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# The New Swedish Cyprus Expedition 2018: Excavations at Hala Sultan Tekke (The Söderberg Expedition)

Preliminary results, with contributions by J. Tracz and D. Kofel

## Abstract

During the ninth field season at the Late Bronze Age city of Hala Sultan Tekke, excavations in City Quarter 1 (CQ1) continued and brought to light industrial and domestic structures belonging to three phases of occupation (Strata 3–1) dating to the 13th and 12th centuries BC (LC IIC–IIIA). Finds of more than half a ton of copper slag together with remains of furnaces and tuyères indicate intensive urban copper production. There is also evidence of textile production in CQ1. A magnetometer survey of roughly 23 ha resulted in the discovery of another large city quarter (CQ4) between CQ1 and Area A (the cemetery) with regularly arranged stone-built compounds of imposing dimensions intersected by streets. Several massive walls are faced with ashlar slabs which distinguishes this quarter from the industrial and domestic CQ1–3. A bathroom built of ashlar blocks with an advanced hydrological layout was exposed in CQ4 (Stratum 1, LC IIIA) together with a storage area for large vessels. Another rich tomb (Tomb RR) was excavated in Area A. It contained multi-burials together with tomb gifts from numerous Eastern Mediterranean cultures. One of the finds from Tomb RR is a complete large Mycenaean krater depicting two chariots drawn by two pairs of horses and 13 individuals, several of them with swords.\*

**Keywords:** Late Bronze Age, Cyprus, Hala Sultan Tekke, settlement, tomb, excavation, geophysical prospecting

<https://doi.org/10.30549/opathrom-12-10>

## Introduction

This article is the ninth in a series of annually published preliminary reports on the excavations at Hala Sultan Tekke under the direction of Peter M. Fischer.<sup>1</sup> Although for some

of our initiated readers of the current report it may appear repetitive, we will recapitulate essential information in order to facilitate the understanding of the project and its results without the need to consult previous publications. Certain finds are listed with their identification numbers but are not illustrated. We consider this procedure helpful because it offers the possibility to compare the preliminary interpretation with that presented in the forthcoming final report.

The outcomes of this long-term project again demonstrate that Hala Sultan Tekke is one of the most important Bronze Age harbour cities in the entire Eastern Mediterranean. It is

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<sup>1</sup> Fischer 2011; 2012; Fischer & Bürge 2013; 2014; 2015; 2016; 2017b; 2018d; see also the monograph on the 2010–2017 excavations in CQ1 and CQ2: Fischer & Bürge 2018a.

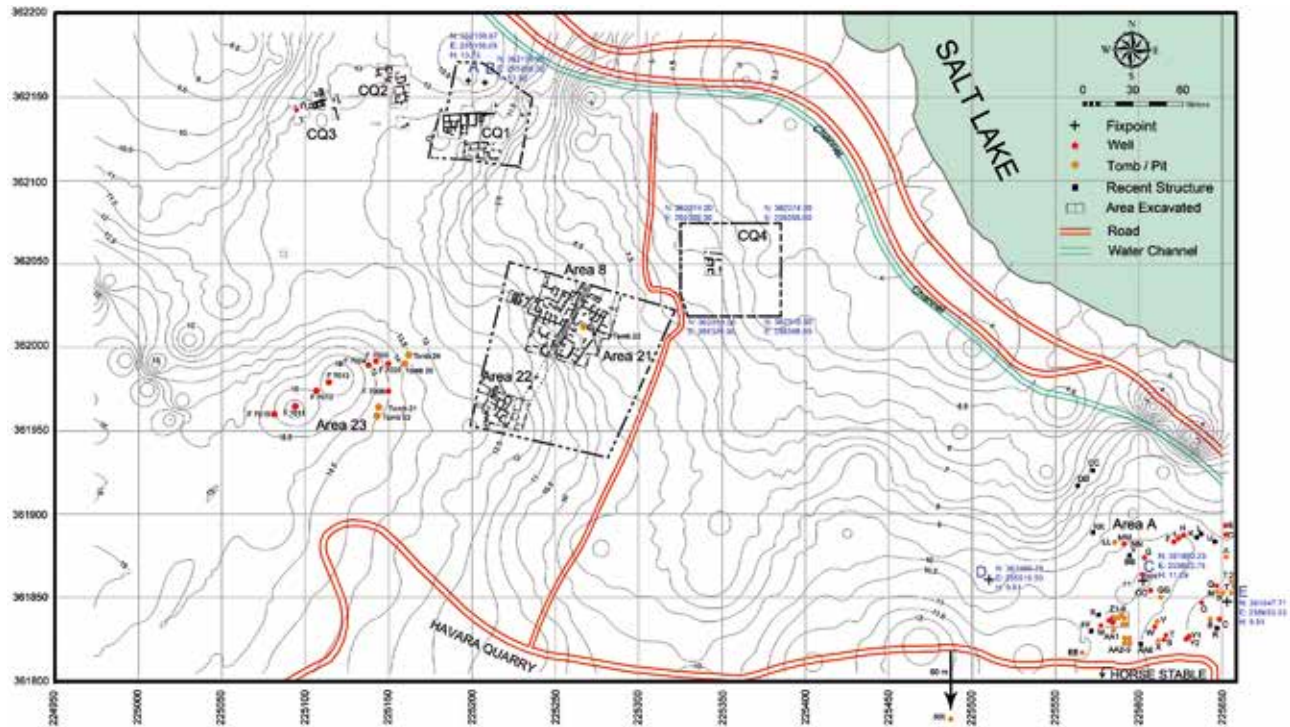


Fig. 1 (above). Topographic map of Hala Sultan Tekke. From west to east: CQ3, CQ2, CQ1, Area 8, CQ4, and Area A (drawing by M. Al-Bataineh and T. Bürge).  
 Fig. 2 (below). Aerial photograph of Hala Sultan Tekke (by A. Ioannou and T. Bürge).



located on the south-east coast of Cyprus at the Larnaca Salt Lake, which today is separated from the open sea but during the Late Bronze Age was connected to the Mediterranean,<sup>2</sup> thus constituting a well-protected harbour. The site is close to other important contemporaneous cities, such as Kition inside modern Larnaca (6 km to the north-east as the crow flies) and Pyla *Kokkinokremos* (17 km to the east).

The history of the excavations at Hala Sultan Tekke goes back to the end of the 19th century AD, when J.L. Myres (in 1894)<sup>3</sup> and the British Museum (in 1897–1898)<sup>4</sup> searched for ancient remains at the western shore of the Salt Lake and close to the mosque of Hala Sultan Tekke. The main objective of these investigations was to find tombs with spectacular finds for export to European museums. In addition to these even for their time unprofessional excavations, the site, which was well-known for its rich finds from looting, suffered from continuous 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. From the beginning of the 1970s on, excavations were carried out by Paul Åström, which continued intermittently for more than three decades until 2005. Selected results from the excavations in and around Areas 8, 21, and 22 (see location in *Fig. 1*) were published as preliminary reports together with a number of specialized studies.<sup>5</sup> The results suggested, *inter alia*, that Hala Sultan Tekke had far-reaching cultural connections especially in the second half of the Late Bronze Age.

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.<sup>6</sup> The main objectives of the fieldwork from 2010 to 2018 were the search for the oldest occupation of Hala Sultan Tekke, establishing of the total extent of the Late Cypriot city, and exploring the causes behind certain destructive events and their effects, for instance, the final abandonment of the city around the middle of the 12th century BC.

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 the early Late Cypriot period (LC I). 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 homonymous mosque (*Figs. 1, 2*). The oldest finds from tombs, offering pits, and wells date back to the

16th century (LC IB) or even earlier.<sup>7</sup> However, no architectural remains of a settlement dating to this period have been exposed as yet, although the magnetometer map shows possible remains of stone structures which may be related to the activities which took place in this area.

In order to establish the total extent of the city, three surveys were carried out in 2010, 2012 and 2014,<sup>8</sup> which led to the discovery and partial exposure of three new city quarters, CQ1–3,<sup>9</sup> located to the north-west by north of Area 8. In 2017, the site was again surveyed but this time with a magnetometer with multi-sensors mounted on a 5-m-wide cart. This arrangement allowed the mapping of 23 hectares within a week, demonstrating stone structures and “pits” down to a depth of roughly 1.5–2 m. The architectural remains point to numerous man-made structures in the entire area of the survey, showing the vast extent of the city. The most striking feature is a large architectural compound, henceforth referred to as CQ4 (see the magnetometer map in *Fig. 14* showing a section of CQ4), with regularly arranged stone compounds of imposing dimensions intersected by streets. CQ4 is located between CQ1 and Area A, just north-east of Area 8, and represents the largest city quarter so far discovered at Hala Sultan Tekke. In 2018, 0.6 hectares of the magnetometer-surveyed area were reinvestigated with georadar in order to get a detailed map of the buried features and to facilitate subsequent excavations. However, the results of the georadar survey were of very limited value: due to the clay-rich soil, the strong radar attenuation did not allow electromagnetic waves to penetrate deeper than a few decimetres from surface which correspond only to the uppermost parts of the most recent Stratum 1.

Our results confirmed that the city flourished in the 13th and 12th centuries BC but there are plenty of finds which can be dated as early as around 1600 BC. Two layers of destruction in the period from around 1200 BC to 1150 BC (LC IIIA) could be recorded. These destructions occurred in the period generally known as the “crisis years” at the end of the Bronze Age in the Mediterranean. As the consequence of these findings and the receipt of a substantial advanced grant by the Swedish Research Council to the director of the excavations<sup>10</sup> an additional objective became the integration of the material from Hala Sultan Tekke from its latest two phases of occupation (Strata 2–1) into the study of the “Sea Peoples Phenomenon”. This phenomenon should be understood as the effect of various factors which led to upheaval and migra-

<sup>2</sup> Devillers *et al.* 2015.

<sup>3</sup> Myres 1897.

<sup>4</sup> Bailey 1976.

<sup>5</sup> *HST* 1–12.

<sup>6</sup> Fischer 2011; 2012; Fischer & Bürge 2013; 2014; 2015; 2016; 2017b; 2018a; 2018d.

<sup>7</sup> Fischer & Bürge 2017c.

<sup>8</sup> Trinkts *et al.* 2018.

<sup>9</sup> See *Figs. 1* and *2*.

<sup>10</sup> Swedish Research Council project 2015-01192: “The Collapse of Bronze Age Societies in the Eastern Mediterranean. Sea Peoples in Cyprus?” The project is to be carried out from 2016 to 2020.



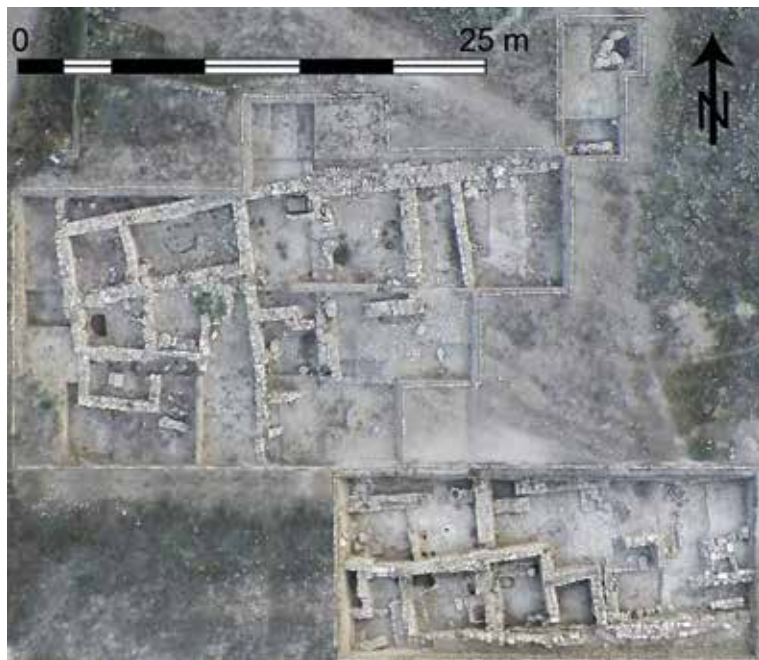


Fig. 3. Aerial photograph of CQ1 (by P.M. Fischer and T. Bürge).

tion around 1200 BC and lasted some decades in the 12th century BC.<sup>11</sup>

The ninth season of excavations lasted from 30 April to 1 June 2018. Excavations according to the aforementioned main objectives were carried out in CQ1 and CQ4. In addition, three magnetic anomalies from the magnetometer survey in 2017 were investigated in Area A.

## Results of the excavations in the southern part of CQ1

### PREVIOUS RESULTS

Based on structures indicated by the geophysical prospection south of the CQ1 compound, which had been exposed in 2010–2012, an area of 165 square metres was opened up in 2016 and 2017 (Fig. 3). This area comprised of Trenches 7D, 24A–D, and 25A. Three phases of occupation were exposed, of which the most recent, Stratum 1,<sup>12</sup> was divided into an earlier (1B) and a later (1A) sub-phase, both dated to

the LC IIIA period, i.e. the first half of the 12th century BC. Sub-phase 1A is mainly characterized by the addition of a retaining or terracing structure. The two compounds of the older Stratum 1B, are separated by a courtyard, which was used for living, storage, food preparation, and textile production. There is evidence of a destructive event.

Below Stratum 1B, nine walled spaces were partly exposed in Stratum 2 (Rooms 63–66, 71–76). They were interpreted as small-scale industrial/domestic spaces. In addition, much slag, ash, and structures relating to copper production came to light. The destruction of this layer of occupation can be dated to the early LC IIIA, i.e. to the beginning of the 12th century BC.

The fieldwork in 2017 provided the first evidence of substantial remains from Stratum 3 which can be dated to the LC IIC period, i.e. the 13th century BC (there may be an even earlier phase of occupation, i.e. a possible Stratum 4). These remains are characterized by a number of walled spaces (Rooms 67–70), which, *inter alia*, contained storage units and evidence of food

processing but also much copper slag, fragments of tuyères (a pipe through which air is blown into a furnace or hearth), and remains of furnaces.<sup>13</sup>

### RESULTS OF THE EXCAVATIONS IN CQ1

In 2018, the previously excavated area was extended towards the east (Trench 25B–C) and the south-west (Trench 24E). Excavations were also carried on in Trench 7D in order to completely expose Stratum 2 and to reach Stratum 3.

#### Stratum 1A (Figs. 4a, 4b)

This stratum is characterized by the most recent feature, which partly covers all southern trenches in CQ1. It runs roughly west by north-west to east by south-east and has been interpreted as a possible terrace retaining wall (L577). It continues towards the west in the new Trench 24E, where it covers the entire area. It consists of several layers of medium-sized flattened stones and pithos sherds intermingled with soil. It is up to 4 m wide and slopes downwards to the south. A loom weight of fired clay was found in this structure (N401, weight 99 g). Remains of a clay oven at the western border of Trench 24E are also associated with this structure.

<sup>11</sup> See e.g. Fischer & Bürge 2017a.

<sup>12</sup> Following our previous practice, the strata will be presented as excavated, i.e. starting from the most recent to the oldest. In the concluding remarks, the phases of occupation will be discussed chronologically.

<sup>13</sup> See the previous excavation reports: Fischer & Bürge 2017b; 2018d, and the detailed description and discussion of the results from CQ1, 2010–2017, in Fischer & Bürge 2018b, 17–123.



Fig. 4a. CQ1, Stratum 1 (drawing by M. Al-Bataineh).

Two loom weights of fired clay (N371, weight 64 g; N399, weight 73 g) were found on or close to the surface in Trench 25C. They cannot be attributed to either of the two sub-phases of Stratum 1.

### Stratum IB (Figs. 4a, 4b)

The structures of the lower Stratum 1B are much affected by the later terrace retaining wall and erosion. Excavations continued in the northern part of Room 61, which is bordered by W100, W140, W109, and the continuation of W113 (?), and has an area of 3.5 m × 4 m. Possible entrances are from the open space to the north in W140, and from Rooms 77 and 62 to the east and south-east, both in W109. A large amount of pottery was found in the northern part of this space, including a small open vessel, possibly a dipper, of Plain White Wheel-

made ware (L800-1; *Fig. 5:3*), the arm of an anthropomorphic figurine of White Painted ware (L800-5), an almost complete two-handled Coarse ware cooking pot of Levantine type<sup>14</sup> (L806-5; *Fig. 5:1*), and the base of an Egyptian jar (L839-1). Botanical remains include mainly olive stones but also some almond, grape, and barley (for all botanical remains see *Appendix 2*).

The next room to the east is Room 77,<sup>15</sup> bounded by W109, W140, W141, and W110 with an area of 2.6 m × 2.8 m. Although W140 proper was not preserved in Room

<sup>14</sup> See a brief discussion of this type of cooking pot in Bürge & Fischer 2018, 229.

<sup>15</sup> Room 62 was not further excavated this year. See description and finds in Fischer & Bürge 2018b, 119–120, table 2:51.

77, its remains could be traced in the soil: a band of much darker soil compared to the surroundings connected the still-preserved western and the eastern parts of this wall. Room 77 contained much fragmented pottery. Finds include a part of a wall bracket (L698-1), a Coarse ware cooking pot (L698-2), the handle of a Canaanite jar with potmark (L698-3), and the upper part of a Plain White Wheel-made krater (L835-1).

Room 79 also is only partly exposed. It is to the north of Room 78 and is bounded by W141 to the west and by a semi-circular structure to the south. There is an ashy area (L832) in the northern part, which continues into the northern section of the trench. Finds from this space include a fishing net weight of lead (N400), a deep bowl of White Painted Wheel-made ware (L810-1; *Fig. 5:2*), and parts of a Coarse ware cooking pot (L825-1). In addition, the area yielded some remains of olives and indeterminate cereals.

of flat stones and pithos sherds, one of them with an incised potmark (L863-1). The function of the structure is not entirely clear but it may be a hearth. To the east of this structure a bronze ring (N393) was found. The entire space is covered by thick layers of ash (L807, L827, L838) which cover a surface of plaster with a possible hearth against the northern section of the trench. Finds from this area include a fragment of a bone bead (N376), a metal ring (N395), a leaf-shaped lead object (L820-5), a bronze pin (L836-1), a conical object of obsidian (L838-1) which seems to represent a gaming piece, and a small spool-shaped object of clay, possibly also a gaming piece (N402, weight 11 g).

Among the numerous fragments of ceramic vessels are Canaanite jars (L693-1, -2, L809-6, L819-1), Coarse ware cooking pots (L695-1, L802-1, L808-1, -2, L809-1, -2, L820-2, L826-2, -3, -4, L827-3, L836-2, -3, L838-3), a Plain White Wheel-made krater (L809-5), two Plain ware closed vessels (L821-5, possibly a flask, and L826-1), and a large number of White Painted Wheel-made vessels, including bowls (L695-2, -3, L807-2, L808-3, -4, -5, L809-3, L819-3, L820-4, L821-2, L827-2, L836-9, L838-2, L844-1, L845-1), a cylindrical cup? (L844-2), kraters (L807-1, L820-1, L826-5, L836-5, -6, -7, L838-4), and various closed vessels (L801-1, L802-2, L809-4, L819-2, -4, L820-3, L821-1, -3, -4, L827-1 in *Fig. 5:5*, L836-8, -10, -11, -12, L844-4), and the base of a Mycenaean imported open vessel (L845-2). Fragments of two White Painted



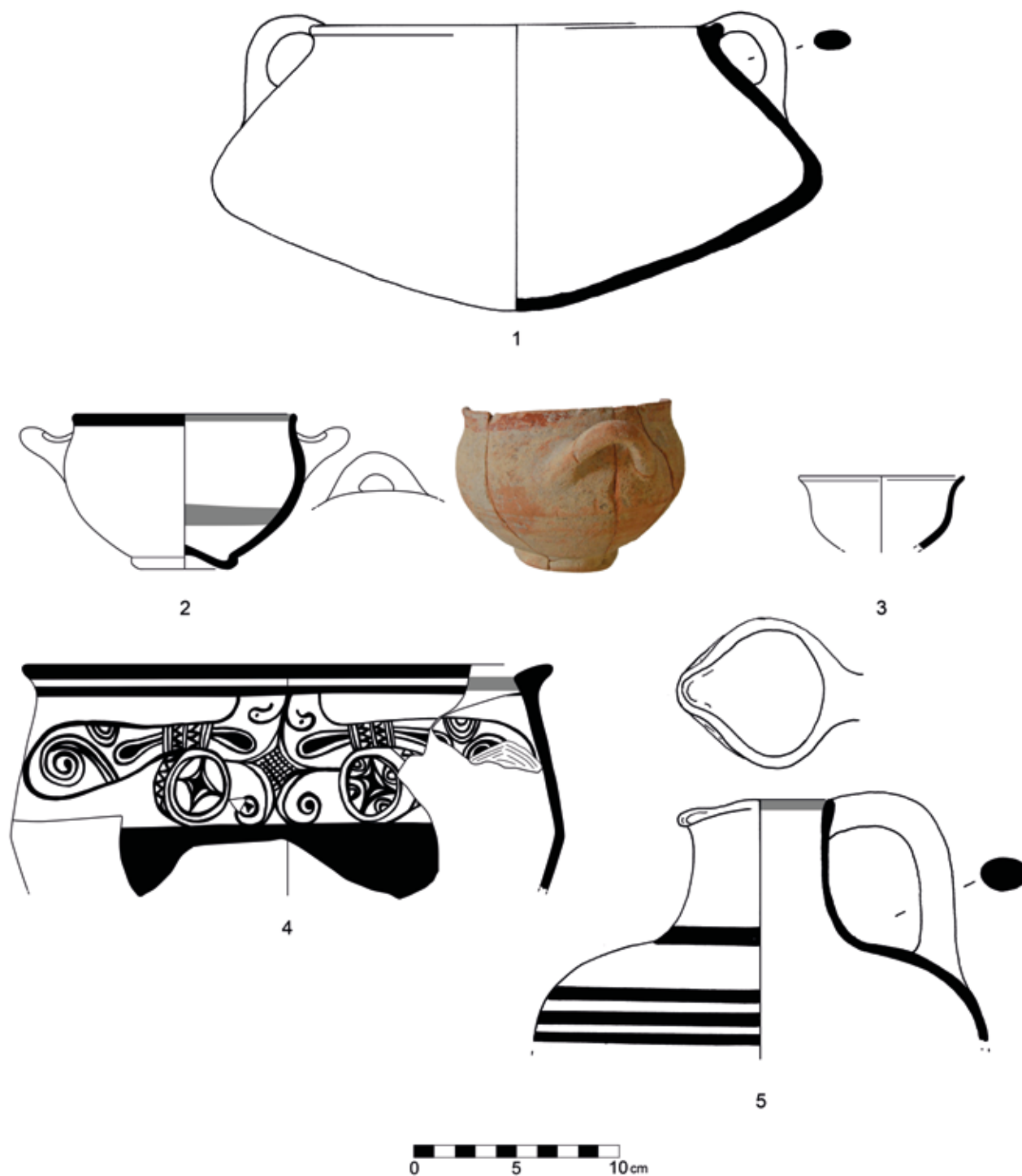


Fig. 5. Selected finds from CQ1, Stratum 1; scale 1:3 (drawings by M. Al-Bataineh, photograph by T. Bürge).

zoomorphic figurines (L821-6, L844-3) also come from this area. Of special interest is a biconical krater of White Painted Wheel-made ware (L695-4; Fig. 5:4) with Pleonastic Style decoration consisting of antithetic stemmed spirals with vari-

ous filling motifs, which closely resembles a biconical krater from CQ2, Stratum 1.<sup>16</sup>

<sup>16</sup> See Bürge & Fischer 2018, 401, fig. 3.122:2.

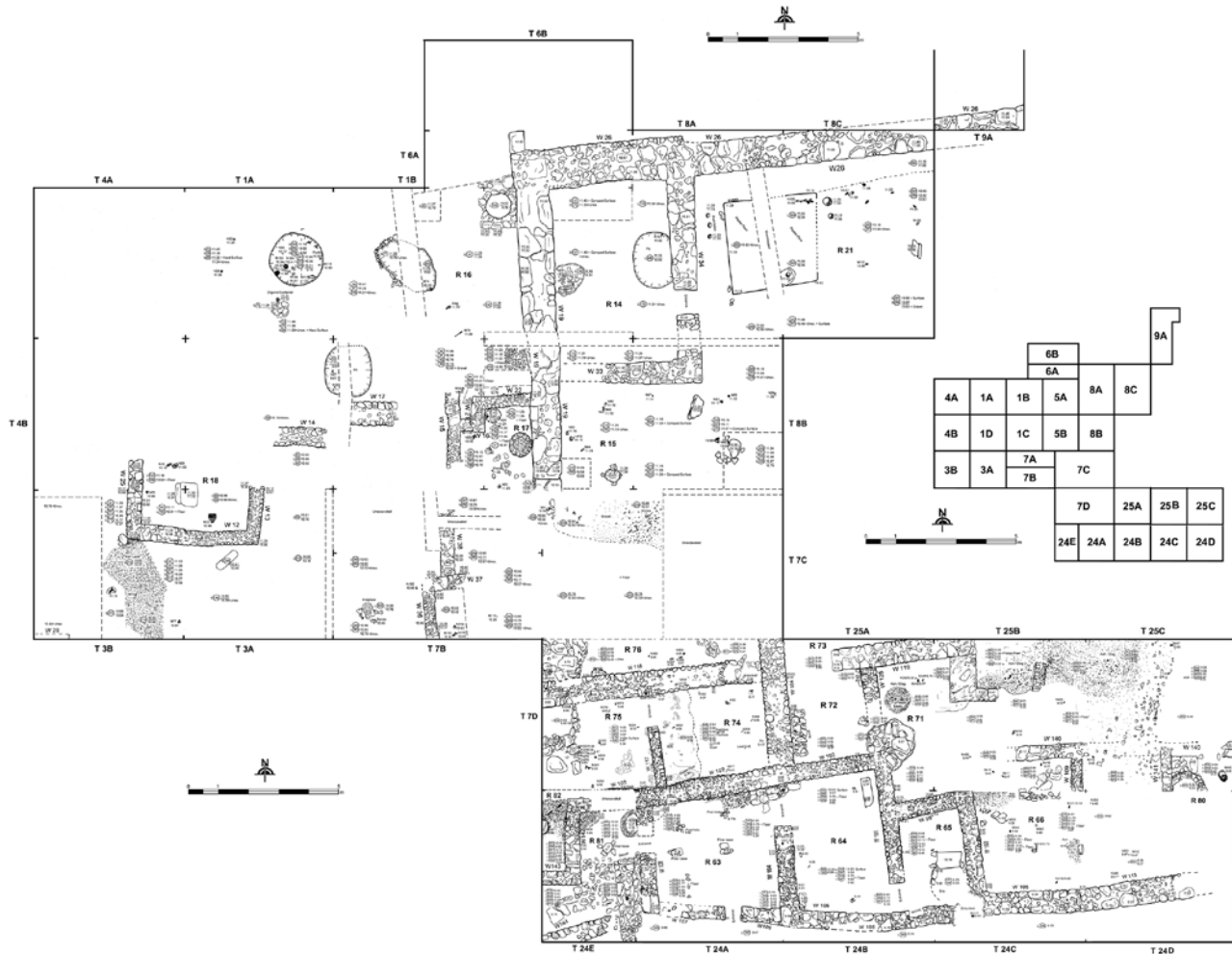


Fig. 6a. CQ1, Stratum 2 (drawing by M. Al-Bataineh).

Room 59 stretches from Trenches 24A and B to Trench 24E where it is limited by W142. The roughly 10-m-long wall W102, which runs approximately east to west, is separated from W114 by an entrance in its western part: a large rectangular ashlar block served as threshold with a door socket. W114 and W142 are boundaries of another, only partly excavated room to the west. A loom weight comes from the western part of the room (N403, weight 196 g).

#### Stratum 2 (Figs. 6a, 6b)

Room 74 was further excavated. It is bordered by W118, W104, W102, and W117. It is roughly 3 m × 3.5 m in size and connected with Room 75 to the west by an entrance in W117. Previous finds from this space include, *inter alia*, three sheets of gold (N362), a glass bead (N364), a loom weight (N356, weight 110 g), and a grinding implement (N347) of fired clay, a bone beater (L674-4), and local and Mycenaean

imported fine-ware vessels and Coarse ware cooking pots.<sup>17</sup> The continued excavations brought to light two additional bone beaters (N368, N369 in Fig. 8:8), a loom weight of fired clay (N392, weight 125 g), a complete spiral-headed pin of bronze (N377; Fig. 8:7), a fragment of another bronze pin (L689-2), and several pieces of lead (L689-1, -3, -4). The western part of the room was paved with medium-sized and large stone slabs and some pithos fragments (L803). It contained fragments of a worked limestone (L803-1) and an Egyptian jar (L803-2).

Room 75 to the west of Room 74 is only partly exposed (3 m × 3.8 m). It is bounded by W118, W117, and W102. A semi-circular stone feature is attached to W118 and large fallen stones are to the south. In 2017, a bronze pin (N354), a stone spindle whorl (N359, weight 10 g), a loom weight of

<sup>17</sup> Fischer & Bürge 2018b, 60–70, table 2:25.



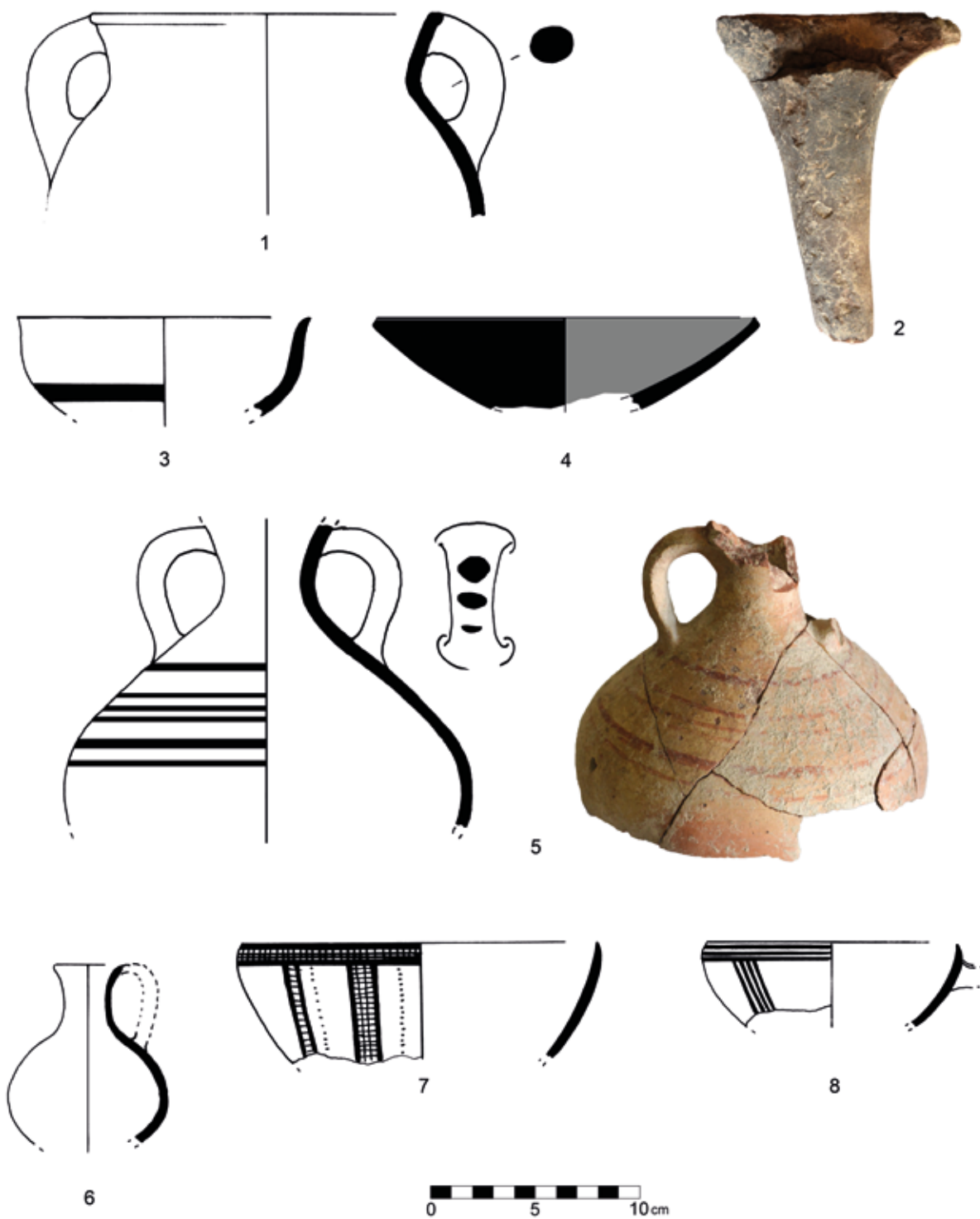


Fig. 7. Selected finds from CQ1, Stratum 2; scale 1:3 (drawings by M. Al-Bataineh, photographs by T. Bürge).

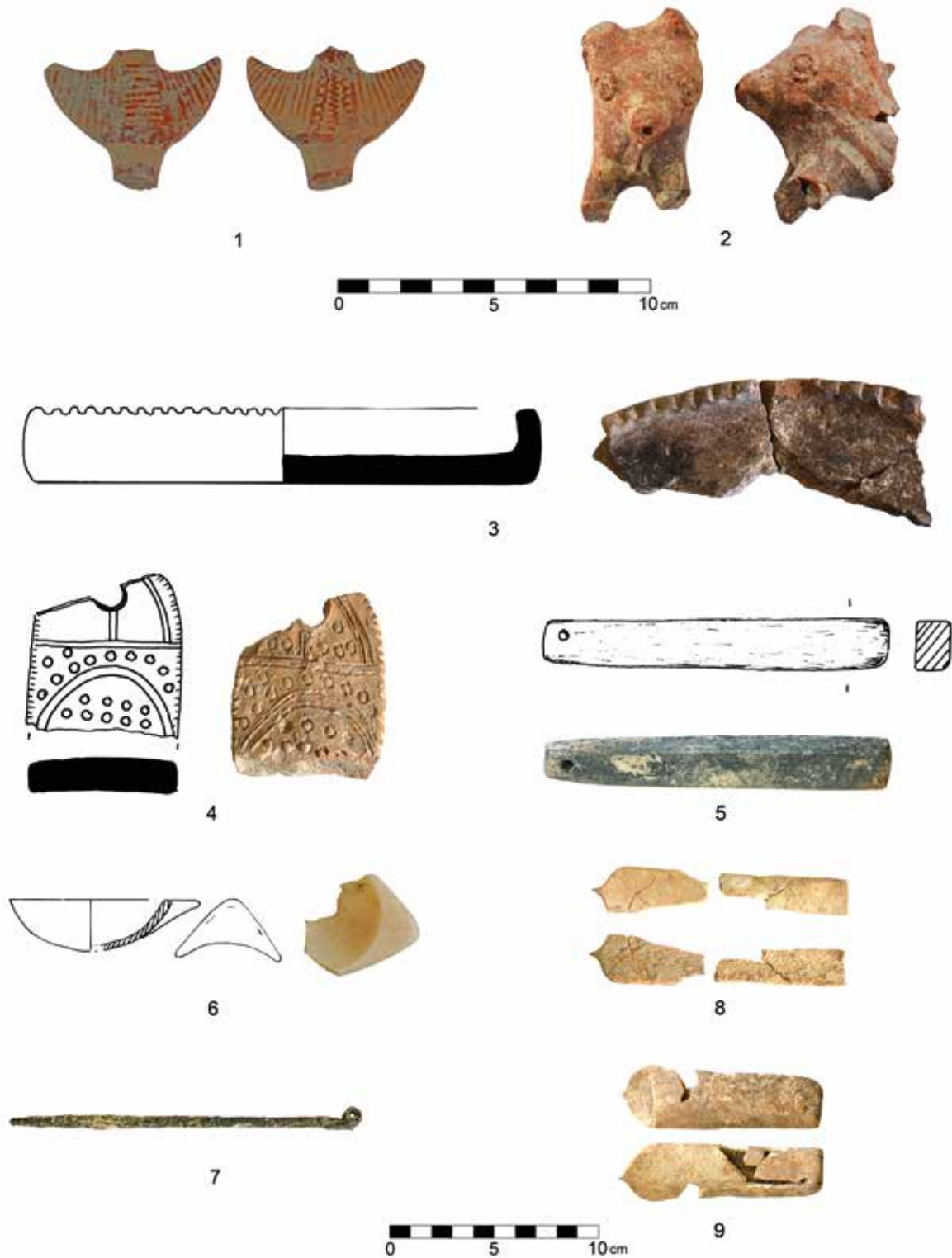


Fig. 8. Selected finds from CQ1, Stratum 2; scales 1:2 and 1:3 (drawings by M. Al-Bataineh, photographs by T. Bürge).





Fig. 9. A selection of the copper slag from CQ1, Strata 2 and 3 (photograph by P.M. Fischer).

a circular feature (diameter 0.9 m), which most likely represent the remains of a furnace base. Finds from the western part of the room discovered in 2017 include a lead sling bullet (N341), a broken alabaster vessel (L642-6), a loom weight (N340, weight 177 g) and a spindle whorl (N342, weight 4 g) of clay, fragments of Coarse ware cooking pots, White Painted Wheel-made and Plain White Wheel-made vessels, an Egyptian jar, and Mycenaean and Minoan imported vessels.<sup>22</sup> The ash layer continues to the east towards the area exposed in 2018. It contained roughly 28 kg of copper slag and much pottery in its lowest parts. Against the northern section of the trench is a plaster floor (L862) with another 21 kg of slag and a stone- and pottery-lined installation (L870), possibly a furnace, with an ashy fill containing 24 kg of copper slag, which rests on a roughly rectangular feature of stone and plaster (L880) on which another 72 kg of slag together with a fragment of a shallow alabaster bowl (N417; Fig. 8:6) and two Mycenaean shallow bowls (L880-1, -2) were found. Other finds include fragments of a bone bead (N406), a smooth black stone of ellipsoid shape with a flat base (N414, possibly used for polishing), four Coarse ware cooking pots (L843-1, -10, -11 in Fig. 7:1, L862-4), a Coarse ware lamp (L862-3), several vessels of White Painted Wheel-made ware, mainly bowls, a Plain White Wheel-made basin (L847-4), a flask (L847-5) and a shallow bowl (L870-2), both Mycenaean, a Monochrome bowl (L843-8), a black-burnished bowl (L843-9), a White Slip II late bowl (L862-2), an Egyptian jar (L862-5), a faience bowl (L870-1), a stone vessel (L862-1), and the hind part of a Base-ring bovine figurine (L843-7). The space contained a number of botanical remains, mainly cereals, olive, and grape.

In the eastern part of Room 71 is a floor with a large amount of pottery (L842), *inter alia* the upper part of a White Painted Wheel-made (possibly Levantine?) small jar (L842-1; Fig. 7:5), a richly decorated wall bracket (L842-3; Fig. 8:4), the base of a Minoan jar (L842-4), a number of White Painted Wheel-made shallow and deep bowls, the upper part of a jug (L842-18), the complete profile of a strainer jug with pleonastic style decoration (L842-25) of the same ware, a basin (L842-19) and a dipper (L842-21) of Plain White Wheel-made ware, and three Coarse ware cooking pots (L842-22, -23, -24). Yet further to the east is a surface with patches of ash (L846) containing a stone spindle whorl (N407, weight 119 g), a roof roller of stone (L846-1),<sup>23</sup> the head of a Plain White (?) animal figurine (L846-4), and fragments of Plain White and White Painted Wheel-made vessels. There is a square burnt wooden feature (L850) against the northern section of the trench and a line, possibly of burnt wood (L857), in the eastern corner of Trench 25C. Below, belonging to an older sub-phase of Stratum 2, is a stone filling (L865), which yielded 7 kg of slag in addition to a loom weight of fired clay (N413, weight 65 g) and the tripod leg of a large cooking vessel (L865-1; Fig. 7:2). Below L865 is L874 with much ash and 242 kg of slag (see some of it in Fig. 9), furnace and tuyère fragments, and many burnt animal bones.<sup>24</sup> L875 represents another ashy layer, most likely originating from burnt wooden features, with c. 8 kg of slag. This space too yielded rich botanical results, which comprise mainly cereals and olive.

Room 80 is in the south-eastern part of Trench 25C. Its southern part is not preserved because of building activities in the subsequent Stratum 1. The western boundary of the room is W141 and to the north is W140. There is a circular feature of stone built against W141. A cylindrical worked stone with a square hole in the middle, possibly used as a counterweight in olive oil production (N405, height 27 cm, diameter 15 cm) comes from this room, where, *inter alia*, fragmented olive stones were found.

Room 81 is a roughly L-shaped space in Trench 24E in the south-western part of the exposed area. It is limited by W102, W108, W144, W143, and W142. It is connected with Room 63 to the east by an entrance in W108. The floor is partly stone-paved. A roughly circular pit (L890, diameter 1.0–1.5 m) was dug against the north-western part of W108. A rectangular stone bench (L885) was built against the south-western part of W108. There is an ashy triangle, approxi-

<sup>23</sup> This implement was used to flatten and pack the mud cover of the roof in order to resist wear by wind and rain.

<sup>24</sup> As in previous years, the time-consuming study of the faunal remains by David Reese and Omri Lernau will be presented in the forthcoming final report. For the faunal remains from the 2010 to 2017 seasons of excavation see Reese & Lernau 2018.

<sup>22</sup> Fischer & Bürge 2018b, 69, table 2:23.



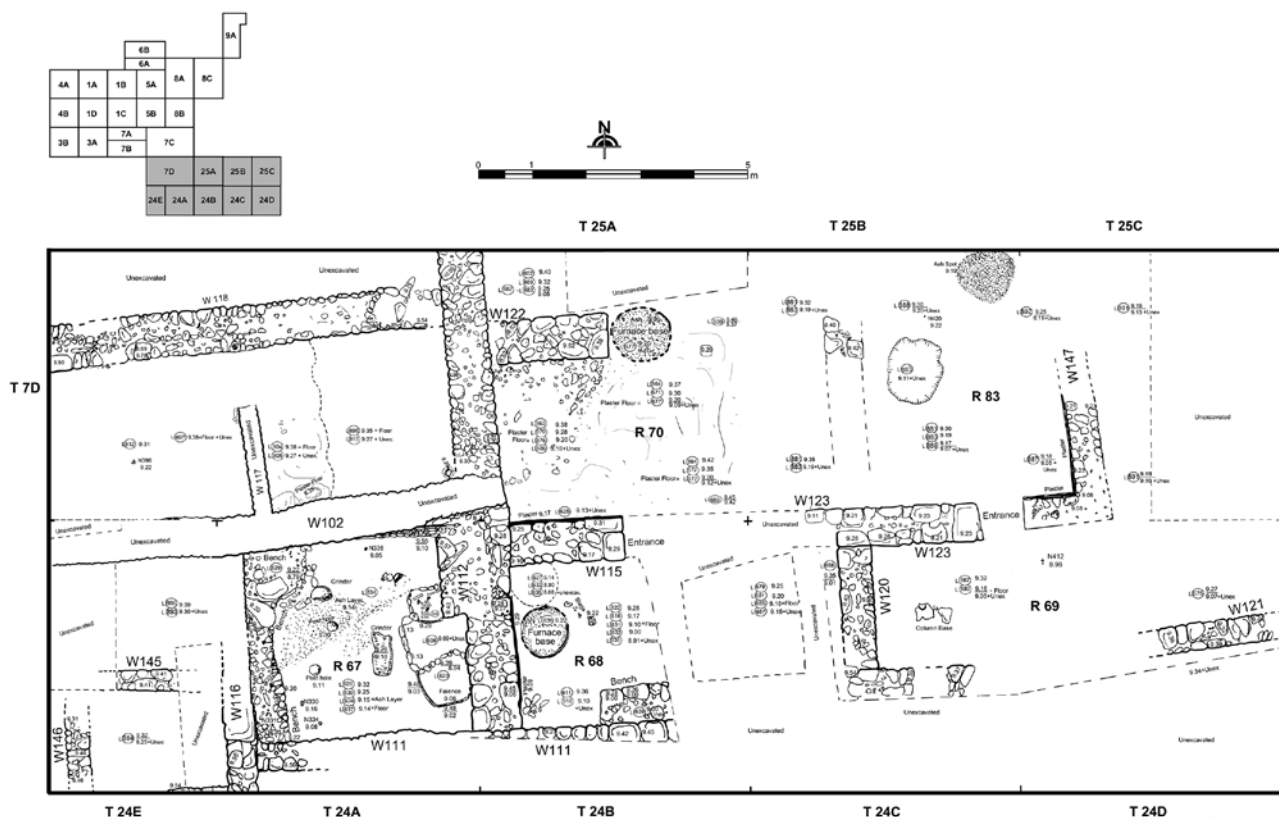


Fig. 10. CQ1, Stratum 3 (drawing by M. Al-Bataineh).

mately 1 m wide, in the north-western corner of the room. Finds from Room 81 include a bone beater (N419), two loom weights of fired clay (N404, weight 60 g and N415, weight 49 g), the rim of a faience bowl (L860-6), a Plain White Wheel-made juglet (L852-1; Fig. 7:6), a funnel (L852-2) and a small tray (L855-2/890-1; Fig. 8:3) of Coarse ware, the upper part of a Bucchero jug (L855-1), and a number of White Painted Wheel-made vessels (one of them is a monochrome bowl, L860-3; Fig. 7:4) and fragments. Botanical remains include mainly cereals, olive, and grape.

Room 82 is only partly exposed. The room is bordered by W142 and W143. The northern part of the room was covered with ash. A clay oven was found in the western section of Trench 24E. A bowl of White Painted Wheel-made ware (L882-1; Fig. 7:3), a spindle whorl of bone (N408, weight 15 g), and a pierced, greenish-grey, whetstone (N416, 16.4 cm long, weight 151 g; Fig. 8:5) were found in the ashy soil. As in Room 81, a large amount of cereals, olive, and some grape were found.

### Stratum 3 (Figs. 10, 11)

Our preliminary interpretation of the incompletely excavated area west of R70 (see below) is that of an open space

(courtyard?).<sup>25</sup> There is a plaster floor and several post holes. Finds from this space include a loom weight of fired clay (N396, weight 70 g), a fragment of a bone beater (L813-2), a part of a wall bracket (L697-2), fragments of basins of Plain White ware (L697-5, L816-2), a cooking pot (L697-4) and the leg of a tripod cooking pot (L813-5) of Coarse ware, bowls of Base-ring (L697-3, L805-1 in Fig. 13:3), White Slip II mature (L697-7 in Fig. 13:4, L697-8, L822-1) and Monochrome (L805-2), an almost complete White Shaved juglet (L813-3; Fig. 13:2), a rounded bowl (L697-1), a deep bowl (L816-1; Fig. 12:2), and a jar with basket handles (L813-1; Fig. 12:3) of White Painted Wheel-made ware, and a shallow bowl (L697-6) and a cup (L813-4; Fig. 13:7), both Mycenaean. Botanical remains include mainly cereals, olive, and grape.

Room 70, which had been partly excavated in the previous season<sup>26</sup> was further exposed in its eastern part. The room is bordered by W122 to the north and W115/W123 to the south. The eastern border seems to be the extension of W120, which is only scantily preserved to the north of W123. The room has a plaster floor (L676, L677), which continues to

<sup>25</sup> The area could not be excavated completely due to heavy rain. Because of the dense surface the rain water drained very slowly, leaving a swamp.

<sup>26</sup> See description in Fischer & Bürge 2018b, 31.



Fig. 11. CQ1 from south-west (photograph by P.M. Fischer).

wards the east (L883). A probable furnace base (L677') was built into the plaster floor just to the east of W122. Here, too, a large amount of slag was found: 40 kg come from the area exposed in 2017, and 29 kg were collected in 2018. Among the pottery are a Plain White jar (L883-5; Fig. 12:1), a Plain White Hand-made jug (L883-4), a Plain White Wheel-made basin (L883-7), a jar of unknown ware with white slip and burnished exterior surface (L883-6; Fig. 13:1), two Canaanite jars (L881-6, L883-8), a White Slip II late bowl (L881-5; Fig. 13:5), a White Painted Wheel-made (L883-11) and two Mycenaean (L883-9, -10) shallow bowls, and a fragment of a Mycenaean zoomorphic figurine (L883-3).

The next space to the east, Room 83, is bordered by W147 to the east, W123 to the south and the likely continuation of W120 to the west. The northern boundary is not clear. The room could be reached from Room 69 by an entrance in W123. There is a layer of white plaster in the south-eastern corner of the room, on the interior part of W123 and W147. A roughly circular pit (L883', diameter *c.* 1 m) is in the north-western part and contained a high concentration of burnt animal bones and three Mycenaean shallow bowls (L883A-9, -10, -11). Other finds from Room 83 include a Base-ring bowl (L883/888-2) and a faience bead (N420). An ashy area (diameter *c.* 1 m; remains of a hearth?) is in the northern part of the room.

Only a small part of the area east of W147 has been exposed. There is another concentration of slag, which—despite the small size of the exposed area—has yielded 26 kg. In addition, pieces of clay, most likely parts of furnaces, with slag attached to them were found. In Room 69 excavations did not continue. However, after heavy rain an ivory pommel (N412; Fig. 13:8) was exposed in Locus 680.

Only the uppermost layers of Stratum 3 have been reached in Trench 24E. There are two walls, W145, which runs

west-east, and W146, which runs north-south. Among other ceramic finds, there is a relatively large amount of White Slip II pottery in this area: four White Slip II mature bowls (L886-4, -5, -6, -7) came from the area north of W145 and a White Slip II late bowl (L884-1; Fig. 13:6) was found south of W145.

#### RESULTS OF THE EXCAVATIONS IN CQ4 (FIGS. 14–16)

This city quarter is located just north-east of the fenced Areas 8 and 21. The surface slopes gently down towards the Larnaca Salt Lake in the north-east (see Fig. 1) at a height of approximately 5–5.5 masl.<sup>27</sup> Based on the results of our large-scale magnetic prospecting supported by georadar an area of 10 m × 15 m (Trenches 27A–D, 28A–B) was opened up in CQ4 where large stone compounds intersected by streets are indicated on the magnetic map (Fig. 14).

The ploughed soil in this area is 0.2–0.3 m thick. Only the uppermost occupational phase has been exposed so far. It appears that the most recent phase in this area corresponds to Stratum 1 in the other city quarters, i.e. the last phase of occupation before the city was abandoned. The substantial stone walls of a large compound, which is oriented roughly north-south/east-west, were covered by an up to 0.15-m-thick layer of occupational debris (L700, L704, L705, L707, L714).

The area north of W126 is most likely an open space. There are two accumulations of crushed murex shells (*Hexaplex trunculus*) just north of the wall. One is to the west, in a recess formed by two stone structures (Figs. 17, 18). The shells are lumped together on a hard, clay-like surface. Two faience beads (N382) were found on top of the murex concentration. The other is to the east also gathered against W126 (see position in Fig. 15). A loom weight of fired clay (N381, weight 50 g) was found just north of W126. A possible lid with loop handle of Plain White Wheel-made ware (L700-4; Fig. 19:1) comes from the debris covering the north-western part of CQ4. Other finds include a Coarse ware cooking pot (L700-7) and fragments of Plain White and White Painted Wheel-made wares.

The space to the south, Room 84, could be reached via stairs of ashlar blocks through a 1.9-m-wide gate in W126. Two door sockets with circular depressions are preserved on either side of the entrance indicating a two-winged door to close the gate. Room 84 is a 2.7-m-wide corridor between

<sup>27</sup> Metres above sea level. All heights in the present report, including the plans, are masl.

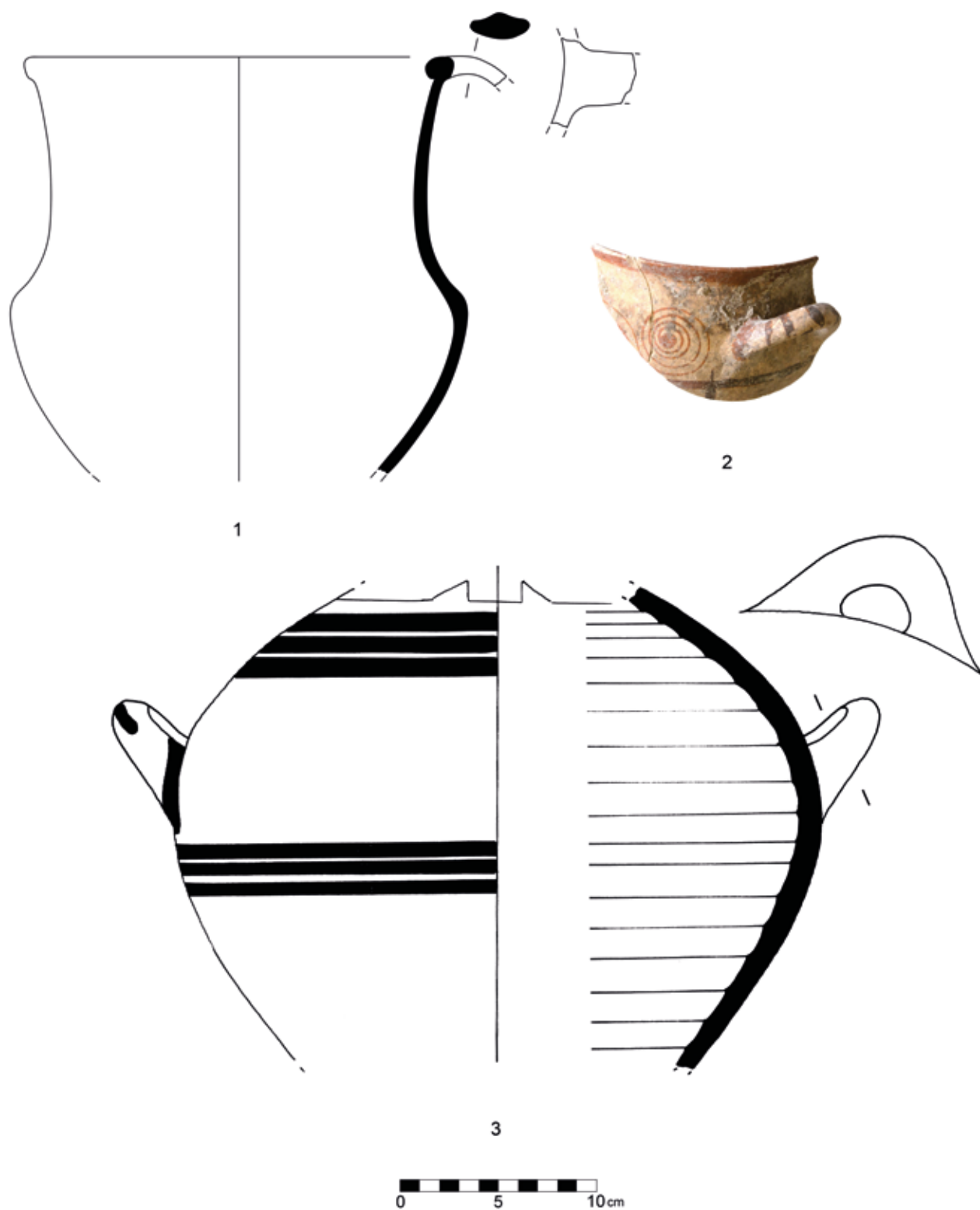


Fig. 12. Selected finds from CQ1, Stratum 3; scale 1:3 (drawings by M. Al-Bataineh and T. Bürge).



Fig. 13. Selected finds from CQ1, Stratum 3; scale 1:3 (drawings by M. Al-Bataineh, photographs by T. Bürge).

W126 and W127/131. There is a passage to the south in the 1.1-m-wide gap between W127 and W131. Many collapsed pithoi and other storage vessels were lined up against W126. Room 84 is not completely excavated since this storage corridor continues into the eastern section of Trench 27A. Consequently, the estimation of the number of vessels has to await future exposure. Other finds include a loom weight of fired clay (N380, weight 40 g), a fragment of a limestone bowl (L702-4), the upper parts of two Coarse ware cooking pots (L704-1, -3 in *Fig. 19:3*), and the upper part of a Plain White Wheel-made jug (L702-4). There are also fragments of decorated table wares, almost exclusively of White Painted Wheel-made.

Room 85 to the south is bordered by W127, W130, W129, and W128. It is connected with Room 86 to the west by a 1.2-m-wide entrance between W128 and W129. It is interpreted as a bathroom with the interior dimensions of 1.8 m × 2.6 m (*Fig. 21*). The walls are faced with ashlar slabs on the interior façade. The floor is also partly paved with ashlar slabs and a fine plaster of lime, which is carefully smeared up against the ashlar blocks covering the walls. There is a water inlet leading through the eastern part of W129 and a drain in the opposite wall, W127, in line with the inlet. Lumps of yellow and red pigment, most likely ochre, were found inside a vessel in the entrance to the bathroom. Close to them were pieces of an ostrich egg. Finds from Room 85 itself include a conical (N387, weight 9 g) and two biconical (N386, weight 6 g; N388, weight 20 g) spindle whorls of stone and a cylinder seal of white faience (N385; *Fig. 20:4*, see also *Appendix 1*). The seal has an incised decoration of two horizontally arranged registers: a net pattern on one register and a running “spiral” on the other. Finds of pottery comprise fragments of Canaanite jars (L710-2, -6), a Coarse Monochrome bowl (L710-1), and a shallow carinated bowl of White Painted Wheel-made ware (L710-4; *Fig. 19:6*).

The next space to the west, Room 86, is only partly exposed. It is bounded by W127, W128, and W129 and is 2.6 m wide. Besides the entrance in W128 there is a doorway in W129 leading to the south. The room has a plaster floor. Finds include a lead sling bullet (N389), a stone biconical spindle whorl (N430, weight 7 g), and an “hourglass”-shaped flat pendant of bronze (abstract presentation of a female figure?; N431, weight 5 g; *Fig. 20:2*).

Room 87, to the south of and separated from Room 86 by a corridor of 1.3–1.8 m width, is bordered by W133, W134, and W132. The southern boundary is a wall just appearing in the southern section of Trench 28A. The room has an area of 2.2 m × 3 m. No finds of specific interest have been found so far. At the end of the season a small test trench was dug in the north-western corner of the room in order to determine the depth of the occupational phase and possible older phases.



*Fig. 14. Magnetometer map of CQ4; excavated area (Trenches 27A–D, 28A–B) inside red box (by B. Ullrich, Eastern Atlas).*

The area around the rooms is an open space with numerous broken pottery vessels and other finds: a sling bullet of lead (N384) was found just west of Room 87. A number of Canaanite jars (one of them is L708-1; *Fig. 19:4*) were found west and north of Room 87. There are also worked stones, such as a possible door socket, and a part of a water channel, which possibly belongs to the installation in Room 85.

In the area east of Rooms 85 and 87 and south of W131, walls belonging to two additional rooms were partly exposed: W136 running north-south and W137 running east-west. Burnt mudbricks were exposed along W131 pointing to a superstructure of sundried mudbrick which collapsed in a conflagration. There is a circular hearth in the northern part of the area. Numerous vessels were found in the 3.3-m-wide area between W130/W134 and W136, among them a Levantine-type (possibly imported) lentoid flask (L716-1), a Canaanite (L716-4) and an Egyptian imported jar (L716-2), a large jug of Plain White Wheel-made ware (L716-3), a Coarse ware cooking pot (L705-2; *Fig. 19:2*), a White Shaved juglet (L705-3; *Fig. 19:5*), and a small cup of White Painted Wheel-made ware (L706-4). Other finds include a sphendonoid object of bronze, most likely a balance weight (N383, weight 13 g; *Fig. 20:3*), a fragmented bone beater (L706-1), and the head of a Base-ring II bovine rhyton (L706-2; *Fig. 20:1*). This area yielded the richest botanical results in CQ4, which include mostly cereals, olive, grape, and some legume.



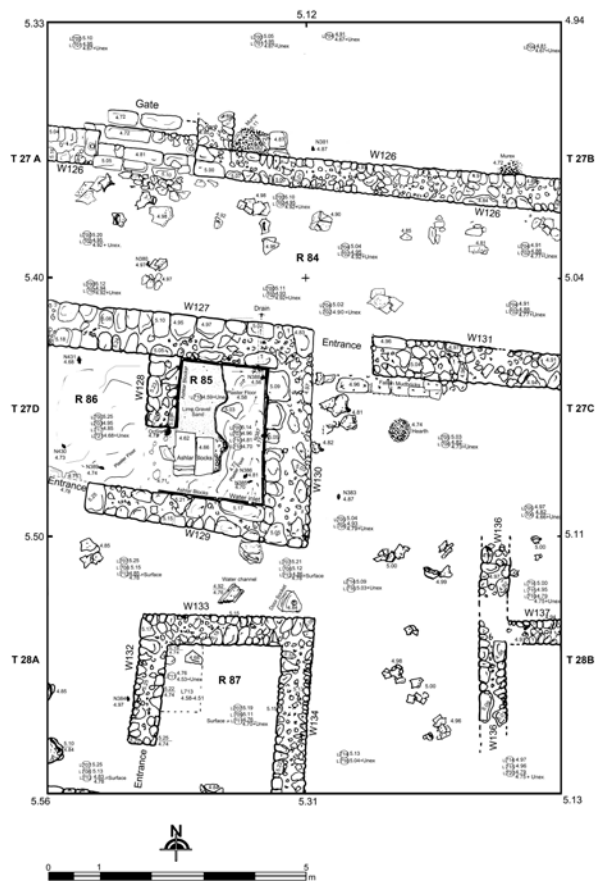


Fig. 15. CQ4, Stratum 1 (drawing by M. Al-Bataineh).



Fig. 16. Aerial photograph of CQ4 (by P.M. Fischer and T. Bürge).



Fig. 17. Concentration of murex shells to the east of the gate (photograph by P.M. Fischer).



Fig. 18. Murex and other shells (see Fig. 17, photograph by P.M. Fischer).



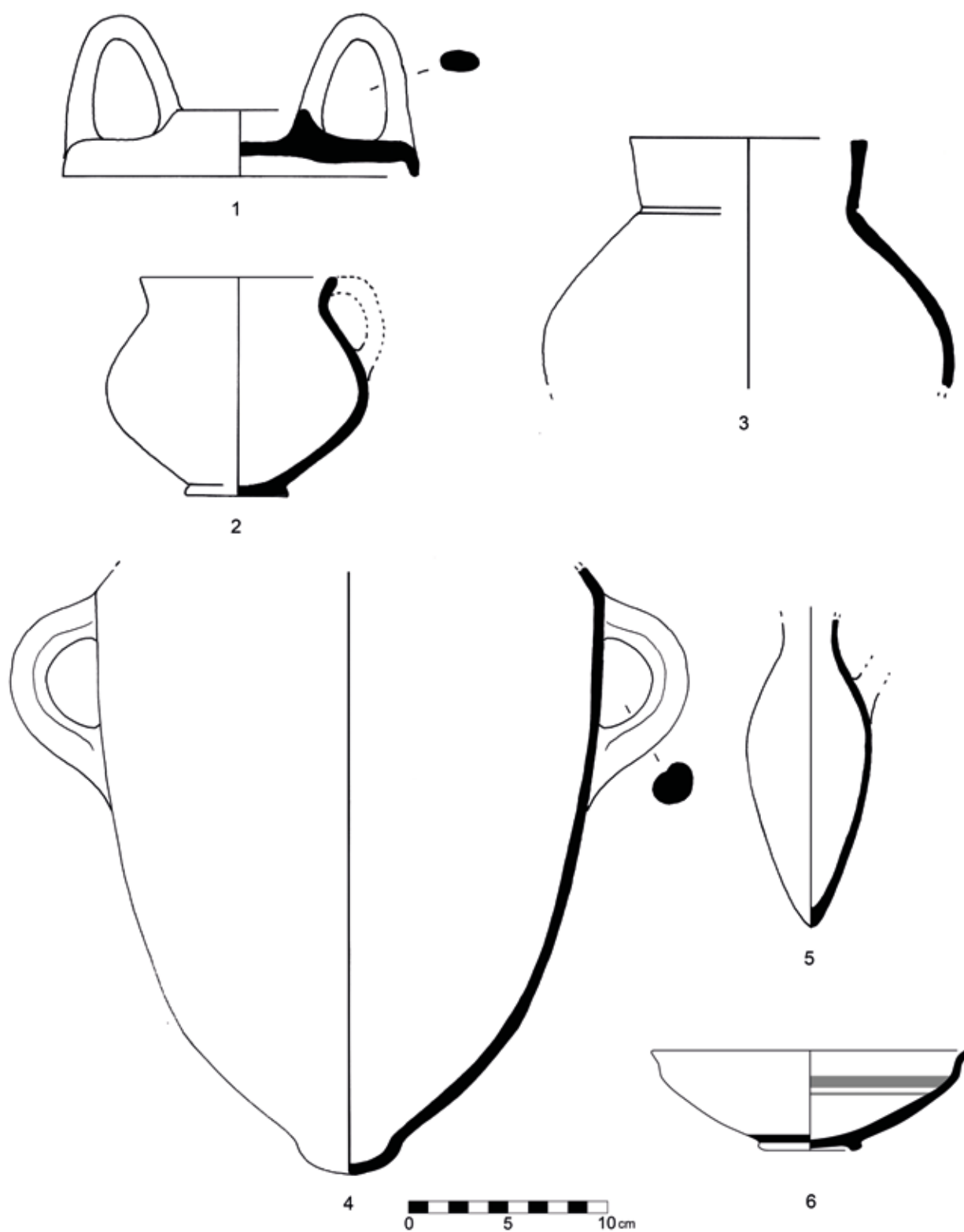


Fig. 19. Selected finds from CQ4, Stratum 1; scale 1:3 (drawings by M. Al-Bataineh).



Fig. 20 (above). Selected finds from CQ4, Stratum 1; scales 1:2 and 1:1 (photographs by P.M. Fischer and T. Bürge).

Fig. 21 (below). Bathroom (Room 85) in CQ4, Stratum 1, from the west, with inlet (upper right) and drain (upper left) (photograph by P.M. Fischer).





Fig. 22. Aerial photograph of Area A (by P.M. Fischer and T. Bürge).

## RESULTS OF THE EXCAVATIONS IN AREA A (SW; FIG. 22)

### Anomalies PP, QQ

In advance of the excavations geophysical surveys were carried out just west of the modern horse stable. Magnetometers with ten Foerster fluxgate gradiometer probes (LEA MAX-system) mounted on a cart (2017) and georadar with a 400-MHz antenna (2018) were utilized. Two test trenches were opened around the centre of two large magnetic anomalies: PP and QQ. The excavations could not provide proof of human-made structures and the trenches were backfilled. The causes of these anomalies could not be identified.

### TOMB RR (FIG. 23)

The third magnetic anomaly is roughly 8-shaped on the magnetometer map and is just to the south of PP and QQ. Its

shape resembles that of Offering Pit V and Tomb X excavated in 2016.<sup>28</sup>

A 2 m × 2 m trench was opened up in the centre of the double-anomaly. The uppermost soil (10.53 masl) was disturbed by farming and it took some efforts to distinguish the hard-packed soil just below colluvial soil (L103, 10.33 masl) from man-made features. In the centre of and somewhat below the colluvial soil—which later on turned out to be the centre of a tomb—large Minoan (L103-4) and Mycenaean (L103-3) sherds, the latter of a krater with painted decoration in the shape of an octopus, were found. They were deposited in a limited area together with locally produced fine wares of mainly White Slip II and Base-ring I/II. Since the soil below the concentration of sherds of fine wares did not contain any more man-made objects for several decimetres, these sherds

<sup>28</sup> Fischer & Bürge 2017c.



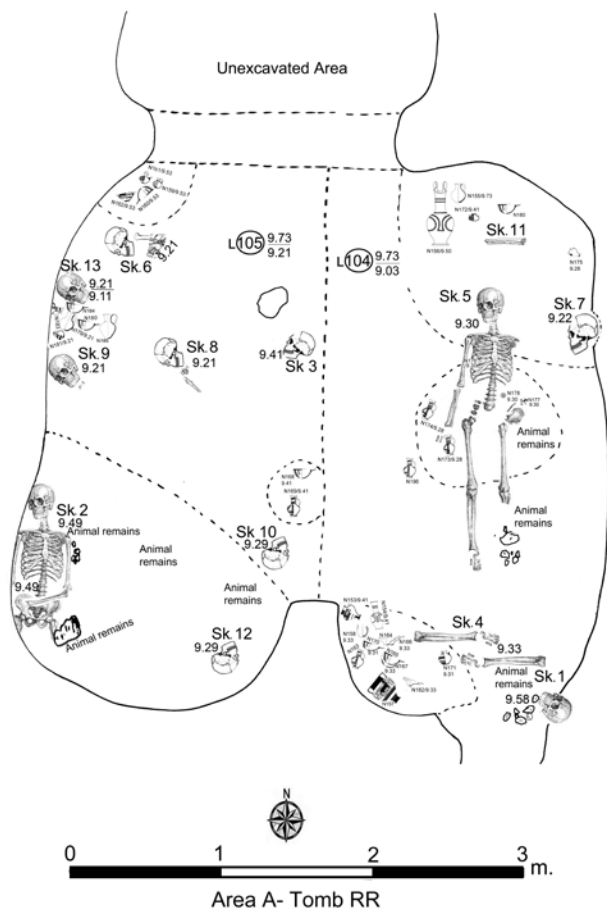


Fig. 23. Tomb RR (drawing by M. Al-Bataineh).

are interpreted as a tomb marker—considering their central position above the tomb.

At a depth of 9.58 masl, viz. roughly 1 m from surface, two interconnected chambers were exposed: the eastern chamber (L104, size 1.2 m × 1.4 m) and western (L105 size 1.1 m × 1.2 m). The chambers contained 13 skeletons, five in L104 (see Skeleton 5 in Fig. 24) and eight in L105, and numerous tomb gifts from the Mycenaean, Minoan, Levantine, and possible Egyptian spheres of culture (see *Tables 1–2* and *Figs. 25–27*). Amongst the most striking finds is a complete Mycenaean (LH IIIA2–B) amphoroid krater. It depicts a chariot on either side drawn by a pair of horses. There are three occupants in the chariot box of either side, and three figures, all of them carrying swords, are approaching the chariot. The person walking behind the chariot on one side (see Fig. 27) is missing on the other side of the krater (13 individuals in total). Zoological, botanical, and other remains from the tomb include skull fragments of cattle with horns, a fragment of a notched sheep scapula, fish bones (most likely Nile perch), plant seeds, and pieces of ochre.



Fig. 24. Tomb RR, Skeleton 5 (photograph by P.M. Fischer).

The preliminary osteoarchaeological investigations have identified three females and one probable male; the sex of the nine remaining individuals remains to be determined. Three of them were adults, estimated age between 25 and 40 years, one is a juvenile of roughly 16 years, and two are children of nine and six years. Some of the individuals suffered from dental diseases and dietary deficiencies which is mirrored by enamel hypoplasia and *cribra orbitalia* (active or healing lesions seen in the orbital roof). Although the tomb is not looted several individuals are only partly preserved which points to consecutive interments during which older human remains were disarranged and even destroyed.

Tomb RR was excavated up to the very end of the 2018 season and all visible human and animal remains and tomb gifts were recorded and removed. Nevertheless, there may be some human-made pockets and niches which need additional exposure. Therefore, the tomb was back-filled and secured with sheets of iron, and the area was fenced in order to prevent any illegal activities. The present report should be considered as preliminary since supplementary excavations will be carried out in 2019.

## Discussion

### CQ I, STRATUM 3

The results from 2017 and 2018 point to substantial remains from this phase of occupation. There are five rooms/spaces belonging to Stratum 3: Rooms 67–70 and 83 of which only Rooms 67 and 68 are excavated down to floor level (*Figs. 10–11*). Several structures with walls whose dimensions exceed those of the later strata are exceptionally well preserved. In the previous report<sup>29</sup> we emphasized that the walls employ a different building technique than those encountered in the subsequent Stratum 2: they are more substantial with larger stones including those of conglomerate. The completely excavated, probably roofed, Room 67 contains four storage units, most likely for the storage of liquids and cereals. Food was processed there according to specialized tools and our archaeobotanical analyses: barley and other unspecified cereals together with olives and grapes from three accumulated hard-packed floors and a mudbrick-lined fireplace were found.

There is clear evidence for urban metallurgy in Strata 3 (and 2) where primary and secondary smelting was carried out.<sup>30</sup> In this stratum, we found the remains of furnaces (furnace bases) together with much copper slag. To the west of Room 70 in Trench 7D are also spaces where we have reached Stratum 3 (no room numbers as yet; any conclusions have to await further exposure). The people living there and working with the production of copper (see the adjacent Room 68) seem to have had an elevated status according to items of luxury found there such as three imported faience bowls, most likely Egyptian, and a decorated Levantine-imported flask. It seems that this part of the compound has been destroyed by fire.

<sup>29</sup> Fischer & Bürge 2018d.

<sup>30</sup> See the observations in Fischer 2018. Metallurgical analyses by M. Mehofer are in progress.

*Table 1. Finds from Tomb RR eastern chamber (L104) with Skeletons 1, 4, 5, 7, and 11.*

<i>Find no.</i>	<i>Description</i>
N154	Base-ring I jug, complete
N155	Plain White Hand-made jug, almost complete
N156	Base-ring I jug, almost complete ( <i>Fig. 25:5</i> )
N157	Mycenaean chariot krater, complete ( <i>Fig. 27</i> )
N158	alabaster, small jar, half preserved
N163	Base-ring II jug, intact
N164	Base-ring bowl, complete ( <i>Fig. 25:3</i> )
N165	White Slip II mature bowl, complete
N166	Base-ring bowl, complete
N167	White Slip II mature bowl, complete
N170	White Slip II mature bowl, almost complete
N171	Mycenaean/Minoan jug, complete, rim worn
N172	Mycenaean rounded alabastron, intact ( <i>Fig. 26:2</i> )
N173	Base-ring II jug, almost complete
N174	Base-ring II jug, intact ( <i>Fig. 25:1</i> )
N175	Mycenaean piriform jar, complete (parts of rim broken) ( <i>Fig. 26:1</i> )
N176	ivory disc (Egyptian?)
N177	bronze ring, complete
N178	ivory disc (Egyptian?) ( <i>Fig. 26:6</i> )
N180	White Slip II mature bowl, complete
N182	Base-ring bowl, complete
N183	Base-ring II jug, almost complete, rim missing
N186	Base-ring II jug, complete profile

*Table 2. Finds from Tomb RR western chamber (L105) with Skeletons 2, 3, 6, 8, 9, 10, 12, and 13.*

<i>Find no.</i>	<i>Description</i>
N153	Mycenaean piriform jar, complete
N159	Mycenaean juglet, intact ( <i>Fig. 26:5</i> )
N160	White Slip II mature bowl, complete
N161	Mycenaean feeding bottle, almost intact ( <i>Fig. 26:4</i> )
N162	Mycenaean two-handled cup, complete
N168	White Slip II mature bowl, complete ( <i>Fig. 25:4</i> )
N169	Base-ring II jug, complete
N179	Plain White Hand-made jug, complete
N181	Mycenaean, two-handled flask, intact ( <i>Fig. 26:3</i> )
N184	White Slip II mature bowl, complete
N185	Base-ring jug with trefoil mouth, intact ( <i>Fig. 25:2</i> )



Fig. 25. Selected finds from Tomb RR; scale 1:3 (photographs by P.M. Fischer and T. Bürge).

In the previous excavation report<sup>31</sup> and the recently published volume on the 2010–2017 results of excavations from

<sup>31</sup> Fischer & Bürge 2018d.

CQ1 and 2,<sup>32</sup> we pointed out that some of the rooms were affected by fire. This year, too, we found much ash. It is—at

<sup>32</sup> Fischer & Bürge 2018a.





Fig. 26. Selected finds from Tomb RR; scale 1:3 (photographs by P.M. Fischer and T. Bürge).

least at present—difficult to distinguish between ash resulting from copper production or a general conflagration, the latter maybe caused by furnaces from the copper production. On the other hand, the storage space Room 67 yielded no evidence for copper production but a large amount of ash which seems to be the result of a conflagration.

In relative terms, the material from Stratum 3 dates to LC IIC. This date is supported by pottery of White Slip II, Base-ring I and II wares, and imported LH (IIIA2–)IIIB types. As regards absolute dates, 20 radiocarbon-dated samples from all three strata were presented recently.<sup>33</sup> The unfavourable shape of the calibration curve, viz. a s.c. calibration plateau between the last quarter of the 13th and the last quarter of the 12th centuries, which corresponds to the latest part of LC IIC and most of LC IIIA, made it necessary to utilize Bayesian statistics. Two dating models suggest that the transition of Stratum 2 to 1 most likely occurred sometime during the second half of the 13th century BC and at the latest shortly after 1200 BC.<sup>34</sup> This means that Stratum 3 should be placed in the 13th century BC,

most likely to the second half of this century since there seems to be no temporal lacuna between Strata 3 and 2. At present we do not know when Stratum 3 begins but we have evidence of an older Stratum 4, which in the coming season most likely will be reached in Rooms 67 and 68. Future radiocarbon samples from Stratum 4 will hopefully define the length of Stratum 3. The first half of the 13th century shows quite a steep and favourable calibration curve but the dating of samples to the 14th century BC is problematic due to the shape of the calibration curve.<sup>35</sup>

## CQ1, STRATUM 2

Excavations continued in several of the spaces where exposure began already in 2016, viz. Rooms 63–66 and Rooms 71–76. New rooms, Rooms 80–82, were found, too. Rooms 74 and 75 to the west contained numerous implements which are connected with the production of textiles, i.e. loom weights,

<sup>33</sup> Höflmayer *et al.* 2018.

<sup>34</sup> Höflmayer *et al.* 2018; Fischer & Bürge 2018c, 603–605.

<sup>35</sup> In June 2018 at the 23rd radiocarbon conference in Trondheim, Norway, 23 recently processed radiocarbon dates of samples from Strata 3–1 and from Area A (see below) were presented, which will be published in the conference proceedings. The dates will be discussed in a forthcoming excavation report.



Fig. 27. Mycenaean chariot krater from Tomb RR; scale 1:3 (photograph by P.M. Fischer).

spindle whorls, and bone beaters. There is also much table ware, both locally produced and Mycenaean imported pottery, together with an Egyptian-imported jar and other objects of gold, bronze, glass, stone, and fired clay including Mycenaean-type figurines (locally produced and imported). These rooms were certainly used for living and working with textiles.

The connection between Rooms 66 and 71 is not entirely clear but their functions are different. Whereas Room 66 is mainly of domestic character, Room 71 exhibits material remains which point to the production of copper. It also contains fine table wares including locally produced vessels and imports from the Mycenaean, Minoan, and Egyptian sphere of cultures. Copper production is ascertained from the re-

mains of a furnace in the western part of Room 71 and much copper slag embedded in a thick layer of ash. The eastern part of Room 71 exhibits the same picture: furnace and tuyère fragments together with a quarter of a ton of slag and a large amount of pottery—maybe one of the largest concentrations of sherds anywhere since the project started in 2010. To the south-east is Room 80 with a possible counterweight for an olive press. To the south-west are Rooms 81 (stone-paved) and 82 which are partly excavated. Here, too, much ash was found, which seems to be connected with an oven. There is, however, ash in all trenches which points to a general catastrophe.

According to the pottery evidence this phase of occupation should be dated to the beginning of LC IIIA,<sup>36</sup> i.e. around 1200 BC. The end of Stratum 2 most likely occurred in the early LC IIIA, i.e. sometime during the second half of the 13th century BC and at the latest shortly after 1200 BC based on radiocarbon (see above Stratum 3).

### CQ1, STRATUM I (B AND A)

Most of this phase of occupation has already been exposed in 2016 and 2017. This year, too, we found much ash covering the exposed spaces of Stratum 1B which include Rooms 61, 62, and 77–79. The large space, Room 58, was further excavated in its eastern part. It is difficult to interpret the function of each of the spaces but it seems that various domestic activities were carried out including the production of textiles. However, this phase—in contrast to the preceding two phases—exhibits no clear evidence of copper production, therefore, we consider the ash as a result of a general conflagration.

We suggest that the end of Stratum 1B should be dated to the LC IIIA, i.e. the mid-12th century BC and to the 3rd quarter of this century at the latest. The short-lived Stratum 1A is difficult to date but it seems to represent a squatter occupation after the destruction of Stratum 1B. Since there are no finds in Stratum 1A that can be dated later than the LC IIIA period, the final abandonment of the city must have occurred in this period.<sup>37</sup>

### CQ4, STRATUM I

This city quarter is between CQ1 and Area A and represents the largest city quarter so far discovered at Hala Sultan Tekke. The magnetometer map (*Fig. 14*), which only shows a part of CQ4, indicates regularly arranged stone-built compounds of imposing dimensions intersected by streets. Additional prospecting of CQ4 with georadar did not provide the expected results, i.e. a map showing structures with greater details because of the strong radar attenuation caused by the clay-rich soil. The entire layout resembles that of the town plan of Enkomi. The central part of this city quarter, measuring 65 m × 60 m, was fenced off in order to protect it from continued farming since the most recent structures are just 20 cm below surface. There are, however, many equally interesting structures outside the fence where farming is still going on. Ashlar blocks are incorporated in some of the extremely well-built walls, which distinguish this quarter from the industrial and domestic quarters CQ1, CQ2, and CQ3.

In the opened-up area of 15 m × 10 m we have so far only exposed the most recent phase of occupation, which seems to correspond to Stratum 1 in the other quarters.<sup>38</sup> One of the spaces is a bathroom (Room 85) which is faced with ashlar slabs (both the walls and the floor). The plaster floor and lower wall lining, and the presence of an inlet and an outlet demonstrate an advanced hydro-technical construction. From the old excavations in Area 8 stems another bathroom (Room 1) which also was constructed of ashlar blocks.<sup>39</sup> Since a master stratigraphy of Area 8 is missing we have to rely on the preliminary reports which according to the “latest datable sherd”<sup>40</sup> date the construction of the bathroom after 1300 BC. This sherd—a “Base-ring II bowl rim imitating late White Slip II Ware”—comes from below the floor of this room but may be residual. Considering this insufficient evidence any date from LC IIC to early IIIA would be possible for the construction of Room 1 in Area 8.

To the north of the bathroom is a corridor (Room 84), at least 20 m long and 3 m wide, which contained numerous pithoi and smaller vessels. This corridor represents a storage area for mainly liquids such as water, wine, and olive oil. The storage corridor could be reached from the north via steps built of ashlar blocks. In front of the steps was a double gate, which is indicated by two door sockets. Just to the east of the gate is a stone installation with a thick layer of crushed murex shells. At present, it is difficult to decide if purple dye was extracted there or if the shells were used secondarily. Burned mudbrick and ash confirmed earlier observations from CQ1–3 that this phase ended in a violent destruction after which the city was abandoned.

The extension of the compounds and the nature of the stone structures in CQ4 give the impression of an area related to trade, maybe the economic centre of the city considering this quarter's proximity to the ancient harbour. The date of the most recent part of the compound is LC IIIA (as regards proposed absolute dates see above).

### AREA A

In this area which is just to the west of the mosque and near a modern horse stable geophysical surveys were carried out. Whereas the georadar survey with a 400-MHz antenna did not provide any usable results, the large-scale map produced by means of ten Foerster fluxgate gradiometer probes mounted on a cart showed many man-made anomalies including numerous “pits” and a few stone structures. Three test trenches were opened: PP, QQ, and RR of which the former two were

<sup>36</sup> See also Bürge & Fischer 2018, 257.

<sup>37</sup> Fischer & Bürge 2018b, 122; Bürge & Fischer 2018, 257.

<sup>38</sup> There is no stratigraphical connection between CQ4 and the other city quarters. However, the pottery from Stratum 1 in CQ4 seems to correspond to that from same phase of occupation in CQ1–3.

<sup>39</sup> Hult 1977, 72, fig. 72; 1978, 1–15; Fischer 1980, 28–32.

<sup>40</sup> Hult 1978, 7.

judged to be of modern date but the latter turned out to represent a rich tomb.

The roughly 8-shape of this magnetic anomaly resembles that of Offering Pit V and Tomb X excavated in 2016.<sup>41</sup> Almost precisely above the centre of the tomb is a tomb marker, *inter alia* represented by the remains of a large Minoan closed vessel (L103-4) and a Mycenaean octopus krater (L103-3). The actual tomb started roughly 1 m from surface and consists of two interconnected chambers with 13 skeletons *in toto*: three females, one likely male and nine of undefined sex; the age estimations point to three adults, a juvenile and two children. The tomb was left undisturbed after the last burial. It seems to have been used for several interments since some of the skeletons were swept aside in order to provide space for additional burials.

Numerous tomb gifts are of Mycenaean, Minoan, and possible Egyptian provenance (see *Tables 1–2*). Among the most spectacular finds is a large complete Mycenaean krater (LH IIIA2–B) depicting a chariot scene on either side and, in total, 13 individuals, several of whom carry swords.<sup>42</sup> Faunal remains include skull fragments of cattle with horns, a notched sheep scapula and bones of (most likely) Nile perch.

The sophisticated architecture in the settlement and the richness of the tombs and offering pits in Area A confirm our previous suggestions: a wealthy society with far-reaching contacts based on the privileged position of Hala Sultan Tekke in the centre of the Eastern Mediterranean and its well-protected harbour. According to the find material the city was founded around 1600 BC and abandoned around the middle of the 12th century BC.

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<sup>41</sup> Fischer & Bürge 2017c.

<sup>42</sup> We propose the name “Swordbearer Krater” for this unique find. To our best knowledge this is the only complete vessel with this specific decoration ever found. A striking parallel as regards iconography comes from a fragmentary krater from Ugarit: it shows the same composition with three persons in the chariot box, three persons with swords walking towards the chariot and one walking behind; see Schaeffer 1961, 191–195, figs. 8–9. We would like to thank L. Recht for pointing out this parallel.

## Appendix I A cylinder seal from City Quarter 4

By Jacek Tracz

### CONTEXT

This cylinder seal (N385; *Fig. 20:4*) is the tenth seal discovered since 2010 and the first from CQ4. The seal was found on the floor of a bathroom (Room 85) built of ashlar blocks adjacent to W129 and W130. On the same floor a biconical spindle whorl of stone, possibly chlorite (N386), with circular incisions was found accompanied by small sherds of pottery. Other finds from this room include two additional spindle whorls of stone (N387, N388), fragments of Canaanite jars (L710-2, -6), a Coarse Monochrome bowl (L710-1), and a shallow carinated bowl of White Painted Wheel-made ware (L710-4).

### DESCRIPTION AND PARALLELS

Cylinder seal (N385; *Fig. 20:4*): faience, height 2.1 cm, diameter 1 cm, diameter of hole 0.25 cm, weight *c.* 1 g. The seal is divided in two incised registers, separated from each other by a clear, straight line. One register is 1.3 cm and the other 0.8 cm high. The former register, somewhat damaged, is decorated with a simple net pattern while the latter register has guilloche decoration. The seal is in Mitannian Common style, where such motifs and the chosen material were popular.<sup>43</sup>

In Mitannian glyptic, guilloches were usually used as bases or scene dividers. The motif itself is an elaborate twist, very similar to spiral patterns and resembling a twisted rope.<sup>44</sup> Guilloches often appear on Mitannian seals,<sup>45</sup> and we can observe them in many different variations, for example, on a cylinder seal from Tell Brak (BM 125795),<sup>46</sup> or an unprovenanced seal kept in the Metropolitan Museum (accession number 1985.357.11).<sup>47</sup>

The net motifs can be interpreted in various ways according to Mary-Louise Mussel.<sup>48</sup> It may be connected to hunting or fishing, but it could also be a simple decorative space filler. Since Hala Sultan Tekke was a harbour town, net motifs could refer to fishing. Unfortunately, the seal does not provide us with other motifs like the fish or other aquatic creatures simi-

<sup>43</sup> Mussel 1983, 48; Porada 1944, 12.

<sup>44</sup> Mussel 1983, 24, 49.

<sup>45</sup> Collon 1987, 65.

<sup>46</sup> Mallowan 1947, 136–141, pl. 22:1–2; Oates *et al.* 1997, 161, fig. 180:20; see also [https://www.britishmuseum.org/research/collection\\_online/search.aspx](https://www.britishmuseum.org/research/collection_online/search.aspx).

<sup>47</sup> Eisen 1940, 63, pl. 15: no. 165; see also <https://www.metmuseum.org/art/collection>.

<sup>48</sup> Mussel 1983, 28.

lar to those displayed on the cylinder seal in Penn Museum, number 29-104-128<sup>49</sup> that could help uphold this theory. Other examples of a net motif are presented on seal no. 639 from the Marcopoli Collection<sup>50</sup> and on a seal from the Cesnola Collection (Metropolitan Museum, accession number 74.51.4359<sup>51</sup>). To avoid overinterpretation it is best to assume that the net pattern represents a space filler.

Both the net and guilloche motifs visible on our seal are present in different ways on many other Mitannian seals (examples listed above). The best parallel to our N385 from CQ4 is a Mitannian seal found in Beth Shean, Level VIII (Palestine Museum, accession number J.916).<sup>52</sup> The context where the seal was found is dated to the 13th century BC.<sup>53</sup> Like our seal, J.916 is made of faience and has a similar net motif in one register and a scroll pattern on the other, very similar to the guilloche on our seal. Besides the slightly different pattern of the scroll, there is also a difference in size of the motifs: the scroll of J.916 occupies a larger surface than the net. Despite these small differences, the similarity between these two objects cannot be denied. Another seal which is similar to N385 is a cylinder seal of quartz from Hazor (no. 17156).<sup>54</sup> The most obvious difference is the material but as N385 and J.916 it is divided in two registers. It has a net motif and a running spiral. The context where no. 17156 was found is dated to the 13th century BC.<sup>55</sup>

## CHRONOLOGY

Our seal was found on the floor of a bathroom belonging to Stratum 1 of CQ4. The Mitannian Empire existed between 1500–1350 BC,<sup>56</sup> and J.916, the Beth Shean parallel to N385, was found in Level VIII, which is dated to the 13th century BC.

J.916 was one of many Mitannian “Common Style” seals at Beth Shean which were judged to be locally produced at the site itself or any other Palestinian sites. The common denominator for those seals was simple patterns composed of few large motifs.<sup>57</sup> The existence of local faience industry in Beth Shean has been confirmed, and the first appearance of Mitannian seals could have been the cause of establishing local manufacture of Mitannian seals for a local market.<sup>58</sup> It is evident that Mitannian Style seals were in local production long

after the Mitanni Kingdom ceased to exist (cf. the well-known fact that Egyptian scarabs were produced long after the reign of certain pharaohs whose cartouches they depict).

## DISCUSSION AND CONCLUSIONS

Since the start of the renewed excavations at Hala Sultan Tekke in 2010, nine other cylinder seals have been discovered, of which two are produced in the Mitannian tradition. One of them (N193) was found in Tomb CQ2-1. It is made of faience and depicts a kneeling figure with a headdress, a tree, and a gazelle.<sup>59</sup> The second seal (N16) was found in Well C in Area A which contains tombs, offering pits, and wells. It is of haematite and it depicts a hunting scene. The style of this seal is Mitannian Common style, which was used almost exclusively on steatite and faience seals. In this style motifs repeated frequently, and engravings were coarse and schematic.<sup>60</sup>

Other seals found by the expedition are a haematite seal with six panels (N41) from CQ1, Stratum 1,<sup>61</sup> a seal of Egyptian Blue paste (N169) found in Tomb CQ2-1 along with N193 (see above), and five seals from Tomb X in Area A: three are made of haematite (N64, N73, N76), one is made of chlorite or haematite (N72), and one of steatite (N80).<sup>62</sup> The resemblance between N385 from Hala Sultan Tekke and J.916 from Beth Shean is a useful indicator of international connectivity. Both seals are made from the same material, depict almost exactly the same patterns, and represent the Mitannian “Common Style”. Non-figural motifs are present on several “Common Style” seals from Beth Shean.<sup>63</sup> Based on the stylistic resemblance to J.916 and other non-figural seals found in Beth Shean, Level VIII, our cylinder seal may be dated to the 13th century BC. There are two possibilities as regards provenance: one is that N385 is an import from the Southern Levant that reached Hala Sultan Tekke due to maritime trade. This would also suggest that N385 might have been a (family) heirloom passed from generation to generation and finally lost during the abandonment of Hala Sultan Tekke because Stratum 1 at Hala Sultan Tekke should be dated to the 12th century BC. The other is that our seal was produced in Cyprus imitating Mitannian glyptic.

<sup>49</sup> Parker 1949, pl. 9:63.

<sup>50</sup> Teisser 1985, 295.

<sup>51</sup> Mentioned in Myres 1914, 441, no. 4359; see also <https://www.metmuseum.org/art/collection>.

<sup>52</sup> Parker 1949, 18, pl. 9:62.

<sup>53</sup> Mazar 2009, 13–14, table 1:2.

<sup>54</sup> Ornan & Peri 2017, 504, 503, fig. 9:28.

<sup>55</sup> Ornan & Peri 2017, 489.

<sup>56</sup> Dabney 1993, 228.

<sup>57</sup> Dabney 1993, 228.

<sup>58</sup> Dabney 1993, 230–231.

<sup>59</sup> Fischer & Bürge 2014, 76; Bürge 2018, 418, fig. 4:1:3.

<sup>60</sup> Fischer & Bürge 2015, 54; Porada 1944, 12.

<sup>61</sup> Franz in Fischer 2012, 107–109; Bürge 2018, 418, fig. 4:1:1.

<sup>62</sup> Fischer & Bürge 2014, 76; 2017c, 192–194.

<sup>63</sup> Dabney 1993, 230.

Table 3. List of taxa identified in samples from CQ1; fr. = fragment(s), m = modern, d = desiccated, min = mineralized, x = present.

Sample no.	4	17	30	15	2	29	12	21	20
Trench	25B	25B	25C	25C	25C	25C	25C	25B	25C
Locus	800	806	835	811S	810		832	693	698
Stratum	I								
Room	61		77	78	79		North and north-west of R61		Covering area on top of R77 and north of R77
Grains	Barley ( <i>Hordeum vulgare</i> )	1				1fr.			1
	Einkorn wheat ( <i>Triticum monococcum</i> )								
	*Spikelet fork								
	*Glume base								
	Wheat ( <i>Triticum</i> sp.)								
	Cereal ( <i>Cerealia</i> indet.)								
	*Grain				2fr.	14fr.	1; 1fr.		
	*Rachis					1fr.			
	*Awns								
	*In chaffs?								
	Similar to oat (cf. <i>Avena</i> sp.)								
	Poaceae/ <i>Cerealia</i> indet. (grass/cereals indeterminate)								
Other economic plants	Flax ( <i>Linum usitatissimum</i> )								
	Lentil ( <i>Lens culinaris</i> )								
	Pea ( <i>Pisum sativum</i> )								
	Olive ( <i>Olea europaea</i> )	1; 13fr.		1fr.		11fr.	8fr.	5fr.	2fr.
	Almond ( <i>Prunus dulcis</i> )	1fr.	1fr.			3fr.			
	Pistacia ( <i>Pistacia</i> sp.)								
	Common grape vine ( <i>Vitis vinifera</i> )	1	1fr.		3fr.		1min		1
	Common fig ( <i>Ficus carica</i> )								
	Viper's bugloss ( <i>Echium vulgare</i> )								
	Brome grass ( <i>Bromus</i> sp.)								
Grasses, herbs and weeds	Corn chamomile ( <i>Anthemis arvensis</i> )								
	Corn spurry ( <i>Spergula arvensis</i> )								
	Common fumitory ( <i>Fumaria officinalis</i> )								
	Dyer's croton ( <i>Chrozophora tinctoria</i> )						1	2	
	Vetch ( <i>Vicia</i> sp.)								
	Grass (Poaceae indet.)				2fr.				
	Legume (Fabaceae indet.)								
	Gourd family (Cucurbitaceae indet.)								
	Indeterminate		1fr.		2fr.				
	Indeterminate husk								
	Indeterminate straw								
	Indeterminate stalk								
Charcoal	x	x				x			x
Organic slag	7fr.	4fr.	1fr.	4fr.	10fr.	2fr.		1fr.	2fr.

## Appendix 2

### Archaeobotanical analyses from 2018

By Dominika Kofel

Archaeobotanical research as complementary to the archaeological excavations provides information about diet, trade, and social status of the society. In 2018 studies of plant mac-

rofossils provided additional information regarding cereals, legumes, and fruit cultivation.

#### MATERIAL AND METHOD

In total, 148 soil samples were collected from CQ1, CQ4, and Area A: 93 samples come from fill/debris above and below a floor level, nine from ash/burned layers, 18 samples from ves-



Table 3 (continued).

36	31	70	28	1	3	32	55	18	104	27	56	108	52	35	23	89	49
25C	25C	25C	25B	25B	25B	25B	25B	25B	25B	25B	25B	25B	25B	25B	25B	25B	25B
809		863	807		820			821	838	845	871			843			
1 (continued)											2						
Outdoor area north of W140 (R61, 77, 78) and west of W141 (R79)											66/71		71				
	1										1					2	
																1	
													1				
															1		
																1	
		1fr.					1fr.	2fr.	1		26fr.	5fr.	29fr.	4fr.	2fr.	17fr.	
																1fr.	
			1fr.														
		1			1		1										
					1												
	2fr.		1fr.	3fr.	1fr.	1;13fr.	2fr.	10fr.	3;64fr.	4fr.	15fr.	7fr.	33fr.	1fr.	1;4fr.	4fr.	1;6fr.
													4fr.		1fr.		
										1fr.						1fr.	
	2fr.	5		1		1	1		4	2fr.	82fr.	1fr.	3fr.	1fr.		19;18fr.	19
		1															
										1							
																1	
													1fr.			1fr.	
					1fr.												
1fr.	2		1fr.	1fr.	2fr.		1fr.								1	1fr.	1fr.
x	x			x	x		x	x	x		x		x	x			x
		4fr.		7fr.	2fr.	9fr.			15fr.	3fr.	3fr.		5fr.	10fr.	15fr.	26fr.	

sel contents, three from post holes, and the remaining 25 came from various layers of Tomb RR in Area A. A total of 50 samples are from Stratum 1 in the settlement, 54 from Stratum 2, and 19 from Stratum 3.

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). The next step was to pour fresh water 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 binocular microscope at 6.4–40× magnification.

Table 3 (continued).

Sample no.		5	8	38	116	51	54	74	25	71	24	22	62	80
Trench		25B	25B	25B	25B	25B	25B	25B	25C	25C	25C	25C	25C	25C
Locus		847				862	870		842	846	846A	850	857	
Stratum		2 (continued)												
Room		71 (continued)							East of R71					
Grains	Barley ( <i>Hordeum vulgare</i> )													
	Einkorn wheat ( <i>Triticum monococcum</i> )													
	*Spikelet fork													
	*Glume base													
	Wheat ( <i>Triticum</i> sp.)													
	Cereal ( <i>Cerealia</i> indet.)													
	*Grain				5fr.		1fr.	1;8fr.	7fr.	6fr.	4;6fr.		1fr.	
	*Rachis													
	*Awns													
	*In chaffs?													
	Similar to oat (cf. <i>Avena</i> sp.)													
Other economic plants	Poaceae/ <i>Cerealia</i> indet. (grass/cereals indeterminate)						1fr.							
	Flax ( <i>Linum usitatissimum</i> )													
	Lentil ( <i>Lens culinaris</i> )											1		
	Pea ( <i>Pisum sativum</i> )													
	Olive ( <i>Olea europaea</i> )	1;4fr.	2fr.	5fr.	2;4fr.		1fr.	1	2;25fr.	1fr.	10fr.	18fr.	2fr.	7fr.
	Almond ( <i>Prunus dulcis</i> )							1fr.				2fr.		
	Pistacia ( <i>Pistacia</i> sp.)						2fr.	4fr.						
	Common grape vine ( <i>Vitis vinifera</i> )	2fr.		1	1;8fr.					3				
	Common fig ( <i>Ficus carica</i> )								1					
	Viper's bugloss ( <i>Echium vulgare</i> )							2m?		2			2	
	Brome grass ( <i>Bromus</i> sp.)													
Grasses, herbs and weeds	Corn chamomile ( <i>Anthemis arvensis</i> )													
	Corn spurry ( <i>Spergula arvensis</i> )													
	Common fumitory ( <i>Fumaria officinalis</i> )							1						
	Dyer's croton ( <i>Chrozophora tinctoria</i> )													1
	Vetch ( <i>Vicia</i> sp.)													
	Grass (Poaceae indet.)						1	2						
	Legume (Fabaceae indet.)								1fr.		1fr.			
	Gourd family (Cucurbitaceae indet.)													
	Indeterminate							1fr.				1fr.		1
	Indeterminate husk													
	Indeterminate straw						1fr.							
	Indeterminate stalk													
Charcoal			x	x			x			x			x	x
Organic slag		1fr.	4fr.	3fr.			7fr.		30fr.			7fr.		4fr.

The macroscopic remains were identified based from morphological features. In order to make an accurate determination, identification keys and atlases were used as well as reference collection.

All in all, 123 soil samples offered material for archaeobotanical analysis: 84 samples from CQ1, 25 samples from CQ4 and 14 from Area A. All the material was charred, in some in-

stance in a very fragmented state of preservation. The plant remains from various locations can be studied in *Tables 3–5*.

## RESULTS

The results and some preliminary interpretations of the three investigated areas of excavation, CQ1, CQ4, and Area A, are presented below. The contexts of the samples taken can be

Table 3 (continued).

77	81	92	141	127	112	126	110	131	93	7	6	117	33	48	73	50	143	99	134	128
25C	25C	25C	25 B/C	25B	25B	25B	25B	25B	25B	7D	7D	25C	24E	24E	24E	24E	24E	24E	24E	24E
865N		874		880						689	690	858	852		855		879			890
2 (continued)																				
East of R71 (continued)										74	75	80	81							
3									2								1fr.			
												1								
	2fr.								2;2fr.			1	4fr.			20fr.		21fr.		5fr.
																	2fr.			
																1	1fr.			
1fr.	3fr.								1fr.			12fr.	4fr.		3fr.	2fr.	4fr.	1;74fr.	5fr.	1fr.
									1fr.				2fr.		1fr.					
																				1fr.
1fr.	1	1									1fr.		2fr.			14fr.	2fr.	6fr.		1
1																				
1d																				
																1				
									2fr.			1fr.								
																				1
						1fr.						3fr.					1fr.			5fr.
										1fr.										
																				1
	x		x	x		x	x	x	x	x	x	x					x			x
		1fr.							1fr.	1fr.		2fr.	10fr.		1fr.		5fr.			2fr.

studied in the main report (see also plans in *Figs. 4a, 4b, 6a, 6b, 10, 15*).

#### CQI, Stratum I (Table 3)

Two samples were collected from Room 61. The material includes a grain of barley (*Hordeum vulgare*), complete and fragmented olive (*Olea europaea*) stones, complete and fragmented common grape vine (*Vitis vinifera*) pips, fragments

of almond (*Prunus dulcis*) shells, and some pieces of organic slag. These fragments of charred organic matter of various sizes and shapes could represent parts of cooked food, bread or elements of the pulp of fruits. One sample was from Room 77, containing a fragment of olive stone and pieces of charcoal and organic slag. Another sample came from Room 78 and consists of pieces of organic slag. The material from the three samples from Room 79 consists of one grain of barley,

Table 3 (continued).

Sample no.	44	57	113	95	90	121	107	146	145	37	118	13	39
Trench	24E	24E	24E	24E	24E	24E	24E	7D	7D	7D	7D	7D	7D
Locus	872			878			882	696	697	805	812	813	814
Stratum	2 (continued)							3					
Room	82							Area north of R67, west of R70					
Grains	Barley ( <i>Hordeum vulgare</i> )												
	Einkorn wheat ( <i>Triticum monococcum</i> )												
	*Spikelet fork												
	*Glume base												
	Wheat ( <i>Triticum</i> sp.)												
	Cereal ( <i>Cerealia</i> indet.)												
	*Grain		1;5fr.	36fr.	10fr.		4fr.				8fr.		
	*Rachis												
	*Awns												
	*In chaffs?												
	Similar to oat (cf. <i>Avena</i> sp.)												
Other economic plants	Poaceae/ <i>Cerealia</i> indet. (grass/cereals indeterminate)				2fr.								
	Flax ( <i>Linum usitatissimum</i> )			1fr.									
	Lentil ( <i>Lens culinaris</i> )		1	2			1fr.						
	Pea ( <i>Pisum sativum</i> )			1									
	Olive ( <i>Olea europaea</i> )		14fr.	2;21fr.	27fr.	3fr.	28fr.	8fr.		1fr.		1fr.	
	Almond ( <i>Prunus dulcis</i> )											1fr.	
	Pistacia ( <i>Pistacia</i> sp.)										1fr.		
	Common grape vine ( <i>Vitis vinifera</i> )		1fr.		2fr.		6fr.	2fr.	2fr.		1fr.		
	Common fig ( <i>Ficus carica</i> )												
	Viper's bugloss ( <i>Echium vulgare</i> )												
Grasses, herbs and weeds	Brome grass ( <i>Bromus</i> sp.)												
	Corn chamomile ( <i>Anthemis arvensis</i> )		1			1							
	Corn spurry ( <i>Spergula arvensis</i> )												
	Common fumitory ( <i>Fumaria officinalis</i> )												
	Dyer's croton ( <i>Chrozophora tinctoria</i> )												
	Vetch ( <i>Vicia</i> sp.)												
	Grass ( <i>Poaceae</i> indet.)												
	Legume ( <i>Fabaceae</i> indet.)			1fr.									
	Gourd family ( <i>Cucurbitaceae</i> indet.)												
	Indeterminate										1fr.		
	Indeterminate husk												
	Indeterminate straw												
	Indeterminate stalk				1								
Charcoal	x	x	x			x		x	x				
Organic slag	2fr.	2fr.	28fr.	41fr.	13fr.	4fr.	9fr.			1fr.	10fr.	1fr.	

fragments of indeterminate cereal (*Cerealia* indet.) and grass (*Poaceae* indet.) grains and one rachis, fragmented stones of olive and shells of almond, one mineralized and some fragments of charred pips of common grape vine, and one seed of dyer's croton (*Chrozophora tinctoria*). In addition, there are fragments of charcoal and organic slag.

From the outdoor space to the north of W140 (i.e. north of Rooms 61, 77, 78) and to the west of W141 (i.e. west of

Room 79), 13 samples were taken. The assemblage includes two grains of barley, grains (one probably in chaffs) of indeterminate cereals, complete and fragmented stones of olive and pips of common grape vine, a piece of pistacia (*Pistacia* sp.) shell and one seed of common fig (*Ficus carica*), and seeds of lentil (*Lens culinaris*), pea (*Pisum sativum*), and indeterminate legume (*Fabaceae* indet.) species. In addition, fragments of charcoal and organic slag as well as segetal plants could be





Table 4. List of taxa identified in samples from CQ4; fr. = fragment(s), m = modern, d = desiccated, min = mineralized, x = present.

Sample no.		19	139	111	130	67	83	69	66	47	61	78	135
Trench		27C	27C	27C	27C	27C	27C	27C	27C	27D	27D	27D	27D
Locus		706					710						
Stratum		I											
Room		South of R84, east of R85					85						
Grains	Barley ( <i>Hordeum vulgare</i> )												
	Einkorn wheat ( <i>Triticum monococcum</i> )												
	*Spikelet fork					1							
	Cereal ( <i>Cerealia</i> indet.)												
	*Grain		2	41fr.	7fr.	1;7fr.			1fr.			7fr.	
	*Awns						1						
Other economic plants	Olive ( <i>Olea europaea</i> )		1fr.			3fr.	1fr.	2fr.		4fr.			
	Almond ( <i>Prunus dulcis</i> )							1fr.				1fr.	
	Common grape vine ( <i>Vitis vinifera</i> )	1fr.		1				1fr.		2fr.			
	Broad bean ( <i>Vicia faba</i> )												
Grasses, herbs and weeds	Brome grass ( <i>Bromus</i> sp.)												
	Grass ( <i>Poaceae</i> indet.)												
	Legume ( <i>Fabaceae</i> indet.)												
	Indeterminate					1	3fr.	1fr.					
	Indeterminate husk												
	Indeterminate stalk												
Charcoal			x	x	x		x	x	x	x	x	x	x
Organic slag			10fr.	39fr.	32fr.	1fr.	1fr.	1fr.		1fr.			

Table 4 (continued).

Sample no.		114	105	101	42	41	120	65	97	94	106	102	125	129
Trench		27D	27D	27D	28A	28A	28A	28A	28A	28A	28A	28B	28B	28B
Locus		717			708		712				715		720	
Stratum		I (continued)												
Room		86			North and west of R87							East of W136	East of W136, south of W137	
Grains	Barley ( <i>Hordeum vulgare</i> )									1			6	3
	Einkorn wheat ( <i>Triticum monococcum</i> )													
	*Spikelet fork													
	Cereal ( <i>Cerealia</i> indet.)													
	*Grain	2				1;1fr.	8fr.		1;9fr.		4fr.	9;32fr.	10;20fr.	26fr.
	*Awns													
Other economic plants	Olive ( <i>Olea europaea</i> )						29fr.	1fr.	1fr.		2fr.	1fr.	9fr.	2fr.
	Almond ( <i>Prunus dulcis</i> )		5fr.										1fr.	
	Common grape vine ( <i>Vitis vinifera</i> )	2fr.				2fr.				1fr.		2;4fr.	22;107fr.	10;25fr.
	Broad bean ( <i>Vicia faba</i> )												4	
Grasses, herbs and weeds	Brome grass ( <i>Bromus</i> sp.)	1												
	Grass ( <i>Poaceae</i> indet.)											1fr.	2fr.	
	Legume ( <i>Fabaceae</i> indet.)												9fr.	1
	Indeterminate		1fr.		1fr.				1fr.				2fr.	1
	Indeterminate husk												1fr.	
	Indeterminate stalk												1fr.	1
Charcoal			x	x				x	x	x	x			x
Organic slag			1fr.	2fr.					2fr.	5fr.				

Table 5. List of taxa identified in samples from Tomb RR in Area A; fr. = fragment(s), m = modern, d = desiccated, min = mineralized, x = present.

Sample no.	59	100	79	87	84	63	64	133	88	98	109	60	137	138
<b>Tomb</b>	<b>RR</b>													
<b>Locus</b>	103	104									105			
<b>Grains</b>	Einkorn wheat ( <i>Triticum monococcum</i> )										1			
	Barley ( <i>Hordeum vulgare</i> )								1					
	Similar to oat (cf. <i>Avena</i> sp.)											1fr.		
<b>Other economic plants</b>	Olive ( <i>Olea europaea</i> )										1fr.			
<b>Grasses, herbs and weeds</b>	Common fumitory ( <i>Fumaria officinalis</i> )	5d												
	Dyer's croton ( <i>Chrozophora tinctoria</i> )	2d												
	Primula ( <i>Primula</i> sp.)		1											
	Indeterminate								1		1			
<b>Charcoal</b>		x	x	x	x	x	x	x		x		x	x	x
<b>Organic slag</b>	1fr.											1fr.		

range of species such as a grain of barley, grains of indeterminate cereal and grasses, fragments of olive stones, one piece of flax seed, fragments of almond shells, pieces of pistacia shells, fragments and complete common grape vine pips, fragments of indeterminate charcoal and organic slag. Furthermore, the samples contain one seed of lentil, one fragment of vetch (*Vicia* sp.) seed and some other indeterminate legume species.

From Room 83, four samples yielded archaeobotanical material. The residue includes one fragment of indeterminate cereal species, fragments of almond shells and common grape vine pips, some pieces of indeterminate taxa, fragments of charcoal and organic slag.

#### CQ4 (Table 4)

All samples taken in CQ4 belong to Stratum 1 (see also main report).

From Room 85, the bathroom (see main report), seven samples were collected. The material includes some fragments of grains and one awn of indeterminate cereal species. In addition, there are fragmented olive stones, almond shells and common grape vine pips, pieces of charcoal and organic slag.

Three samples were taken from the next room to the west, Room 86. They contained grains of indeterminate cereal species, a fragment of almond shell and common grape vine pips, one grain of brome grass, pieces of charcoal and organic slag.

From the outdoor area south of Room 84 and east of Room 85, five samples yielded material for analyses. The assemblage includes a spikelet fork of einkorn wheat, grains of indeterminate cereals, fragmented olive stones, fragmented and complete pips of common grape vine, pieces of charcoal and organic slag.

The assemblage from the seven samples collected in the area north and west of Room 87 includes one grain of barley, few grains of indeterminate cereals species, fragmented olive stones and common grape vine pips. Moreover, there is charcoal and organic slag.

One sample was taken from the area to the east of W136. It consists of grains of indeterminate cereal and grass species, one fragment of olive stone, complete and fragmented common grape vine pips. Another two samples were taken from the area to the east of W136 and to the south of W137. The material includes a few grains of barley, several grains of indeterminate cereal and grass species, fragmented stones of olives, fragment of almond shell, complete and fragmented common grape vine pips. In addition, there are four seeds of broad bean (*Vicia faba*), indeterminate legume fragments, and other indeterminate parts of plants.

#### Area A (Table 5)

In total 14 samples from Tomb RR yielded material for archaeobotanical analyses. Nine samples consist only of charcoal. In the remaining samples were one grain of einkorn wheat, one grain of barley, one fragment of grain similar to oat, one fragment of olive stone, seeds of common fumitory and dyer's croton, one seed of primula (*Primula* sp.) and organic slag.

## CONCLUSIONS

Of all investigated areas the most rewarding is the outdoor space north of Rooms 61, 77, and 78 in Stratum 1; Room 71 and the area east of it; Rooms 81 and 82, all in Stratum 2, and the area north of Room 67 and west of Room 70 in Stratum 3, all located in CQ1. The most interesting finds from CQ4 are from the outdoor area between Rooms 84 and 85 and from the south-eastern corner of the exposed area, which is enclosed by W136 and W137.

Rooms 71, 81, and 82 of Stratum 2 in CQ1 might have served as space for storage and/or food preparation: here, various cereal grains, remains of olives, grapes, almonds and pistacia, flax, legumes, some seeds of ruderal and segetal plants in addition to organic slag, which might represent the remains of fruit pulp, bread crumbs, or other debris of cooked food, were found.

As regards outdoor areas, the space north of Rooms 61, 77, and 79 (CQ1, Stratum 1), the area east of Room 71 (CQ1, Stratum 2), and the area north of Room 67 and west of Room 70 (CQ1, Stratum 3) could have been used as storage spaces, too, or, since they all seem to be located outside a building, as a place where food was prepared. Likewise, the investigated areas in CQ4 could be interpreted as storage spaces, places of food preparation or refuse disposal, the remains of which could have been scattered around due to their closeness to the surface.

For the first time in five years of archaeobotanical research at Hala Sultan Tekke,<sup>64</sup> the finds of legumes were preserved well-enough to establish the species. There is lentil, vetch, pea, and broad bean. They all belong to the principal pulses of Old-World agriculture.<sup>65</sup> Although they are often considered to be the food of poor people<sup>66</sup> they are rich in proteins<sup>67</sup> and improve the fertility of the soils if grown with other species or as rotation crops.<sup>68</sup>

Interestingly the finds of legumes derive from all three strata, which suggests that the closeness to the surface does not influence the results as much as the number of samples taken. Therefore, we may state that the larger the number of samples taken, the wider the range of species might be detected in the assemblage.

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<sup>64</sup> Kofel 2018.

<sup>65</sup> Zohary *et al.* 2013, 89.

<sup>66</sup> Zohary *et al.* 2013, 90.

<sup>67</sup> Zohary *et al.* 2013, 82.

<sup>68</sup> Flint-Hamilton 1999, 373.

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