOMB MOUND

This is the structure under which the burial chamber of the First Emperor is located. Although it has yet to be excavated, specialists describe it as a "terraced" pyramid built entirely of mud, on whose stepped terraces trees and plants were planted to create the appearance of a mountain. It is estimated that it could originally have exceeded 100 m in height. Today, due to erosion over time, it is smaller in size.

INTERIOR ENCLOSURE OF THE MAUSOLEUM

EXTERNAL ENCLOSURE OF THE MAUSOLEUM

THE AREA AROUND THE MAUSOLEUM

8 PIT OF STONE ARMOURS AND HELMETS

A large pit containing some 5 million limestone plates for creating armour and helmets. All the plates were perforated to be tied with copper wires to the adjoining pieces. There are other larger stone plates for horses' armour. Each armour was made up of about 600 pieces, the helmets of about 75 plates and the protections for the horse of about 300. They were not designed for fighting as they were very heavy: the armour weighs about 18 kg and the helmet 3 kg. They may have played a symbolic function in the burial rituals or, perhaps, attempts were made to simply imitate an armoury for eternity.

9 PIT OF THE ACROBATS

This contained 11 terracotta figures and a bronze tripod (the largest known from the Qin period) weighing more than 200 kg. The figures have been interpreted as acrobats due to their postures (arms raised and moving) and their nudity (barefoot, with a bare torso and short skirts). Acrobats were required to entertain the court with gymnastic exercises or martial arts. What is most surprising is the size of some of the figures, which are well over 2 m in height.

10 PITS OF SACRIFICED HORSES

98 pits with skeletons of sacrificed horses, accompanied by ceramic containers (some with food) and terracotta statues of their grooms, who are shown kneeling in front of the horse they had to take care of. These pits represent the palace stables.

11 PRINCES' TOMBS

17 luxurious tombs were discovered and of these less than half have been excavated. In 7 of them, 5 men and 2 women have appeared, all aged between 20 and 30, with rich trousseau objects: swords, bronze mirrors, jade objects and a silver toad. The bodies show signs of violent death. They may be members of the imperial family: sources tell us that when the Second Emperor rose to power, he ordered the execution of all his brothers (12 brothers and 10 sisters).

12 PIT OF BRONZE BIRDS AND TERRACOTTA MUSICIANS

About 3 km from the mausoleum complex, a grave with 46 life-size bronze figures of waterfowl (cranes, geese and swans) was found in 2000. They are hollow figures (the first in Chinese art bronze) and made in parts. Their surface was decorated with a white or black layer on which the feathers were engraved. The pit was designed in the manner of a pond, with the animals in different positions (resting or looking for food). 15 terracotta figures of musicians were also found in the pit, 7 of them kneeling and 8 seated, and playing wooden instruments that have not been preserved.

13 WORKERS' CEMETERY

To the southwest of the complex, there were 2 necropolis areas, apparently for the forced labourers of the mausoleum. The better-preserved of the these contained burial pits with multiple corpses (up to 14 bodies together) and in some of them there were ceramic tiles bearing the name of the deceased, their origin and the crime committed, thanks to which we know that they came from different parts of the empire (also confirmed by DNA analysis). All in all, a hundred adult males, some of whom died violently. There were also buried women and children.

14 WORKERS' HOUSING AND WORKSHOP AREA

To the northwest of the mausoleum, we can find the housing and work area of the workers who built the tomb. The material discovered includes hammers, chisels and iron shackles.

15 PITS OF THE TERRACOTTA ARMY

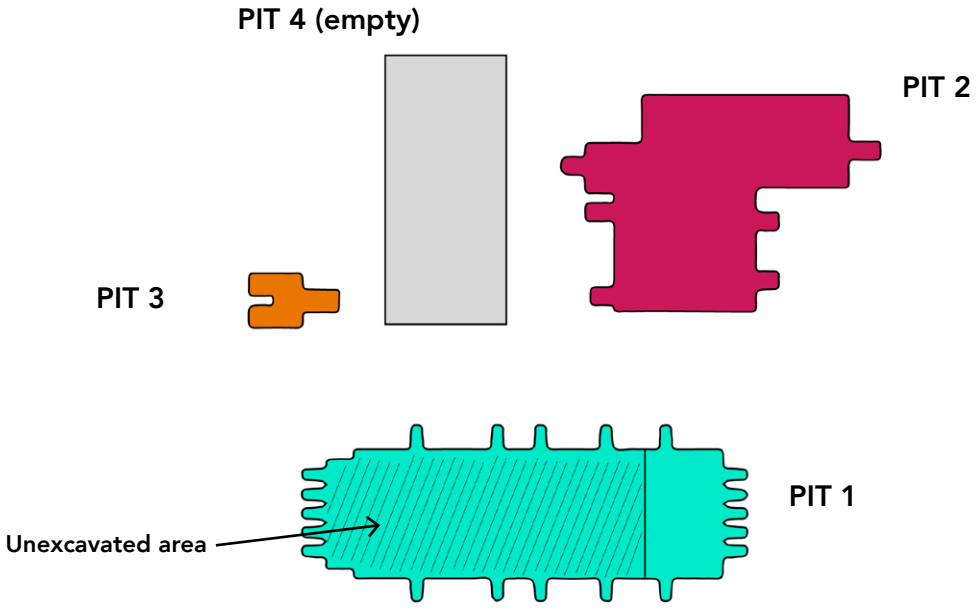
1.5 km east of the mausoleum, a discovery was made of the three pits containing the Terracotta Army (Pits 1, 2 and 3). More information below.

VIII. THE PITS OF THE TERRACOTA ARMY

Between 1974 and 1976, the three famous graves containing the army of the Terracotta Warriors were found, after which they attracted attention the world over. Each pit has specific characteristics, but they make sense as a whole: Pit 1 houses the bulk of the infantry, Pit 2 is made up mainly of tank and cavalry units, and Pit 3 corresponds to the army command unit. There was another pit (Pit 4) located between 2 and 3, but it was empty, probably due to the war events after the First Emperor's death, which made it necessary to cover it without placing any objects inside.

The total numbers of the army cannot be exactly established as not all the pits have been fully excavated so far, but it has been estimated that there could well be some 8,000 terracotta warriors (of which some 2,000 have already been recovered), some 135 chariots and more than 500 horses. In addition to this, countless remains of bronze weapons have been found.

The pits have not survived intact: many weapons are missing and all the figures are fragmented. This was due to the looting they were subjected to shortly after their completion, during the revolts following the death of the First Emperor. Since the warriors' weapons were life-size and therefore useful for fighting, the rebels may have stolen them to equip their army. Fortunately, they were not able to remove all the weapons as countless remains have appeared on the ground. Nevertheless, the looting caused considerable damage due to a fire that may have been intentional or, perhaps, unavoidable, as the looters used torches to illuminate the interior of the corridors and, as a result, possibly burned the wooden beams on the ceiling. Consequently, in addition to the robbery and damage caused to the warriors by the brusque seizure of their weapons, the fire caused the partial collapse of the ceiling, fragmenting the figures and allowing a subsequent infiltration of water. For this reason, no intact warrior has been found so far and massive restoration work has been required to reconstruct these figures.



PIT 1

It was the first to be found and the largest of the three. It was discovered by chance in March 1974, during the excavation work of a well by a family of local peasants. It is rectangular in shape, measures 230 x 62 m, is 5 m deep, and it has access embankments on each of its sides. The construction work was a colossal task, not only due to the extraction of thousands of tons of earth, but also because the entire floor was paved with terracotta tiles (more than 250,000 pieces) and the whole set was covered with a roof made of wooden beams, the making of which is estimated to have necessitated more than 6,000 tree trunks (a veritable forest!). Different layers of material were deposited on top of the roof to seal and waterproof it: first a covering of woven mats and then successive clay layers.

Only a small part of the pit has been excavated, but it has been enough to determine the internal layout and make an estimate of its content: it may harbour some 6,000 soldiers and 45 chariots. The interior space is divided into 11 corridors separated by thick rammed earth walls on which the ceiling beams rested. Each corridor is wide enough to accommodate a row of 4 soldiers, except for the two at the ends, which are narrower and could only house 2. As for the formation of the army, it is regarded as being in order of battle, with all soldiers oriented in the same direction (towards the east), except for those in the rows at each end, who are looking sideways to watch over and protect the army. The front of the formation – the vanguard – is made up of 3 long rows of light infantrymen (unarmoured) that span the entire width of the pit, as they are positioned in front of the corridors. The heavy infantry (armoured) follows behind, distributed in the different corridors and led by officers in chariots.

PIT 2

Discovered in 1976, it is smaller than the previous one. It has an "L" shape and due to its location on the flank of Pit 1 it has been considered to be a reserve army prepared to support the infantry. Although its excavation has not yet been completed, it is estimated that it may have some 1,300 figures (including soldiers and horses) and 89 wooden war chariots. In its distribution, 4 sections can be distinguished: a unit of archers (more than 300), with crouching archers at the centre of the formation, surrounded by standing archers; a cavalry unit behind the archers, totalling more than 100 horsemen with their horses; a chariot unit, made up of 64 chariots lined up in 8 rows; and a mixed unit, with a few chariots and horses and a troop of 300 soldiers.

PIT 3

Also found in 1976, it is the smallest of the three and the only one that has been fully excavated. It is also the only one that was not damaged by the fire. Its ground plan has a strange "U" shape. It is believed to be the command unit of the army because it is located behind the other two pits and is presided over by a war chariot distinguished by an umbrella, possibly the vehicle of the commander in chief. The rest is made up of 68 figures representing lancers and high command officers. The soldiers here, unlike those of the other pits, are positioned by the walls, leaving a corridor between them and waiting for someone important to pass between them (the emperor?). The remains of a deer were also found, probably a ritual sacrifice before going into battle.

IX. THE TERRACOTA WARRIORS

The terracotta warriors are a technical and artistic feat in Chinese art history, never equalled before or since. What is immediately striking about them is their height, which is beyond life-size: from 1.78 m for the shortest soldier to 1.97 m for the tallest figure (a general in Pit 2). Similarly amazing is the fact that each warrior has a different face from the rest; they are all individualised and unlike one another. Computerised facial recognition studies attest to this: each figure has its own physiognomy. This is made all the more spectacular by the verification that they were completely polychrome.

In order to show their particularities, we will divide this presentation into three parts: the different categories of soldiers, the manufacturing techniques and the weapons they wielded.

PORTRAITS OR INVENTED FACES?

The individuality and realism of each face has made specialists wonder whether these figures are actual portraits of real soldiers. The lack of a previously consolidated portraiture tradition in China, the unlikelihood that all the soldiers would have posed as models, and the belief that the warriors were not made for artistic delight (in fact, very few people were able to view them as a whole) have all led to the conclusion that these are idealised images –in other words, that they do not copy real faces.

One is thus led to wonder: why did they go to so much trouble and effort to give them a realistic appearance? From the viewpoint of the ancient Chinese, the intention was to reproduce the "world of the living" in the "world of the dead". For this reason, the soldiers had to be provided with individuality, although this does not mean that they had to be an accurate replica of reality. What mattered was not the personal identity of the soldier but what he represented or could do (unconditionally defend his emperor).

Moreover, the tombs were a reflection of the social importance of their owner. An emperor who had unified all of China was not to make do with any less: his mausoleum was the best example of his exceptionality as a person and the realism of his soldiers contributed to this endeavour.

I. THE TYPES OF FIGURES

Different types of figures can be distinguished from their hairstyles and equipment, which differentiate rank and function within the army, and from their postures.

1. The officers

These are distinguishable from the rest by several details: their height (slightly taller than the rest), their headdress (flat hats), their hairstyle (a bun at the back to prevent their hair from interfering with the hat) and their armour, which shows coloured ribbons as insignia. Within the category of officers, different ranks can be distinguished and are reflected in the complexity of the armour: the armours of middle-rank officers are made of about 600 plates, while those of the highest rank exceed 1,000. Among the higher-ranking officers, the most distinctive is the senior general of Pit 2, who is curiously covered with a frontal armour (only covering the chest, perhaps because a senior commander, while in battle, should never "turn his back" on the enemy) but one of greater length: like an apron, it descends in a triangular shape. On his head he wears a flat headdress with two backward-facing spikes that possibly evoke a pheasant's tail. The position of his arms, joined and at the front, indicates that he was leaning on a long sword.

2. The archers

A specialised corps that used to occupy the vanguard positions (in Pit 1 they protect the front and the lateral ends of the army). They usually wear a full breastplate covering the body from the shoulders to a little below the waist, although there are also archers who do not wear any armour, just a toga crossed over the chest, possibly because they used regular bows (which require more freedom of movement than a crossbow). The figures of the archers appear in a crouching or standing position and are also distinguished by the bun at the top of the head.

3. The foot soldiers

They were divided into "light infantry", whose soldiers wore no armour, only their toga crossed to the right (crossing it to the left was a sign of barbarism), and "heavy infantry", protected by full breastplates. As with the archers, the bun is placed high on the head, slightly tilted to the right, and some of the soldiers wear a soft cap that is tied at the back of the neck.

4. The cavalrymen

The cavalry is another highly prized unit of the army. The figures of riders always appear standing in front of their horses, holding the reins. They are equipped with light armour: it only covers the front, has no shoulder covering and is shorter than in other units (only reaching the waist) in order to aid mobility and reduce weight. They also wear a close-fitting cap, tied with a strap under the chin. As for the horses, true terracotta masterpieces, they are of a species native to the Central Asian steppes: small and strong, with pricked ears, a flat snout, clipped mane, and a knotted tail. The horses were equipped with small wooden saddles covered with leather and did not have stirrups (this is a much later invention). The use of cavalry is clearly a contribution from the nomadic peoples who lived outside the northern and western borders of the empire. In the First Emperor's army, cavalry was still in its early stages of development and was used as an advanced party in impassable terrain or to support chariots in battle. In fact, in Pit 2 the cavalry corps appear flanking the chariot units.

5. The chariot soldiers

There are usually three figures per chariot: the charioteer or driver (holding the reins with his arms outstretched forward), an officer who transmitted orders from the chariot, and a soldier equipped with armour and a spear. It is interesting to learn more details about war chariots since they could indisputably mark superiority on the battlefield. Chinese chariots had smaller wheels and more spokes than their Western counterpart, which gave it more stability. As they were made of wood, none have survived, although they have left their traces on the ground. As stated further above, the chariot was the essential element of aristocratic combat in very ancient times and it did not stop being used later because it benefited from some technical improvements. The fundamental innovation focused on the way of harnessing the horses to the cart: the traditional "collar harness" (which concentrated the entire weight of the load on the animal's neck, pressing in moments of overexertion) gave way to the "strap harness" (which was more comfortable for the horse as it shifted the weight towards the chest). With this innovation, horses could increase their resistance and chariots their speed. From the hairstyles and equipment of the figures, which differentiate rank and function within the army, and their postures, different classes can be distinguished.

It was a custom for Chinese men to always wear long hair as a sign of respect for their ancestors. All soldiers collected their long hair in a bun, tied by a ribbon. Common soldiers wore the bun on the head, tilted to the right. Officers, however, tied the bow at the back to be able to comfortably wear a helmet or hat reflecting their status.

The armour was made of lacquered leather plates and sewn to a tunic. The plates were joined together by overlapping the edges, like fish scales. In the sculptures, the armour is left unpainted (only lacquered), its dark colour imitating the original colour of the leather.

Underneath the armour, each soldier wore his own clothing as there was no uniform (only armour and weapons were provided by the state). This gave the army a motley appearance.

Some soldiers wear red ribbons or bows on their breastplates as a distinctive sign of their rank. In the case of this archer, the straps located on the shoulders and at the lower end of the armour may have also served the function of reinforcing the plates, since these were the areas subjected to the most intense movements, as can be seen in the kneeling posture in which the lower edge of the armour is folded.

II. THE ELABORATION OF THE FIGURES

Before going on to the phases of its elaboration, one must emphasise the difficulty involved in making such a voluminous and heavy figure: each warrior weighs between 150 and 200 kg. In addition to transportation difficulties, there was another weight-related problem: the legs that supported the figure had to be solid and thick, which made it more difficult to eliminate the internal moisture in the drying process (prior to firing). This increased the risk of the base cracking in the oven (due to the pressure of the internal water retained), thus endangering the stability of the sculpture. To solve this drawback, a more porous type of material, allowing more transpiration, was chosen: "loess" (a very fine sediment formed by the wind) mixed with sand.

1. **Manufacture of the body.** The warriors were made in separate pieces (feet-legs, torso, arms, hands, head) that were later assembled. An order was followed from the bottom up: first the base platform, then the feet and legs and so on up to the head. They were made both by hand and with moulds. The torso, the largest piece, was made by spirally overlapping coils of clay (as in handmade pottery) and then smoothing them. It was therefore hollow in order to reduce the weight of the sculpture, as with the head (which required the use of two moulds that were joined together). However, as stated above, the feet and legs were solid and made in a single piece in a mould. The horses followed the same procedure: the different parts (head, ears, neck, body, legs and tail) were worked on separately and joined later, before firing.
2. **Modelling of details.** The next step consisted in the details, concentrated on the torso (armour plates) and, above all, the head. The head underwent an individualised treatment (so far, no two faces are the same): separately-made ears were added and a layer of clay was applied to model the prominent areas, such as the hair, eyebrows or moustache.
3. **Drying.** They were left to dry in the shade so as to gradually eliminate moisture and prevent cracking during firing.
4. **Assembly.** This was possibly carried out in several phases: before firing, the torso, legs and arms were joined, and the same process was performed on the head and hands.
5. **Firing.** The torso with the limbs and, separately, the head were fired at around 700 °C in large ovens, of which there is still no archaeological record. It has been speculated that the caves excavated in the loess may have been used as ovens.

6. **Lacquering.** Before applying the colour, the entire surface of the sculpture was varnished with lacquer. Lacquer is a resinous substance obtained from the sap of a tree of Asian origin: the "lacquer tree".

DID YOU KNOW THAT...?

Each lacquer tree produces an average of 10 grams of lacquer and specialists calculate that 25 trees were needed for each warrior. From a simple multiplication (8,000 warriors x 25 trees), we obtain the incredible figure of 200,000 lacquer trees (2,000 kilos of lacquer!) needed for the completion of the entire army.

7. **Final finish: painting.** Finally, the sculpture was painted with bright colours (red, green, purple, blue,...) that were applied onto the lacquer layer. The origins of the pigments were either mineral (cinnabar for red, azurite for blue or malachite for green) or vegetable (charcoal for black). Only the hair, armour and shoes were left without paint and thus retained the dark colour of the lacquer.

DID YOU KNOW THAT...?

When the terracotta warriors were unearthed, archaeologists realised that they immediately lost their polychromy traces. This is due to the fact that the organic layer that serves as the base of the paint (the lacquer) disintegrates when it comes into contact with air and humidity and consequently, when it loses its support, the colour pigments are reduced to dust. After much analysis and experimentation, Chinese and German experts managed to find a method to prevent lacquer from decomposing and it has been successfully applied to the figures in Pit 2.

Regarding work organisation, we know from the marks printed on the figures that there were at least 87 "workshops" or production units working simultaneously. These marks show that there were two workshop types: the imperial ones, which "signed" the figures with a printed seal, and the private ones, which printed their signature on the still-wet mud with an awl. The signature marks, made barely noticeable by the paint covering, were not for claiming authorship of a work but as part of a quality control system: figures that proved defective after firing could thus be easily traced back to the workshop in question, which would then be duly fined.

Each workshop or work unit, made up of a foreman and a group of artisans, worked independently in the production of complete figures, from the preparation of the clay to the end result. This autonomy had more advantages than a single production line: bearing in mind that each part of the figure, due to its volume and complexity, required a different finishing and drying time, an independent unit could better synchronize the production and drying rhythm of the pieces, this coordination making it possible for the whole figure to enter the oven in one go. Besides, this system adapts better to unforeseen events or changes, avoiding interruptions during production.

Paradoxically, at a time of strong state centralisation, the decentralisation of work in the production of figures and weapons was favoured. Control, coordination and synchronisation were key to the success of such a colossal project.

DID YOU KNOW THAT...?

It has been estimated that each production unit could make a complete statue per month. If we consider that 87 "workshops" (some 900 artisans) were working simultaneously throughout the year, we can calculate that more than a thousand warriors were made per annum.

III. WEAPONS OF THE TERRACOTA ARMY

The weapons are basic for understanding the size of the Terracotta Army: the weapons were real and this is precisely what justifies the height and weight of the figures. Although many of them disappeared in the looting and the rest were found on the ground of the graves, the type of weapon carried by each warrior can be inferred from the position of the arms: those who bend their arms at a right angle would carry a spear, polearm, or axe, while those whose arm stretched downwards would hold a crossbow or bow. All the weapons found next to the warriors are made of bronze. Specialists have shown that the weapons were produced following the same organisational system as the terracotta figures: several workshops working simultaneously.

A basic weapon classification is as follows:

• **Lance.** Due to the size of the head and the way it is attached to the shaft, we can distinguish between those that are attached through a hollow "hafting piece" (that is, with the shaft inserted inside the head) and those that, in contrast, have a long spike "nailed" into the wooden shaft. These latter heads were long (about 30 cm) and penetrating and were a part of the spear called "pi". The spears, which measured 2-3 metres, were reinforced on the opposite side to the head with a piece of bronze (the spike) in order to prevent wear on the end resting on the ground and, at the same time, to serve as a counterweight for the head. There was another ceremonial-type spear found in large numbers in Pit 3: it is called "shu" and its peculiar head is cylindrical and ends in an edge.

• **Dagger-axe.** Called "ge" (pronounced gē), it is a long weapon used like an axe. Its blade consists of a dagger-shaped point that is attached at a right angle to the wooden shaft. It is known to have existed since the first dynasties and was used for war chariot fighting: since a frontal charge was not possible from a chariot (as this was hindered by the chariot's horses), this weapon allowed the opponent to be injured by acting laterally (in a single movement, similar to "mowing" with a sickle). A foot soldier could also use it in open formations, in which the weapon could be waved without injuring one's own comrades-in-arms, also using it against the occupants of the chariots.

• **Polearm.** The Chinese polearm or "ji" (pronounced jee) is really a type of spear that combines a spear point and a "ge" or dagger-axe head in the same shaft. It can be used, therefore, to pierce frontally (with the spearhead) or to cut laterally (with the head of the "ge"). Thanks to this versatile use, it eventually replaced the dagger-axe. Specialists presume that the polearm arose mainly as an antidote to the attacks of the dreaded cavalry, which was beginning to leave its mark during the Warring States era: faced with the rapid charge of a horseman, the dagger-axe was insufficient and a spearhead was added to it. In this way, the horse could be attacked with a spear (in this case, the perpendicular head acted as a stop, preventing it from entering too far) or by slashing the animal's legs with the lateral point of the "ge". Either way, the action aimed to wound the horse in order to make its rider fall.

• **Sword.** The twenty swords discovered in the graves are very long, almost one metre in length (the largest found is 94.5 cm long and the smallest 81 cm), and usually associated with high-ranking army officers. In some of them, the blade is made of bronze but its interior has a copper core that prevents its fracture. Examinations under a microscope have detected parallel lines on the edge that show that they were sharpened with a rotating wheel (the oldest historical evidence of this sharpening system). All spearheads, polearms, and arrowheads were likewise sharpened in this way. The handle was possibly composed of lacquered pieces of wood that could not withstand the test of time.

• **Crossbow.** This is one of the major Chinese contributions to the world of warfare. It is a revolutionary weapon as it required less skill and less force than using a bow. Shooting for a long time with a drawn bow was more taxing for the archer's energy and consequently led to a loss of accuracy. The crossbow, however, allowed one to maintain the tension for much longer and consistently with a very powerful shot. Additionally, the crossbow could be wielded effectively with little preparation, unlike the bow, which required more skill and training to shoot correctly. It was invented long before the unified empire but is known to have been already highly developed in the First Emperor's army. Although much of the crossbow was made of perishable material, its existence is proven by the more than 200 bronze triggers that have been preserved intact. As for its shape, this has been possible to determine thanks to the small bronze crossbow found in one of the bronze chariots, which will be mentioned further below.

The invention is apparently simple in its design: it is a conventional bow in a horizontal position with an attached transversal piece in which the firing mechanism or trigger is inserted, this being the true technological innovation. The mechanism is made up of three movable flat parts held in place by two tubular screws or pins: an elongated part (the trigger itself), another that holds the bowstring and also serves as a sight for the shot, and a third swinging one, which joins the other two. They were produced en masse by casting the bronze in moulds. The three main pieces had to be very accurately manufactured and filed to fit together; if they were misaligned, the device would not work. For this purpose, they were marked with tiny, chiselled symbols that guided the assembly.

The production of arrowheads for crossbows was also standardised. Some 40,000 bronze arrowheads have been recovered so far in Pit 1, usually concentrated in groups of 100 (the contents of a quiver). It has a head with a triangular section and a long tang that was inserted into a bamboo pole measuring half a metre in length.

DID YOU KNOW THAT ...?

Studies of arrowheads with an "X-ray fluorescence spectrometer" have shown that the bronze alloy (copper + tin) varied within one single arrow: the head, which was harder, was around 20% tin , while the tang that was inserted into the shaft only contained 3% to make it softer and more flexible and thus prevent its fracture on impact. Quite a sample of the high degree of technical knowledge of Qin artisans.

X. THE BRONZE CHARIOTS

Along with the terracotta warriors, the two bronze chariots found in 1980 are the most outstanding pieces of the mausoleum. The chariots were discovered inside a pit 20 m to the west of the burial mound (one of the closest finds to the emperor's tomb) and were arranged one behind the other, as if parading in procession. They are medium in size, with four horses each and made of bronze with gold and silver decorations. Each cart consisted of more than 3,000 pieces, which figure was multiplied considerably when it fragmented into thousands of pieces due to the collapse of the weight of the roof. Thanks to an incredible restoration work, today we can admire them in their complete form, just as they were deposited in the grave.

- **The front chariot.** This is a war chariot covered by an umbrella or parasol and driven by a foot soldier. It appears to have acted as an escort for the second vehicle. The chariot weighs 1,061 kg and is one and a half metres high.

  The driver or charioteer wears a cap defining him as a person of high rank and is armed with a long sword placed on his back. His weapons are complemented by a crossbow, a quiver with 12 arrows and a shield, resting inside the chariot. The shield, decorated with dragon motifs, is a very remarkable piece as it is the oldest fully preserved Chinese specimen. One of the most intriguing traits of the chariot lies in the possibility of opening and closing its umbrella and tilting it in any direction.

- **The rear chariot or carriage.** Unlike the previous one, this carriage may have been for transporting the emperor. It was driven by a kneeling driver, armed with a sword at his waist. It weighs 1,241 kg and barely exceeds one metre in height. It is made up of more than 1,700 bronze pieces, almost 1,000 silver pieces, and more than 700 gold pieces. The rear compartment or cabin has 3 windows and a door that can be opened and closed. Its ceiling is an amazing piece: a single oval bronze plate with a thickness of a couple of millimetres (more precisely, the thickest part measures 4 mm and the thinnest 1 mm). Its reconstruction was an admirable restoration work since it had been fragmented into 200 little pieces.

  As for the horses, the two central ones were attached to the rod or central axis of the chariot while those at the ends were attached to their companions in the centre by gold and silver straps. The rest of the harnesses are also made of gold and silver. The horse on the far right had a plume on its head (made of copper wires) that symbolised the emperor. The chariots and horses were painted white.

  Due to the location of the chariots (very close to the imperial tomb), their orientation (facing west and leaving the tomb behind them) and the rich materials and interior decoration (painted to imitate coloured fabrics), it has been believed, on reasonable grounds, that they were created to transport the Emperor. The absence of the imperial figure might reinforce this hypothesis.

DID YOU KNOW THAT...?

It took group of 30 specialists 2 years to rebuild and restore the front chariot and a further 8 years to do the same with the carriage.

XI. SCIENCE APPLIED TO THE STUDY OF THE TERRACOTTA WARRIORS

Scientific laboratory analyses, which lie beyond the scope of a field archaeologist, have already provided – as they will continue to do in future – rich information that is not visible to the naked eye. What follows are a few examples.

We begin with the **radiological examinations** carried out on the bronze birds: they have shown us details of the manufacturing technique, such as the interior wires that support their long hollow necks. **Chemical analysis** has revealed that the surface of these bronze birds was covered with a black carbon or white bone ash paste on which the plumage was engraved. Chemical studies have also indicated that the terracotta figures were covered with lacquer and painted in bright colours, and identified the organic or mineral nature of the different colours. Identifying the colour purple, which does not exist naturally, was particularly complex: it was obtained from a chemical reaction by heating certain minerals (copper, barium, quartz and lead) at high temperatures.

Experimental Archaeology applied to the examination of crossbows has shown its lethal capacity for piercing armour. And **archaeometallurgical analyses** have revealed the technical perfection of bronze arrowheads, with each individual piece combining two different proportions of tin to achieve both hardness (at the tip) and flexibility (at the tang). Other previously unknown data have been provided by **Traceology studies** using modern microscopes, which have revealed that the weapons were scrupulously sharpened to provide them with all their lethal capacity.

Forensic Anthropology examinations have proven the violent death of some corpses found at the workers' necropolis and the **genetic analyses** of the bones of these workers, in comparison with current populations, have shown a great diversity of origins, thus confirming the idea that the emperor used prisoners and convicts from all corners of China.

As an epilogue to this list of scientific contributions, we shall briefly mention the **geophysical surveys** (for determining the internal structure of the burial mound), the **spatial statistical analyses** (which make it possible to study the distribution of the groups of weapons or warriors according to how they were located in the graves), **3D models** (for comparing the figures' facial features) and **geometric morphometry** (for identifying the triggers originating from the same mould).

These examples are clear proof that the multidisciplinary study project of the First Emperor's mausoleum is a model of cutting-edge research. Ultimately, it constitutes a magnificent sample of the joint specialised work of professionals from different scientific fields.

XII. THE LEGACY OF THE IMPERIAL TOMB: THE YANGLING MAUSOLEUM

About half a century after the First Emperor, Jing (188-141 B.C.), the sixth emperor of the Western Han Dynasty, built a huge mortuary complex covering some 20 km2 and known today as the Yangling Mausoleum. It was discovered by chance in 1990, 40 km west of the mausoleum of the First Emperor.

Its discovery was precisely due to the expansion works on the access road to the Xi'an airport, which needed to be enlarged in view of the growing number of tourists arriving to visit the First Emperor's terracotta army. This immense tomb contained thousands of terracotta figures representing both people and animals and which were much smaller than the Qin Emperor's terracotta warriors. Its dimensions are three times smaller than the actual model. There was for obvious reasons: reducing the size implied reducing materials and costs without having to reduce the number of statues. So far, more than 3,000 human figures have been discovered, but it is estimated that there are at least 40,000 figures of all kinds.

The terracotta figurines reproduce a variety of characters linked to the court and the emperor: soldiers, eunuchs, servants, maidens, musicians, dancers, acrobats,... The figures were found without clothing –as their dresses and suits of armour, made of silk and leather respectively, had disintegrated over time – and without arms, as they were hinged and made of wood. Curiously, the nudity of the figures has made it clear that women were included among the soldiers of the army and cavalry (more than 200 of the horse soldiers are women) and were even part of the elite troops. There were also carved statuettes wearing their clothing, usually courtiers, dancers, and harem women.

As for the mostly domestic animal figures (horses, cows, goats, sheep, pigs, chickens and dogs), they were probably conceived to ensure food for the emperor in the afterlife.

The Yangling Mausoleum is a magnificent example of how the funerary concepts that had informed the construction of the First Emperor's mausoleum were still in force.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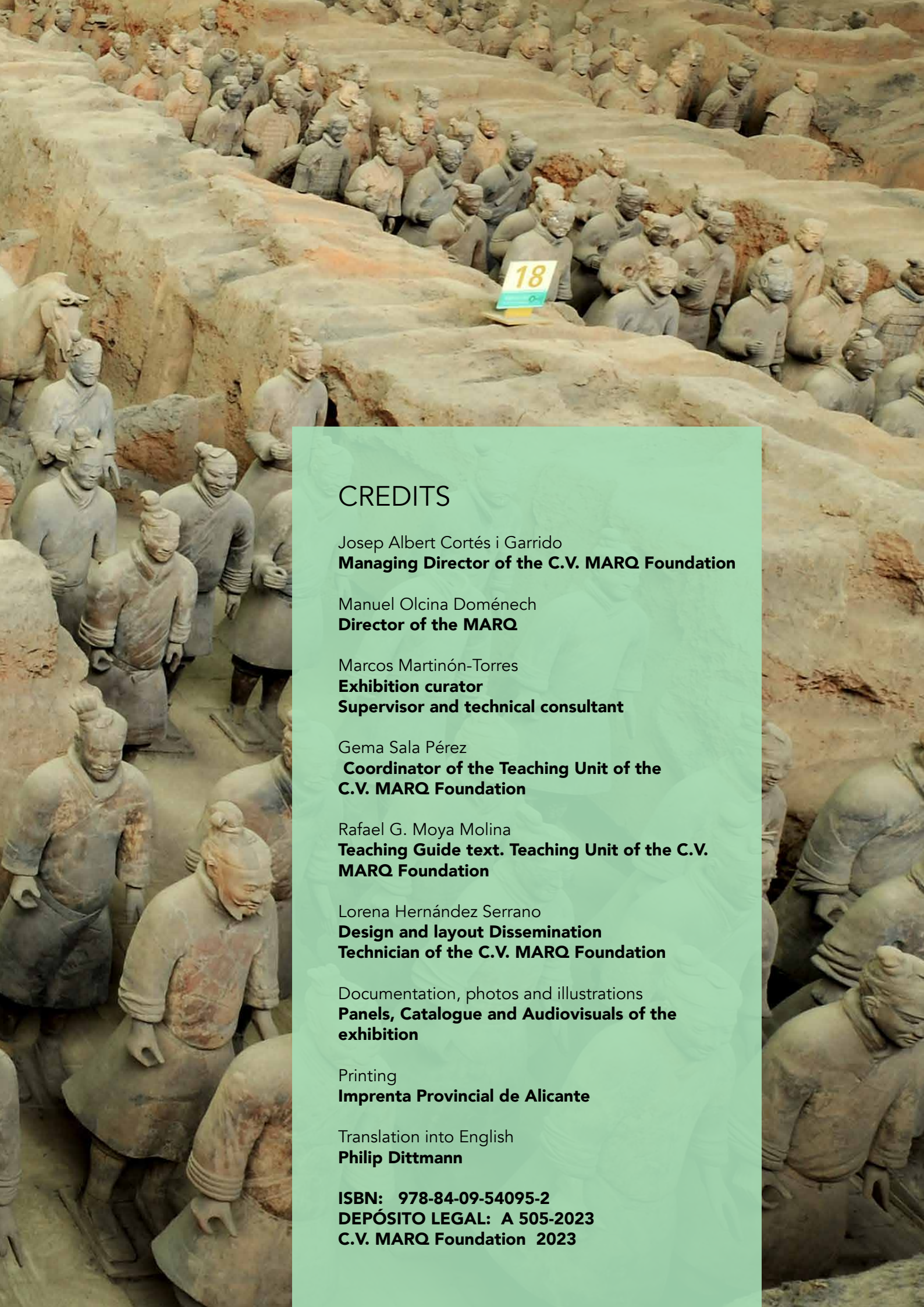

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