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Emperor Qin Shihuang's Mausoleum site in Xi'an

Emperor Qin Shihuang's Mausoleum Site Museum

Abstract

In recent years, systematic detections have been conducted to the remains of the roads, gates and gate towers and walls within the Emperor Qin Shihuang's Mausoleum precinct and larger scope, by which the comprehensive layout of the mausoleum precinct is more deeply understood; the discoveries of the outer storage pits, attendant burials, sacrificial architectures and other remains are significantly meaningful for the understanding to the imperial burial system; especially, the discovery of the large amount of architectural remains are very important for the research on the evolution of the mausoleum precinct system. The excavations of the pit K9901, the architectural remains within the inner mausoleum yard, the attendant burials within the inner mausoleum yard and the Terracotta Army Pit No. 1 provided new materials for recovering the process of the funeral ceremony of Emperor Qin Shihuang and understanding the structural system of the mausoleum architectures.

Keywords: Emperor Qin Shihuang's Mausoleum (Lintong District, Xi'an City, Shaanxi); graveyards and cemeteries–Qin Dynasty; terracotta army

A systematic archaeological investigation of Emperor Qin Shihuang's Mausoleum

Emperor Qin Shihuang's Mausoleum site is located in the Lintong District of Xi'an, Shaanxi Province. The site lies upon an alluvial plain between Mount Li, an offshoot of the Qinling Mountains, and the Wei River. The terrain is higher in the southeast and lower in the northwest, forming a terraced incline. In order to facilitate the handling of archaeological work on this large site in a scientific fashion, we established a large-scale zoning system of archaeological work areas, as well as an archaeological data management system based on GIS.

We divided the large site of Qin Shihuang's Mausoleum into four quadrants labeled A, B, C, and D in clockwise direction starting from the northeast, each of which is again divided into an expandable system of N grids measuring 1000m × 1000m each and arrayed around a central origin point. Each grid was divided into 16 sub-grids (numbered 01–16) each measuring 250m long on one side. This system of divisions was continued through two further levels of organization, including sub-areas measuring 50m square and sub-sub-areas measuring 10m square, with the English character strings A-Y25 used for labeling. Under the China Geodetic Coordinate System, the mausoleum precinct was divided into survey and excavation grids of 10m square.

New results of the archaeological exploration

The main remains of Emperor Qin Shihuang's Mausoleum site can be classified into ten categories, including the main chamber, inner storage space, and tomb passages; the buildings atop the grave; the outer storage facilities; subordinate burials; sacrifices; the enclosure walls; the gate towers; the road network; the mausoleum town; and construction remains, etc. In recent years, new achievements have been reached concerning the following categories (Figure 1).

1. Walls. Since 2010, in conjunction with the designing of the site park, an exploration and a detailed survey of the walls were carried out. Based on these, a study of the structural aspects of the mausoleum yard was also conducted. A wall running in north-south orientation was newly discovered in the northern portion of the inner yard. This wall, measuring 4m thick and approximately 630m long from north to south, perpendicularly intersects the northern enclosure wall of the inner yard, as well as the partition walls running east-west therein. In addition, architectural remains were also discovered between the extensions of the partition walls reaching westward into the area between the inner and outer yards.

2. Roads. The roads discovered in recent years were distributed inside the south gate and the east gate; in the north-central area of the inner yard; and in the north and south portions of the zone between the inner and outer yards, as well as around the burial mound. Together with the earlier-discovered roads in the east and west portions of the zone between the inner and outer yards, as well as the corridors along the walls of the inner yard, these made up the road network of Emperor Qin Shihuang's Mausoleum precinct.

3. Gate towers. It was confirmed that the two layers of enclosure walls had a total of nine gates, including one through each wall of the outer yard, one through each wall of the inner yard, and one through the partition wall in the middle of the inner yard. Previous work revealed corridor houses as well as the ruins of triple gate towers (*sanchuque* 三出阙) in the spaces between the inner and outer yards on the eastern and western sides; the work of the recent years has shown that *que*-gate tower constructions similar to those in the spaces between the inner and outer yards

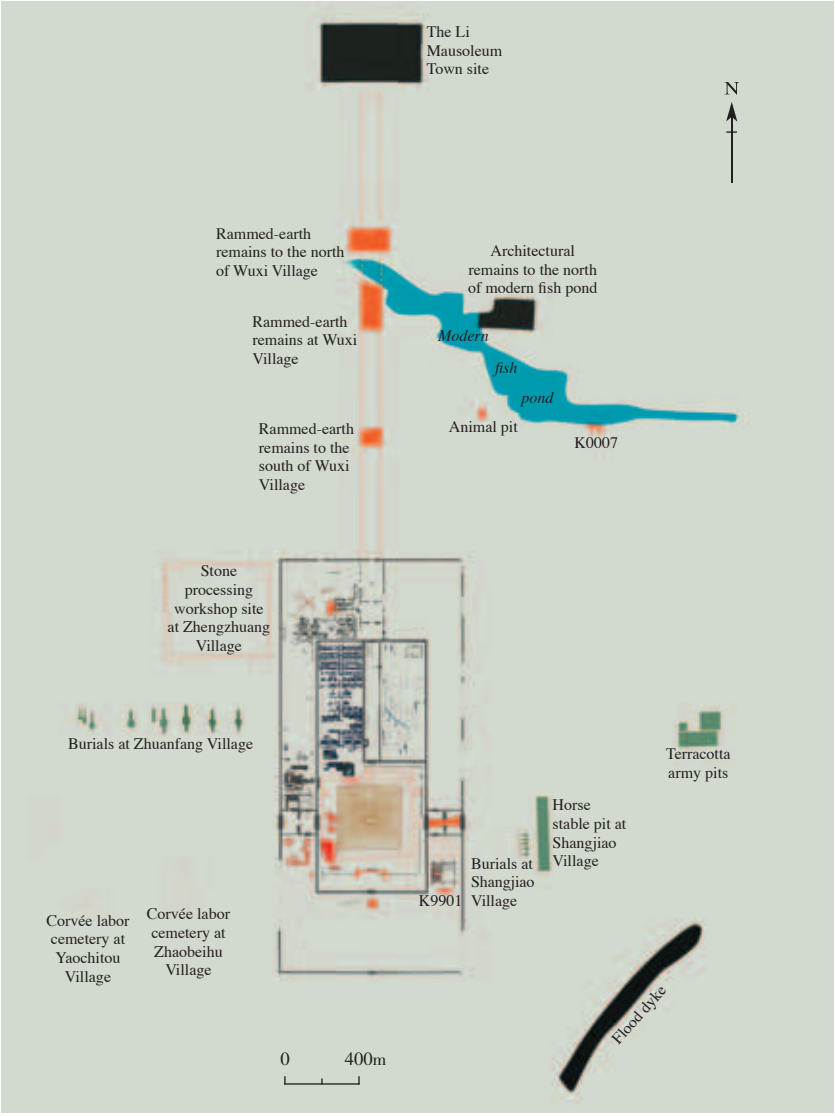

Figure 1 The general plan of Emperor Qin Shihuang's Mausoleum precinct.

on the eastern and western sides also existed in that on the northern side. Two gate towers have been discovered to date, as well as the side walls linking to them on their sides.

4. Outer storage spaces: Nearly 200 outer storage pits have been discovered since 1974; in the year 2012, the statistics was 188. These outer storage pits are distributed in three different areas: outside the outer enclosure walls of the mausoleum yard; between the inner and outer enclosure walls of the mausoleum yard and inside the inner enclosure walls of the mausoleum yard. Approximately 105 of them are arrayed between four different localities outside the mausoleum yard. These include four terracotta warrior pits; one animal pit; 98 horse stable pits at Shangjiao Village; pit no. 0007; and pit no. 201201, newly discovered on the south side of the fish pond. A total of 56 pits have been found between the inner and outer enclosure walls of the mausoleum yard, including two newly discovered examples (K201001 and K201101) located in the south and west portions of the zone. Moreover, a repeat investigation of pit K9801 has provided a further understanding of its shape and internal structure. A single storage pit has been newly discovered on the north side of the mausoleum mound inside the inner yard. In addition, further investigation of a feature on the northwest side of the mound has clarified that it was an outer storage pit rather than a ϕ-shaped tomb, as once believed.

5. Subordinate burials. Six burial groups have been discovered inside and outside the mausoleum yard. Besides 17 tombs at Shangjiao Village, which were discovered outside the mausoleum yard and partially excavated in early years, the 甲-shaped tombs on the west side of the terracotta warrior pits are newly examined, and three Φ-shaped tombs have been newly discovered in the vicinity of the Zhuanfang Village to the west of the mausoleum mound. Nearby the 34 tombs discovered in the east zone of the north portion of the inner yard, a total of 99 small- and medium-sized tombs arranged in an orderly fashion have been found; these are closely related to the entombment of the staff of the imperial harem after the death of Emperor Qin Shihuang. 74 small graves have been newly discovered in the western part of the zone between the inner and outer enclosure walls of the mausoleum yard. These graves were originally thought to be empty; their specific nature and contents await confirmation through excavation. In addition, seven small- and medium-sized burials of the Qin Dynasty have been newly discovered in the southern portion of the area between the inner and outer enclosure walls of the mausoleum yard. Their relationship to Emperor Qin Shihuang's mausoleum likewise awaits confirmation through excavation.

6. Architectural remains. After the death of the Emperor Qin Shihuang, the Qin Er Shi (the Second Emperor of the Qin Dynasty) ordered an increase in sacrifices at the Emperor Qin Shihuang's offering hall in the mausoleum yard. Based on this, national-level sacrifices to the Emperor Qin Shihuang seem to have consisted primarily of ancestral-temple offerings and mausoleum offerings, and the graveside offerings to Emperor Qin Shihuang are probably to be identified with

the graveside temple offerings referred to in historic literatures, which were centered on a facility emerging from the side of the mausoleum. The 11 rows of buildings discovered to date on the north side of the burial mound in the inner mausoleum yard, covering an area of as much as 17ha, were the core facilities of this system of offerings. From 2012 to 2013, building remains covering an area of 12ha were newly discovered in the western portion of the space between the inner and outer enclosure walls of the mausoleum yard, and similar discoveries totaling 6.8ha in area were found in the northern portion of this zone. Judging from paleographic materials obtained from the western portion early on, the buildings there were related to the provisioning of sacrificial offerings, making them a subsidiary facility of the sacrificial system; understanding the nature of the buildings in the northern portion will require further research.

Excavation results and understanding of important remains

The excavations conducted in 2011-2013 consisted of four main projects: the excavation of pit K9901; the partial excavation of the mausoleum architectural remains; the excavation of small tombs in the subordinate cemeteries and the excavation of terracotta warrior pit no. 1.

1. Excavation work was conducted on pit K9901 from August 2011 to July 2013. Located in the southeast portion of the mausoleum yard between the inner and outer walls, the pit was oriented to approximately 91.5° , conforming basically to the orientation of the rest of the outer storage pits. K9901 was discovered in 1999, and a trial excavation was conducted upon it in the same year.

(1) Shape and structure. Pit K9901 was in the rectangular shape running from east to west. It measured 80.8m long and 12.8–16.7m wide, and its floor is located 4.6m below the present-day ground, with a total area of 900.93sq m. The main body of the pit measured 40.2m long from east to west and 12.8–16.7m wide. The west passage measured 20.35m long and 8.6–10.5m wide, while the east gate passage measured 20.25m long and 3.2–5.85m wide. The main body portion was a three-trenched pit divided by ledges and partition walls (Figures 2 and 3).

(2) Important remains and artifacts. The body of the pit included both earthen and wooden structures. The earthen structure could be further divided into three parts: the main body, the east passage and the west passage. The wooden structural components included six types: the wooden roof beams, entrance sealing planks, planks forming side compartments, wooden pillars, flooring planks and flooring beams. These six types of wooden structural components formed three large rectangular spaces inside the earthen structure of the pit, within which offerings were placed.

Most of the artifacts were located on the floors of the trenches. Approximately 1200 fragments of terracotta figurines, as well as 10 bronzes, five stone objects, 20 lead objects (including partly melted items), and three pottery items, all sets, were found among the layers of roof beams in trenches 2 and 3, as well as in the collapsed earth layers. Trench 1 contained no artifacts (Figures 4 and 5).

(3) The important results of the excavation included the following three aspects: The shape and structure of the pit were basically clarified. A large-scale, evenly distributed trodden layer of earth existed within the upper portion of the fill of the trenches, confirming that this pit did not include an earthen mound extending much above ground at the Qin period. The knowledge that this type of pit (outer storage) did not have earthen mounds constitutes a new discovery.

The excavation confirmed that the construction, use, and destruction of this pit and that of the entire mausoleum yard occurred generally simultaneously. The evidence suggests that the mausoleum mound, the inner enclosure wall and other features inside the mausoleum yard were not yet completed when this pit was finished and covered, such that it had once been used as a passage. Later, the pit was destroyed and burned together with the mausoleum yard and other facilities.

Connotations and properties: The trench 3 of the pit produced a total of 980 terracotta figurine fragments belonging to 27–28 individuals. These figurines had been laid out in the pit in regular fashion; the preliminary determination was that they had originally been arranged in two rows against the north and south walls of the trench, facing inward. Their symbolic characteristics and

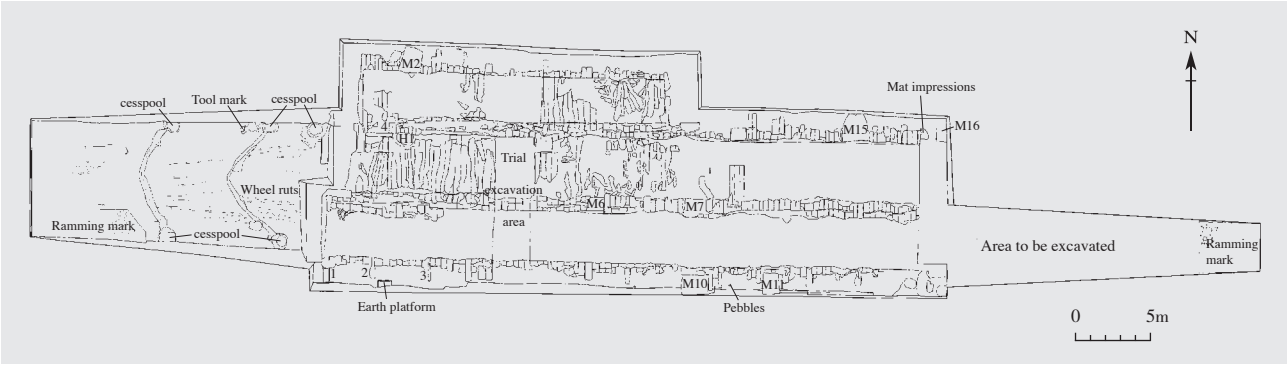

Figure 2 The plan of pit K9901.

Figure 3 K9901 (W–E).

Figure 4 The artifacts found in K9901 in situ (E–W).

Figure 5 The melted down bronze ding-tripod unearthed from K9901.

significance may be subject to further determination.

2. Architectural remains in the northwest portion of the inner mausoleum yard. Previously, our museum and the Shaanxi Provincial Institute of Archaeology conducted a joint exploration of this architectural complex, achieving a basic understanding of its general layout and composition. Measuring 692m long from north to south, beginning at a point approximately 3m north of the mausoleum mound, and stretching northward to the outside of the buildings' north wall, which was measured as having an east-west width of 228m on the outside. The north ends of the east and west walls link up with the enclosure wall of the inner

yard. The south end of the east wall may have linked with the enclosure wall of the inner mausoleum yard, while the south end of the west wall had already been destroyed. The east and west walls of this architectural complex stand at a distance of about 6m from the east and west enclosure walls of the inner mausoleum yard. The north wall of this architectural complex linked up with the east and west walls, running parallel to the north enclosure wall of the inner mausoleum yard; it stood approximately 18-20m from that wall (Figure 6).

In order to validate the results of the exploration and develop a more detailed understanding of this architectural complex, excavations of areas of 1300sq m were conducted over the last three years. A few questions have been partly resolved.

(1) The shape and structure of the terrace-style architecture. The first row of the terrace-style constructions was divided into an eastern and a western group, designated as Groups 1 and 2, respectively (Figure 7). The Group 1 of the complex measured 66m long on the east side and 60m long on the south side. It consisted of the surrounding corridor and the buildings atop the terrace. The surrounding corridor measured approximately 4.6m wide and approximately 180m long; it was positioned around the periphery of Group 1 (the northern edge was temporarily unclear). It was paved with bluestone slabs with stripes and set with pilasters spaced 1.5–2m apart. The construction atop the terrace measured 57m long from north to south and 51m wide from east to west. Three nested layers of constructions, an inner, a middle, and an outer layer, were discovered. A flight of bluestone steps linking the main body of the terrace to the corridor was also discovered within this group (Figure 8).

The center part of architectural Group 2 was linked with Group 1 through a side corridor. The main body of Group 2 measured approximately 75m long from east to west and 25m wide from north to south. Remnants of pilasters were also discovered in the side corridor, and a small room with murals, linked with the side corridor, was also found. The discovery of these murals in a mausoleum context was a first in the Qin Dynasty archaeology (Figures 9 and 10).

(2) The courtyard-style architectural remains. These included Group 3 in the second row of the complex, the foundation no. 1 in the third row, the foundation no. 6 in the eighth row, and the main parts of the foundations nos. 6 and 7 in the ninth row. Foundations nos. 3 and 4 in the ninth row were the remnants of guardhouses, based on which one may conclude that this group was a courtyard-style architecture running in north-south orientation. Between the left and right courtyards of the eighth and ninth rows was a passageway in the north-south direction, running along the central axis. The courtyards in the north and south rows were connected and divided by the roads.

Excavation of drainage remains within the main bodies of Group 2 of the first row and Group 3 of the second row revealed that certain buildings contained cisterns, water pipelines, cesspools and other such facilities (Figure 11).

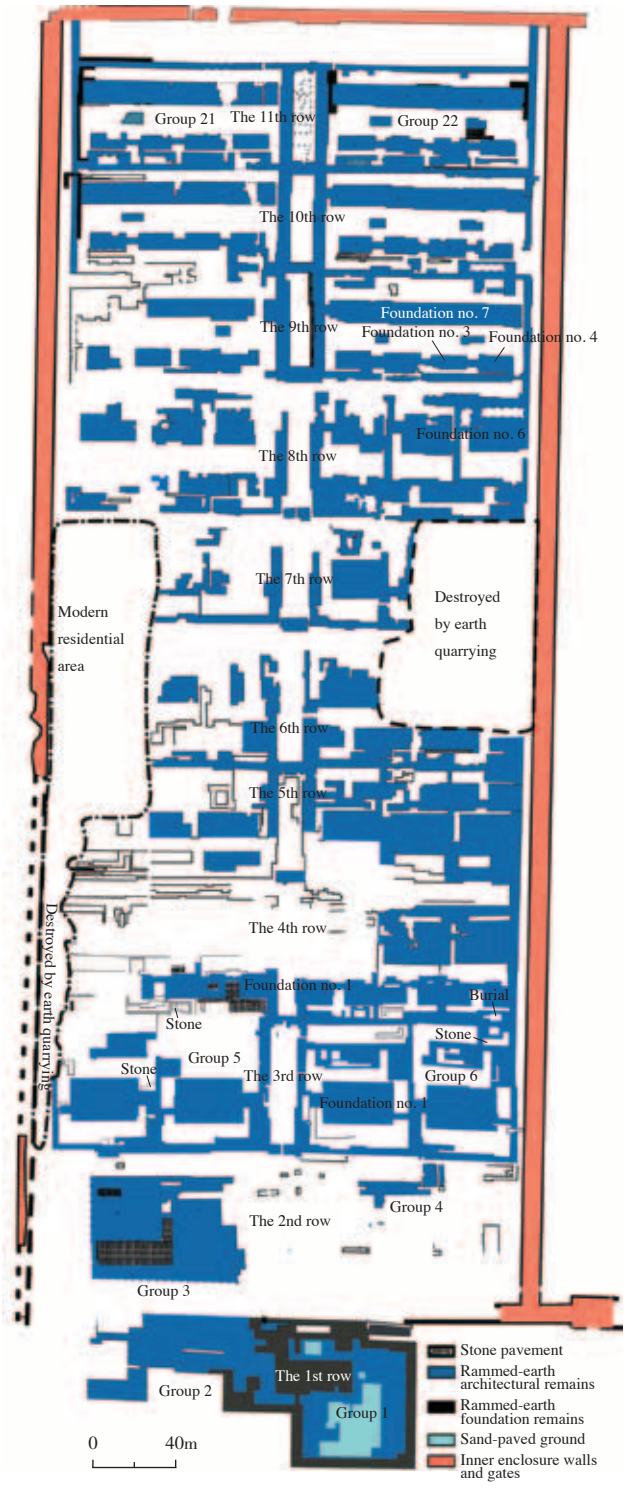

Figure 6 The plan of the architectural complex in the north of the inner yard of Emperor Qin Shihuang's Mausoleum.

(3) The understanding to the nature of this architectural complex. Through three years of excavation, we have further understood that the layout of the terrace-style and courtyard-style buildings in this architectural

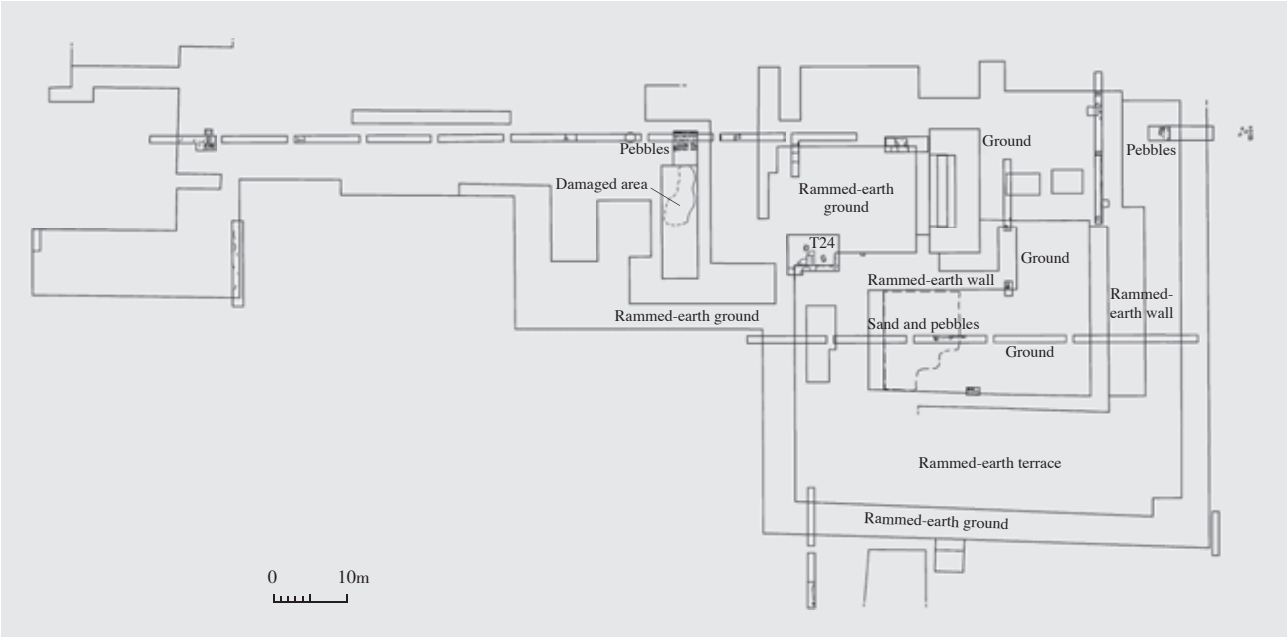

Figure 7 The plan of the first row of the architectural complex in the north of the inner yard of Emperor Qin Shihuang's Mausoleum.

Figure 8 The bluestone steps of the terrace foundation Group 1 of the first row of the architectural remains in the north of the inner yard of Emperor Qin Shihuang's Mausoleum (W–E).

complex included a front audience area and a rear area of private chambers, consistent with the large-scale palace architecture of the late Warring-States Period through the Qin and Han Dynasties. The buildings were also oriented facing south, an expression of total respect toward the mausoleum mound to the south, and there were differences in the classes of the constructions from south to north. These observations have further deepened our understanding of the architecture, and in particular the burial architecture, of the Qin period.

3. Small burials in the subordinate cemetery associated with the mausoleum.

The cemetery devoted to subordinate burials lies in the northeast area of the inner mausoleum yard. On the north, east, and south sides, this cemetery is bounded by the walls of the inner mausoleum yard, while the west side is bounded by a north-south partition wall discovered in 2009. The cemetery measures 630m long from north to south and 244m wide from east to west, covering a total area of 15.372ha. To date, 99 small- to medium-sized burials have been discovered.

(1) In terms of shape, the burials can be classified into those with passages and vertical earthen shaft pits without passages. Four cases of the latter, designated as type 1, have been found. Type 2, consisting of graves and connected passages, may likewise be classified into two subtypes. Tombs of subtype A have ramp passages and the graves were vertical shaft or cave (Figure 12). Those of subtype B have vertical shafts as passages; 89 such individual tombs have cave graves.

(2) These burials seemed to be arrayed by some rules, forming a total of eight north-south columns arrayed from east to west. The burials of the westernmost five columns were lined relatively orderly and clearly, while the three

Figure 9 The mural on the side corridor of the first row of the architectural remains in the north of the inner yard of Emperor Qin Shihuang's Mausoleum.

Figure 10 The fragment of the mural on the side corridor of the first row of the architectural remains in the north of the inner yard of Emperor Qin Shihuang's Mausoleum.

Figure 11 The drainage system found in the second row of the architectural remains in the north of the inner yard of Emperor Qin Shihuang's Mausoleum (N–S).

columns on the east side showed some irregularities. The burials in the middle between the north and south ends were likewise arrayed in relatively orderly fashion, while those at the north and south ends were somewhat irregular.

The first column laid 23-26m to the east of the western partition wall and approximately 28m west of the second column. The second and third columns were separated by 13-16m; the third and fourth by 25-30m; the fourth and fifth by approximately 35m; the fifth and sixth by approximately 23m; the sixth and seventh by 15-25m;

Figure 12 The small-sized burial (GDM9) in the subordinate cemetery (S–N).

and the seventh and eighth by approximately 30m. The eighth column laid 20-26m from the east wall of the inner mausoleum yard.

(3) Other buildings and facilities included a group of rammed-earth remains discovered in the northern area of the cemetery, near the north enclosure wall of the inner mausoleum yard. Measuring 100m long from east to west and 70m wide from north to south, they were formed from inner and outer layers of wall measuring 2.1-2.8m thick. Three stone-paved paths were also discovered.

(4) Principal results. The tombs of this group were simple, all containing only single coffins and lacking any grave goods. They were laid out in regular fashion, suggesting that the occupants were all of roughly equal status. This was a cemetery devoted to subordinate burials. The fill of the tomb passages contained human skeletons, but, as they were incomplete and had been dismembered, there was no way to estimate the total number; a preliminary assessment suggested that they were immature females. These remains had been placed in pits that intruded into the fill of the burial passages, sometimes in layers, showing that special ceremonial activities had accompanied the interment process. The social status of the individuals to whom these scattered skeletons belonged was far below that of the tomb occupants (Figure 13).

Figure 13 The human victim remains of the small-sized burial (GDHM3) in the subordinate cemetery (S–N).

4. The third excavation of terracotta warrior pit no. 1. From April to October of 2013, excavation work was concentrated on the center portion of the north side of pit no. 1 (originally assigned the serial number T23). The State Administration of Cultural Heritage approved an excavation area of 200sq m, encompassing trenches G8 and G11.

(1) To date, more than 70 terracotta figurines have been uncovered in the two trenches, including 55 in trench G8 and 51 in trench G11 (Figure 14). In addition, 42 miscellaneous items were found in trench G8 and 126 were found in G11. Trench G8 includes significant infrastructure remains in 31 locations, while G11 contains 40 such points.

(2) Important considerations: A mass of red burnt clay clods measuring 1.1-1.3m wide and approximately 1.4m deep (its bottom has not yet appeared) was discovered atop the north wall of trench G11. Judging from its location, it may have been a passageway or gateway. The authors speculate that in the past some people may have used this gateway to enter the pit and inflict damage.

A looting tunnel, measuring 1.1m in diameter and of inconsistent width, was found above the west partition wall of T23; it reached from the top of the pit down to the space containing the terracotta figurines, intruding into a portion of the partition wall. Judging from the red burnt clay clod mass intruded into by the looting tunnel, it was probably produced at some time after the Qin terracotta army pits were burned.

At the west section of G11 stand a pair of figurines that both face east, making a clear difference from the overall pattern of one figure facing west and one facing north. Nearby, figurines of four relatively high-level military officials were found. The authors inferred that

Figure 14 The newly unearthed terracotta warriors in the Pit No. 1 of the Terracotta Warriors and Horses of Emperor Qin Shihuang's Mausoleum (E–W).

these phenomena might be related to a military formation arrangement.

Sectioning was carried out on the ninth and tenth partition walls of T23 and on the layers of earth beneath the flooring tiles of the ninth and tenth trenches. Only primary soil layer was discovered underneath. This discovery complemented the current understanding of the structure and composition of the foundations of the terracotta figurine pits.

Conclusion

In the last few years of archaeological work at Emperor Qin Shihuang's Mausoleum, our foci have been always in the mausoleum yard, which is the core area of the mausoleum precinct. With respect to the entire large site, through systematic reflection based on a macroscopic approach, we have attained a comprehensive grasp of all types of remains at the mausoleum site. To sum up the work in the recent few years, some new results have been obtained that have furthered the development of a comprehensive understanding of the Emperor Qin Shihuang's Mausoleum. Breakthroughs concerning some aspects of the site have resulted. For instance, systematic examination of roads, gate towers and walls, both in the mausoleum yard and beyond, has produced a deeper understanding of the layout of the mausoleum precinct. New discoveries of outer storage spaces, subordinate burials, sacrificial facilities, and other remains have improved our understanding of the imperial mausoleum institution. In particular, the discovery of large numbers of architectural remains within the mausoleum yard is of crucial significance for understanding changes instituted in the architecture of mortuary facilities during this period. The excavations of pit K9901, mortuary buildings and subordinate cemetery within the inner compound, terracotta warrior pit no. 1, etc. have provided new material to support the understanding of the funerary rites conducted at the mausoleum, the establishment of relative dating, and the conduct of research concerning the structural composition, arrangement of space, orientation, etc. of the site. We trust that the further sorting of these materials will raise new issues in the study of Emperor Qin Shihuang's Mausoleum.

Postscript

The original report published in *Kaogu* 考古 (Archaeology) 2014.7:48–58 with 15 illustrations was authored by Wei Cao 曹玮 and Weixing Zhang 张卫星 . The revised version is prepared by the authors and translated into English by Paul Nicholas Vogt 侯昱文 .

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