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The New Swedish Cyprus Expedition 2012 Excavations at Hala Sultan Tekke

Preliminary results. With contributions by I. Trinks, B. Stolle, K. Heiß, J.A.I. van der Does & D.M. Blattner

Abstract**

The third season of excavation at Hala Sultan Tekke added knowledge to the project, the main objective of which is the investigation and determination of the complete occupational sequence of the pre-12th century BC levels. New walled and open spaces from Strata 1 and 2 were exposed in Area 6. Another pictorial krater with birds was excavated. The terminology for the much discussed Cypriote-produced White Painted Wheel-made ware has been revised and a new terminology is suggested, i.e. "White Painted Wheel-made Geometric Style (WPGS)" and "White Painted Wheel-made Pictorial Style (WPPS)", of which the latter includes the Creature Krater from 2010 and the Bird Krater from this season. The hypothesis that a tsunami destroyed parts of the city in the 14th or 13th century BC is discussed. An additional radar survey of some 1.3 hectares revealed substantial structures, i.e. new city quarters, west of Area 6.

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Introduction

The 2012 season of the New Swedish Cyprus Expedition (NSCE) excavation was carried out under the direction of P.M. Fischer in the extended Area 6 of Hala Sultan Tekke from 23 April to 25 May 2012.[1] The choice of the areas for excavation in 2012 was again guided by the Ground-Penetrating Radar (GPR) survey from 2010[2] which suggested structures mainly to the north, south and east of the previously excavated compound. This compound is mainly of domestic character but the presence of small scale industrial activities could be demonstrated.

Thirteen walled spaces which belong to Stratum 1, the most recent phase of occupation, were uncovered during the previous two seasons. This season another two rooms, R19 and 20, were exposed. From the pottery this phase can be roughly dated to the period from the end of LC II to the beginning of LC III.[3]

Some partially exposed spaces which obviously had the same functions come from Stratum 2. In addition to the five rooms from 2010 and 2011, R14–18, another one, R21, was exposed. From the same stratum is a compound in the northeastern part of the exposed area, the walls of which were re-

[1] The new trenches from 2012 are: Trench 6B; Trenches 7B and 7C; Trenches 8A, 8B and 8C; Trench 9A. Additional excavations were carried out in Trenches 1A, 1B and Trench 7A from 2010 and 2011 respectively.

[2] Fischer 2011.

[3] Fischer 2012a; Bürge 2012.

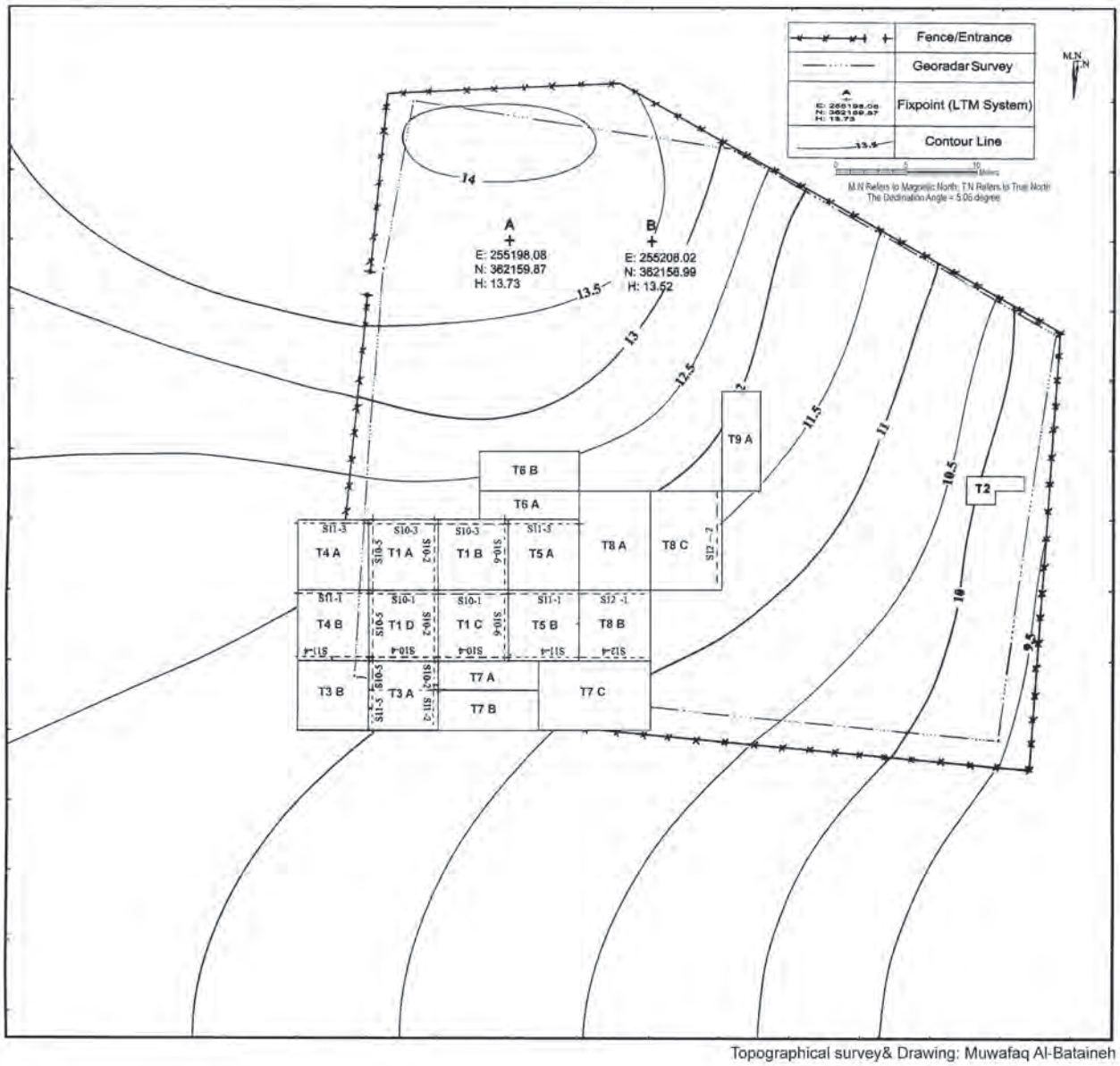


Fig. 1a. Contour map and overview Area 6, trenches 2010–2012 (drawing by M. Al-Bataineh).

used in Stratum 1. It has extraordinarily wide walls. Complete Base-ring I and Mycenaean-type vessels (FS 149) derive from this compound: ceramic parallels point to an overlapping time-span corresponding to LC IIA2–LC IIC1. The Creature Krater (*Fig. 8b*) of White Painted Wheel-made Pictorial Style (WPPS) also stems from this phase.[4]

In 2011 a third stratum, Stratum 3, was uncovered only at a few places and its date remains insecure.

There are numerous interesting sherds from all strata which belong to the first half of the Late Cypriote and a few even to the Middle Cypriote period. However, architectural remains from the first half of the Late Cypriote period or earlier have not yet been found—unless they were reused. Amongst the earlier wares are White Slip I (monochrome and bichrome decorated), Red Polished, White Painted Pendant and Cross Line Style, White Painted V–VI, Red-on-Black/Red, Red and Black Slip, Monochrome, Bichrome Wheel-made, Base-ring I and a complete spouted juglet of White Painted VI ware. Other wares include White Slip II (early, mature and late), Base-ring II, Bucchero, Red Lustrous Wheel-made, White

[4] Fischer 2011; Fischer 2012b; see under the heading "Conclusions and hypotheses" below.

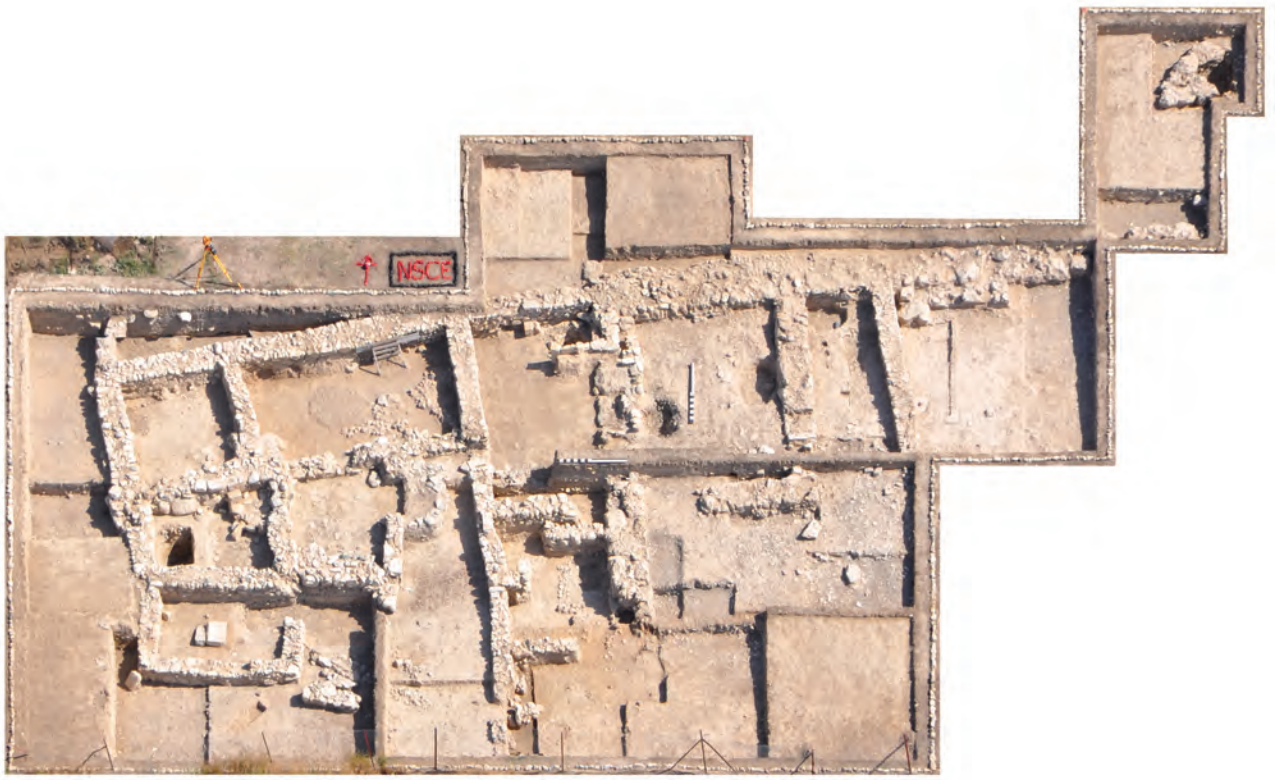


Fig. 1b. Air photograph 24 May 2012 (photograph Police Aviation Unit, A. Ioannou).

Painted Wheel-made, Plain White Wheel-made, White Shaved, Coarse and Pithoi. The majority of the imports are from the Mycenaean sphere of culture. A cylinder seal of black stone with six incised panels, and a *pataikos*, a pendant figurine of black and white marbled stone with possible influences from Syria/Lebanon, were other finds.[5]

Excavations 2012 (*Figs. 1a–b*)

STRATUM 1 (*FIGS. 2–5*)

Excavations in the north-eastern portion of the opened-up area concentrated on the massive structure which was partly excavated in 2011. Walls W19, W26, W33 and W34 (see below) were all built in Stratum 2 but reused in the more recent Stratum 1. During the 2012 excavation season, W26 and W1 (from Stratum 1), which define the northern limit of the Stratum 1 compound, were exposed approximately 17 m in the east–west direction. There are, however, indications by GPR that W26 continues roughly another 4 m to the east.

The principal building technique of the walls from the north-eastern part of the compound which were (re)used in Stratum 1 is as follows: the reused W19, W26 and W33 are all of large conglomerate stones and between them there is a fill of small blocks of limestone. W26 is 1.20 m to 1.40 m wide; W19 and W33 are roughly 1 m wide. W19, which runs perpendicularly to W26 from north to south, has a preserved length of approximately 13 m. Its southern part is badly preserved due to its position close to the present surface. W34 (also reused) and W35 are both made of blocks of limestone. Their preserved length is roughly 6 m. W34 is 0.70 m to 1 m wide, whereas W35 is 0.50 m to 0.60 m in width.

R10 was completely exposed. Its dimensions are 6 m × 4 m. It is connected to R19, which is east of R10, through an entrance in W34. Another possible entrance is in the western part of W33, connecting R10 with R11. R10 is covered with a *havara* floor. In the north-eastern corner of the room there is a bench made of stones and mud approximately 1.20 m × 1 m in size. South of the bench and built against W34 is an oven. Finds in this room included a Plain White Wheel-made jar (N45) and a bent toggle (?) pin of lead (N52), a spherical stone tool with two round indentations (grip?; N92 with a weight of 183 g), a biconical spindle whorl of clay (N93)

[5] Fischer 2012a; Franz 2012. The black stone was termed "haematite" in the 2012 publication. It is, however, most likely that it is chlorite.

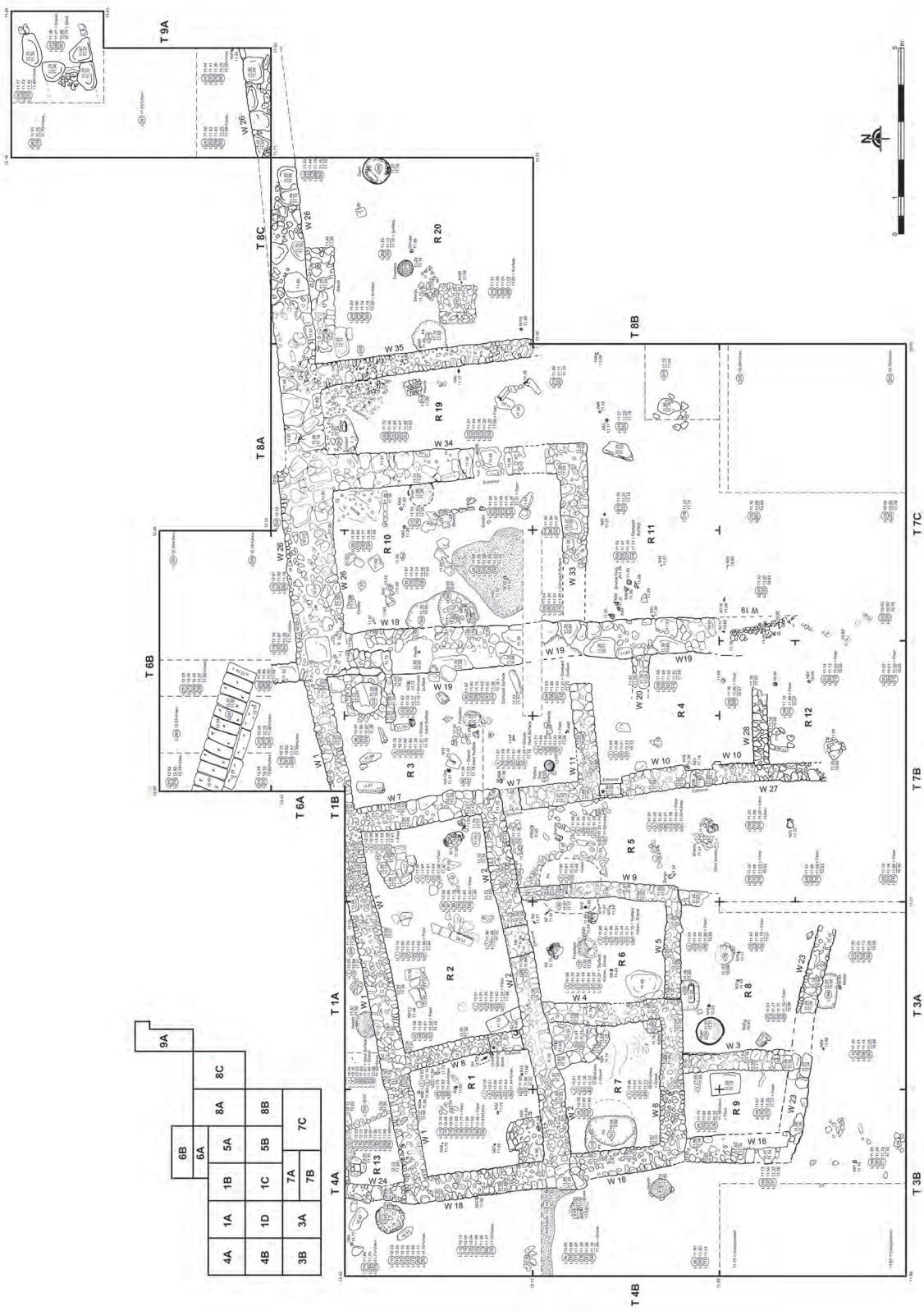


Fig. 2a. Overview Stratum 1 (drawing by M. Al-Bataineh and T. Bürge).

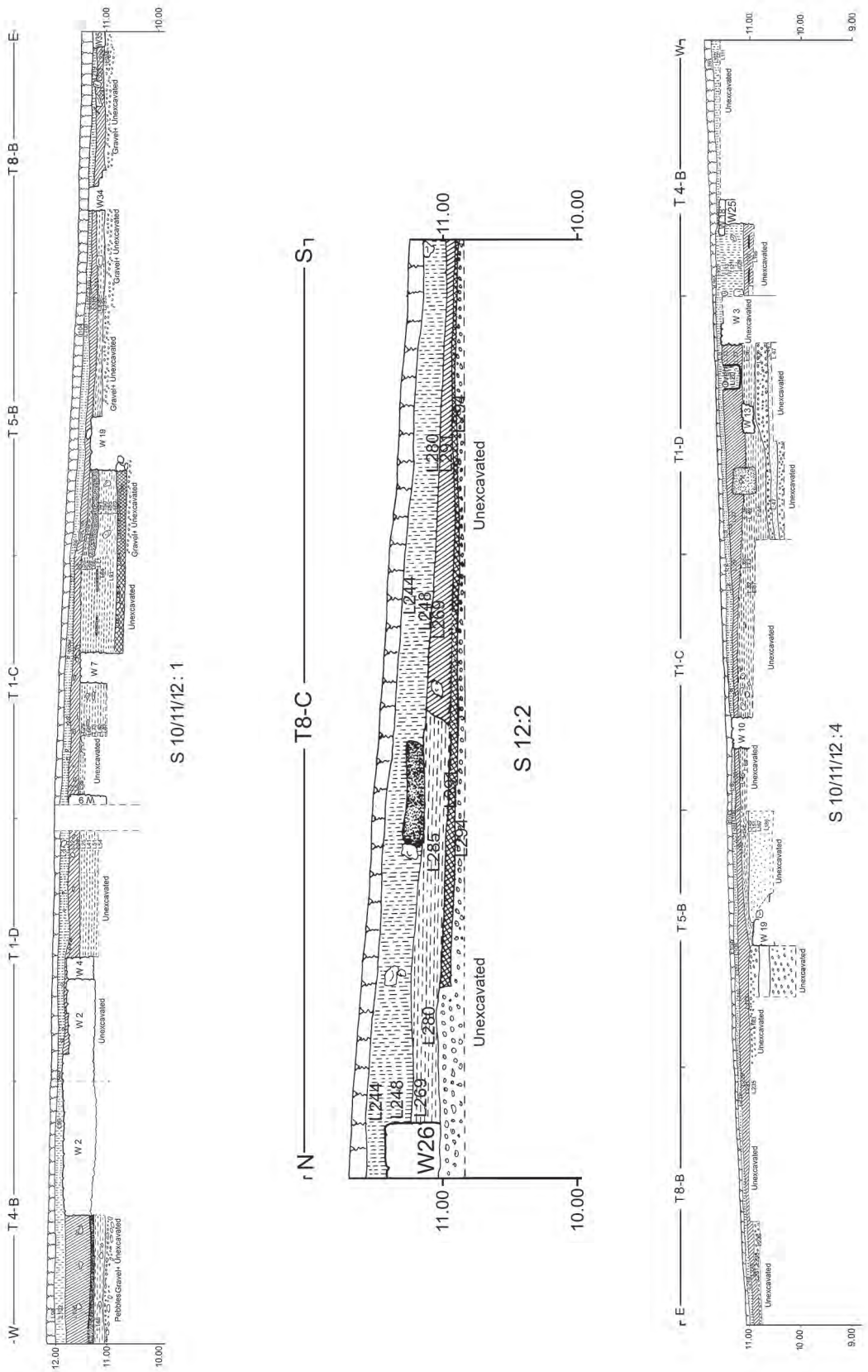
Fig. 2b. Reconstruction Stratum 1 compound (by M. Al-Bataineh).

and two grinding stones. There is a pit (L180) roughly 1 m wide next to W19: it contained a loom weight of fired clay (N65), and an almost complete deep bowl of Plain White Wheel-made ware (N71A) which was found together with a stone pestle (N71B): these two objects were obviously used together. The functions of this multi-purpose working space were food processing and storage, and textile production-related activities.

The next space, R19, can be reached via a 0.9 m opening in W34. The threshold of this passage is built of a large stone slab and some smaller stones. A turquoise bead (N90; lapis lazuli?) was discovered in the area of the threshold. R19 is bounded by W26, W34 and W35 to the north, west and east, whilst its southern limit is not clear. The space is stone-paved in the northern part. A pit (L252), approximately 0.15 m deep, was dug in the north-western corner and contained a grinding stone and a pestle. Close to W35 is a flat working space (L253'), obviously a hearth, with the dimensions 0.40 m × 0.50 m (see Appendix 3). Its flat surface is made of sherds. Three small pits were associated with the working surface. South of the working surface there was a sling bullet of lead (N96). In the southern part of R19 there are circularly arranged stones and two dislocated water channels of hewn limestone. Next to this structure several pieces of unfired pottery were discovered. The function of R19 was again that of a working space where two main activities were carried out: food processing and the production of ceramic containers.

There is no clear passage to the next room to the east, R20, but there might have been one in the southern part of W35, which is not completely excavated. R20, surrounded by W26 and W35, is at least 5.50 m wide. Its eastern limit is not yet exposed. In the northern part of this space is a 2.60 m long, 0.50–0.80 m wide and 0.15–0.20 m high stone bench built against W26. A loom weight of clay (N95) was found upon the bench. In the central part of the excavated area of R20 there is another working space (L251): it is almost square, 0.95 × 0.95 m in size, covered with large pithos sherds. The space between the sherds was filled with sand and gravel. At a somewhat lower position another damaged working space (L280') was exposed just north of the former. It may represent an older installation which was taken out of use when L251 was built. A small fireplace (L275) and an oven (L260) which contained a grinding stone, parts of a cooking pot (L260-1) and three White Painted Wheel-made vessels (L260-2, -3, -4) should be mentioned. A circular pit (L279; diameter 0.80 m) was discovered next to W35. In the soil covering the pit a loom weight of clay (N89) was found. Other finds from this room include a small grinder, a spindle whorl of sandstone (N102) and a sling bullet (N108). There is also a sherd (L248-8) of White Painted Wheel-made Pictorial Style (WPPS). R20 was an open space with several food-processing installations: a hearth, another fireplace and an oven. The bench may have been used to temporarily deposit the processed food.

R11 is south of R10 and R19. It was partly excavated in 2011 and further exposed this year. It is bounded by W19 and W33 (as exposed). Finds from this room included seven bowls of Base-ring II ware, three of which were intact (N38, N39, N40), a jar of Plain White Wheel-made (L107-1), three bowls



Figs. 3–5. Sections (drawing by M. Al-Bataineh).

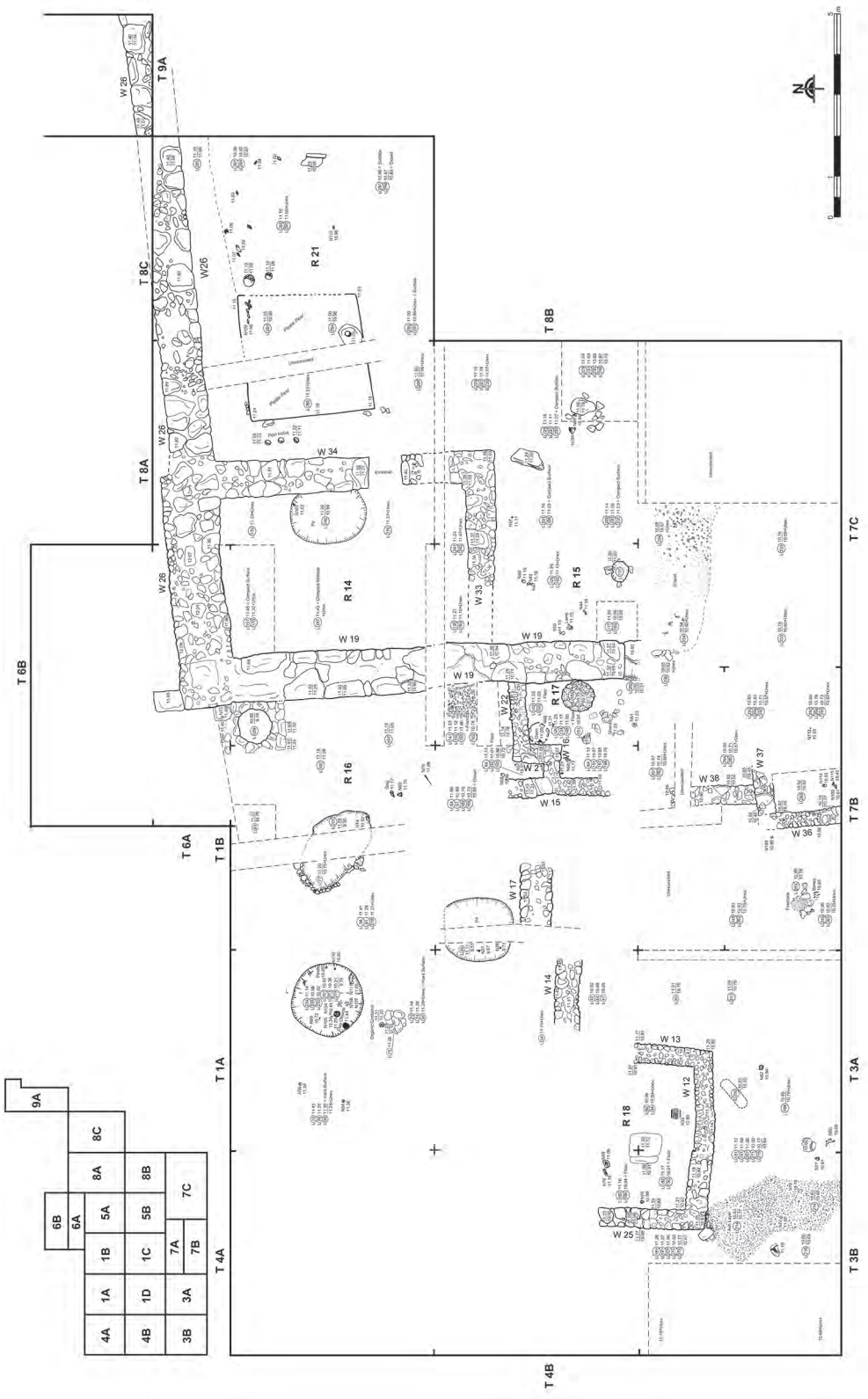


Fig. 6. Overview Stratum 2 (drawing by M. Al-Bataineh and T. Bürge).

of White Painted Wheel-made (L107-2, -3, -4) and a White Slip II bowl (L107-6). Important non-ceramic finds were a biconical bead or weight of lead (N43), two clay spindle whorls (N82, N83), a stone spindle whorl (N86), another spindle whorl of sandstone (N116), a gold wire of an earring (N85), a bronze earring (N84) and a chlorite cylinder seal with six incised panels (N41).[6] A clay loom weight (N117) was found near the southern limits of W19, which is destroyed there. This space has produced one of the richest find assemblages so far. The numerous drinking vessels would suggest a place where people gathered and consumed liquids and food.

R4 and R12 are west of R11. These spaces were further exposed. R4 is bounded to the west by the approximately 0.50 to 0.60 m wide W10 which runs north–south. W28, 0.40 to 0.45 m wide, runs perpendicularly to W10 and separates R4 from R12. R4, surrounded by W10, W11, W19 and W28, was probably once separated into two minor spaces by the rudimentary W20.[7] R4 could be approached through several entrances: there are two entrances in W10 from R5. From R3 is an entrance in W11 and from R12 most likely one in W28. This room contained only a few finds: a wall bracket of fired clay (N16) and a partly preserved cooking pot (L198-1). The function of this room is difficult to assess but food processing is plausible.

R12, the southern limits of which are not clear, is only partly exposed. There is a circular stone structure built against W28, and a stone spindle whorl was found (N94). The function of this space cannot be determined.

R5 is to the west of R4. It is bounded by W9, W2, W7, and W10/27.[8] R5 is at least 9 m long and 2 to 3 m wide. It contained numerous olive stones close to a ceramic container,[9] an almost complete Plain White Wheel-made jug (N75), a small crucible of clay (N35) and the rim and neck of an Egyptian-imported faience vase (L199-3).[10] This room is partly stone-paved in the northern part and may represent a partly roofed or open courtyard where food was processed.

Additional soundings were carried to the north (outside?) of the compound, i.e. north of W1 and W26 in Trench 6A. North of the spot where W1 and W26 meet there is an area which contained fragments of fallen mudbricks, sherds and animal bones. Just north of W26 in Trench 9A a sling bullet (N97) was found. Another 4 m north of W26 there is a setting of four large stones and several smaller stones. These large stones were detected by quite a strong radar echo, and may represent the remains of a demolished wall or a stone depot for the construction/repair of walls.

STRATUM 2 (*FIGS. 3–6*)

Evidence of earlier occupation was exposed mainly in the north-eastern and southern part of the opened-up area.[11]

In the north-eastern part are W19, W26, W33 and W34 which belong to this period. W19 and W26 may belong to an even earlier building phase. R14 was further exposed. This room is bounded by W19, W26, W34 and W33. A pit (L246) next to W34 contained the head of an anthropomorphic figurine which was most likely part of a vessel, i.e. the neck of a jug (N101; see Appendix 1). Except for pottery of the standard repertoire for Stratum 2 there were no other finds of particular interest. An interpretation of the usage of this well-built, certainly roofed, space is not possible.

R21 is to the east of R14. This space could be reached through a 0.90 m wide entrance in W34. Its southern and eastern limits are not yet defined. The dominating installation in this space is an almost square, 3 m × 3 m plastered basin (*Fig. 7*). There are three post holes to the west and two to the east of the basin. These indicate a wooden roof support. A reused stone anchor was found inside the basin as well as numerous ellipsoidal objects of unfired clay which resemble sling bullets (N109; see Appendix 2). These objects—44 in total—were also found outside the basin lying on the floor mainly in the northern part of R21. Another find from R21 was a clay spindle whorl (N112). R21 is a large open courtyard of which the area above the basin was most likely covered by a roof of twigs and straw which was supported by wooden poles. The placement of the objects next to the basin can be related to the production of these objects since clay and water are needed to manufacture them. However, the primary function of the basin was certainly another one, since the basin is far too large for the production of sling bullets. Our prevailing hypothesis is that the basin was used in connection with the dyeing of textiles, and that this manufacture was replaced by the production of clay sling bullets just before Stratum 2 was destroyed: the sling bullets were used in the defence of the city.

R15 is to the south of R21. It is not clear if R21 and R15 represent separate spaces. There is, however, no evidence of a separating wall. R15 is bounded by W19 and W33. This room contained two intact juglets of Mycenaean ware (N46, N48) and an almost complete Base-ring I juglet (N50),[12] a biconical

6 See Fischer 2012a, 97–98, fig. 6 and Appendices 1 & 2.
7 See description in Fischer 2012a, 93.
8 See description in Fischer 2012a, 93.
9 See Fischer 2011, 79.
10 Fischer 2012a, 94, fig. 3:14.

11 Stratum 2 can clearly be separated from Stratum 1. The architectural layouts are different even though some walls from Stratum 2 were reused in Stratum 1 (see *Figs. 2a* and *6*). There are similar differences between Strata 2 and 3.
12 For these three finds see Fischer 2012a, 97–98, figs. 6:1–3, and Bürge 2012.

Fig. 7. Plastered basin Stratum 2 (photograph by P.M. Fischer).

spindle-whorl of fired clay (N47), a clay loom weight (N88), parts of a handle of a dagger (N87), a lamp (L125-1), and a diorite pestle (N44). In the eastern part of this exposed space three partially preserved White Painted Wheel-made bowls (L235-2, -4; L236-1) and two almost complete bowls of the same ware (L235-1, -3) were found. These remarkable finds suggest that this space was used for a get-together where people drank and ate. The imported Mycenaean-type vessels which were complete provide a hint at the relative date of this space, and Stratum 2 as a whole.[13] The authors define the production date of these vessels, for instance, the Mycenaean-type vessels (FS 149), as between LC IIA2–LC IIC1.[14] The latter part of this period seems at present the most relevant relative date for our Stratum 2.

Three new walls were exposed in the southern part of the compound of Stratum 2: W36–38. W36 and W38 run north to south and are connected to each other by W37. All three walls are 0.40 to 0.50 m wide. A fireplace (L263') with a large amount of animal bones was discovered west of W36. Another find from this space was the head of a small bovine figurine of fired clay (N100; see Appendix 1). Finds from the area east of W36 and south of W37 included a faience bead (N113), a lead spindle whorl (N114), a decorated bone spindle whorl (N115) and a lead sling bullet (N103). It is interesting to note that the south-eastern part of the exposed area is devoid of any intact structures or there are no structures at all. This phenomenon can clearly be seen when studying the aerial photographs: there seems to be a straight line which stretches from north-east to south-west and separates the intact structures to the north-west from the destroyed area to the south-east.

Additional excavations were carried out in R18, in the south-western part of the exposed area.[15] R18 is the roofed space from which our excellently executed Creature Krater was recovered (*Fig. 8a* and *b*). The centrally placed stone (0.70 m × 0.90 m, and 0.25 m thick), hewn flat and square, and the stepped stone in front and to the west of it were further exca-

[13] There are radiocarbon dates too; see Fischer 2011 and 2012a.
[14] Fischer 2012a, 103; Bürge 2012.

[15] This room was not completely excavated during the previous season.

Fig. 8a. R18, Stratum 2, with altar (photograph by P.M. Fischer).

Fig. 8b. Creature Krater from R18, Stratum 2, excavated close to altar—see Fig. 8a (drawing by M. Al-Bataineh).

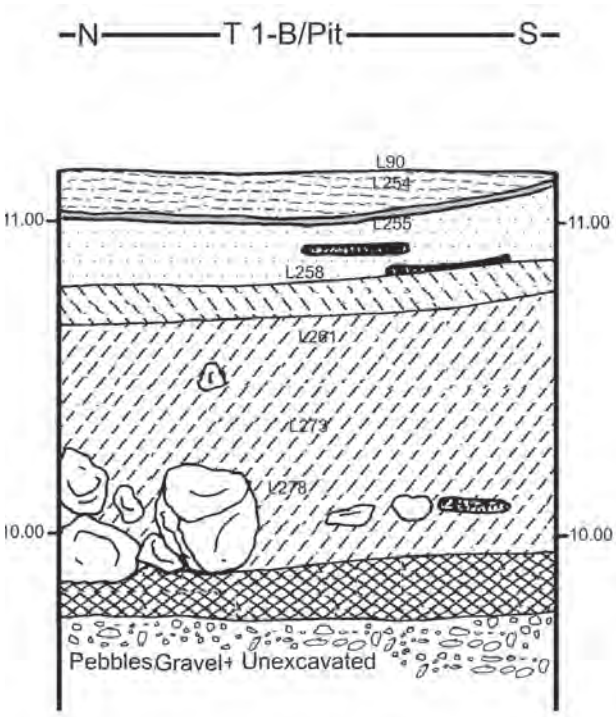


Fig. 9. Section through pit from Trench 1A, Stratum 2 (drawing by M. Al-Bataineh).

Fig. 10. Beads and pendant from pit in Trench 1A, Stratum 2 (photograph by T. Bürge).

vated. The following interpretation is offered: the krater once stood on the square stone which served as a house altar.

The eastern part of Trench 1A was further excavated when the outline of a pit became visible after heavy rain (L254, L255, L258, L261, L273 and L278; *Fig. 9*). This pit is provisionally attributed to Stratum 2.[16] The circular pit has a diameter of 1.80 m at the top and is approximately 1.40 m deep. At a depth of approximately 0.15 m to 0.20 m there was a layer of *havara* floor. The pit contained the remains of a necklace (*Fig. 10*) with 44 faience beads of cylindrical shape (N106, N107), a small, fluted, bead of blue faience (N104) and a carnelian pendant (N105). An elaborate spindle whorl of a dark green stone (N99; *Fig. 11* centre), a polishing stone (N110), and an intact White Shaved juglet (N111) were also discovered in the pit. Of special interest amongst the finds from the pit is a partly preserved WPPS krater of excellent craftsmanship, henceforth termed the Bird Krater (L258-2; *Fig. 12*): it depicts two large birds, two smaller birds (peacocks?) facing each other, and geometric decoration. This krater resembles in style our Creature Krater from 2010 (*Fig. 8b*).

Fig. 11. Loom weights and spindle whorls from Strata 1 and 2 (photograph by T. Bürge).

[16] The floors of Stratum 1 and 2 are very close in R2. Additional excavations in this room brought new evidence. Some of the loci and finds which are shown in the plan of Stratum 1 in the preliminary reports from 2010 (Fischer 2011) and 2011 (Fischer 2012a) have been moved to Stratum 2 in the revised plan of this stratum.

The initial function of the pit was certainly not for discarded material. The *havara* floor inside the pit, which was on a somewhat lower level than the top of the cut of the pit, was used as a working surface. Close to the pit were two clay cones. The clay cones may have been used for the production of small, mould-made, ceramic containers.[17]

Another pit which produced a complete White Painted VI juglet with geometric decoration (N74)[18] was completely excavated after the temporary removal of W7 which was built on top of the pit.[19] There were no other finds of interest in this pit. The pit may represent an unfinished well or tomb in which one of the diggers left the juglet.

STRATUM 3[20]

A stone-lined pit was discovered in the space between W30 and W31. It is 0.90 m in diameter and 0.90 m deep but did not contain any finds of interest. This pit, too, may represent an unfinished well or tomb.

White Painted Wheel-made ware: proposed revised terminology

BY P.M. FISCHER

A known classification problem is caused by the problematic term "White Painted Wheel-made III (WPW III)" for a certain group of pottery of which there are numerous finds in the current excavations.[21] This group comprises vessels with a decoration of bands and a simple geometric pattern, which outnumber those with more complicated, pictorial, patterns. The differentiation between the three representatives of the White Painted Wheel-made group, that is I–III, is often impossible to define satisfactorily. Åström himself states "... that is not possible to attribute correctly ... to White Painted Wheel-made I, II or III ...",[22] which becomes quite evident when studying the Hala Sultan Tekke publications: representatives of the White Painted Wheel-made group are almost exclusively described as WPW without further differentiation between I–III. Exceptions are representatives of the abundantly decorated White Painted Wheel-made group, which are infrequently described as WPW III. This should not cause surprise because of the vaguely defined diachronic traits of the three representatives of the White Painted Wheel-made group. It appears that the differentiation of these three subtypes is based on the suggested dating of certain contexts, in which they were found, rather than on absolute diagnostic criteria.

By definition White Painted Wheel-made III includes Cypriote-produced vessels which are sparsely decorated with simple geometric patterns resembling Mycenaean counterparts. Nevertheless, the same group also includes vessels which are decorated with lavish patterns depicting animals and complicated geometric motifs. Among representatives from the latter group are two examples from the new excavations, namely, the Creature Krater from 2010 (*Fig. 8b*) and the Bird Krater from 2012 (*Fig. 12*). In the former, which is of a high artistic standard, many different animals are depicted: a bull, a cow, a peacock, a peahen, a carnivore (possibly a dog), a pair of swans and two pairs of fishes. There are also symbols for the sun, the moon, the "tree of life" and the unification of the sexes, which is shown by the merging horns of the cattle. However, there are also abundant geometric motifs on the back of the krater. The Bird Krater (see description above, *Fig. 12*) is also of good craftsmanship but does not reach the artistic level of the Creature Krater. The fabric and the surface treatment, however, are physically tougher than those of the Creature Krater. The old excavations at Hala Sultan Tekke produced another example, known as the Hippocampus Krater. Here, the decoration is dominated by geometric motifs, whereas the figural representations, seahorse and sea anemone, are more sparsely applied but are central elements of the pictorial composition. Åström classifies this krater as White Painted Wheel-made III.[23]

The fragmentary Boars Krater, which is very closely related to our Creature Krater, comes from Kition.[24] Karageorghis classifies this krater and other related sherds illustrated on the same plate as "Myc. IIIC:1".[25] He prefers in this publication "... the traditional terminology which indicates their Aegean connection, as long as it understood that they are Cypriote imitations ...".[26]

Aegean influences cannot be denied, but I would not call them imitations of Mycenaean or other counterparts. When studying the elegantly executed representations of the animals, especially in the Creature Krater and the Boars Krater, one cannot deny the strong individualism of the Cypriote artist who gave the overall appearance a very personal touch. How much the artist was influenced by Mycenaean pictorial representations, or by the then prevailing Late Bronze Age metope style of the Levant and its derivate, the local Levantine Panel

[17] See possible parallels ("fire-bars") in Todd & Pilides 2001, 31, 34–36, fig. 7.
[18] Fischer 2012a, 100, fig. 8:7.
[19] The pit was backfilled and W7 was later on reconstructed in its original position.
[20] See Fischer 2012a, 102, fig. 10.
[21] Cf. Fischer 2012b, 75–79.
[22] Åström 1972b, 270, n. 1.
[23] Åström 1988.
[24] Karageorghis 1981, pl. II.17, inv. no. 1107.
[25] Karageorghis 1981, pl. II.
[26] Karageorghis 1981, 1.

Fig. 12. Bird krater from pit in Trench 1A, Stratum 2 (photograph by P.M. Fischer, drawing of reconstructed vessel by M. Al-Bataineh).

Style, is very difficult to assess. The latter style is fairly common, for instance, in Enkomi. One cannot deny that our artist had been in contact with Mycenaean vessels and genuine Levantine pottery but what we see in these three vessels is, in the author's opinion, the product of the quite independent mind of a local artist or artists.

For all these reasons I have difficulty in accepting either of the terms White Painted Wheel-made III or locally made/imitations of Late Helladic IIIC:1. The latter refers to an area from which our vessels do not stem and can lead to confusion with genuine Mycenaean products; and the former also comprises a large group in which various different styles are bundled together. Kling on the other hand states that "... Åström's term White Painted Wheelmade III, inelegant as it may be, is neutral as regards both date and stylistic affinities, an excellent umbrella nomenclature for all of this material ...".[27] I cannot agree for the following reason: nowadays, when clear definitions are sought, we do not need an "umbrella" which covers more than one specific product. Instead we need terms for groups of related wares which give the reader an immediate mental image of what an author is trying to convey.

The term White Painted Wheel-made is—per se—quite confusing to people who are not familiar with this ceramic ware, but we should keep it because "the initiated" can relate to a certain group of wheel-made Late Cypriote pottery with decoration on a plain background. The author is aware that the invention of new terms may lead to confusion and criticism. However, I suggest that we should abandon the I–III nomenclature (see the problems already pointed out by Åström himself) and instead provide descriptive terms. Therefore I propose that this "Ware", under which only Cypriote-produced vessels fall, should be divided into two main groups: "White Painted Wheel-made Geometric Style (WPGS)" and "White Painted Wheel-made Pictorial Style (WPPS)". The former includes vessels with often simple, geometric patterns in the style of their Mycenaean counterparts, whereas the latter indicates vessels with pictorial representations which are depicted together with often very complicated patterns. If one wishes, a further differentiation can be made by adding "Panel Style" to either group.

The 2012 Ground-Penetrating Radar survey (GPR) and cultural heritage management

BY I. TRINKS & P.M. FISCHER

In September 2011 the Department of Antiquities of Cyprus headed by Dr M. Hadjicosti kindly provided permission to carry out large-scale non-invasive geophysical archaeological prospection. The permission was granted for some 60 hectares, corresponding to the area that is assumed to include the entire settlement of Hala Sultan Tekke. This area is bordered by the Salt Lake to the north-east, the B4 road to the south-east, the A3 road to the south-west, and the outskirts of the village of Dromolaxia to the north-west. The fields used for agriculture in that area offer favourable conditions after harvest due to the even surfaces containing only a few obstacles and a gentle varying topography, rendering the site ideally suited for large-scale state-of-the-art archaeological prospection. The most appropriate prospection methods under these

[27] Kling 1989, 172.

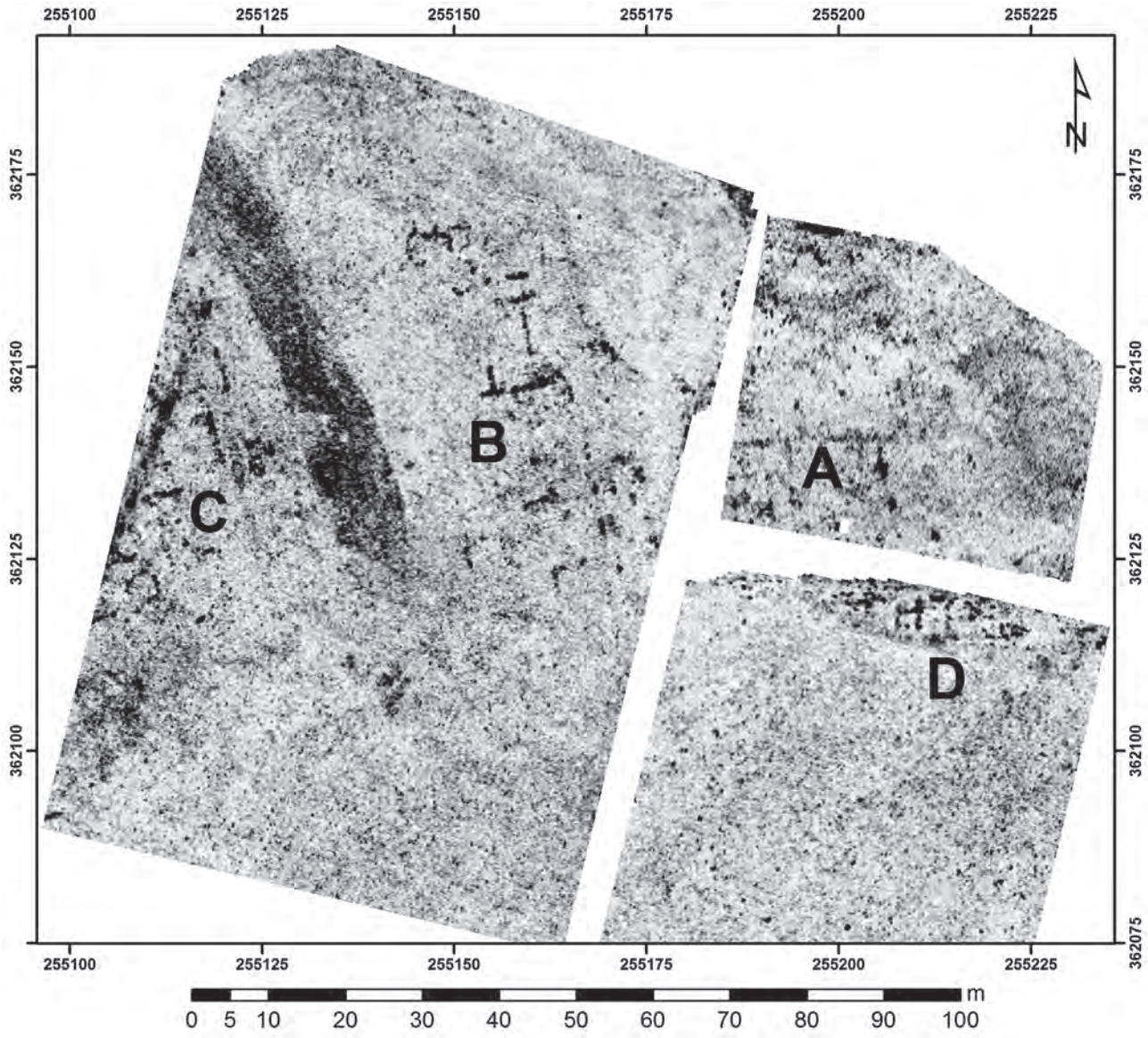


Fig. 13. Radar image (500 MHz antenna) showing the surveyed 1.55 hectare area (0.25 hectare surveyed in 2010; 1.3 hectare surveyed in 2012). A: Area 6, area of excavations 2010–2012; B and C: new city quarters; D: unexcavated portion of Area 6 (image by I. Trinks and P.M. Fischer).

conditions are extensive magnetic prospection[28] and high-resolution GPR measurements[29] combined with a detailed digital terrain model generated through airborne laser scanning or photogrammetry (structure-from-motion) acquired with help of a small remotely controlled aircraft.

In 1980 one of the very first applications of the GPR method in European archaeology had been tested at Hala Sultan Tekke.[30] Encouraged by the positive results a small-scale GPR test survey was conducted by I. Trinks in Area 6 which resulted in the discovery of detailed architectural structures buried in the shallow subsurface of the south-western quadrant of that Area.[31] This survey had been intended to guide the subsequent excavation and to evaluate the potential of the GPR method at the site. It provided valuable insights in

[28] Aspinall *et al.* 2008; Neubauer 2001.
[29] Conyers 2004; Leckebusch 2003.
[30] Fischer 1980, 48–64.
[31] Fischer 2011, 70–72.

regard to the considerable advances in GPR technology and methodology made over the past 30 years and an improved understanding of the challenges posed by archaeological sites in warm climates. Soil salinization caused by greater evaporation than precipitation can cause topsoil layers that prevent the use of the GPR method due to strong absorption of the electromagnetic signal. With the test measurements covering some 40 m × 50 m it was possible to demonstrate that despite challenging soil conditions the results have been very promising.

In a first attempt at a more extensive archaeological prospection of Hala Sultan Tekke a second GPR survey was carried by a team from the Austrian Archeo Prospections® group consisting of archaeologist K. Löcker and geometer S. Flöry under the guidance of geophysicist I. Trinks with the support of the Ludwig Boltzmann Institute for Archaeological Prospection and Virtual Archaeology and P. Georgiou in June 2012. An area covering some 13,000,000 square metres mainly west, but also south, of Area 6 was investigated with densely spaced GPR measurements (25 cm profile spacing, 5 cm inline measurement spacing) using a professional 500 MHz GPR system (*Fig. 13*). The results are of high quality and show previously unknown city quarters with massive structures of stone. The most striking and therefore highly interesting architectural structures are located in an area extending at least 75 m to the west of Area 6, measured from the present fence. The radar images show a compound consisting of clearly defined walls surrounding a central, north to north-west-oriented rectangular room (*Fig. 13*) This complex covers some 35 m × 30 m and is located 30–40 m west of Area 6. Even minor features such as openings in the massive, rectangular-patterned walls, were mapped. At the western edge of the investigated field further traces of ancient architecture in the shape of perpendicular stone walls are visible in the data. A 10 m wide strongly reflecting band, which is thought to be man-made (possibly stone-paved), oriented from north by north-west to south by south-east, separates the western city quarter from the larger building complex to the east and Area 6. The compound exposed in 2010–2012 within the fenced Area 6 has been shown by the GPR survey to have unexcavated structures that extend another 15 m to the south and some 40 m to the west of the fence.

Surface finds of man-made items are reflected in the ground-penetrating radar images from structures which appear at a shallow depth immediately below the ploughed layer. This highlights the danger that intensive farming or deep ploughing poses a substantial risk of damaging the remaining traces of this prehistoric settlement. Further non-invasive mapping and documentation of the existing buried archaeological structures would be of great value not only for archaeological research and an improved understanding of the layout of Cyprus's possibly largest Bronze Age settlement, but would also benefit the preparation of a sustainable site management plan in accordance with state-of-the-art cultural heritage conservation and the Valletta Convention.

With the help of motorized high-resolution archaeological prospection systems developed by the LBI ArchPro and its partners it would already be possible today to map the entire site of Hala Sultan Tekke within the course of a few weeks, using both detailed magnetometer prospection and very dense GPR measurements. Such a survey would reveal the spatial extent of the settlement and its structure, thereby contributing to the archaeological understanding of the site and its protection, while at the same time freeing areas that obviously are of no archaeological interest.

It is proposed that the area so far prospected should be protected by fencing and that further targeted excavations should be conducted over the course of several years in order to investigate the nature and function of the mapped structures. The invasive work should be accompanied with a plan for the preservation of excavated structures. A combination of large-scale archaeological prospection of the Bronze Age settlement at Hala Sultan Tekke with archaeological excavations and a digital documentation and virtual reconstruction project would increase the scientific and touristic value of the site and benefit Cultural Heritage Management, the region and the public alike.

Conclusions and hypotheses

The results from the third season of excavation of the compound in Area 6 added further information on the history of the Late Cypriote city of Hala Sultan Tekke. In addition to the exposure of spaces which were partially excavated during the previous seasons, two more walled spaces from Stratum 1 and another walled space from Stratum 2 were exposed. There is evidence of additional spaces from Stratum 2 close to the southern fence which are only partially excavated and consequently not yet numbered.

There are two new rooms from Stratum 1, R19 and R20. The function of the former was that of a working space where food processing and the production of ceramic containers took place, while the latter represented an open space with several food processing installations.

The new space from Stratum 2, R21, is interpreted as a large open courtyard with a basin which was covered by a roof of twigs and straw supported by wooden poles. It is our belief that the basin was primarily used in connection with the dyeing of textiles but was later used for the production of clay sling bullets in connection with the defence of the city, just before the city represented by Stratum 2 was destroyed.

R15 from Stratum 2, which revealed some remarkable finds, was further excavated. This space seems to have been used for people to gather, to eat and to drink. According to the dating allowed by the imported Mycenaean-type pottery, two intact beaked jugs (FS 149) are dated to Late Helladic IIIA2–B1, which corresponds roughly to Late Cypriote IIA2–C1.[32] The Mycenaean vessels provide a *terminus post quem*, and at present a date in the 13th century BC for Stratum 2 is suggested.[33]

R18 from Stratum 2 contained a stepped stone leading to a heavy, flat, square stone slab interpreted as a house altar (*Fig. 8a*), on which our Creature Krater (WPPS) was initially placed; the room itself was designed for worship. The pit with

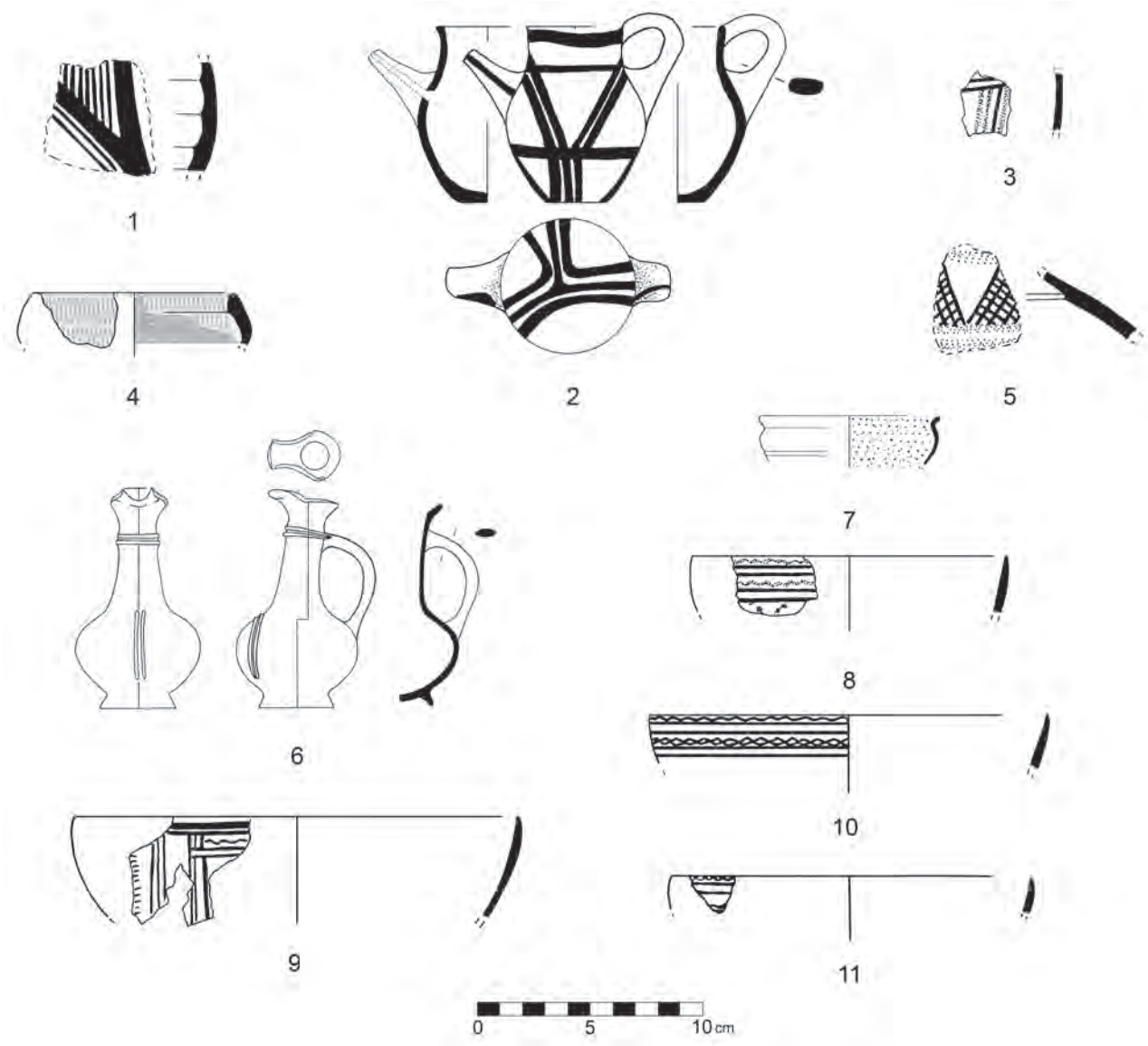


Fig. 14. White Painted V (1), White Painted VI (2), White Painted Cross Line Style (3), Red-on-Black (4), Bichrome Wheel-made (5), Base-ring I (6, 7), White Slip I bichrome (8) and White Slip I monochrome (9–11; all drawings by M. Al-Bataineh).

[32] Cf. Bürge 2012, 107.

[33] LH IIIA2–B1 corresponds roughly to 1350–1230 BC; see Åström 1972c, 760 and 762; Mountjoy 1999, 17.

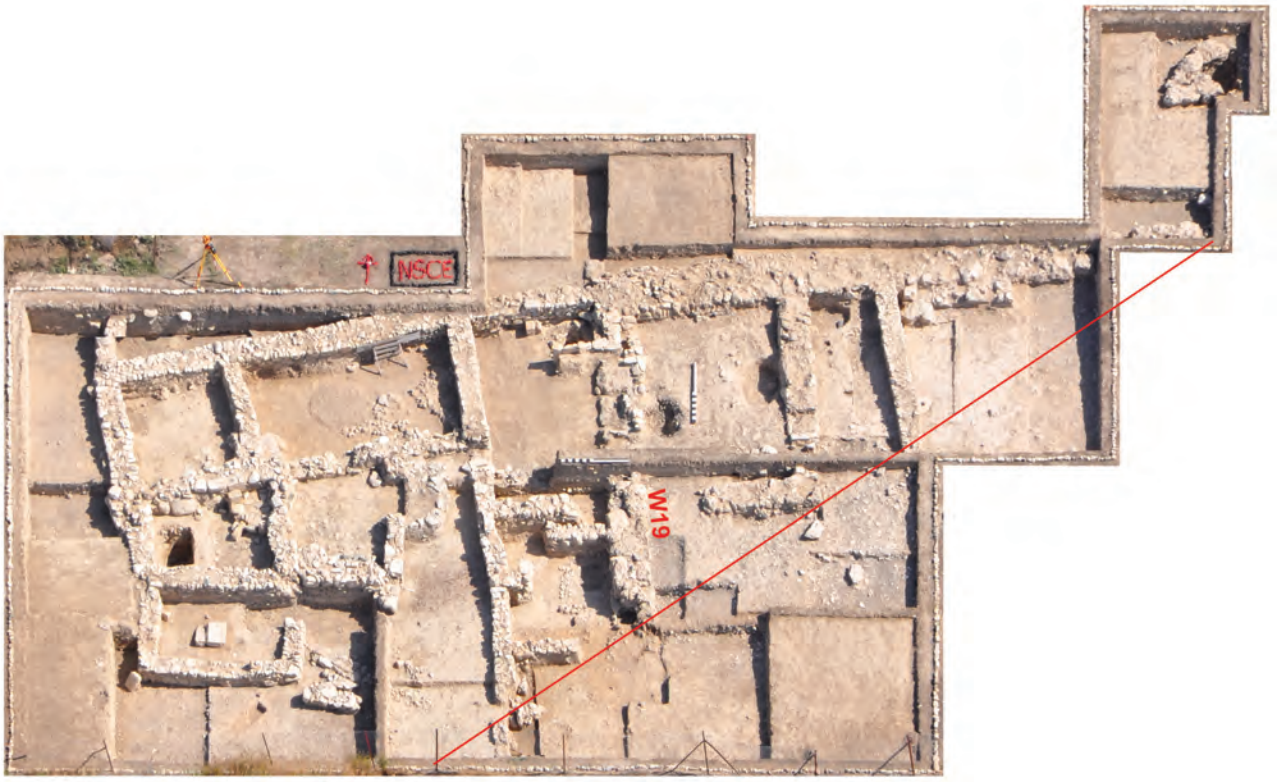


Fig. 15. Air photograph of Area 6: W19 and destruction line marked (by P.M. Fischer).

the *havara* floor from Trench 1A, which contained *inter alia* the Bird Krater (WPPS), a complete juglet of White Shaved ware and a necklace, is connected with the nearby clay cones: they may have been used for the production of small, mould-made, ceramic containers.

A collection of ceramic wares from the early part of the settlement is shown in *Fig. 14*. These include White Painted V and VI, White Painted Cross Line Style, Red-on-Black, Bichrome Wheel-made, Base-ring I and White Slip I bichrome and monochrome.

The terminology for the much discussed White Painted Wheel-made ware has been challenged and modified. During the course of the continued excavations at the site the White Painted Wheel-made I–III nomenclature will be abandoned and descriptive terms will instead be used dividing this Cypriote-produced pottery into two main groups: "White Painted Wheel-made Geometric Style (WPGS)" and "White Painted Wheel-made Pictorial Style (WPPS)". The former includes vessels with often simple, geometric patterns in the style of their Mycenaean counterparts, whereas the latter indicates vessels with pictorial representations which are depicted together with often very complicated patterns.

We have highlighted an interesting phenomenon, namely, that the south-eastern part of the exposed area is devoid of any intact structures or that there are no structures at all. When studying the aerial photographs, a fairly straight line can be seen which stretches from north-east to south-west and which separates the intact structures to the north-west from the destroyed area to the south-east (*Fig. 15*). This phenomenon cannot be explained by modern farming activities since the plateau on which the fenced Area 6 is situated was not used for agriculture according to the local farmers, at least not since the time when motorized farming vehicles came into use.

The section through W19 may serve to develop an interesting theory (*Fig. 16a*, *b*): to the left, i.e. to the west, Strata 1–3 and virgin soil can be seen in a nice sequence. To the right, i.e. towards the sea to the east, the situation is completely different: the top layer, Stratum 1, is here quite shallow. This Stratum contained, *inter alia*, complete vessels of Base-ring II ware (see above). The layer below, Stratum 2A, contained vessels of Late Helladic IIIA2–B1 date (see above) which in absolute terms are dated after roughly 1350 BC, i.e. from the mid-14th to the later part of the 13th century. There is an approximately 0.90–1 m thick layer of gravel which gives the impression of material which was washed up by the sea.

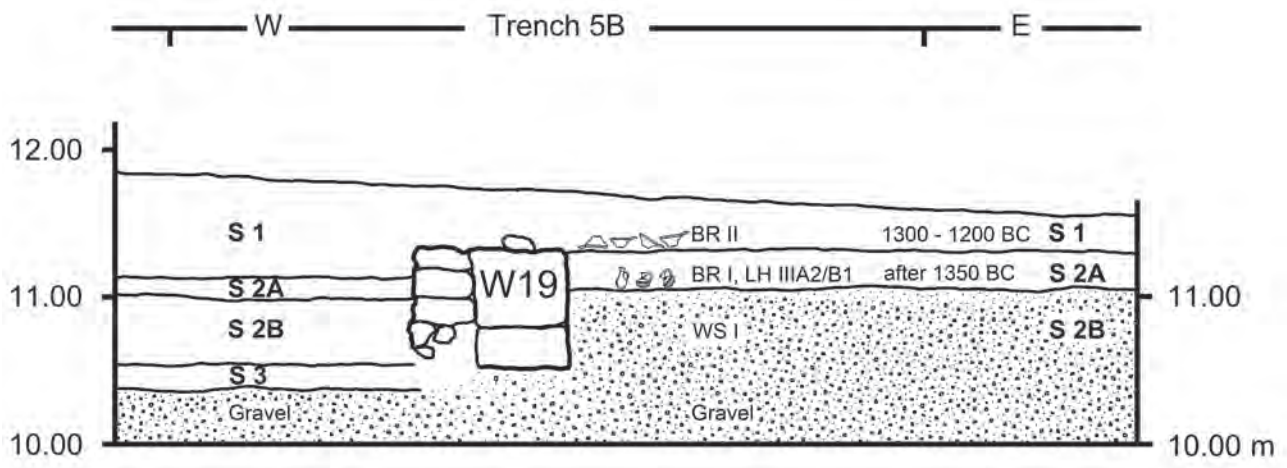


Fig. 16a. West–east section through area surrounding W19 (drawing by T. Bürge).

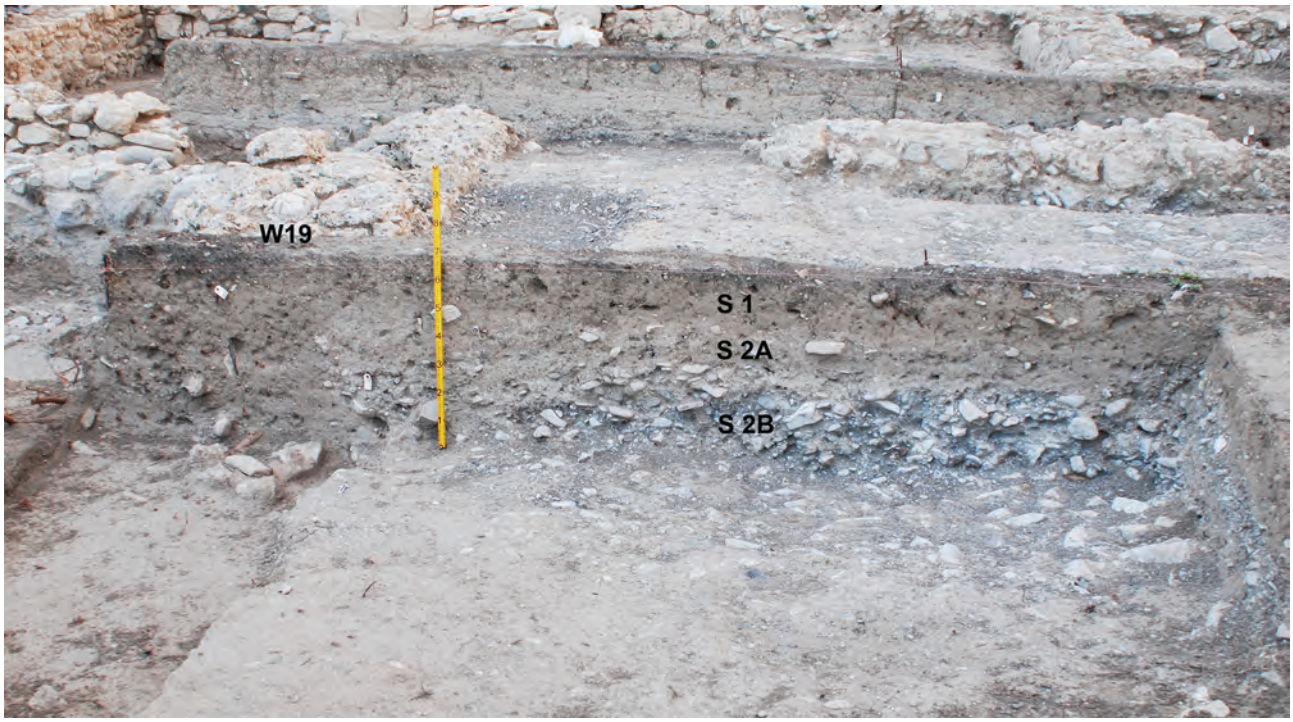


Fig. 16b. West–east section through area surrounding W19 (photograph by P.M. Fischer).

W19, the top of which is 11.32 m above mean sea level and its foundation 10.54 m, giving it a preserved height of roughly 0.80 m, was built in Stratum 2 (or earlier). This means that the washed-up layer of gravel against the eastern (seaside) surface of the wall is more recent than the wall itself. This washed-up layer does not contain any human-produced finds, as became evident when an approximately 1 m × 1 m test trench was dug east of W19.[34] Consequently the washed-up gravel layer is more recent than W19 but older than the date which the Mycenaean vessels provide. We forward here the theory that the city of Hala Sultan Tekke was partly destroyed in the 14th or the 13th century BC by a natural catastrophe, a tsunami

[34] See southeast of W19 in *Fig. 6* (L177, L183).

which was caused by an earthquake in the sea south-east of the shore of Cyprus.

The loose gravel in the south-eastern part of the opened-up area obviously was not convenient for building new structures. This observation may serve as an explanation why the people of Stratum 2 after the catastrophe and those of Stratum 1 did not use this part of the site for building activities.

This theory is supported by our test trench T2 which is to the north-east of the main area of excavations.[35] The excavated grain silo which contained a bull's head of bronze is placed in Stratum 1.[36] A deep sounding around the test trench produced only gravel of identical nature in comparison with that from the main area. By studying the radar images it becomes also clear that there is a 2–3 m wide layer of gravel on the edge of the plateau which leads to the main area which again—according to our theory—may represent washed-up gravel from an enormous wave which was deposited on the slope facing the sea but also reached the compound in Area 6.

The GPR survey from June 2012 covered an area of some 1.3 hectares mainly west but also south and south-east of Area 6. The results are striking and point to new city quarters.

The most interesting architectural structures are west of Area 6. The radar images show a compound which is at least 50 m × 50 m in size and orientated north by north-west and a 10 m wide (stone-paved?) structure which separates the new city quarters. It is planned to fence the entire area and to continue the excavations there for at least another three years.[37]

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[35] Fischer 2011, 83–84.
[36] There is no stratigraphical connection between this test trench and the main area.
[37] The Department of Antiquities has granted the excavation license for the next phase of the project until 2016.

Appendix 1: Clay figurines from the 2010–2012 seasons of excavation at Hala Sultan Tekke

BY T. BÜRGE

Introduction

Four fragments of clay figurines were discovered during the 2012 season of excavation at Hala Sultan Tekke. These objects include the head of an anthropomorphic figurine (N101), the head and front part of a small bovine (N100) and two possible legs of animal *rhyta* (L232-9, L264-3). The hind part of a decorated zoomorphic figurine (L7-1) was found in 2010. No clay figurines were discovered in 2011.[38]

Head and neck of anthropomorphic figurine (N101)

DESCRIPTION

Hand-made, hard fired, coarse, mainly black inclusions, dark brownish-red slip, hand-burnished. Red Polished ware? Preserved height: 4.60 cm (*Fig. 17:1*).

The head of the figurine is of hollow tubular shape. The figurine has a pinched nose with a small hole below the tip; the mouth is faintly indicated by a slight bulge below the nose. The ears are long and protruding, both being perforated three times. Chin and eyes are not indicated. The upper part of the head ends in a slightly flaring "rim", which is partly damaged and worn. At the level of the nape a break is visible, which resembles the beginning of a handle of a vessel. Therefore it is suggested that the hollow head was part of an anthropomorphic vessel, maybe the neck of a juglet with the upper part of the head as the vessel's spout.

[38] The stone *pataikos* discovered in 2011 (see Fischer 2012a, 101, fig. 9) is not included in this study, as only objects made of terracotta are discussed.

CONTEXT

The figurine was found in Trench 8A in the bottom of a pit (L246) west of W34. The pit was associated with Stratum 2 (see main report).

SELECTED PARALLELS

The appearance of the figurine, i.e. pinched nose, large pierced ears (for earrings?) and undefined or only slightly defined mouth and eyes has its harbingers in the so-called plank-shaped figurines of Red Polished ware which were common during the Early Bronze Age and the very beginning of the Middle Bronze Age.[39] Late Bronze Age female figurines of the "Astarte-type" with "bird faces"[40] show that the tradition of female figurines with pierced ears (and earrings) continues in Late Bronze Age Cyprus. However, related or comparable figurines, which stem from Syrian and Northern Levantine Middle Bronze Age figurines,[41] are stylistically different from our figurine.

Figurines with the aforementioned attributes from the Middle Bronze Age are mainly of cylindrical or rounded shape with pronounced facial characteristics, resembling the fragment from Hala Sultan Tekke more strongly than the Early Bronze Age plank-shaped figurines. Such figurines are represented by two figurines from Alambra (?): one is a figurine of Black Slip ware, depicting a standing woman clutching her breasts.[42] It has a large, pinched nose and large ears, each with two piercings. The other one is a terracotta statuette of a woman with a child made of Plain White ware. The rendering of the face is very similar to our item; an interesting detail is the small hole below the tip of the nose, which corresponds exactly to the depiction of the nose of the figurine from Hala Sultan Tekke.

Amongst the stylistically closest parallels to our example is a group of five homogeneous Middle Cypriote figurines of unknown provenance from the K. Severis Collection,[43] Nicosia (nos. 1539–1542, 1567). The figurines depict standing females with cylindrical bodies, attached arms and accentuated breasts made of Plain White (nos. 1539–1542) or Red Slip ware (no. 1567).[44] As on our example these figurines have a pinched nose, and large pinched ears perforated two or three times. Eyes and mouth are indicated only in some cases.[45] These figurines have a conical top of the head, except for no. 1567, which has a flat top.

Although these figurines are very close to the fragment from Hala Sultan Tekke, all of these parallels are compact figurines and none of them was evidently part of or attached to a vessel, as suggested for our object.

There are only a few examples for figurines as parts of anthropomorphic vessels: one is a flask from the Archaeological Museum Istanbul, inv. no. 1306[46] made of White Painted V ware. The head of the vessel/figurine corresponds to the false spout of the flasks and appears to have a pinched nose and pierced ears (?).[47] A more striking parallel to our vessel comes from the Late Cypriote strata of Kition: It is a bottle of Proto-White Painted ware with an everted rim and handle from the neck ridge to the shoulder. A human face is applied on the neck opposite the handle.[48] The position of the handle is exactly the same as is indicated by the beginning of the handle of the object from Hala Sultan Tekke. However, the general execution, type of ware and decoration are very different from our fragment, which is not painted and has no applied decoration.

DATING AND DISCUSSION

Ware (Red Polished ware?),[49] execution and stylistic features suggest a date in the Middle Bronze Age.[50]

The pit where the figurine was discovered did not contain any other objects of special interest. The fragment was possibly discarded in the pit after the vessel was broken. The context therefore does not provide any information about the function of the vessel and its primary use. Although it may be supposed that the vessel had a special significance, conclusions concerning its exact meaning are problematic, as crucial vessel/body parts are missing.[51]

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[39] See e.g. Karageorghis 1991, pls. 25–28; also Orphanides 1983, 37.

[40] See e.g. Picón *et al*. 2007, 229, fig. 266, from LC II; or from Maroni, Tomb 14: see Johnson 1980, pl. 20, no. 103.

[41] E.g. from Tell Atchana, see Yener 2010, 100, 239 (A03-R1284+A03-R1328); for a general discussion see Marchetti 2000 and 2001.

[42] Karageorghis 2000, 22–23, no. 9; from the Cesnola Collection in the Metropolitan Museum of Art, New York, dated ca 1725–1450 BC; see also Picón *et al*. 2007, 228, 458, no. 265.

[43] Karageorghis 1975, pl. VII: 1–5; also Karageorghis 1991, pl. 140: 1–5.

[44] The same type of figurine is also represented amongst the figurines from the Cesnola Collection; see Karageorghis 2000, 20–21, no. 3; dated 1900–1800 BC, from Alhambra?

[45] E.g. Karageorghis 1975, pl. 7:1, 2, 4.

[46] See Åström 1972a, 75; fig. 18:6.

[47] Only a graphic rendering of the original is published, details are therefore not clear.

[48] Kition Floor II, Room 15; see Karageorghis 1985, 174–175, pl. CXLIV, no. 859+935.

[49] See characteristics of the ware in Åström 1972a, 78.

[50] See dating in Åström 1972b, 700–701; also Orphanides 1983, 42.

[51] It was suggested by Karageorghis 1975, 60–61, that the figurines from the Severis Collection represent a fertility goddess.

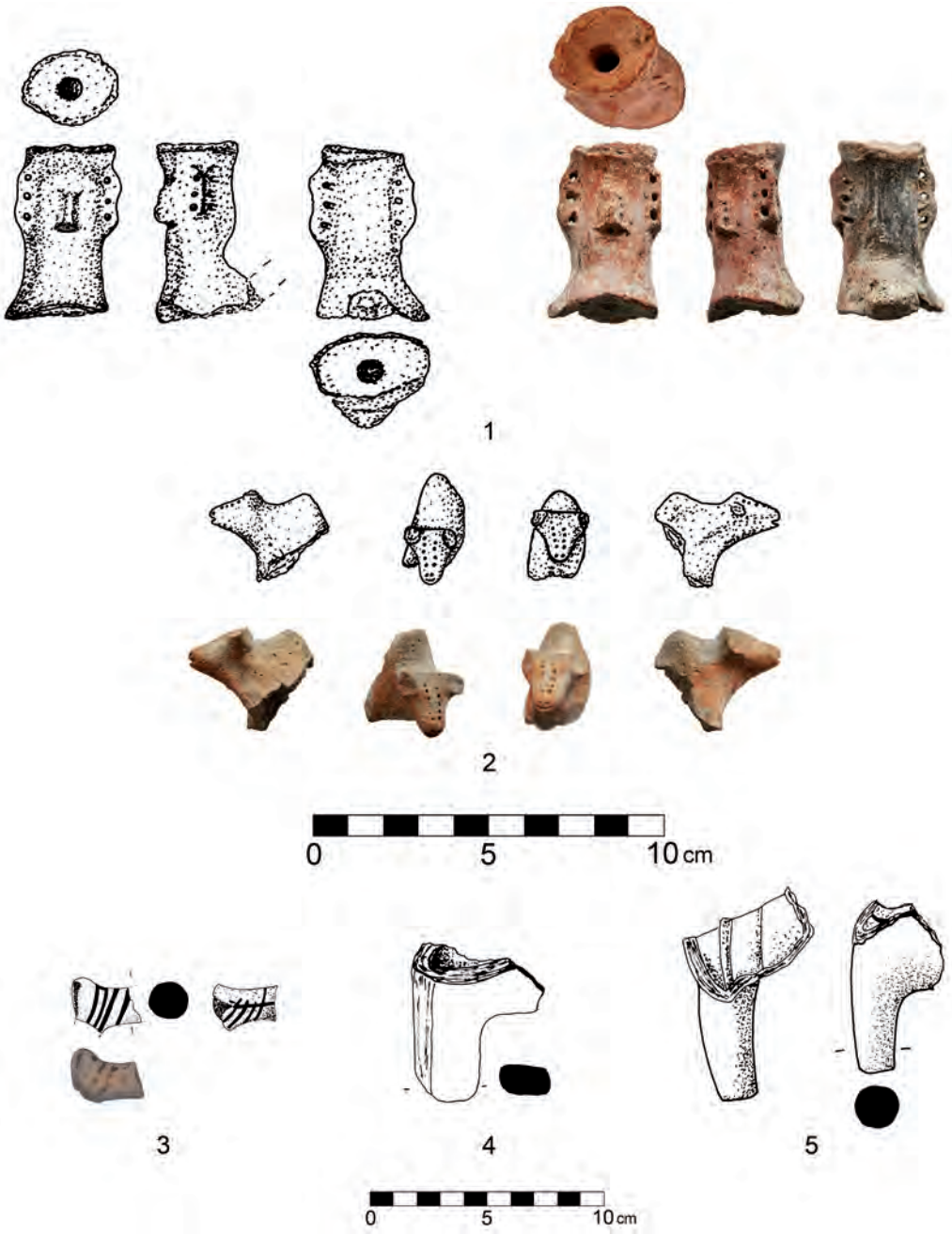

Fig. 17. Figurines (drawings by T. Bürge and M. Al-Bataineh; photographs by T. Bürge).

Head and neck of bovine (N100)

DESCRIPTION

Hand-made, hard-fired, light orange fabric, thick grey core, medium-coarse, multicoloured inclusions, self slip. Preserved height: 2.80 cm; preserved length: 3.30 cm (*Fig. 17:2*).

Only the head and fragments of the front part and forelegs of the animal's body are preserved. The triangular head and the preserved beginnings of two possible horns and/or ears on the forehead suggest an identification of the animal as a bull. The animal's jaw is open, nostrils are indicated by small indentations. There are two parallel lines on the forehead which might indicate a decoration (?).

The head of the bull is bent down, and the withers are well defined. This is either the posture of the animal—cf. with Base-ring bull's *rhyta*, which have clearly visible withers and a lowered head; another possibility is that the head was attached to a vessel and therefore has an "unusual" shape.

CONTEXT

The figurine was found in Trench 7B, L249, just west of the corner formed by W36 and W37. A fireplace was discovered approximately 1.5 m south-west of the find spot of the figurine. According to the stratigraphy the figurine belongs to Stratum 2 (see main report).

SELECTED PARALLELS

Bulls and bovines in general belong to the most frequently portrayed animals in Bronze Age Cyprus and played an important role in cult.[52] Amongst the most prominent representatives of this cult in the Late Bronze Age are bull-shaped *rhyta* of Base-ring ware. Our bull's figurine is however different from this kind of figurine: besides the ware it is considerably smaller, less "elaborated" and not hollow.

Smaller compact bull figurines of Plain ware found in Late Bronze Age contexts are, for example, known from Maroni[53] but have applied eyes and a considerably more elongated shape to the head. A number of comparanda to our figurine, painted and plain, were found in Enkomi, Area I:[54] however these examples are different in some details, such as their general shape, the proportion and the rendering of facial features. Examples for bovines attached as protomes on vessels are known from Tsaroukas.[55] Both bulls depicted had their heads lowered, and their withers are well defined.

DISCUSSION

Despite possible cultic functions connected to the great importance of the bull in Cyprus—be it as figurine or as part of a vessel—a function as a toy for children is at least conceivable, as the object is rather small and of simple execution.[56]

Fragment of equine or bovine figurine (L7-1)

DESCRIPTION

Hand-made, hard-fired, light yellowish-brown fabric, very fine, dark-brown decoration. Preserved length: ca 3 cm (*Fig. 17:3*).

Only the hind part and the tail of the animal are preserved. A pattern of dark-brown parallel lines is painted on the body of the animal.

CONTEXT

The figurine was found in the debris which covered Stratum 1 in Trench 1A in the area of R2 next to W1.

SELECTED PARALLELS

This fragment resembles bull and horse figurines which were relatively common in the Mycenaean and Cypriote sphere of culture during the Late Bronze Age[57] and also appeared in the earliest Iron Age I levels in the Southern Levant.[58] This group of figurines is defined by tubular bodies, narrow chests and peg-like legs. Examples for this type include a bull from the Metropolitan Museum of Art (inv. no. 36.11.6),[59] and several bulls from Enkomi[60] and Phylakopi.[61] A terracotta horse from Kition[62] distinguished from a bovine by its long neck and mane shows that body parts of bulls and horses were manufactured in the same way. Therefore it is problematic to dif-

[52] Rice 1998, 237–238; cf. the bull's head of bronze found in Hala Sultan Tekke 2010, see Fischer 2011, 83, fig. 16.
[53] Johnson 1980, 23, pl. XXIV, nos. 127–128; pl. X, no. 199.
[54] Karageorghis 1993, pl. XXII:8; dating from LC II/III?
[55] Johnson 1980, 36, pl. LII, nos. 262–263.
[56] The question of cultic vs. profane use of figurines cannot be discussed here. See discussions in Kenyon 1956, 186; Fowler 1985, 342; Begg 1991, 5–14; McAdam 1997, 139 and Voigt 2000, 267.
[57] Cf. Begg's type III figurines; Begg 1991, 97, fig. 4; French 1981, 175, fig. 2.
[58] E.g. at Tell Miqne/Ekron; see Ben-Shlomo & Press 2009, 59, figs. 16–18; Ben-Shlomo 2010, 101, fig. 3.52.
[59] Dated to LH IIIA, unpublished, provenance unknown.
[60] Dikaios 1969, pl. 177, no. 11 (660), from Level IIIC, but considerably larger than the object from Hala Sultan Tekke; *ibid.*, pl. 164, no. 1 (1505), pl. 162, nos. 32 (1165), 35 (3397), 39 (1202), 43 (1130), all from Level IIIA.
[61] French 1985, 261–275.
[62] Karageorghis 1985, 226, pl. CLXIX, no. 551.

ferentiate between a bovine and an equine if only the body is preserved.[63]

DISCUSSION

This type of figurines which is known from Mycenaean contexts was also very popular in Cyprus. It is possible that our fragment is either an imported Mycenaean figurine or was locally produced.[64]

Two fragments of animal *rhyta* (L232-9; L264-3)

DESCRIPTION

L232-9: Hand-made, medium-hard-fired, brown fabric, fine, mainly black inclusions, self slip (*Fig. 17:4*).

L264-3: Body wheel-made, leg hand-made, medium-hard-fired, orangish-brown fabric, fine, light yellow to light orange slip (*Fig.17:5*).

CONTEXT

The first fragment, L232-9, was found in R19, Stratum 1. L264-3 was discovered in the open space of Stratum 2, east of W36 and 38 and south of R17.

PARALLELS AND DISCUSSION

Plain and decorated, hand-made or wheel-made and most frequently decorated *rhyta* were common in the Late Cypriote period and mainly depicted bovines. Besides the above mentioned bull's *rhyta* of Base-ring ware there are, *inter alia*, examples for bull's *rhyta* made of other wares from Maroni[65] or Enkomi.[66] Such *rhyta* were most likely used in rituals and may have contained the blood of the sacrificed animals.[67]

The fragmentary conditions of both objects however do not allow any further conclusions about the animals depicted; these might possibly be bovines or equines.

General discussion and conclusions

Figurines provide the opportunity to study religion and habits. Numerous suggestions on the function and meaning of the figurines have been put forward. Theories range from profane and practical functions, such as children's toys, bric-à-brac or decorations, to various aspects in cult and ritual,[68] e.g. as votive objects or libation vessels.[69]

However, in the case of the discussed clay figurines from the settlement of Hala Sultan Tekke an interpretation is difficult as all the figurines are only fragmentarily preserved and may be residual. Consequently, definite statements about their function, meaning and original context are not possible.[70]

The relatively frequent appearance of bull figurines confirms the importance of the bull in Late Bronze Age Cyprus. The anthropomorphic head (N101), which is dated here to the Middle Bronze Age, is in contrast a unique object. It was possibly kept as heirloom until it was broken and subsequently discarded in the Stratum 2 pit.

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63 Cf. for example, the fragments from Kition, Temple 5: Karageorghis 1985, 208, pl. CLXIX, no. 4105 (referred to as horse); Karageorghis 1985, 228, pl. CLXVIII, nos. 5005, 5010.

64 See discussion in main report and Fischer 2012b.

65 Johnson 1980, 28, pl. XXXVIII, no. 190 (White-Painted V–VI), no. 191 (Bichrome Wheel-made).

66 Dikaios 1969, pl. 201, no. 11 (431), from Tomb 11, decorated.

67 Marinatos 1986, 31; Hägg 1990, 183–184.

68 Pakkanen 2009.

69 General discussion on the interpretation of Cypriote anthropomorphic figurines by Orphanides 1991.

70 See also discussion by French 1981, 173 and Fowler 1985, 343.

Appendix 2: Ellipsoid clay objects and their suggested function

BY B. STOLLE

Material and context

During the 2012 season of excavation in Hala Sultan Tekke 44 ellipsoid objects (N 109) of unfired clay were discovered in Stratum 2 (*Fig. 18*). Sixteen of them were complete.[71] Measurements of the complete objects gave a size range between 4.40–5.80 cm in length, 2.60–3.40 cm in width and 25–58 g in weight (see *Table 1*). A similar object has been found in 2011 (N57) in the same stratum, between W16 (south), W15 (west) and W21 (east).[72] All of the objects were plain, i.e. neither inscribed nor incised. Their possible function in connection with the find context will be discussed below.

All 44 objects from 2012 were exposed in a fairly limited spot in R21. This space is located south of W26 and east of W34. Its most noticeable feature is a basin with the dimensions of ca 3 m × 3 m. The clay objects were found on the eastern side of the basin. Ten objects were lying in the north-eastern corner of the basin, while the rest were exposed outside the basin. Other finds in R21 on the same level were a reused anchor stone inside the basin near its southern limits, a spindle whorl (N112; see main report) and several lumps of clay.

Parallels

There are today a number of known finds of similar clay objects, especially from the Near East and Europe. They can be fired or unfired, incised or plain. Their function at Hala Sultan Tekke has been the subject of some discussion. The idea of a textile-related function was considered, e.g. their use as loom weights. However, this theory was soon abandoned as their special shape makes a use in textile working rather unlikely.[73] Previously discovered objects of this kind from other sites have been almost exclusively interpreted as sling bullets, and this seems a likely interpretation in the case of the Hala Sultan Tekke objects.

[71] "Complete" also applies to broken objects that could be reassembled.
[72] See Fischer 2012a, 98.
[73] Perlès 2001, 229.

Table 1. Sling bullets of clay (N109 and N57).

N109	*Weight (g)*	*Length (cm)*	*Width (cm)*	*Status*
1	36	4.8	2.9	Complete
2	58	5.5	3.4	Complete
3	44	5.1	3.1	Incomplete
4	44	4.9	2.9	Incomplete
5	37	5.1	3.2	Incomplete
6	27	4.8	2.7	Incomplete
7	37	4.8	3.3	Incomplete
8	32	3.9	2.9	Incomplete
9	36	4.8	3.1	Incomplete
10	32	4.7	2.9	Incomplete
11	40	4.4	3.0	Incomplete
12	25	4.7	3.0	Incomplete
13	27	3.9	2.8	Incomplete
14	51	5.6	3.1	Complete
15	48	5.0	3.1	Complete
16	43	5.2	3.0	Incomplete
17	42	4.8	3.2	Incomplete
18	35	–	–	Incomplete
19	40	4.9	2.8	Incomplete
20	38	4.2	3.0	Incomplete
21	25	4.4	2.6	Complete
22	28	4.2	–	Incomplete
23	43	4.8	3.0	Complete
24	44	5.0	3.0	Complete
25	40	4.7	3.0	Complete
26	48	4.8	3.1	Incomplete
27	52	5.8	2.9	Complete
28	39	4.9	3.0	Complete
29	45	5.0	3.1	Complete
30	21	4.4	2.5	Incomplete
31	48	5.3	3.1	Complete
32	41	4.5	3.1	Incomplete
33	27	4.1	2.9	Incomplete
34	52	5.3	3.2	Complete
35	45	5.1	3.1	Incomplete
36	41	4.8	3.0	Complete
37	40	4.6	3.0	Complete
38	38	4.7	2.9	Complete
39	45	5.9	2.9	Incomplete
40	28	4.4	2.5	Incomplete
41	29	4.4	2.9	Incomplete
42	45	5.1	3.1	Incomplete
43	44	5.2	3.0	Incomplete
44	54	5.7	3.2	Incomplete
N57	39	4.5	3.0	Incomplete

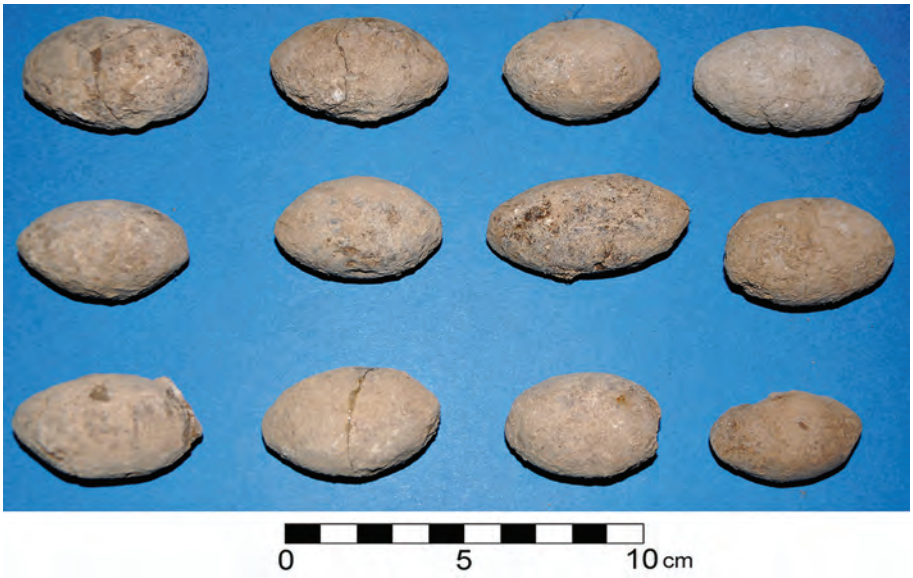

Fig. 18. Clay sling bullets (photograph by T. Bürge).

Sling bullets of clay were obviously used from the Neolithic, and appear even in late Antiquity.[74] The earliest finds of such objects are concentrated in the Near East and Greece, where they were often found within houses next to a hearth.[75] Later they were used extensively by the Roman army. They were often found in places with strategically important defence positions, such as fortifications or along the boundaries of costal settlements.[76]

Around 4000 BC sling bullets (irrespective of the material) developed a shape with one or both ends pointed, which is why we often meet descriptions of them as olive-shaped, ovoid, biconical or ellipsoid.[77] According to J.R. Mixter the shape, comparable to an American football, has been shown to be more aerodynamic than a spherical form and increases the velocity and, consequently, the range of the bullets.[78] Mixter puts the average weight of a sling bullet at 20–50 g and, according to previous reports, the average size between 4–6 cm. Their range is still an object of discussion, but has been estimated to be at least 100 m.[79] Even as sling bullets of lead became more common, the clay alternative did not lose its importance. Clay has the advantage of being easily available and simple and cheap to manufacture; thus they can be mass-produced.[80] Another property compared to sling bullets made of lead is that as sling bullets of clay shatter on impact, they could not be reused, either by the slinger or, more crucially, by the enemy. Consequently, the presence of clay sling bullets is often considered a sign of military activity, but other uses have also been discussed. Sometimes they were linked to the hunting of birds or were interpreted as shepherd's implements to bring back stray sheep.[81]

In Cyprus, two other sites in particular feature similar finds: Enkomi,[82] and Kition. At both of these sites a large amount of elliptical objects of unburned clay were found. Karageorghis reports more than 50 of these objects at Kition, most of them gathered in one room.[83] All of the objects were described as sling bullets and dated to Late Cypriote or more specifically to LC IIC–III,[84] which would correspond to the current dating of Stratum 2 (see main report).

Discussion and conclusion

It is obvious that the clay objects of Hala Sultan Tekke have many features in common with previously reported clay sling bullets. The aerodynamic shape is similar to the shape of sling bullets of other materials. The dimensions and weight lie within the average range of other reported sling bullets. Unfired clay is quite usual. Late Cypriote parallels of probable sling bullets suggest and support an interpretation of the objects as sling bullets. In addition, their find-spot is important from a

74 Childe 2004, 129.
75 Perlès 2001, 229.
76 Vujović 2007, 249–256.
77 Mixter 2001, 12.
78 Mixter 2001, 12.
79 Mixter 2001, 12. See also Moorey 1994, 165–166.
80 Perlès 2001, 231.
81 Perlès 2001, 229–231.
82 Dikaios 1969, pl. 166. See also the database of the British Museum: http://www.britishmuseum.org/research/.
83 Karageorghis 1985, 20–22, 175.
84 Dikaios 1971, 457–462.

strategic point of view as it corresponds to the find contexts from other sites. Two observations support this suggestion of a strategic or defensive function: one is the location of Area 6 on a higher plateau making it possible to overlook much of the surroundings, especially the harbour and the sea; the other is that our clay objects were found south of W26 which might have had a defensive function. Furthermore it is likely that the old harbour line lay approximately 100 m distant, corresponding to the suggested cast range of the sling bullets.

However, their find position next to a basin has no known parallels. Even though Stratum 2 is only partly excavated in Area 6, the context of R21 rather indicates its function as a textile production-related working space with a basin and a reused stone anchor.[85] This is the reason why a textile production-related function for our 44 clay objects was initially considered. However, the lack of parallels and their impractical shape make this use quite unlikely. This is supported by E. Andersson from the Centre of Textile Research (CTR) in Copenhagen.[86] In conclusion, their aerodynamic shape supports our suggestion that they were used as sling bullets.

The find position of the objects next to the basin can be related to their production. Since water is needed in the production process the basin could have supplied the water. The existence of lumps of clay nearby supports this theory. As unfired clay needs to air-dry before use, the bullets were possibly placed to dry and harden right next to their place of production. Since the basin is far too large for the production of sling bullets it probably had another primary function but was converted for the manufacture of sling bullets. Our large basin refutes the theory that the sling bullets were used as shepherds' implements. According to C. Perlès sling bullets were used on a daily basis by shepherds; thus they needed to be produced quite frequently in small quantities.[87] For that a smaller basin would be more suitable than a basin of this size. The existence of bird bones at Hala Sultan Tekke makes a use of the sling bullets for hunting birds not impossible.

There are few indications to support our theory of military use. However, their function as clay sling bullets can be supported by parallels in and beyond Cyprus. These parallels show similar or equal features as far as shape, dimensions and material are concerned.

[85] See main report.
[86] Email from E. Andersson dated 8 August 2012.
[87] Perlès 2001, 229–231.

Appendix 3: Reflections on some working surfaces

BY K. HEISS

Four working surfaces from the 2011 and 2012 seasons of excavation will be described and their possible usage will be discussed. One is from Stratum 2 from R17 (L185, season 2011; *Fig. 6*) and the other three are from the most recent occupational layer, Stratum 1 (*Fig. 2a*), from this season: two are from R20 (L251 and L280') and one is from R19 (L253').

Description and contexts

The first working surface (L185) is from Stratum 2. It is situated in R17, west of and close to W19. This is the only circular working surface. Its diameter is approximately 0.70 m and its thickness 0.03 m. Except for one differing sherd, only pithos sherds were used when building it on medium-sized stones. In the same room there was an oven. Finds from R1 included a grinding stone (N68), a round stone tool (N51) and a thong seal of clay (N54).

The second working surface (L251) is situated in R20, which belongs to Stratum 1. It is east of W35, in the same room as an oven (L260) which lies 3 m to the north-east. There is a fireplace (L275) between them. This working surface has a square shape measuring 0.95 m × 0.95 m. It is mainly constructed of pithos sherds, but there are also other sherds, for instance, Plain White Wheel-made, and sherds which could not be classified. In the gaps between the different sherds there was loose gravel and sand.

The third working surface (L280') is also in R20, Stratum 1, and associated with a fireplace (L275), a pit (L 279) and a bench. Little remains but it was once of rectangular shape (approximately 0.6 m × 1.0 m). It is partly covered by the second working surface (L251). It is obvious that L280' was disturbed when L251 was built. Here, too, many sherds from pithoi were used. The others could not be identified.

The fourth working surface (L253') which is in R19, west of W35 in Stratum 1, has a square shape (approximately 0.6 × 0.6 m). It is constructed of densely placed sherds from various vessels, for instance, Pithoi and Coarse ware. A layer of ash covered the surface and the area surrounding it.

Common to all four working surfaces is that they were mainly built of large pithos sherds. Another common fact is that they are close to or in rooms with ovens or a fireplace.

Discussion and suggested functions

It is difficult to determine whether their general shapes—circular contra square/rectangular—meant different usage. The same can be said about their foundations: only the circular working space is supported by stones. It is interesting to note that the circular shape with a stone foundation is the only one which belongs to the older Stratum 2.

In general, our working surfaces are similar to hearths from the Iron Age. These hearths were either built to a rectangular or keyhole shape.[88] However, they can also be circular.[89] Many hearths have sherds as working surfaces.[90] In Enkomi, for instance, a rectangular hearth was excavated which was built of sherds in a similar fashion to ours from L253'. This type of hearth seems to be closely related to Aegean hearths.[91]

As a consequence of their use, hearths were often associated with ash layers.[92] Our working surfaces resemble hearths, but none, except for L253', was associated with ash but all were associated with either an oven or a fireplace. A parallel comes from Cyprus itself, from Athienou, and another one from the Philistine sphere of culture at Gath in the Levant.[93]

Our L253' from the most recent layer of occupation, Stratum 1, which is interpreted as a hearth, is related to Aegean counterparts and might indicate a migration from the Aegean. The Aegean hearth was usually made of clay, but could also be built of sherds which covered the clay.[94] Even though the clay substructure is missing in our context the sherds were covered with ash, suggesting its use as a hearth. Moreover, the rectangular form points to an Aegean influence.[95] Aegean cooking jugs with flat bases were well suited for a flat hearth.[96] Three small pits were associated with the working surface: these pits were filled with fine sand and pebbles. Another, larger, pit and two dislocated water channels of hewn limestone were found close by.

One of the main functions of a flat working surface for the preparation of food was certainly to keep sand and dirt away: it was easy to keep it fairly clean because of its reasonably smooth surface. The working surface (L185) from R17 was found in the same context as an oven and it was suggested that this room was used for the preparation of food and (!) the melting of lead because of substantial finds of melted lead.[97]

L251 in R20 was sealed with gravel. This might have been advantageous when working with liquids. Liquids were allowed to seep through the gravel seal, which keeps the surrounding floor dry and prevents it from getting muddy. Also this working surface was easy to keep clean. The fact that this working surface was found close to an oven in the same room may imply that food was prepared. The possibility that yoghurt was produced is suggested.[98]

L280', also in R20, on which olive stones were found, was associated with a bench, a pit and a fireplace. In the pit were, in addition to some large stones, many sherds, animal bones and shells. These findings point to the preparation of food. It is evident that olives were used in connection with the preparation of meals but the stone could point to a small-scale olive oil production.[99] However, an olive press has not been found in our excavations.

Conclusions

All our working surfaces were certainly used for the preparation of food. Experimental food preparation would be useful in order to throw further light on the advantage or disadvantage of such working surfaces.

The working surface which is interpreted as a hearth L253' could point to an Aegean immigration because of Aegean parallels. In addition, the shape of hearths changed from circular to rectangular.[100]

Additional morphological and chronological studies are needed in order to compare with similar installations from other sites. Unfortunately very little is published on this topic.

88 Maeir & Hitchcock 2011, 46.
89 Maeir & Hitchcock 2011, 48.
90 Maeir & Hitchcock 2011, 54.
91 Maeir & Hitchcock 2011, 57.
92 Maeir & Hitchcock 2011, 47.
93 Maeir & Hitchcock 2011, 60.
94 Yasur-Landau 2010, 123.
95 Yasur-Landau 2010, 123.
96 Yasur-Landau 2010, 130.
97 See Fischer 2012a, 98.

98 My thanks go to Hikmat Ta'ani, our technical archaeologist, who suggested yoghurt production based on his experiences from Jordan.
99 Hadjisavvas 1992, 3.
100 Yasur-Landau 2010, 143.

Appendix 4: Statistics on White Slip wares from Hala Sultan Tekke

BY J.A.I. VAN DER DOES

Introduction

The central focus of this appendix is on White Slip pottery which was produced in Cyprus during the Late Cypriote period, roughly 1600–1200 BC, and which was found during the excavation of Area 6. The specific characteristics of White Slip ware make it possible to distinguish it from other wares, even if only small fragments are found. Consequently, this ware is of great value in the relative dating of archaeological contexts, particularly outside Cyprus since White Slip has a wide distribution throughout the Eastern Mediterranean and has also been found in Italy.

In 1972, M.R. Popham classified the White Slip repertoire.[101] The first formative stage, recognized as the transitional development from the White Painted wares to the actual White Slip ware, is called Proto White Slip. It is possible to divide the actual White Slip ware into two styles, White Slip I and White Slip II, with a transitional style in between (White Slip I–II). These divisions are mainly based on the decoration and the execution of the decorative motifs but also on the fabric itself which in the case of White Slip I is of better overall quality; for instance, the walls of the vessels are thinner.

The statistics of White Slip wares from Area 6 allow comparison with other sites in order to study parallels and/or differences. In the discussion below, the statistics of White Slip from Area 6 will be compared with those from two other sites, Toumba tou Skourou in Cyprus, and Tell el-ᶜAjjul, in the Gaza Strip. Statistics are available from both sites.[102]

Material

From the new excavations at Hala Sultan Tekke 2010–2012, a total of 694 White Slip fragments were recorded (*Table 2*). A notable element in the statistics is the significant amount of White Slip II fragments: 74% of all White Slip sherds have been recorded as White Slip II (512 out of 694). In contrast, only a very few examples of Proto White Slip fragments are present, while approximately 8% have been classified as White Slip I. Additionally, *Table 2* shows that 105 fragments are not representative enough to classify them properly.

Table 3 shows the statistics of the White Slip pottery shapes from Hala Sultan Tekke. Bowls are the dominant shape; other shapes are open and closed vessels not further classified, mainly jugs/juglets. Vessel shape cannot be defined in 501 of 694 (ca 72%) fragments.

Table 2. Number of White Slip fragments, NSCE 2010–2012.[103]

Ware	*Find Class 2*	*Find Class 3*	*Total*
Proto WS	1	1	2
WS I	12	44	56
WS I/II	2	17	19
WS II	23	456	479
WS II early	2	2	4
WS II mature	3	18	21
WS II mature/late	2	–	2
WS II late	1	5	6
WS not classified	1	104	105
Total	47	647	694

Table 3. Vessel shapes White Slip, NSCE 2010–2012.

	Find Class 2		Find Class 3		Total	
Ware	*Shape*	*Number*	*Shape*	*Number*	*Shape*	*Number*
Proto WS	bowl	1	bowl	1	bowl	2
WS I	bowl	10	bowl	3	bowl	13
WS I/II	bowl	–	bowl	3	bowl	3
WS II	bowl	28	bowl	106	bowl	134
WS	bowl	–	bowl	28	bowl	28
Total WS	bowl	39	bowl	141	bowl	180
WS	undiagn.	4	undiagn.	497	undiagn.	501
WS	other	4	other	9	other	13

[101] Popham 1972.

[102] Due to limitations in space only two other sites, from which statistics are available, were chosen for this study.

[103] For definitions of Find Class 2 and Find Class 3, see Fischer 2011, 74.

Discussion

The statistics of White Slip from Area 6 will be compared with those from two other sites. Firstly, tomb material from Toumba tou Skourou is selected in order to compare Cypriote burial material with that from a settlement, Hala Sultan Tekke.[104] Secondly, the city of Tell el-ᶜAjjul in the Gaza Strip produced the largest amount of White Slip outside Cyprus.[105] Therefore, statistics of White Slip from this city are studied in order to compare White Slip from settlements in different geographical areas. In addition, both publications present adequate statistics of White Slip, which are not provided in many archaeological reports.

Toumba tou Skourou is located in north-west Cyprus. It combines a Late Cypriote potters' quarter with rich tombs. In contrast to the White Slip pottery from the settlement at Hala Sultan Tekke, White Slip from Toumba tou Skourou is mainly found in funerary contexts where early White Slip dominates (see *Table 4*). In total, 105 finds of White Slip were excavated from the tombs and ten finds derived from the potters' quarter. The statistics demonstrate that Proto White Slip and White Slip I are dominant in contrast to the scarce amount of White Slip II. The diagnostic White Slip examples indicate bowls as the dominant shape by far (107 out of 115). Furthermore, six White Slip I tankards have been recorded in the tombs and the two White Slip IIA examples are undiagnostic as far as their shapes are concerned.

Secondly, the statistics of White Slip ware from the Middle and Late Bronze Age site of Tell el-ᶜAjjul in the Gaza Strip make it possible to compare White Slip ware from settlement contexts outside Cyprus. This site produced the highest amount of Cypriote pottery outside Cyprus, in particular a significant amount of White Slip.[106] The Middle and Late Bronze Age city of Tell el-ᶜAjjul is located approximately 10 km south of modern Gaza City.[107] However, since publications by various authors mention different absolute numbers, the sum of White Slip examples lies between 423–454 entities.[108] In this article I use the numbers from the new excavations of 1999–2000 (*Table 5*).

Table 4. Number of White Slip fragments and/or (semi)complete shapes from Toumba tou Skourou 1971–1973.

Ware	*Tombs*	*Settlement*	*Total*
PWS	15	3	18
WS I	89	5	94
WS II	1		1
WS IIA		2	2
Total	105	10	115

Table 5. Number of White Slip vessels/sherds from Tell el-ᶜAjjul 1999–2000.

Ware	*Number*
WS I	67
WS II	162
WS I or II	6
Total	235

Conclusions

The new excavations at Hala Sultan Tekke produced in particular White Slip II (74%). Only 8% of the White Slip fragments have been recorded as White Slip I. The new excavations at the city of Tell el-ᶜAjjul seem also mainly to have produced White Slip II vessels (69%), although Tell el-ᶜAjjul demonstrates quite high figures for White Slip I (28.5%). The high figures for White Slip I, which include some specimens which are classified as transitional Proto White Slip and early White Slip I,[109] are remarkable. The only parallel of this transitional style on Cyprus is found at Toumba tou Skourou. Here, Proto White Slip and White Slip I together present more than 97% of the White Slip assemblage. However, it should be kept in mind that the majority of White Slip from Toumba tou Skourou has been found in funerary contexts. Nevertheless, these parallels led C. Bergoffen to suggest that the early White Slip from Tell el-ᶜAjjul was produced somewhere in the environs of Toumba tou Skourou.[110] Additionally, this data could suggest that Hala Sultan Tekke was less important in the Middle to early Late Cypriote period but of much more importance in the second half of the Late Cypriote period when international exchange systems flourished.[111]

[104] Vermeule & Wolsky 1990, 3; the statistics used here are based on the excavations from 1971–1973 by Harvard University jointly with the Museum of Fine Arts, Boston, published in Vermeule & Wolsky 1990.
[105] Fischer 2003.
[106] Concerning the material from W.M.F. Petrie's excavations in the 1930s, see Bergoffen 2001, 145; material from the new excavations in Fischer 2003, 271.
[107] Fischer 2004, 249, 271; the statistics used here are based on Fischer 2003. The numbers of Proto White Slip and White Slip I from Petrie's excavations in the 1930s differ slightly and are therefore not considered here.
[108] Fischer 2003, 271.
[109] Fischer 2003, 275.
[110] Bergoffen 2001, 154.
[111] Bergoffen 2001, 154.

Furthermore, bowls seem to be the dominant shape amongst the diagnostic examples, although these results are based on the diagnostic fragments and there is a possibility that the undiagnostic fragments represent other shapes which would then change the statistics. Nevertheless, Hala Sultan Tekke Area 6, as well as Toumba tou Skourou and Tell el-ʿAjjul, all appear to have a focus on bowls. One would wish for more detailed statistical information about the White Slip ware from other sites in order to study statistics on type, shape and size.

Appendix 5: Three Late Bronze Age stone anchors from 2012

BY D.M. BLATTNER

General introduction

During the 2012 campaign of the New Swedish Cyprus Expedition three stone anchors were found in Trenches 8A and 8C of Area 6. The aim of this appendix is to study these three anchors, which belong to Stratum 2, and to put them in a wider context.

In the Late Bronze Age Cyprus was one of the most important centres of trade in the Eastern Mediterranean with intercultural relations with Greece, the Levant, Egypt and Italy. Goods were mainly transported by ships and since the ancient city of Hala Sultan Tekke had an excellent harbour on the south shore of Cyprus, stone anchors are a fairly common find group in the area.[112] Once identified and assigned to their place of origin they provide useful information about trade routes and the origin of the ships.

When found on land, stone anchors are usually discovered in four different contexts:

– As votive offerings in or next to temples[113]—for instance in Byblos[114] and Ugarit[115]—, or tombs[116] or at the bottom of wells. This latter type is interpreted as a sacrifice to ensure the supply of drinking water on the ship from which the anchors derived.[117]
– In workshops, probably used as work benches to crush and prepare ore for smelting.[118]
– At ancient harbour sites.[119]
– In walls, where stone anchors and their remains were reused in walls as building or filling materials.

Three different types of stone anchors are commonly found in Late Bronze Age contexts:

– "Weight anchors" (or "rock anchors"), which are are single-holed, heavy stones (weighing more than 50 kg) whose weight alone held the ships in place. They were best used among rocks or reefs.[120]
– "Sand anchors", which are are small flat stones (weighing less than 25 kg) with several holes, one for the rope and the others for wooden flukes. They were used along the shore on sandy seabeds and are still in use today.[121]
– "Composite anchors", which are weight anchors with two additional holes near the base, to hold wooden flukes. Thereby they combined the advantages of the weight and the sand anchor and could be used regardless of the nature of the sea bottom.[122]

Material and discussion

Anchor 1 (*Fig. 19:1*, *2*) belongs clearly to the weight anchor type and was discovered in Trench 8A, reused within the northern part of a wall (W34), which was dated to Stratum 2, as a building stone. The limestone slab seems quite irregular and is complete. It measures 0.91 m in length, is 0.37/0.48/0.34 m wide (measured from left to right) and between 0.20 and 0.27 m thick. The biconical hole was drilled from both sides and has a diameter of 0.12 m. The anchor weighs 125 kg.

I forward the hypothesis that this stone anchor was manufactured in Cyprus. The stone itself seems to be local and the shape seems to diverge from those which are described from Egypt, Ugarit and Byblos, all of which seem to have a more

[112] A total of 41 stone anchors from Area 8 and 22 are already listed in Åström & Svensson 2007.
[113] McCaslin 1978, 120; McCaslin 1980, 25; Frost 1963, 44.
[114] Frost 1963, 42–43.
[115] Frost 1969, 242.
[116] Frost 1969, 242.
[117] Frost 1970, 19.
[118] Hult 1977, 148; Frost 1963, 46; Frost 1970, 17–18; McCaslin 1980, 25.
[119] Frost 1969, 243; Frost 1970, 14.
[120] Frost 1963, 50; Frost 1969, 237; McCaslin 1978, 120; McCaslin 1980, 18.
[121] Frost 1963, 50; McCaslin 1978, 120.
[122] Frost 1963, 50; Frost 1969, 237; McCaslin 1978, 120–121.

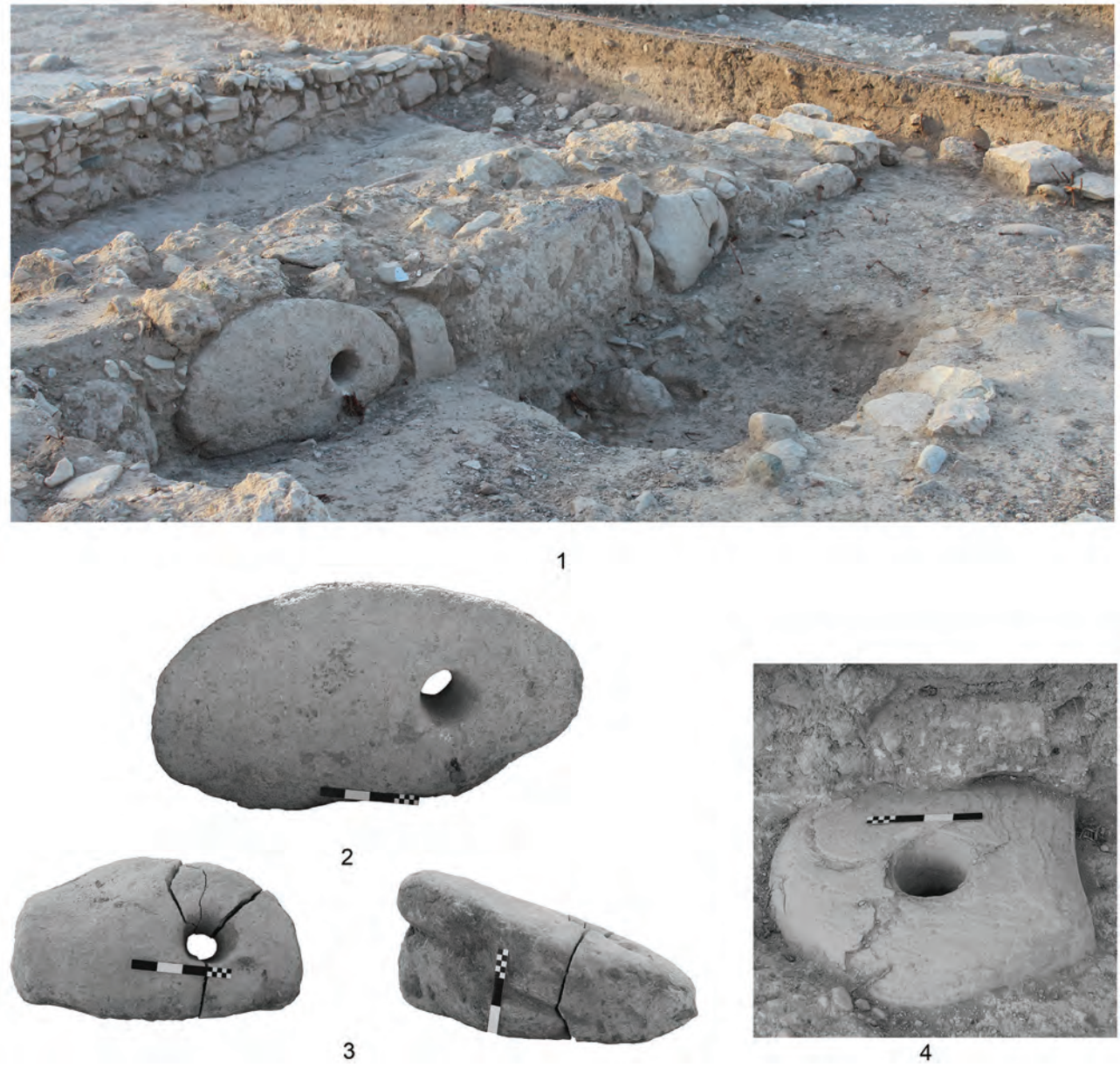

Fig. 19. Stone anchors (photographs by D.M. Blattner).

regular form.[123] An anchor very similar in size and shape was found at Cape Andreas in Cyprus.[124]

Anchor 2 (*Fig. 19:3*), also from Trench 8A, is another weight anchor. It was reused as a building element in W34, somewhat to the south of Anchor 1. It is 0.62 m long, between 0.28 m and 0.36 m wide and its thickness ranges from 0.20 m to 0.34 m. The hole is slightly biconical and has a diameter of 0.12 m. The anchor is of limestone and weighs 81 kg.

This anchor could not be taken out in one piece because of the brittleness of the limestone, which was intersected with fine strands of a different material, presumably chalk. It is therefore questionable if it was ever used as an anchor. Another interesting observation is that, when viewed in section, it seems that the anchor is unfinished because a lot of limestone

[123] McCaslin 1980, 65–68.
[124] Green 1973, 173, fig. 31B 8.

material was never cut away. This points to a locally produced object of secondary quality which was discarded and reused as building material. An argument against this theory would be the fact that the hole had already been drilled before it was discarded. On the other hand the hole was made on the side, which already was about 0.20 m thick, which corresponds to the desired final thickness of the stone anchor. Another interesting detail is a small depression next to the hole, which could be the remains of a first attempt to drill the stone.

Anchor 3 (*Fig. 19:4*) is from Trench 8C. It lay horizontally on the same level as the floor of the basin (see Appendix 2) and partly beneath W35 from Stratum 1. Therefore it was not possible to weigh it or even determine its shape without destroying W35. The part that is visible has a length of 0.42 m, and is between 0.56 m and 0.46 m wide and 0.20 m thick (measured through the biconical hole, whose diameter is 0.16 m). Like the other two objects, the anchor is made of limestone. It is clear that this anchor had a secondary use. It could have been reused as a socket for a wooden pillar as, for instance, in Kition,[125] which was possibly connected to the function of the basin in Trench 8A and Trench 8C.

Conclusions

The three stone anchors all belong to the same occupational period, namely Stratum 2. The two anchors which were reused in Wall 34 were both built in as façade stones, i.e. their holes were clearly visible. They were possibly just building elements but they could also have served as signs of the function of the structure, the owner's profession, or just as some kind of decoration.[126] Also, the fact that they were not broken when reused is important. This could point to a situation where there was no need for additional stone anchors due to a possible overproduction, i.e. anchors of inferior quality were discarded and reused for a different purpose. The unfinished Anchor 2 will be further studied in order to extract supplementary information on the manufacturing technique.

[125] McCaslin 1980, 25.

[126] The rock anchors from Ugarit, in front of the temple of Baal, come to mind; see Frost 1969, 242. However, no evidence of a temple or chapel was found.

Bibliography

Aspinall, A., C. Gaffney & A. Schmidt 2008. *Magnetometry for archaeologists*, Lanham.

Åström, P. 1972a. *The Swedish Cyprus Expedition* Vol. IV: 1B. *The Middle Cypriote Bronze Age*, Lund.

Åström, P. 1972b. *The Swedish Cyprus Expedition* Vol. IV: 1C. *The Late Cypriote Bronze Age*, Lund.

Åström, P. 1972c. *The Swedish Cyprus Expedition* Vol. IV: 1D, Lund.

Åström, P. 1988. 'The Hippocampus Krater', *RDAC*, Part 1, 173–175.

Åström, P. & B. Svensson 2007. 'Stone anchors', in *Hala Sultan Tekke* 12. *Tomb 24, stone anchors, faunal remains and pottery provenance* (SIMA, 45:12), eds. P. Åström & K. Nys, Göteborg, 31–49.

Begg, P. 1991. *Late Cypriote terracotta figurines: A study in context* (SIMA-PB, 101), Jonsered.

Ben-Shlomo, D. 2010. *Philistine iconography. A wealth of style and symbolism* (Orbis Biblicus et Orientalis, 241), Fribourg & Göttingen.

Ben-Shlomo, D. & M.D. Press 2009. 'A reexamination of Aegean-style figurines in light of new evidence from Ashdod, Ashkelon, and Ekron', *BASOR* 353, 39–74.

Bergoffen, C. 2001. 'The Proto White Slip and White Slip I pottery from Tell el-Ajjul', in *The White Slip ware of Late Bronze Age Cyprus. Proceedings of an International Conference organized by the Anastasios G. Leventis Foundation, Nicosia in honour of Malcolm Wiener, Nicosia 29th–30th October 1998* (Contributions to the Chronology of the Eastern Mediterranean, 2), ed. V. Karageorghis, Wien, 145–156.

Bürge, T. 2012. 'Appendix 1: Two primary contexts with Cypriote and Mycenaean pottery', in Fischer, P.M., 'The New Swedish Cyprus Expedition 2011: Excavations at Hala Sultan Tekke. Preliminary results', *OpAthRom* 5, 105–107.

Childe, G. 2004. *Foundations of social archaeology: Selected writings of V. Gordon Childe*, eds. T.C. Patterson & C.E. Orser, Oxford.

Conyers, L.B. 2004. *Ground-penetrating radar for archaeology* (Geophysical methods for archaeology, 1), Walnut Creek.

Dikaios, P. 1969. *Enkomi. Excavations 1948–1958*, Vol. 3, Mainz.

Dikaios, P. 1971. *Enkomi: Excavations 1948–1958*, Vol. 2, Mainz.

Fischer, P.M. 1980. 'Geophysical prospecting at Hala Sultan Tekke, Cyprus', *JFA* 7, 479–484.

Fischer, P.M. 2003. 'The preliminary chronology of Tell el-Ajjul: Results of the renewed excavations in 1999 and 2000', in *The synchronisation of civilisations in the Eastern Mediterranean in the second millennium B.C.* II. *Proceedings of the SCIEM 2000–EuroConference, Haindorf, 2nd of May–7th of May 2001* (Contributions to the Chronology of the Eastern Mediterranean, 4), ed. M. Bietak, Wien, 263–294.

Fischer, P.M. 2004. 'Coast contra inland: Tell el-Ajjul and Tell Abu al-Kharaz during the Late Middle and Late Bronze Ages', *Egypt and the Levant* 14, 249–264.

Fischer, P.M. 2011. 'The New Swedish Cyprus Expedition 2010: Excavations at Dromolaxia Vizatzia/Hala Sultan Tekke. Preliminary results', *OpAthRom* 4, 69–98.

Fischer, P.M. 2012a. 'The New Swedish Cyprus Expedition 2011: Excavations at Hala Sultan Tekke. Preliminary results', *OpAthRom* 5, 89–112.

Fischer, P.M. 2012b. 'SIMA and the New Swedish Cyprus Expedition at Hala Sultan Tekke', in *Studies in Mediterranean archaeology: Fifty years on* (SIMA, 137), eds. J.M. Webb & D. Frankel, Göteborg, 73–80.

Fowler, M.D. 1985. 'Excavated figurines: A case for identifying a site as sacred?', *Zeitschrift für Alttestamentliche Wissenschaft* 97, 333–344.

Franz, L. 2012. 'Appendix 2. The cylinder seal', in Fischer, P.M., 'The New Swedish Cyprus Expedition 2011: Excavations at Hala Sultan Tekke. Preliminary results', *OpAthRom* 5, 107–109.

French, E. 1981. 'Mycenaean figures and figurines, their typology and function', in *Sanctuaries and cults in the Aegean Bronze Age. Proceedings of the First International Symposium at the Swedish Institute in Athens, 12–13 May, 1980* (ActaAth-4°, 40), eds. R. Hägg & N. Marinatos, Stockholm, 173–178.

French, E. 1985. 'Chapter VI. The figures and figurines', in *The Archaeology of cult: The sanctuary at Phylakopi* (BSA Suppl., 18.), ed. C. Renfrew, London, 209–280.

Frost, H. 1963. *Under the Mediterranean: Marine antiquities*, London.

Frost, H. 1969. 'The stone-anchors of Ugarit', in *Ugaritica 6. Publié à l'occasion de la XXXe campagne de fouilles* à *Ras Shamra (1968) sous la direction de Claude F. A. Schaeffer* (= *Mission de Ras Shamra* 17), ed. C.F.A. Schaeffer, Paris, 235–245.

Frost, H. 1970. 'Some Cypriot stone-anchors from land sites and from the sea', *RDAC*, 14–24.

Green, J.N. 1973. 'An underwater survey of Cape Andreas, Cyprus 1969–1970', in *Marine archaeology*: *Proceedings of the Twenty-third Symposium of the Colston Research Society held in the University of Bristol, April 4th to 8th, 1971* (Colston Papers, 23), ed. D. Blackman, London, 141–178.

Hadjisavvas, S. 1992. *Olive oil processing in Cyprus. From the Bronze Age to the Byzantine period* (SIMA, 99), Göteborg.

Hägg, R. 1990. 'The role of libations in Mycenaean ceremony and cult', in *Celebrations of death and divinity in the Bronze Age Argolid. Proceedings of the Sixth International Symposium at the Swedish Institute at Athens, 11–13 June, 1988* (ActaAth-4º, 40), eds. R. Hägg & G.C. Nordquist, Stockholm, 177–184.

Hult, G. 1977. 'Stone anchors in Area 8', in Åström, P., G. Hult & M. Strandberg Olofsson, *Hala Sultan Tekke* 3 (SIMA, 45:3), Göteborg, 147–149.

Johnson, J. 1980. *Maroni de Chypre* (SIMA, 59), Göteborg.

Karageorghis, V. 1975. 'Kypriaka II', *RDAC*, 58–68.

Karageorghis, V. 1981. 'Aegean and derivative wares', in *Excavations at Kition* IV. *The non-Cypriote pottery*, ed. V. Karageorghis, Nicosia, 1–15.

Karageorghis, V. 1985. *Excavations at Kition* V. *The pre-Phoenician levels*, Nicosia.

Karageorghis, V. 1991. *The coroplastic art of Ancient Cyprus* I. *Chalcolithic–Late Cypriote I*, Nicosia.

Karageorghis, V. 1993. *The coroplastic art of Ancient Cyprus* II. *Late Cypriote II–Cypro Geometric III*, Nicosia.

Karageorghis, V. 2000. *Ancient art from Cyprus. The Cesnola Collection in the Metropolitan Museum of Art*, New York.

Kenyon, K.M. 1956. 'Jericho and its setting in Near Eastern history', *Antiquity* 30/119, 184–197.

Kling, B. 1989. *Mycenaean IIIC:1B and related pottery in Cyprus* (SIMA, 87), Göteborg.

Leckebusch, J. 2003. 'Ground-penetrating radar: A modern three-dimensional prospection method', *Archaeological Prospection* 10, 213–240.

Maeir, M.A. & L.A. Hitchcock 2011. 'Absence makes the hearth grow fonder: Searching for the origins of the hearth', *ErIsr* 30, 46–64.

Marchetti, M. 2000. 'Clay figurines of the Middle Bronze Age from northern inner Syria: Chronology, symbolic meaning and historical relations', in *Proceedings of the First International Congress on the Archaeology of the Ancient Near East, Rome, May 18th–23rd 1998*, eds. P. Matthiae, A. Enea, L. Peyronel & F. Pinnock, Roma, 839–868.

Marchetti, N. 2001. *La coroplastica eblaita e siriana nel bronzo medio* (Materiali e studi archeologici di Ebla, 5), Roma.

Marinatos, N. 1986. *Minoan sacrificial ritual. Cult practice and symbolism* (ActaAth-8º, 9), Göteborg.

McAdam, E. 1997. 'The figurines from the 1982–5 seasons of excavations at Ain Ghazal', *Levant* 29, 115–145.

McCaslin, D.E. 1978. 'The 1977 underwater report', in U. Öbrink, *Hala Sultan Tekke* 5. *Excavations in Area 22: 1971–1973 and 1975–1978* (SIMA, 45:4), Göteborg, 97–172.

McCaslin, D.E. 1980. *Stone anchors in antiquity: Coastal settlements and maritime trade-routes in the Eastern Mediterranean ca. 1600–1050 B.C.* (SIMA, 61), Göteborg.

Mixter, J.R. 2001. 'Man's first long-range missile weapon, the sling was a deadly military asset in skilled hands', *Military History* 18:3, 12–13.

Moorey, P.R.S., 1994. *Ancient Mesopotamian materials and industries: The archaeological evidence*, Oxford.

Mountjoy, P.A., 1999. *Regional Mycenaean decorated pottery*, Rahden.

Neubauer, W. 2001. *Magnetische Prospektion in der Archäologie* (Mitteilungen der Prähistorischen Kommission, Österreichische Akademie der Wissenschaften, Philosophisch-Historische Klasse, 44), Wien.

Orphanides, A.G. 1983. *Bronze Age anthropomorphic figurines in the Cesnola Collection at the Metropolitan Museum of Art* (SIMA-PB, 20), Göteborg.

Orphanides, A.G. 1991. 'The interpretation of the Bronze Age terracotta anthropomorphic figurines from Cyprus', in *Cypriote terracottas. Proceedings of the First International Conference of Cypriote Studies, Brussels–Liège–Amsterdam, 29 May–1 June, 1989*, eds. F. Vandenabeele & R. Laffineur, Brussels & Liège, 39–45.

Padgett, M. 1990. 'White Slip', in *Toumba tou Skourou. A Bronze Age potters' quarter on Morphou Bay in Cyprus*, eds. E.D.T. Vermeule & F.Z. Wolsky, Boston, 371–375.

Pakkanen, P. 2009. 'Figurines as agents in Mycenaean religious ritual. An approach from the perspective of study of religion', in *Encounters with Mycenaean figures and figurines. Papers presented at a seminar at the Swedish Institute at Athens, 27–29 April 2001* (ActaAth-8°, 20), ed. A.-L. Schallin, Stockholm, 149–159.

Perlès, C. 2001. *The Early Neolithic in Greece: The first farming communities in Europe*, Cambridge.

Picón, C.A., S. Hemingway, C.S. Lightfoot, J.R. Mertens, E.J. Milleker & R. De Puma 2007. *Art of the Classical world in the Metropolitan Museum of Art: Greece, Cyprus, Etruria, Rome*, New Haven.

Popham, M.R. 1972. 'White Slip ware', in *The Swedish Cyprus Expedition* Vol. IV: 1C. *The Late Cypriote Bronze Age*, ed. P. Åström, Lund, 431–471.

Rice, M. 1998. *The power of the bull*, London.

Schachermeyr, F. 1979. 'The pleonastic pottery style of Cretan Middle IIIC and its Cypriote relations', in *The relations between Cyprus and Crete, ca. 2000–500 B.C. Acts of the International Archaeological Symposium, Nicosia 16th April–22nd April 1978*, ed. V. Karageorghis, Nicosia, 204–214.

Todd, I.A. & D. Pilides 2001. 'The archaeology of White Slip production', in *The White Slip ware of Late Bronze Age Cyprus. Proceedings of an International Conference organized by the Anastasios G. Leventis Foundation, Nicosia, in honour of Malcolm Wiener, Nicosia, 29th–30th October1998* (Contributions to the Chronology of the Eastern Mediterranean, 2), ed. V. Karageorghis, Wien, 27–43.

Vermeule, E.D.T. & F.Z. Wolsky 1990. *Toumba tou Skourou. A Bronze Age potters' quarter on Morphou Bay in Cyprus*, Boston.

Voigt, M.M. 2000. 'Çatal Höyük in context. Ritual at Early Neolithic sites at Central and Eastern Turkey', in *Life in Neolithic farming communities. Social organization, identity and differentiation*, ed. I. Kuijt, New York, 253–293.

Vujović, M. 2007. 'Clay slingshots from the Roman fort Novae at Čezava', in *Waffen in Aktion: Akten der 16. Internationalen Roman Military Equipment Conference (ROMEC), Xanten, 13.–16. Juni 2007* (Xantener Berichte, 16), eds. A.W. Busch & H.-J. Schalles, Mainz, 249–256.

Yasur-Landau, A. 2010. *The Philistines and Aegean migration at the end of the Late Bronze Age*, Cambridge.

Yener, K.A., ed. 2010. *Tell Atchana, ancient Alalakh* Vol. 1. *The 2003–2004 excavation seasons*, Istanbul.