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SOCIO-ECONOMIC TRANSFORMATIONS IN THE TEHRAN PLAIN:
FINAL SEASON OF SETTLEMENT SURVEY AND
EXCAVATIONS AT TEPE PARDIS

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Abstract
Two further seasons of excavations at Tepe Pardis and survey in the Tehran Plain were undertaken in 2006 and
2007. The former exposed over 70 square metres of mudbrick structures dating to the Transitional Chalcolithic,
including five kilns. The presence of these kilns, in association with a terracotta slow wheel, confirms the
presence of a highly specialised production site. We have also confirmed the presence of kiln debris on the
southern side of the mound, suggesting that the industrial zone encapsulated much of the mound. The
importance of Tepe Pardis was further confirmed by the discovery of a badly damaged Iron Age cemetery to the
north of the main site. Our geoarchaeological exploration of the quarry continued with the logging of a number
of large natural water courses, enhancing our understanding of Tepe Pardis’ ancient landscape. Finally, a further
season of settlement survey was undertaken at the edge of the desert south-east of Pishva.

Keywords
Kilns; ceramic production; Iron Age cemetery; Tehran Plain; Transitional Chalcolithic.

I. INTRODUCTION
Motivated by the destruction of archaeological sites
within the Tehran plain, the University of Tehran, the
University of Bradford and the Iranian Cultural
Heritage, Tourism and Handicraft Organisation
(ICHTHO) developed a spatial and temporal study of
settlement within a block of 1500 square kilometres
from the beginning of the Holocene to the end of the
Chalcolithic. Augmented with staff from the
Universities of Durham, Leicester, Kingston and the
Azad University, we are focusing on the transformation
of simple, egalitarian Neolithic communities into more
hierarchical Chalcolithic ones (c. 6200–4000 B.C.)
(Coningham et al. 2004, 2006). Supported by the
British Academy, the ICHTHO and the British Institute
of Persian Studies, the present report presents the
preliminary findings of our final season of settlement
survey as well as two seasons of excavation and geo-
archaeological investigations at Tepe Pardis.

II. FURTHER EXCAVATIONS AT TEPE PARDIS
Following the successful excavation of part of a kiln
dating to the Transitional Chalcolithic Period in 2004
(Coningham et al. 2006), we decided to augment our
vertical trench with a horizontal trench either side of
Trench I and, in so doing, expose more of the kiln
structure. As a result, Trench III was laid out to the east
of Trench I and measured 8 m. by 8 m. Trench IV was
laid out to the west of Trench I and initially measured
8 m. by 8 m., however, it was later extended a further
5 m. to the west in order to expose more of the
structures encountered there (Fig. 1). As both trenches
were covered with modern rubbish and spoil from the
quarry, these were removed by hand, exposing cut
marks from the quarry machinery. The cleaned surface
was uneven with a 2 m. difference in height from the
north-east of the exposed area to its south-west, and it
included a 1 m. deep machine cut in the north-east
quadrant of Trench IV.
II.1. Trench III

As noted above, the aim of the horizontal excavations at Tepe Pardis were focused on fully exposing the mudbrick kiln excavated in Trench I. Our two seasons of excavations have now confirmed its function as a large kiln (Kiln 1) and have also exposed the presence of a second large kiln to its immediate east (Kiln 2) (Fig. 2). Together, they cover an area of 32 square metres and the presence of additional wall alignments to their north, east and south suggest that other structures were also present; for example, features 3077, 3082 and 3023 may
be badly damaged kilns. The layout and internal features of Kilns 1 and 2 suggest that they were capable of firing large storage vessels and that during the Transitional Chalcolithic period, the inhabitants of Tepe Pardis had invested substantially in their industrial infrastructure.

The most complete kiln exposed in Trench III, Kiln 2, was housed in a rectangular mudbrick structure measuring some 4 m. east–west by 3 m. north–south (Col. fig. 7). Protected by walls surviving to a height of 0.6 m., its interior walls and floors were plastered and its roof supported by two free-standing plastered mudbrick pillars of 0.8 by 0.5 m. (3042 and 3066). Its floor was scattered with large broken sherds, ash and degraded mudbrick. Its western side was preserved to a greater height on account of its proximity to the tell site and still contained two compartments, each of which measured 1.4 m. east–west and 0.6 m. north–south. Separated from one another by a low moulded wall, the remains of other moulded compartments was visible in the eastern side of the kiln although less well preserved. Kiln 1’s western wall also formed the eastern wall of the kiln exposed in Trench I (Kiln 1). It is possible that the continuation of Kiln 2’s western and eastern walls formed a courtyard to the north of the kiln, certainly the area between these walls had substantial deposits of ash and large broken sherds.

Its western neighbour, Kiln 1, was also well preserved with some walls standing to a height of 1.5 m. and its excavated portion formed a simple straight-sided shape (Col. fig. 8). As noted above, its eastern wall, which formed the western wall of Kiln 2, measured 4.0 m. long and 0.35 m. Constructed of two rows of mudbricks measuring 0.17 by 0.17 by 0.09 m., its western plastered face was fired by heat and was preserved to a height of 0.9 m. Its northern wall was 3 m. long with a thickness of 0.35 m. and survived to a height of 0.8 m. with plaster on both sides. Its fills included fired brick rubble (3036) and a layer of dark ash (3051) above the prepared clay floor. Amongst the collapse on the ash floor deposit, a number of large fragments of reed-impressed clay were recovered. An Early Chalcolithic grave (3036) had been cut down into the wall dividing the kiln. The crouched inhumation was on its side facing south and although badly damaged, it was associated with cowrie beads.

II.2. Trench IV

The two seasons of excavations in Trench IV revealed a complex of walls and kilns that were recorded as 90 contexts. Its upper levels (contexts 4000 and 4001) contained a mixture of modern waste, and Iron Age and Chalcolithic ceramics, but below their 62 cm. extent, we exposed ‘in-situ’ deposits. Most features related to Trench IV’s three kilns (4046, 4024 and 4008) and confirm the presence of substantial industrial activity during the Transitional Chalcolithic occupation of the site. Disturbed features included a number of badly truncated walls (4017, 4012 and 4037) as well as a partial burial which had been very badly damaged by quarry machinery. The latter, though crushed and cut, was associated with beads of turquoise, agate, shell and lapis lazuli. In addition, we exposed the surfaces of a number of walls badly disturbed by quarry machinery, wall 4017 ran north–south, wall 4012 ran north–south and wall 4037 also running north–south. Although uncertain as to the function of these walls, Trench IV contained three extremely well preserved kilns, all conforming to the same plan and associated with the manufacture of smaller objects and vessels.

A complex of cardinally-oriented mudbrick walls centred on a kiln (4046) was identified in quadrant 5 at the western end of Trench IV (Col. fig. 9). The western edge of the complex was defined by a 2.6 m. long wall (4050). Although running under the baulk, wall 4050 was three bricks thick and ran north–south and survives to a height of 0.30 m. Wall 4050 joins east–west wall 4052 to the north of the kiln opening. The latter is largely destroyed but a single length of eight bricks survives ‘in situ’. Parallel to wall 4050, the eastern edge of the kiln is defined by wall 4048, which is 2.90 m. long and three bricks wide. It survives to a height of 0.3 m. and its line is continued to the north by wall 4058. Wall 4058 terminates by joining wall 4059, thus completing a rectangular enclosure in front of the mouth of the kiln. Measuring 2.7 m. by 1.6 m., this enclosure contained a mass of ash, partially-fired ceramics, near complete ceramic vessel and clay debris (context 4053). Special finds included two terracotta spindle whorls, one terracotta bead and two terracotta slingshots.

The mudbrick kiln itself measured 1.6 m. north to south by 1.3 m. east to west and comprised four cardinally oriented compartments. The south-west compartment measured 0.95 m. by 0.55 m., the south-east 0.95 m. by 0.60 m. and the north-west and north-east both measured 0.65 m. by 0.60 m. The two northern compartments are 18 cm. lower than the southern units but the eastern and western compartments are separated by a dividing wall. Formed on a line of nine mudbricks, this division survives to a height
of between 0.1 and 0.15 m. and there is a circular depression in the north-east compartment, perhaps a permanent position for vessel firing. The kiln walls were formed of smooth clay plastered over a base of small pebbles and fine sand and the highest surviving portion of wall reaches a height of 0.15 m. The contents of the compartments were a mix of ash and clay and contained no special finds with the exception of Transitional Chalcolithic sherds, although a number of fragments of burnt clay with reed impressions were recovered.

A second complex of cardinally-oriented mudbrick walls, centred on a kiln (4024), was identified in quadrant 4 (Col fig. 10). Adjacent to Kiln 4046, it measured 1.5 m. north–south and 1.85 m. east–west and was plastered inside and outside with a wall on three sides. The wall had a maximum height of 0.37 m. and was constructed of a double width of bricks which had been subject to intense temperatures. Sharing a similar plan to Kiln 4046, its four compartments were divided by a 0.1 to 0.27 m. high internal wall. With a 0.1 m. height difference between the eastern and western floors, the north-east compartment measured 1.2 by 0.8 m., the south-east 1.2 by 0.65 m., the north-west 0.9 by 0.7 m. and the south-west 0.65 by 0.6 m. As with the front right compartment of Kiln 4046, Kiln 4024's front right compartment also had a moulded circular base. The presence of 38 sling shots and a spindle whorl within the fill of the kiln suggests that it was designed to fire small objects. A terracotta slow wheel was recovered outside the kiln to its north-east. A unique discovery in Iran, it had a diameter of 0.36 m. and a thickness of 0.12 m. and still contained a pivot of animal bone (Co. fig. 11).

The third kiln, 4008, was located in Trench IV quadrants 3 and 4 and again comprised four compartments (Col. fig. 12). Oriented east to west, the kiln measured 1.3 m. east–west and 1.0 m. north–south and there was a 0.1 m. difference in height between the northern and southern compartments. The south-east compartment measured 0.85 by 0.35 m. and the north-east 0.85 by 0.53 m., although the south-west and south-east compartments were both damaged. It is interesting that the south-west compartment, although damaged, was circular with a 0.7 m. deep circular depression in its centre with a diameter of 0.2 m. This latter feature is shared with Kilns 4024 and 4046. The internal wall separating the eastern compartments was between 0.08 and 0.1 m. thick and survived to a height of between 0.09 and 0.13 m. The kiln contained sherds of Transitional Chalcolithic ceramics, some bone fragments and two clay tokens. Noteworthy is the recovery of a single blade of obsidian from within context 4005.

II.3. Trench VII

During our 2007 season, a trench was opened on the south side of the mound in order to sample the archaeological sequence of the tepe in that location. Measuring 2 m. by 1 m., it was designed to evaluate the vertical sequence of the site rather than to encounter structural remains. The first 2 m. of the trench contained mixed modern rubbish and archaeological materials washed down and collapsed from the tepe, but ‘in situ’ remains were exposed below. With a total depth of 7 m., the trench contained evidence of Transitional Chalcolithic occupation and 1 m. of Late Neolithic deposits at its base. Most importantly, the presence of collapse material associated with kiln structures, suggests that the Transitional Chalcolithic settlement at Tepe Pardis was a settlement focused on ceramic production.

III. THE PREHISTORIC CERAMICS FROM TEPE PARDIS

Chronologically, all well preserved contexts exposed in the 2006 and 2007 seasons of excavations are directly related to the Transitional Chalcolithic period. These are sealed below a shallow deposit of disturbed material with a mixture of Middle, Early and Transitional Chalcolithic ceramics. Amongst the more notable finds are sherds of Early Chalcolithic Plum Ware, previously only recovered from Ghabristan in the Qazvin plain and from Ozabaki near Karaj (Fazeli et al. 2004). These ceramics confirm our earlier assumptions concerning the long-term occupation of the site. Although our preliminary reports have already published a number of the Transitional Chalcolithic ceramics from Tepe Pardis (Fazeli et al. 2004, Coningham et al. 2004, 2006), we are illustrating here two previously unknown forms, and another vessel of note, they are:

- Two simple flat bottomed bowls with straight bodies (Figs 3, 4 and Col. fig. 13). The diameter of both bowls is 24 cm. and their heights are 14 cm.
They both have a surface colour of 2.5YR 4/6 (red) and one is undecorated but the second has a simply painted base. Both bowls have a small hole in the centre of their bases and are coated with thick layers of slip; combining these features with their find context in a manufacturing area has led us to suggest that they may have been used for mixing and applying slip to ceramic vessels.

- One open bowl with an everted rim above a distinctive internal kick carination (Fig. 5 and Col. fig. 13). The vessel’s diameter is 22 cm. and its height is 15 cm., and technologically it shares similarities with Halaf pottery although the colour and paint is very different. Both interior and exterior were painted with a net pattern and simple horizontal and vertical motif. Interestingly, the decoration was not carefully applied and is also asymmetrical. The vessel is missing a base.

In addition to these examples, a complete 78 cm. high storage jar similar in size to the example published in 2006 (Coningham et al. 2006: fig. 6) (Col. fig. 15) was recovered from Trench III. The presence of a second jar adjacent to two large kilns suggests that they may be wasters. Indeed, many of the ceramic vessels recovered in Trench III and IV are unevenly fired, suggesting that they formed part of the debris associated with manufacturing ceramics.

IV. THE IRON AGE CEMETERY AT TEPE PARDIS

Of the 94 archaeological sites recorded during our three seasons of survey, only two were attributable to the Iron Age—Deh Mohsen (A20) and Tepe Davoudabad (A50). It was thus with surprise that during preparations for the second season of excavations at Tepe Pardis in 2006, members of the Institute of Archaeology identified sherds of grey ware ceramics in clay excavated by machinery 175 m. to the south-west of the tell within the quarry. The clay was sieved by hand and a number of complete vessels and sherds attributable to the Iron Age were recovered. Following the identification of their original location, some 1.5 m.
below the modern surface, a rescue excavation was commenced in 2006 and completed in 2007 as human remains and associated vessels were exposed on the surface of the quarry.

IV. Trench VI

Trench VI measured 10 m. by 10 m. and was divided into four equal quadrants. During both seasons, the team worked mainly within quadrant 2 with some rescue recovery in quadrant 1. Scattered surface material was collected as context 6000 and near-complete forms of grey ware included a round-bottomed bowl, a jar with an everted and beaded rim, a jar with an everted rim and a beaker with a hatched band. In addition to this disturbed material, a total of nine discrete assemblages of artefacts and human remains, demarking inhumations, were identified. All had been compressed and damaged by the heavy machinery used in the quarry but it was possible to reconstruct the profiles of a number of vessels (Col. figs 16 and 17). Although carefully exposed during excavation, the extremely disturbed nature of the surface made it impossible to identify burial cuts, or indeed any stratigraphic relationships between inhumations within the trench—confirming our decision to horizontally excavate by spits.

Grave 6001 contained a single flexed inhumation oriented east to west with the skull on its left side facing north. Although damaged, grave goods included a grey ware tripod dish and a red ware sieve at its feet with a grey ware beaker in front of the skull. Three bronze objects were also recovered, including two 0.2 m. long pins from behind of the cervical vertebrae, presumably hairpins, and a plain finger ring. Grave 6002 comprised a badly damaged sub-juvenile skeleton, of which only ribs and teeth remained, and a single grey ware beaker. Two exposed beakers and one flask were recovered from Grave 6003 but the inhumation itself was reburied at the end of the season. Grave 6004 contained a well-preserved flexed inhumation oriented east to west. The skull was at the western end of the grave and faced north. Grave goods included two grey ware beakers, one spouted jar, one deep flat-bottomed bowl, one round-bottomed bowl and a tripod dish. One beaker, decorated with a hatched band, was located above the skull whilst all the other vessels were below the feet. The round-bottomed bowl and spouted jar were both placed within the tripod along with a sheep skull and a 0.19 m. long bronze blade. Other grave goods included two 0.11 m. long bronze pins behind the skull, and agate and bronze beads in the neck area. Grave 6007 was too badly damaged by machinery for any of its features or grave goods to be reconstructed. An exposed grey ware beaker and handled bowl was removed from Grave 6006 but the inhumation itself was reburied at the end of the season and was fully excavated in 2007. Grave 6008 was unique amongst the others at Tepe Pardis as it contained a double flexed burial oriented east to west and both skulls were at the western end of the grave facing south (Col. fig. 18). The burial on the north side of the grave has its left arm placed on its raised knee and its right arm under the mandible while the southern burial has its left arm straight down the side of its body and its right arm placed on its left clavicle. The right leg of the southern burial is flexed behind the body in a strange posture, implying a deliberate post-mortem manipulation. The southern burial had a plain bronze bangle on its right wrist, a 0.25 m. long bronze blade, a beaker in front of the skull and a tripod dish with a diameter of 0.20 m. below its feet. The northern burial had a round-bottomed bowl behind its skull and a tripod dish with a diameter of 0.34 m. below its feet. Finally, badly damaged grave 6009 only contained a skull with two grey ware vessels, a round-bottomed bowl and a bowl on stand.

V. FURTHER GEOARCHAEOLOGICAL ANALYSIS AT TEPE PARIDS

Further sample collection and granulometric analysis of sediments was undertaken in 2006 and 2007 in the quarries in the vicinity of Tepe Pardis, together with the logging of sections, in order to establish the chronological relationships between river channel sequences noted and partially mapped out in 2004 and to ascertain the variable nature of energy levels in its river sequences. In addition, samples were collected for the thermo-luminescence dating of river sands that had not been previously dated. This includes the large river channel to the north of the site, smaller channels that run parallel to Tepe Pardis as well as the tepe’s artificial channel (Coningham et al. 2006: 51) for comparative purposes. The latter channel has been well dated using radiocarbon measurements and ceramic comparisons, while the natural river channels have no associated charcoal remains and ceramics and are thus ambiguous. It is hoped that TL dating will enable us to relate these
channels to the tepe and general rates of sedimentation. The location of river channel samples were plotted using GPS and linked by total station to Tepe Pardis, and initial findings suggest that the irrigation channel was not the lowest point in the general sequence of channels across the quarry—the lowest being a natural river channel at site GG07c.

Further quarry survey was also undertaken to ascertain the extent of past river deposits, the number of channels and their direction of flow. At one point (35° 26.880'; 51° 35.692') a 4 m. cutting made by the brick works had cut through a series of 3 to 4 m. wide stacked channels and had left cross sections on both sides of the cutting. This meant that an accurate three dimensional picture of flow direction was available, which was from the north-east to the south-west. These smallish channels often had gravel lags at their base, with some cross-bedding of sands above this, fading into more massive sandy deposits. The thickest channel was around 0.40 m. thick and the cross-bedding dipped to the north-west on one section and to the north-east on the other, indicating that it was part of a meandering stream with the development of point-bars. There are also small channels, only 0.05 m. or so thick, which are typical of braided streams with fine gravels, laminated clays and sands. The presence of such sequences suggests a braided system that became more substantial through time developing into a meandering stream—highlighting fluctuating energy levels. There are also episodes of drying out represented by thin pink clay horizons—a return to wind-blown deposition.

Further afield (35° 26.852'; 51° 35.498'), a very substantial river infill was located at the far western edge of the quarry. This deposit jutted out into the remains of the quarry and had been preserved because of a roadway leading to a kiln and chimney at one end. This sequence consisted of gravel lags, cross-bedded sands, more massively bedded sands and bore a striking similarity to the scoop-shaped braided channel sands full of ceramics that had been noted in 2006 in a basement foundation trench adjacent to the Chalcolithic tell of Mafinabad. However, the Pardis example contained only non-diagnostic ceramics but its 60 m. long-section clearly demonstrated the variety of channel structures and shallow but regular channel forms of a braided stream system that had developed into a substantial channel at least 11 m. across. This was therefore a permanent water feature for some time, with strong flows, building up a series of point bars in a meandering to braided river system. The channel was aligned in a north-north-east to south-south-west direction, with cross bedding dipping in one part to the north, showing the development of northwards building point bars representing a bend in the river system. Samples of these newly observed river channel sequences were collected for granulometric analysis.

Finally, sediments associated with the Iron Age cemetery at Tepe Pardis were also investigated with new sections cut at 3 locations (GG07a to GG07c). One section was cut south of the cemetery (GG07a) and sedimentary logs were undertaken. The section consisted of rubbly looking clays with some silt, with no sedimentary structure, typical of wind-blown sediments. Occasional clasts and historic pottery fragments were noted and a block of sediment was taken for soil micromorphological analysis, although material will also be utilised for pollen and granulometric analysis. A short core sample was also collected at this section for TL dating. A similar sample was taken from a gently sloping diffuse red clay horizon within the cemetery itself. The only stratigraphic feature within the cemetery, it bore the hallmarks of a past land surface, but will need to be investigated further. Section GG07b, just to the north of the cemetery site consisted of four distinct horizons, a basal clay with a disturbed upper surface, and three distinct silty clay horizons with small clay clasts. The basal clay has been subject to erosion at its upper surface by the strength of the overlying flow, and possibly to soft sediment deformation from water saturation in its upper surface. Bed 3, was similar in many respects to Bed 2, but contained disseminated ash giving the bed a grey coloration and probably represents deposition from sheet or hillwash processes. At site GG07c, sedimentary logs were also taken, and close inspection of the sequence revealed a sand bed representing a channel sequence, with a similar erosional base to that of Bed 2 at GG07b, suggesting rapid, probably sand saturated flow initially, eroding down into the underlying clay, before deposition. The clay top surface also showed evidence of water saturation with some flame type structures being present. The sandy bed was a coarse sand at the base with clay inclusions, becoming finer and grading into silty clays, suggesting waning energy levels. This sand sequence, over 0.40 m. thick, did not demonstrate any cross-bedding, but does indicate substantial flow for a significant period of time. Above the sand and silty clay there are clays with silt, followed by thin sands followed by thin bands of red clay (two noted in total) about a centimetre thick,
that probably represent past land surfaces. Both the basal clays and the sands were sampled for TL dating and pollen analysis, and a kubera tin sample was also taken from the sands for soil micromorphology.

VI. SETTLEMENT SURVEY AIMS

As previously noted (Coningham et al. 2006), the aim of the settlement survey is to map the spatial and chronological distribution of sites and settlements within the plain’s three environmental zones—the southern foothills of the Alburz mountains, the flat central plain and the northern desert margin. Modern and historical settlement has clustered in the central plain area, not least because of the extensive and effective qanat irrigation network, which has permitted exploitation of this potentially fertile zone. The limited archaeological activity in the region has also been focused on this central plain region (Coningham et al. 2004), and these two factors have contributed greatly to the development of normative models of settlement which place sites in the central plain (Fazeli 2001). By carrying out survey across all three environmental zones we will be able to produce results with which such models can be tested.

VII. SETTLEMENT SURVEY METHODOLOGY

In 2006 our aim was to extend our survey down into the desert fringe in order that all three environmental zones (foothills, central plain, and desert fringe) were sampled (Fig. 6). In line with our aims, we walked four transects in 2006, each 5 km. long, 100 m. wide and walked by five archaeologists 15 m. apart. Site definition remained unchanged from previous seasons (Coningham et al. 2006: 55) being the presence of a feature, a single lithic, or a ceramic scatter of five sherds per m.² or greater. Sites were recorded using GPS (Global Positioning System) units, photographed and sketched. Samples of ceramics, lithics and any other diagnostic materials were collected and catalogued at the project base in Garchak for

![Fig. 6. Map of the Tehran Plain showing the location of Tepe Pardis and the 2006 survey zone.](image)
Fig. 7. View of Kiln 1 in Trench III.

Fig. 8. View of Kiln 2 in Trench III.
Fig. 9. View of Kiln 4046 in Trench IV.

Fig. 10. View of Kiln 4024 in Trench IV.
Fig. 11. Colour view of the Terracotta slow wheel recovered from Trench IV.

Fig. 12. View of Kiln 4008 in Trench IV.
Fig. 13. Transitional Chalcolithic flat bottomed bowl from Trench IV.

Fig. 14. Transitional Chalcolithic bowl with everted rim from Trench IV.
Fig. 15. Transitional Chalcolithic storage vessel from Trench III.
Fig. 16. Iron Age vessels from Trench VI.
Fig. 17. Iron Age vessels from Trench VI.
Fig. 18. Colour view of Double burial 6008 in Trench VI.
subsequent analysis by specialists. Site location factors such as topography, vegetation, nearest water resources, current land use and threat to site were also recorded, thus allowing us to build up a comprehensive picture of past and present issues affecting sites.

VIII. SETTLEMENT SURVEY RESULTS AND DISCUSSION

Seventeen sites were located and recorded through transect survey, and one further site was located and recorded through non-random survey. The initial chronological period assigned to each site on the basis of surface finds and features is shown in Table 1, and by far the greatest number of sites located in the 2006 desert fringe survey were historic, with no Islamic sites identified. Table 2 shows the sites grouped according to type, and it is clear that as in preceding seasons, the majority of sites located and recorded are ceramic scatters.

**TABLE 1. Transect and non-random survey sites attributed to broad chronological periods**

<table>
<thead>
<tr>
<th>Period</th>
<th>Number of sites</th>
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<tr>
<td>Prehistoric/Chalcolithic</td>
<td>1</td>
</tr>
<tr>
<td>Parthian</td>
<td>1</td>
</tr>
<tr>
<td>Historic/Sasanian</td>
<td>11</td>
</tr>
<tr>
<td>Islamic</td>
<td>—</td>
</tr>
<tr>
<td>Modern</td>
<td>3</td>
</tr>
<tr>
<td>No period assigned</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>18</strong></td>
</tr>
</tbody>
</table>

**TABLE 2. Transect and non-random survey sites attributed to archaeological site type.**

<table>
<thead>
<tr>
<th>Site type</th>
<th>Type of site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pottery scatters</td>
<td>11</td>
</tr>
<tr>
<td>Mounds</td>
<td>4</td>
</tr>
<tr>
<td>Landlord villages</td>
<td>1</td>
</tr>
<tr>
<td>Structures</td>
<td>1</td>
</tr>
<tr>
<td>Shrine</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>18</strong></td>
</tr>
</tbody>
</table>

**VIII.1. Prehistoric sites**

One prehistoric site was recorded through non-random (i.e. non-transect survey), and this site was located in the central plain area rather than desert fringe, to the southwest of Pishva. B233 comprised a large low mound (approximately 100 m. wide x 200 m. long) with mid–late Chalcolithic and Iron Age pottery, along with brick and slag on the surface. The site is now surrounded by agricultural activity, and it is clear that this has cut into the edges of the site itself. Pottery is scattered throughout the fields over a very large area, indicating that ploughing and so forth has damaged this site. Illegal excavation was also noted, both for archaeological finds and to obtain soil for spreading on fields. No prehistoric sites were recorded from the transect survey, which contrasts sharply with results from 2003 and 2004 (two and eight sites respectively).

**VIII.2. Iron Age sites**

As noted above, although Iron Age pottery was recovered from site B233, no other Iron Age sites were identified during the 2006 transect survey.

**VIII.3. Parthian and Historic/Sasanian sites**

One Parthian period site (B307) was identified and recorded, comprising a ploughed out mound with Parthian sherds. The pottery now covers an area approximately 400 m. x 4000 m. and the core mound still stands to a height of 3 m. Illegal excavations were also noted at this site. In addition to the Parthian site, eleven other sites were identified and classified as ‘Historic’ in date; nine of these were pottery scatters, and two were low mounds. The pottery scatters were all of significant size (given that a density of five sherds within any given 1 square metre is considered a site), with the smallest measuring 20 m. x 5 m., and the largest measuring 200 m. x 200 m.

**VIII.4. Islamic sites**

No Islamic sites were recorded in the 2006 transect survey, and this again contrasts sharply with the 2003 and 2004 results (6 and 33 respectively).
VIII.5. Modern sites

As in previous years we continued to record the presence of modern sites, however, unlike 2003 and 2004 no modern pottery scatters were recorded. The three modern sites were a structure (thought to be associated with pastoral activity), a mosque and shrine to Imanzade Hadi, and a landlord village.

VIII.6. Site Condition

Of the eighteen sites recorded in the transect survey, two had clearly been subject to illegal excavation and a further three had been damaged by agricultural expansion and activity. This is lower in percentage terms than the number of sites that were recorded as under threat in previous years, but this may well be a function of the more remote location of the whole survey block and the sites themselves.

IX. CONCLUSIONS

This is the final preliminary report of our three seasons of settlement survey within the Tehran Plain and three seasons of excavations and geoarchaeological investigations at Tepe Pardis. In terms of the former, our final season of survey has been very successful and produced some exciting results. In addition to locating 17 new sites through transect survey in the desert area, we have also located and recorded a hitherto unknown Chalcolithic/Iron Age site through non-random investigation. When we compare the results of this season of survey to the results from 2003 and 2004 there is a clear shift in settlement over time—this may be the result of population pressure and spread, increasing irrigation technology allowing settlement of previously marginal areas, or shift in resource exploitation. Having been able to carry out survey over all of our intended zones, and utilising three different methodologies, we are now in a position to begin a detailed analysis of all our data, and develop not only new descriptions of settlement in the Tehran Plain, but most importantly, new models and explanations for settlement distribution and change. Furthermore, we have greatly enhanced our knowledge of alluviation and changes in river channel sequences—an understanding to be further developed when the new TL samples are dated. We have also confirmed that any investigation of early prehistoric settlement in the Tehran Plain must be focused on areas less subject to the depositional regimes of alluvial fans.

Our final two seasons of excavations at Tepe Pardis have also been extremely successful with the exposure of an intensive industrial area of over 60 square metres. More importantly, the five excavated kilns have vastly
enhanced our understanding of the development of ceramic manufacturing within the Tehran Plain. Dating to c. 5000 B.C. (Coningham et al. 2004: 46), we will now be able to compare the technologies and infrastructure at Tepe Pardis with more general studies of kilns in Iran and Western Asia, such as those summarised by Majidzadeh (1977), Ghirshman (1938), Delcroix and Huot (1972), Alizadeh (1985) and Hansen Streily (2000). It is immediately striking from the latter’s study that there is a huge variety in the shape and size of kilns, even from a single site as in the case of Tell Abada. However, even at this preliminary stage, in terms of extant architecture (brick, pebbles and plaster) and the lack of grates, it may be deduced that the three slightly later kilns in Trench IV at Tepe Pardis were probably single-chamber updraught kilns with fireboxes at the front of the structure and vessels on the raised floors behind. They were probably roofed with a dome as indicated by the sloping walls on either side, enclosing areas of 2.08, 2.77 and 1.3 square metres respectively. Whilst these areas compare favourably with those of known examples elsewhere in Western Asia (Bernbeck 1994), our two slightly earlier kilns in Trench III are much bigger with areas of at least 12 square metres each (Fig. 19). Indeed, this difference is highlighted in terms of cubic capacity as Kiln 3033 was also at least 1.5 metres high. At a minimum capacity of 18 cubic metres, it is much greater than other known examples of a similar age, presaging the large installations which, in Hansen Streily’s words, are “generally connected in later periods with palace or temple economy” (Hansen Streily 2000: 80). Certainly, the investment in such installations at Tepe Pardis, mirrored by the investment in permanent terracotta slow wheels, indicates the precocious nature of settlement specialisation in the Tehran Plain in the Transitional Chalcolithic and questions the plain’s later lack of Bronze Age activity. However, these and associated discussions of developing complexity will be addressed in our research monograph.

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Bibliography


