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ARCHAEOLOGICAL INVESTIGATIONS AT ZIYARET TEPE – 2002

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This report describes archaeological excavation and geophysical prospection at the site of Ziyaret Tepe in the Diyarbakır Province of southeastern Turkey and regional geomorphological survey within the Upper Tigris River valley between Diyarbakır and Batman conducted during the late summer of 2002. The overall project director was Dr. Timothy Matney (University of Akron) who also oversaw excavations in Operation A and subsurface geophysical survey on the high mound and lower town. Excavations were directed by Prof. Michael Roaf (University of Munich, Operation E), Dr. John MacGinnis (University of Cambridge, Op. G) and Dr. Monica Smith (University of California—Los Angeles, Operation J). The regional geomorphological survey was directed by Dr. Kathleen Nicoll (University of Oxford). Prof. Simo Parpola (University of Helsinki), the project epigrapher, joined the team toward the end of the season to copy and translate the cuneiform tablets found in Operation G of the lower town.[1]

The goals of the 2002 season were: (1) to continue defining a sequence of well-stratified materials spanning the entire occupational history of the site, focusing on the Middle Assyrian period remains near the top of the sequence and the early second millennium BC and earlier levels in the Operation E step trench; (2) to document the architectural sequence of construction in a Late Assyrian monumental public building, possibly a palace, identified previously in Operation A and to determine the nature of deposits beneath that building; (3) to expand excavation of a well-preserved Late Assyrian structure in Operation G in the lower town to complete a plan of the structure

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Assyrian structure in Operation G in the lower town to complete a plan of the structure and an inventory of its contents; (4) to explore possible Roman-period remains in the lower town previously recovered via surface survey in Operation J; (5) to complete the magnetic field gradiometry survey of the entire 32 hectare settlement initiated in the 1998-1999 seasons and (6) to begin a detailed geomorphological description and reconstruction of the paleoenvironment of the Upper Tigris region. During the 2002 season progress was made towards the completion of all six of these goals. Analyses of samples and processing of data from the excavations is on-going and the material presented in this report should be considered preliminary in nature.

The organization of this report follows the six project goals as outlined above. First, after a brief introduction to the site, reports on excavations in Operations E, A, G and J are given. Significant small finds and ceramics are described within the relevant excavation sections. These are followed by short reports on the microdebris analysis and the lithics from the excavations. Then, the magnetic field gradiometry data collected in 2002 is described and interpreted. Finally, a brief report on the methods and results of the geomorphological and paleoenvironmental surveys, with notes on proposed future exploration, concludes this article.

ZIYARET TEPE AND ITS ENVIRONS

Located within the Diyarbakır province of southeastern Turkey, Ziyaret Tepe is a thirty-two hectare mounded settlement along the right bank of the Tigris River floodplain between the modern cites of Bismil and Batman [Fig. 1]. The high mound at Ziyaret Tepe is located within the area to be flooded by the Ilısu hydroelectric dam (projected completion date is 2014), as part of the on-going Turkish economic development of the region under the GAP initiative. One of the largest ancient sites in the Ilısu salvage area, Ziyaret Tepe has a long occupational history from at least the Early Bronze Age (c. 3000 BC) through the Islamic period, including urban phases during the Late Bronze and Iron Ages, c. 1300-600 BC (Matney et al. 2002).

Ziyaret Tepe and its neighboring archaeological sites are located within the broad alluvial plain carved by the Tigris River as it flows through Miocene-Pliocene tablelands composed of limestone, shale, and conglomerate bedrock. This region has been paramount during antiquity because it is located along a major confluence of routes connecting the Syro-Mesopotamian lowlands with the Anatolian highlands of the Taurus to the north. The scenery alternates between hills (c. 600m above m.s.l.) and wide, open plateaux (c. 540m above m.s.l.) that are commonly irrigated for cultivation in the present day. The topography probably reflects the underlying rocks: conglomerates, limestones and young basalt caprock are more resistant to erosion in this climate.

In the present day, this part of southeastern Turkey has hot summers and cold winters with an average annual rainfall of about 580mm which falls almost exclusively in

the winter months (Türkeş et al. 2002) and is enough to sustain a vegetation typical of the Oro-Mediterranean and steppe forest (Roberts and Wright 1993). Today the natural flora of the area has been perturbed by farming of crops, including cotton and potatoes, which require intensive irrigation efforts within the Tigris Valley.

Ziyaret Tepe consists of a high mound and a surrounding lower town [Fig. 2]. The high mound is located at the northern edge of the site and rises twenty-two meters above the surrounding terrain and is approximately three hectares in area; it has relatively steep sides and a deep ravine on the northern edge, near its northeastern corner. An extensive lower town spreads out twenty-nine hectares to the west, south and east of the high mound. The lower town is generally flat and has been used extensively for dry farming for centuries. A slight rise at the southern edge of the site marks the line of an ancient city wall, as mapped using subsurface gradiometry (see Matney and Somers 1999, and text below). Likewise, the western edge of the lower town is delimited by a drainage (*wadi*), and the eastern edge by a more moderate slope, both bounding the maximum extension of the lower city.

Operation E

Excavations continued in the Operation E step trench on the east side of the high mound in 2002 [see Fig. 2 for location of the step trench]. The work was directed by Dr. Michael Roaf of the Institut für Vorderasiatische Archäologie in the University of Munich, assisted by Diana Stein, Çiğdem Maner, and Ratko Krvavac. The work was financed by the Deutsche Forschungsgemeinschaft as part of the research project "The northern frontiers of Mesopotamia," which also includes the excavations at the nearby site of Giricano Tepe. In the 2002 campaign, the excavations were concentrated in two areas: at the top of the step trench in the grid square N1080 E1180 (with smaller exposures in squares N1090 E1180 and N1080 E1190), and at the bottom where the step trench was extended towards the base of the high mound.

The Middle Assyrian and Later Remains

At the top directly below the surface of the mound various features were uncovered [Fig. 3]. Three circular pits c. 1.8m to 2.4m in diameter, two of which (E-205 and E-212) had been partly investigated in 2001 (Matney et al. 2002: Fig. 22), were excavated. These appear to have been grain storage pits, and may date to the medieval occupation of the site. In addition, four smaller pits c. 0.8 to 1.0m in diameter may also date to the same period. One of these was lined with stones and another with clay or mud-brick; the function of these lined pits is unknown. The northern wall of the well-built building found in previous seasons (Matney et al. 2002: Fig. 22 walls E-237, E-208, and E-013) was identified. The western side of this building was destroyed by erosion, and a southern extension of the building was much damaged by later pits and foundation

trenches. These building remains consisted of walls two mud-bricks wide (each c. 34-36cm square) set in foundation trenches. The associated floor levels were not preserved, being eroded from the top of the mound. The bottom of the foundation trenches stepped up about 0.8m to the west and to the south from their deepest level (wall E-237). The southern part of this building seemed to be cut by the north-west corner of the foundations of a second building again with walls two bricks wide constructed of similar sized mud-bricks. Seven courses of the foundation were identified, but the associated floor levels were not preserved. We have not yet been able to establish whether these structures belong to late in the Middle Assyrian period or are later (i.e. Early Iron Age or early Late Assyrian).

Stratigraphically below these features, there are a series of external erosion surfaces excavated in the northwestern quarter of square N1080 E1180. From one of these pebble and sherd surfaces (ZT6545; E-244) came a fragmentary Middle Assyrian cylinder seal (Fig. 4 discussed below in the section entitled Operation E Cylinder Seals by Diana Stein) and from others, a tanged leaf-shaped bronze arrowhead (ZT6467; E-248) and a bronze finger ring (ZT7639; E-252). The pottery in these surfaces included typical Middle Assyrian sherds, but at the moment we cannot tell if they were formed during or after the end of the Middle Assyrian occupation at Ziyaret Tepe. The erosional surfaces extend over the top of a structure partly excavated in 2001 (Matney et al. 2002: Fig. 22, walls E-211 and E-234), the southern wall of which was investigated in 2002. This structure was terraced into the earlier remains on the west and east and part of the associated floor to the east was excavated. The pottery associated with these features dates to the Middle Assyrian period.

Cut by this terraced structure are a series of walls belonging to rectangular buildings running on a slightly different alignment (just west of north). These walls belong to at least two architectural phases and preliminary investigations have revealed well preserved floors with in some cases complete vessels *in situ* and pebble-paved alleyways between the structures. The details of the plans of the structures are not yet clear, but it should be possible in a future season to investigate profitably the Middle Assyrian occupation on a wider scale in this area.

The Third Millennium BC Remains

The investigations down the slope extended the 5m wide trench to the east of Steps 5 and 6 (Matney et al. 2002: Fig. 20). In Step 5 in 2001 we had found a destruction level that we called the Brightly Burned Building. Judging from the pottery [see below the discussion by Helen McDonald, Figs. 5-8] and its parallels with Middle Bronze Age pottery from Üçtepe and Giricano this building probably dates to the first centuries of the second millennium BC (Sevin 1992; Schachner et al. 2002: Fig. 12.1). The presence of Dark Rimmed Orange Bowls in Step 6 (some 6m below the surface at the top of

Operation E) suggests that these layers belonged to the later centuries of the third millennium BC (Oates et al. 2001: 161-2; Lebeau 2000: 176-7 and 188, Table V).
A further five steps (Steps 7 to 12) were excavated in 2002 each 2.5m wide from E1202.5 to E1217.5. These covered some 8m of archaeological deposits (from an elevation of 559.5m to 551.5m above m.s.l.). Since the surface sloped greatly and the surface layers were contaminated by wash, animal burrows, and other disturbances it was decided to excavate this part of Operation E quickly and not to waste time forlornly attempting to distinguish the details of the stratigraphy. Instead the deposits were removed in artificial layers and the sections examined and drawn so that in the following season we can recover a closely stratified sample of finds from this part of the step trench. Four major building levels could be distinguished, which are separated from each other by thick layers of wash and external surfaces. Since the exposure of each phase is small and little material can be securely associated with each phase the precise stratigraphic sequence and the dating of the various features are uncertain.

The few datable finds including an excised Ninevite 5 sherd (probably a late local imitation), fragments of burnished pedestal bowls, sherds with reserved slip, and a "Burnt Steatite" cylinder seal (ZT3635, E-323) found in the lowest step [Fig. 4] suggest that the whole of this part of the step trench dates to the third millennium BC. Other finds include a limestone macehead (ZT7579; E-317), a bone pin (ZT3639; E-323) and two cylinder seal impressions (ZT3642 and ZT3674, both E-323) one on a jar sealing and the other perhaps a bag sealing.

The pottery from the lower part of Operation E has not yet been studied in detail. A surprising amount of the pottery is of a rather coarse handmade chaff-tempered ware. A number of these sherds have surfaces decorated with fingernail impressions or stab marks. A few sherds have reserved slip and incised decoration suggesting an early third millennium BC date. We have not yet reached virgin soil, which may still be more than 5m below the levels we were excavating in 2002, but it is likely that most of the pottery identified as late Neolithic or early Chalcolithic in the initial surface survey of Ziyaret Tepe in fact belongs to this third millennium horizon, and that the site was first extensively settled in the Early Bronze Age (Matney 1998: 11, 15, 17, Fig. 4.1-3). The total absence of bevelled rim bowl sherds amongst the pottery recovered from the site so far supports the idea that there was no occupation of the site in the Late Uruk period since bevelled rim bowls have been found at other sites in the region such as Çattepe (Velibeyoğlu et al. 2002: Fig. 39.1-6) and Giricano (pers. comm. A. Schachner).

Two Cylinder Seals from Operation E

Two cylinder seals from Operation E were studied in 2002 by Dr. Diana Stein. One is a Middle Assyrian seal (ZT 6545, E-244) and the other is an Early Bronze Age seal (ZT3635, E-323). Both were found in the Operation E excavations and are illustrated in Fig. 4. Below is a discussion of their iconography and dating.

ZT 6545, Locus E-244
Middle Assyrian Cylinder Seal
Description: Cylinder seal. A bucking ibex with a thick curved ridged horn beside the faint outline of a globular shaped tree with a straight trunk. Above the animal's back, the indistinct outline of a round symbol, most likely a crescent and star or a rosette.
Material: Whitish grey material, probably "faience".
Dimensions: 32 x 22 mm (length of impression x max height of impression/seal), d.10 mm, perforation 3.5 - 3.0 mm at break
Condition: A diagonal break has removed the lower part of the design. The seal surface is worn and the impression, therefore, low in relief and faint.
Findspot: Locus E-244 in square N1080 E1180.
Context: The cylinder seal lay on a sloping pebble and sherd surface in association with Middle Assyrian pottery.
Date: Late 13th century BC (Tukulti-Ninurta I) on the grounds of context and style.

Provenanced Comparanda:
Assur: Moortgat 1942: Abb. 27 and 54
Tell Fakhariyah: Kantor 1958: XXIV
Emar/Meskéné: Beyer 2001: Pl. L: G5
Tell al Rimah: Parker 1977: no. 37
Unprovenanced Comparanda:
Porada 1948: no. 601E

Comparisons to the Ziyaret seal come from Assur, Tell al-Rimah, Emar-Meskéné and Tell Fakhariyah where the Middle Assyrian glyptic covers the entire 13th century BC. There are no comparisons from Tell Billa as the sealings there, dated by associated texts, belong mainly in the early and middle part of the 13th century BC (Matthews 1991: 18f). The Middle Assyrian glyptic from Tell Sabi Abyad (Akkermans 1998), which spans the end of the reign of Shalmanesar I and the entire reign Tukulti-Ninurta I, (1234-1197 BC), includes no parallels to the Ziyaret seal but that may be due to the small size of the corpus.

The key to dating the Ziyaret seal lies in the posture of the horned animal, which is typical of the late 13th century BC (Tukulti-Ninurta I, 1234-1197 BC) but is also encountered during the 12th century BC (Moortgat 1942: 16; Mayer-Opificius 1986: 163). Described variously as leaping, prancing, rearing, and collapsing, the animal is shown resting on one bent foreleg, its back arched and one or both hindlegs kicking up in the air. The variety of terms derive from more explicit scenes in which the animal appears to be leaping down from a mountain (Porada 1948: no. 610E), prancing before a tree or an ostrich (Kantor 1958: XXI-XXIII; Beyer 2001: G5), rearing before a human or demonic aggressor (Moortgat 1944: 11, 12, Parker 1977: no. 29) or collapsing under its attack

(Moortgat 1942: Abb. 37; idem. 1944: Abb. 19). Given these varied contexts, bucking (Moortgat 1944: Abb.12) or buckling under also describes this posture.

The animals depicted in this manner are mostly horned and include bulls (Kantor 1958: XXIV, Muscarella 1981: no. 79), mountain goats (Moortgat 1942: Abb. 7, 27, 54; idem 1944: Abb. 19), stags (Porada 1948: no. 601E) and ibexes (Parker 1977: no. 37), as well as horses (Moortgat 1942: Abb. 22a; idem. 1944: Abb. 11). Some 13th century examples (Kühne 1980: no. 51 = idem. 1984: Fig. 17) and, especially, 12th century examples (Moortgat 1944: Abb. 22, 23; Buchanan 1966: no. 570; Lambert 1979: no. 65) include monsters that are sometimes winged.

Trees associated with the bucking and rearing animal either have branches that radiate out from the top of the trunk to form a round contour (Moortgat 1942: Abb. 54; Porada 1948: no. 601E) or branches that extend laterally from the sides of the trunk (Moortgat 1942: Abb. 7; Buchanan 1966: no. 570; Parker 1977: XXII, XXIII). The tree is sometimes shown rising from a hill or mountain (Porada 1948: no. 601E) and often has a thin, twisted or crooked trunk (Porada 1948: no. 601E; Buchanan 1966: no. 570; Parker 1977: XXI-XXIII). A similar tree trunk may have been obscured by the weathering of ZT6545 as the outline of the trunk appears unusually thick and straight.

Various symbols accompany these scenes, often placed in the field above the animal's arched back. Some such as the rosette (Matthew 1991: 17), have a limited time range, but the crescent and star (Parker 1977: XXI-XXIV), which may be depicted on ZT6545, is common throughout the Middle Assyrian period (Matthew 1991: 17).

Locus E-323, ZT 3635

"Burnt Steatite" Cylinder Seal

Description: Cylinder seal with perforation drilled from both ends. An eleven-petalled rosette design with triangular filler motifs. The center of the rosette is formed by a dot and circle and the crescent-shaped petals curve away from the horizontal axis of the design. The rosette is surrounded by two unconnected curved lines that produce a single-stranded guilloche pattern when the seal is rotated more than once. Two triangular filler motifs are outlined by three (cuneiform-shaped) wedges that leave a hollow central space. Above and below, the design is framed by a single incised line.

Material: "Burnt steatite"

Dimensions: 24 x 31 mm (length of impression x height of impression/seal), d. 7.6 mm, perforation: 3.4 mm.

Condition: Chipped in places revealing grey stone behind white surface. Mechanically cleaned to remove salt encrustation.

Findspot: Locus E-323 in square N1080 E1210. Found loose in surface layers of the step trench. Approximate location N1086 E1216, elevation c. 552.0 - 552.6.

Date: Early third millennium BC on the grounds of stratigraphic context and style.

Provenanced Comparanda: There are no close comparisons for the overall design and style of the Op. E seal. Although individual elements of design do have parallels, their combination here is unique. Rosettes are common but the unconnected, single curved lines which surround this rosette are rare, as are the number of petals and their crescentic shape. Triangular filler motifs also occur in related designs but they are not usually formed by multiple wedges. These normally occur individually and are scattered in the field.

Iran

Susa (unstratified): Amiet 1972: nos. 1142, 1143

Eastern Mesopotamia

Khafaje (Sin IV): Frankfort 1955: nos. 87, 88, 89, 93 (acc. to Frankfort Protoliterate d, now dated to ED I)

Khafaje (Sin VIII): Frankfort 1955: no. 241 (acc. to Frankfort ED II, now dated EDII-IIIA)

Tell Agrab (Shara Temple): Frankfort 1955: no. 815 (acc. to Frankfort ED II, now dated ED IIIA. Note that more than 60% of the seals found in this location were heirlooms)

Tell Madhhur (ED I): Watson in Roaf 1984: 163, Fig. 24, 10-11

Tell Gubba (Levels VII-III): Ii 1988: Fig. 23, Type 3c (dating JN to late ED I. The single example from ED IIIb is on a coarse ware rim sherd and is probably residual)

Assyria

Nineveh (Level 4/5): Collon in press: nos. 18-30

[The revision of the Diyala sequence is based on Porada et al. 1992 in which the existence of a separate ED II phase is found not to be useful.]

This seal found in the lower part of Operation E belongs to a homogeneous group of cylinder seals that is now commonly known as "Burnt Steatite Style" after its dominant material, or "Piedmont Style" after its main distribution (Buchanan 1966: 16; Collon 1987: 20-23; Pittman 1994; Marchetti 1996).

Le Breton (1957: 108) was the first to draw attention to the distribution of this group that follows the main highland routes from Shahr-i-Shokhta in Iranian Sistan to Alishar Hüyük in central Anatolia (Pittman 1994: 230-242, Marchetti 1996) with particular concentration in the foothills of the Zagros (Fars, Khuzistan, Diyala, Hamrin) and northern Iraq. The characteristic material is a soft stone that was heated after cutting to produce a much harder surface layer. This material is variously described as burnt steatite (chlorite), glazed steatite (chlorite), calcined stone or enstatite (Amiet 1972: 143; Roaf 1984b; Pittman 1994: 133-35, 222-3). Seals bearing designs in similar style are also made of other stones (e.g. white calcite, limestone, marble, heulandite, gray schist) as well as shell and, occasionally, bitumen and faience. Usually tall and narrow, these seals are often decorated with overall patterns in which floral and geometric motifs predominate. While some scholars emphasize this aspect of the design (Buchanan 1996; Collon 1987; Pittman 1994) others emphasize an expanded repertoire that includes figural motifs (Frankfort 1955; Marchetti 1996). Pittman, in her study of the "Glazed Steatite

Style" in Mesopotamia and Iran, divides the designs into two main groups: the multiple element and the hatched group (1994: 141-206). Based on the entire distribution of the style, Marchetti (1996: 81-2, n. 2) following Frankfort (1955: 17-19) proposes two alternative groupings: a "Piedmont style" consisting of geometric designs and a "naturalistic Piedmont style" characterized by schematic figurative motifs. Typical geometric designs include hatched bands and meanders, rosettes, crosses and lozenges, with fillers and drill holes. Figurative motifs consist of animals, mountains and trees. Both groups of Piedmont style designs appear to have been used mainly for door locks and jar sealings (Carter and Stolper 1984: 119; Dittmann 1986: 347). Regional variations in iconography may reflect different centers of production. The source of steatite, however, is likely to be southern Iran, which is also identified as one of several production centers of contemporary chlorite bowls (Kohl 1974: 101; 1978). The chronological range of Marchetti's all-inclusive Piedmont Style, based on the Diyala sequence in eastern Mesopotamia, extends from Jemdet Nasr to late ED II (c. 3000 - 2600 BC). Within this range, there appear to be regional differences with examples from Iran and eastern Mesopotamia beginning earlier (JN-EDIIIa though the later examples were probably heirlooms) than those from northern Iraq and the Khabur (ED I - late ED II, Marchetti 1996: 96-101, see idem. 1998: 117, n. 13 for revised end date).

Pending a thorough analysis of its associated pottery, ZT3635 is attributed to the first half of the third millennium BC, following the date of related material found in the Khabur basin, due south of the Ziyaret Tepe.

Ceramics from the Brightly Burned Building

A preliminary assessment of the well-stratified pottery from the Brightly Burned Building in Operation E has been prepared by the project ceramicist, Ms. Helen McDonald of the University of Cambridge. This group of pottery was found in the collapse and on the floors of a violently destroyed burned building we refer to as the Brightly Burned Building (hereafter, "BBB") dated above to the first half of the second millennium BC. This pottery is illustrated on Figs. 5-8 and reference numbers in the text refer to pot drawing numbers on these plate. A complete catalogue of the ceramics follows in Appendix A.

Small areas of two rooms of the BBB were excavated (Matney et al. 2002: Fig. 20) and produced a large quantity of pottery for so small an area. Several of the pots had over half of their sherds present and may have been complete at the time of the destruction, however there are a variety of reasons why every sherd was not recovered. Firstly, fragments of some parts of the pots may still lie in the unexcavated portions of the rooms. Secondly, these rooms are positioned right along the edge of the mound, where they are prone to erosion downslope. Thirdly, the effect of the burning has made the fabric of many of the pots very friable, and joins between pieces of the same pot are not always possible; in some cases, the friability has even caused parts of some vessels to

disintegrate entirely. It is likely that several of the larger bowls were complete but have lost their bases due to this extreme friability (e.g., pots 2, 3 & 5). Some of the vessels that are now fifty per cent extant were probably complete at the time of the destruction.

Another effect of the burning has been to alter the color of most of the pots; many are very yellow, bright pink/red, or a warm reddish brown, similar colors to the baked plaster of the floor and collapsed roof. In other cases different parts of the same pots are now very different colors (see esp. pot 2). Hence, the Munsell colors in the descriptions probably do not reflect the original color of the pots. One of the most common color changes is that of a very bright pink interior surface, which may indicate that the pot had flammable contents (e.g., pots 5, 6, 8 & 9).

Several of the vessels, and particularly some of the sherds, are covered with baked plaster. In cases where the baked plaster also covers the broken edges of the sherds, it appears that these were incorporated into the plaster of the roof, which had then collapsed in the conflagration (pots 4, 8, 17, 20). Two of the more complete vessels have acquired lumps of baked plaster on their exteriors, but this probably happened as the roof collapsed on them (pots 10 & 13). As a result, the BBB pottery assemblage seems to be a mix of pots on the floors of the rooms and sherds from the construction material of the collapsed roof. It is conceivable that one or two of the more complete items might have been on top of the roof when it collapsed.

The paucity of excavated and published pottery material of this date makes comparisons with nearby sites difficult. However, there are broad similarities with some of the material from nearby Üçtepe (Sevin 1992; Köroğlu 1998). The most common bowl form in the BBB rooms is the deep carinated bowl, which occurs in both a small version (pot 1) and a variety of larger versions. The larger carinated bowls can be divided into groups of those with a concave line above the carination (pot 5) and those that are less so (pots 2 and 3) with pots 1 and 6 as an intermediate examples. Base 8 may come from one of these bowls, or one like it. The more complete examples of this type are all plain but body sherds 4 and 17 indicate that this bowl shape could also be painted. There is a very general similarity with deep carinated bowls from Üçtepe (Sevin 1992: fig 4 nos. 1-4), and the Üçtepe bowls also seem to come in a larger (Sevin 1992: fig 4.1) and a smaller size (Sevin 1992: fig. 4.2-4). The latter are reasonably close to the shape of pot 1, although the Ziyaret example has a smaller base and a ridge on the shoulder rather than a series of grooves. The larger Üçtepe bowl (Sevin 1992, fig 4.1) is more similar to pot 5 than it is to the straighter examples like pot 3, but again where the Ziyaret bowls have a single ridge the Üçtepe example has two ridges, a wavy line and grooves. The other BBB bowl forms are more open, shallow types with out-turned or triangular rims and flat or ring bases (pots 9 - 10). Again, both of the latter have broad similarities with some of the Üçtepe bowls (Sevin 1992: fig. 5 nos. 1-4). The spouted bowl 11 has two lugs, enabling someone to hold it while its contents were poured out.

The rim shape from the BBB jars is rolled with a neck that slopes into the shoulder with no carination separating them (pots 12-14). With one more bottle-like exception, all other jar rims from the BBB were variations on those illustrated. The single ridge on the shoulder is common on both jars and deep bowls.

There are sherds in the BBB that seem to correspond to the so-called 'Red Brown Wash Ware' (RBWW) of the first half of the second millennium. Eleven body sherds (3.16% of all sherds) have some kind of wash on the surface, as do four bowl rims (including 15). Two of the RBWW body sherds have a single or multiple grooves and may be from carinated bowls. The wash varies from very thick and red-brown color to a much thinner wash with visible brush strokes of dark brown or black. The other three RBWW bowl rims have folded, triangular rims; two are from medium vessels, and the third is a thicker walled vessel with a rim diameter of 40cm and heavy ridges below the rim. The latter is also heavily worn and may be somewhat earlier than the BBB level. It is always possible that sherds in a deposit may be residual, so the presence of sherds alone in a level cannot be taken as definite evidence of contemporaneity. While it is possible that RBWW belongs in the BBB level, and there may be complete vessels of RBWW elsewhere in the building, we have no conclusive proof of this in the small area so far excavated.

The deposit at Ziyaret Tepe in which RBWW sherds were most plentiful is in Operation C on the opposite side of the high mound from Operation E. Although a large quantity of sherds was found in Locus C-014, they were not complete pots broken *in situ* like some of the BBB vessels. However at least one of the large RBWW rims from Locus C-014 had baked plaster on its surface like some of the BBB sherds (cf. Matney et al. 2002: fig 13, ZT 1910/8 for shape). In general, however, the vessel types in the two areas are not closely related.

Painted decoration is relatively rare in the BBB; only four sherds (1.14%) out of a total of 348 were painted (sherds 4, 16-18), whereas 29 body sherds had ridges or grooves (8.33%). The frequency of ridged/grooved decoration is higher if rim sherds are also included bringing the total up to 39 (11.2% of all sherds).

The most common fabric was one with fine mineral inclusions varying in frequency from occasional to common, and with fine-to-medium vegetal inclusions varying from sparse to occasional (65.8% of all sherds). Less common was a similar fabric that lacked the vegetal inclusions (15.8%) and another fabric where the vegetal inclusions were more prominent being larger and of greater frequency (6.3%). The 'cooking ware' fabric had abundant medium-sized mineral inclusions or mica and all of the sherds of cooking ware were burnished (4.6% of all sherds). The one complete cooking vessel (pot 19) is the only complete vessel from the smaller of the two rooms (Locus E-061). Burnishing on other fabrics was not otherwise common, the only fine ware sherd was burnished and one sherd had a burnished interior and may have been a base. There were a small number of thick-walled sherds, probably from storage vessels, with

coarse and abundant vegetal inclusions (1.5%) or a mixture of coarse vegetal and coarse mineral inclusions (0.5%). Interestingly, the sherds with abundant medium-to-coarse mineral inclusions were not huge storage vessels, but more medium sized (5.4%; bowl 11 and three medium jar rims). This is in contrast to later second millennium BC levels at Ziyaret Tepe, where such a fabric is more commonly be used for very large vessels. This coarse mineral fabric is distinguished from the regular cooking ware fabric by being paler (yellow rather than brown) and not burnished.

Although the more complete vessels in the BBB are in primary contexts, they probably represent only a very small proportion of the forms in use at this time, due to the small size of the exposure that has been excavated. A larger exposure will enable us to recover more of the ceramic repertoire of this date and to assess the nature of the building and its destruction, whether this was an isolated fire affecting a single building or a more extensive destruction of the site.

Operation A

Operation A is located on the eastern edge of the high mound between grid squares N990 E1150 and N1010 E1190. To date, we have excavated 500m^2 of architecture [Fig. 9], almost all of which dates to the Late Assyrian period based on ceramics and other small finds from stratified contexts within the structures. Work in Operation A during the 2002 season was under the field direction of Mr. Duncan Schlee (Welsh Archaeological Unit) and Mr. Andrew Bauer (University of Chicago). The goals of the 2002 excavation in Operation A were: (1) to cut a sounding at the edge of the high mound in order to determine the nature and date of the strata beneath a large mud-brick platform of Late Assyrian date discovered in the 2001 season; (2) to complete the excavation of a third metal-working installation at the southern edge of Trench N990 E1180 discovered in 2001 and not excavated for lack of time and (3) to clarify a detailed architectural sequence of remains from the principal monumental building. This latter goal was meant to clarify the original building plan and subsequent modifications to the architecture. All three goals were achieved. In this report, however, brief preliminary comments will be limited to the first of these goals, namely a description of the sub-platform sounding. Reconstruction of a detailed architectural sequence of the main Late Assyrian building is still on-going and the publication of the remains of the metalworking installation awaits the completion of specialist studies scheduled for the summer of 2002.

Sounding beneath Late Assyrian Platform

As noted in earlier reports, the principal remains from this area are a large mud-brick building, possibly a palace. The walls of this structure are large (1.5m wide) and very well constructed, clearly representing an important public building. Soundings through the building, as well as at the edge of high mound, have shown that prior to the

construction of the building, the entire area of Operation A was leveled and a huge mud-brick platform was built, presumably in order to make a stable foundation for the monumental structure that was built on top. During the 2002 season, we cut a section at the edge of the tell revealing the mud-brick platform to be at least 1.5m thick, perhaps even greater in places. This platform sealed a number of earlier deposits of Late Iron Age and possibly Middle Assyrian date.

Directly beneath the mud-brick platform was a layer of gray levelling mud (A-834) which was laid down over the existing structures, which were themselves cut down and filled with poor quality mud-brick prior to building. The area was slightly disturbed by later animal burrows coming in from the side of the mound. Stratified below the platform were two pits (A-836 and A-832) and the foundations of a mud-brick wall, approximately two courses wide (A-840). Unfortunately the surface or floor associated with this wall was at a higher elevation and did not survive the building of the platform. The wall foundations had been partially trenched into a filled pit (A-839), into which the mud-bricks have slumped. Likewise, the wall A-840 was itself cut and then filled irregularly with mud-bricks that were levelled with the grey mud noted above. The architecture in the north of the sounding (wall E-844) is modest in size and probably dates to either the local Early Iron Age or a pre-platform phase of the Late Assyrian occupation of Ziyaret Tepe. In the southern section of the sounding, a large, regular mud-brick wall (A-851) at least 1.5m wide was discovered at the end of the season. Its alignment is similar to that of the later platform and associated monumental structures. Given its size, quality and alignment, it is possible that this wall is part of an earlier monumental structure that was replaced in the Late Assyrian period.

Operation G

In 2002, work resumed in Operation G, the area where excavations last year revealed part of an impressive Late Assyrian structure with a striking black and white pebble pavement and walls up to 2m thick. Operation G is located in the southern part of the lower town between grid coordinates N860 E850 and N880 E880. Excavation in Operation G was directed by Dr. John MacGinnis of the University of Cambridge, this season assisted by Mr. Tom Burns as site supervisor. In 2002 we opened up a further 350m^2 of the building, revealing more of the courtyard and five more rooms on its western side. Fig. 10 shows the architecture from Operation G excavated in the 2001 and 2002 seasons.

The principal remains in this area are parts of two large, very well preserved mud-brick buildings. The first of these is represented by Rooms 1, 2, 3, 4, 7 and 8. The second is represented Rooms 9, 10, 11 and 12. The most important architectural features of these buildings are two pebbled mosaic floors (Rooms 2 and 11) constructed of small flat river stones carefully laid diagonally into alternating black and white squares. These squares form a checkerboard mosaic with individual squares decorated with crosses, central

bosses and rosette patterns. A large portion of one mosaic (Room 2) was uncovered in the eastern section of Operation G in 2002, where the extent of the floor is 12m from east-to-west and at least 15m from north-to-south, although the southern wall of the room has not been recovered. A small corner of a second mosaic floor was found in the westernmost portion of Operation G (Room 11), but was only exposed over a small area.

Starting with the courtyard (Room 2), excavations this year revealed more of the cobbled pavement, with evidence of two phases of construction. An initial phase made out of smaller pebbles was somewhat untidily laid out, incorporating rosettes, St. Andrew's crosses and crosses with a central boss. Tentatively we believe this was partly replaced by a later pavement of larger stones, more neatly laid, but consisting only of black and white squares in a classic chequerboard manner. Parts of two rooms were excavated on the west side of the courtyard (Rooms 7 and 8). The first of these was a long but comparatively narrow room, 4.5 m across and at least 13m in length (Room 7). Very little was found in this room, but it did have two supports for small pillars in the shape of baked bricks, with holes 17cm in diameter in the middle placed exactly on the center line of the room. At the northern end of this room was a smaller chamber (Room 8), approximately 5m wide and 2.5m deep. There was an entrance from Room 7 into Room 8, the latter having no additional exits. As yet there is very little evidence to suggest what the function of either of these rooms might have been. In 2002, a series of thin sections taken through the floors of Room 8 by Mr. Brian Pittman (University of Cambridge) are aimed at elucidating the constructional details and function of the architecture.

The remaining rooms uncovered in the 2002 season lay further to the west side and proved to be of great interest. The presence of what seemed to be two adjacent parallel walls separating Room 7 from Rooms 9 and 10 [Fig. 10] might suggest that there were two abutting buildings here in the Late Assyrian period. An equally compelling case could be made, however, for the double wall to represent an interior wall of a very large complex. The solution to this question will only come about through continued excavation in future seasons. The first of these western rooms [Fig. 11], Room 10, was another long room containing three complete pithoi, the largest of which was 1.90m tall. To the north of Room 10 a smaller room (Room 9) had another large jar let into the floor as well as a pit approximately 1.5m in diameter. The pit may have been dug for the installation of one of the pithoi. It is clear that this part of the building was part of a magazine complex as discussed in more detail below. A second point of interest in these rooms was the recovery of a number of clay tokens in a variety of shapes – square, star-shaped or stellar, spherical, cylindrical among others – that may have served as accountancy aids [Fig. 12]. The interpretation of the tokens as accounting markers is supported by the discovery of a number of cuneiform texts in the detritus at the edges of the Rooms 9 and 10, all of which are of an administrative nature. Finally, we excavated the remaining area west of Rooms 9 and 10, revealing another cobbled surface in Room 11, well laid though not with the same geometric patterns as the main cobbled courtyard,

with the base of a stone wall resting on it. In many areas in the building the floor was covered with a thin layer of ash, and in several places the white plaster of the walls was burnt. It would therefore seem that there was a fire, at least in some rooms of the building at the end of its period of use.

As in 2001, we carried out a sounding through the floors in one part of the area excavated (Room 8). The investigated area revealed what appears to be a mud-brick platform that begins directly under the floor and continues down to the natural, some 1.5m below. The presence of a platform here will need additional investigation in the 2003 season, but it is important to note that this finding is in contrast to those of last year's soundings, which revealed stratified architecture below the main building (Matney et al. 2002: 69)

The only indication of any occupational history in the area of Operation G subsequent to the main Assyrian building is a grave (G-622), cut into the mud-brick collapse in Room 7. The associated bones were in a very poor state, and the cut itself was not initially recognized, but a coherent assemblage of grave goods were preserved, consisting of two whole ceramic vessels (ZT 11727 and ZT 11609) and a complete bronze omphalos bowl (ZT 11636). This bowl was conserved by Ms. Evelyn Alvarez-Dossman and is currently being studied by Dr. John Curtis of the British Museum. A close parallel for the bowl is said to come from Deve Hüyük and is now in the Ashmolean Museum Oxford (Ash. 1913.673, Moorey 1980: 32, Fig. 6, No. 85): it has been dated to the sixth or early fifth centuries BC.

Cuneiform tablets from Operation G

For the first time at Ziyaret, the 2002 season saw the discovery of many cuneiform tablets [Fig. 13]. They were found in detritus piled up against the walls of the magazines in Rooms 9 and 10. With permission from the General Directorate for Monuments and Museums in Ankara, the tablets were baked in Diyarbakır under the supervision of Ms. Ann Donkin following procedures used by Michael Roaf for the baking of the Middle Assyrian tablets from Giricano in 2000 (Roaf in press). The tablets were slowly heated to 630°C over a period of three days and then baked for 24 hours at this temperature before being allowed to cool slowly. Prof. Simo Parpola arrived from the University of Helsinki to read the tablets and to join fragments that were broken in antiquity or during the process of excavation. The baking procedure was successful and Prof. Parpola succeeded in joining many pieces and reading the tablets. The texts will be published in full in the *State of Archives of Assyria Bulletin*. The following is a brief summary of their contents based on Dr. Parpola's initial readings in the field. The tablets have been numbered with a series prefix of ZTT (Ziyaret Tepe tablets). A number of tiny fragments are not treated here.

A total of twenty-one cuneiform tablets, fragments and pieces of envelope were found at Ziyaret Tepe. All are small -- the largest measures about 5cm by 3cm -- but the

variety and detail of the information they preserve more than make up for this. Three of the tablets bore sealings -- ZTT 3, ZTT 6 and ZTT 10. The texts fall into the following categories:

Loans and allocations of grain

ZTT 2 with its envelope ZTT 3, a loan for 280 homers of barley.

ZTT 4 with its envelope ZTT 5, a loan of 6 homers of grain according to the 9 *seah* standard of Nineveh.

ZTT 10 through ZTT18, grain loans (ZTT 14-18 triangular format).

Slave sale

ZTT 7 and its envelope ZTT 6.

Lists

ZTT 1 a list of equids including 200 horses, 180 mules and 40 donkeys.

ZTT 8 a witnessed list of textiles.

ZTT 9 a list of people.

Letters

There are three pieces of letters ZTT 19-21, all fragmentary though one (ZTT 19) appears to deal with deportation and resettlement.

A number of professions are mentioned in these texts, including governor (ZTT 14), cupbearer (ZTT 8), mayor (ZTT 8), charioteer (ZTT 13), scholar (*ummānu*, ZTT 13), a scribe of Ishtar of Nineveh (ZTT 6) and other scribes (ZTT 4 and ZTT 8), fuller (ZTT 6), tanner (ZTT 6), oil-presser (ZTT 10), groom (ZTT 13) and bakers (ZTT 14). A Babylonian is mentioned in ZTT 13 and a man called Kaldāyu ("Chaldean") in ZTT 9. Among the witnesses in ZTT 4 is a "Shubrian augur" (^{lú}*da-gíl*-MUŠEN) with the Akkadian name Šumu-līšir.

In most cases the texts are either undated or the date formula is not preserved, but there are three exceptions. ZTT 4 is dated to Nabû-tappūtī-alik, a late post-canonical eponym from shortly before the fall of Nineveh in 612 BC, while ZTT 6/7 is dated to Aššur-šarrāni and ^{m}A-[...], both of whom Prof. Parpola tentatively suggests may be post-612 BC eponyms. The governor mentioned in ZTT 14 is almost certainly the governor of the province of Tushhan. This allows us to reflect further on the nature of the complex in which the texts were found. By the end of excavations in 2001 we had formed the belief that the Operation G building was a high status residence, belonging to either a senior official or a wealthy merchant; there is of course considerable overlap between these two categories. This remains a possibility, but equally the presence of magazines and records of barley debts, one of which mentions the governor, led Prof. Parpola to the interesting suggestion that the complex could be a tax collecting center for the provincial Assyrian government.

The mention of the governor in ZTT 14 noted above adds weight to the growing body of circumstantial evidence that Ziyaret Tepe can be identified as the Late Assyrian

city of Tushhan (for a summary of the evidence see Roaf in Matney et al 2002: 49-51 and for further discussion and a list of the governors of Tushhan see Radner and Schachner 2001). This is also supported by the reference to a harem in ZTT 13, as other textual records suggest that Tushhan was the location of such an institution while it served as a regional center (Parpola, pers. comm.). Further elaboration of these arguments, however, must await Prof. Parpola's final publication of this small Late Assyrian archive.

Operation J

Operation J was started in the 2002 field season at the western edge of the lower town between grid points N890 E740 and N910 E760. Work in Operation J was directed by Dr. Monica L. Smith of the University of California–Los Angeles. The area excavated reached a maximum size of 15m north-south and 16m east-west. The most significant finds of the season consisted of three phases of architecture interspersed with two episodes of abandonment. The decision to excavate in this general area was based primarily on surface finds made in the 1997 field season that included a high distribution of roof tile fragments on the low rise that comprises the western lobe of the lower town. This area appeared to have some of the latest material at the site, preliminarily identified as Roman in date, so it was determined to investigate this area to evaluate the nature of the latest deposits, and to see whether these later deposits preserved intact earlier material underneath.

The choice of exact area for excavation was based on both a gradiometry study (see below for details) and a surface survey and mapping of the artifactual remains in the plowzone. The gradiometry study was undertaken on four 20m by 20m meter grid squares on the low rise, while the surface map was made over nine whole or partial 20m by 20m grid squares. The gradiometry and surface surveys were conducted concurrently, that latter involving a detailed collection of data with all tiles, all stones over 10cm in size, and all sherds mapped on graph paper. The distribution of surface materials indicated a high concentration of tiles near the center point of the four gradiometry trenches (datum N900 E760). We therefore placed our initial trench (N900 E750) in the area of the densest proportion of tiles (2.5+ per square meter) as the initial area for excavation. The gradiometry maps showed several large anomalies (one corresponding to the metal peg at the N900 E760 datum) with scattered strongly bipolar data. It was not possible to detect clear wall lines or other features within the data, rather the anomalies were spreads about 20m in diameter. During excavation, it became clear that these anomalies were concentrated collections of roof tiles that had been reused, as described below.

The uppermost phase architecture excavated in Operation J was encountered immediately below the plowzone (c. 10-15cm below modern ground surface) and consisted of at least three contemporary structures consisting of a series of walls and post

supports made of reused materials, mostly stones and roof tiles [Fig. 14]. A total of eleven walls and wall fragments were recovered, and the styles of the walls varied from well-organized stone-border constructions to wall stubs made completely of tiles that were laid on edge. Broadly speaking, these walls outlined one discernable room, one independent structure, and one unknown structure.

The room, located at the southern end of the trench measured 2.6m by 3.0m in size and had all four walls well-preserved, as well as a passageway to a much larger architectural unit, probably a courtyard, in which there were walls made at what appeared to be different stages of construction (but with construction events that were probably spaced very close together). This space was bounded on its north and west side by walls, wall fragments and post supports made of small cobbles as well as at least one larger stone that may also have served as a post support. It measured 7m meters north-south, while the east-west dimension could not be discerned because it was beyond the limits of the trench size. Within the "courtyard" was an independent structure consisting of three interconnected walls (J-003, J-004 and J-030) and three post-supports of varying sizes made of tiles fragments. The total size of this structure was 2m by 6m and it was probably had a porch-like construction. An unclear structure not shown in Fig.17, is located in the SE corner of Operation J and consisted of one large (60cm by 70cm) stone that was at the center of a very fragmentary tile alignment running E-W for 3m and into the eastern baulk.

Architectural features in the latest phase of occupation suggests a very expedient method of construction. The walls were preserved to a maximum of two courses, and were made of reused tile and stone fragments, including grinding stone fragments as well as fragments of a shaped column and a fragment of a socketed stone in which the socket was placed upside down – therefore not the original location of the door for which the stone socket served. However, the architecture was well outlined (i.e., the work was reasonably good but the materials used were very fragmentary and uneven). In its very last episode of use, this upper phase architecture appears to have been the location of a brief encampment or squatter settlement, as there was a thin layer of ash and at least one likely complete vessel (lying in the plowzone and fractured by subsequent plowing activity) that seems to have been deposited prior to the collapse of the tile superstructure. As we found some tiles that had broken as they fell, it appears that the builders of the uppermost phase architecture did have access to some larger-size and intact building materials. We removed over 2000kg of tiles from the excavations, an amount that indicates a substantial labor investment was involved to transport these used materials to this portion of the site.

Removal of the upper phase architecture revealed an exceedingly empty matrix. Having exposed the upper phase architecture throughout the 9m by 16m trench, we then continued the excavation only in the northern portion of the operation, first completely removing the upper phase architecture in those trenches. After c. 30cm of grayish-brown

matrix that was remarkable for its relative lack of stones, we encountered a substantial stone wall (J-054) and adjacent stone "pad" (J-055) in the southwestern corner of the trench. Wall J-054, measuring 1.7m in width, was well-made and consisted almost entirely of stones in the 20-centimeter size range, although there was one substantial (50+cm in diameter) ceramic rim, upside down, which formed a component of the wall corner as the wall turned to the west. The western section of the wall appears to have been robbed out prior to our excavation. As in the case of the walls that comprised the upper phase of architecture, Wall J-054 may have been the footing for a mud or pisé wall, although we could not distinguish the traces of an upper wall in the section; nor could we distinguish any foundation trenches. There were no good associated finds to date this architecture.

After removing Wall J-054, we again encountered relatively stone-free matrix for a depth of 30-50cm, although the quantity of ceramics increased with depth. In the northwest corner of the trench we encountered an area of cobbles (J-058), which was eventually exposed throughout the northern part of the trench for a total area of 7m by 4m. This cobble surface extends into the baulk on the north and east sides, so it is considerably larger than what has been excavated. The cobble surface has a significant slope from northwest (high) to southeast (low), losing about 30cm in elevation over 6m across the trench. The cobble area J-058 was cut by a large (2.3m by 2.1m) pit filled with a very powdery gray matrix and large-sized sherds, as well as one *tannur* or earthen oven measuring 30cm in size and recovered upside-down near the bottom of the pit. This pit provided us with a substantial window into underlying deposits, the most distinctive of which was a bright red-orange matrix with white inclusion typical elsewhere on the site as natural (or redeposited natural) soil. Since no tiles were found in the pit, it dates to the period prior to the construction of the uppermost architecture; given the apparent abandonment between architectural phases, it is most likely therefore that the pit is contemporaneous with the middle phase of architecture represented by wall J-054.

In summary, then, the Operation J architectural sequences suggest three periods of construction, interspersed with two major periods of abandonment that were of sufficient duration to allow the exposed architectural remains to be covered by 20cm to 30cm of matrix through windborne action and other soil formation processes. The last occupation of the site was represented by the construction of walls made of used tiles, and this phase ended with a brief re-occupation that can be characterized as a casual or squatter settlement. Although sequences of construction, habitation and use can be readily identified in Operation J, no dates can easily be discerned at this point. Artifacts that are likely to be chronologically sensitive include tiles, ceramic vessels, glass vessel fragments, a bronze projectile point, a clay pipe, and metal items. The initial proposal was that the area might be linked to the Roman period due to the presence of roof tiles on the surface of the site. However, the use of broken tiles in the upper phase architecture indicates that these tiles were originally brought from elsewhere, as we did not encounter

any tile-using architecture after the removal of the upper phase. We had initially supposed that the uppermost architecture could date to the latter half of the first millennium A.D., but now suspect that it could be much later. One would have to look at the historical record to see if there are records of isolated farmsteads or households in this area during the early modern period.

The middle phase of architecture is most likely to be dated by the materials found in pit J-057, which includes a large number of handled jars of a type also found consistently throughout the upper levels of all of the trenches. The large jar incorporated into locus J-054 also serves as a *terminus post quem* for the wall, though of course the date of initial use and subsequent reuse could have been relatively rapid.

The lowest phase of architecture, represented by the cobble pavement J-058, may be of the Assyrian period, though no definite indicators of such a date can be confirmed at present. The ceramics from Operation J include wares that go back to at least the mid-second millennium B.C. (i.e. a fragment of "Nuzi" ware from locus J-047). There are also several fragments of very fine ware in the loci immediately above the cobble surface J-058; comparative dating of these fragments will be of value. Evaluation of the date of the structure J-058 may also be bolstered by comparison to securely-dated similar architecture elsewhere in the site.

Specialist Reports from the 2002 Season

A wide range of specialist studies are actively being conducted at Ziyaret Tepe: paleobotanical, faunal analysis, ceramic, metallurgical and lithic analyses, micro-debris and microstratigraphy studies. This section provides preliminary results from two of these studies, namely those dealing with micro-debris analysis and a short description of the chipped stone assemblage at Ziyaret Tepe.

Micro-debris Analysis

During the 2002 season, 155 micro-debris samples were processed. Thirty of these micro-debris samples were collected in 2002 and 125 samples were previously collected during the 2000 and 2001 seasons. This work was directed by Dr. Lynn Rainville of Sweetbriar College, and was funded by the American Research Institute in Turkey. These samples were taken from a variety of areas and loci to provide a wide comparison of domestic and non-domestic contexts (Operation A – 12 samples, Operation E – 25 samples, Operation G – 115 samples, Operation F – 2 samples). This wide distribution of samples enabled us to compare and contrast different socio-economic areas of the site from the monumental building excavated in Operation A to a series of 3rd millennium occupations and a series of Middle Assyrian domestic structures in Operation E to a large, Late Assyrian building in Operation G.

The majority of the samples in Operation G (n=89) came from floor deposits that were gridded into 50cm collection units, and sampled explicitly for micro-debris analysis. This is an ideal way to collect micro-debris samples in which the horizontal dimension is well understood and each of the samples comes from a well-documented primary context. The soil samples were floated using the flotation machine used at Titriş Höyük, based on the design used at Shiraf in Iran. The heavy fractions was sorted and micro-artifacts were identified and picked out of the fraction.

An unexpected result of this past season's work was the recovery of enough beads in the heavy fractions to start a Mesopotamian bead typology. Fourteen of the 155 samples contained a total of 28 individual beads from all sampled areas, except Operation F. One of the advantages of micro-archaeology is the opportunity to collect artifacts that would often be missed by traditional excavation techniques. Most of the beads are no more than 4mm in diameter, making it difficult, if not impossible to locate them with either troweling or screening techniques. Micro-archaeological techniques also recovered several clay tokens, an assortment of copper flecks, and fragments of several iron and bronze/copper nails and/or pins. In most cases these objects were not visible until after the floatation process. Remarkably, the flotation removes clays and other large sediments, and if done correctly, it does not harm small and fragile artifacts, which can be picked out from the heavy fraction.

Another aspect of the 2002 micro-debris study was the start of an experimental archaeological effort to understand breakage patterns in micro-artifacts. Ever since Schiffer's seminal work on post-depositional forces (1996 [1987]), archaeologists have been aware of the importance of understanding how artifacts entered the archaeological record. This past season, modern shells from the Tigris River that correspond to species found in archaeological contexts were collected. An informal experiment was done to determine what type of force would have to be exerted on the shells to produce the breakage patterns in micro-debris samples. In short, results suggest that it is quite difficult to break the shells unless they fall on a very hard surface (such as concrete) from a distance of over a meter. Moreover, one has to exert an additional downward force to break the shells. This suggests the shells in the ancient samples were not broken simply by treading over surfaces (especially without shoes) nor were they likely to break from being dropped (especially onto a mud-brick surface). Rather, it would seem that the shells were intentionally ground up to provide a temper for the construction of pottery or other technological processes. Otherwise, there is no readily apparent explanation for how riverine fauna reached the top of the tell in such degraded condition. In future seasons, continued experimentation with ceramic breakage (from the discard pile of sherds) and animal bone breakage will help us understand artifact breakage, for both large and small pieces, and will enable better interpretation of patterning in archaeological samples. Ideally, this will lead us to an ability to distinguish between natural and cultural disturbances.

Furthermore, micro-artifacts in the sediment samples were variably distributed among trenches and loci. For example, the distribution of raw material types used in the construction of chipped stone tools varies among trenches. Operation G contained primarily dark brown, gray, and tan micro-debitage, while Operation A contained mostly white and tan debitage. This might suggest that toolkits varied in different areas of the site, possibly corresponding to social or economic distinctions as yet unclear.

Preliminary results

As noted above, a series of well preserved floors in Operation G were selected for intensive micro-debris sampling during the 2001 season. The horizontal expanse of each floor was gridded and sampled with precise notation of the location of each sample. In total, 89 samples were taken and analyzed in this manner from three separate loci: the western half of Room 3 (Locus G-061); the eastern half of Room 3 (Locus G-078) and the eastern end of Room 4 (Locus G-083). Each of the sediment samples was floated and micro-artifacts were removed from the heavy fractions. The distribution of the micro-artifact density was recorded and analyzed per sample. The results suggest differential activity areas within the rooms. In comparing the mean density of micro-artifacts per room, the highest, overall concentration of micro-ceramics and chipped stone debitage was found in G-061, while micro-bones were found in high numbers in G-078. These variable densities may correlate with a different set of regularly occurring activities in each room, or different parts of the same larger room.

Significantly, the micro-densities are not identical to the macro-densities. For the purposes of this study, a "macro" artifact is over $1cm^2$, a size regularly recovered with traditional trowelling and screening techniques. Importantly, chipped stone debitage was only visible at the micro-level. Large pieces of debitage would represent a clear hazard and were most likely removed after flint knapping activities. Similarly, micro-faunal remains were recovered from all of the samples while larger pieces of bone were recovered from only a handful of samples. The distribution of ceramic artifacts patterned differently, with more macro- than micro-sherds recovered. The differential patterning between micro and macro artifacts suggests that different post-depositional forces were at work within the trench based on size sorting. One of the tenants of micro-archaeology is that smaller artifacts are more likely to be overlooked and left *in situ*. If this is the case, an analysis of the micro-artifact densities is necessary in order to recover the activities conducted within the room originally.

Building on this premise, Fig. 15 maps the high and low density of micro-artifacts across a floor surface in the western half of Room 3. The lithic debitage is concentrated in the northeastern corner of the room. In contrast, the highest density of faunal debris is patterned along the northern wall. The small sherds are slightly more dispersed than either the lithics or bones, suggesting the occasional dropped vessel at various locations

throughout the room and subsequent attempts to sweep up the pieces.

Additionally, micro-artifacts can be sorted into qualitative categories including ceramicwares, burnt bones, rodent bones, and lithic raw material type. A preliminary comparison of the type of artifacts used in Locus G-061 to Locus G-078 shows that G-061 lacked micro-cooking wares and white micro-debitage, while G-078 lacked tan-debitage. Both rooms contained fine and sandy ware ceramics and a red/pink chipped stone. Micro-debris sampling is on-going at Ziyaret in order to sample a variety of domestic and public structures in order to compare and contrast this sort of room-signature across the site. The variable preference for chipped stone types may correlate with economic resources (if, for example, some of the types are not local) or household preferences. Whether there are qualitative differences among the raw material types remains to be seen. But even without clear structural differences, the use of certain material types may have had a symbolic meaning. For example, the singular concentration of tan debitage in G-061 may indicate a specific raw material type that was preferred for a certain activity or perhaps it represents a favored tool type by an individual. With a larger sample it will also be instructive to compare average densities of fine, sandy, cooking, and coarse wares among households. Likewise, the association of burnt micro-fauna and cooking wares in G-078 suggests food preparation. A small partition wall separated these two areas and perhaps the smaller space associated with G-078 was used to prepare food, while the larger, perhaps better lit room associated with G-061 was where the food was commonly consumed. At the same time, this suggestion does not require a simplistic division between a "kitchen" and a "dining room," which are modern and often exclusive categories that we would not expect to find in ancient cities.

Preliminary Assessment of Lithic Industry at Ziyaret Tepe

During the 2002 season, an initial assessment of the chipped stone industry was undertaken by Caroline Skelton, a student at the Institute of Archaeology, University of London. Lithics from the 2000 and 2001 seasons were washed, measured and entered into the database. Measurements for length, width and thickness, location and size (width and thickness) of butts or bulbs of percussion were made. A simple inventory of materials used: flint, obsidian or "other," the latter category denoting a range of materials, including an infrequent crystalline material used in lithic production at Ziyaret Tepe. The total number of lithic artifacts from the 2000 and 2001 seasons recorded was 648. Overall, the most common material used for chipped stone was flint (n=504), which represented 78% of the collection. A significant number of chipped stone artifacts (n=104, 16%) were of an unidentified stone, neither flint nor chert, while a small number were of the other crystalline stone (n=15, 2%) noted above. A systematic sampling of stone types for precise identification is underway at the University of Akron using exported stone samples. Finally, twenty-five artifacts representing 4% of the collection were made of

obsidian. While these numbers are taken from all excavated contexts, and therefore conflate chronological periods, they provide two immediate generalizations. First, the Ziyaret Tepe assemblage is numerically very small given the large areas excavated in the 2000 and 2001 seasons and, second, this is a flint-based industry with only a minor obsidian component.

Technologically, the majority of artifacts collected (n=369, 57%) were not worked, that is they had "natural" shapes and had probably been broken by plows or other accidents. The second largest category of material were "chunks" (n=216, 33%), pieces of stone that showed some human modifications but did not seem to have a bulb of percussion or any evidence of retouch. The remainder of the collection showed definite evidence of human activity, but was small in number and did not form a clear type series based on the current sample. This group included: flakes or pieces of flakes with a discernable bulb of percussion (n=44, 7%), cores (n=10, 2%), blades (n=7, 1%) and tools (n=2, <1%). The spatial distribution of this latter category has only been preliminarily studied, but it is of interest that 41 artifacts (65%) came from Operation A and 16 artifacts (25%) came from Operation E, while the other five Operations excavated in 2000-2001 (Operations B, C, D, G and I) only accounted for six artifacts (10%) of the worked assemblage. The conclusion drawn from this preliminary assessment is that there is no evidence for significant flint tool production from any of the excavated Late Assyrian levels, nor from the second millennium contexts in the Operation E step trench. Indeed it is likely that the lithics recovered from these layers were derived from the earlier deposits.

Magnetic Field Gradiometry Survey

The placement of excavation trenches at Ziyaret Tepe has largely been guided by the results of subsurface magnetic field gradiometry surveys. Two initial field seasons of subsurface magnetic field gradiometry were carried out in 1998 and 1999 at Ziyaret Tepe (Matney and Somers 1999; Matney and Bauer 2000). The purpose of those surveys was to test the efficacy of using magnetic survey techniques at Ziyaret Tepe. Favorable results were obtained, as reported previously, and it was decided that a total survey of the site would be conducted, starting in 2002 and continuing for several seasons. In 2002, an University of Akron archaeological geophysics team conducted survey in two portions of the site: the western high mound and the western lower town [see Fig. 2 for the location of these survey areas]. These areas were chosen for several reasons. In the high mound, extensive excavations on the eastern edge of the site in Operations A and E have begun to clarify the nature of remains in that area. In contrast, the western side of the high mound is still not well understood. In anticipation of starting excavation in this area of the high mound in a future season, it was decided to re-survey that portion of the western high mound we examined in 1998, and to complete a survey of the entire western sector.

Fieldwork this season was conducted with GeoScan FM-36 fluxgate gradiometer at an ideal sample density of 8 samples per meter, over one meter transects. At the beginning of the season, we experimented with lower and higher sampling densities (the latter achieved with narrower transects) and found a density that was a reasonable compromise between speed and resolution. Data were collected in 20m by 20m grids using a zig-zag collection path. The gradiometer required frequent rebalancing as the intense summer heat caused a significant change in temperature during the working day. Two students, Ms. Ann Donkin and Ms. Lauralee Elliott, were responsible for day-to-day data collection. Data were downloaded into a laptop computer and initial processing and filtering was accomplished using GeoPlot 3.0, a proprietary software package designed for use with the FM-36. Noise was removed using a variety of filtering techniques, and composites were created for each large survey area.

Preliminary results of the gradiometry surveys

On the high mound, the results were disappointing, due in part to later material sitting on top of the Late Assyrian architecture and in part to a large metal irrigation pipe that was laid across the high mound by a local villager in order to provide water to an adjacent cotton field. The results of the 2002 survey in the upper high mound are shown in Fig. 16. The irrigation pipe, seen clearly as an alternating band of very strong positive and negative values, obscures all magnetometry data for 10-12 meters on either side, making survey of the mound adjacent to the pipe impossible. As one moves away from the pipeline, the results are still difficult to decipher, with one exception. At the southern edge of the high mound, a series of weakly magnetic, parallel linear features run northwest to southeast. These features are at the edge of the tell where, in a small cut made by a modern track, we can observe what looks like a stone paving or wall foundations eroding out of the mound. These linear features are in the right place for a possible citadel wall, but this will have to be investigated through excavation. In the other trenches on the edge of the high mound (Operations A, C and E) no evidence for such a wall has yet been found. Unfortunately, even at high sample densities, the nature of the architecture and the thickness of the overburden elsewhere on the western high mound left us with unsatisfactory results in 2002. Our results are only based on preliminary data processing, and work continues with filtering the datasets to suppress the noise of the irrigation pipe and to enhance the weak magnetic signals characteristic of the high mound at Ziyaret Tepe.

Results from the magnetic gradiometry survey in the western portion of the lower town were very good. Fig. 17 presents one processed view of the lower town dataset. Along the northern edge of the plan, a sharp line with adjacent high positive and negative readings marks the beginning of the slope of the tell. A similar curving line at the extreme southwestern corner of the map also marks the top of the mound's slope. Finally, a regularly spaced set of strong dipoles along the eastern edge of the map is the metal

survey stakes for the Operation G excavations. All other features shown on this map are the result of subsurface anomalies. From past experience at Ziyaret Tepe and ground truthing via excavation, we know that the long weakly negative features are probably mud-brick walls and that large very strong bipolar features are kilns.

The most striking feature of this gradiometry map are the long parallel linear features that run from the northwestern corner of the site down the entire length of the western edge of the settlement; these make a sharp jog at the southern edge of the survey area, before turning generally to the west. This marks the line of the city's ancient fortification wall that we are now able to trace for 200m in this survey. It is interesting to note that the wall does not appear as a strong feature along the northern edge of the survey area. This suggests that the city wall may be cut here, possibly by the erosion of this lobe of the lower town that is raised at least 6m above the floodplain to the north. The implication of this observation is that the walled city continued further to the north and was probably larger than the 32 hectares that has been previously calculated.

Another significant discovery this season was possible gradiometry evidence of a large building located at the "jog" in the city wall. Here we see clear linear features, with a negative magnetic gradient. This type of signal is similar to that which marked the presence of the large mud-brick building with a checkerboard mosaic floor in Operation G (Matney et al. 2002). In this case, the lines of most of the excavated walls were seen as faint negative features. Moderately strong positive features, usually a meter or so across turned out to be complete storage vessels that were still *in situ* less than 50cm below the modern surface. If this interpretation is correct, then there is an apparently well preserved monumental building to the south of our current Operation G trenches, at or near the city wall.

Regional Geomorphological Field Survey

A major new initiative associated with the Ziyaret Tepe archaeological project was the start of a multidisciplinary study of the local geomorphologic setting of the Upper Tigris River valley. This field survey was directed by Dr. Kathleen Nicoll of the University of Oxford. Other participants in the field party included Mr. Brian Pittman (University of Cambridge) and Mr. Andrew Bauer (University of Chicago). The long-term goal of the geomorphological project is to decipher the local paleoenvironmental setting of human activities from the Paleolithic through the Iron Age in this region of Turkey. The primary objectives in the initial 2002 field season included the following: (1) to initiate geoarchaeological description of the region; (2) to document the local stratigraphy, and sample appropriate locations for further detailed chronometric and paleoenvironmental analyses that will complement the ongoing excavations at Ziyaret Tepe; and (3) to develop an accurate set of basemaps that can be comprehensively rendered into a Geographic Information Systems (GIS) database to serve as the basis for

further research.

To facilitate our initial regional survey, we utilized digitally-processed multiband ASTER (Advanced Spaceborne Thermal Emission and Reflection Radiometer) satellite images of the area around Ziyaret Tepe and the Upper Tigris River Valley. ASTER datasets have been effectively used in a variety of landscape studies to map rock types, as well as to delineate soils and other surface features (Yamaguchi et al. 2001). The synoptic view provided by the satellite image oriented our mapping efforts in the field; the satellite data comprise one layer in our GIS of the region.

Aided by the satellite imagery, we used vehicular and pedestrian surveys to identify suitable locations where we could describe and sample stratigraphic sections. After reconnaissance, we employed Global Positioning Systems (GPS) and a laser theodolite Electronic Distance Meter (EDM) to "ground-truth" (i.e. georeference) specific modern cultural sites and local geographical and archaeological features. These data points were then referenced geographically with available published 1:100000 and 1:25000 topographical maps. Primary base maps are currently under construction to depict the observed distribution of the fluvial, lacustrine, and soil deposits based upon cross-cutting relationships, as well as differences in spectral signatures due to sediment type, drainage characteristics, and vegetative cover.

Along its reach near Ziyaret Tepe, the Upper Tigris river valley preserves a record of changing climatic conditions over late Quaternary time scales. Its variations in base flow, flood magnitude/frequency, and sediment transport can be discerned in the channel and floodplain morphology, and the sediments that form terraces along the river and its tributaries. To reconstruct the magnitude and timing of these changes, we are interpreting the local stratigraphic record and its proxy paleoenvironmental data (e.g. pollen and phytoliths).

Fig. 1 depicts a subset of our study area in the region of Ziyaret Tepe, and some areas in which we conducted detailed stratigraphic descriptions and systematically sampled sediments for further laboratory analyses. Fig. 18 presents the transect lines of geomorphic cross-section as shown in Fig. 1; the modern floodplain is annotated as T-0 (Terrace 0), with subsequently older terraces annotated as T-1, T-2, and so on. Some of these terraces are as much as 7m above the modern floodplain (i.e. the T-0 surface); these are massively thick gravel sequences attesting to former periods of base flow that far exceed the modern discharge of the river.

In the post-field season, we are conducting various laboratory analyses of our collected samples. The main analytical techniques we plan to employ include: (1) mineralogical assessment of sediments via thin section microscopy, chemical techniques, and x-ray determination; (2) absolute age determination via radiocarbon analyses and optically stimulated luminescence (OSL); and (3) determination of paleoecological context via soil description and micromorphology, and botanical microfossil (e.g. pollen and phytolith) analyses. The objectives of these analyses are to: establish a benchmark

framework that we can test and expand upon within the Upper Tigris watershed during future field seasons; provide the empirical basis for understanding the frequency, magnitude, and thresholds for changes in the fluvial system; and compartmentalize the fluvial record so as we can then evaluate climatic changes through time, and in the context of local archaeological developments.

Our ongoing studies will help reconstruct the former vegetative habitat in the Ziyaret Tepe region, and provide another context through which we can decipher the paleoenvironmental context of the Upper Tigris region as it relates to cultural activity along Assyria's Anatolian frontier (*sensu* Parker 2002). Forthcoming results will help place the local culture within a clear geographical, environmental and ecological setting, enabling us to document the diachronic evolution of the social and natural environments during an historically documented period of rapid urbanization along the Upper Tigris River valley (Matney 1998; Matney et al. 2002). Paleoenvironmental records from this understudied part of southeastern Anatolia will comprise a new dataset that can test the validity of recent claims regarding the historical significance of abrupt aridification during the Early Bronze Age (the end of the third millennium BC) and the consequent effects on the northern reaches of the ancient Near East (see Fontugne et al. 1999; Miller Rosen 1998; Wilkinson 1999; Weiss 2000). The records from the Ziyaret Tepe reach of the Tigris will provide a valuable basis for comparison to other geoarchaeological studies available from the well-documented Euphrates River basin, further deepening our window into antiquity (e.g. see Wilkinson 1978; Roberts 1991; Miller Rosen 1997; Roberts and Eastwood 1997; Wilkinson 1999).

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APPENDIX A. Catalogue of Ceramic Plates

1. ZT 3303/1 (E-071).Small carinated bowl, distorted and irregular, rim oval. Drawn both at its widest and narrowest extent. Ht. 10. Rim diameter 10.6-12.4 (100%). Base diameter 3.3 (100%). Complete, but broken into many small pieces. Inclusions: common fine black mineral, occasional medium white mineral and common fine mica. Munsell Color external and internal surfaces: 7.5YR 8/4 pink. Paste: 5YR 7/6 reddish yellow varies to 10YR 8/3 very pale brown.

2. ZT 3266/1 (joins 3277/1, 3236/1, 3266/ also possibly the same vessel as 3277/2) (E-071). Rim of deep carinated bowl with ridge above carination. Rim diameter 21 (40 + 15 %). Inclusions: common fine white mineral and occasional fine black mineral, common fine veg. Surface treatment: wet smoothed. Munsell Color external surface: 5YR 8/3 pink to 7/3 pink. Internal surface: 2.5YR 6/6 light red. Paste: varies 7.5YR 8/4 pink to 7/4 pink. (3236/1 is part of the same vessel but burnt very black (10YR 3/1 very dark grey) and has acquired a shiny deposit on the surface that gives the sherd the impression of being burnished, the 'burnishing' is totally absent from the joining 3266/1 sherd and therefore probably a product of the conflagration.) 3277/2 may be part of the same vessel but does not join. External surface: 7.5YR 7/4 pink. Interior surface: 5YR 6/4 light reddish brown to 6/6 reddish yellow.

3. ZT 3291/1 (E-071). Deep carinated bowl. Rim diameter 29 (16%). Inclusions: common fine black mineral and mica and occasional fine white mineral, common fine veg. Surface treatment: wet smoothed exterior. Munsell Color external surface: 7.5YR 8/2 pinkish white to 8/4 pink. Internal surface: 5YR 7/4 pink to 2.5YR 5/6 yellowish red to 5YR 6/6 reddish yellow. Paste: 5YR 7/4 pink.

4. ZT 3236/5 (E-071). Painted body sherd from a deep carinated bowl with ridge on shoulder. Painted band below ridge and diagonal lines making alternating triangles. Plaster baked onto surface including the sherd's broken edges suggesting that the sherd was already broken before the fire and may have been within the roof construction. Diameter at carination approx. 28. Inclusions: common fine black mineral and occasional fine veg. Surface treatment: wet smoothed. Munsell Color external surface: 10YR 8/3 very pale brown. Internal surface: 7.5YR 6/4 light brown. Paste: 5YR 6/3 light reddish brown. Paint: 5YR 5/1 grey.

5. ZT 3291/2 (joins ZT 3266/, ZT 3277/)(E-071). Deep carinated bowl, base missing. Very little of the body below the carination is extant. Interior surface red and flaking. Ext. Ht. 18.5. Rim diameter 25 (48%). Inclusions: common fine white mineral, occasional fine black mineral, sparse medium and coarse white mineral, sparse fine veg. Surface treatment: wet smoothed. Munsell Color external surface: 5YR 7/4 pink to 7.5YR 8/4 pink. Internal surface: 2.5YR 6/4 light reddish brown. Paste: 7.5YR 7/4 pink to 7.5YR 8/4 pink

6. ZT 3305/1 (E-071). Deep carinated bowl, complete but base worn very thin and interior surface flaking. Ht 17. Rim diameter 21-22.8 oval (100%). Base diameter 10 (100%). Inclusions: abundant fine white mineral and sparse coarse white mineral, sparse fine mica and sparse fine veg. Munsell Color external surface: 2.5Y 8/3 pale yellow to 5YR 7/4 pink. Internal surface: 10R 5/6 red. Paste: 7.5YR 8/4 pink.

7. ZT 3236/4 (E-071). Ring base. Base diameter 13.4 (100%). Inclusions: occasional fine black and white mineral and mica and visible on base interior only, common fine veg, occasional medium veg. and sparse course veg. Surface treatment: wet smoothed, exterior also seems to be stained. Munsell Color external surface: 7.5YR 6/2 pinkish grey. Internal surface and paste: 7.5YR 7/4 pink.

8. ZT 3266/2 (joins 3277/3) (E-071). Disc base. Interior surface red and flaking, baked plaster on exterior

surface, old breaks with worn edges. Base diameter 9 (80%). Inclusions: common fine white mineral and sparse coarse white mineral, occasional fine mica and fine veg. Munsell Color external surface: 5YR 7/4 pink. Internal surface: 10YR 5/6 yellowish brown. Paste: varies 2.5 YR 6/8 light red to 10YR 8/3 very pale brown .

9. ZT 3311/1 (E-071). Complete section of a ring base bowl, about half of the vessel is extant. Ht. 4.9. Rim diameter 17.5 (58% extant). Base diameter: 7 (10%). The interior of the base is stained pink ?by the combustion of its contents or something that it came into contact with at the time of burning. Inclusions: occasional fine black and white mineral, sparse coarse white mineral, occasional fine and sparse medium veg. Surface treatment: wet smoothed. Munsell Color external surface: 2.5Y 8/2 pale yellow. Internal surface: 2.5YR 6/4 light reddish brown (stain). Paste: 5Y 8/2 pale yellow.

10. ZT 3170/1 (E-071). Exact position N1085 E1199. Carinated bowl with out-turned rim and flat base. Somewhat irregular in shape, reddish signs of burning on the exterior and patches of baked plaster, found in close association with the roofing collapse. Ht. 8. Rim diameter 22-24 (45 %). Base diameter: 7 (40%). Inclusions: common fine white mineral and sparse medium white mineral, occasional fine veg. Surface treatment: wet smoothed. Munsell Color external surface: 5YR 8/1 white. Internal surface: 5YR 8/1 white. Paste: 5YR 6/4 light reddish brown.

11. ZT 3255/1 (joins 3266/4) (E-071). Large bowl with rolled/out-turned rim, 2 opposing lugs and an equidistant spout on rim, flat base. The fabric of this bowl is much grittier than most of the rest of the vessels and sherds in this deposit. Ht 12. Rim diameter 32-33.5 (100%). Base diameter 8.8 (100%). Although both rim and base are complete there are a couple of body sherds missing in between. In general the base is greener and grittier, while towards the rim the color is more yellow and pink. Inclusions: common fine and medium white mineral, common fine black mineral and occasional medium black mineral. Surface treatment: wet smoothed. Munsell Color external surface: 2.5Y 8/4 pale yellow. Internal surface: 2.5Y 8/4 pale yellow. Paste: 5YR 7/4 pink to 7.5YR 8/4 pink to 5Y 8/3 pink.

12. ZT 3236/3 (joins sherd ZT 3266/8) (E-071). Medium jar rim. The yellowish exterior, pinkish interior is common on many of the sherds in this deposit and an effect of the burning. Rim diameter 17 (25%). Inclusions: common fine black and white mineral and sparse medium white mineral, occasional fine mica and occasional fine veg. Surface treatment: wet smoothed. Munsell Color external surface: 2.5Y 8/3 pale yellow. Internal surface:2.5YR 6/4 light reddish brown. Paste: 5YR 7/6 reddish yellow.

13. ZT 3266/6 (E-071). Jar rim, rolled rim, sloping neck and ridge on shoulder. Baked plaster on exterior surface. with Rim diameter 19 (60%). Inclusions: occasional fine white mineral and sparse fine veg. Surface treatment: wet smoothed. Munsell Color external surface: 10YR 7/3 very pale brown. Internal surface: 10YR 7/4 very pale brown. Paste: 2.5Y 3/1 very dark grey.

14. ZT 3266/7 (joins ZT 3310/1) (E-071). Rolled jar rim. Rim diameter 26.5-28 (57% total of rim extant and ten body sherds from this jar). Inclusions: common fine and medium black and white mineral, occasional coarse black and white mineral. Surface: wet smoothed, trickles of red ?staining running down the vessel from the rim. Color ext. surface:7.5 YR 7/4 pink. Internal surface: 10YR 7/6 yellow. Paste: 7.5YR 7/4 pink varies to 6/4 light brown.

15. ZT 3277/4 (E-071). Bowl rim with much baked plaster on the surface, interior surface very worn, despite the poor visibility it seems to have either a brown wash on the exterior and/or is burnished. Rim

diameter 30-31 (9%). Inclusions: occasional fine black and white mineral occasional fine mica and occasional medium veg. Munsell Color external & internal surfaces and paste: 7.5YR 6/4 light brown. Core: 10YR 5/2 greyish brown.

16. ZT 3236/2 (E-071). Painted body sherd with bands and eye motifs, baked plaster on surface of sherd. Inclusions: common fine black mineral. Munsell Color, external surface: 7.5YR 8/4 pink. Internal surface and paste: 7.5YR 7/4 pink. Paint: 5YR 5/3 reddish brown to 7.5YR 7/4 pink.

17. ZT 3196/1 (E-061). Painted body sherd from deep carinated bowl with ridge on shoulder. Painted bands and diagonal lines. Inclusions: occasional fine black and white mineral and mica and common fine veg. Munsell Color, external surface: 2.5Y 7/3 pale yellow. Internal surface: 7.5YR 6/4 light brown and paste 7.5YR 6/6 reddish yellow. Paint: 5YR 5/4 reddish brown. Surfaces obscured by baked plaster.

18. ZT 3194/1 (E-061). Painted body sherd, probably a jar shoulder. Wet smoothed surface. The orientation is problematic, that shown on the illustration is taken from the wheel/wipe marks on the reverse, however the wipe marks on the exterior would suggest a horizontal band at the top with vertical and horizontal cross hatching. Inclusions: common fine black mineral, occasional fine mica and sparse fine veg. Munsell Color, external surface: 10YR 8/4 very pale brown. Internal surface: 10YR 7/4 very pale brown and paste 7.5YR 6/4 light brown. Paint: 5YR 6/3 light reddish brown.

19. ZT 3205 (E-061). Cooking pot, almost complete but fabric friable and joins difficult to make, base rounded. Rim diameter 21 (75%). Surface: wet smoothed and burnished. Inclusions: common fine, medium and course black and white mineral and occasional fine mica. Munsell Color, external and internal surfaces: 10YR 7/3 very pale brown. Paste: 10YR 7/4 very pale brown, with greyish core (not Munselled).

20. ZT 3194/2 (E-061). Lid fragment, covered in baked plaster, visibility of surface and fabric very poor. Two shallow grooves on surface. Diameter 20 (20%). Munsell, paste: 5YR 7/6 reddish yellow.

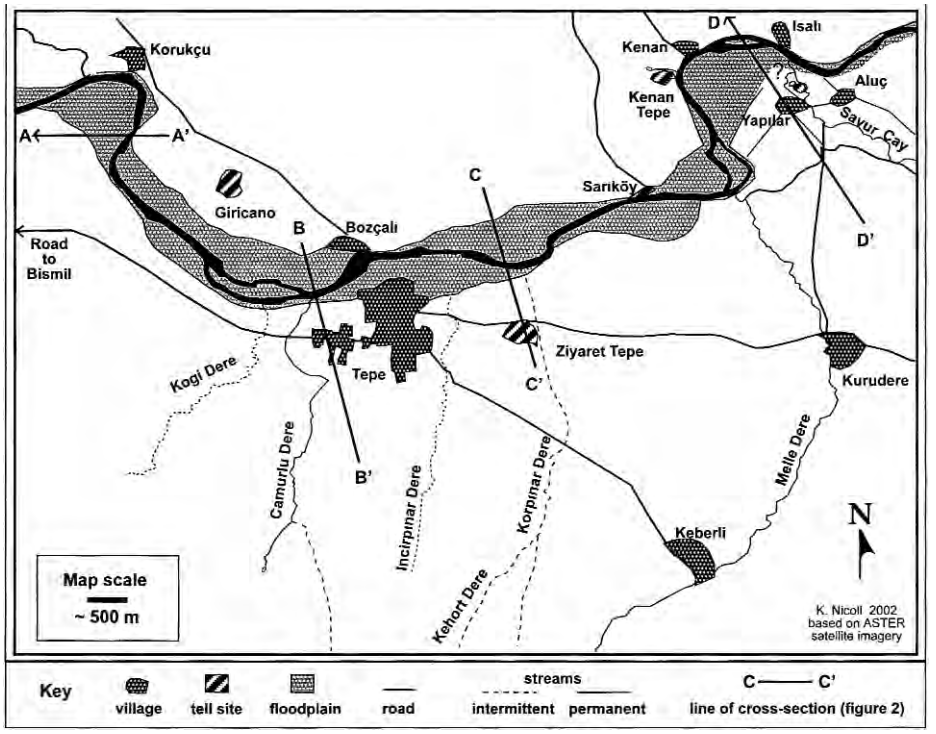


Figure 1. Map showing the location of Ziyaret Tepe, its location relative to recent sedimentation of the Tigris River and the location of stratigraphic sections.

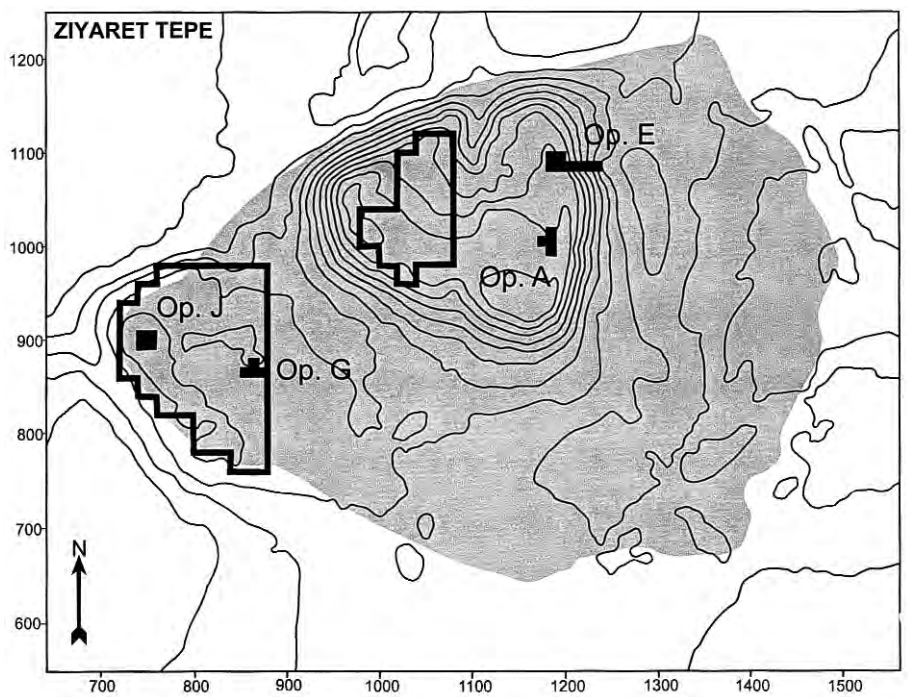
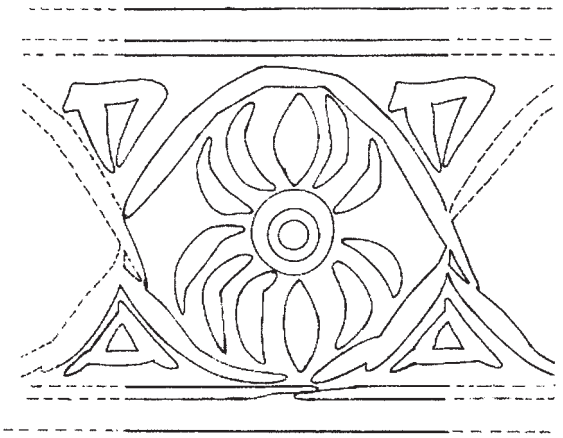


Figure 2. Topographic plan of Ziyaret Tepe showing the location of excavation and geophysical survey units in 2002.

Figure 3. Photograph of Middle Assyrian deposits at the top of Operation E.



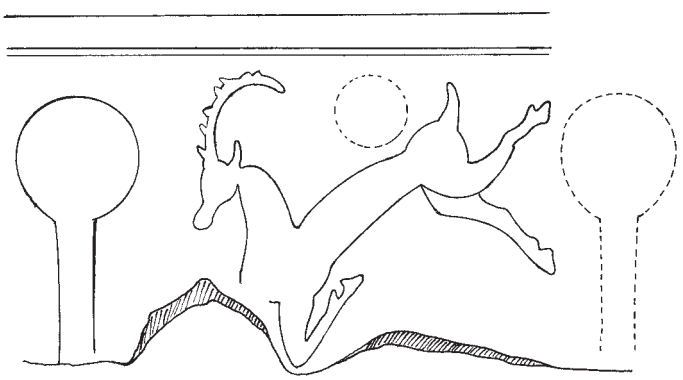


Figure 4. Cylinder Seals from Operation E
(top and photograph: ZT 3635, E-323; bottom: ZT 6545, E-244)

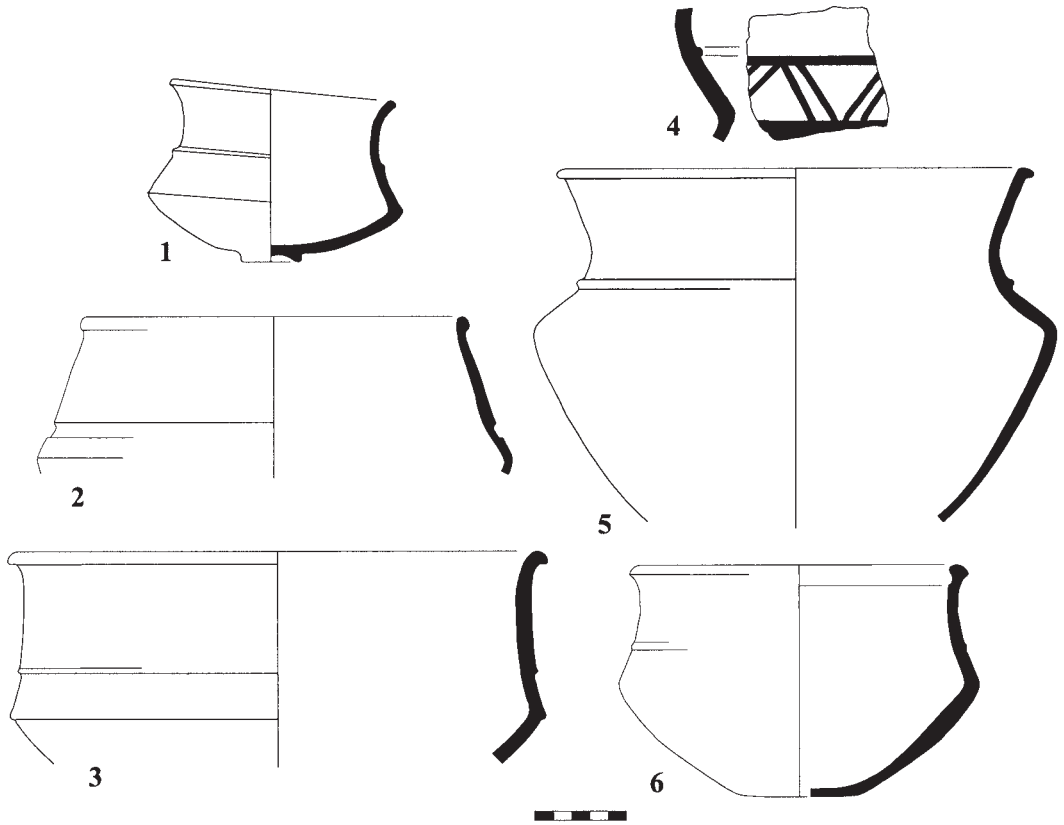


Figure 5. Pottery from the Brightly Burned Building

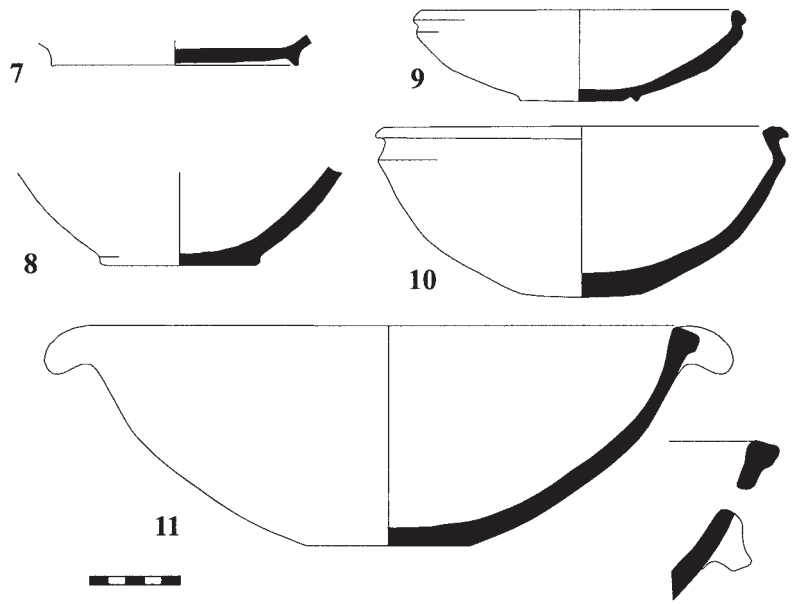


Figure 6. Pottery from the Brightly Burned Building

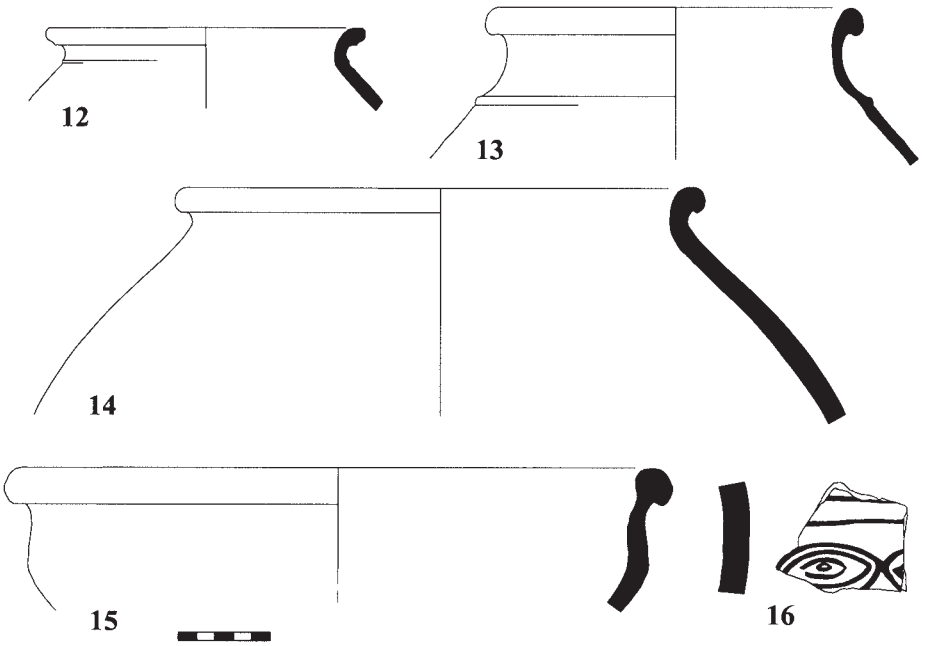


Figure 7. Pottery from the Brightly Burned Building

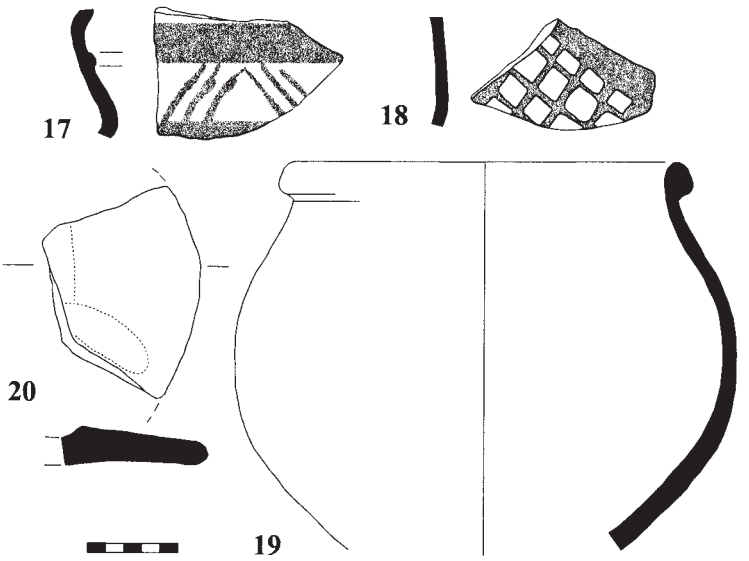


Figure 8. Pottery from the Brightly Burned Building

Figure 9. Photograph of excavations in Operation A showing mudbrick walls cut into platform and extensive later pitting.

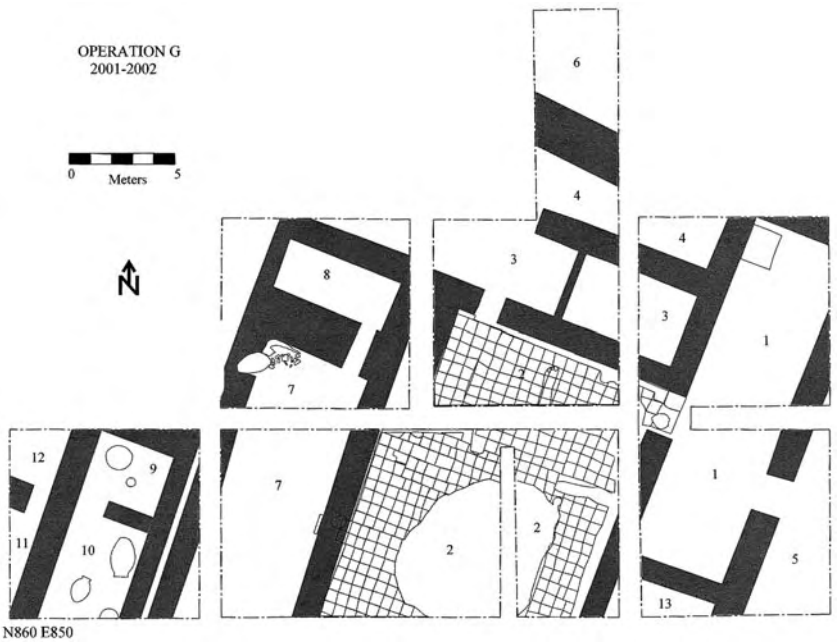


Figure 10. Plan of the architectural remains in Operation G, showing the location of the mosaic floors.

Figure 11. Photograph of the rooms in which the tablets were found in Operation G (Rooms 9 and 10)

Figure 12. Photograph of unbaket clay tokens from Rooms 9 and 10 in Operation G.

Figure 13. Photograph of tablets from Operatoin G after firing.

Figure 14. Photograph showing the construction of the Operation J walls reusing Roman roof tiles.

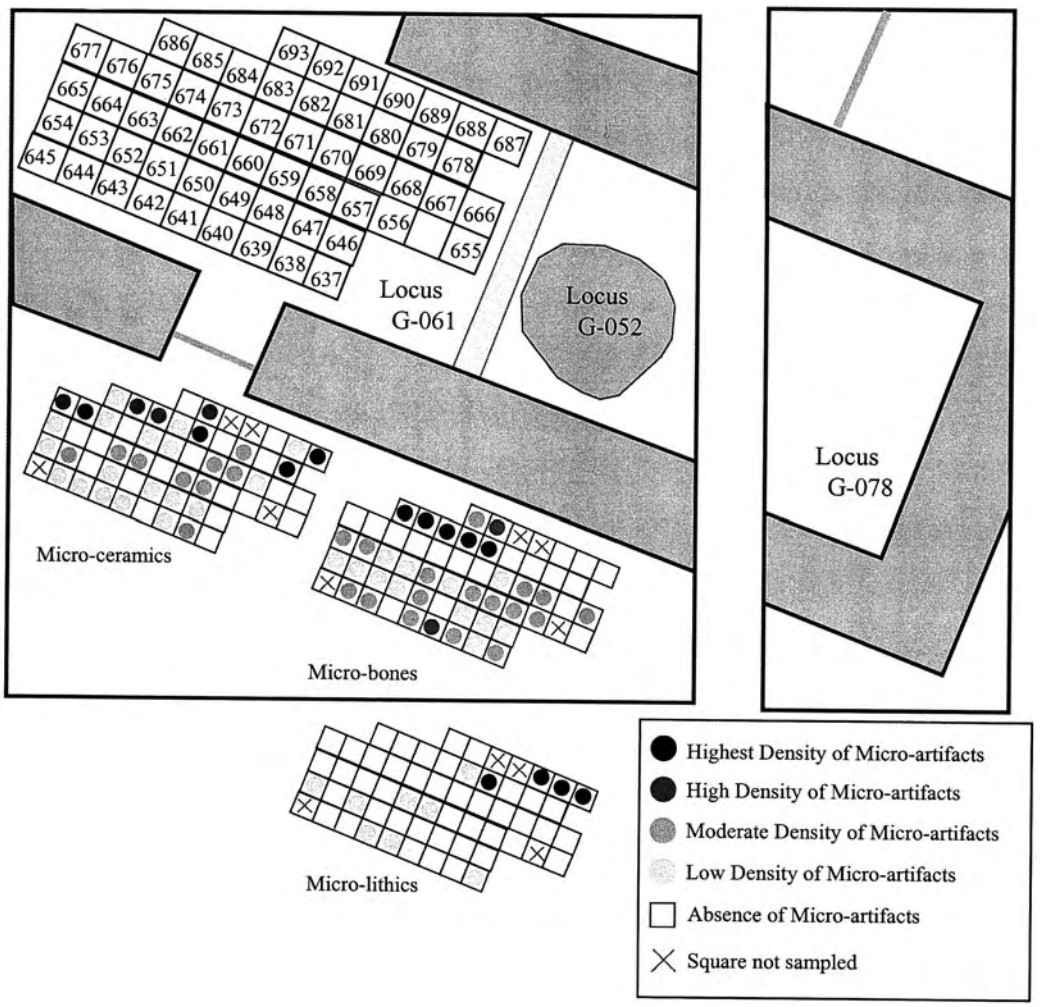


Figure 15. Map showing the distribution of micro-debris from Operation G building.

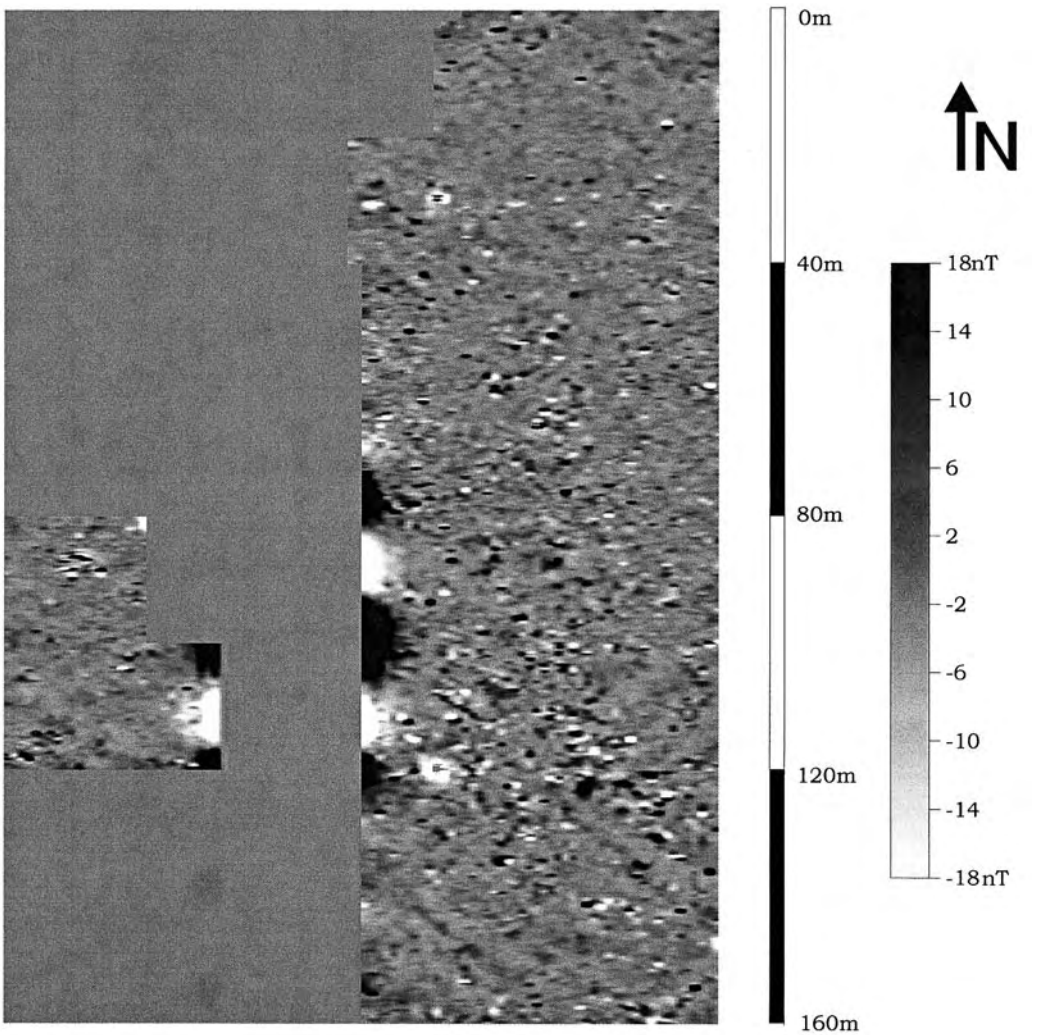


Figure 16. Magnetic field gradiometry map showing the results of survey in the western portion of the high mound.

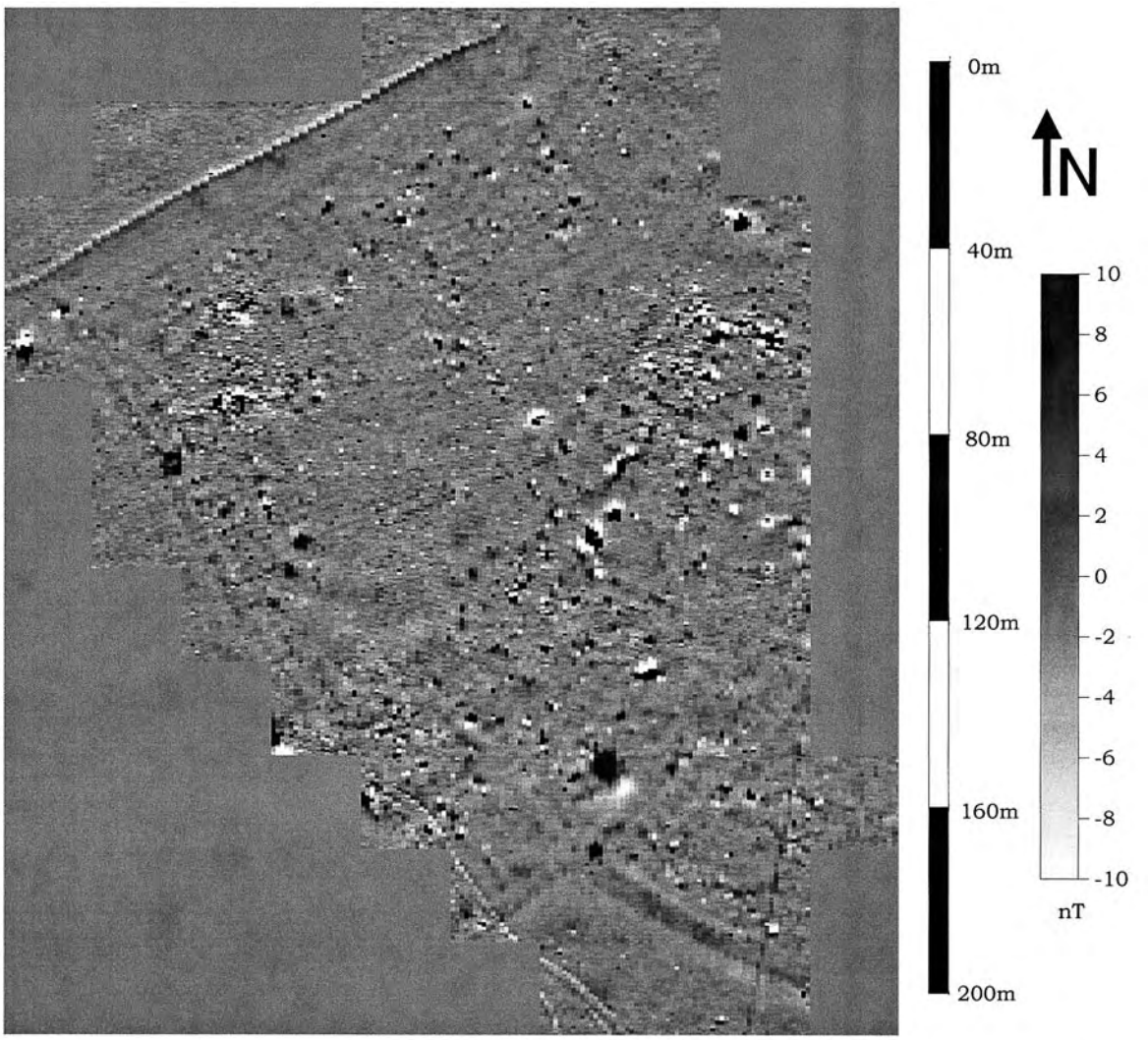


Figure 17. Magnetic field gradiometry map showing the results of survey on the western lobe of the lower town.

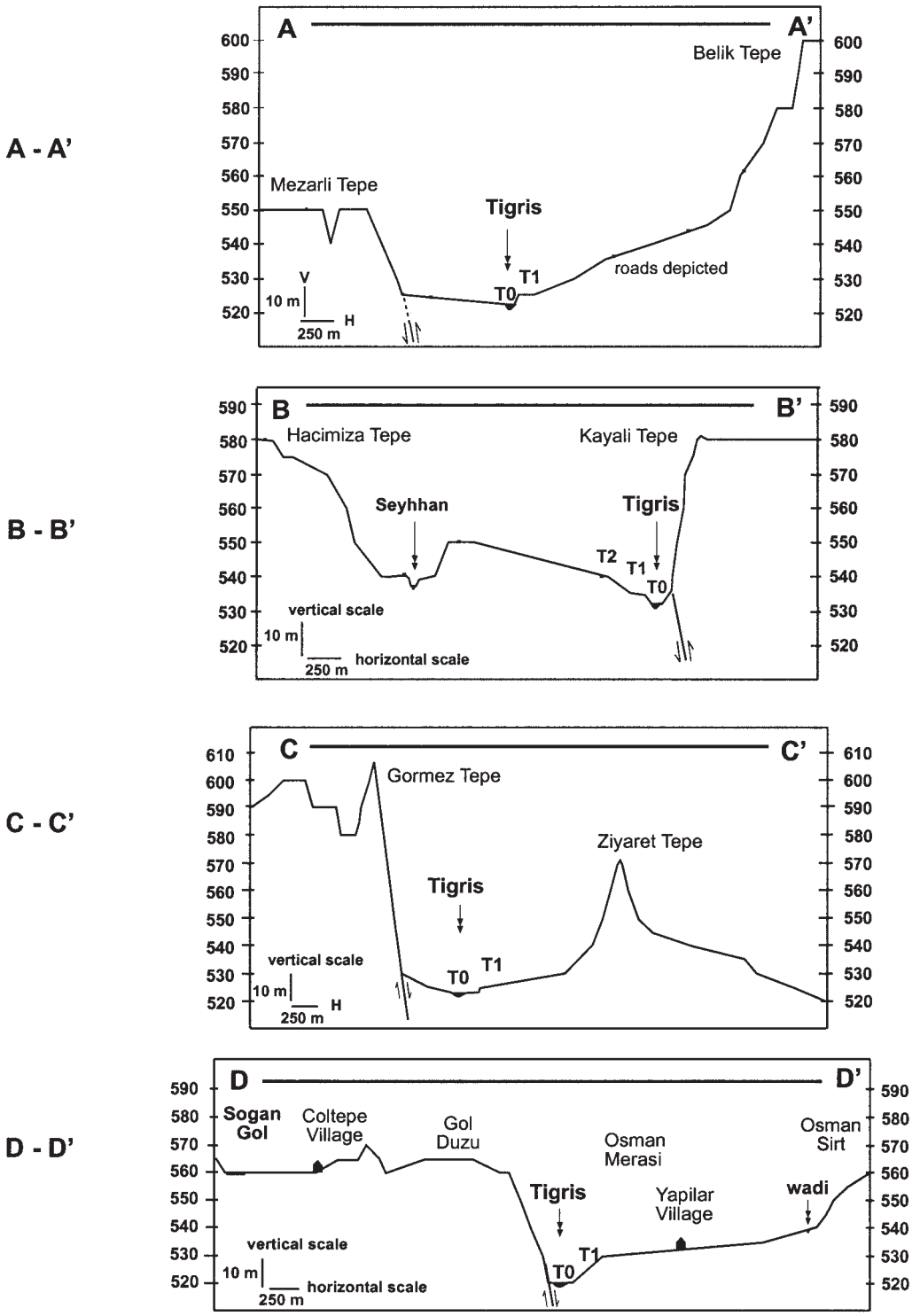


Figure 18. Cross-sections depicting the modern topography of the Tigris River near Ziyaret Tepe.