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# **Tol-e Qaleh Seyfābād (TQS), a Major Provincial Centre of the Sasanian Period in Bišābuhr Province, Fars, Iran: Preliminary Excavation Report**

Parsa GHASEMI, Reza NORUZI, Rika GYSELEN,  
Marjan MASHKOUR and Aziz REZAEI

## **Abstract**

The site of Tol-e Qaleh Seyfābād (TQS) is located in the centre of the Sasanian province of Bišābuhr, in southwestern Iran. The first season of archaeological excavations at this site in revealed new evidence of the Sasanian period related to advanced agricultural policy, large-scale date production, and commercial and provincial administrative systems, as well as other activities in the heartland of the empire. The finds from this limited excavation indicate that agriculture was an important source of income in what is now the province of Fars and the newly identified administrative toponyms impressed on bullae show that TQS acted as a centre for collection, storage and processing of the agriculture products of the date palm. In terms of its administrative system, a more detailed picture of the Bišābuhr province has emerged, resulting from the identification of more new administrations. Moreover, new evidence relating to architecture, pottery, glass and other industries from TQS demonstrate that this site was one of the major hubs in Bišābuhr province during the Sasanian period.

Keywords: Tol-e Qaleh Seyfābād (TQS), Sasanian Empire, Bišābuhr Province, Archaeological Excavation, Kāzerūn, Iran

## **Introduction**

At the beginning of the third century AD, the Persians witnessed great changes in their homeland. It was in southern Fars, which was already under the local rule of Parthian representatives in Persis, that Ardašīr I was born in Staxr, where his grandfather was in charge of the Anahita temple. He started his career as the argbed (fortress commander) of Dārāb and later, after defeating the last Parthian king, Ardavān (208–224), conquered Fars and other parts of the Persian Plateau. He established the powerful Sasanian Empire in 224 (Fig. I)1. From his childhood, Ardašīr I was well educated and trained in the different skills of rule under the influential religious priests and politicians of Staxr and Fars.

1 Shapur Shahbazi 2010, pp. 95–96.



**Fig. 1.** Map of the Sasanian world and location of TQS and other archaeological sites (created by P. Ghasemi and M. Heidarifar).

Archaeological evidence shows that Ardašīr I (180 – 242) and his successors had grand policies for this empire.

From its beginning to the Arab invasion in the seventh century, the basic framework of empire remained unchanged. The massive output of imperial mints during the Sasanian period shows the importance of the empire’s economic policies. The increase in revenues allowed the empire to continue building new grand-scale infrastructure and trying to achieve its aims all over its domain in the Middle East and Central Asia (**Fig. 1**). Sasanian policies can be easily traced to their birthplace, in the Fars region.

Traditionally, the Fars region had attracted much attention from the Elamite (3400–525 BC) to early Islamic periods. In its northern part, Staxr and Naqš-e Rostam were always the centre of this attention (**Fig. 2**), perhaps because of the religious importance of the Anahita temple at Staxr and because Naqš-e Rostam served as both royal necropolis and the stage for coronation. The two sites continued to be used in the Sasanian period.<sup>2</sup> The Sasanian attention to Staxr and its vicinity may be understood as stemming from the many bas-reliefs and inscriptions already carved on rock walls at Naqš-e Rostam and Naqš-e Rajab, which commemorate important matters

<sup>2</sup> Whitcomb 1979.

associated with the Sasanian kings, such as their victories over enemies, the enthronement of the kings by God (mostly by Ahura Mazdā), representing the extent of the empire (*Inscription of Šāpur I on the Ka'ba-ye Zardusht*), and the high priest Kartīr's inscription (presenting his efforts to broaden and support the Zoroastrian beliefs).

The Sasanian sovereigns established well-designed geometric urban plans and royal cities protected by fortifications (castles and defensive elements like towers and ditches), such as Ardašīr-Xwarrah ("Ardašīr's Glory"), Bišābuhr, Dārābgerd, Weh-Andiōk-Šāpur (Gundešāpur site), Ērān-Xwarrah-Šāpūr (Ivān-e Kerkha site), Veh-Ardašīr (Coche), etc.<sup>3</sup>

Most of the Sasanian bas-reliefs were located in Fars, and concentrations are found at Staxr, Bišābuhr, Ardašīr-Xwarrah, and Dārāb provinces (**Fig. 2**). The Sasanian religious investment in Fars was remarkable: apart from temples for the goddess Anahita in Bišābuhr and Staxr, they built a substantial number of fire temples in Fars, mostly in the areas of modern Fīrūzābād, Farāšband and Kāzerūn.<sup>4</sup> These religious sites show the importance of Zoroastrianism as a state religion and reflect the power of the priests (such as the high priest Kartīr) in Fars. These priests probably allocated much of the regional revenue and income to establishing the religious centres so as to spread the Zoroastrian creed throughout the land.

All of the aforementioned Sasanian grand policies in the domains of urban planning, population management, irrigation and agricultural improvements, imperial security, religious infra-structures, and regional development, etc., would never have been possible without economic growth and development at the powerful economic and administrative centres. While more or less well attested textually, these economic and administrative centres have, unfortunately, remained largely unknown archaeologically. It might be logical, then, to consider that in each region or Sasanian province at least several economic and administrative centres were established within short distances of each other. In contrast to major, well-known Sasanian cities of Fars, such as Ardašīr-Xwarrah (Gur), Bišābuhr<sup>5</sup>, Staxr and Dārābgerd, it seems that some small regional centres were more important in terms of their administrative function in directing commerce and the economy than in terms of having large and prosperous populations.

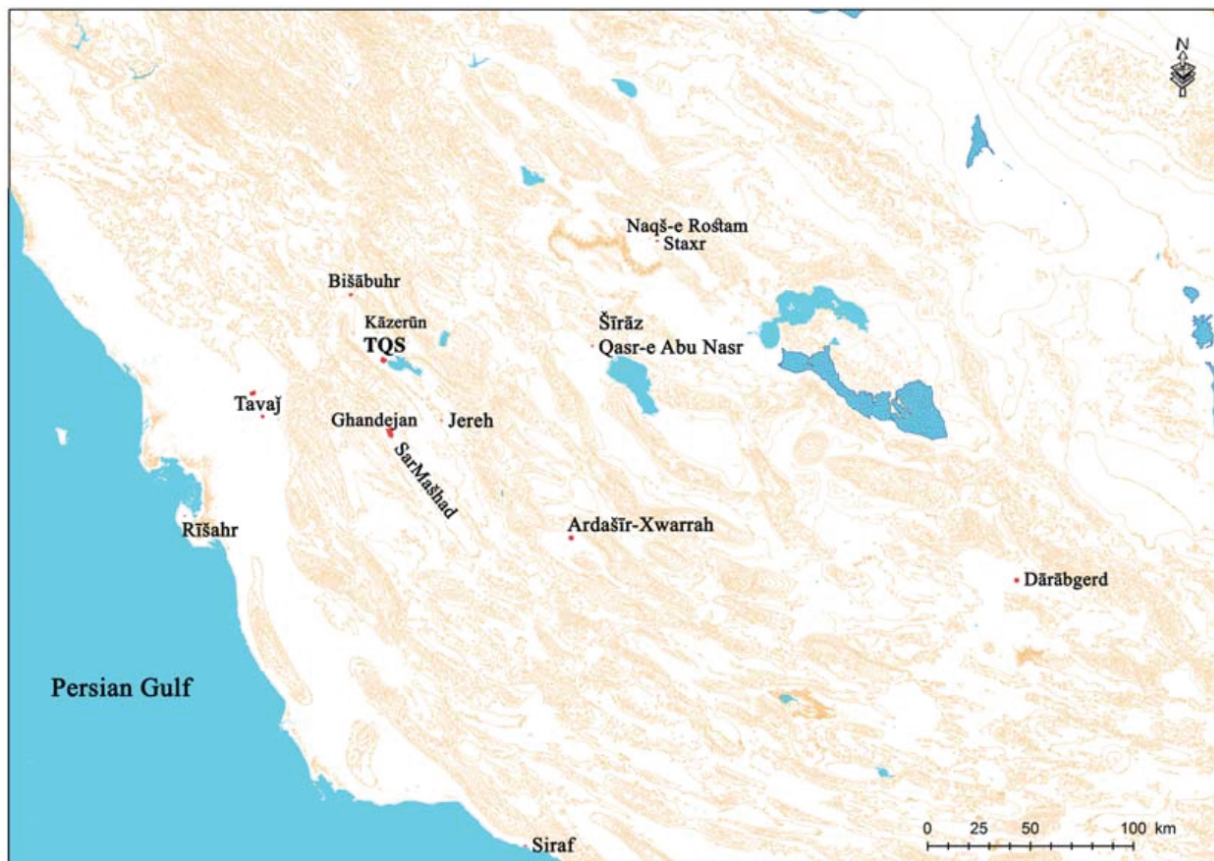
Qasr-e Abu Nasr (Šīrāz) is one of the most widely known examples of such provincial centres. It was excavated for three seasons from 1932–1935 by the archaeological team of the Metropolitan Museum of New York (Figs 1 and 2).<sup>6</sup> The major occupation of this site, including the extensive fortress over a natural hill, dates to the Late Sasanian period (sixth–seventh century) and most of its architectural and archaeological finds are associated with that period. The Sasanian fortress at the site consists of several large structures with courtyards, constructed of mud brick on

<sup>3</sup> Huff 1986, pp 176–200; Simpson 2017, pp 21–50.

<sup>4</sup> Vanden Berghe 1961, pp. 163–198; Boyce 1975, p. 454; Huff 1975, pp. 243–254; Godard 1938, pp. 7–82; Boucharlat 1985, pp. 461–472.

<sup>5</sup> Some Sasanian toponyms and names of archaeological sites are written with different spellings. These differences stem from the fact that the literary sources in which these Sasanian place names are cited were written in different languages and all have their own specific transcription systems. In this article, the authors have chosen a reference of transcription of the Middle-Perisan form, which is attested by epigraphic sources, and seals in particular. The following names will dispel any misunderstanding: *Ābād-Šāpūr*, cf. *Ābād-Šābuhr*; *Ardašīr-Korra*, cf. *Ardašīr-Xwarrah*; *Bišāpūr*, cf. *Bišābuhr*; etc.

<sup>6</sup> Hauser and Upton 1934.



**Fig. 2.** Location of Southwestern Iran, and the location of most known Sasanian sites in Fars region, with the areas of the sites (map created by P. Ghasemi based on Google Earth 2019 and using ArcGIS).

stone foundations and separated by narrow alleys and streets in the centre of the fortress.<sup>7</sup> Several sites similar to Qasr-e Abu Nasr have been identified from different regions of Fars, but they are still unstudied and unexcavated. One of these sites is Tol-e Qaleh Seyfābād (**Fig. 2**).

Tol-e Qaleh Seyfābād (hereafter TQS) is located 28 km southeast of Bišābuhr, 1 km northwest of the Parišan Lake, 500 m north of Seyfābād village, and 300 m east of Abu-Ali village, on the top of a natural hill called Tol-e Pahn (**Figs 2 and 3**). The site was discovered by chance when one of the archaeological mounds situated in its southeastern part was partly bulldozed during construction of a gas pipeline in the 1980s. Following the exposure of archaeological finds and architecture, it was repeatedly looted; illegal excavations in the subsequent four decades in search of ancient artefacts have destroyed some parts of the site. In 2005, TQS was registered by Parsa Ghasemi, with the site code KZ 92, during an archaeological survey carried out in the Kāzerūn plain.<sup>8</sup> Subsequently, in 2006, the site was inscribed on the national inventory list of the Iranian Cultural Heritage Organization (as no. 14726). In the autumn of 2014, the first season of excavation at TQS was conducted by Parsa Ghasemi, Reza Noruzi and Aziz Rezaei.<sup>9</sup>

<sup>7</sup> Whitcomb 1985.

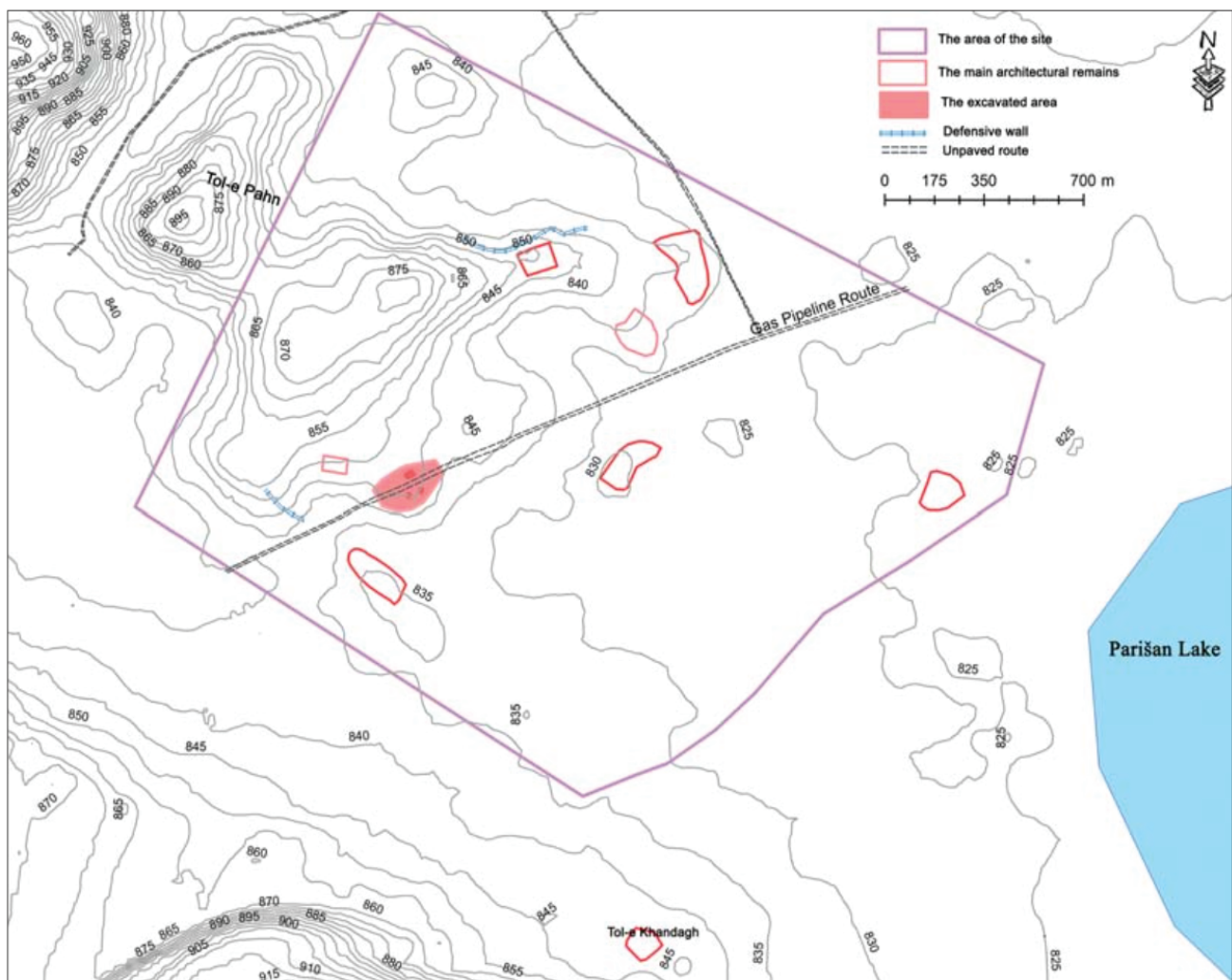
<sup>8</sup> Ghasemi 2008.

<sup>9</sup> Noruzi et al. 2015.

The present paper is a preliminary report on the first season of archaeological excavation at TQS, located in the Sasanian Province of Bišābuhr in the ancient Fars region.

### TQS and the Surrounding Area: Landscape, Geography, and Geology

The Kāzerūn plain, which covers a large part of the modern Kāzerūn County, is surrounded by two mountain ranges of the Zagros folding zone (**Fig. 2**). In the central part there is a principal road leading to the north, south, east and west that has been used since at least the Achaemenian period. TQS is situated in the centre of the plain, at the intersection of the ancient roadways (**Fig. 3**). From the east and southeast of the plain, the road leads to Ardašīr-Xwarrah, Jereh and SarMašhad; to the west, the roads lead to Bišābuhr, Khuzestan and the Mesopotamia region; to the northeast, the roads lead to Šīrāz (Qasr-e Abu Nasr) and Staxr; and to the southwest, the roads lead to Rīšahr, Tavaj and other ports of the Persian Gulf coast (**Fig. 2**).



**Fig. 3.** Area of TQS site and the location of the diagnostic mounds and archaeological features (created by P. Ghasemi using ArcGIS).

During recent archaeological surveys, segments of some of these roads have been identified in the plain.<sup>10</sup>

The archaeological site of Bišābuhr, one of the most famous Sasanian planned urban centres, is the closest city to the site of TQS, in the Sasanian province of Bišābuhr (**Figs 1 and 2**). This city was founded by Šāpur I (239–270 AD), at the beginning of the Sasanian period, using a rectangular plan surrounded by fortification wall and wide ditch. It was occupied until the Middle Islamic period (10th–12th centuries). The historical texts and archaeological evidence attest that the conquering Arabs made some changes to the fabric of the city of Bišābuhr, building a mosque, school and administrative base, though they were mostly constructed over Sasanian buildings using materials from their collapse.<sup>11</sup> With the development of the Deris and Kāzerūn districts in the middle Islamic periods, the population of Bišābuhr moved to the new districts and the city lost its former importance.<sup>12</sup> Before commencement of the first season of excavation, the archaeological team walked the surface of the site and its surrounding area within a 5-km radius to perform a full-coverage systematic survey, to review the previous archaeological surveys, to identify and discover surrounding sites and ultimately to better understand the significance of TQS. The result of this survey was the identification of numerous Sasanian and Early Islamic sites.<sup>13</sup>

Abu-Ali Cave, dated to the Epipaleolithic period, is the oldest archaeological site of the area.<sup>14</sup> In 2005, during the archaeological survey of Kāzerūn County, numerous sites dating from the Middle and Late Elamite periods to the Middle Islamic period were identified.<sup>15</sup> The survey showed that the water sources for the TQS site came from several branches of kārīzes or qanats and some single wells, dug into the bedrock, with rectangular mouths measuring 150 by 110 cm and a depth of 25 at the present time. In recent years, due to the construction of the Kāzerūn combined cycle power plant, numerous archaeological finds, including a considerable number of Sasanian tombstones with engraving in the Middle Persian language, have been found.<sup>16</sup> All of the sites identified around TQS emphasise the significance of this place as an important hub of the Sasanian period in a strategic location along key transportation routes in southwestern Fars.

As previously mentioned, TQS is located on a natural hill called Tol-e Pahn, measuring c. 2500 × 1600m. Its maximum elevation, in the northern part, is 975 m above sea level and its minimum is 830 m, in the eastern sector. The height of the hill decreases from the north to the east and south. TQS was formed on the eastern half of the Tol-e Pahn hill and its height is about 70 m above the surrounding Seyfābād plain (**Fig. 3**). From a geological point of view, Tol-e Pahn is a mass of conglomeratic rock, belonging to the Bakhtiārī formation, dating to the upper Pliocene period; however, on the northwest side of Tol-e Pahn, both the Gachsārān and Bakhtiārī formations can be

<sup>10</sup> Ghasemi 2008, 2009.

<sup>11</sup> Sarfarāz 1969; Ghirshman 1971; Mehryar 2000.

<sup>12</sup> Ghirshman 1971; Salles and Ghirshman 1936, p. 117 ; Sarfarāz 1969.

<sup>13</sup> Ghasemi and Noruzi 2020, in preparation.

<sup>14</sup> Dashtizadeh 2006, p. 39.

<sup>15</sup> Ghasemi 2008.

<sup>16</sup> Nasru'llāhzadeh 2006.

Regarding the location of the region in the Southern Zagros geographical zone (the Zagros Folding Zone), its general trend is northeast and southeast, in which the Mesozoic, Palaeozoic and Tertiary sediments were folded upon each other. These sediments underwent changes in the Pliocene period and became folded. It should also be mentioned that this zone is one of the earth's most seismically active fold-and-thrust mountain belts.<sup>17</sup>

The region's climate is semi-dry, with short and mild winters, and long warm and dry summers. It is affected by four air currents, of which the Mediterranean front has the most influence on annual rainfall. The major portion of the rain falls in autumn and spring. The annual rainfall average of the region is about 450 mm, varying between 220 mm and 700 mm in any given year. There is a high evaporation capacity in this area; the average is about 2470 mm with a range from 1600 mm to 3350 mm. Most of the plant coverage of Tol-e Pahn consists of low-density trees and shrubs of the *Ziziphus* genus, another species of the Rhamnaceae family called Ralphy, and Almonds: *Amygdalus scoparia* and *Tamarix*. In the elevations to the northeast of the Kāzerūn plain there are oak trees as well as *Amygdalus scoparia*, *Pistacia khinijuk*, *Ficus carcia*, and *Anthemis rodocentra*.<sup>18</sup>

The Kāzerūn plain, in which Tol-e Pahn is located, is primarily constituted by recent Quaternary alluvial sediments that are suitable for agriculture.<sup>19</sup> The soil of the region is highly arable, and its irrigated and rain-fed zones have high productivity. The plain as a whole – covering an extent of 27,000 ha – is included in the drainage basin of the Parišan Lake (**Fig. 2**). This endorheic lake is the most important water reservoir in the region, and the freshwater-brackish wetlands are among the best known in the world. The 5200-ha lake is located at an elevation of 820 m above sea level; its average width and depth are 3 km and 3 m respectively. The lake is primarily fed by underground springs of karstic origin and by surface run-off. Within the last decade, the lake has almost completely dried out due to drought and an increasing number of deep hydroelectric wells.<sup>20</sup>

The lands to the south, east and west of the lake, which are annually inundated, are covered by *Salicornia*, *Tamarix* and *Aeluropus*. A considerable number of aquatic migratory birds, most importantly *Podiceps cristatus*, *Larus ridibundus* and *Xyura leucocephala*, migrate from different parts of the world to the lake to spend the winter there to nourish themselves, breed and rest. Moreover, fish from the lake constitute an important component of the food chain upon which both aquatic migratory birds and the local inhabitants depend. Animal species of the region include *Capra aegagrus*, *Canis lupus*, *Ursus arctos*, *Martes foina*, *Lutra*, *Hyaena*, *Felis catus*, *Felis chaus*, *Lepus capensis* and *Sciurus anomalus*.<sup>21</sup> The subsistence of most of the present-day inhabitants is based on animal husbandry and both irrigated and rain-fed agriculture.

<sup>17</sup> Berberian et al. 2014, p. 2.

<sup>18</sup> Lotfi and Moser 2011, pp. 33–36.

<sup>19</sup> Macleod and Majedi 1972.

<sup>20</sup> UNDD/GEF 2010, pp. 8–11.

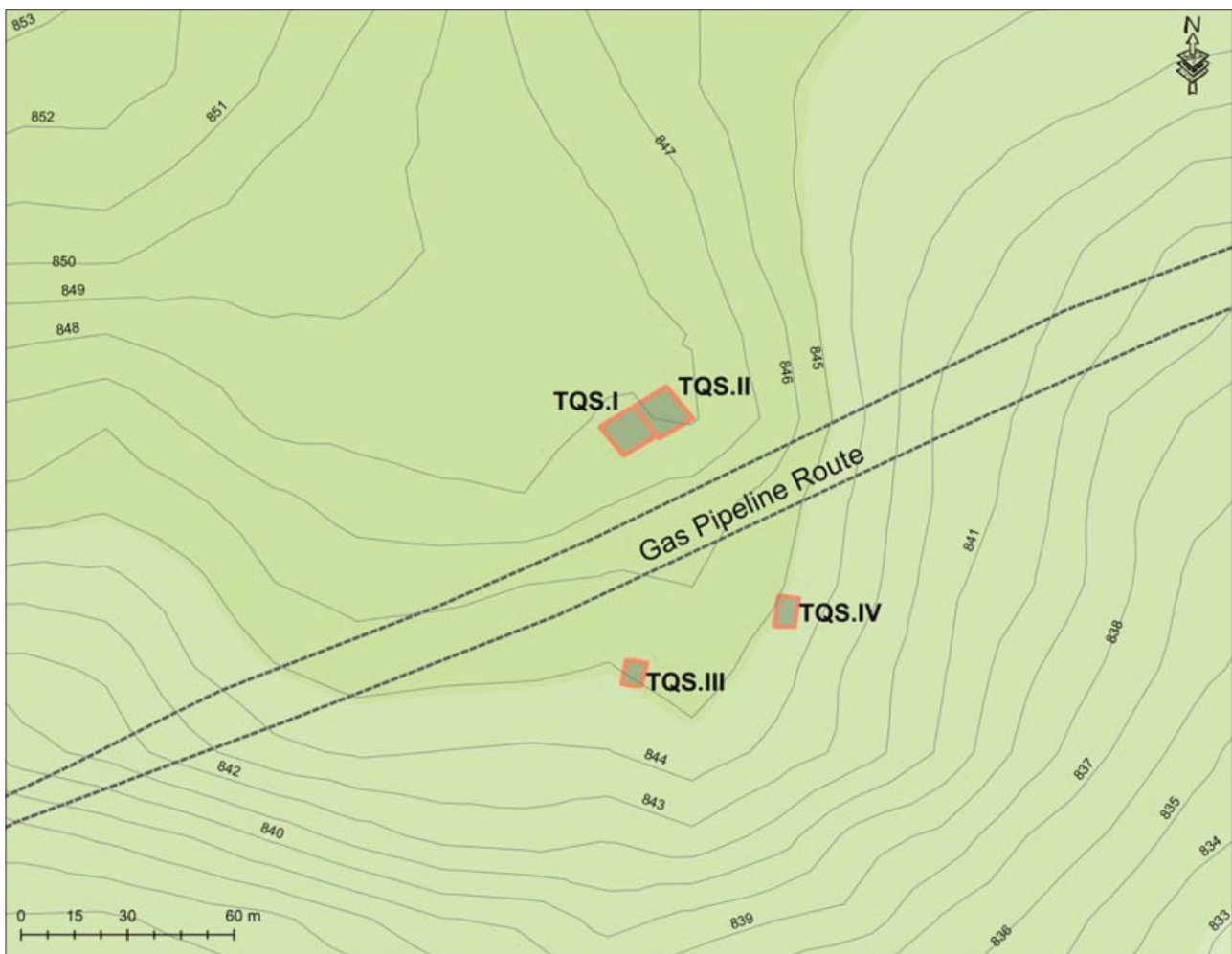
<sup>21</sup> Lotfi and Moser 2011, pp. 33.



## Excavation

As previously mentioned, the southwestern area of the TQS site has suffered extensive damage over the past four decades through a combination of deliberate destruction and the construction of the Kāzerūn-Šīrāz gas pipeline, which caused disturbance to the upper levels and the complete flattening of the central part of the hill. These problems made it very difficult to select a suitable spot for excavation; in the end, the northwest side of the hill was chosen, as it was less damaged (**Fig. 3**). The excavation at TQS was intended as a salvage operation to prevent further looting and damage to the site. It also aimed to facilitate the identification of layers of different periods so as to determine a reliable chronology for the site.

Firstly, a topographic plan was made of the site and the neighbouring structures were surveyed to situate the site in a clearer cultural and historical context. Preliminary intensive field-walking surveys and an aerial image of the site taken in December 1966 proved that it covered c. 160 ha. Significant traces remained on the surface, including the excavated locus mentioned in the present article. The excavated layers generally belong to the Sasanian period, with at least two



**Fig. 4.** The location of trenches in the first season of archaeological excavation at TQS (created by P. Ghasemi and H. Gharagezlu).

different phases, although as the findings have not been studied in detail, the precise differences between phases have not yet been established. Two trenches were excavated to the north of the Kāzerūn-Šīrāz gas-pipeline route, at a location where a number of clay bullae had previously been discovered. The trenches were aligned northeast–southwest (TQS. I-II). Two additional trenches were excavated on the southern and eastern sides of the gas pipeline route to investigate an outer wall that had been partially exposed by earlier, illegal excavations (TQS. III-IV) (**Fig. 4**).

### **Trench TQS.I**

This trench was situated in the northwestern part of the mound, north of a dirt road in an area where there have been numerous illegal excavations since the 1980s (**Fig. 5: A**). The main reason for selecting this location for excavation was the discovery of 27 clay bullae in the area several years ago.<sup>22</sup> This was the most important trench during the first season of excavation. Initially, 6 × 10 m was excavated, but as the remains of brick, stone and plaster walls were uncovered, the trench was extended to 10 × 10 m. Virgin soil was reached at a depth of 2 m and a total of 12 contexts were recorded (**Figs 4 and 5: B**). There was a large number and variety of finds, including as many as 304 clay bullae in three contexts.

### **Trench TQS.II**

A new trench, measuring 10 × 11 m, was opened on the northern and northeastern side of Trench I to investigate the continuation of architectural remains exposed in Trench I (**Figs 4 and 5: B**). Thirty contexts were recorded.

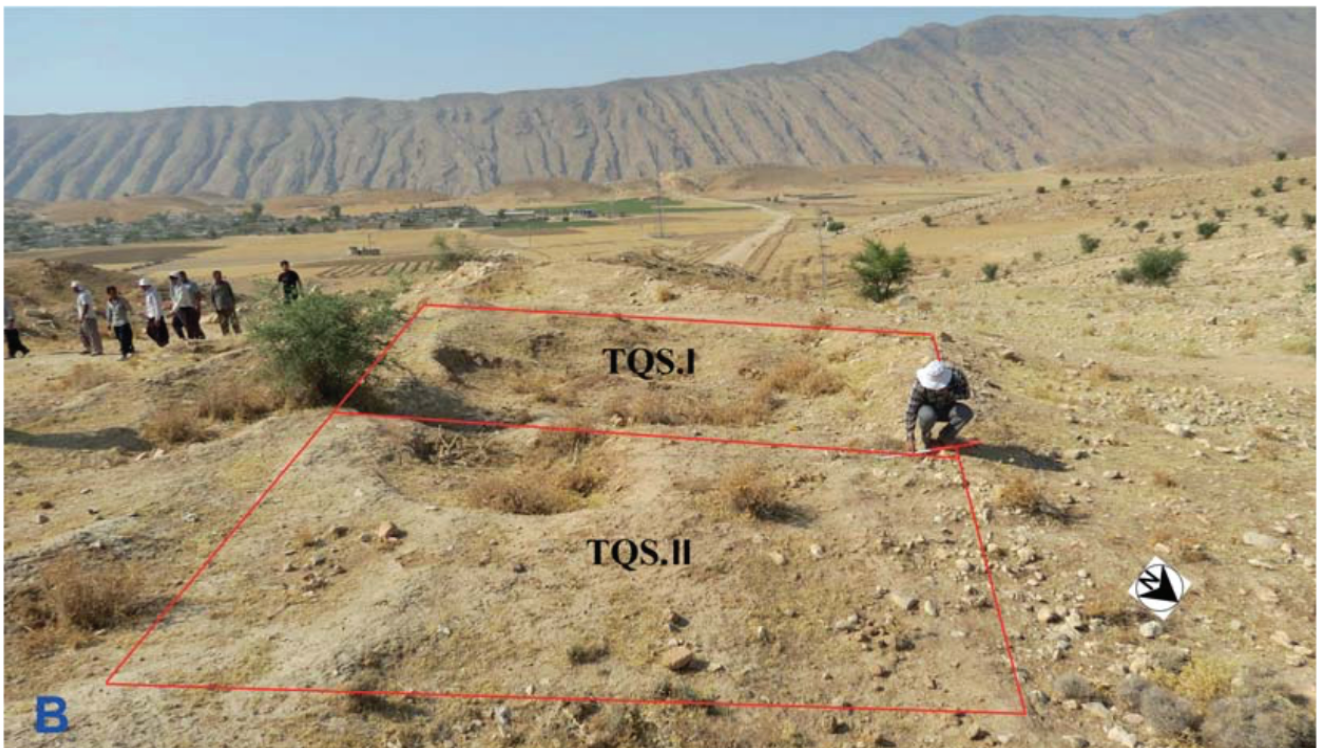
### **Trench TQS.III**

A 7 × 5 m trench was excavated in an almost untouched spot in the southeastern sector of the mound, to determine the limits of what appeared to be an inner courtyard. Due to a lack of considerable deposits, the dimensions of the trench were reduced to 1.5 × 1.5 m and virgin soil was reached. Three contexts were recorded (**Figs 4 and 6**).

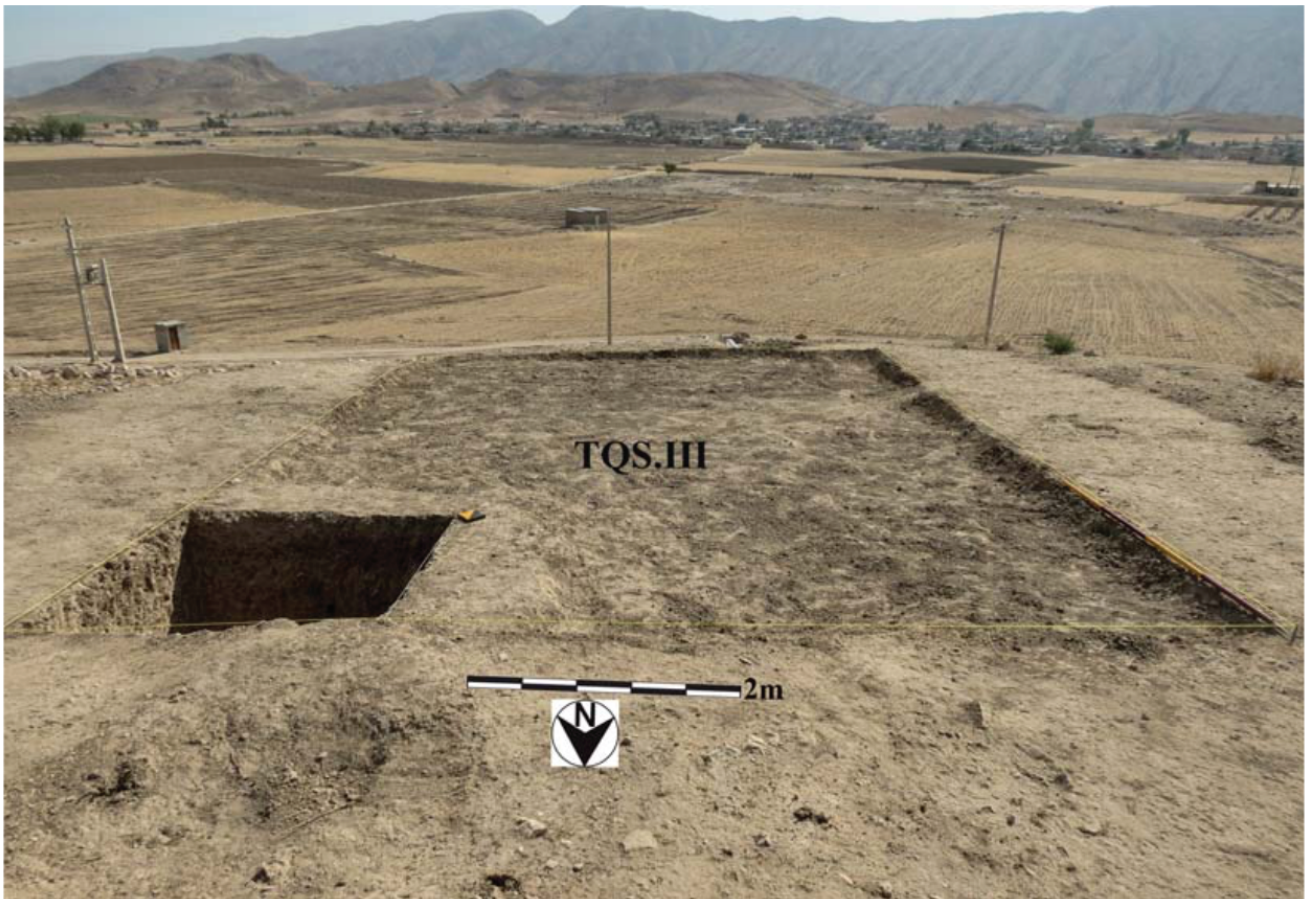
### **Trench TQS.IV**

On the eastern side of the mound, previous illegal excavations had exposed the upper portions of a thick wall constructed from stone and plaster. To understand this feature, eight contexts were recorded in the excavated trench, which measured 9 × 5 m. Excavation along the centre of the east-west wall led to the discovery of a narrow entrance, with an arched lintel constructed of stone and gypsum, a step in front, and a plastered floor (**Figs 4, 7, 8**).

<sup>22</sup> Barfi *et al.* 2013.



**Fig 5. A.** View of the northeastern side of the excavated mound at TQS and the gas pipeline route which goes through the site;  
**B.** Location of trenches I and II before excavation (photos P. Ghasemi, Autumn 2014).



**Fig. 6.** Trench III after excavation (photo P. Ghasemi, Autumn 2014).

## **Finds**

During the first season of archaeological excavation at TQS, the remains of a building with coherent architecture and several layers were discovered, along with a large volume of artefacts of the Sasanian period. Generally, these objects or finds can be categorised into: items originating in workshops, industrial objects and tools, administrative seals and sealings, ceramic vessels associated with storage and transport of agricultural products, containers for preserving documents – or perhaps for storage and transport of rare liquids such as perfume and oil, personal decorative objects, weapons, game pieces such as for *nard* (backgammon), and personal defensive tools, as well as agricultural implements and decorative architectural objects.

## **Workshop Objects**

Numerous objects related to workshops for the processing of agricultural products were found in the architectural spaces. Most of these objects were made of limestone. They include 19 grindstones (**Fig. 9: A and B**), 6 limestone mortars (**Fig. 9: C and D**), 5 rotary querns (**Fig. 9: E**), and 4 whetstones (**Fig. 9: F**).



**Fig. 7.** Aerial view of Trench IV, with remains of two thick walls exposed during the excavation (photo A. Bahrami and R. Noruzi, Autumn 2014).

In addition to stone objects, workshop objects made of metal were found, including a 50-litre copper-alloy pot with a tripod and a narrow opening, whose lower section and stand bear black soot. At the bottom of the vessel there was a thick layer of the remains of what we identified as boiled date-syrup, indicating that it was used for processing palm fruits (**Fig. 10: A**). A closely parallel tripod metal boiler, albeit with some differences in its upper part, was found at the site of Panjikent in Tajikistan.<sup>23</sup> Another significant metal find is a thin, two-litre cylindrical beaker with a finger handle, which was probably used as a gauge or measure. This object was found under some large vats in Room 5, and this association indicates that it was probably used for taking liquids from them (**Fig. 10: B**). Two copper-alloy ladles, one of them broken, were found in Room 1. A similar ladle was also found in Qasr-e Abu Nasr.<sup>24</sup> The two ladles were found next to a stone object similar to a small portable liquid container (**Fig. 10: F**).

<sup>23</sup> Raspopova 1980, fig. 81.

<sup>24</sup> Hauser and Upton 1934, fig. 32; Whitcomb 1985, fig. 61, s.



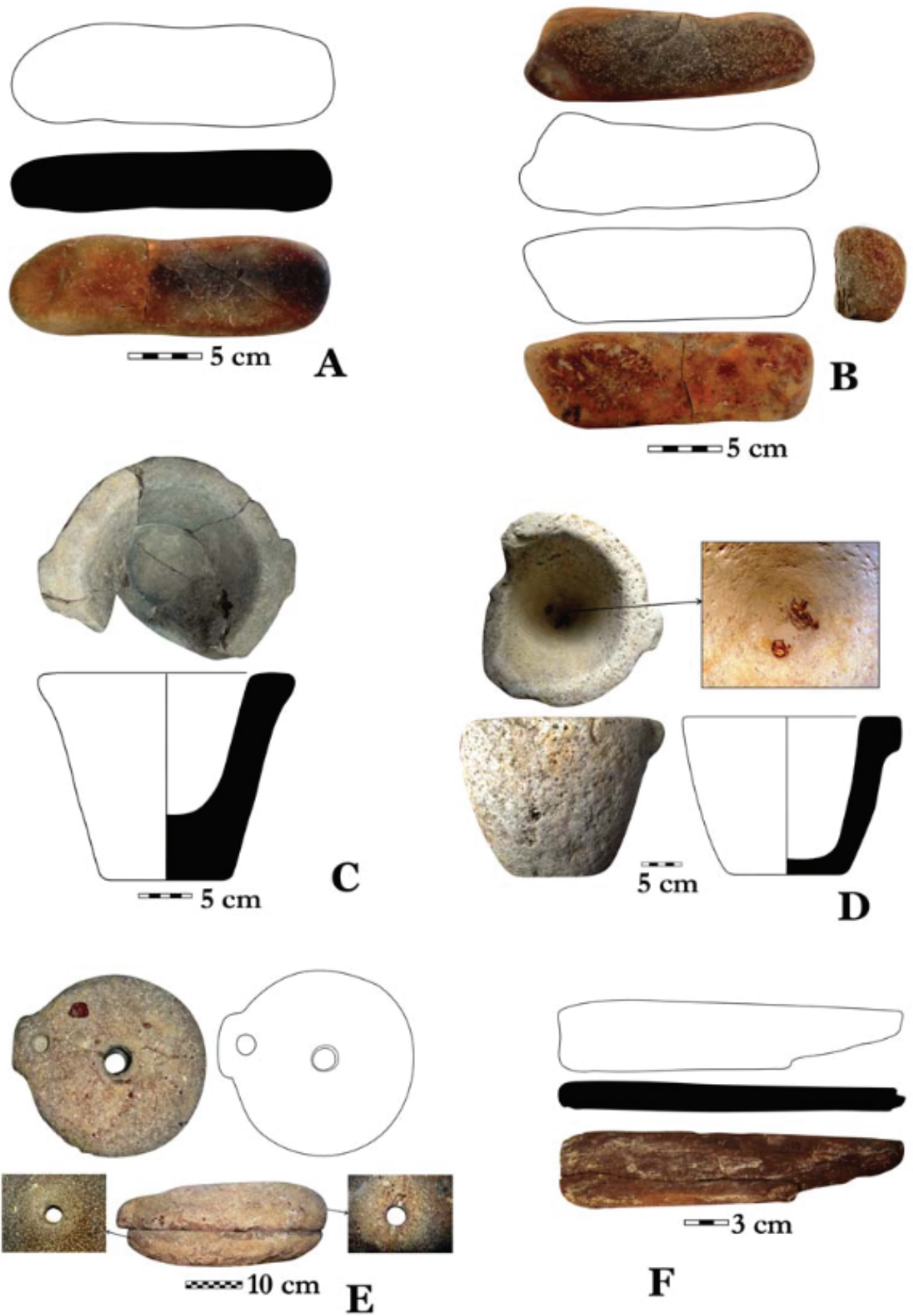
**Fig. 8.** Trench IV, showing remains of a narrow entrance with an arched lintel (photo P. Ghasemi, Autumn 2014).

## Tools and Implements

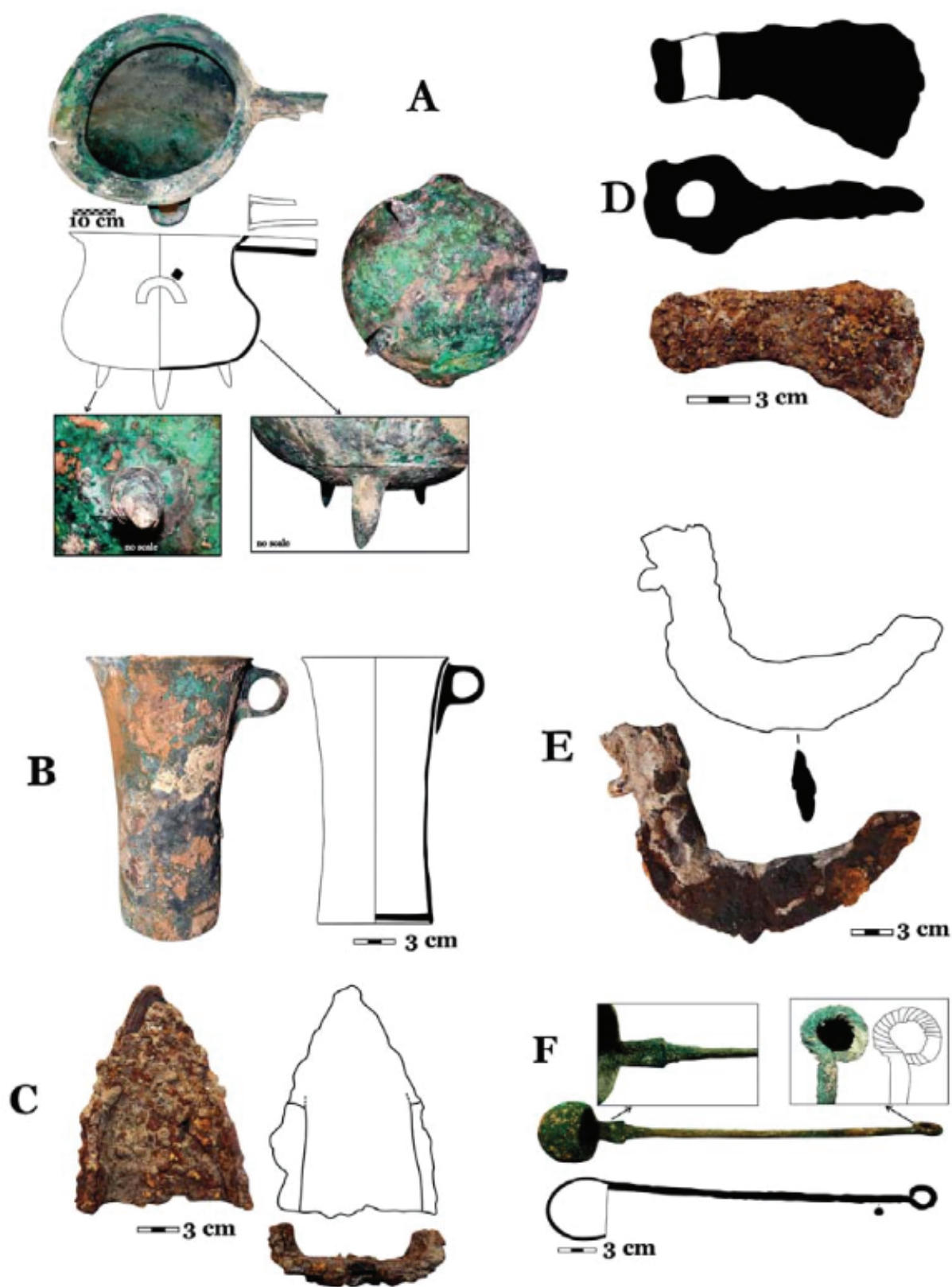
A tool resembling an iron plough was recovered. Until the last decade, this type of plough was used in many Iranian traditional villages for sowing crops, such as wheat, barley and beans, that do not need deep furrow to germinate (**Fig. 10: C**). A metal double-headed pickaxe and an axe were found in Trenches I and II respectively. Both are extremely corroded (**Fig. 10: D**). Two leaf-shaped daggers and a fragment of an iron dagger were discovered. Many similar objects were also found in Qasr-e Abu Nasr.<sup>25</sup> Two iron objects resembling sickles were also found (**Fig. 10: E**). Similar items were found in Qasr-e Abu Nasr,<sup>26</sup> and they were likely to have been used as decorative elements for wooden doors. In addition to the sickle-shaped objects, which Whitcomb considered to be agricultural tools, many iron nails, tacks, bolts, and simple or several dove-tail joints,

<sup>25</sup> Whitcomb 1985, fig. 63.

<sup>26</sup> Whitcomb 1985, fig. 60a-e.



**Fig. 9.** Stone objects recovered from the first season of excavation at TQS. A and B. Grindstones; C and D. Mortars; E. Rotary quern; and F. Whetstones.



**Fig. 10.** Metal objects found at TQS. A. Copper alloy pot; B. Cylinder beaker with a finger handle; C. Iron plough; D. Iron axe; E. Iron object resembling sickle; F. Copper-alloy ladle (drawings and photos Z. Zehbari and P. Ghasemi).



and other metal wares were also found. Several objects similar to these were again found in Qasr-e Abu Nasr.<sup>27</sup>

### Dice and Backgammon Dice

A cubic stone die with 1 to 6 dots, measuring 1.5 × 1.5 cm and weighing 7 g, and a circular backgammon checker or piece, made of bone, weighing 6 g, with a diameter of 3.7 cm and a thickness of 0.3 cm, were found. The outer surface of the die, which is similar to modern examples, was incised to 3 mm in depth (**Fig. 11: A and B**). Such cubic dice have been found at many archaeological sites in Iran and Mesopotamia such as Susa, Tepe Gawra, Šahr-e Sukta, Pasargadae, Masjed-Soleymān, etc., ranging in date from the third millennium BC to early Islamic times.<sup>28</sup> These dice were made of stone, bone and clay. Among the Sasanian sites, cubic dice were found at Qasr-e Abu Nasr and Bandian-e Daregaz,<sup>29</sup> which is indicative of the Sasanians' interest in the board game.

Though the invention of backgammon (Nard or Nardšir in Persian<sup>30</sup>) is often credited to the Sasanians, it appears that it was invented before them. Nevertheless, the Middle Persian text 'Kār-nāmag ī Ardaxšīr ī Pāpakān' associates the invention of the game with Ardašir I (224–241 AD), the founder of the Sasanian Empire, whereas in the Middle Persian narrative *Wičārišn ī Čatrang ud Nihišn ī Nēw-Ardaxšīr* (Explanation of Chess and the Invention of Backgammon) it is credited to Bozorgmehr, the vizier of Khosrow I Anūšīravān (531–579).<sup>31</sup>

In addition to the die and the backgammon piece, an astragalus piece from a polished bone belonging to a large mammal was found, which it seems was used for the game.

### Objects Used as Tools and Decorations

Many objects made of stone, clay, ceramic, glass, crystal, bone, shell and metal were recovered from the excavations, many of which were used for decorative purposes. Such decorative objects include 34 beads made of semi-precious stone (carnelian or agate), with a range of colours (white, red, yellow, dark blue and green), five beads made of fired clay and ceramic, one bead made of bone, and 20 small shells with holes used to hang them as pendants. It is not certain whether the shells were from the Parišan Lake or from the Persian Gulf. Several shells with the same dimensions were also found in Qasr-e Abu Nasr.<sup>32</sup> Moreover, on the floor of Trench II there was a glass necklace or bangle, 72 cm in length, consisting of tiny, multi-coloured beads in green, yellow, blue and grey.

<sup>27</sup> Whitcomb 1985, p. 161, fig 61 a-k, p, and q.

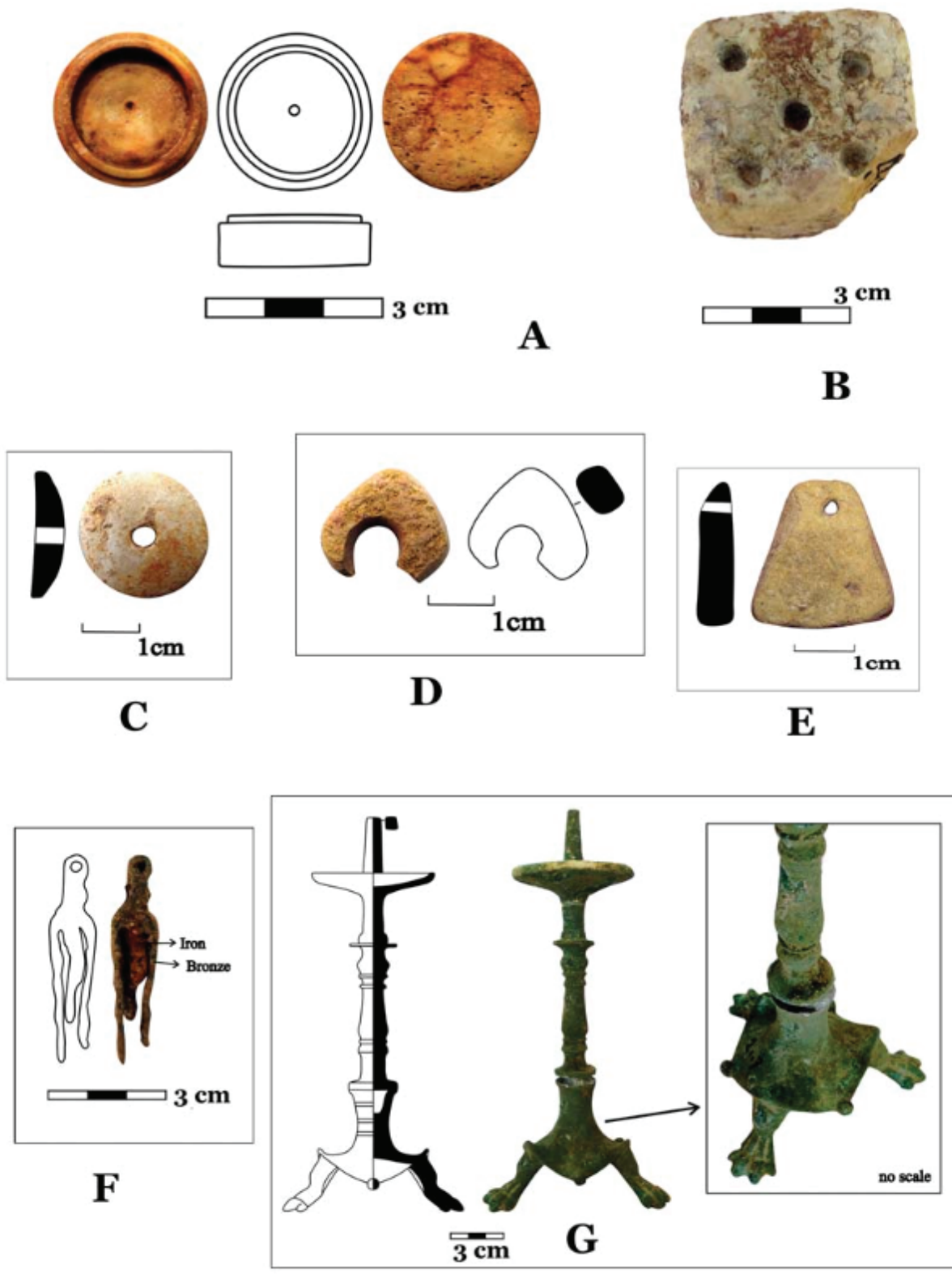
<sup>28</sup> Schädler and Dunn-Vaturi 2016.

<sup>29</sup> Whitcomb 1985, fig 74d (Qasr-e Abu Nasr); Rahbar 2007, p. 133 (Bandian-e Daregaz).

<sup>30</sup> Dehkodā 1998, p. 22409.

<sup>31</sup> Schädler and Dunn-Vaturi 2016. Other recent studies on this subject are by Daryaee (2016) and Panaino (2017).

<sup>32</sup> Whitcomb 1985, fig. 70 t, u, w, v and x.



**Fig. 11.** A. A circular backgammon checker made of bone; B. Cubic stone dice; C. Button made of bone; D and E. Two glazed pendants made of clay; F. Hair slide (hair pin) with a tongue; and G. The copper alloy base of a pricket stand or lamp (drawings and photos by Z. Zehbari and P. Ghasemi).

Two clay buttons or whorls, similar to the samples found in Qasr-e Abu Nasr,<sup>33</sup> were found. The first, made of ivory, is white and circular, and 2.3 cm in diameter; its raised, central part is 5 mm in thickness and the central hole is 4 mm in diameter. The upper surface is convex, and the lower surface is flattened (**Fig. 11: C**). The second sample, like the first, has a convex upper surface and a flattened lower surface. It weighs 5 g and is made of bone. The lower part of the outer surface is decorated with four parallel horizontal grooves and it has a hole in the centre.

In addition, to the buttons, many ceramic pieces with regular shapes and a hole on one side were found. Some of them are glazed, suggesting that they were parts of thin, broken vessels (**Fig. 11: D and E**). It seems that the broken and useless fragments were turned into pendants by making a hole in one side or in the middle. Among the four pieces, one is plain, and the rest are glazed. Other objects of this group include metal pins,<sup>34</sup> a metal object similar to a hair slide with a tongue (**Fig. 11: F**),<sup>35</sup> and a circular object which is probably an earring.

The copper-alloy base of a lampstand or candlestick was also found. This item was baluster-shaped with turned decoration on the shaft, similar to examples found at Qasr-e Abu Nasr Seleucia and at the Sogdian site of Panjikent.<sup>36</sup> The oldest lamp of the same style on the Iranian Plateau was found in Arrajān tomb,<sup>37</sup> dated to the late Neo-Elamite period, c. 630–550 BCE. At TQS, the base is like an inverted bellflower and rests on three projecting lion forepaws (tripod). The upper part is in the shape of a flat pan, 7 cm in diameter, with a rectangular-tipped spike designed to hold a lamp at the centre (**Fig. 11: G**). Many similar pricket stands have been found in Roman and Byzantine contexts, most of them dated to the fifth–sixth centuries AD, and now kept in various museums and private collections.<sup>38</sup>

A copper-alloy bell was found, 2.3 cm in diameter, similar to those from Qasr-e Abu Nasr.<sup>39</sup> It features a hole, 3 mm in diameter, for hanging.

Among the finds from this season, there are eight coins, corroded and stuck together, whose iconography and inscriptions are unreadable. Their state of preservation also precludes weighing them; therefore, further analysis, such as ascription to a specific period of time is almost impossible.

## **Objects Related to Conservation of Documents or Rare Aromatic Liquids**

These objects consist of three free-blown cylindrical glass tubes (one whole, one broken into two pieces and one segment) with facets cut. It seems that two of them were cut from bottom to top on the exterior. The tubes' exterior walls are decorated with either oval-shaped relief-cut facets (shallow cylindrical bosses) with a concave surface or overlapping facet-cut lozenges. There are many cylindrical glass tubes of these kind in both private collections and museums all

<sup>33</sup> Whitcomb 1985, fig. 71 h, k, i, m and t.

<sup>34</sup> Whitcomb 1985, fig. 65 q and r.

<sup>35</sup> Whitcomb 1985, fig. 65 ll.

<sup>36</sup> Hauser and Upton 1934, fig. 36, Frye 1973, fig. 16, Whitcomb 1985, fig. 62 p (Qasr-e Abu Nasr); Gullini 1967, fig. 112 (Seleucia); Raspopova 1980, p. 62.5 (Panjikent).

<sup>37</sup> Alvarez-Mon 2006.

<sup>38</sup> Ross 1962, plate 27, fig. 32; Xanthopoulou 2010, Figs. 16 and 70, pp. 107, 133, 233–277.

<sup>39</sup> Whitcomb 1985, fig. 65 hh.

around the world. Some of them were found in archaeological layers.<sup>40</sup> Harper believes that the tubes were used both for keeping easily folded documents and for holding writing tools such as pencils and brushes.<sup>41</sup> Whitehouse believes, however, that the inner diameter of the tubes is so small that they could not possibly have contained a folded document without damaging it.<sup>42</sup> The view of the authors is that the objects were most likely used to convey precious liquids such as rare perfumes and oils.

The whole glass tube that was recovered from Trench II at TQS is 41.5 cm in length and weighs 324 g. The mouth is round and 3.4 cm in diameter. The tube is in two sections. The upper part, from the rim down, is simple and undecorated. It is separated by a horizontal circular relief strip from the lower part, which is decorated with eight continuous horizontal rows of three oval relief-cut facets (shallow cylindrical bosses) with concave upper surfaces, measuring 2.8 × 2.3 cm in diameter and 5 mm in height. Overall, there are 24 oval-shaped facets in eight rows of three, facet-cut and polished on the outside surface. The base was flattened by grinding with a bevelled edge. The main colour of the glass is dark green, but the exterior surface, because of decomposition, has become greenish yellow (**Fig. 12: A**). This tube had what appeared to be a very smooth gypsum lid, but it fell apart, effectively turning to powder, during the excavation. A similar, though incomplete, example of a tube such as this, reportedly discovered in Azerbaijan, can be found in the Smith collection.<sup>43</sup> Oval-shaped relief-cut facets can be seen on numerous Sasanian glass wares.<sup>44</sup>

Two other broken tubes (three pieces in total), also found in Trench II, have a different decoration from the previous sample. Both were mould-blown, with rims rounded by grinding and polishing, and vertical walls. Their exterior walls were decorated with many continuous horizontal bands of overlapping facet-cut lozenges (**Fig. 12: B and C**). These two tubes are similar to finds from Nineveh<sup>45</sup>, Veh Ardashir (a fragment)<sup>46</sup>, and Qasr-e Abu Nasr (a fragment),<sup>47</sup> which are kept in the British Museum,<sup>48</sup> Berlin, and the Corning Museum.<sup>49</sup>

The first tube of this kind from TQS (**Fig. 12: B**) is a fragment 21 cm in length, 4 cm in diameter, and 5 mm in thickness. A length of 7 cm from the mouth (rim) to the upper part of the body is simple and undecorated; from there to the bottom the exterior wall is decorated with deep, overlapping, horizontal facet-cut lozenges. The diameters of the lozenges are 1.8 cm × 2.8 cm. Its main colour is transparent white; because of decay, however, a pearlescent patina covers its surface. The second example (**Fig. 12: C**) was broken and in its present state measures 39 cm in length and 5 mm in thickness; its mouth diameter is 2.9 cm. The first 10 cm from the rim is plain and undecorated and the lower part is decorated with many continuous horizontal overlapping

<sup>40</sup> Simpson 2014, p. 225; Whitcomb 1985, fig 59 e; Negro Ponzi 1987, p. 271, fig. C; Kiani 1982, p. 37, fig. 29; Whitehouse 2005, pp. 56–57.

<sup>41</sup> Harper 1978, p. 157.

<sup>42</sup> Whitehouse 2005, p. 56.

<sup>43</sup> Whitehouse 2005, p. 59, fig. 67.

<sup>44</sup> Simpson 2014, figs 20 and 27, n. 1–8 ; Whitehouse 2005, figs. 50-52, 64; Whitcomb 1985, fig 58 k.

<sup>45</sup> Simpson 2014, figs 20 and 27, n. 12; Whitehouse 2005, fig. 66.

<sup>46</sup> Negro Ponzi 1987, p. 271, fig. C, n. 345.

<sup>47</sup> Whitcomb 1985, fig 59 e.

<sup>48</sup> Simpson 2014, fig 20.30.

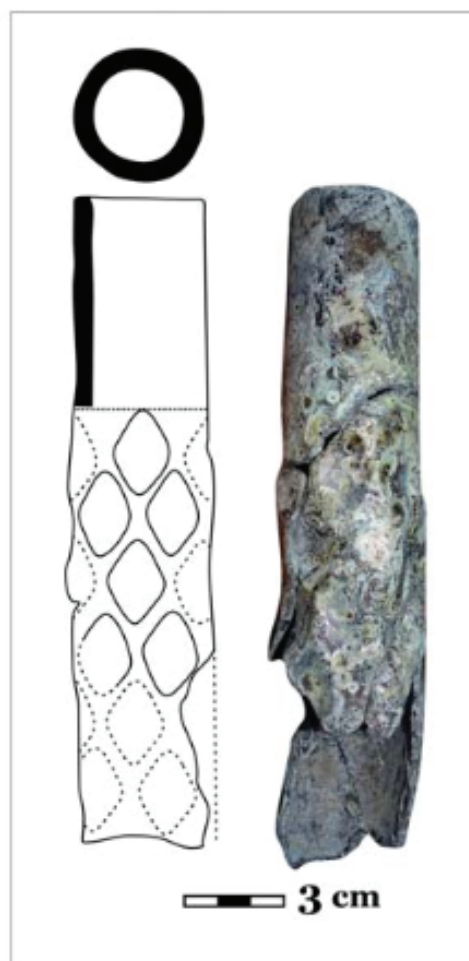
<sup>49</sup> Whitehouse 1993, figs 106 and 107; Harper 1978, p. 157.



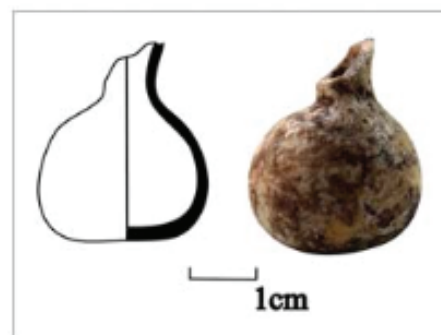
**A**



**C**



**B**



**D**

**Fig. 12.** Glass objects found in TQS: A–C. Three free-blown cylindrical glass tubes with facets cut; and D. A small, kohl or perfume jar/aryballos (drawings and photos by Z. Zehbari and P. Ghasemi).

lozenge facets, measuring 2.1 × 1.2 cm in diameter. Its base has been flattened by grinding. The original colour is green, though its surface now has a yellow-to-shell colour.

Another glass find is a small jar, a kohl or perfume aryballos, weighing 3 g, with a broken rim and a neck that is 8 mm in diameter. It is 2 mm in thickness, with a current height of 3.4 cm and abdominal diameter of 2.7 cm. It is mainly coloured greenish yellow, but its exterior surface has become shell and turned to white and yellow (**Fig. 12: D**).

### **Pottery and Storage of Date Products and Foodstuffs**

Over 21,500 potsherds, mostly fragments of large pithoi or storage jars, and 22 complete pottery vessels were found. The ceramic assemblage can be divided into two categories: unglazed and glazed. The glazed ceramic sample contains 56 pieces which, compared to the total number of specimens (21,512 potsherds), is quite small. All of the glazed potsherds were made using the same technique. Over time, the glaze colour of some samples, either partially on the surface or wholly in the entire vessel, has degraded. The glazes are blue, light green, dark green, cream and brown, among which dark green was widely used.

Large jars (vats) which were used for storing fruits, other foodstuffs, and liquids are the dominant form in the assemblage (**Fig. 13: A**). These vessels can be divided into the following types:

Concave Triangle Decoration Wares, Wavy Appliqué Decoration Wares, Thick Slip Wares, Glazed Wares, Painted Wares, Grooved Rim Jars, Burnished Wares, Spotty Wares, Slip Rim Wares, Eyelet Decoration Wares.

Of the recovered collection, 1600 pieces were selected for illustration, classification and comparative studies. The catalogue of ceramics is being prepared and will be published in detail.

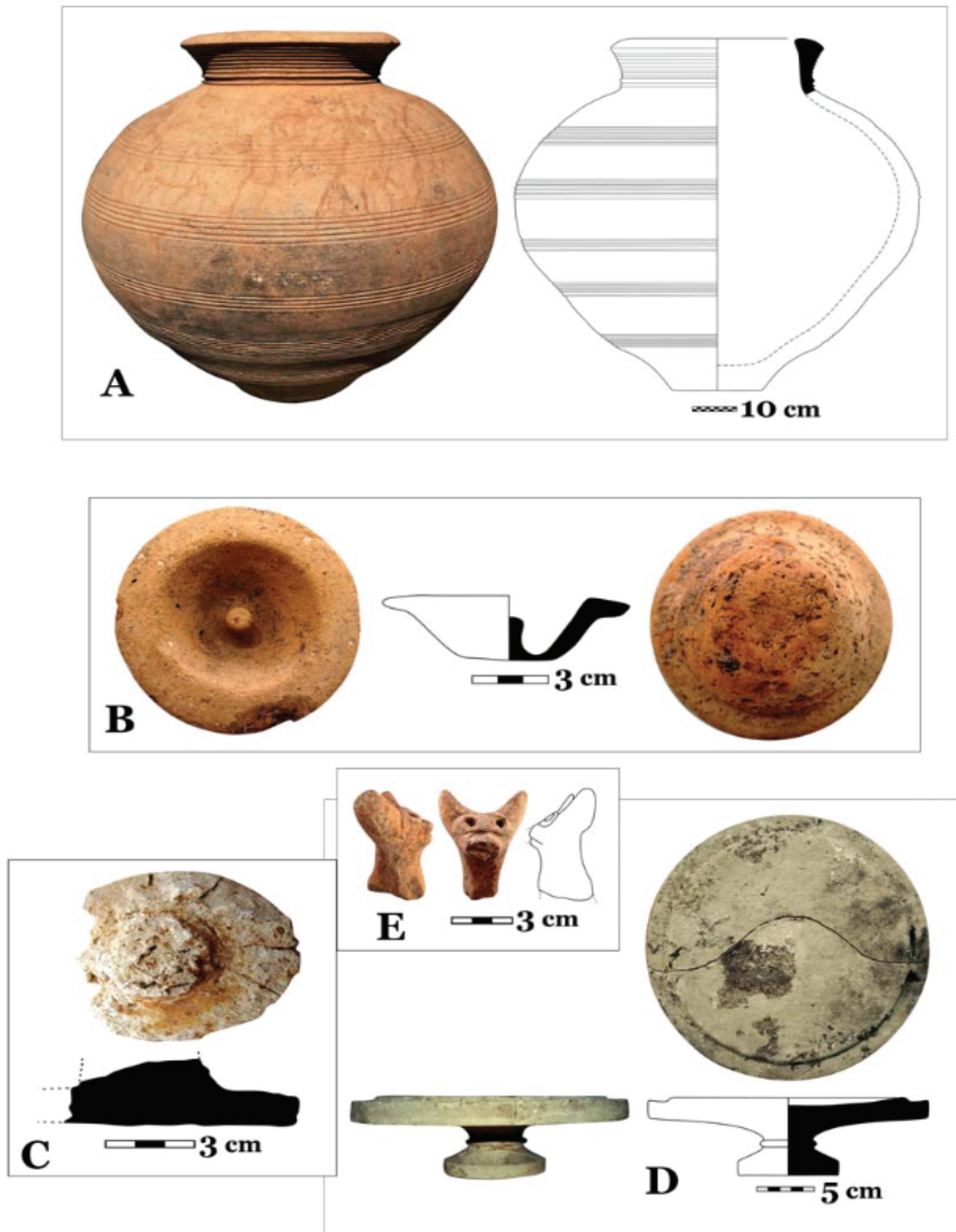
In addition to ceramic vessels, lids made of clay (**Fig. 13: B**) and gypsum (**Fig. 13: C**) were also found. The largest is 16 cm in diameter and 3 cm thick, and the smallest is 6 cm in diameter and 2.3 cm thick. In addition to the gypsum lids, a limestone lid (of a large vat) was also found (**Fig. 13: D**). A large number of similar specimens were found in Qasr-e Abu Nasr.<sup>50</sup> The head of a terracotta animal figurine made of clay in buff fabric was also found; its exterior surface was evidently painted with ochre (**Fig. 13: E**). There were parallel finds at Veh-Ardašīr (Coche) and Qasr-e Abu Nasr.<sup>51</sup>

### **Objects Related to Seals and Sealing, and the Administrative Management System**

During the excavation, a stone stamp-seal and 371 clay bullae were found. The single seal is a personal one, made of agate with a semi-circular shape and a hole to pass string through (**Fig. 14: A**). The height, diameter and weight are respectively: 1.4 mm, 1.5 mm and 6 g. The seal bears a monogram engraved in double lines and around its edge, from 3 to 7 o'clock, there is an inscription in Middle Persian in semi-lapidary script: 'pst'n'L yzd'n, i.e., *abestān ō yazdān* "Confidence in the gods".

<sup>50</sup> Whitcomb 1985, figs 53 f and 67 u.

<sup>51</sup> Cellerino and Messina 2013, fig. 4; Whitcomb 1985, fig. 72.



**Fig. 13.** A. One of the large pithoi found in space 7 in Trench II along with two other vats, with buff fabric and incised decoration on the neck, shoulder and body, and an overhanging rim; B. Jar lid; C. Lid made of gypsum; D. Limestone lid (of a large vat); and E. Head of a terracotta animal figurine (drawings and photos by Z. Zehbari and P. Ghasemi).

Bullae are among the most commonly found objects in this excavation (**Fig. 14: D**). They are made of clay with a mineral fabric. The mineral material is sometimes invisible but occasionally contains tiny grains of sand and bright mica particles. These clay bullae are between 20 to 90 g in weight. Each bulla bears several seal impressions. Like those found in Qasr-e Abu Nasr and Takht-e Soleymān,<sup>52</sup> the bullae were discovered in room contexts and some of them were recovered from heated (burnt) layers mixed with date fruits. The bullae came from Trench I and II in Rooms 2, 3, and 4, though the majority were recovered from Room 2. Some were found under the debris of collapsed roofs or walls on the floor, explaining why their surfaces have a layer of white lime sediment that makes it impossible to read and distinguish the iconography and inscriptions. In Room 4, the bullae were found directly on the floor, covered in a layer of palm sap and carbonised or boiled date fruit. Unlike Room 2, which seems to be the archive in which these bullae were kept, Rooms 3 and 4 were workshops, in which these bullae were discovered along with other workshop and production finds. These circumstances can offer more information about the function of the architectural spaces at TQS.

With 371 bullae, the archive of TQS is the third largest of those found in archaeological excavations, after Takht-e Soleymān (756 bullae) and Qasr-e Abu Nasr (505 bullae). Twenty per cent of the archive is comprised of administrative bullae, i.e., bullae with impressions of administrative offices. The rest of the bullae bear the impression of personal seals. Some sealings have intelligible legends, although some are illegible. Of the 75 administrative bullae, two bear the seal of the *šahrab* of the Bišābuhr province, four were stamped with the seal of the *driyōšān jādaggōw ud dādwar* “Defender and judge of the poor” of the province of Bišābuhr and two with the seal of the *āmārgar* of Ardašīr-Xwarrah, Bišābuhr and Nēw-Darab. These three seals are also attested by bullae found in the excavations of Qasr-e Abu Nasr,<sup>53</sup> and the same seal of the *driyōšān jādaggōw ud dādwar* of the province of Bišābuhr was also found in the excavations at Bišābuhr.<sup>54</sup> Because the TQS archive contains administrative seals from different provinces, we can define it as a “regional archive.”

This assessment is also confirmed by the bullae with the *mowūh* seals. The other 67 administrative bullae which have been examined and which are partially legible belong to the cantonal administration of the *mowūh* “office of mages.”<sup>55</sup> Although the vast majority come from *mowūh* offices in Bišābuhr province, one comes from a *mowūh* office in Ardašīr-Xwarrah province. This seal impression of the *mowūh* of Rawīgān is one of the very few of which we know the matrix seal.<sup>56</sup> The great interest of the TQS archive is that it informs us of five new cantons of the province of Bišābuhr discovered in an archaeological context. It thus presents an important contribution to the knowledge of the territorial administration of this province. The names of the cantons Yarēz, Negundar-āspān and Hišn are unknown elsewhere. That of Kāzerūn is known in the post-Sasanian era through some Sassanian copper coins,<sup>57</sup> but this administrative *mowūh* seal represents the first Sasanian-period attestation of this toponym.

<sup>52</sup> Frye 1973; Göbl 1976.

<sup>53</sup> Frye 1973, D.216, D.194 and D.191.

<sup>54</sup> Curiel and Gyselen 1987, pl. V.

<sup>55</sup> For the office of mages, see Gyselen 1989.

<sup>56</sup> Gyselen 2007, pp. 92–93, n. 00.2.

<sup>57</sup> Gyselen 2009a, pp. 143–144, types 35a, 35abis and 35b.



The *mowūh* administration of Ābād-Šābuhr district sealed the overwhelming majority of the *mowūh* bullae (58 out of 75). There is no doubt, therefore, that TQS was administratively part of Ābād-Šābuhr, and it cannot be ruled out that it was the cantonal capital. In that case, the Sasanian name of TQS would have been Ābād-Šābuhr (**Fig. 14: B**). The toponym Ābād-Šābuhr, literally “Šābuhr < has made > prosperous”<sup>58</sup> indicates that it is a foundation of a Sasanian king by the name of Šābuhr, probably Šābuhr I (241–271 AD), to which one must also attribute the creation of the city (and province) Bayšābuhr (= Bīšāpūr), literally “Lord Šābuhr”. This means that in the third century the Sasanian dynasty invested in the development of this region, especially on the agricultural level. The appearance of administrative seals seems closely linked to the administrative reform of the territory of the Sasanian Empire, which was initiated by Kawād I during his second reign (488–531) and completed by his son Khosrow I (531–579). According to the archaeological evidence, the site of TQS does not contain Islamic archaeological layers (except a few glazed sherds recovered from looters’ pits whose antiquity is not yet established). The archive with the administrative bullae can be roughly attributed to the sixth century and perhaps the first half of the seventh century AD. However, it is not possible to determine whether this archive was in use for a long or short period of time.<sup>59</sup> In the latter case, one could expect to discover other archives across the site of TQS.

As for the nature of the archive, there are very few things that can be determined for certain. No remnants were found of parchments or pieces of tissue constituting parts of the documents to which the bullae were attached. The interpretation of archives of bullae detached from their documents remains difficult.<sup>60</sup> In any case, these administrative bullae were used to seal documents of a legal nature, the true nature of which remains to be determined. Indeed, there are still too few documents sealed by an administrative bulla of *mowūh* for us to understand what kind of document was sealed by a *mowūh* administration.

In addition to the bullae, in Room 1 a number of unused, raw (unfired) circular lumps of clay were discovered. They weigh 1 kg and were probably used for making the bullae (**Fig. 14: C**).

At Qasr-e Abu Nasr, a seal impression with the word b’ism, probably the abbreviation of the Arabic bismillāh, led Richard Frye to date the Qasr-e Abu Nasr archive to the post-Sasanian period.<sup>61</sup> However, the consensus seems to be that most of the administrative seals and sealings of the Sasanian period date to after the reforms of Kawād I (488–531) and his son Khosrow I (531–579), across different domains of administration such as land taxes, the poll tax, and the implementation of agriculture and military reforms.<sup>62</sup>

Various laboratory analyses on other materials found in the same archaeological contexts as the bullae are under way; these will eventually make it possible to determine more precisely the date of the archive.

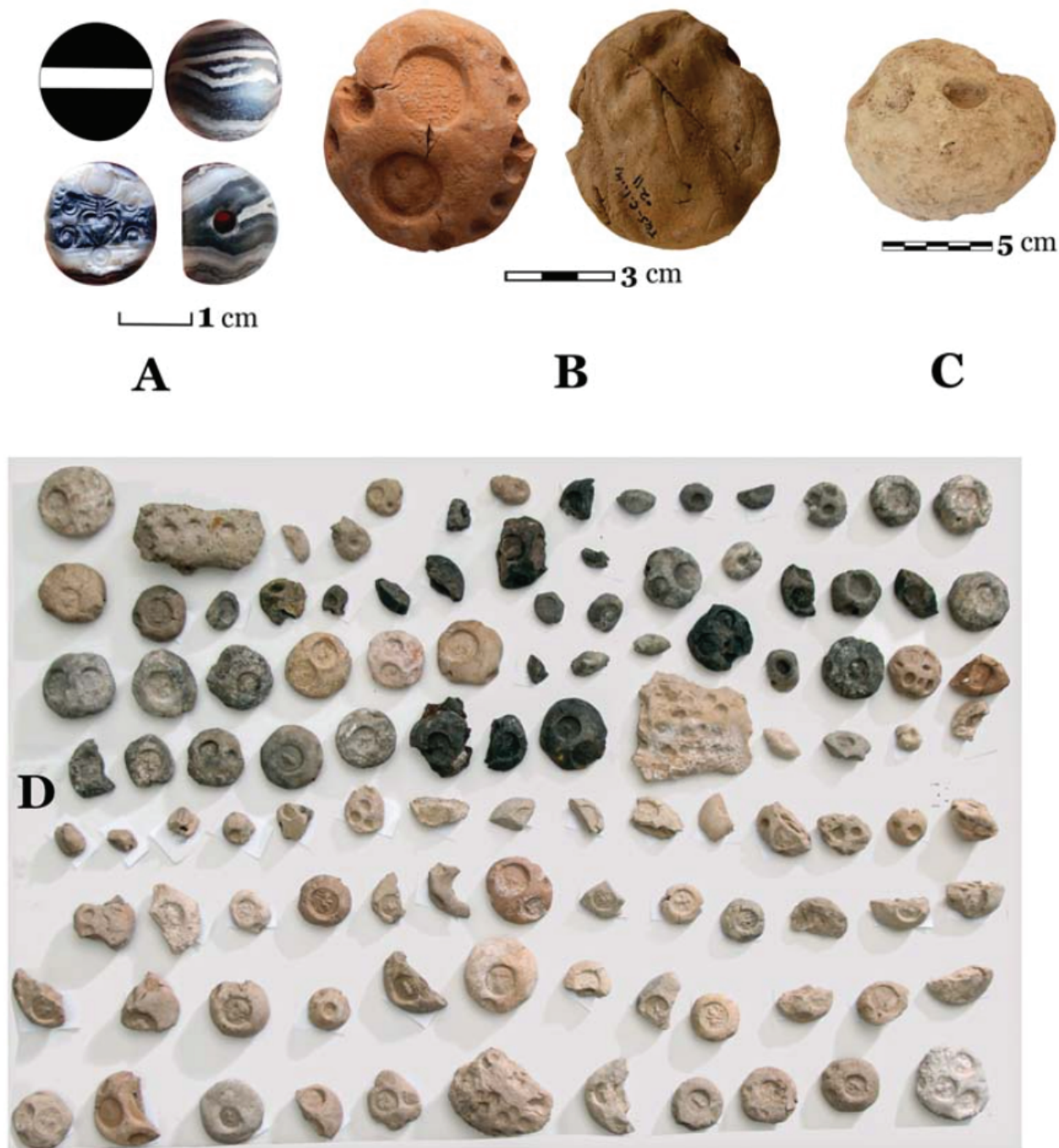
<sup>58</sup> On the term Ābād, see Gyselen 2009b, pp. 156–170.

<sup>59</sup> Ghasemi et al. 2017; Ghasemi et al. 2018.

<sup>60</sup> See Gyselen 2015.

<sup>61</sup> Frye 1973, p. 58, 0195.

<sup>62</sup> Pigulevskaya 1937, p. 143; Rubin 1995, p. 225; 2016; Zeimal 1983, p. 224.



**Fig. 14.** A. Stamp-seal in agate with a monogram engraved in double-lines;  
 B. Bulla with an administrative impression seal of Abad-Sabuhr;  
 C. Unfired and unused circular clay ball, probably intended for making the bulla;  
 D. Sasanian personal and administrative bullae found in Trenches I and II  
 (photos by P. Ghasemi).

## Agricultural Evidence

Date fruits were found intact and, in some cases, in carbonised form in all the archaeological layers excavated at TQS. In the excavated architectural spaces, which seem to have functioned both as workshops and as sites for the processing and storage of dates, we also discovered large vessels (pithoi), often containing date fruits (**Fig. 15: A and B**). This is evidence of the existence of a prosperous agricultural economy.

Apart from the dates discovered in these archaeological layers, date fruits were also sporadically observed all over TQS as a result of illegal diggings. Moreover, palm fibres and leaves are frequently found in the different excavated archaeological layers of the site. The date is an irrigated agricultural crop, cultivated in diverse geographic, soil and climatic areas. In Iran dates are produced on a large scale in nearly rainless areas, in the south and southwest of Fars and the Persian Gulf hinterlands. Nowadays, they are planted around the TQS site, in the districts of Šāpūr in Kāzerūn County, in Jereh-o Bālādeh, Jadval-Turki, Dādin, Khešt and Konār-Takhteh, as well as in Daštēstān (Borāzjān) and Farāšband.

According to Ṭabarī, Mehr-Narseh, the grand vizier during the reigns of the Sasanian kings Yazdgerd I (399–421 AD) and Bahrām V (421–439), established a vast agricultural area, including three large gardens, in his birthplace, Abrovān village, which was part of Dašt-e Bārin district in the Ardašīr-Xwarrah province, and in the Jereh district in the Bišābuhr province. He planted 12,000 palm trees, 12,000 olive trees and 12,000 cypresses.<sup>63</sup> Ebn al-Balkī, Muqaddasī, and other geographers have pointed out the importance of Bišābuhr, Kāzerūn, and Jereh in the production of the date fruits.<sup>64</sup>

According to both Ṭabarī's report and archaeological evidence gathered from our regional survey, it can be concluded that the dates discovered at TQS were the products of Bišābuhr and neighbouring provinces which, after being collected and processed at TQS, were sent to the central office or exported to other parts of Fars and the empire. This evidence is confirmed by the names of different districts appearing on the administrative bullae of the Bišābuhr province at TQS in the first season of excavation.<sup>65</sup>

It can be inferred that the agricultural policy of the Sasanian dynasty, based on the extensive irrigation techniques which have been identified in Khuzestan and Iraq, was also applied in Fars region. Several archaeological sites associated with water management and irrigation systems – such as channels, dams, weirs, and kārīz or qanats (underground channels or tunnels to direct water) – uncovered in the areas surrounding TQS, confirm that this agricultural method was of considerable importance to the Sasanians.<sup>66</sup> The discovery of a large quantity of date remains in the archaeological layers at TQS and their distribution all over the site shows that agriculture in general and arboriculture (i.e., planting palms) in particular were of high importance in this province (Bišābuhr) during the Sasanian era. The population of the region seems to have obtained its livelihood from agriculture, especially the date palm.

<sup>63</sup> Ṭabarī 2004, p. 626; Ghasemi 2013.

<sup>64</sup> Muqaddasī 2006, pp. 633, 648; Ibn Balkī 1996, p. 343.

<sup>65</sup> Ghasemi *et al.* 2017; Ghasemi *et al.* 2018.

<sup>66</sup> Ghasemi 2018; 2020, in preparation.



Fig. 15. Room IV in Trench II with A. Remains of intact date fruits in the bottom of pithos; B. Remains of carbonised date fruits on the floor (photos by P. Ghasemi and R. Noruzi, Autumn 2014).

It is worth mentioning that in a burnt room in Qasr-e Abu Nasr that is called Ali Askar's burnt room, carbonised almonds and figs along with numerous clay bullae have been reported.<sup>67</sup> Interestingly, the pollen analyses of radiocarbon-dated sediments from Parišan Lake revealed valuable information on paleoecology, the vegetation in the late Sasanian period, but no remains of the date palm tree were reported through the analyses.<sup>68</sup> This absence reminds us that pollen analysis as an element of multi-disciplinary paleoenvironmental studies has some limitations and hasty conclusions about agricultural practices in this region should not be drawn with little evidence.<sup>69</sup>

## Architectural Finds

Excavation in the southwest zone of TQS revealed part of a large building with fortifications, resembling those from other Sasanian sites that were constructed on the natural hills of the Iranian plateau or in other parts of the Sasanian territories. Like most Sasanian sites, TQS was protected by an exterior defensive wall, built in two parts, the west and the northeast, where the remains of the walls and drystone foundations are visible. Aerial imagery of the excavated area was taken by the Iranian Army in 1966 before the gas pipeline destruction. In these images, the remains of a rectangular or quadrangular building with towers can be seen. In the southern part of the excavated area, a foundation of thick walls with semi-circular towers made of stone and plaster are still visible, which proves that inside the outer wall there was a large building which was also fortified. Owing to the small area of our excavation and no geophysical survey during the first season, it is almost impossible to discuss the architecture of the whole site, not to mention different architectural phases. Nevertheless, the aerial imagery and the architecture recovered so far may support the inference that on the top of the hill there was a large building with thick load-bearing walls and semi-circular towers at the corners.

Apart from the excavated area, the current evidence shows that the architectural remains consist of a group of buildings inside the wall. Each structure appears to be composed of numerous workshops or storage rooms built very close to one another. The architectural evidence in the excavated areas of TQS includes the western part of a building (**Fig. 16**), with a 20 m-long corridor of variable width at its centre: in the south it is 1.4 m wide, in its middle part, 2.75 m, and in the northeast, 2.9 m. The corridor, which is oriented northeast–southwest, is still unexcavated. In the middle of it, there is a large door socket (**Fig. 16: Loc. 1**) which separates the northern spaces (units) from the southern ones. The entrance base (door socket) whose remains are in the eastern side of the corridor was built beside a wall made of stone and gypsum. The width of the corridor indicates that the door must have been at least 2.50 m wide. There is an obvious niche and probable evidence of a staircase for access to the second floor. Due to the destruction caused by the gas pipeline activities, it is difficult to reconstruct the staircase. In the western side of the corridor there are five rooms, stretching north–south at regular intervals (**Fig. 16: S 1-5**). The smallest room is situated on the northwestern side and measures 2.50 × 2.80 m (**Fig. 16: S 5**); the largest,

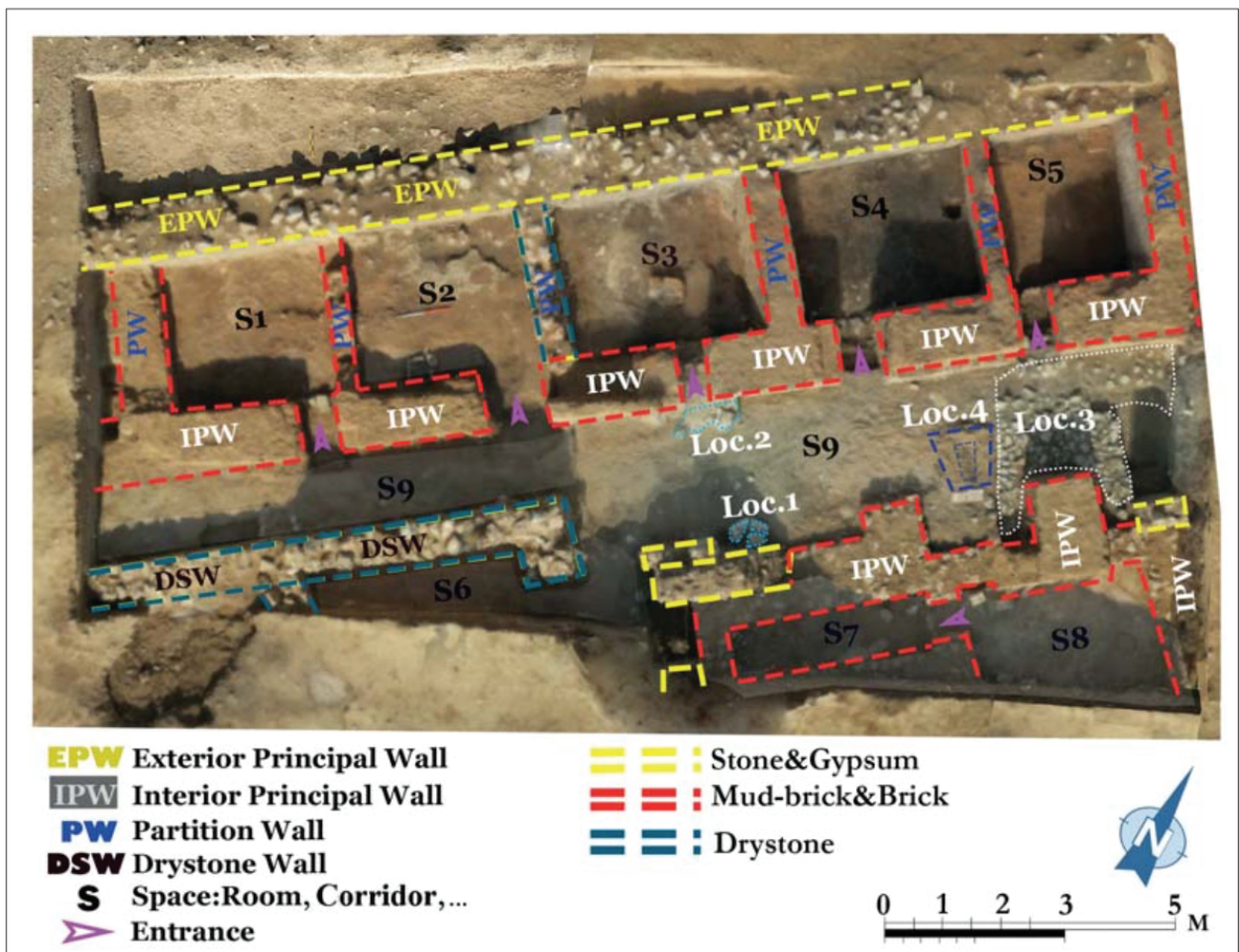
<sup>67</sup> Whitcomb 1985, p. 168.

<sup>68</sup> Shumilovskikh *et al.* 2017, fig. 3.10.

<sup>69</sup> See Ghasemi 2020, p. 2, for further discussion on this matter.

the middle room (**Fig. 16: S 3**), measures  $3.0 \times 2.75$  m. Except for Room 2, whose entrance width is 1 m, the entrances to the rooms are oriented eastward, or toward the corridor. Their average width is 70 cm. On the east side of the corridor, like the west, some of the built spaces are not symmetrical. Due to the limits of the excavated areas, these spaces are not completely visible; however, it can be speculated that they, like the western part, include small spaces for workshops and storage rooms. On the eastern side of the corridor, there is a small longitudinal room (**Fig. 16: S 7**) with northeastern orientation, measuring  $3.50 \times 1$  m and containing three large storage jars. On the northeastern side of this longitudinal space, part of a large area with a coated floor of gypsum, extending east, became visible (**Fig. 16: S 8**).

As a whole, the construction materials of the group of buildings at TQS comprise a combination of mud brick, brick, gypsum and stone. The exterior principal walls are made of gypsum and stone with a width of 1 m and the interior principal walls from fired bricks and mud-brick materials, with a foundation of stone of 1.2 m average thickness (**Fig. 16: IPW and EPW**). To separate the rooms or small inner workshop storage spaces, a narrow partition wall, 60 cm in width, was made of mud brick and brick (**Fig. 16: PW**). This partition wall, separating the



**Fig. 16.** Orthoimage showing the 3D model of Trenches I and II, and excavated architectural remains (generated in Agisoft PhotoScan, photogrammetry and drawing by P. Ghasemi).

interiors of two rooms, has a foundation made of small stones over which square bricks have been laid to a height of 10 cm. A foundation of this kind was also constructed for the inner principal walls. The main reason for this feature seems to have been to prevent the walls from attracting moisture. Some entrances have two or three steps for entering the rooms. In the north side of the entrance to Room 3, a door socket in stone was built inside for the door to open into the inner room.

In the northern segment of the corridor, the foundation of a mud-brick structure of unclear function (**Fig. 16: Loc. 4**) and a cobblestone floor measuring 3 × 2.5 m, stretching along the unexcavated parts of the northwest, were found (**Fig. 16, Loc. 3**). Such structures, together with other stone structures, or stone walls made of dry-laid stone confirm at least the existence of two different architectural phases related to the Sasanian era in this site, as will be discussed in forthcoming publications.

### **Faunal remains**

The animal remains of TQS can be counted among the rarest faunal assemblages from the Sasanian period ever studied on the Iranian Plateau. In the first season of excavation, a total of 513 animal bone fragments were recovered in 12 different contexts, as well as some remains with unknown provenience. The faunal assemblage of TQS can be considered to be well preserved, in that less than 5% of the remains are totally unidentifiable. However, some of the remains could only be allocated to large groups of animals categorised as Large and Medium Mammals (LM, MM). The former (LM) includes bones of animals of the size of cattle and horse; the latter (MM) includes all animals of the size of pig, sheep/goat and dog. So only 17% of the remains have not been identified to a taxonomic level, which is very reasonable compared to other sites in Iran.

The great majority of the animal remains belong to caprines (sheep and goat). The category Small Ruminants (SR) includes all elements that could not be identified more precisely between wild and domestic caprines or gazelles because of their fragmentation and/or lack of diagnostic criteria. The higher fragmentation of the bones allocated to SR is clearly visible in the ratio of NR and Weight (**Fig. 17: A**). Thus, the Small Ruminants include bones of sheep and goat and potentially increase the importance of domestic caprines in this assemblage. The caprine remains were identified, when possible, to the level of genera and species using anatomic criteria.<sup>70</sup> At TQS, goat outnumbers sheep (**Fig. 17: B**). This might be an indication of a degraded environment due to over pasturing; however, more data should be collected to confirm this hypothesis.

Cattle are the second-most important exploited animal. Only four remains of equids were identified in the whole assemblage. Two could be measured and according to their metric analysis<sup>71</sup> appear to belong to a donkey. It is unclear if the animal was consumed or used as a pack animal. The presence of suids (boar and pig) is important at the site. The preliminary metric analysis places the analysed specimens within the range of domesticates of a small size, except one

<sup>70</sup> Boessneck 1969; Payne 1985; Clutton-Brock *et al.* 1990; Helmer and Rocheteau 1994; Zeder and Lapham 2010.

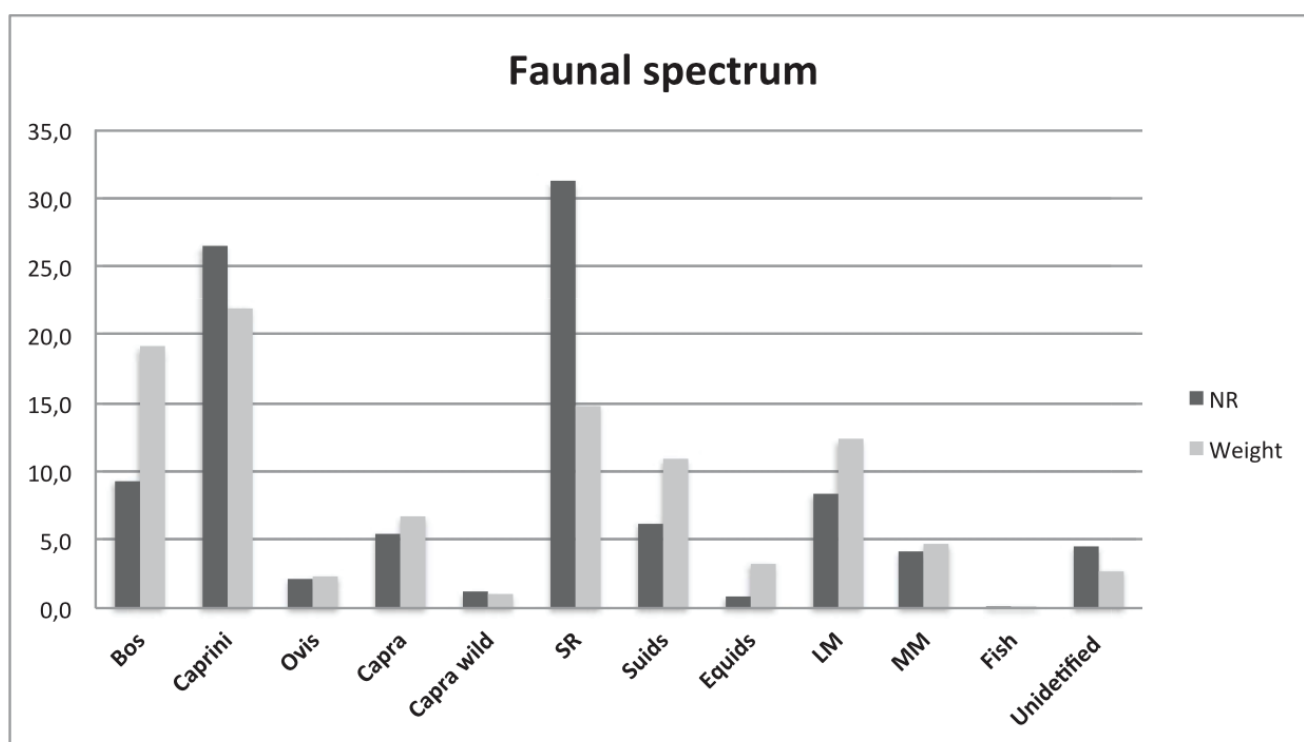
<sup>71</sup> Mashkour and Fathi 2014.

Locus	Bos	Caprini	Ovis	Capra	Capra wild	SR	Suids	Equids	LM	MM	Fish	Unidentified	Total NR
2006	29,2	14,7	9,1	3,6		4,4	12,5	25,0	9,3	9,5	100,0		10,7
2010	33,3	8,8	9,1	10,7		9,4	9,4		9,3	28,6		26,1	12,9
2012		3,7				1,9	3,1						1,8
1010	2,1	25,7	9,1	39,3		47,5	9,4		30,2	0,0		47,8	29,4
2001		0,7					3,1		4,7	23,8			1,8
2005	2,1	0,7	9,1	3,6		2,5			2,3	0,0			1,8
2007		5,1		7,1		2,5	6,3			9,5			3,3
2008		0,0					15,6			0,0			1,0
2014	10,4	17,6	9,1	17,9		6,3	3,1	50,0		28,6			10,5
2015		5,9	9,1		16,7	15,0	6,3	25,0	7,0				7,8
3001	2,1	0,7					6,3		18,6			4,3	2,5
4004		2,2	9,1										0,8
blank	20,8	14,0	36,4	17,9	83,3	10,6	25,0		18,6			21,7	15,8
<b>Total</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>

SR = Small Ruminant

LM = Large Mammal (Size Cattle, Horse)

MM = Medium Mammal (Size Sheep, Goat, large Dog)



**Fig. 17.** A. Relative distribution of faunal remains in each context;  
B. Relative distribution of faunal remains (M. Mashkour).

that could be attributed to wild species.<sup>72</sup> Nonetheless, the relatively high percentage of the remains (around 6%) present in the assemblage tends to suggest these animals were a managed population. Further studies need to be conducted to better define the status of these animals.

Finally, some remains of wild goat have also been identified indicating that hunting in mountainous areas surrounding the site was practised by the inhabitants of the site. Also, we

<sup>72</sup> Mashkour and Fathi 2014.



should add the presence of a single fish bone in the assemblage that has not yet been identified taxonomically and was probably from the Parišan lake.

The faunal remains of TQS have shown a great potential for the understanding of animal exploitation in a non-residential or administrative centre of the Sasanian Empire. The varieties of animals here show that the population or workforces of this centre produced and consumed the meat of domestic animals. They also hunted wild species, which was one of the Sasanians' main interests and probably represented the second source of meat supply. The Sasanian kings in hunting scenes can be found on metalwork (mostly silver dishes), rock reliefs (the hunting panels of Tāq-e Bostān), seals and bullae, wall decorations, etc.<sup>73</sup>

## Conclusion

Despite the mass of new evidence recovered from the first season of excavation at TQS, there remain some important unanswered questions: What was the role of TQS, only c. 25 km from the city of Bišābuhr? Was TQS established in the early or later part of the Sasanian period? What was the level of commercial and economic communication between TQS and other Sasanian cities or centres in Fars? What was the condition of this centre when the Arab Muslims captured Bišābuhr and the surrounding area in Bišābuhr province?

Despite a long history of more than four centuries and a vast territory, the archaeological understanding of the Sasanian Empire (224–651 AD) in comparison with its western rivals such as the Roman and Byzantine Empires is still limited. This dearth of knowledge is primarily due to the lack of specialists focusing on this period and the absence of consistent and systematic field research on the Iranian Plateau, the homeland of the Sasanian Empire. Unlike during the 19th century, contemporary archaeological fieldwork on this period has largely halted in the Iranian Plateau, especially in the Fars region.

TQS is clearly a key archaeological site, located in the birthplace of the Sasanian Empire in southwestern Fars. The first season of archaeological excavation there presents evidence related to the grand policies of the Sasanian Empire: the sophisticated administrative system, division and subdivisions, and economy based on trade and large-scale agriculture. Along with Qasr-e Abu Nasr (Šīrāz) and Takht-e Soleymān, this site is the third Sasanian centre to bear material evidence of the Sasanian administrative reforms in archaeological contexts.

The main reason for the formation and expansion of the site appears to have been its location, as it was built at the junction of trade networks and royal routes which connected the centre of the Fars region (Staxr, Bišābuhr, Ardašīr-Xwarrah, etc.) to the Persian Gulf, Khuzestan, the capital (Ctesiphon) and other parts of the Sasanian Empire. It is clear that most of the objects made of stone, ceramic and metal were produced *in situ*. The similarity between material culture at this site and at Qasr-e Abu Nasr shows that these two sites were in close contact with each other within the Fars region during the Sasanian period. We have reason to believe that the Sasanians may have built many economic hubs like TQS in different regions or provinces of the Sasanian Empire to develop the regional and imperial economy.

<sup>73</sup> Harper 1978, pp. 16–149; 1981, pp. 40–42.

The architectural remains of TQS illustrate that a set of buildings consisting of several rooms and spaces were used for storage, archives and workshops. Insofar as these rooms are rather small, they reveal new characteristics of Sasanian architecture. The materials used for constructing the buildings include mud brick, bricks, gypsum and stone, which are rather abundant around the site. There are also many similarities between the finds from this site and other Sasanian sites from Fars to Panjikent. Before the results of <sup>14</sup>C dating analysis on the carbonised date fruits are obtained, any absolute dating is impossible. However, many clay administrative bullae were found during the season; these are generally believed to have appeared in the last two centuries of the Sasanian period (531–651 AD) and continued to be used into the post-Sasanian period. Based upon the evidence from this season of excavation, we can provisionally assert that this site was founded during the Sasanian period. Furthermore, in comparison with Qasr-e Abu Nasr, Bišābuhr, Staxr and Ardašīr-Xwarrah, there is no obvious evidence of the Islamic period in TQS. With a single season of limited excavation, however, it is too early to conclude that the site of TQS was abandoned before the Arab invasion of Fars and Bišābuhr province, or to speculate about the cause of its abandonment.

Date palm was a part of the Sasanian population's diet and was produced largely in Bišābuhr province for local and regional consumption, for feeding the urban population, and for trade and export. It was probably among the most important and popular agricultural products of that time in this province. It can be concluded that the cultivation and production of dates on a large-scale provided a significant number of local jobs and was necessary to feed the rapidly growing Sasanian urban population. Most certainly, Parišan Lake and the Kāzerūn highlands were the habitats of some of the wild and domestic animals whose remains have been discovered at TQS. This evidence shows that the workforces or inhabitants of this centre consumed the meat of domestic animals and also hunted wild species.

With the recovery of large vats filled with date fruits inside the architectural spaces, and thousands of other sherds belong to large pithoi, the excavations presented here attest that another function of the site was as a place for the collection, storage and processing of date palm products. Moreover, based on the remains of agricultural products and the large number of administrative seal impressions belonging to the regional administration of the *mowūh* "office of the mages", we can conclude that this site is one of the best Sasanian sites for elucidating the late Sasanian fiscal reforms in agriculture, especially the cultivation of date palms on a large scale. The system of taxation in Bišābuhr province appears to have been managed by the *mowūh* administration which included mages with various skills such as judge. It is clear that there was a tax base (office) in this place for the collection of tax revenue on agricultural or arboriculture production.

The location of TQS along the western routes of Fars, and its geographical proximity to the cities of Bišābuhr, Jereh and SarMašhad (Ghandejan/Dašt-e Bārin) suggests that TQS was one of the main active centres within the province of Bišābuhr, connecting the main cities to regional and/or local centres, and playing an important role in regional and international networks, markets, trade and the economy. It is almost certain that the site was a hub for economic and administrative centres in the Bišābuhr province.

Based on the evidence obtained thus far – the surface studies, the size of the site and the large quantity and variety of finds discovered there – it can be concluded that TQS was an important provincial administrative, economic and trade hub in the Fars region during the Sasanian period. This site, along with Qasr-e Abu Nasr (Šīrāz), played a significant role in the local and

regional economy and trade. It is no surprise that in just one season of limited excavation so much archaeological evidence related to the complex administrative system, political divisions and trade and agriculture was found. These findings need now to be interpreted in detail and it is obvious that they cannot be summarised in a single preliminary report. Analysis of the excavated material to set this site in its regional and historical context is continuing and will be presented in future publications. Further seasons of excavation will soon focus on developing a better understanding of the site as a whole and its function within the regional and provincial contexts.

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