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EDITOR:
Dr Julia Habetzeder
Department of Archaeology and Classical Studies
Stockholm University
SE-106 91 Stockholm
editor@ecsi.se

SECRETARY'S ADDRESS:
Department of Archaeology and Classical Studies
Stockholm University
SE-106 91 Stockholm
secretary@ecsi.se

DISTRIBUTOR:
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# Contents

PETER M. FISCHER & TERESA BÜRGE

# The New Swedish Cyprus Expedition 2017: Excavations at Hala Sultan Tekke (The Söderberg Expedition)

## Preliminary results. With contributions by M. Ausiayevich, B. Placiente Robedizo, V. Barrera Alarcón, L. Recht & D. Kofel


### Abstract

During the eighth field season at the Bronze Age city of Hala Sultan Tekke, excavations in City Quarter 1 (CQ1) exposed massive industrial and domestic structures belonging to three phases of occupation (Strata 3–1) dating to the 13th and 12th centuries BC (LC IIC–IIIA). Georadar survey, penetrating to a maximum depth of approximately 1 m, guided the excavation of walls of Strata 1–2, both of which were destroyed by conflagration. Excavations 1.5–2 m below the surface and also below the maximum penetration depth of the radar revealed a heretofore buried phase of occupation with substantial architectural units. For the first time, massive Stratum 3 structures with a markedly different building technique were exposed. Copper smelting installations, much ash and slag, and storage facilities also belong to this phase of occupation.

Additional excavations guided by results from a magnetometer survey were carried out in Area A, roughly 600 m to the south-east of CQ1. Numerous circular anomalies were excavated. These were identified as Late Cypriot wells, rich offering pits, and a tomb from the same period. In addition to numerous intact locally produced vessels and other finds, the tomb contained a complete Late Minoan II/IIIA piriform jar with bird motifs which have exact parallels from Knossos. Other finds from this tomb include a diadem of leaf gold, amethyst jewellery, and nine sphendonoid shaped balance weights of haematite together with a hornblende whetstone. The features from Area A cover a period from the 16th to the 13th centuries BC (LC IB–IIC).*


*Keywords*: Late Bronze Age, Hala Sultan Tekke, city, tombs, offering pits, wells

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## Introduction

This article is the eighth in a series of annually published preliminary reports on the renewed excavations at Hala Sultan Tekke which began in 2010 under the direction of P.M. Fischer.[1] For some readers of the current report it may appear repetitive, once again to summarize the results of previous excavations. Nevertheless, we will recapitulate essential information in order to facilitate the understanding of the project and its results without the need to consult previous publications.

Previous excavations established that Hala Sultan Tekke was an important Bronze Age harbour city.[2] The exact size of the occupied area is still unknown, although estimates of

* *Acknowledgements*: The expedition would like to express its gratitude for the proficient support of the Department of Antiquities of Cyprus (DAC), headed by the director Dr M. Solomidou-Ieronymidou, and its personnel including Dr D. Pilides, Curator of Antiquities, archaeological officer Dr A. Satraki and the staff of the Larnaca Archaeological Museum. Mr P. Georgiou, a former employee of the Department of Antiquities of Cyprus, and Mrs D. Georgiou admirably provided the necessary logistic support. Indispensable funding was once again gratefully received from the Torsten Söderberg Foundation, very kindly supported by Dr T. Söderberg, Gothenburg. We are also much obliged to the Enbom's Foundation at the Royal Swedish Academy of Letters, History and Antiquities, and to INSTAP for their generous sponsorships. The Royal Society of Arts and Sciences in Gothenburg kindly provided a financial contribution. The board of the association of the Friends of the Swedish Cyprus Expedition lent their support. The team consisted of archaeologists, students and other personnel, most from Sweden, others from Austria, Cyprus, Denmark, Estonia, Finland, Germany, Israel, Italy, Jordan, Poland, Romania and Spain. Amongst the team members are Dr T. Bürge, who acted as assistant field director. M. Al-Bataineh functioned as the architect, surveyor and draughtsperson. Trench masters were M. Ausiayevich, A. Lazarides, D. Kofel (part-time), L. Mazzotta, and Dr L. Recht. Other members of the team were J. Ahola, L. Avial Chicharro, P. Badani Zuleta, V. Barrera Alarcón, A. Boender, B. Clark, S. Erhardt, E. Gustavsson, R. Heikkilä, I. Hilmér, R. Laoutari (part-time), E. Peri, J. Piili, B. Placiente, A. Sjelvgren, S. Svedberg, M. Svensson, J. Tracz, and A. Varaz Mazagatos. K. Oikonomopoulou participated as conservator.

[1] Fischer 2011; 2012b; Fischer & Bürge 2013; 2014; 2015; 2016; 2017b.
[2] *HST* 1–12.

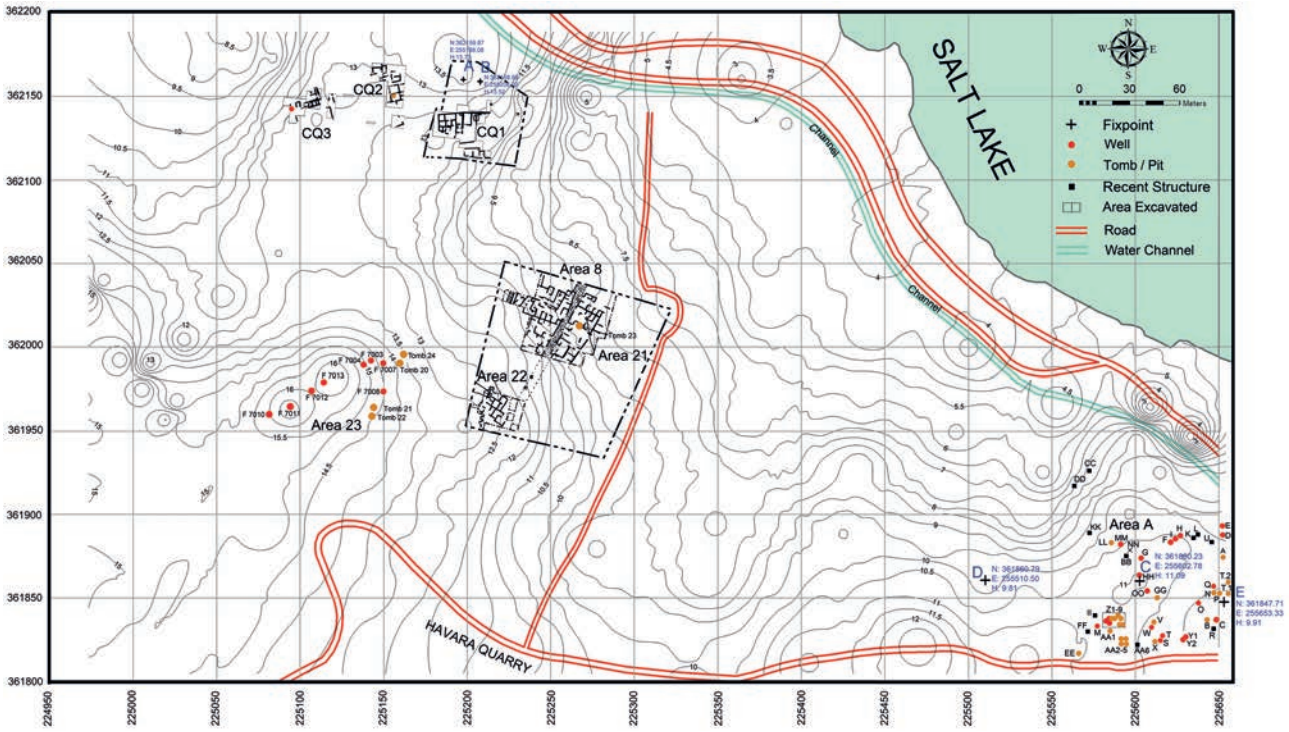


*Fig. 1. Topographic map of Hala Sultan Tekke: CQ3, CQ2, CQ1, Area 8, and Area A (from west to east; drawing by M. Al-Bataineh and T. Bürge).*

20–25 hectares—and even more—have been published.[3] In June 2017, a magnetometer survey of some 20 hectares was carried out based on the topography of the site and concentrated around the already excavated areas (see *Fig. 1*). The magnetometer map demonstrates structures of stone covering an area of roughly 12 hectares including the already exposed parts of the city. In the years to come, larger areas will be surveyed by geophysical prospecting in order to substantiate the estimation of the total extent of the settlement, and to guide and facilitate future excavations.

The history of the excavations at Hala Sultan Tekke goes back to 1894 when J.L. Myres searched for ancient remains west of the Salt Lake without success.[4] In 1897 and 1898 the British Museum searched for tombs west of the mosque of Hala Sultan Tekke.[5] Some tombs were excavated but most of the discovered tombs had already been looted. The low scientific standard of these endeavours even considering the period when they took place is evident when studying D.M. Bailey's report.[6] No doubt, the main objective of these investigations was to find tombs with spectacular finds for export to the British Museum. In addition to these non-scientific excavations, the site, which was well-known for its rich finds obtained via looting, suffered from illicit excavations over a considerable period both before and after the British Museum endeavour.

At various times in the second half of the 20th century the Cypriot Department of Antiquities was engaged at Hala Sultan Tekke, notably in 1968, when V. Karageorghis rescue-excavated two Late Bronze Age tombs with rich contents to the west of the mosque (Tombs 1 and 2).[7] In the 1970s and 1980s additional tombs were (re)excavated by the Swedish mission directed by P. Åström (see references below).

At the beginning of the 1970s regular excavations were carried out by P. Åström in the settlement of Hala Sultan Tekke. These continued intermittently for more than three decades until 2005. Selected results from the excavations in and around Area 8 were published as preliminary reports together with a number of specialized studies.[8] The results suggested that Hala Sultan Tekke was an important harbour city with far-reaching cultural connections especially in the second half

[3] See e.g. Knapp 2013, 355, fig. 95, which is based on the estimate by Åström 1986, 8; 1996, 10.
[4] Cf. Fischer 2012a, 74.
[5] Fischer & Bürge 2017c, 161–163.
[6] Bailey 1976, 1–32.
[7] Karageorghis 1976.
[8] *HST* 1–12.

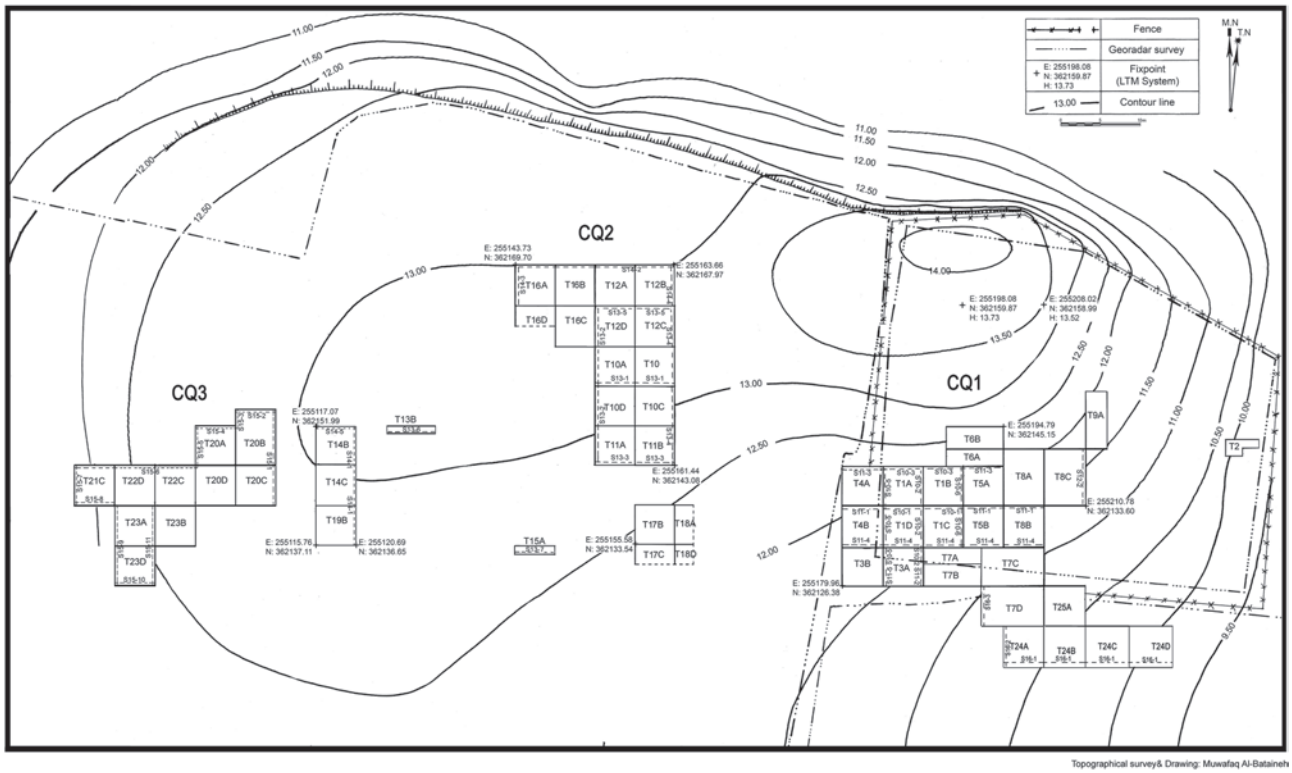


*Fig. 2. CQ1: positions of trenches and sections (drawing by M. Al-Bataineh).*

of the 13th and the 12th centuries BC, i.e. the second half of LC IIC and LC IIIA.

The most recent excavations under the direction of P.M. Fischer from the University of Gothenburg began in 2010 and have continued on an annual basis up to the present day.[9] Aided by the excellent results of three georadar surveys in 2010, 2012 and 2014, three new city quarters, CQ1–3, were discovered and partly exposed (*Figs. 1, 2*). These quarters lie to the north-west by north of the old Area 8 close to the western shore of well-protected ancient harbour which today is the western part of the Larnaca Salt Lake. This Salt Lake is today separated from the open sea but in the Bronze Age it was connected to the Mediterranean.[10]

The main objectives of the fieldwork from 2010 to 2017 were the search for the oldest city of Hala Sultan Tekke, the establishing of the total extent of the city, and the causes behind certain

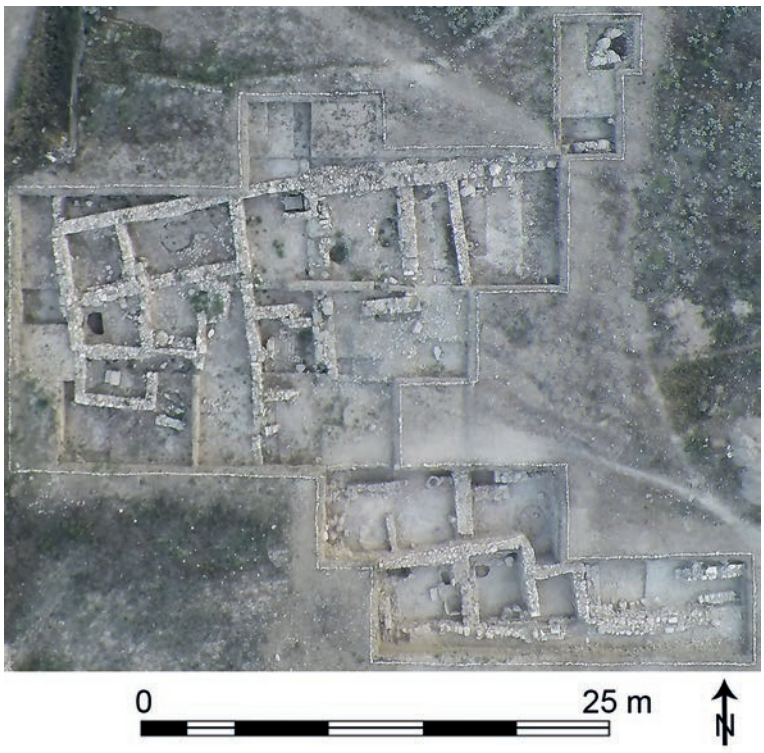


*Fig. 3. Aerial photograph of CQ1 (by P.M. Fischer and T. Bürge).*

[9] Fischer 2011; 2012b; Fischer & Bürge 2013; 2014; 2015; 2016; 2017b.
[10] Fischer 2016 with further references.

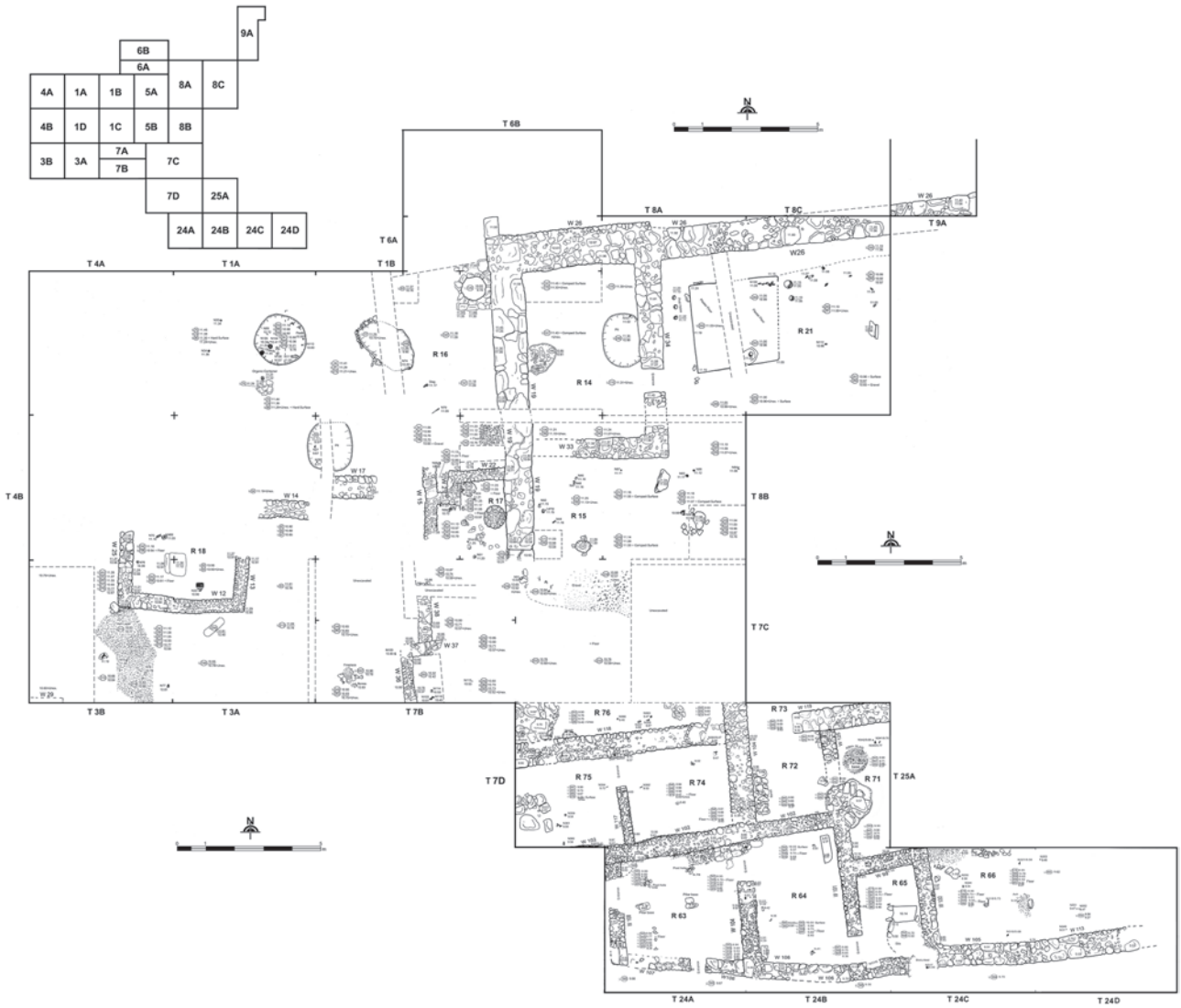


*Fig. 4a. CQ1, Stratum 2, Trenches 7D, 25A, 24A–D (drawing by M. Al-Bataineh).*

destructive events. Our results confirmed that the city flourished in the 13th and 12th centuries BC. The expedition exposed two layers of destruction in the period from around 1200 BC to 1150 BC. These destructions happened in the period generally known as the "crisis years" and the end of the Bronze Age in the Mediterranean. As the consequence of these findings and the receipt of an advanced grant by the Swedish Research Council to the director of the excavations[11] an additional objective became the integration of the material from Hala Sultan Tekke from this period into the study of the "Sea Peoples Phenomenon". This phenomenon should be understood as the effect of various factors which led to upheaval and migration around 1200 BC.[12]

In the course of the renewed excavations more evidence came to light, which demonstrates that the oldest settlement of Hala Sultan Tekke dates back to around 1600 BC. This has been suggested especially by findings from Area A which is roughly 600 m to the east of CQ1 and just west of the mosque (cf. *Fig. 1*). The oldest finds from tombs, offering pits and wells dates back to the 16th century (LC IB) or even earlier.[13] This raises once again the question: where is the contemporane-

[11] Swedish Research Council project 2015-01192: The Collapse of Bronze Age Societies in the Eastern Mediterranean. Sea Peoples in Cyprus? The project will be carried out from 2016 to 2019/2020.

[12] Fischer & Bürge 2017a.

[13] Fischer & Bürge 2017c.

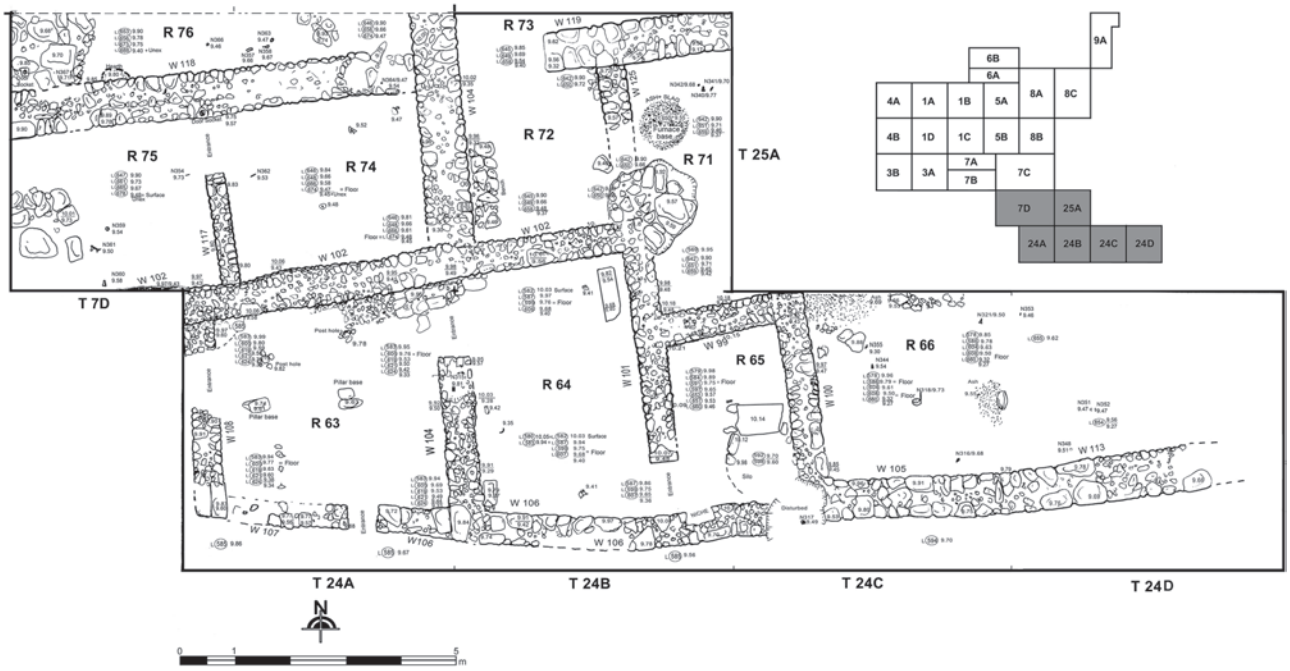


*Fig. 4b. Detail of Fig. 4a (southern part).*

ous settlement within the area of Hala Sultan Tekke to which these older tombs belong? In 2017, magnetic prospecting of a large area west of Area A indicated regularly-arranged man-made structures corresponding to those from earlier surveys. Although not yet exposed their date may correspond to the earliest material from Area A considering their proximity to this area.

The eighth season of excavations lasted from 8 May to 9 June 2017. Excavations according to the aforementioned main objectives were carried out in CQ1 and Area A.

## Results of the excavations in CQ1

### 2016: A SUMMARY

Here follows a short resumé of the results from the excavations of CQ1 in 2016. In accordance with our traditional way of presenting the preliminary results of the excavations, the three phases of occupation will be presented as excavated, i.e. starting with Stratum 1[14] which is just below colluvial/ploughed soil, followed by Stratum 2 and finally Stratum 3.[15]

An area comprising 165 square metres, which included Trenches 7D, 24A–D and 25A, was opened up in the southern part of to CQ1 (*Figs. 2, 3*). Three phases of occupation were exposed. Stratum 1 was divided into an earlier (1B) and a later (1A) sub-phase. Sub-phase 1A was mainly characterized by the addition of a retaining or terracing structure. The two compounds of Stratum 1B, which were partly exposed in 2016, were separated by a courtyard, which was used for living, storage, food preparation and textile production. Stratum 2 was only partly exposed. The information gained in 2016 which was based on the finds from the roofed spaces R63, R64 and R65 (all of them from Stratum 2) was limited but we suggested that these spaces had a domestic function, and R66 appeared to have been a courtyard.[16] The oldest occupational layer as yet known in this area, Stratum 3, was only exposed in a small test trench which showed stone walls obviously belonging to substantial structures. To sum up the previous results, the excavations brought to light a combined small-scale industrial/domestic quarter which was occupied in three phases which are dated roughly to the 13th and 12th centuries BC.

### 2017: STRATUM 2, ROOMS 66, 71–76

In 2016, Stratum 1 was almost completely excavated together with the upper portions of Stratum 2 (*Fig. 4*). Detailed infor-

[14] "Strata" should be considered as well-defined consecutive layers of occupational phases.

[15] In "Conclusions" at the end of this report the phases of occupation appear chronologically; see also the forthcoming volume (Fischer & Bürge 2018).

[16] Fischer & Bürge 2017b.

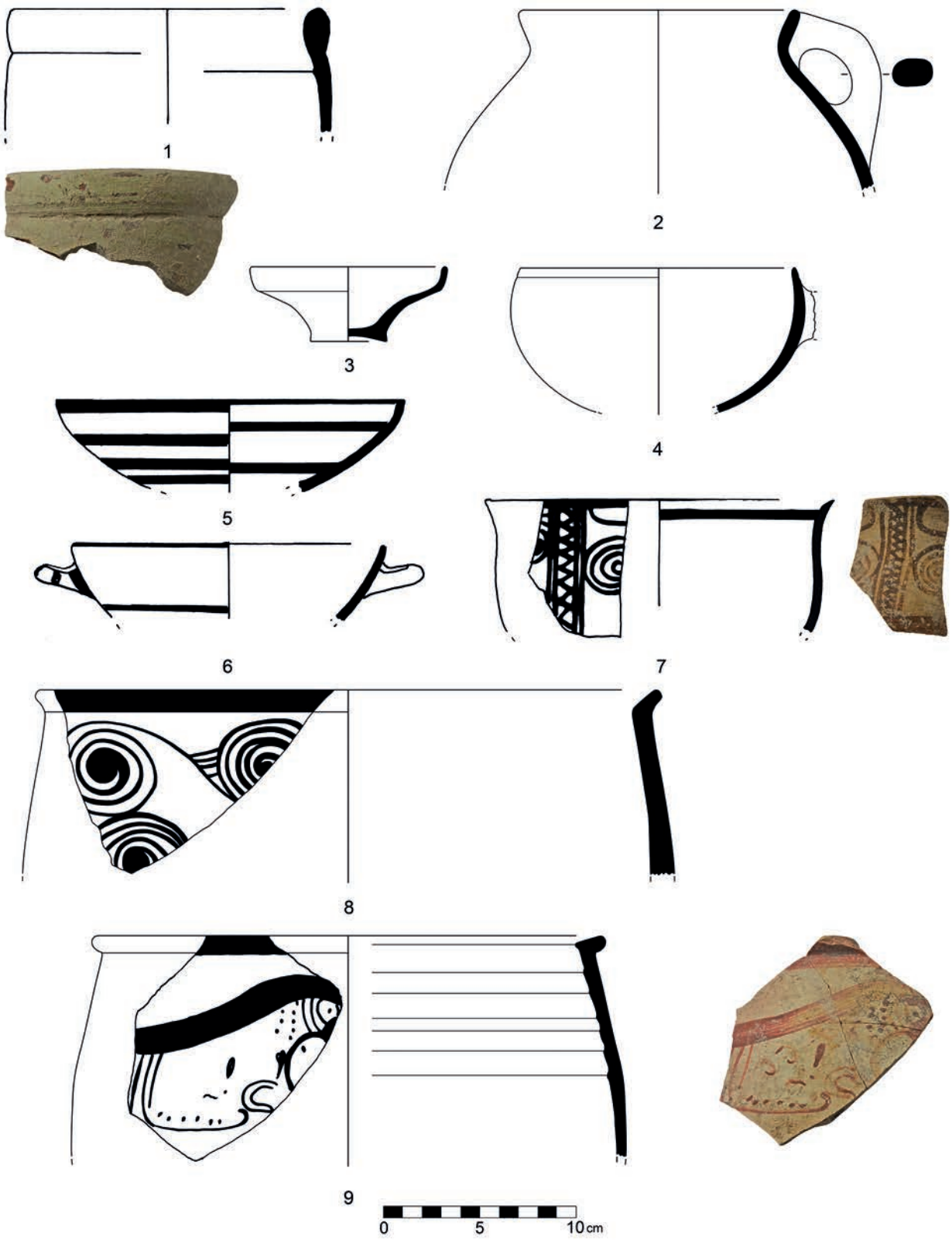


*Fig. 5. Selected finds from CQ1, Stratum 2 (scale 1:3; drawings by M. Al-Bataineh and T. Bürge, photographs by P.M. Fischer and T. Bürge).*

mation on the Stratum 2 spaces R63–66 can be found in the previous season's report.[17]

Excavations continued in Room 65. New finds from this space include a White Painted Geometric Style[18] deep bowl (L657-2; *Fig. 5:7*) and a lid of the same ware (L657-1), the handle of a Canaanite jar with an incised potmark (L660-2) and a large fragment of a Levantine pilgrim flask (L660-1).

Room 66 is most likely a courtyard which is bounded by W100 to the west and W105 to the south. A number of ceramic and other finds came to light in this room during the excavations in 2016 and 2017: these include fragments of two Canaanite jars (L654-2, -9), two Coarse ware cooking pots (L654-3, -4; one hand-made, one wheel-made), two shallow bowls (L608-6, -9), three deep bowls (L608-2, -4, -5), three Geometric Style kraters (L608-8, -10, L655-2 in *Fig. 5:8*) and a Pictorial Style krater with the depiction of a fish (L654-1), a stirrup jar (L655-1), two jugs (L586-1, L654-5), an open vessel (L608-7) and a closed vessel (L608-3) of White Painted Wheel-made ware, a White shaved juglet (L654-12), a Mycenaean deep bowl (L654-10) and a piriform jar (L654-11), a kylix decorated with an octopus—most likely Minoan (L654-6; *Fig. 6:5*)—, a White Painted bull (L586-2) and an equid figurine (L608-1; see *Appendix 2*, *Fig. 32*), an almost complete wall bracket (N318), which was mended with strings in antiquity using three pairs of holes drilled along the fracture, three loom weights of fired clay (N321, 55 g; N344, 50 g, L604-1, not complete), a stone spindle whorl (N348, 132 g), two worked stones (N345, L654-7) and a grinding stone (L654-8), a bronze awl (N355), a sphendonoid hollow-cast bronze weight of 30 g filled with lead (N316)[19] and a sphendonoid haematite weight attached to a bronze ring (N353, 19 g), and two ivory objects (N351 in *Fig. 6:9*, N352 in *Fig. 6:8*) the functions of which are uncertain.

Room 71 was only partly excavated and is bordered by W119, W125, W101 and W99. Most significant for this space is the accumulation of a substantial layer of ash, between 0.4 to 0.7 m thick, intermingled with copper ore and slag (38 kg in total), much pottery and many animal bones. Just to the east of W125 is a feature, 0.9 m in diameter, with a concentration of ash and slag. Finds from this space include a Plain White Wheel-made hemispherical bowl (L642-2), a basin (L642-7) and a jug (L642-16) of the same ware, a Plain jar (L642-4), an Egyptian imported jar of marl clay (L642-17; *Fig. 5:1*),[20] two wheel-made Coarse ware cooking pots (L642-8, -9), two hand-made Coarse ware cooking pots (L651-2, -3), two bowls (L642-10, -13), two deep bowls (L642-1, -12), a mug (L642-18), a pictorial krater (L650-2; *Fig. 5:9*), a jar (L642-11), and an open vessel (L642-14) of White Painted Wheel-made ware, two Mycenaean shallow bowls (L642-15, L651-1) and a kylix (L642-3), a fragment of a Minoan transport stirrup jar (L650-1; *Fig. 6:6*), a bone disc (L642-5), a closed vessel of alabaster (L642-6), a loom weight (N340, 177 g) and a spindle whorl (N342, 4 g) of fired clay, and a lead sling bullet (N341).

The amount of copper ore and slag (38 kg) and the thick layer of ash suggest copper production over quite a considerable period.[21] The 0.9 m wide well-defined circular feature (L650) seems to represent the remains of the base of a furnace. It is possible that the production process was carried out also in the as-yet unexcavated area just to the east of T25A. There seems to be a passage in the southern part of W125 leading to R72.

Room 72 is bordered by W104, W119, W125 and W102, and measures 3.6 m × 2.6 m. There is a stone bench along the south-eastern façade of W104 and a 1.6 m wide entrance to the north from which R73 to the north (largely unexcavated) could be entered. Pottery from this room includes a White Painted Wheel-made shallow bowl (L649-1; *Fig. 5:5*), a closed vessel of Black Slip ware (L649-3), a Mycenaean cup or goblet (L658-1; *Fig. 6:3*) and a Mycenaean closed vessel with a knob (L649-2), and a wall bracket (L658-2). Large bones from animals, slag and a considerable amount of ash were also found in R73. Close to W102 was a small worked stone, possibly used for polishing pottery. This room seems to have been a workshop associated with copper and possible pottery production.

Room 73, to the north of R72 is not excavated yet. Room 74, 3.6 m × 2.8 m in size, is bordered by W117, W118, W104 and W102. There is a 1 m wide entrance within W117 through which R75 could be accessed. Associated with this entrance is a door socket which is attached to W118. Finds from this room include fragments of a Plain White Wheel-made krater (L646-1), the handle of a Plain White jar with a potmark (L648-1), two wheel-made cooking pots of Coarse ware (L646-3, L648-2), another cooking pot of the same ware which was hand-made and wheel-finished (L674-1; *Fig. 5:2*), a White shaved juglet (L646-4), a Base-ring II bowl (L674-3; *Fig. 5:3*), a White Painted Wheel-made deep bowl (L646-5) and a strainer jug of the same ware (L674-2), two Mycenaean shallow bowls (L646-6, L666-1 in *Fig. 6:2*), a fragment of a vessel of white paste (L646-2), a grinding implement of fired

[17] See note 16.
[18] For the terminology see Fischer 2012a.
[19] For the weight system see Fischer & Bürge 2017b, 58, n. 13.
[20] This rim type has good parallels in the 19th and 20th Dynasty, i.e. roughly Ramesses II–III; see e.g. Aston 2004, 189–198. We would like to thank D. Aston for confirming this vessel as an Egyptian import.
[21] We are much obliged to S. Swiny and M. Mehofer for a thorough discussion on the interpretation of these contexts. In order to further study production processes, metallurgical investigations will be carried out by our specialist M. Mehofer, University of Vienna.

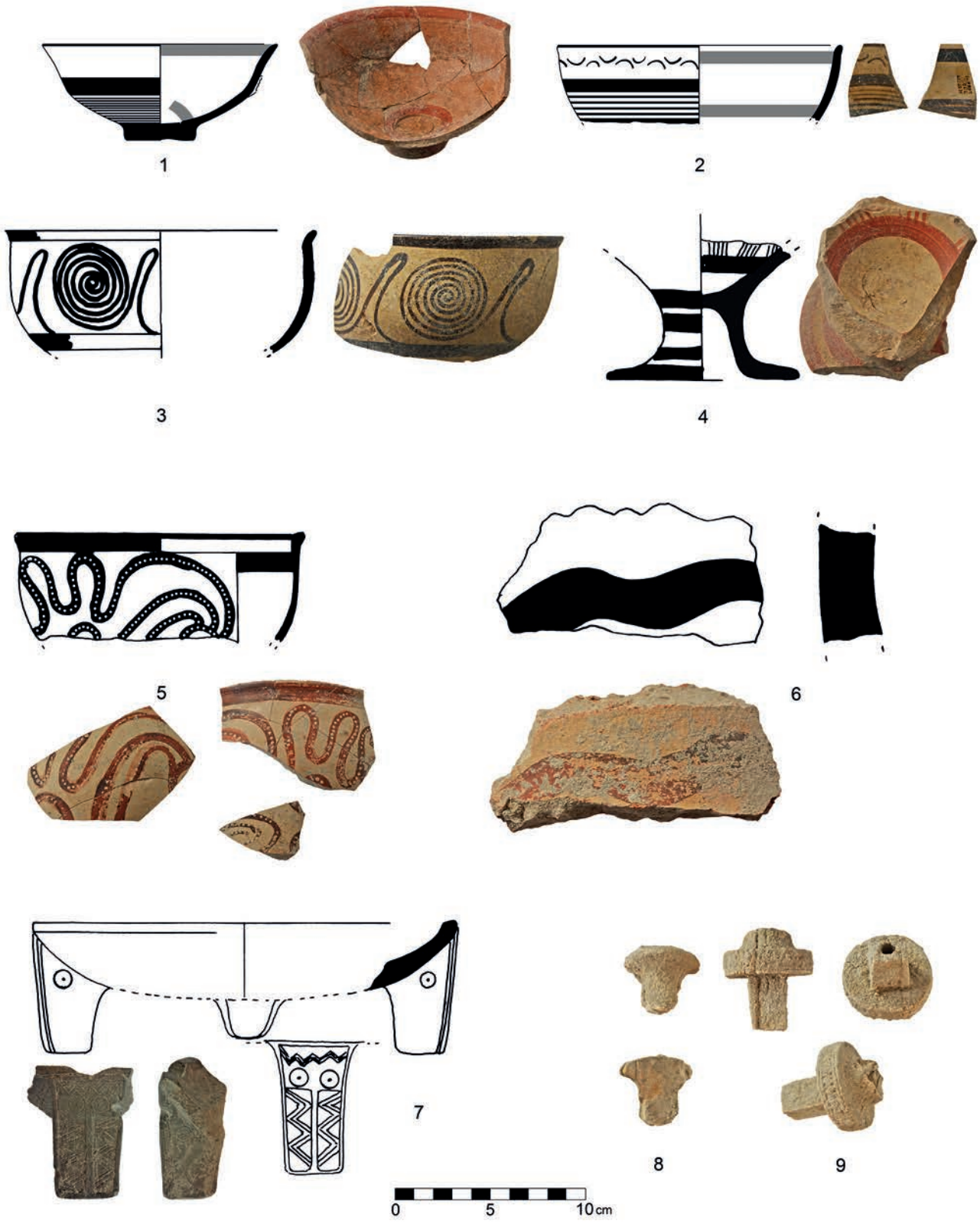


*Fig. 6. Selected finds from CQ1, Stratum 2 (scale 1:3; drawings by M. Al-Bataineh and T. Bürge, photographs by P.M. Fischer and T. Bürge).*


*Fig. 7. CQ1, Stratum 3, Trenches 25A, 24A–D (drawing by M. Al-Bataineh).*

clay (N347), a *bos* rib shuttle (L674-4), a loom weight of fired clay (N356, 110 g), a glass bead (N364) and three sheets of gold, which most likely represent parts of a pendant (N362). This room most likely functioned as a domestic space.

Room 75 is incompletely excavated, and obviously functioned as domestic space. It is bordered by W118, W117 and W102. This room yielded a number of White Painted Wheel-made vessels, such as four bowls (L647-3 in *Fig. 5:6*, L647-4, -5, L665-1), a deep bowl (L647-6), a krater (L647-7), a kylix (L647-2) and the handle of a composite vessel (?, L6457-1), in addition to the handle of a plain jar with a potmark (L665-5), two White Slip II mature/late bowls (L665-2, -3), a Mycenaean stirrup jar (L665-4), a bronze pin (N354), a leg of a stone tripod with incised decoration (N361; *Fig. 6:7*), a loom weight of fired clay (N360, 97 g), and a spindle whorl of stone with incised decoration (N359, 10 g).

Room 76, a partially excavated outdoor space, is to the north of W118. A fireplace was built against W118. A number of complete or almost complete finds come from this space, including a Plain ware lamp (L673-15), another lamp of Coarse ware (L673-5), two hemispherical bowls of Monochrome and Coarse Monochrome wares (L673-7 in *Fig. 5:4*, L673-8), a small hemispherical bowl (L673-9) and a shallow bowl (L673-6) of White Painted Wheel-made ware, a fragment of a White Slip II bowl (L673-10), two Mycenaean shallow bowls (L673-11, -14 in *Fig. 6:1*), a shallow cup (L673-12), a goblet (L673-1; *Fig. 6:4*), a part of an amphoroid krater or jar (L673-3) and a squat stirrup jar (L673-4) of the same ware, the hind part of a Base-ring II bull figurine (L673-2) and a leg of another Base-ring bovine figurine (L673-13), two folded bands of bronze (N357, N358), a fishing net weight of lead (N363), a faience bead (N367) and a biconical spindle whorl of stone (N366, 14 g).

According to the pottery, Rooms 66 and 71–76 of Stratum 2 can be dated to the second half of LC IIC/IIIA or around 1200 BC.

## 2017: STRATUM 3, ROOMS 67–70

Stratum 3 offers the so-far oldest remains from settlement contexts at the site, along with exceptionally well-preserved and closed contexts belonging to a large building with walls whose dimensions exceed those of the later strata (*Fig. 7*). The Stratum 3 building employs a markedly different building technique (cf. Stratum 2) which incorporated large conglomerate stones in walls preserved up to 1–1.20 m in height.

Room 67 (*Fig. 8a*) is bordered by W116, W111 and W112. The northern limits are not clear because of Stratum 2 structures which cover those of Stratum 3. The room appears to extend to the north into T7D (as yet unexcavated), where the entrance should be expected since any gaps in the three exposed walls could not be identified. The room contains four storage units built from vertically placed flat, worked stones, and large pieces of a pithos, once approximately 2 m high (cf. *Fig. 8a*, centre right). The pithos is decorated with wavy plastic lines. One large grinding stone (almost 1 m wide), placed


*Fig. 8a. CQ1, Stratum 3, Rooms 67 and 68 looking east (photograph by P.M. Fischer).*

in the centre of the room together with several smaller grinding stones and two small pounding stones (N330A and B), suggests use in the processing of cereals or vegetables. This is supported by the preliminary archaeobotanical results, which demonstrate barley and other unspecified cereals in addition to olives and grapes (see *Appendix 3*). A series of three hard-packed floors occurs in the storage area. At least two other installations were placed on these floors, including a mudbrick-lined fireplace, and a feature with two identical postholes close to each other. Two of the floors are separated by a thin layer of ash which probably came from the fireplace. Other finds from this room are four stone weights (N331, N332, N333, N335), sherds of faience bowls (L623-1, L628-1, L630-1), most likely Egyptian, a stone biconical spindle whorl (N334, 13 g), the leg of a zoomorphic figurine of White Painted ware (L628-3), and a Base Ring bull (N336, protome of a jug; *Fig. 10:9*). The pottery includes a complete Plain ware jug (L629-3; *Fig. 9:3*), a Plain ware basin (L637-2; *Fig. 9:2*), two Coarse ware bowls (?, L629-1, L630-2), along with White Painted Wheel-made ware—a deep bowl (L628-2), a mug (?, L629-2), a Monochrome bowl (L623-2), a White Slip II mature bowl (L637-1), Base-ring I and II, and imported Mycenaean (LH IIIA–B) vessels. There is a rare example of a bichrome decorated pilgrim flask, most likely imported from the Levant (L630-3; *Fig. 11*) and very similar to the above-mentioned pilgrim flask from Stratum 2 (L660-1).

Room 68, an unroofed or only partially roofed room, is to the east of R67 (cf. *Fig. 8a*, background and *Fig. 8b*). It is bordered by W112, 115, 120 and 111. It is 3 m wide (north-south) and seems to be 6 m long (east-west). The intermediate layer between Strata 2 and 3, which was partially exposed in 2016,[22] comprised locally-made pottery—two Plain White Wheel-made jugs, one of them with a potmark (L611-10, -11), the lower part of a Canaanite jar (L611-1), a hemispherical bowl (L611-2), a shallow monochrome bowl (L611-5) and a kylix (L611-6) of White Painted Wheel-made ware and two White Slip II bowls (L611-7, -8)—and Mycenaean (LH IIIA2–B) imports including a conical rhyton (L611-3) and a

[22] Originally, this layer (L611) was assigned to Stratum 2 in the preliminary report of the 2016 season of excavation; see Fischer & Bürge 2017b, 58.

*Fig. 8b. CQ1, Stratum 3, Room 68 looking north; observe the dark, circular feature in the centre representing a likely furnace base (photograph by J. Ahola).*

piriform jar (L611-9). Another find from this layer is the base of a stone jar (L611-4).

There are two chronologically separated plastered floors (L631 and L632). The upper floor is associated with a pit which functioned as a receptacle for clay. A concentration of murex shells came from this floor. Another feature which coexisted with the clay pit is the remains of an obvious furnace, indicated by L631, the roughly 0.9 m large circular base on which the furnace rested (*Fig. 8b*, centre). Almost 20 kg of copper ore and slag were found around the area of this structure. Test excavations below the earliest floor revealed a deposit with no indications of metal production. The deposit may cover another as yet unexposed older phase of occupation (a possible Stratum 4).

Ceramic finds from Stratum 3 in R68 include the handle of a Plain or Canaanite jar with a potmark (L618-1), a shallow carinated bowl (L627-3), a basin (L636-3) and a handmade jug (L636-4) of Plain ware, a baking tray of Coarse ware (L622-2; *Fig. 10:1*), a Monochrome bowl (L636-6), and two bowls (L622-3, L668-1 in *Fig. 10:6*), four deep bowls (L622-4, L627-1, -2, L687-1 in *Fig. 10:5*) and a fragment of a pictorial krater with a bird (L622-5) all of White Painted Wheel-made ware, a Base-ring I bowl (L636-1), two fragments of White Slip I bowls (L636-7, -8), a White Slip II late bowl (L687-2; *Fig. 10:4*), and a shallow bowl (L636-5), two shallow cups (L618-2, -3) and two deep bowls (L618-4, L622-1) of Mycenaean ware. Two stone weights (N328, N329) were also found in this room.

Room 69 is only partially excavated. It is bordered by W120, W123 and W124. The eastern limits are not clear yet. Pottery from this room includes a Pithos fragment with a decoration of round indentations (L667-1), a Coarse ware wheelmade cooking pot (L675-1; *Fig. 9:4*), a baking tray (L680-3) and a lamp (L680-4) of the same ware, an almost complete Base-ring II bowl (L680-1), the leg of a Mycenaean animal figurine (L680-2) and a fragment of a Minoan transport jar (L675-2; *Fig. 10:8*).

Room 70, too, is only partly excavated but it does not seem to have been roofed. It is bordered by W122 to the north and W115 to the south. Nevertheless, additional information on metal production could be gained. There are the remains of another furnace base (L677') which was built into the plaster floor just to the east of W122. It is 0.8 m in diameter, i.e. somewhat smaller than the similar structure L631' in R68.


*Fig. 9. Selected finds from CQ1, Stratum 3 (scale 1:3; drawings by M. Al-Bataineh and T. Bürge, photographs by P.M. Fischer and T. Bürge).*

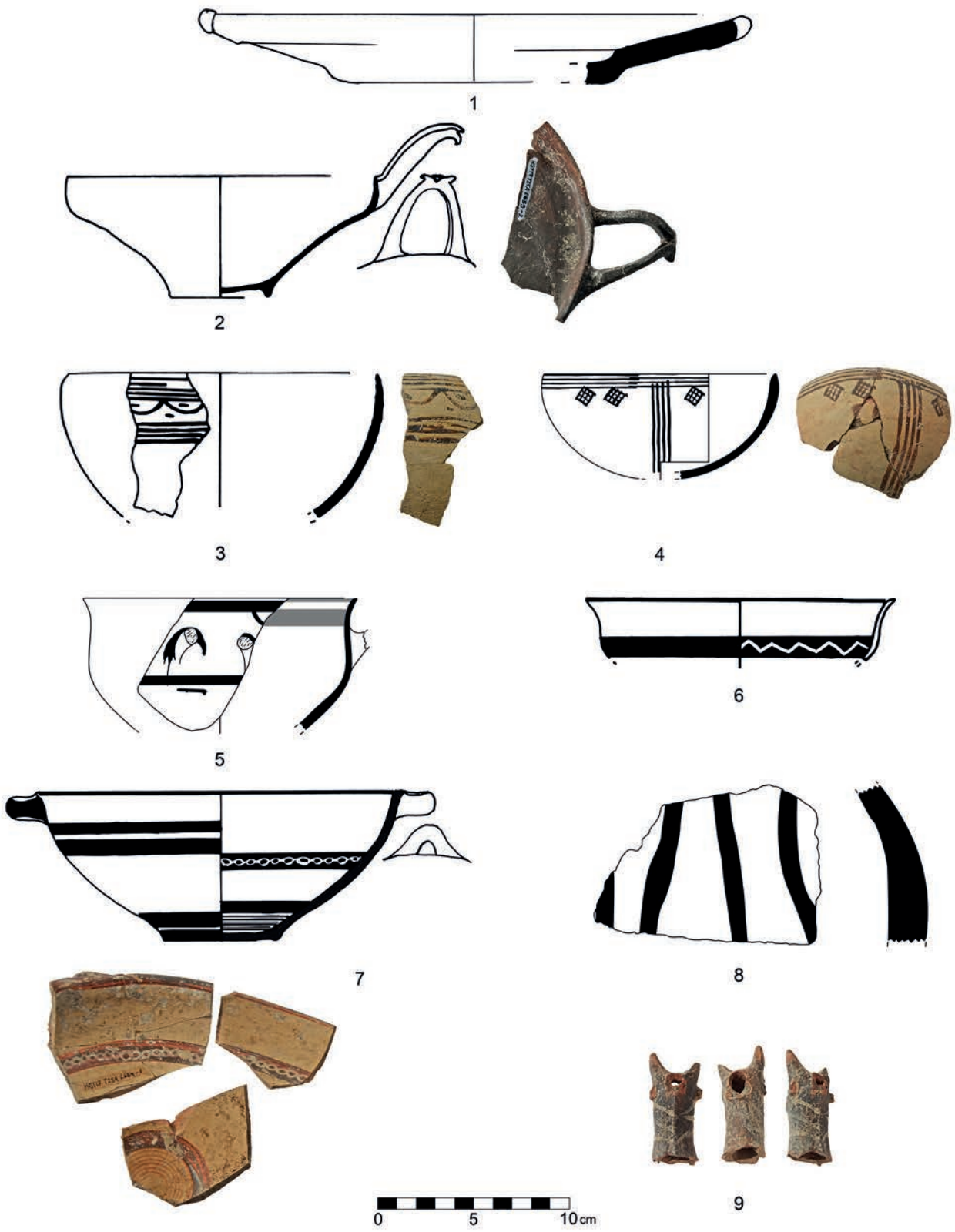


*Fig. 10. Selected finds from CQ1, Stratum 3 (scale 1:3; drawings by M. Al-Bataineh and T. Bürge, photographs by P.M. Fischer and T. Bürge).*

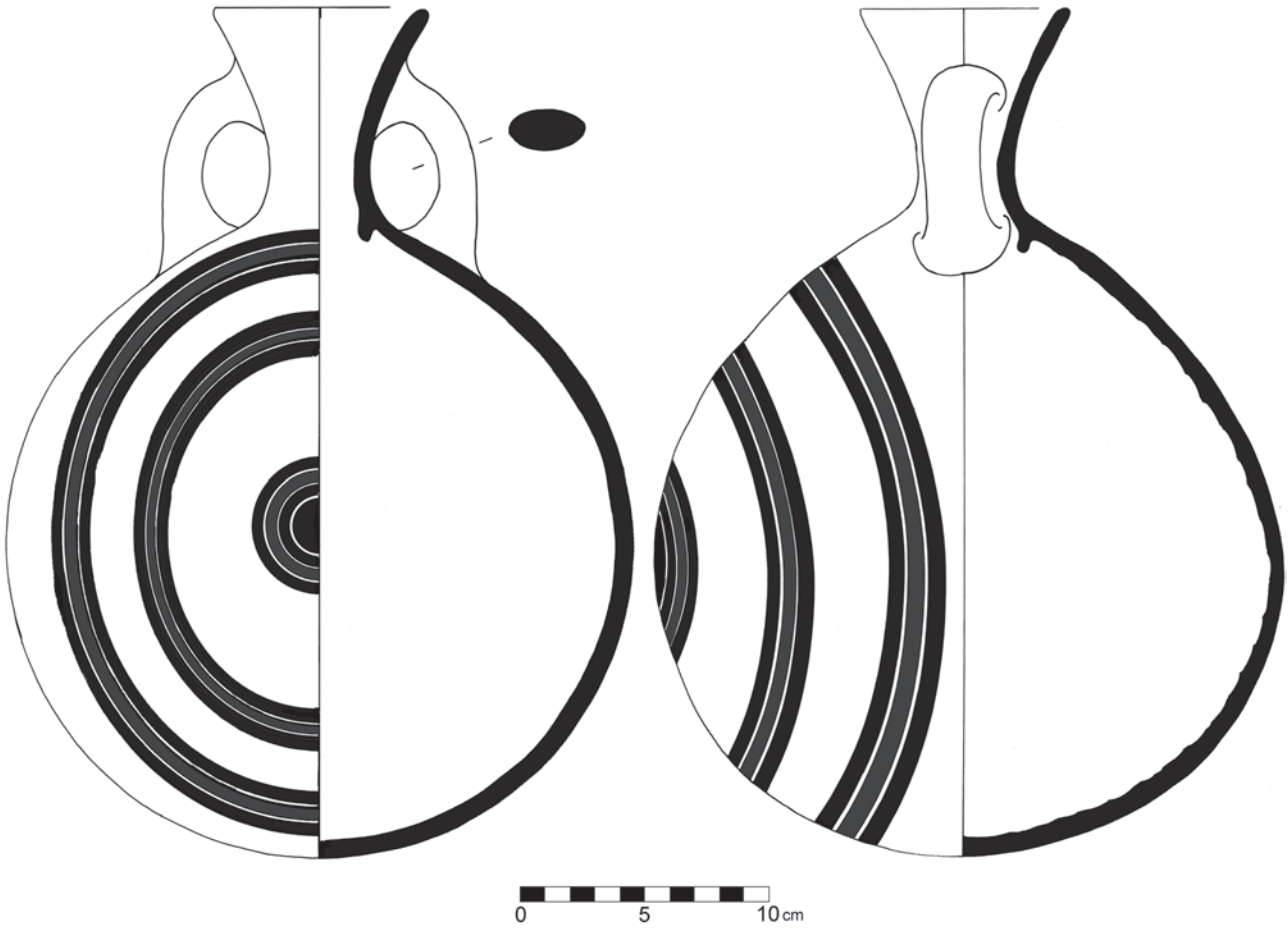


*Fig. 11. Levantine-type pilgrim flask from CQ1, Stratum 3 (scale 1:3; drawing by M. Al-Bataineh).*

Remains of fired clay were found collapsed at the bottom of this structure and covered by a layer of copper slag and a piece of a tuyère (*Fig. 12:1*). Much slag was still attached to the fired pieces of clay (*Fig. 12:2*). The total amount of copper slag and ore from this space weighs approximately 40 kg. In the following phase of occupation, Stratum 2, another 38 kg of slag and ore were found (see above), thus giving a total weight of just under 80 kg in this limited area. It is, however, difficult to clearly divide the numerous pieces of slag/ore between Strata 3 and 2 but it is evident that copper production was carried out in both phases of occupation.

Ceramic and small finds from this space include a Plain White Wheel-made shallow bowl (L677-1; *Fig. 9:1*), a (secondarily) pierced base of a Canaanite jar (L677-2), a small hand-made cooking pot of Coarse ware (L664-2), a Base-ring I bowl (L659-2; *Fig. 10:2*), a fragment of a White Slip I bichrome bowl (L683-1), three White Slip II mature/late bowls (L669-1 in *Fig. 10:3*, L670-1, -2), a Mycenaean shallow bowl (L659-1; *Fig. 10:7*) and a fragment of a Mycenaean conical rhyton (L664-1), a bone bead (L671-1) and a pounding stone (L671-2).

The locally-made pottery, White Slip and Base-ring II, and the imported LH IIIA2–B vessels from Stratum 3 confirm a date in LC IIC or the 13th century BC.

## Results of the 2017 excavations in Area A

### INTRODUCTION

Additional excavation took place in Area A (*Fig. 13*) which is on a plateau some 600 m to the south-east of CQ1 and near the mosque of Hala Sultan Tekke (see also *Fig. 1*). In 2013, a surface survey in Area A led to the discovery and subsequent excavation of an abandoned well which was reused as a tomb for six human burials dating to the 12th century BC (LC


*Fig. 12. Fragment of tuyère (1) and sherd with slag (2) from R70, CQ1, Stratum 3 (scale 1:2; photographs and drawing by T. Bürge).*

IIIA).[23] Encouraged by the discovery of this tomb, magnetic prospecting supported by a georadar survey was carried out in 2014.[24] The geophysical surveys, which covered an area of 1.1 hectares, indicated more than 80 circular anomalies ("pits") of which 15 (B–Q) were excavated in 2014 and 2015. They turned out to represent Late Cypriot wells, offering pits, and a cemented stone platform of more recent date.[25] In 2016, seven more pits (R–X) were excavated, of which Offering Pit V and Tomb X produced spectacular finds and were of utmost importance concerning the early lifecycle of this settlement.[26] Tomb X and Offering Pit V are amongst the richest features

[23] Fischer & Bürge 2015.
[24] Trinks 2015.
[25] Fischer & Bürge 2016.
[26] Fischer & Bürge 2017b; 2017c.


*Fig. 13. Aerial photograph of Area A with excavated features (by T. Bürge and P.M. Fischer).*

from the Late Cypriot period ever discovered in Cyprus.[27] Jewellery of gold and precious stones together with imported pottery and other finds from a vast area of the Mediterranean once again confirmed the important role of Hala Sultan Tekke in intercultural trade. These two features were in use from the 16th to the 13th century BC.

Several more pits which appear as anomalies in the magnetometer map were investigated this year. These are: Y1, Y2, Z1–9, AA1–6, BB, CC, DD, EE, FF, GG, HH, II, KK, LL, MM, NN[28] and OO (see the position of the five categories of features in *Fig. 13*). According to our previous results the depths of the fully-excavated tombs and offering pits in Area A do not exceed 1.75–2 m below today's ploughed surface. The sides of these two feature types show no steps (see wells below) and widen just a few decimetres below the ground surface. Their bottoms/floors are usually roughly 3 m wide.

Today, the groundwater level is roughly 10.5 m below the surface[29] which almost exactly corresponds to the present main sea level. There is good basis to assume a higher groundwater level some 3,000 years ago,[30] and the groundwater in the ancient wells certainly was several metres below the lowest level of our tombs and offering pits. Two of the wells from previous seasons (Wells C[31] and F[32]) were excavated down to *c.* 6 m below ground surface. Since the complete excavation of wells would be a time- and resource-consuming and also a dangerous endeavour, the expected results from excavating down to the level of the groundwater were judged not to be worth the efforts.

Wells in Area A are characterised by circular or more rarely slightly oval outlines with diameters between roughly 0.8 to 1.2 m (average around 1 m). Their sides are usually covered by fine clay and have "holes"/steps cut in at regular intervals. These steps were used during the construction of the well and, when the well was in use, to facilitate access for cleaning or for retrieving fallen objects. As soon as a feature was deemed to be a well according to the above quoted criteria, further excavation was halted, all necessary measurements and photographs were taken, the feature was drawn, and its exact position in our GIS map was recorded, before it was backfilled in order to protect it for future research.

The precise co-ordinates of all discovered and described man-made features are not published in the report in order to prevent illicit digging in the area. Only relative and absolute heights are revealed.

### WELL Y1

The shape of Y1 is that of a figure "8", i.e. two interconnected roughly circular pits with diameters of 1.1 m each. They have a NNE/SSW alignment. Their fill contained plenty of pottery, amongst them a fragment of a Black-burnished bowl with pierced lug handle (L63-2), a horn of a Base-ring II bull figurine (L49-1), and a fragment of a Mycenaean pictorial krater (L63-4), bones and shells. A remarkable find from the northern part at a depth of 1.6 m from the surface is a sherd of a chariot krater of LH IIIA2–B date (L63-3; *Fig. 14:1*): it shows the very unusual representation of two females sitting in the box of a chariot. Steps cut into the side of the feature indicated that Y1 is a well. Because of the aforementioned reasons not to excavate wells down to virgin soil (see "Introduction" to Area A) excavations came to a halt at a depth of 2 m from the surface (7.47 m a.s.l.). It is likely that the southern structure was used to facilitate the excavation of the northern one.

### WELL Y2

This pit is approximately 7 m to the south-east of Y1 and roughly 1 m in diameter. Here too, steps were found which point to the feature being a well. Amongst the fill which contained sherds and bones two finds should be mentioned: one is the head of an equid in a soft stone, possibly steatite (N100; see *Appendix 2*; *Fig. 31*), and the other a miniature juglet of Base-ring I (N102; *Fig. 14:2*). Excavations stopped 1.25 m below the surface (8.33 m a.s.l.).

### SUB-AREA Z

The colluvial soil in a 12 m × 8 m large area, which showed numerous magnetic anomalies, was removed and nine of these anomalies were investigated: Z1–9.

### Well Z1

This pit is approximately 0.9 m in diameter. The fill contained sherds including White Slip II, bones, shells (murex) and a piece of bronze. Other finds include fragments of a Base-ring bovine figurine (L65-1), a complete Monochrome bowl (L67-1; *Fig. 14:3*), an almost complete Plain White Hand-made juglet (L67-2; *Fig. 14:4*) and a bone awl (L50-1). After roughly 0.6 m the first step appeared in the side indicating that this feature is a well. Excavations came to a halt at a depth of 2.15 m below surface (8.2 m a.s.l.).

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[27] Fischer & Bürge 2017c.
[28] Pit NN was discretely marked but excavations were not carried out due to lack of time.
[29] According to a recently drilled hole with a diameter of roughly 30 cm next to offering pits in Sub-area AA (see below).
[30] Fischer 2017.
[31] Fischer & Bürge 2015, 45, fig. 23; in this preliminary report "Tomb C" should be corrected to "Well C", and in the same figure "Tomb B" should be "Offering Pit B".
[32] Fischer & Bürge 2016, 47, fig. 16.


*Fig. 14. Selected pottery from Well Y1 (1), Well Y2 (2), Well Z1 (3, 4), Pit Z2 (5, 6), Pit Z3 (7, 8) and Well Z4 (9) (scale 1:3; drawings by M. Al-Bataineh, photographs by P.M. Fischer and T. Bürge).*


*Fig. 15. Selected finds from Offering Pit Z6 (scale 1:3; drawings by M. Al-Bataineh, photographs by P.M. Fischer and T. Bürge).*

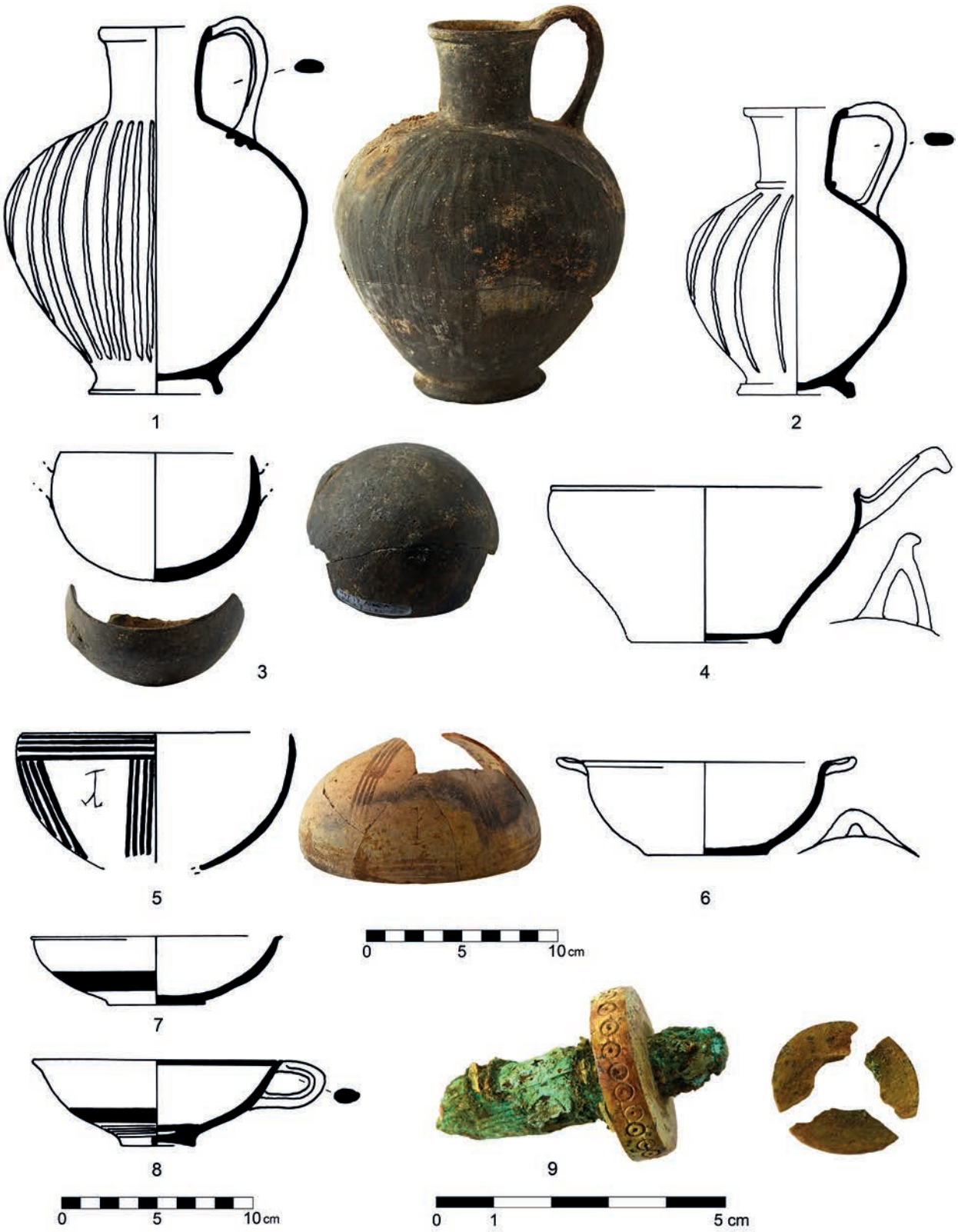


*Fig. 16. Selected finds from Offering Pit Z7 (scales 1:3 and 1:1; drawings by M. Al-Bataineh, photographs by P.M. Fischer and T. Bürge).*

### Pits Z2 and Z3

These two pits are interconnected and aligned on a roughly west-east axis. The diameter of the circular pit to the west (Z2) is 0.8 m and that of the oval pit to the east (Z3) approximately 1.2 m × 1 m. Finds from Z2 include a pithos rim (L51-1), the rim of a hand-made cooking pot of Coarse ware (L79-1) and a lamp of the same ware (L79-2), two almost complete Mycenaean vessels—a shallow bowl (L79-3; *Fig. 14:6*) and a straight-sided alabastron (L79-4; *Fig. 14:5*). Excavation of Z2 was halted at a depth of 1.1 m below the surface (9.63 m a.s.l.).

The fill in Z3 contained numerous sherds, animal bones, shells, pieces of ostrich egg and copper slag. Amongst the pottery are an almost complete White Painted Wheel-made feeding bottle (L58-3; *Fig. 14:8*), a fragment of a Mycenaean bowl/kylix with octopus motif (L70-1; *Fig. 14:7*), and the handle of a Mycenaean jar with an incised potmark (L58-2). Other finds are two ground-down and polished *ovis/capra* astragali (L70-2), a worked bone (L58-1), a piece of an ostrich eggshell (L58-4), a loom weight of fired clay (N88) a complete toggle pin (N89) and a needle of bronze (N90). Virgin soil was reached at 2.25 m below surface (8.23 m a.s.l.).

The function of Z2 is difficult to assess but Z3 certainly is not a well because of its shallow depth. We suggest that Z3 is an offering pit (looted in antiquity?) the construction of which was facilitated by access from Z2.

### Well Z4

The diameter of this feature is roughly 0.6 m. The fill contained sherds of pithoi and Mycenaean ware, such as a piriform jar with a bivalve shell motif (L53-1; *Fig. 14:9*), together with some bones and murex shells. Steps were found in the sides indicating that this feature is a well. Excavation was halted at a depth of 1.35 m below the surface (9.14 m a.s.l.).

### Well Z5

The diameter of this feature is roughly 1.2 m. In the fill are many sherds, bones, shells, slag and pieces of ostrich egg. Amongst the ceramic wares are White Slip II bowls and Mycenaean sherds. A bead of gold (N87), an *ovis/capra* astragalus (L60-2) and a fragment of an ostrich eggshell (L60-1) should be mentioned amongst the finds. At a depth of 1.8 m from surface (8.55 m a.s.l.) excavations were stopped because the feature was identified as a well.

### Offering Pit Z6

The opening of Pit Z6 is roughly 0.75 m in diameter. After digging down 0.4 m the pit widens to reach a diameter of 1.15 m. Excavations were stopped at a depth of 2.8 m below ground surface (7.6 m a.s.l.). There were numerous important finds and a layer of ochre between 1.2 to 1.7 m below the surface (see Offering Pit B[33]).

The main deposition in Pit Z6 consists of five White shaved juglets (N99, L59-6, -12 in *Fig. 15:4*, -20, -21), a Monochrome bowl (L59-14), two White Slip II mature/late bowls (L59-5 in *Fig. 15:6*, L59-7 in *Fig. 15:5*), a White Painted Wheel-made shallow bowl (L59-13; *Fig. 15:2*), a Coarse ware (?) cooking pot with a highly burnished surface (L59-15), a Coarse ware lamp (L59-8; *Fig. 15:8*), a wall bracket (L59-1), a part of a basin (L59-17) and a small hand-made bowl with black slip and a highly burnished surface (L59-3; *Fig. 15:1*)—most likely imported and almost identical to those from Pit B.[34] This and earlier excavated bowls resemble "Hand-made Burnished ware". Mycenaean imports include, *inter alia*, a shallow bowl (L59-4; *Fig. 15:3*) and a small jar (L59-19). There are also two Minoan imports: a squat stirrup jar (L59-2; *Fig. 15:7*) and a large number of fragments of a Minoan transport stirrup jar, which—due to their bad state of preservation—could not be reconstructed thus far. Two Base-ring figurines were deposited in the same context: a female (N92; *Fig. 15:10*) and a bovine (N94; *Fig. 15:11*). In addition, four weights of stone (N95, N96, N98) or clay (N97, a pierced pithos sherd) and a broken loom weight of fired clay (L59-18), thirteen *ovis/capra* astragali (L59-22), and a number of notched scapulae both from *ovis* (L59-9) and *bos* (L59-10; *Fig. 15:9*). A ground-down *ovis/capra* astragalus (L73-3) and two worked bones (L73-1, -2) come from the ochre layer below the deposition, and two almost complete bone shuttles (N111, N112) were found in the layer below.

Our preliminary analysis of the material suggests a dating of the deposition to the LC IIC, i.e. the 13th century, thus being roughly contemporary with that of Offering Pit B. The concentration of complete finds suggests that Z6 was an offering pit for which an earlier-dug well was reused.

### Offering Pit Z7

The diameter of this feature is roughly 1.1 m at its opening. The pit widens deeper down to reach 1.8 m in diameter at 1.8 m below the surface (8.7 m a.s.l.) where virgin soil was reached. Only a few items come from the layer above the main deposition which includes a Mycenaean juglet (L56-1) and a kylix (L78-2), a loom weight of clay (N103), a stone weight (L78-1), a round stone tool (L56-2), a ground down *ovis/capra* astragalus (L56-3) and two worked bones (L78-3, -4). Finds from the main deposition itself include three White Slip II bowls (L82-7 with incised potmark in *Fig. 16:5*, L82-8, -9), a Monochrome bowl (L82-11), a Base-ring bowl (L82-13;

[33] Fischer & Bürge 2015, 45–46.
[34] Fischer & Bürge 2015, 45–46; 2017c, 164–167.

*Fig. 17. Tomb/Well Z9 with Skeleton 2 during excavation (photograph by P.M. Fischer).*

*Fig. 16:4*), two White Painted Wheel-made bowls (L82-4 in *Fig. 16:6*, L82-12 in *Fig. 16:7*), two small hand-made bowls with black slip and a highly burnished surface (L82-5 in *Fig. 16:3*, L82-10; cf. text above and n. 30)—again almost identical to those from Pits B and Z6—, two Bucchero jugs (L82-6 in *Fig. 16:1*, L82-15 in *Fig. 16:2*), a Coarse Ware baking tray (L82-17) and two Coarse Ware cooking pots (L82-18, -19). There are four Mycenaean imports: a shallow cup (L82-2; *Fig. 16:8*), a shallow bowl (L82-16) and two juglets (L82-3, -20). In addition, a part of an open vessel of faience (L82-21), a bone needle (L82-1), a bone shuttle (N108) and three ground-down *ovis/capra* astragali (L82-14, -22) were deposited here. The most striking object from Pit Z7 is a spindle or distaff (N106; *Fig. 16:9*), of which the wooden spindle is partly preserved. This pin is impregnated with copper ions and therefore survived. There is a main whorl of ivory, of 3 cm diameter and 0.7 cm thick, which is decorated with rings and dots, and four whorls of 0.1–0.2 cm thin ivory discs of 2.8 cm diameter.

Our preliminary analysis of the material suggests a dating of the deposition to the LC IIC, i.e. the 13th century, thus being roughly contemporary with that of Pits B and Z6. We interpret also this pit as an offering pit.

### Pit Z8

This feature is oval measuring 0.9/1.1 m at its opening. The pit widens at 0.5 m below the surface. Virgin soil was reached at 1.02 m (9.4 m a.s.l.) where it widens to reach a diameter of 1.35 m. The lower part of the widened pit is plastered. The fill consists of lumps of ochre (see above) and many sea shells together with a few pottery sherds including the trefoil mouth of a Base-ring II juglet (L57-2), and two biconical spindle whorls of stone (N91, 21 g; N93, 9 g). Other finds are a small stone stopper (L57-1), a pierced rib bone (L57-3), three *ovis/capra* astragali (L57-3, -4) and another worked bone (L57-5). It is possible that this feature represents an offering pit without the rich contents (looted?) which were found in others e.g. in Pits B and Z6.

### Tomb/Well Z9

A detailed report on the finds from Z9 with emphasis on the osteological remains can be found in *Appendix 1*. Here, only some essentials will be presented.

Z9 is a circular feature, 1.08 m in diameter, *c.* 1 m east of Pit Z8 and *c.* 2 m south of Well Z6 in the south-western part of Area A. The pit was excavated to a depth of 3 m from the surface (virgin soil was not reached at this depth). Originally, Z9 was built as a well. After the well was abandoned it was later reused for the burial of five individuals, two adults and three children.[35] The skeletons are *in situ*.

The finds from the uppermost layer of this pit include a wall bracket (L72-4), the base of a Canaanite jar (L72-2; *Fig. 18:3*), a White Painted Wheel-made shallow bowl (L72-3) and a White Painted Wheel-made or Mycenaean imported shallow carinated bowl (L72-5; *Fig. 18:1*), a jug of White Painted Wheel-made ware (L72-6; *Fig. 18:2*) and a glass bead (L72-1). The next layer contained a bronze pin (L81-1) and two White Painted Wheel-made shallow bowls (L81-2, -3). The bottom layer yielded the base of a Red Lustrous Wheel-made spindle bottle (L88-1) and a White Painted Wheel-made deep bowl (L88-2). Two loom weights, one of clay (N151, 128 g) and one of stone (N152, 146 g) were found in the colluvial soil very close to Z9. They may have been moved by ploughing and may originally come from this feature.

Most of the pottery was highly fragmented, and thus likely represents part of the backfill rather than tomb gifts. The most recent pottery can be dated to the LC IIIA period, i.e. the 12th century BC (cf. Well/Tomb A in note 35).

## SUB-AREA AA

This sub-area which lies just to the south of Sub-area Z is separated from the latter by a 1 m-wide baulk. The colluvial soil in this 20 m × 12 m area, which also showed numerous magnetic anomalies, was removed and six of these anomalies were investigated: AA1–6. A modern borehole of 0.3 m in diameter which was blocked by a stone slab appeared 3.5 m to the south-west of AA1. The borehole had been drilled down to a

[35] Cf. the almost identical situation in Well/Tomb A; Fischer & Satraki 2014, 86–88; Stolle in Fischer & Bürge 2015, 41–44, 53–54.

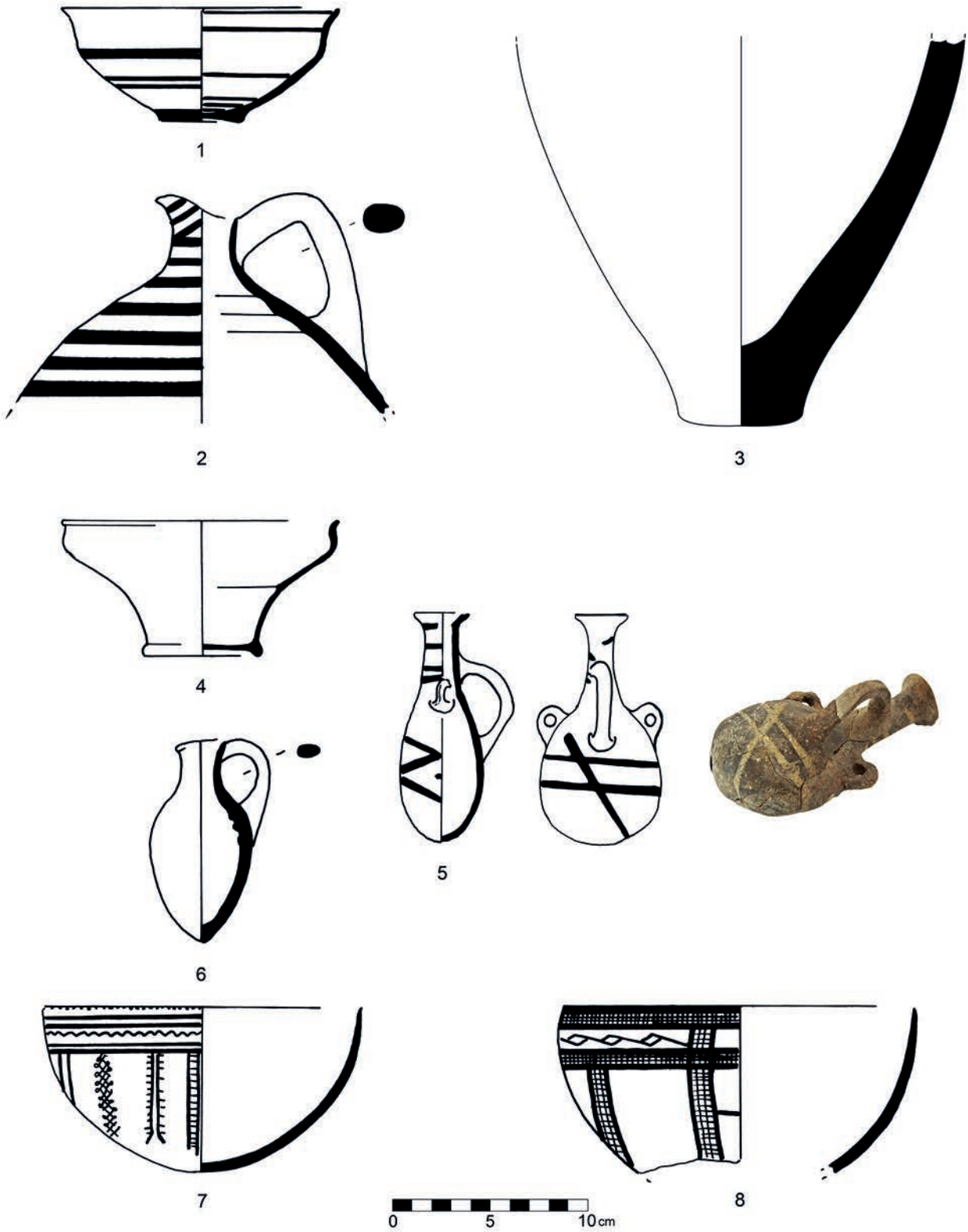


*Fig. 18. Selected finds from Tomb/Well Z9 (1–3) and Offering Pit AA2 (4–8) (scale 1:3; drawings by M. Al-Bataineh and T. Bürge, photograph by T. Bürge).*

depth of 10.5 m from surface where salty (!) groundwater was encountered. This groundwater level corresponds almost exactly to sea level. It is our impression that the original purpose to drill this borehole was to build a modern well. It was, however, abandoned when the groundwater appeared to be salty.

### Pit AA1

This oval pit measures 1.25 m × 1 m. The few sherds from the fill consisted of a Red Burnished (Middle Cypriot?) jar (L71-1) and Late Cypriot table ware including Base-ring and two White Slip II mature bowls (L84-2, -3), and two Mycenaean small piriform jars (L84-4, -5). Another find was a part of a ceramic wall bracket (L84-1). Virgin soil was reached at 1.25 m below the surface (9.17 m a.s.l.). This feature is an unfinished well or possibly was prepared for offerings.

### Offering Pit AA2

This circular pit measures 1.0 m in diameter. The fill contained animal bones, burnt shells and numerous sherds of White Slip, pithoi and Mycenaean wares, and almost complete vessels: a White shaved juglet (L77-1; *Fig. 18:6*), a Base-ring I bowl (L77-3; *Fig. 18:4*), a small Base-ring II lentoid flask (L80-1; *Fig. 18:5*), a White Slip II early (L77-4; *Fig. 18:7*) and three White Slip II mature bowls (L77-5, -6 in *Fig. 18:8*, L77-7), a Plain ware lamp (L77-8), and fragments of a Mycenaean straight-sided alabastron (L77-9) and a Mycenaean small jar (L77-10). Other finds are the left front leg and parts of the head and body of one (or more?) Base-ring II bovine figurines (L77-2) and a faience bead. Virgin soil was reached at 0.5 m below the surface (9.69 m a.s.l.). This feature is considered as an offering pit.

### Offering Pit AA3

This circular pit measures 1.0 m in diameter. The fill contains many burnt animal bones and teeth. The pottery comprises two White Slip II bowls (L69-4, -5), the rim of a White Painted Wheel-made krater (L69-2), a Monochrome bowl (L69-3) and Mycenaean bowl (L69-1); some of the sherds were also burnt. Another find is a broken bone shuttle (L75-1). Virgin soil was reached at approximately 0.6 m below the surface (9.49 m a.s.l.). This feature is considered as an offering pit.

### Pit AA4

This circular pit measures 0.8 m in diameter. In addition to a loom weight of fired clay found in its upper layer (N101, 103 g), a few sherds and bones together with fairly large stones, there were no other significant finds in this pit. Virgin soil was reach approximately 0.5 m below the surface (9.66 m a.s.l.). It is not possible to assign any function to this pit. It may represent an unfinished well or offering pit.

### Offering Pit AA5

This circular pit measures 1.1 m in diameter at its mouth, becoming wider at a depth of roughly 0.2 m below ground level. The fill contained much charcoal, burnt animal bones (especially deeper down) and a few pieces of discoloured pottery. Finds of pottery include a White Painted jug (L76-1), a fragment of a White Painted jar (L86-7), a fragment of a Red Burnished open vessel (L85-1), two handles of Plain jugs/jars with incised potmarks (L86-5, -6), a White Slip II mature bowl (L86-2) and fragments of four Mycenaean vessels: a shallow bowl (L86-3), a shallow cup (L86-4), a krater (L86-1) and a piriform jar (L83-1). Amongst other finds are an escutcheon of bronze (N104), a shuttle of bone (N109) and a loom weight of fired clay (N105, 62 g), the head of a Base-ring II bull figurine (N107), the leg and parts of the body of another Base-ring II bovine figurine (L85-3), the upper part of an ivory box (85-2), an *ovis/capra* astragalus (L86-8) and a worked bone (L86-9). Virgin soil was reached at 1.4 m below the surface (8.8 m a.s.l.). We consider this feature to be an offering pit.

### Anomaly AA6

In order to find this magnetic anomaly a trench measuring 2 m × 2 m was opened. However, there were no finds or any signs of human-made disturbances. After excavating down to a depth of 0.92 m below the surface (9.39 m a.s.l.), the soil was still virgin and the trench was abandoned. There is no obvious explanation for the magnetic anomaly.

### Anomaly BB

On the magnetometer map this feature has a trefoil shape. Below colluvial soil, i.e. roughly 0.25 m below the surface (at 10.37 m a.s.l.), we exposed the outlines of some regular features. Their shape with a 0.5 m wide baulk and their alignment suggest that they are fairly modern trenches. On the map showing the trial trenches dug by P. Åström in the 1970s our BB is not shown.[36] It may be the case that these features were dug but not published by Åström, or that they are of an earlier date, e.g. the British Museum "excavations" in the 1890s (see "Introduction"). They definitely look like trenches dug for archaeological purposes.

### Anomaly CC

This magnetic anomaly is in the northern part of Area A. It turned out to be of modern date, possibly connected to the laying of power or telephone cables, indications of which we

[36] Åström 1989, 9.

saw on the magnetometer map. The excavations stopped at 0.7 m below the surface (5.35 m a.s.l.).

### Anomaly DD

This magnetic anomaly is in the northern part of Area A. This anomaly is also of modern date, possible connected to the laying of a nearby power or telephone cable (see CC). The excavations stopped at 0.8 m below the surface (5.41 m a.s.l.).

### Storage Pit EE

The upper layers of this irregular feature contain mainly modern refuse covered by a layer of small stones. At a depth of *c.* 1 m the rim (L87-3) and body sherds of one (or more?) large pithoi together with a large number of White Slip II sherds and other pottery, for instance a straight-sided alabastron of White Painted Wheel-made ware (L87-1) were encountered. Late Cypriot pithos sherds continued down to a depth of 1.85 m (at 8.28 m a.s.l.) where the base of the pithos (L87-3) was found. This situation suggests that EE is a storage pit in which a roughly 2 m-high pithos was placed.

*Fig. 19. Tomb LL looking east, during excavations (photograph by P.M. Fischer).*

### Anomaly FF

This circular pit is 1.2 m in diameter. There are just a few finds which include one small piece of worked ivory. At 0.9 m below the surface virgin soil was reached (9.95 m a.s.l.). The function of this pit is not clear. It may be modern.

### Offering Pit GG

The shape of this feature is a figure "8" resembling Tomb X and Offering Pit V from 2016.[37] It is aligned on a west-east axis and has a length of 3.2 m and a width of 2.2 m. It was excavated down to virgin soil at approximately 1.3 m below the surface (9.23 m a.s.l.). The enormous amount of pottery with many vessels of which quite a few are complete, did not permit the processing of the entire find material during the 2017 season. However, it can be stated that the contents of this feature have many similarities with those of Offering Pit V.[38] Except for one complete Coarse ware cooking pot (N140) high up in the pit, the remainder of the rich contents are in fragmentary condition. In addition to the mass of pottery there is a bronze arrow head (N110), a ground-down *ovis/capra* astragalus (L92-3) and an ivory disc with incised decoration (L92-2). The pottery consists mainly of local and imported fine wares, for instance, Base-ring, White Slip II and Mycenaean, amongst them fragments of one (or more) chariot kraters. The chronology does not differ very much from that of Pit V, i.e. the majority of the pottery should be dated from the LC IIB/LH IIIA2 to the LC IIC/LH IIIB period, i.e. from 1350–1200 BC. Further processing of the find material will be carried out in spring 2018.

### Well HH

This circular pit is 0.9 m in diameter. After 0.2–0.3 m from the surface its sides are covered with fine clay. In the fill, there are only a few pottery sherds ranging from coarse to fine wares including a fragment of a wall bracket and the handle of a jar with an incised potmark (L89-1), and just a few bones at 1.6 m from the surface (8.85 m a.s.l.). The nature of this feature corresponds to that of other wells and excavations stopped at this level.

### Anomaly II

During the removal of the colluvial soil (at 10.75 m a.s.l.), it soon became apparent, that this magnetic anomaly is a modern disturbance.

### Anomaly KK

On the magnetometer map this feature (top level 8.84 m a.s.l.) has the shape of a figure "8", i.e. two connected pits aligned on a north-south axis. It came as a surprise that no such pits could be verified during excavations. Below colluvial soil, the deposits in our 2 m × 3 m large trench were modern or natural.

### Tomb LL

Within a quite large indicated anomaly on the magnetometer map there is a smaller central part with a differing magnetism.

[37] Fischer & Bürge 2017c.
[38] Fischer & Bürge 2017c, 195–208.


*Fig. 20. Late Minoan II/IIIA piriform jar from Tomb LL (scale 1:3, photograph by P.M. Fischer, drawing by M. Al-Bataineh).*


*Fig. 22. Red Lustrous Wheel-made bottle from Tomb LL (scale 1:3; photograph by T. Bürge, drawing by M. Al-Bataineh).*

In order to cover the entire indicated area a trench measuring 3 m × 2 m was opened. In the course of the excavations, it was necessary to extend the trench towards the east with another 0.5 m. Approximately 0.25 m below the ploughed colluvial soil an ancient cut was exposed which is roughly circular although there are several irregularities along its periphery (*Fig. 19*).

Less than only 0.1 m (sic!) below the deepest part of the ploughed soil several complete ceramic containers were discovered. One of them represents a very rare find on Cyprus which takes the form of a complete Late Minoan II/IIIA1 piriform jar of medium size (N114; *Fig. 20*) dating from around 1400 BC. It is decorated with a complicated pattern of birds and other pictorial motifs which have excellent parallels in vessels from the Palace of Knossos, the cemeteries in its surroundings,[39] and at Mochlos.[40] During the exposure of this vessel other complete vessels together with human bones came to light indicating that we in fact were excavating an undisturbed tomb.

[39] Crouwel & Morris 1995, 164:55 and 165, fig. 5:b. For the best parallel, see Tomb I at the Vinizeleon hospital site close to Knossos; see position in Hood & Smyth 1981, no. 77.

[40] A similar pair of birds in floral setting is on a pyxis dated to LH IIIA1 from the cemetery, Tomb 7; see Smith & Banou 2010, fig. 68, pl. 26 lower right; see also Banou 2005, 161–162, fig. 24. We would like to thank R. Jung for pointing out these parallels.


*Fig. 21. Bichrome Wheel-made jugs from Tomb LL (scale 1:3; photographs by T. Bürge, drawings by M. Al-Bataineh).*


*Fig. 23. Selected pottery from Tomb LL (scale 1:3; drawings by M. Al-Bataineh, photographs by T. Bürge and P.M. Fischer).*

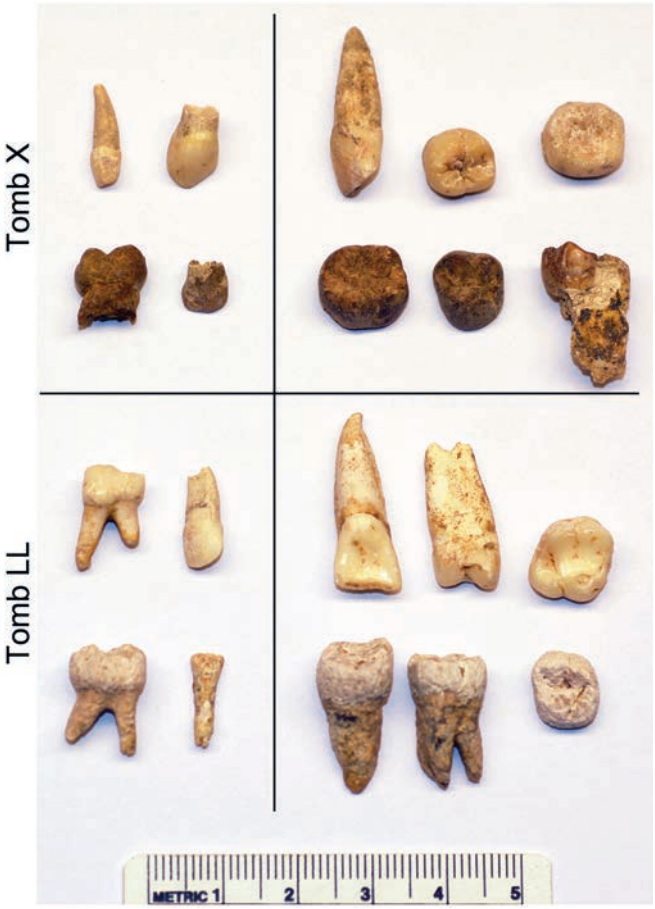


*Fig. 24. Teeth from Tomb X (excavated in 2016) and Tomb LL (photograph by P.M. Fischer).*

One of the juglets is of Grey Lustrous Wheel-made ware (L96-13; *Fig. 23:7*). The origin of this ware—which may be a sub-type of Black Lustrous Wheel-made ware—is still unclear. Åström argues for a Cypriot production, which is attested at least by one petrographically analysed sample attributed to eastern Cyprus.[41] Other petrographic analyses showed that this ware is an inhomogeneous group, of which many vessels were produced on Cyprus, others on the Lebanese coast and along the coast of today's Israel.[42] Results of ongoing petrographic and neutron activation analyses[43] will shed further light on the production places of this ware. Amongst the parallels to our vessel a juglet from Ayia Irini, Tomb 3, should be mentioned.[44] Another close parallel as regards fabric, surface treatment and shape comes from Tell el-ʿAjjul.[45]

| | *Deciduos* | | *Permanent* | | |
|---|---|---|---|---|---|
| *"normal"* | Tomb X L48E | L48W | L48W | L48W | L48W |
| *burnt* | L48W | L48W | L48W | L48W | L48E |
| *"normal"* | Tomb LL L96 E-SE | L96 | L99 | L99 | L99 |
| *burnt* | L99 | L99 | L96 N-NE | L96 N-NE | L96 N-NE |

*Table 1. Teeth from Tomb X (excavated in 2016) and Tomb LL (cf.* Fig. 24*).*

Additional finds[46] mainly from the western and central part of the tomb and (again) quite close to the ploughed soil include two Bichrome Wheel-made jugs (N117 in *Fig. 21:1*, N121 in *Fig. 21:2*), three Plain White Wheel-made shallow bowls (N113, N115, L96-2), two Monochrome bowls (N118 in *Fig. 23:1*, L96-21), three Plain White Hand-made juglets (N119, N133, N134), a White Slip I bowl (L96-15), four White Slip II bowls (L96-3, -12, -18, -20), two White shaved juglets (N120, N130 in *Fig. 23:3*), a Black Slip juglet (N116), a Black/Red Slip juglet (N122), a Red Lustrous Wheel-made bottle (N135; *Fig. 22*), four Base-ring I bowls (N126, N136, L96-96-16, -19), a Base-ring I spindle bottle (L96-1; *Fig. 23:6*), a Base-ring I jug (L96-10) and three miniature vessels—a Base-ring I (N129; *Fig. 23:5*) and a White shaved juglet (N125; *Fig. 23:2*), and a White Slip II bowl (N131; *Fig. 23:4*)—together with a loom weight of clay (N124, 62 g) and a fragment of a Base-ring bull figurine (L96-14). Finds of jewellery consist of two bronze rings (N123, N127), a silver ring (N128) and a cylindrical faience bead (N132). A ground-down *ovis/capra* astragalus (L96-22) also comes from this part of the tomb. Approximately 0.5 m from surface we traced the outlines of a rectangular shaft which is orientated precisely east-west. It measures 2 m (east-west) by 1 m (north-south).

The number of human bones and teeth increased in the area of the shaft, however, they were not articulated. Parts of the skeletal remains, especially some of the teeth (*Fig. 24, Table 1*), show discolouration which give the impression that they

[41] Åström 2007, 20, n. 13.
[42] Yannai & Gorzalczany 2007.
[43] The analyses will be carried out in the framework of the Swedish Research Council project 2015-01192: The Collapse of Bronze Age Societies in the Eastern Mediterranean. Sea Peoples in Cyprus?

[44] Pecorella 1978, 38, fig. 91; 45, fig. 113:115. Tomb 3 is dated to the LC IA2–IB2 (with an Iron Age disturbance) according to the associated pottery.
[45] Fischer 2007, 74, fig. 3; from Area A, Room T, Stratum II (Palestinian collection London, EXIII.117/11), which was dated to the LB IA (1525–1450 BC) by Fischer (2007, 74; see the absolute chronology of the Late Bronze Age in the Southern Levant in Fischer 2006; Bietak & Höflmayer 2007), which corresponds to the dating of the Ayia Irini, Tomb 3 (see note 40).
[46] Not all finds are listed in this presentation which concentrates on chronologically significant ceramics. In addition, several finds have still to be mended and reconstructed.

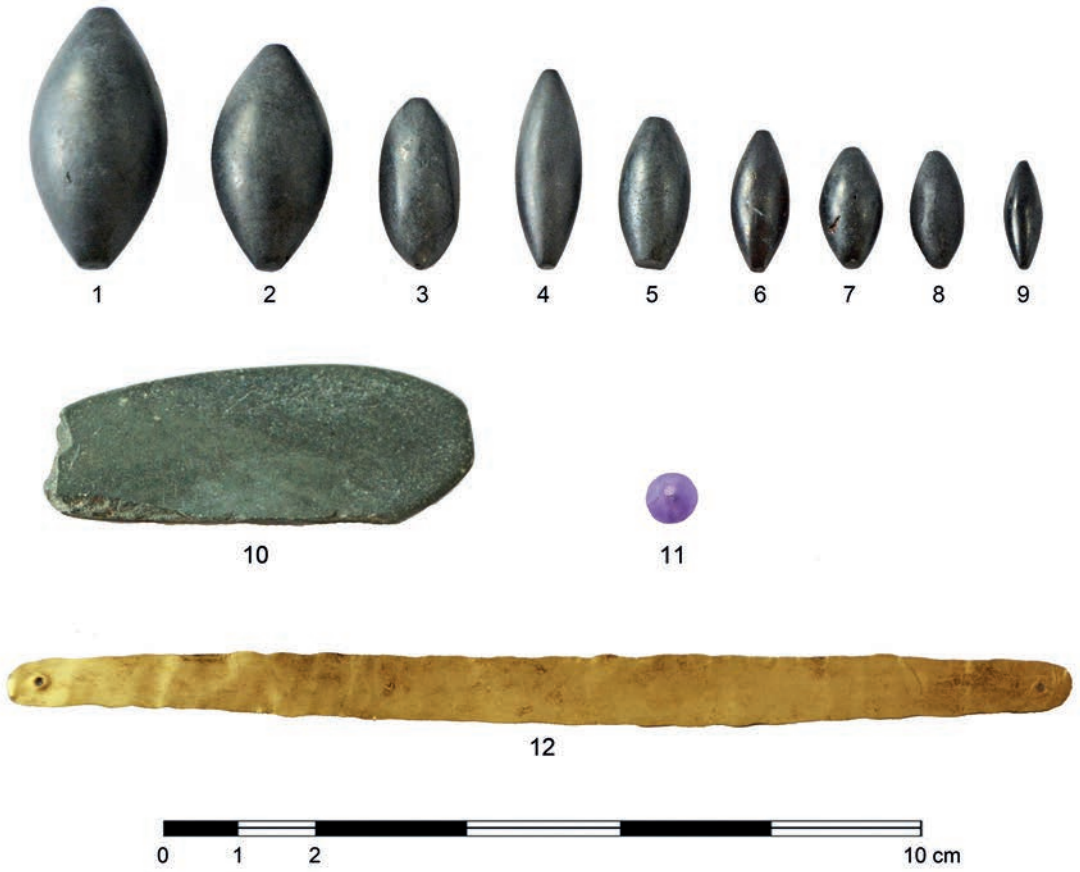


*Fig. 25. Haematite weights (1–9), whetstone (10) and jewellery (11, 12) from Tomb LL (scale 1:1; photographs by P.M. Fischer).*

were exposed to fire: the discoloured enamel was cracked and somewhat separated from the underlying dentine.[47] There were also remains of soot on some of the skeletal remains but not all. These observations together with the number and age of the buried individuals will be discussed at the end of this report.

Finds from the eastern part of the shaft included a rare White Slip I tankard (N139) with a highly burnished intense white slip but without decoration and two *ovis/capra* astragali (L99-1). Also from the eastern part of the shaft came some spectacular finds: a diadem of leaf gold (N137; *Fig. 25:12*) and nine balance weights of haematite of sphendonoid shape (N141–149; *Fig. 25:1–9*) together with jewellery of amethyst (N138; *Fig. 25:11*). The weights were found together with carpal/metacarpal/phalange bones of a human hand in which they obviously were placed together with a whetstone of hornblende (N150; *Fig. 25:10*). The masses of the nine weights are in decreasing order (in g): 28.3, 19.5, 7.4, 5.6, 4.0, 2.9, 2.1, 1.8 and 1.0.[48]

The bottom of the shaft consisted of a smooth layer of very fine clay upon a layer of pebbles just above virgin soil.

### Well MM

This double pit resembles Y1 in that two intersected circular pits have the shape of a figure "8" which is orientated north-west/south-east. The northern pit has a diameter of 1.1 m and the southern 0.95 m. In the southern pit virgin soil was reached at a depth of 0.15 m below ground level (9.93 m a.s.l.). Continued exposure of the northern pit showed that this is a (unfinished?) well.

### Anomaly NN

This magnetic anomaly was discretely marked on the ground but has not yet been excavated (top level 10.15 m a.s.l.).[49]

[47] Priyanka *et al*. 2015.
[48] The weight system will be discussed at the end of the report.
[49] The position is recorded but the area is backfilled in order to prevent it from being looted.

### Well OO

The diameter of this circular pit is 1.05 m. Excavation was halted at a depth of 1 m and the feature was judged to be a well. The fill contained sherds of storage vessels and handle of a Canaanite (?) jar with a potmark (L101-1). Other finds were pieces of bronze and iron, and a part of a stone basin.

## Conclusions

### CQ1

In all seasons, the choice of the excavation areas was guided by the results of the three georadar surveys which indicated stone structures just below the surface. Of those visible on the georadar map the deepest were at a depth of approximately 1 m, which corresponds to our Strata 1 and 2. In the course of the excavations, however, massive architectural units were discovered below the maximum penetration depth of georadar, i.e. between 1.5 and 2 m below the surface, making them invisible on the georadar map.

### Stratum 3

The fieldwork in 2017 provided the first evidence of substantial remains from Stratum 3 with a preliminary date in the 13th century BC (there may be an even earlier phase of occupation, i.e. a possible Stratum 4). This date is supported by much pottery of White Slip II, Base-ring I and II and imported LH IIIB types. Massive walls were exposed in the southern part of CQ1 which made it necessary to move the fence from 2016 a couple of metres southwards. These are so far the oldest remains from settlement contexts at the site, along with exceptionally well-preserved and closed contexts belonging to a large building with walls whose dimensions exceed those of the later strata from roughly the 12th century BC. In general, the Stratum 3 structures, whose walls are preserved up to 1–1.20 m in height and incorporate large conglomerate stones, employ a markedly different building technique than those encountered in Stratum 2. The expedition exposed four walled spaces, R67–70, of which R69 is not discussed here because it is exposed only to a very limited extent. The completely excavated roofed R67 contains four storage units, most likely for the storage of liquids and cereals. Numerous tools are associated with the processing of food, mainly cereals and vegetables; this is supported by the preliminary archaeobotanical results indicating barley and other unspecified cereals together with olives and grapes from three accumulated hard-packed floors and a mudbrick-lined fireplace. The presence of "luxury" items such as three imported faience bowls, most likely Egyptian, an animal figurine, a jug with a protome, and a decorated Levantine-imported pilgrim flask is surprising but may be explained by the elevated status of the people living in R67 and working with the production of copper in the adjacent room to the east (R68). At one time, the room was affected by fire which may have spread.

The function of R68, the space to the east, is totally different from that of R67. Much copper slag and ash together with the ceramic remains of a structure which may have supported a furnace or possibly represent the remains of the actual furnace point to the production of copper. The clay stored in the associated pit was used to continuously repair the furnace during the copper production process and to produce crucibles and moulds. This suggestion is supported by finds of large pieces of fired clay representing remains of ceramic tools. R70 to the north of R68 had the same function: there is another furnace base or the remains of a furnace together with a piece of a tuyère surrounded by 40 kg of copper slag and much ash. In the following Stratum 2, another 38 kg of slag and ore were found in R71 (see below), thus giving a total weight of roughly 78 kg in this limited area. It is, however, difficult to clearly separate the slag belonging to either Stratum 3 or 2. But it is evident that copper production was carried out in both phases of occupation.

The locally-made pottery, for instance White Slip and Base-ring II, and the imported LH IIIA2–B vessels confirm a date in LC IIC or the 13th century BC.

### Stratum 2

In 2016, the walled and partly roofed spaces R63–66 of Stratum 2 were exposed. The findings from these spaces suggest that they had a domestic function.

In 2017, the northern part of the area opened in 2016 was exposed. There are two completely excavated rooms (R72 and 74) and four partially exposed spaces (R71, 73, 75 and 76). R71 contained much slag and an up to 0.7 m thick layer of ash which surrounded another structure related to copper production. R72 seems to have been a workshop for copper and possible pottery production. R74 was a domestic space probably for the craftsmen operating in the nearby workshops.

The pottery from these spaces suggests a time span from the second half or the end of LC IIC to LC IIIA corresponding or a period around 1200 BC.

### Strata 1B–A

Since nearly all remains of these substrata were exposed in 2016 only complementary excavations were carried out. The older Stratum 1B contained two compounds separated by a courtyard. They were used for living, storage, food preparation, and textile production. In 2017, nothing was left to excavate of the most recent Stratum 1A in which is represented by the addition of a retaining or terracing structure.

The pottery from Strata 1B–A should be placed in LC IIIA or possibly in the mid-12th century BC.

## AREA A

A total of 23 magnetic anomalies were investigated from 2013 to 2016. In 2017 another 30 magnetic anomalies were investigated.[50] A tomb and several offering pits were completely excavated but numerous wells only partially (for reasons see above). Including the results from 2017 the total number of exposed wells, offering pits and tombs from the new excavations in Area A is: 23 wells, 2 + 24 tombs,[51] 14 offering pits, 3 other ancient pits, and 11 "modern" pits.[52]

One of the exposed features from 2017 is a storage pit for a large pithos (Pit EE). Of major interest as regards the chronology and archaeology of Hala Sultan Tekke are the new Offering Pits Z6, Z7 and GG together with Tombs Z9 and LL.

The original function of Z6 was that of a well. After its abandonment, it was partially backfilled and reused as an offering pit. It contained numerous complete, locally produced, ceramic containers, figurines, textile production tools and notched scapulae in addition to imported Mycenaean and Minoan pottery. We date the context to the 13th century BC (LC IIC). Offering pit Z7, which was never intended to be used as a well, is of the same date. It also contained numerous locally produced and imported vessels in addition to the obscure object of ivory, wood and bronze (the latter is not preserved), which we interpret as a distaff.

The enormous amount of fragmentary "killed" pottery in Offering Pit GG did not permit its complete processing in 2017. "Killed pottery" should be understood as ceramic containers which were intentionally broken and thrown into the pit, or which broke when dumped, in connection with offering rituals.[53] However, we have quite a good idea about the nature of its contents that closely resemble those of Offering Pit V from 2016.[54] For both of them we suggest a date from roughly 1350–1200 BC or LC IIB–C. In addition to many varieties of locally produced wares there are also numerous Mycenaean imports including chariot kraters.

The nature of Tomb Z9 is equivalent to that of Tomb A which was excavated 2013 and 2014.[55] Both reflect the unusual, maybe Hala Sultan Tekke-specific habit, of burying individuals in out-of-use wells. This partly backfilled well had been used to bury or even dump five individuals: one male and one female, both in their thirties, together with one new-born and two possibly prematurely born infants. There are no tomb gifts. The few sherds derive from the backfill which resembles the situation in Tomb A. However, in Tomb A there were at least some personal belongings, for example, jewellery of silver and bronze still attached to the skeletal remains, all of which are totally missing in Z9.

Tomb LL is a rich shaft grave with contained the partly burnt skeletal remains of several disarticulated human skeletons, none of which is complete. During the excavations, the contexts of the tomb were separated into four *loci*: L96, L96 E-SE, L96 N-NE and L99. It was not possible to separate the various contexts on pure stratigraphical criteria. Consequently, our separation into four *loci* is somewhat artificial and does not necessarily reflect four different depositions. It is possible that all of the contents of this tomb represent a single deposition. This depends entirely on the classification and chronological criteria which are used for the pottery. A single deposition would need the stretching of the life span of certain wares—for example, the lowest possible date of Bichrome Wheel-made ware and raising of the latest White Slip II—to create contemporaneity, i.e. a date of around 1400 BC.[56]

The estimation of the number and age of the skeletons is based on the teeth alone since the osteological remains do not permit reliable estimations. Amongst the 75 preserved teeth are 15 deciduous (milk) and 60 permanent teeth. *Table 2* shows the distribution between deciduous (milk) and permanent teeth, the individuals' ages at death and three models for the estimation of the number of the buried individuals. The three estimations vary between 9 and 19 individuals. The maximum number includes 11 infants/juveniles their ages being 1–14, and 8 adults of 20–*c.* 40 years old. The minimum number of individuals is as follows: 5 infants/juveniles and 4 adults.

The complete vessels, the gold diadem and other finds indicate that the tomb was never looted. Considering this and that a single adult skeleton has 32 permanent teeth and an infant 20 deciduous teeth, it is obvious that the preserved 75 teeth represent the incomplete remains of secondarily buried individuals. If we accept the indications that some of the teeth were exposed to high temperatures (*Fig. 24*, fourth row), the only possible explanations is that the individuals were incompletely burnt somewhere else, their partly burned remains (incompletely) collected and buried in the shaft tomb. One could suggest that Tomb LL contained the burials of people

[50] Pit NN was not excavated.
[51] There are two more tombs (T1 and T2) from rescue excavations in 1968 (see "Introduction").
[52] "Modern" pits are more recent disturbances including Pit K from possible Ottoman times (Fischer & Bürge 2016, 47).
[53] Bürge 2017.
[54] Fischer & Bürge 2017c.
[55] Fischer & Bürge 2014, 86–88.
[56] Åström 1972, 700. Observe though that Åström's classification to a large extent is based on tomb material and may have to undergo future correction, for instance, through the results from the present excavations at Hala Sultan Tekke.

| | | | | | | *3 models (1-3) of estimating the number of individuals* | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | *All units separated* | *L96 and L99 separated* | *All together* |
| *Deciduous teeth* | | | *Permanent teeth* | | | *Min. no. ind. (1)* | *Min. no. ind. (2)* | *Min. no. ind. (3)* |
| *L96* | | | *L96* | | | *L96* | | |
| Type | Age | No. of ind. | Type | Age | No. of ind. | | | |
| 2 ant. | 1-2 | 1 | 1 ant. | c. 14 | 1 | | | |
| | | | 1 ant., 1 prem., 1 mol | 20-30 | 1 | 3 | | |
| *L96 E-SE* | | | *L96 E-SE* | | | *L96 E-SE* | | |
| 1 prem. | 1 | 1 | 1 mol. | 8 | 1 | | | |
| 1 can., 1 mol. | 5 | 1 | 1 prem., 1 mol. | c. 14 | 1 | | | |
| | | | 1 ant. | 20 | 1 | 5 | | |
| *L96 N-NE* | | | *L96 N-NE* | | | *L96 N-NE* | | |
| - | - | - | 2 mol. | 8 | 1 | | | |
| | | | 1 can., 2 prem. | 20 | 1 | | | |
| | | | 6 mol. | 30-40 | 1 | 3 | 7 | |
| | | | | | | | | |
| *L99* | | | *L99* | | | *L99* | | |
| 1 ant., 2 mol. | 1 | 1 | 2 ant., 1 can., 1 mol. | 5 | 1 | | | |
| 4 mol. | 3-5 | 1 | 1 ant. | 20 | 1 | | | |
| 3 ant. | 10-11 | 1 | 4 ant., 6 can., 12 prem. | 20-30 | 1 | | | |
| | | | 3 ant., 10 mol. | 30-40 | 1 | | | |
| | | | 1 mol. | >40 | 1 | 7 | 8 | |
| | | | | | | | | |
| *Total minimum number of individuals:* | | | | | | *19* | *15* | *9* |

*Table 2. Three models for estimating the number of buried individuals in Tomb LL.*

who died in a conflagration but this is not very likely since we have a corresponding situation in Tomb X from 2016 which is 63 m to the south-east of Tomb LL: Tomb X is another rich, unlooted, tomb with many complete and intact objects but only fragmentary skeletal remains of which many fragments show possible signs of burning (*Fig. 24*, second row).[57] All these observations would explain the intact and damaged teeth from incompletely buried human remains in these two undisturbed tombs.

The tomb gifts include much pottery. A Minoan import is represented by a complete LM II/IIIA medium-sized piriform jar with black/reddish-brown motifs of birds and floral representations (*Fig. 20*). Much to our surprise there was not a single Mycenaean-imported vessel in Tomb LL. Local wares of chronological significance include Base-ring I, White Slip I (undecorated) and II, Bichrome Wheel-made, Monochrome and White shaved. We suggest that the tomb was used between 1450 and 1350 BC or roughly LC IIA. If the tomb represents a single burial phase, we suggest a date around 1400 BC (see above).

Other finds from Tomb LL are a diadem of leaf gold, amethyst jewellery, and nine sphendonoid shaped balance weights of haematite together with a whetstone of hornblende. The whetstone was certainly a tool for grinding down the sphendonoids to their desired masses. The masses of the nine weights are in decreasing order (in g): 28.3, 19.5, 7.4, 5.6, 4.0, 2.9, 2.1, 1.8 and 1.0. We suggest the following weight system in relation to a theoretical standard weight of 9.4 g:[58] 3× (standard), 2×, 4/5×, 3/5×, 2/5×, 1.5/5×, 1/5×, 1/5× and 0.5/5×. It

[57] See also Fischer & Bürge 2017c.

[58] According to e.g. Pulak 2000 the standard weight in the Eastern Mediterranean has a mass of c. 9.4 g. See also the same standard weight

is interesting to note that the actual standard weight is missing but its approximate weight can be achieved by using two lighter weights (e.g. 7.4 + 2.1; see the discussion on the low masses below). If these intuitive calculations are correct, the weight system is close to our decimal system divided by two. One could term it "hand-and-finger-system" because the advantage with this system would have been that the results of any weighing could have been shown with the fingers of one or two hands. K. Petruso[59] suggested somewhat different attributions to four of the weights: 3×, 2×, 3/4×, –, –, 1/3×, –, –, –. He observed that the precision of the equipment which was used was lowest at very low masses. Consequently, the error might have been relatively high for the lightest specimens.[60]

Our plans for 2018 include the continued exposure of Stratum 3 structures in CQ1. In 2017, magnetic prospecting of a large area west of Area A indicated regularly-arranged man-made structures (mainly squares and rectangles) corresponding to those from earlier surveys which were identified as small to moderately large spaces in domestic and industrial quarters. Nevertheless, there is also a much larger rectangular building in the magnetometer map not far away from Area A together with other structures which may correspond to the city wall and a possible moat. Therefore, our intentions are to open test trenches over these magnetic anomalies.

PETER M. FISCHER
Department of Historical Studies
University of Gothenburg
Contact: Dörjeskärsgatan 37
SE-421 60 Västra Frölunda
Sweden
peter@fischerarchaeology.se

TERESA BÜRGE
Institute for Oriental and European Archaeology (OREA)
Austrian Academy of Sciences
Hollandstrasse 11–13
A-1020 Vienna
Austria
teresa.buerge@gmx.de

used by Pulak 2000 on the balance weights from the Late Bronze Age shipwreck at Uluburun.

[59] Pers. comm. 30 June 2017.

[60] Other tombs on Cyprus, which contained sets of scale weights as tomb gifts, include Ayia Irini, Tomb 3 (eleven sphendonoid weights; masses in g: 94.8, 47.5, 19.23, 10.25, 9.33, 6.02, 5.52, 5.49, 5.01, 3.7, 3.54), Tomb 11 (six sphendonoid weights; masses in g: 47.10, 26.84, 7.09, 5.13, 4.76, 1.76 [incomplete]) and Tomb 21 (six sphendonoid, one irregular shaped weight; masses in g: 92.97, 45.04, 29.53, 18.89, 17.22, 8.33, 5.36); see Pecorella 1978, 29–33, fig. 57; 68, fig. 154; 87, 90; 191, fig. 494; 193–194. In addition, a set of similar weights comes from the LMIII A1 Tomb H at Knossos/Katsambas contained five sphendonoid (masses in g: 48.9, 28, 10.5, 10.2, 5.7) and four conical weights; see Alexiou 1967, 54, pl. 28a.

# Appendix 1
# Pit Z9: preliminary report

BY MAGDALENA AUSIAYEVICH, BEBELYN PLACIENTE ROBEDIZO & VICTOR BARRERA ALARCÓN*

## INTRODUCTION

Pit Z9 is a circular feature, 1.1 m in diameter, *c.* 1 m east of Pit Z8 and *c.* 2 m south of Well Z6 in the south-western part of Area A.[61] The pit was excavated to a depth of 3 m below the surface but was not bottomed. Pit Z9 was a well that has been reused for the burial of five individuals (two adults and three children). The tomb was found undisturbed.

## STRATIGRAPHY AND MATERIAL REMAINS

The uppermost part of Pit Z9, i.e. colluvial soil and L72, consisted of loose soil, medium to large stones and pottery fragments. The stones sealed the tomb and possibly also marked its presence during the period of habitation at Hala Sultan Tekke. The human remains were found at 1.74 m below the surface (9.03 m a.s.l.), deposited in a single event. Between the sealing fill and the human remains there was a thin layer of clayish soil with pottery in less fragmented condition; however, no intact vessels were found.

The contexts of the five burials were divided into two *loci* (*Skeleton 1* = L81 and *Skeletons 2, 3, 4,* and *5* = L88). The two adults *Skeleton 1* and *2* were found tightly flexed as dictated by the relatively small space inside the pit. *Skeleton 1* (*Fig. 27*) was found torso and face down, whereas *Skeleton 2* (*Fig. 17*) was facing east with a slightly twisted torso and uplifted arms, "holding" on each side an infant represented by *Skeletons 3* and *5* (*Fig. 29*). South-east of *Skeletons 2* and *5* another infant, *Skeleton 4,* was found. Due to the fragility of the bones, only the general location of the three infants but not their exact position could be determined.[62]

Around the human remains close to the northern, south-eastern and western sides of the pit, disarticulated animal bones of sheep/goat were found. Underneath the human remains, at 2.29 m below the surface (8.48 m a.s.l.), a thin (0.38 m) layer of mostly flat stones was exposed (L93), which rep-

* We would like to thank Prof. Peter M. Fischer for the opportunity to participate in the excavations at Hala Sultan Tekke and permission to publish the material from Pit Z9, as well as for comments on and correction of the text.

[61] For further information concerning Area A see above in this report and Fischer & Bürge 2017c.

[62] Although all five skeletons were found intact *in situ*, due to the fragility of the bones, they were only partially recovered (roughly 80% of *Skeleton 1*, 60% of *Skeletons 2, 3* and *4*, and 40% of *Skeleton 5*).

resents a foundation for the burials. Below this foundation, the soil was loose with a few scattered pottery fragments and animal bones in very fragmented condition (L94)—the typical fill of a well at Hala Sultan Tekke.[63]

The tomb contained a total of 511 ceramic sherds of locally produced and imported wares. Most of them (331 fragments) come from the colluvial soil and the upper fill of the pit (L72), whereas only 104 fragments came from the contexts of the human remains, but due to their high degree of fragmentation cannot be considered as tomb gifts. From the total number of ceramic sherds only eight were classified as Class 2 finds:[64] the base of a Canaanite jar (L72-2; cf. *Fig. 18:3*), three White Painted Wheel-made shallow bowls (L72-3, L81-2, -3), a White Painted Wheel-made deep bowl (L88-2), a White Painted Wheel-made or Mycenaean imported shallow carinated bowl (L72-5; cf. *Fig. 18:1*), a jug of White Painted Wheel-made ware (L72-6; cf. *Fig. 18:2*) and the base of a Red Lustrous Wheel-made spindle bottle (L88-1).

Plain Ware dominated in Pit Z9 (78.67%). The largest concentration of table ware was found in L72 (27.39% in the fill of the shaft), L81 and L88 (the burial 22.72% and 17.07% respectively) and L93 (25.58% in the stone layer beneath the burial), whereas the colluvial soil and L94 (the fill of the well) contained only 9.82% and 12.12% respectively (*Fig. 26*). Due to the high degree of fragmentation of the sherds and the large concentration of Plain Ware, it is likely that the ceramic material belongs to the backfill.

Most of the diagnostic Mycenaean fragments (*Table 3*) can be dated to LHIIIB (LCIIC). Three fragments—two shallow Mycenaean bowls and a White Painted Wheel-made trefoil mouthed jug (L72-6)—could point out a later date in LCIIIA. Other finds comprise a glass bead (L72-1), a wall bracket (L72-4), and a bronze pin (L81-1), all in fragmented condition. L81-1 might have been a personal belonging of *Skeleton 1*.

## OSTEOLOGICAL AND OSTEOPATHOLOGICAL ANALYSES

### *Skeleton 1* (*Fig. 27*)

The skeleton was estimated to be a male, 30–40 years of age and 166 ± 4 cm in height.[65] Caries, calculus, periodontal disease, periapical abscess, enamel hypoplasia, and porosities in the roofs of ocular orbits attributed to *cribra orbitalia* were identified, demonstrating that this individual suffered from malnutrition and poor dental status.[66]

On the frontal bone, two small and partially penetrating lesions were observed, which likely occurred perimortem as there are no signs of healing (*Fig. 28*). The trabecular bone is visible in one of the lesions, suggesting that the trauma might have been fatal. These lesions are most likely the result of a penetrating trauma to the frontal bone, perhaps inflicted from repeated blows using a pointed weapon.[67] There are, however, no related fractures in direct connection to the lesions. A fracture near the coronal suture was observed, though this

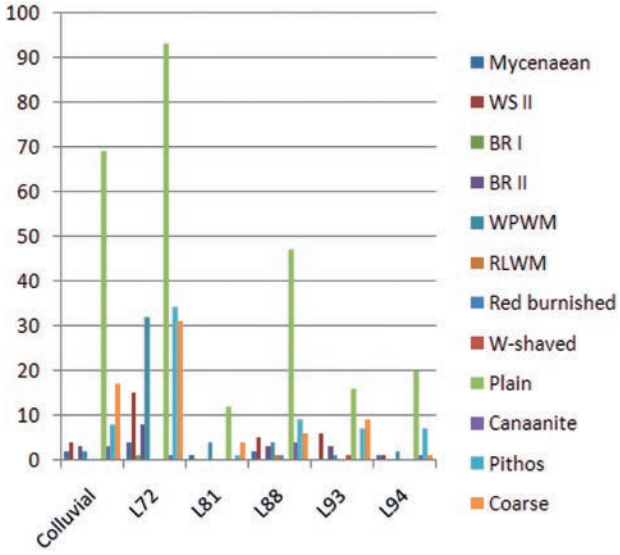


*Fig. 26. Pottery distribution in Piz Z9 (chart by M. Ausiayevich).*

| *Locus* | *Pottery fragments* | *Vessel Shape* | *Date* |
|---|---|---|---|
| L72 | 4 | Kylix | LH III A |
| | | Closed vessel | LH III A2-B |
| | | Open Vessel | LH III A2-B |
| | | Unidentified | LH III A |
| L81 | 1 | Shallow bowl | LC III B-C |
| L88 | 3 | Shallow bowl | LC III B-C |
| | | Shallow bowl | LC III B |
| | | Piriform jar | LH III B |
| | | Stirrup jar | LH III B |
| L94 | 1 | Kylix | LH III B |

*Table 3. Mycenaean pottery in Z9 (by L. Mazzotta and L. Recht).*

[63] Åström 1998, 131–134; Fischer & Bürge 2015, 46–49.
[64] For a detailed description of the three find classes see Fischer 2011, 74. Class 1 are (almost) complete objects, Class 2 are mainly diagnostic sherds/sherds with decoration/potmarks and Class 3 undiagnostic sherds.
[65] Buikstra & Ubelaker 1994, 16–38; Sağır 2012.
[66] Alexandersen 2008, 369–390; Walker *et al.* 2009.
[67] Lovell 2008, 356–357.

*Fig. 27 (left).* Skeleton 1 *(photograph by M. Ausiayevich). Fig. 28 (right). The lesions on frontal bone of* Skeleton 1 *(photograph by B. Placiente).*

occurred most likely post mortem as its edges were of lighter colour than the rest of the bone.

Osteophytes, slight compression, periostitis and enlarged foramina in some of the vertebrae were also observed, indicating osteoarthritis.[68] Finally, periostitis was observed on some of the ribs, of which one also showed signs of a healed fracture from blunt force trauma.[69] Periostitis was also observed on the diaphysis of tibia and fibula, indicating inflammation of the lower legs likely related to the healed fracture of the left fibula.

### *Skeleton 2* (*Figs. 17, 29*)

The skeleton was estimated to be a female, 30–40 years of age and 162 ± 3 cm in height. Pathological features similar to those attributed to malnutrition and poor dental status on *Skeleton 1* were also identified on *Skeleton 2*. However, more teeth were more severely affected compared to *Skeleton 1*.

Signs of osteoarthritis, healed fractures and porotic hyperostosis were identified; the latter often associated with anaemia and malnutrition.[70] Periostitis on humeri, femora, tibiae and fibulae was also observed, demonstrating inflammation. In the right fibula and first metatarsal of the right foot, osteomyelitis, which similarly attests to severe inflammation, was documented.[71] No related trauma was identified, suggesting that the periostitis and the osteomyelitis could be signs of an infectious disease (e.g. tuberculoid leprosy). It is however difficult to determine the type, as several diseases result in similar pathological features and have similar distribution.[72]

### *Skeletons 3, 4* and *5* (*Fig. 30*)

The ages of *Skeletons 3* and *5* were estimated to 34–36 weeks, indicating death at time of birth, and that they may have been born prematurely. *Skeleton 4*, on the other hand, was estimated to be 0–6 months old.[73] Sex and height estimations were not conducted as there are currently no reliable methods for preadolescent individuals.[74] Finally, no signs of trauma or pathological features were identified.

## Postscript to osteological analysis

The osteological analysis showed that the individuals termed *Skeleton 1* and *2* have suffered from various pathologies and trauma throughout their lives. Some pathological features and healed fractures are testament to the many hardships to which these people were exposed.

[68] Ortner 2003, 545–547, 549–550.
[69] Ortner 2003, 206–215; Lovell 2008, 356–357.
[70] Ortner 2003, 102–105.
[71] Ortner 2003, 181–186; 206–215.
[72] Ortner 2003, 227–323.
[73] Schaefer *et al*. 2009, 94–95, 284.
[74] Moore 2013, 106–107.

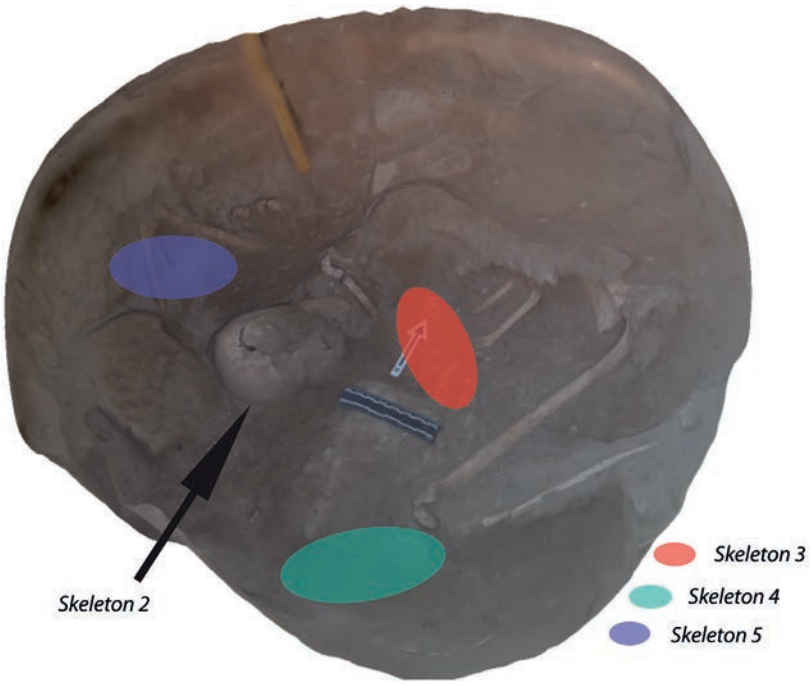


*Fig. 29.* Skeleton 2 *with the location of* Skeletons 3, 4, *and* 5 *(photograph by M. Ausiayevich).*

## DISCUSSION AND CONCLUSIONS

Pit burials in Late Bronze Age Cyprus are not well represented in the archaeological record.[75] Therefore, comparative data are scarce. In spite of the great variety of burial traditions that characterizes Late Bronze Age Cyprus, a general trend can be observed: collective burials in chamber tombs, the dorsal position of the skeletons and rich burial gifts in LCI and II, with a shift towards shaft graves and a decrease in burial gifts in LCIII.[76] Compared to the rich tombs from Hala Sultan Tekke, Pit Z9 represents an exception considering the lack of burial gifts. To some extent, this burial resembles Tomb A,[77] excavated in 2014 and 2015; a reused well,[78] collective burial with no consistent tomb gifts. However, whereas Tomb A represents a sequence of burials, the five individuals in Pit Z9 have been buried in a single event. The use of pits for burials is not very common during the Late Bronze Age in Cyprus. Compared with the larger chamber tombs, the pit burials are less work- and time-consuming in terms of their construction and could therefore be considered low social status burials. However, two intact and rich collective burials in pit tombs dated LC IIC have been excavated at Akhera, *Chiflik Paradisi*.[79]

The position of the male *Skeleton 1,* with the torso and cranium facing down, might be considered a sign of careless burial or even dumping.[80] However, other skeletons found *in situ* in rich chamber tombs like the upper burial in Tomb 9 at Kition, *Chrysopolitissa*[81] and Tomb 20 at Kourion, *Bamboula,*[82] revealed similar peculiar positioning.[83]

*Skeletons 2*, *3*, *4*, and *5* (the adult female and three children) are most interesting. The position of the female *Skeleton 2*, "holding" in her arms *Skeletons 3* and *5*, both prematurely born children, maybe even twins,[84] has no exact parallel in Cyprus to our best knowledge. A slightly similar situation was found at Enkomi, where a shaft-grave in Area I, Level IIIB, contained one adult and one child facing each other without any burial gifts.[85] On the other hand, in the rich Tomb 11 at Kalavasos *Ayios Dhimitrios* three women and four children were lavishly buried.[86] This suggests that neither gender issues, nor superstition related to premature death are likely to be the cause of the "poor" burial in Pit Z9.

Outside Cyprus, in the Late Bronze Age Canaanite tradition, pit burials are more often reported.87 When used for

[75] The preservation of burials in Cyprus and history of research are discussed in detail by Goring 1989, 90 and Keswani 2004, 22–26. For Hala Sultan Tekke, see Bailey 1976 and Fischer & Bürge 2017c.
[76] Keswani 2004, 140–144.
[77] Fischer & Bürge 2014, 86–88.
[78] Other wells with human remains have been found in Enkomi (Dikaios 1969, 111), Hala Sultan Tekke (Åström 1998, 134), Kisonerga *Mylouthkia* (Thomas 1995, 57–59) and possibly Kourion Bamboula (Benson 1972, 8). Outside Cyprus, in Hazor the water cistern 9027 contained the skeleton of a young woman buried with Mycenaean and Cypriot pottery (Gonen 1992, 123). With the exception the water cistern in Hazor they have mostly been interpreted as accidents rather than intentional burials.
[79] Karageorghis 1965, 137.
[80] The individuals in Tomb A were interpreted as dumped based on the position of skeletons and the lack of tomb gifts.
[81] Karageorghis 1974, 42–43.
[82] Benson 1973, 28.
[83] Most of the published osteological material in Cyprus comes from collective burials with commingled bones and therefore there is little data regarding skeleton positions.
[84] Samples for DNA and isotopic analyses have been collected only from *Skeletons 1* and *2*, but not from the infants due to the brittleness of their bones; and therefore their relationship with *Skeleton 2* is not attested. Based on osteometric analyses and age estimations, it is possible that *Skeletons 3* and *5* (prematurely born) were the offspring of the same female, whereas *Skeleton 4* (estimated to 0–6 months) had to be borne by another mother, given their age relative to each other.
[85] Dikaios 1969, 207 & 432.
[86] Knapp 2013, 384.
[87] From the total of 642 Late Bronze Age tombs in Cyprus listed by Keswani (2004, 189) only 8 are pit burials, whereas from the total of roughly 1,200 Late Bronze Age tombs in Canaan listed by Gonen (1992) at least 800 are pit burials.

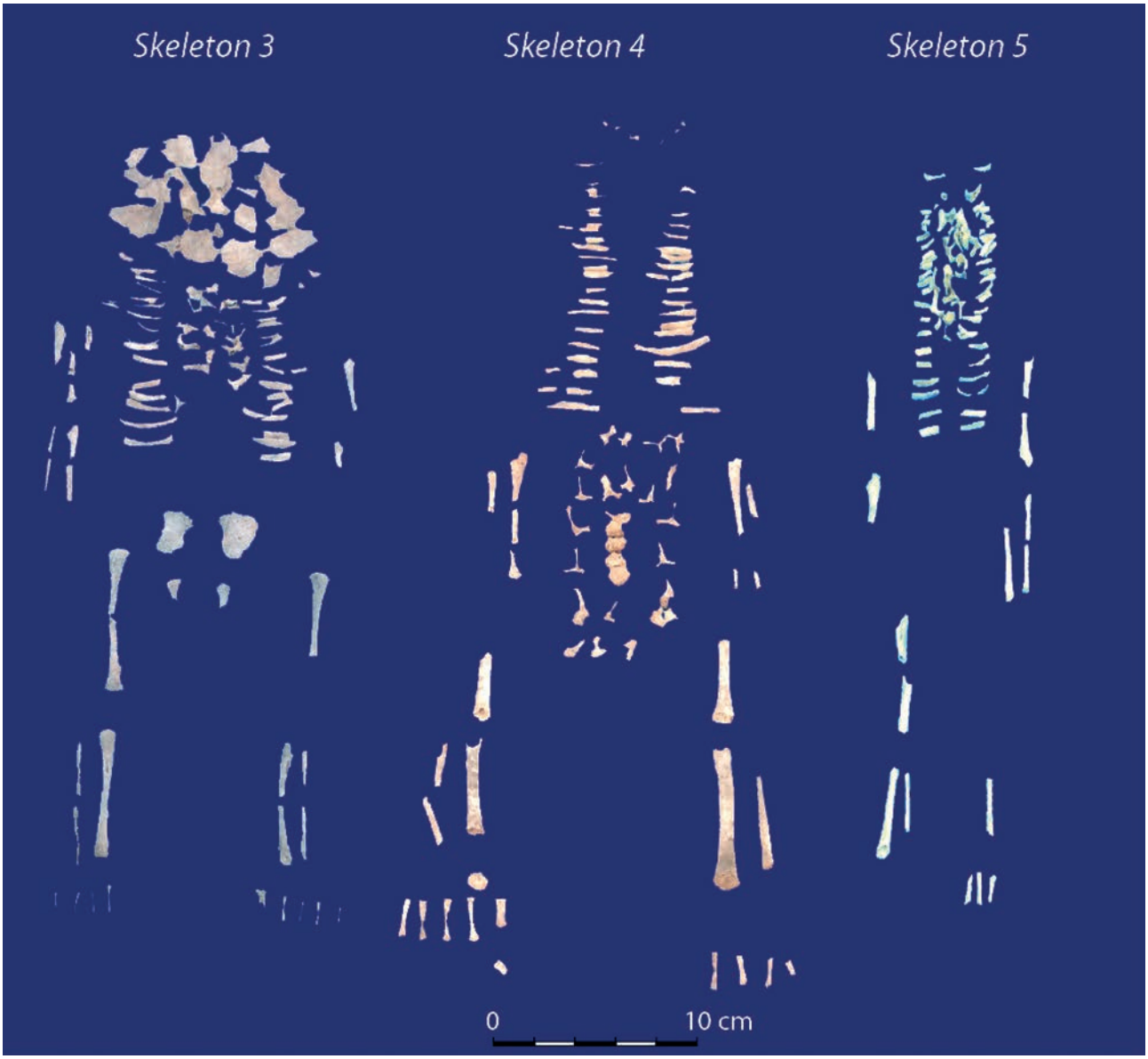


*Fig. 30.* Skeletons 3, 4 *and* 5 *in anatomical position (photograph by B. Placiente).*

collective burials, the individuals were in a familial relationship (man-woman, mother-young child).[88] Considering the cosmopolitan character of the Late Bronze Age harbour of Hala Sultan Tekke, it is possible that the individuals from Pit Z9 might have been a foreign family buried according to their traditions. Until the results from DNA and Strontium isotope analyses results are available, these propositions remain hypothetical. It might be that a contagious disease or some other factor that did not leave enough traces in the osteological material led to the sudden death of the five individuals and their rushed burial. Their low social status should also be considered. In any case, the sealing of the tomb, the foundation layer, evidence related to funerary rituals (the animal bones and the concentration of less fragmented sherds and table ware in the layers associated with the burial), and the careful deposition of the skeletons in the pit, speak against the possibility that they were carelessly discarded or accidentally fell into the well.

[88] Gonen 1992, 19–20.

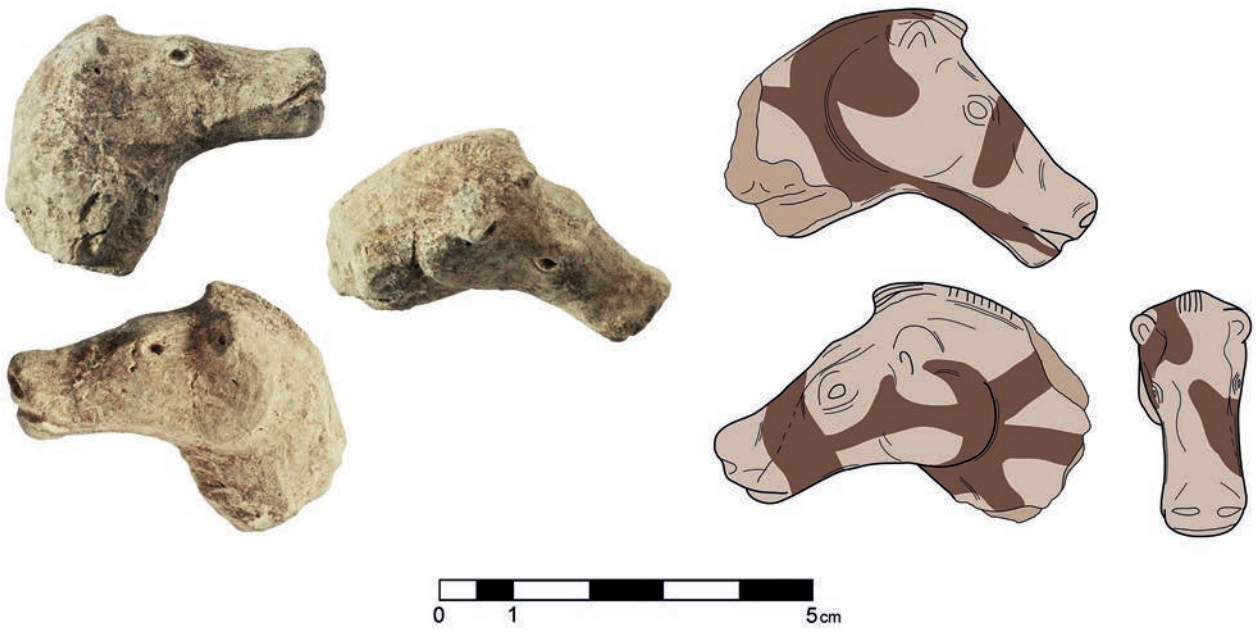


*Fig. 31. Equid figurine N100 from Area A, Well Y2 (scale 1:1; photograph by T. Bürge, drawing by L. Recht).*

# Appendix 2
# Horse figurines from Hala Sultan Tekke

BY LAERKE RECHT*

During the 2017 season at Hala Sultan Tekke, the head of an equid figurine was found (N100; *Fig. 31*). The figurine is remarkable in being a very "naturalistic" piece with a high degree of sensitivity to the features of the animal. The features of the equid are carefully modelled with short ears, wide-set eyes marked both by raised and indented eye sockets (possibly at one point containing inlays), indented nostrils, and mouth shown as open. The mane is rendered by a low-raised and perpendicularly incised ridge along the back of the neck, with marked incisions that follow the line of the head, indicating a falling rather than erect mane, while the forelock falls onto the crown of the head. Taken together, these features suggest that the equid is a horse (*Equus caballus*). This is in line with the horse being the most frequently depicted equid in Cyprus in this period.

## DETAILS OF THE FIGURINE

The head is preserved to a height of 3.5 cm, a length of 4.3 cm, and a thickness of 1.3 cm. It is made of a heavy light brown material (weight 22 g).[89] There are faint traces of dark paint across the nose ridge and along the side of the head, and a "dotted" line along the left side of the head. The paint may indicate a bridle, consistent with the open mouth which is most likely meant to signify that it carried a bit in its mouth. Bits became the preferred way of controlling equids in the Late Bronze Age (as opposed to earlier, where nose rings appear to have been more common, at least in the Near East).[90] The open mouth is also a testament to an animal that is not purely passive, but reacting to its bridle, and a craftsperson that was familiar with equids and equid behaviour. Presumably, the figurine head belongs to the complete body of an equid which may have had either a rider on its back or formed part of a two-horse chariot team. The painted decoration is too faded to be certain whether the exact same pattern appeared on both sides of the figurine (which could have helped in determining whether or not it was part of a team).

* I am grateful to Peter M. Fischer for suggesting the topic of this appendix, and for participation in the 2017 excavations at Hala Sultan Tekke. Thanks are also due to Rick Hauser for insightful comments on a draft version of the paper, and to Emma Saunders for suggestions and language corrections.

[89] Probably terracotta: the careful modelling of the animal's features and manner of incisions suggest this. However, the relatively heavy weight and lack of change in colour in the section could indicate stone (which would make the figurine even more unusual). Future XRF analysis should solve this question.

[90] Littauer & Crouwel 1979, ch. VIII.

## CONTEXT AND DATE

The figurine was found in Area A, in Pit Y2, L66.[91] Pit Y2 may once have served as a well, since traces of "steps" were found in the sides, but the exact nature and interpretation of its contents are not yet clear (see main report). The other finds fall within a range within the Late Bronze Age (LC I–III), and include an almost complete Base-ring I juglet (N102; cf. *Fig. 14:2*) and imported Aegean ware dated to LH IIIA2–B and LH IIIC early (LH IIIA2: fragment of stemmed krater, LH IIIA2–B: fragment of Minoan transport stirrup jar, LH IIIC early: fragments of two deep bowls, FS 284A).[92] The horse head likely belongs within the later part of this date range (*c.* 1300–1050 BC). Due to the head's unique style, it is not at present possible to determine with certainty its more precise date within this range, but it seems more likely to belong to the later part, when horse figurines became particularly popular in Cyprus. The closest contemporary parallel is perhaps a horse head found at the Levantine site of Ugarit. The head is part of a terracotta chariot group of local or Syrian origin and also displays remarkably naturalistic features.[93] While the naturalism is unusual, the stylistic concepts are not: small ears with mane and forelock rendered in the same manner as our N100 can be found on a locally produced LC III terracotta figurine from Enkomi.[94]

## OTHER EQUID FIGURINES AT HALA SULTAN TEKKE

While N100 presents unique features, other equid figurines have been found at Hala Sultan Tekke. This includes another find made during the 2017 season, this time in the settlement (L608-1; *Fig. 32*). It was found in R66, in T24C, L608 (Stratum 2, see location in *Fig. 4*). The figurine is another head and neck of an equid, in the Cypriot White Painted Ware. It is made of a light red fabric with a light reddish-brown slip and decorated with reddish-brown paint. The ears, mane, muzzle and forelock are broken, but the forelock appears to fall onto the crown of the head as in N100. The eyes are marked by painted circles, and lines of paint run along the side of the head towards the mouth. These likely represent parts of the bridle (the cheekstraps) since they otherwise interrupt the pattern—this is especially clear on the left side of the head. In contrast to N100, the features of this figurine are more generic, but follow the tradition of locally produced figurines in Cyprus during LC III.[95] Although less detailed in its features, comparison with other figurines and the falling forelock also identifies this example as a horse. It was probably either carrying a rider or part of a chariot group; the difference in the pattern of the paint on the two sides could suggest it was teamed with another horse to draw a chariot.

Additional equid figurines found at Hala Sultan Tekke include a third head of a horse figurine found during the 2013 excavation of the settlement, in this case a Mycenaean import (LH IIIA–B) which was probably part of a chariot team.[96] Area A has yielded two further Mycenaean equid figurines from Offering Pit V (N58 and L46-59, LH IIIA–B), both of which likely also belong to chariot teams.[97] From the old excavations comes a badly damaged figurine head which very likely belongs to an equid and with the same raised and incised mane.[98]

## EQUIDS AT HALA SULTAN TEKKE AND LATE BRONZE AGE CYPRUS

Although an in-depth discussion is not appropriate here, a few notes can be made about the role of equids in the Late Bronze Age in Cyprus to put the Hala Sultan Tekke figurines in their historical context. Equids were not entirely new to Cyprus in the Late Bronze Age,[99] but from this period and into the Cypro-Geometric Period, they became particularly popular. This is part of a broader Eastern Mediterranean phenomenon where light horse-drawn chariots attain an important role in warfare, especially in the battles along the Levant involving Hittites, Egyptians, Assyrians and Canaanites. The large amounts and crucial role of chariots and horses are most famously attested by the so-called Amarna Letters, and by Egyptian material, including reliefs and the remains of actual chariots.[100]

[91] For more details about Area A at Hala Sultan Tekke, see Fischer & Bürge 2015, 41–50; 2016, 47–51; 2017c; Fischer & Satraki 2014.

[92] According to preliminary analysis of Pit Y2 (with thanks to Teresa Bürge). Analysis of Mycenaean/Aegean pottery is carried out in collaboration with Lorenzo Mazzotta, with input from Giampaolo Graziadio and Mario Benzi.

[93] Schaeffer 1936, 138, pl. XVIII. Naturalistic examples are also part of the late 3rd millennium corpus of Tell Mozan (Syria)—see Hauser 2007, especially MZ1.209 K1.12, p. 367. Closer to home, some of the horse and rider figurines found at Kourion are stylistically similar but tend to have sharper, more delicate muzzles and raised manes; the majority date to the 7th century BC (Young & Young 1955, see esp. pls. 23–30).

[94] Courtois 1984, 86, pls. 31/3, XV/2.

[95] For a catalogue of Late Cypriot examples, see Karageorghis 1993, 43–45. See also Courtois 1984, 84–87 (Enkomi); Karageorghis & Demas 1985, pls. XXXI.42, CXLIX.3880, CLXVIII.3261 (Kition); Benson 1972, 136–137, pl. 35, no. B 1569 (Kourion).

[96] Fischer & Bürge 2014, 77, 78, fig. 24; Blattner 2014, 94. Part of a White Painted bovid or equid figurine comes from the 2012 excavations—see Bürge 2013, 66, fig. 17.3.

[97] Fischer & Bürge 2017c, 39, fig. 31.2.

[98] Åström 1989, 103–104, figs. 206–207.

[99] Figurines of equids from before the Late Bronze Age are extremely rare and difficult to identity. Possible example appear in Morris 1985, 204–205, figs. 326–329.

[100] Littauer & Crouwel 1985.


*Fig. 32. Equid figurine L608-1 from CQ1, Stratum 2 (scale 1:1; photograph by T. Bürge, drawing by L. Recht).*

In the Cypriot Late Bronze Age, horses and other equids are associated with the elite, high social status and wealthy tombs. Aside from equid figurines (usually horses when species is identifiable), horses appear as part of the iconography on prestigious imported pottery from the Aegean (often referred to as "chariot kraters"), and osteological remains have been found in a number of tombs.[101] Two excellent and almost complete Mycenaean chariot kraters were found in the recent excavations of Pit V in Area A (L46-34 and L46-35), and further examples were found in earlier excavations of Hala Sultan Tekke Tomb 2.[102] They depict a team of two horses in front of a light two-wheeled chariot. The chariot team is the central motif, but appears a variety of combinations with other minor motifs.

Tomb 2 also contained the remains of equids—two donkeys (*Equus asinus*) and one horse (*Equus caballus*)—while other remains of equids especially appear in Area A and various well contexts.[103] Horses and chariots play a crucial role in the Amarna Letters, and if Alashiya is accepted as referring to Cyprus or a part of it, the island took part in the international trading and gifting of horses and chariots.[104] Thus, while horses and donkeys were not the most commonly found animal, they would not have been an unusual sight at Late Bronze Age Hala Sultan Tekke. The iconography favours horses, probably due to their better suitability for the fast two-wheeled chariot, and, more than anything else, they were associated with high status and are especially discovered in mortuary contexts.

[101] Kosmetatou 1993; Reese 1995.
[102] Pit V, see Fischer & Bürge 2017c, 198, 205–206, 208, figs. 38.1–2; Tomb 2, see Åström *et al.* 1976, 84–85, pls. LVI, LXXIV, nos. 214–215.
[103] Åström *et al.* 1977, 172, table 1; Åström 1983, 222, 228–229, tables 20–21; 1998, 136–138; Macheridis 2011, 93; Fischer & Bürge 2015, 47, 54, fig. 26.
[104] See esp. Letters *EA 34* and *EA 37* (Moran 1992, 105–106, 110).

# Appendix 3
# A note on the archaeobotanical analysis

BY DOMINIKA KOFEL

During the 2017 season of excavation at Hala Sultan Tekke additional archaeobotanical analyses of material from CQ1 and Area A were carried out. [105]

## MATERIAL AND METHOD

A total of 81 soil samples were collected: 36 samples are from layer/debris associated with floors, 9 from ash/burned layers, 11 from vessel contents and 3 from postholes. The remaining 22 are from various pits in Area A. Forty-eight samples from CQ1 offered material for archaeobotanical analysis. Six were collected from Stratum 1B, 23 from Stratum 2 and 19 from Stratum 3. From Area A, 22 samples yielded results.

A manual bucket flotation system was used. Each soil sample was dispersed in water and then gently stirred to release the botanical remains. Thereafter, the watery solution from the upper part of the bucket was poured through two sieves (0.5 mm and 0.25 mm mesh size). Fresh water was then poured onto the soil remains at the bottom of the bucket and the operation was repeated until no more soil was left. Sieves retained both the heavy and the light residues after silts and other particles smaller than 0.25 mm were rinsed through. Residues were dried and the heavy elements were separated from the lighter ones. Thereafter, they were sorted using a low-powered stereo/binocular microscope at 6.4–40× magnification. The macroscopic remains were identified based on the shape, surface and size. In order to make an accurate determination, identification keys and atlases were used as well as reference collections. All the material was charred, in some instances badly damaged. The plant remains can be studied in *Tables 4* and *5*.

## RESULTS: CQ1

Archaeobotanical assemblage of this year did not differ from the previous seasons. The results and some preliminary conclusion are presented below (*Table 4*).

### Stratum 1B

Six samples from Stratum 1B yielded results. From L602 come fragments of indeterminate cereal grains (*Cerealia* indet.), pieces of olive (*Olea europaea*) stones, common grape vine (*Vitis vinifera*) pips, one indeterminate seed, and small pieces of indeterminate charcoal. Along the aforementioned there were pieces of, so called, organic slag. Those fragments of organic matter of various sizes and shapes could represent parts of cooked food, bread or elements of the pulp of fruits.

The remaining five samples include a grain of barley (*Hordeum vulgare*), fragments of indeterminate cereal grains, pieces of olive stones, a pedicel of fruit and fragment of a pip of common grape vine, a seed of common fig (*Ficus carica*), and two fragments of indeterminate seeds or fruits. There were also pieces of coniferous and deciduous charcoal along with some fragments of organic slag.

### Stratum 2

The highest number of samples, which offered the material for analyses, was collected in Stratum 2. This stratum delivered all kinds of plant macroremains. There are grains of barley, einkorn wheat (*Triticum monococcum*) and parts of indeterminate cereals and/or grasses. Other cultivated plants, or those gathered for their fruits, include: olive stones, fragments of almond (*Prunus dulcis*) husks, pieces probably of pistachio (cf. *Pistacia* sp.), seeds of common fig and pips of common grape vine. This stratum also has the biggest quantity of grasses, herbs and weeds. There are: seeds of viper's bugloss (*Echium vulgare*), one seed of grass pea (*Lathyrus sativus*)/bitter vetch (*Vicia ervilia*), one seed of indeterminate legume (*Fabaceae* indet.), fragments of indeterminate grains, seeds and husks. Remains of wood are represented by fragments of both coniferous and deciduous groups of charcoal. Additionally, there are pieces of organic slag.

### Stratum 3

The 18 samples from Stratum 3 include a range of plant remains. Of crops, there are barley and parts of indeterminate cereals and/or grasses.

In the group of the other economic plants there is a seed of flax (*Linum usitatissimum*), which occurred for the first time in the settlement context. It was associated with fragments of olive stones, almond husks, common grape vine pips and seeds of common fig. In the grasses, herbs and weeds group there are few remains of indeterminate seeds and grains, and one grain of brome grass. Along with pieces of coniferous and deciduous wood charcoal, there are fragments of *Cenococcum geophilum sclerotia*. This is a soil fungus that develops on the depth 0–10 cm in the vicinity of coniferous, as well as deciduous trees.[106] It might occur in ecosystems with a wide range of environmental conditions: heathlands and peat bogs as well

[105] Kofel 2015; 2016; 2017.

[106] Kataržytė 2009, 61–62.

| *Hala Sultan Tekke, City Quarter 1* | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Trench*** | *7D* | | | | | | | | | | | | | | | |
| ***No.*** | 1 | 2 | 3 | 4 | 68 | 74 | 81 | 70 | 75 | 65 | 66 | 67 | 71 | 73 | 78 | 77 |
| ***Locus*** | 601 | 601 | 641 | 641 | 648 | 648 | 656 | 658 | 665 | 666 | 666 | 666 | 666 | 666 | 666 | 674 |
| ***Stratum*** | 1B | 1B | 1B | 1B | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| **Grains** | | | | | | | | | | | | | | | | |
| *Hordeum vulgare* (barley) | 1 | | | | | | | | | | | | | | | |
| *Triticum monococcum* (einkorn wheat) | | | | | | | | | | | 1 | | | | | |
| *Triticum sp.* (wheat) | | | | | | | | | | | | | | | | |
| *Cerealia indet.* (cereals) | 8fr. | | | | 2fr. | | 1fr. | | 1 | 4;31fr. | | | 1 | 3fr. | | 7fr. |
| *Poaceae/Cerealia indet.* (grass/ cereals indeterminate) | | | | | | | | | | | | | | | | |
| **Other economic plants** | | | | | | | | | | | | | | | | |
| *Linum usitatissimum* (flax) | | | | | | | | | | | | | | | | |
| *Olea europaea* (olive) | 5fr. | 1fr. | | | 3fr. | | 1fr. | | 1fr. | 3fr. | 25fr. | 2fr. | 1;30fr. | | 3fr. | 5fr. |
| *Prunus dulcis* (almond) | | | | | | | | | | 1fr. | 2fr. | | 5fr. | | | 3fr. |
| *cf. Prunus dulcis* (almond) | | | | | | | | | | | | | | | | |
| *cf. Pistacia sp.* (pistacia) | | | | | | | | | | | 1fr. | | | 1fr. | | |
| *Vitis vinifera* (common grape vine) | | 1min | 1fr. | | | | | | | | | | | | | |
| *Vitis vinifera pedicel* (common grape vine) | 1 | | | | | | | | | | | | | | | |
| *Ficus carica* (common fig) | 1 | | | | | | | | 1 | | | | | | 2 | |
| **Grasses, herbs and weeds** | | | | | | | | | | | | | | | | |
| *Echium vulgare* (viper's bugloss) | | | | | | | | | | 3 | | | | | | |
| *Bromus sp.* (brome grass) | | | | | | | | | | 1 | | | | | | |
| *Lathyrus sativus* (grass pea)/*Vicia ervilia* (bitter vetch) | | | | | | | | | | | | | | | | |
| *Fabaceae indet.* (legume) | | | | | | | | | | | | | | | 1 | |
| Indeterminate | 2fr. | | | | 1fr. | | 1fr. | | | | 2 | | 2fr. | | 2fr. | |
| Indeterminate husk | | | | | | | | | | | | | | | | |
| *Cenococcum sp.* | | | | | | | | | | | | | | | | |
| **Charcoal** | | | | | | | | | | | | | | | | |
| coniferous wood charcoal | 1fr. | | 1fr. | | | | | | | | | | | | | |
| deciduous wood charcoal | 8fr. | 15fr. | 2fr. | 5fr. | | | | 2fr. | 3fr. | 3fr. | | | 5fr. | | | |
| **Indeterminate** | 7fr. | | 1fr. | | x | x | 4fr. | | 3fr. | 1fr. | 3fr. | | | x | 5fr. | 3fr. |
| **organic slag** | | x | | | x | | x | x | x | x | x | | x | | x | x |

fr. = fragment
min = mineralized
x = indicates presence

*Table 4. List of taxa identified in samples collected from CQ1.*

| *Hala Sultan Tekke, City Quarter 1 (continued)* | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Trench*** | ***24A*** | | | | | | | | | | | | | |
| ***No.*** | 25 | 20 | 50 | 30 | 41 | 8 | 49 | 9 | 18 | 34 | 35 | 39 | 42 | 43 |
| ***Locus*** | 624 | 628 | 628 | 629 | 629 | 630 | 630 | 634 | 634 | 637 | 637 | 637 | 637 | 637 |
| ***Stratum*** | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| **Grains** | | | | | | | | | | | | | | |
| *Hordeum vulgare* (barley) | | | | | | | | 1 | | | | | | |
| *Triticum monococcum* (einkorn wheat) | | | | | | | | | | | | | | |
| *Triticum sp.* (wheat) | | | | | | | | | | | | | | |
| *Cerealia indet.* (cereals) | | 1fr. | 4fr. | | 1fr. | | 5fr. | | 3fr. | | 3fr. | 3fr. | | |
| *Poaceae/Cerealia indet.* (grass/ cereals indeterminate) | | | | | | | 2fr. | | | | | | | |
| **Other economic plants** | | | | | | | | | | | | | | |
| *Linum usitatissimum* (flax) | | | | | 1 | | | | | | | | | |
| *Olea europaea* (olive) | | 2;6fr. | 2fr. | | | 3fr. | 13fr. | 3fr. | 8fr. | | | | | |
| *Prunus dulcis* (almond) | | | | | | 1fr. | 3fr. | 5fr. | | | | | | 3fr. |
| *cf. Prunus dulcis* (almond) | | | | | | | | | 9fr. | | | | | |
| *cf. Pistacia sp.* (pistacia) | | | | | | | | | | | | | | |
| *Vitis vinifera* (common grape vine) | | 7;70fr. | | | | | | | 1fr. | | | | | |
| *Vitis vinifera pedicel* (common grape vine) | | | | | | | | | | | | | | |
| *Ficus carica* (common fig) | | | | | | | | | | | | | | |
| **Grasses, herbs and weeds** | | | | | | | | | | | | | | |
| *Echium vulgare* (viper's bugloss) | | | | | | | | | | | | | | |
| *Bromus sp.* (brome grass) | | | | | | | | | | | 1 | | | |
| *Lathyrus sativus* (grass pea)/ *Vicia ervilia* (bitter vetch) | | | | | | | | | | | | | | |
| *Fabaceae indet.* (legume) | | | | | | | | | | | | | | |
| *Indeterminate* | | | | | | | | | | | | 1 | | |
| *Indeterminate husk* | | | | | | | | | | | | | | |
| *Cenococcum sp.* | | | | | | | | | | | | | | |
| **Charcoal** | | | | | | | | | | | | | | |
| coniferous wood charcoal | 1fr. | | | | | | 2fr. | | | 1fr. | | | | |
| deciduous wood charcoal | | 1fr. | | | | | 4fr. | 3fr. | | 1fr. | | | | |
| **Indeterminate** | 3fr. | | x | 1fr. | | x | | | 6fr. | 3fr. | 13fr. | | 16fr. | 4fr. |
| **organic slag** | | | | | | x | x | | | | x | | | |

fr. = fragment
min = mineralized
x = indicates presence

*Table 4 continued.*

| *Hala Sultan Tekke, City Quarter 1 (continued)* | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *24B* | | | *25A* | | | | | | | | | | | | | | |
| 5 | 52 | 13 | 33 | 16 | 11 | 14 | 31 | 7 | 40 | 36 | 56 | 51 | 44 | 60 | 76 | 79 | 80 |
| 611 | 618 | 622 | 602 | 617 | 642 | 642 | 642 | 645 | 645 | 649 | 649 | 650 | 651 | 651 | 671 | 671 | 672 |
| 3 | 3 | 3 | 1B | 1B | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | 2 | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| 1fr. | 6fr. | | 3fr. | | | | | 7fr. | 10fr. | 2fr. | 20fr. | | 1fr. | | | | |
| | | | | | | | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | 22fr. | 1 | | 12;156fr. | 7fr. | 1 | 5fr. | 2fr. | 2fr. | 4fr. | 2;8fr. | | | | 1fr. |
| | 3fr. | | | | | | | | 4fr. | 1fr. | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | 5fr. | | 3fr. | | | | | | |
| | 2fr. | 1fr. | 2fr. | | | 5 | | 1fr. | | | 1fr. | | 3fr. | 2;8fr. | 1fr. | | |
| | | | | | | | | | | | | | | | | | |
| | 2 | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | 1 | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | 1 | | | |
| | | | | | | | | | 1 | | | | | | 1 | | |
| | 3 | | 1 | | 1 | | | 3fr. | | | | | | | 1 | | |
| | | | | | | | | | | 2fr. | | | | | | | |
| | | | | | | | | | | | | | | | | 19 | |
| | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | |
| | | 8fr. | | | | 6fr. | 2fr. | | | 1fr. | | | | | | | 4fr. |
| 13fr. | 20fr. | | x | | 2fr. | 3fr. | 4fr. | | | | 8fr. | | | 10fr. | 13fr. | x | |
| | x | | x | x | x | | | | x | x | x | | x | x | x | | x |

*Table 4 continued.*

| *Hala Sultan Tekke, Area A* | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Trench* | *Pit Z5* | | *Pit Z6* | | | *Pit Z7* | | *Pit Z8* | *Pit AA5* | | | *Pit EE1* | | *Pit GG* | *Pit LL* | | | | | | | |
| *No.* | *10* | *32* | *15* | *45* | *37* | *17* | *24* | *22* | *21* | *23* | *38* | *53* | *58* | *72* | *54* | *55* | *57* | *59* | *61* | *62* | *63* | *69* |
| **Grains** | | | | | | | | | | | | | | | | | | | | | | |
| *Hordeum vulgare* (barley) | | | 1 | | | | | | | | | | | | | | | | | 8 | | 2 |
| *Hordeum vulgare* (barley) *rachis* | | | | | | | | | | | | | | | | | | | | 1 | | 2 |
| *Triticum monococcum* (einkorn wheat) | 2 | 1 | | | | | | | | | | | | | | | | | | | | |
| *Cerealia indet.* (cereals) | 3fr. | | 3fr. | | | | | | | | | | | | 2fr. | | | | | | | |
| *Poaceae/Cerealia indet.* (grass/ cereals indeterminate) | | | | | | | | | | | | 3fr. | 1fr. | | | | | | | | | |
| **Other economic plants** | | | | | | | | | | | | | | | | | | | | | | |
| *Olea europaea* (olive) | | | | 2fr. | | | | | | | | | | | 1fr. | | | | | | 1 | |
| *Vitis vinifiera* (common grape vine) | | | | | | 1min | | | | | | | | | 1fr. | | | | 1fr. | | | |
| *Chrozophora trincota* (dyer's croton) | | | | | | | | | | | | | | | | 4 | | | | | | 46 |
| **Grasses, herbs and weeds** | | | | | | | | | | | | | | | | | | | | | | |
| *Anthemis arvensis* (corn chamomile) | | | | | | | | | | | | | | | | | | | | 2 | | |
| *Bromus sp.* (brome grasses) | 1 | | | | | | | | | | | | | | | | | | | | | |
| *Chenopodium album* (goosefoot) | | | | | | | | | | | | | | 1 | | | | | | | | |
| *Poaceae indet.* (grasses) | | | | | | | | | | | | | | 2 | | | | | | 4 | | |
| Indeterminate | 2 | | 2fr. | | | | | | | | | | | | | | | | | | | 1 |
| **Charcoal** | | | | | | | | | | | | | | | | | | | | | | |
| Coniferous wood charcoal | 7fr. | | 8fr. | | | | | | | x | | 17fr. | 10fr. | | | | | | | | | |
| Deciduous wood charcoal | 2fr. | | | x | 5fr. | 12fr. | 26fr. | 28fr. | 3fr. | | x | | | | | 2fr. | | | | | | |
| **Indeterminate** | 12fr. | 4fr. | 15fr. | | | 20fr. | 13fr. | 15fr. | 1fr. | | | | | 1fr. | 6fr. | | 1fr. | 2fr. | 5fr. | | 3fr. | 2fr. |
| **organic slag** | x | | x | x | x | x | x | x | x | | | | | x | x | | x | x | x | | | x |

fr. = fragment

min = mineralized

x = indicates presence

*Table 5. List of taxa identified in samples collected from Area A.*

as arable lands.[107] Additionally, it has been noticed[108] that *C. geophilum* very commonly appears in disturbed soils or those exposed to fire, which could explain its presence in the archaeological material.[109] Reasons of its occurrence in the Stratum 3 (L671) are yet to be discussed.

### Preliminary conclusions

The assemblages of different strata seem to be of unified form. All of them contained some cereal, olive and common grape vine remains. However, there is a visible accumulation of olive remains in R71 (L642, L650 and L651) and in R72 (L645 and 649) associated to Stratum 2. It might indicate that these spaces were used as a place for storage/processing of olives. Apart from that, it is possible to suggest that the lack of significant differences between strata might be a result of long-standing usage of the CQ1 also as, for instance, storage or/and food processing area. Nevertheless, to verify this hypothesis further studies are required.

## RESULTS: AREA A

From Area A 22 samples yielded results: two of them were taken from ochre layers, six comprised contents of various vessels and the remaining were collected from the fills of other "pits" (*Table 5*).

From Pit Z5 two samples delivered material for analysis: one from ochre and one from a layer of fill. They contained of grains of einkorn wheat, fragments of indeterminate cereals, one grain of brome grass (*Bromus* sp.), two indeterminate seeds/grains and pieces of coniferous and deciduous groups of charcoal. In Pit Z6, grains of barley, fragments of indeterminate cereals, olive stones, two fragments of indeterminate seeds/grains and pieces of coniferous and deciduous charcoal were identified. All analysed samples were collected from fills of the pit. In Pit Z7 only one fragment of mineralized common grape vine pip and some pieces of deciduous charcoal were found. Meanwhile in Pit Z8 and Pit AA5, only fragments of both coniferous and deciduous groups of charcoal were noted. In Pit EE1, grains of indeterminate cereal/grass and pieces of coniferous charcoal were discovered. From Pit GG, content of a vessel was sampled (N140). It contained piece of indeterminate charcoal, two grains of indeterminate grasses (*Poaceae* indet.) and one seed of goosefoot (*Chenopodium album*).

Tomb LL produced eight samples. Five of them were collected from vessel contents whereas three were taken from various locations in the tomb. In four samples there were only pieces of charcoal. Two other samples contained remains of indeterminate cereal grains, barley, rachis of barley, one indeterminate taxon and 46 seeds of dyer's croton (*Chrozophora tinctoria*). In vessel N113, four seeds of dyer's croton along with pieces of deciduous group of charcoal were identified. The contents of vessel N121 included eight grains of germinated barley, one rachis of barely, two seeds of corn chamomile (*Anthemis arvensis*) and four grains of indeterminate grasses. Interestingly, no charcoal was detected in the described vessel. Apart from Pit EE1, in all of the samples organic slag was present.

Further studies of germinated barley and dyer's croton and their possible functions are planned.

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[107] Jensen 1974.
[108] Shay & Kapinga 1997.
[109] Hall *et al.* 2003.

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