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Socio-economic complexity at the Late Chalcolithic site of Tell Helawa, Kurdistan Region of Iraq

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Abstract. *Survey and excavation at Gird/Tell Helawa, a* ca. *10-ha site located in the Erbil Plain, revealed an extensive LC 2-3 period (late 5th to mid-4th millennium BC) settlement, with domestic structures and at least one large building destroyed by fire, located on the top of the main mound. Several sealings bearing stamp seal impressions were found in the building, showing the presence of administrative activity at the site. The evidence from Helawa allows investigating the socio-economic organisation of a small-scale Late Chalcolithic community in northern Mesopotamia in comparison with new evidence from on-going excavations and surveys in the Kurdistan Region of Iraq.*

Résumé. *Les prospections et les fouilles archéologiques de Gird/Tell Helawa, site d'environ 10 ha dans la plaine d'Erbil, ont révélé une occupation extensive durant le Chalcolithique récent 2-3 (Ve-IVe millénaires av. J.-C.), comportant des habitations et au moins un bâtiment monumental détruit par un incendie, situé sur le sommet du tell. Un certain nombre de sceaux portant des empreintes de cachets ont été trouvés dans le bâtiment, ce qui démontre l'existence d'activités administratives en ce lieu. Les données de Helawa permettent l'étude de l'organisation socio-économique d'une petite communauté du Chalcolithique récent du Nord de la Mésopotamie, en comparaison avec les résultats des prospections et fouilles archéologiques en cours au Kurdistan d'Iraq.*

Keywords. *Helawa, Iraqi Kurdistan, northern Mesopotamia, Late Chalcolithic, socio-economic complexity, seal impressions*
Mots-clés. *Helawa, Kurdistan d'Iraq, Mésopotamie du Nord, Chalcolithique récent, complexité socio-économique, sceaux*

INTRODUCTION

The Prehistory of Iraqi Kurdistan is currently being defined thanks to the great number of archaeological projects—including both large-scale surveys (*e.g.*, EPAS, UZGAR, LoNAP, EHAS) and targeted excavations—launched since 2010 throughout the Dohuk, Sulaymaniyah and Erbil governorates (Kopanias *et al*. 2015; Kopanias and McGinnis 2016; Ur 2017). In particular in the Erbil Plain, the EPAS team headed by J.A. Ur (Harvard University) identified dozens of Late Chalcolithic sites spread across the region and mainly distributed along ancient watercourses draining into the Upper Zab (Ur *et al*. 2013).[1] These sites are small and medium-size settlements (0.5-5 ha), apparently never exceeding 10 ha, and generally display a long occupation sequence, spanning at least from the Ubaid to the Late Chalcolithic. A high number of sites with surface finds related to the local LC tradition is attested, the density of which probably reached its peak at the end of the 5th millennium BC (LC 1-2). However, in contrast to the situation in the neighbouring northern (Upper Zab, eastern Khabur and Navkur plains) and eastern (Rania plain and

1. See also Ur J.A., Babakr N., Palermo R., Soroush M. Ramand S. and Nováček K. (forthcoming). The Erbil Plain archaeological survey: Preliminary results, 2012-2018. *Iraq*.

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Zagros foothills) regions, few LC 3-4 settlements with local artefacts have been identified and a surprisingly high number of Uruk-related sites is attested.[2]

New archaeological research at several sites—such as Tell Nader, Surezha, Helawa—is adding important details which, combined with data from the few previous Iraqi archaeological investigations (1960-1980), yield a more nuanced picture of local Late Chalcolithic developments in the Erbil Plain that may be compared with parallel processes at work in nearby regions. The widely-observed trend towards socio-economic differentiation, intensification and specialisation of production observed during this timespan in the Jezirah region may also be detected at Helawa and other settlements in the Trans-Tigridian area (*e.g.*, Tepe Gawra and Qalinj Agha), suggesting the active involvement of those sites in larger networks of exchange and the movement of people and goods during a period of intense regional and interregional connectivity. In the area west of the river Tigris (Sinjar, Upper Khabur), some sites (such as Tell Brak, Tell Hamoukar and Tell al-Hawa) attained an urban size during the LC 2-3 if not earlier. At the same time, a ranked settlement system developed, with small and medium-size sites scattered through the extensive dry-farming plains in which the major centres are located (Ur 2010; Stein 2012; Wilkinson *et al*. 2014; Lawrence and Wilkinson 2015; Frangipane 2018; McMahon 2019). Eastward of the Tigris, the wide scope and interdisciplinary character of ongoing field research are providing a broad spectrum of differentiated data—from detailed site sequences to geomorphological and environmental data—that are allowing local narratives on the emergence of social complexity on this region to be constructed (Iamoni 2016; Vallet *et al*. 2017, 2019; Skuldbøl and Colantoni 2018; Sconzo 2019).

This paper discusses the societal transformations occurring in the small-scale communities of the Erbil Plain during the LC 2-3 (5th to mid-4th millennium BC), focusing on the case-study of Gird/Tell Helawa, a 10-ha site located in the southwestern Erbil Plain and investigated by the MAIPE (Missione Archeologica Italiana nella Piana di Erbil) of the University of Milan. Surveys and excavations at the site documented an extensive late LC 2 and early LC 3 occupation of the mound, with domestic structures and at least one large—probably tripartite—building standing on the top of the main mound (Building 1, Operation B). The latter yielded several container sealings with stamp seal impressions and a rich inventory of pottery and other artefacts, comparable with evidence from a few contemporary sites in the Trans-Tigridian area (Tepe Gawra), and in the Jezirah and Upper Euphrates regions (Hamoukar, Tell Brak, Hacinebi, Arslantepe), where *cretulae* with stamp seal impressions were found in association with possible administrative, as well as cultic, buildings. Building 1 was ultimately destroyed by fire sometime before the final abandonment of the site, that was resettled only two millennia later, at the beginning of the 2nd millennium BC (Peyronel *et al*. 2019: 4).

SURVEYS AND EXCAVATIONS AT HELAWA

The MAIPE Project was initiated in 2013 to investigate two settlements in the Erbil Plain, Helawa and Aliawa, located 2.5 km apart along the course of two secondary branches of the Chai Kordara, one of the southern tributaries of the Upper Zab. Both sites are located in the area investigated by the EPAS survey and correspond to sites 272 (Helawa) and 246 (Aliawa) respectively (fig. 1; Peyronel *et al*. 2019: 4-8).

The site of Helawa stands about 22 m higher than the surrounding plain, with a maximum elevation of 332 a.s.l. at the top of the main mound and a minimum of 310 a.s.l. at its foot. The site covers a surface of 6.5 ha that includes a high mound to the south, and two gently sloping extensions to the north and north-east (fig. 2).

However, observation of CORONA satellite imagery suggests that the area of archaeological interest is larger, covering probably *ca*. 10 ha (Peyronel *et al*. 2016a: 88-89). The south and southeastern portion of the ancient settlement now lies under houses and farms of the modern village and the peripheral lower eastern part has been badly damaged by agricultural activity. The western and southwestern limits of the site can be easily identified in the bed of a watercourse, whereas the northern limit might be located *ca*. 170 m from the top of the mound and the eastern one *ca*. 220 m from the same point.

The intensive survey, carried out in 2013 and 2015 during two short campaigns, revealed a substantial LC 1-3 occupation (Peyronel and Vacca 2015; Peyronel *et al*. 2016b), whereas excavations (2016-2019) have brought to light a thick stratified sequence of well-preserved LC structures, some of which were burned down in a fire (Peyronel *et al*. 2019; Peyronel and Vacca 2020; fig. 3).

Based on the distribution of surface finds, it has been suggested that the LC 1-2 (5th millennium BC) were periods of substantial growth of the site. Sherds of the LC 1-2 period are

2. Ur *et al*. forthcoming, *supra* note 1.

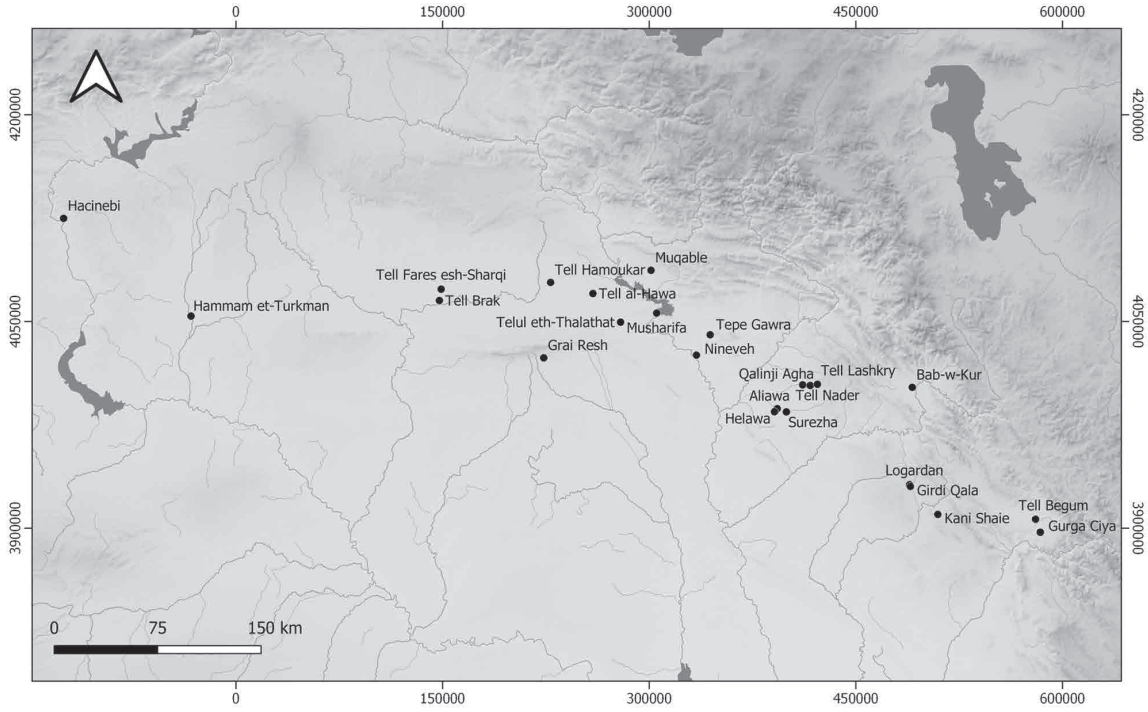


Fig. 1 – *Map of northern Mesopotamia showing positions of Helawa and Aliawa (MAIPE University of Milan).*

Fig. 2 – *3D model of Helawa (model Epas sketchfab.com; courtesy J. Ur).*

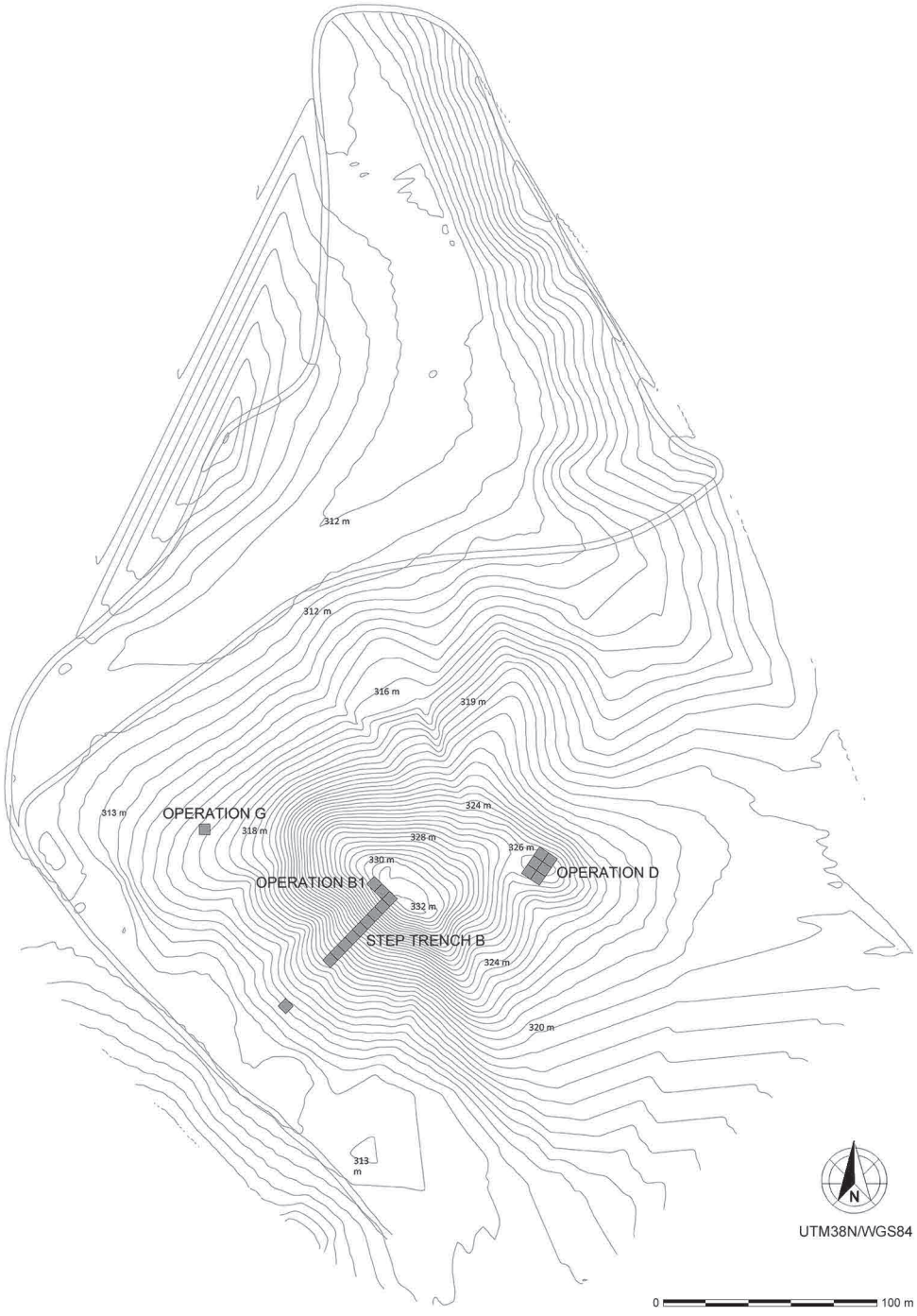


Fig. 3 – *Topographic map of Helawa indicating excavated sectors (MAIPE University of Milan).*

in fact scattered on top of the mound, on its southern and western slopes (CAs A-C), on its low extensions to the north and north-east (CAs E and D), as well as in the lower area surrounding the site (CAs G, H59-60). The overall distribution of surface material dated to the late LC 2 and early LC 3 (beginning of the 4th millennium BC) appears the same, although a significant difference stands out. The southern slope of the high mound seems to have been no longer occupied by

Table 1 – *Helawa periodisation (MAIPE University of Milan).*

Helawa period	Chronological period	Absolute chronology	Step Trench B phase	Operation B1 phase	Operation D phase	Operation G phase
I	Pre-Halaf	7000-5900 BC				
II	Halaf	5900-5300 BC	8			
III	Ubaid	5300-4500 BC	6-7			
IVA	Late Chalcolithic 1	4500-4200 BC	5			
IVB	Late Chalcolithic 2	4200-3850 BC	3-4	3A-B (LC 2/3)		
IVC	Late Chalcolithic 3	3850-3600 BC	2		5A-C	
V	Middle Bronze	2000-1550 BC	–	2B	2-4 (MB/LB)	
VI	Late Bronze I	1550-1300 BC	1	2A		
VII	Early Islamic	636-1000 AD	–	1		1
VIII	Modern	1922-present	0	0	0-1	0

this period, as suggested by the low number of LC 3 finds, compared to the large number of LC 1-2 sherds collected in this area, and by the stratigraphic evidence from the excavation of a long step trench.

The excavation, begun in 2016, of a 40 × 4 m step trench along the southern slope of the mound (Step Trench B, Squares B1 to B8). The stratigraphic sequence uncovered thus far dates from the Late Halaf to the LC 3 (7th-4th millennia BC) and consists of eight main architectural phases, each articulated in further sub-levels (table 1; fig. 4). Excavations in Squares B2-B8 documented a dense sequence of well-preserved superimposed structures, as well as massive excavation, levelling and terracing activities dating from the Ubaid to the LC 2. Conversely, the last phase of LC 2-3 occupation is attested only in Square B1-2. Thus, while erosion and slope wash certainly have removed part of the LC 3 occupation, it nevertheless appears that during this period the settlement was mainly concentrated on the top of the main mound extending to the north and north-east (Vacca *et al*. 2020).

The wealth of LC ceramics obtained from a lengthy stratified sequence of public and domestic contexts allows refinement of the chronology of this period in the Trans-Tigris, which until a few years ago was mainly known from re-analysis of the long stratigraphic sequences excavated at Tepe Gawra and Nineveh in the early 20th c. AD. The LC occupation at Helawa can be now compared with that of many other sites that

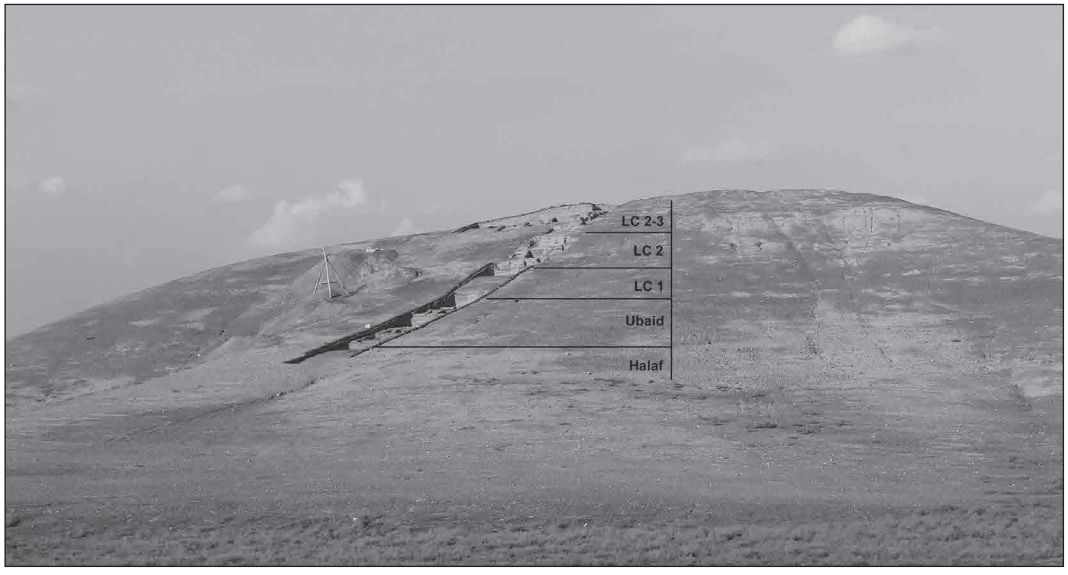


Fig. 4 – *Helawa, Step Trench B on the southern slope of Helawa with arrows indicating the periods of occupation (MAIPE University of Milan).*

are currently being investigated in the Kurdistan Region of Iraq and with the evidence from the Sinjar and Jezirah regions.

The latest phases of Late Chalcolithic occupation, which are discussed in this article, can be dated to the very end of the LC 2 and early LC 3 period on the base of a detailed ceramic chrono-typology associated to a fine-tuned stratigraphy and compared with other sequences in Upper Mesopotamia, as well as on some ^{14}C dating recovered from sealed context's samples. This phase has so far been investigated on the top of the main mound (Step Trench B and Operation B1, immediately to the west of the step trench) and in the lower mounded-area to the north-east (Operation D; fig. 3; see table 1 for the chrono-stratigraphic sequence in the different operations).

In the uppermost part of Step Trench B and in Operation B1, a large building (Building 1)—probably tripartite in plan, in which a number of sealings have been found—was partially investigated, while in Operation D thin mud-brick structures have been brought to light.

This evidence of the presence of a building with administrative functions on the highest point of the site at the beginning of the 4th millennium BC is of great interest, since at present similar situations are known only from few contemporary sites in Upper Mesopotamia.

THE LATEST LATE CHALCOLITHIC OCCUPATION AT HELAWA: STRATIGRAPHY, ARCHITECTURE AND FINDS

The latest phase of the LC occupation at Helawa has been identified on top of the mound in Operation B1 and Squares B1-B2 of Step Trench B, as well as immediately below the Late Bronze Age levels in Operation D.[3]

OPERATION D

In Operation D, early LC 3 deposits and structures have been identified in a sounding located in the southwestern sector of the excavated area (Squares D1-D2). The LC stratigraphy encompasses thick deposits without structures (Phase 5A), covering two sub-phases of poorly preserved domestic occupation (Phase 5B-C), cut by large later pits located in the eastern sector of the sounding (Peyronel *et al*. 2019: 9-10, 64-68). The occupation is characterised by irregular spaces with beaten-earth floors delimited by one-row mud-brick walls (*ca*. 25-30 cm thick). These structures are almost completely razed and may be interpreted as areas used for domestic activities, as also suggested by the presence of fireplaces (fig. 5).

The earliest Phase 5C is characterised by three mud-brick walls, W.78, W.81 and W.82, associated with beaten-earth floors equipped with two fireplaces (T.79 and T.80, TH.16.D.149+150). Immediately above the razed structures of Phase 5C, three other walls (W.72, W.73, W.74) delimiting the western part of a small room (L.71/TH.16.D.142) and the southwestern corner of another (L.76/TH.16.D.144), as well as an outdoor space to the west (L.75/TH.16.D.141), were brought to light. The latter was equipped with a small fireplace (T.77) made of mud-bricks, that showed traces of alteration by fire (Phase 5B). A few finds were present in the thin deposit covering the use surfaces: pottery fragments, some large trapezoidal blades of cream/pale brown flint, several obsidian blades, some polishing and percussion tools and one clay stopper.

This occupation level is covered by *ca*. 50 cm thick accumulation layers (SU TH.16.D.130+133+138+139+140), characterised by a dark-coloured soil with abundant animal bones (mainly domesticated species—sheep, goat, cattle and pig, but also gazelles) and burnt organic remains, fragmented mud-bricks, and a large amount of potsherds and flint and obsidian tools (Phase 5A). The nature of this stratification suggests that at a certain point in the early LC 3 the area was abandoned and used as a dump, which was then exposed to weathering. This interpretation is also based on the presence of superficial gypsum incrustations and patina on some LC sherds and lithic implements that underwent archaeometric analyses. These post-depositional traces can be interpreted as the result of the interaction of sherds and lithics with sulphate-rich fluids when they were buried, resulting in the formation of these incrustations.

A dozen of chert blades were found in the accumulation layers of Phase 5A: these are standardised long "Canaanean" blade segments of pale brown flint, obtained by using a highly-specialised pressure mode flaking technique not attested during the previous period. Blades of the same type were present in the uppermost LC level in Step Trench B, while no evidence of *in situ* production has been so far detected, suggesting the possibility that long "Canaanean" blades were imported to the site from elsewhere (Peyronel *et al*. 2019: 81-82).

The stratigraphic sequence documented in Operation D revealed that the lower northeastern part of the site was occupied during the very early LC 3 period by small domestic and productive structures with several rebuilding phases. Over the

3. Operation B1 was opened in 2018 enlarging the excavations 10 m toward the W (Squares B21-B41), to investigate the most recent LC phase uncovered in the Squares B1-B2 of the Step Trench.

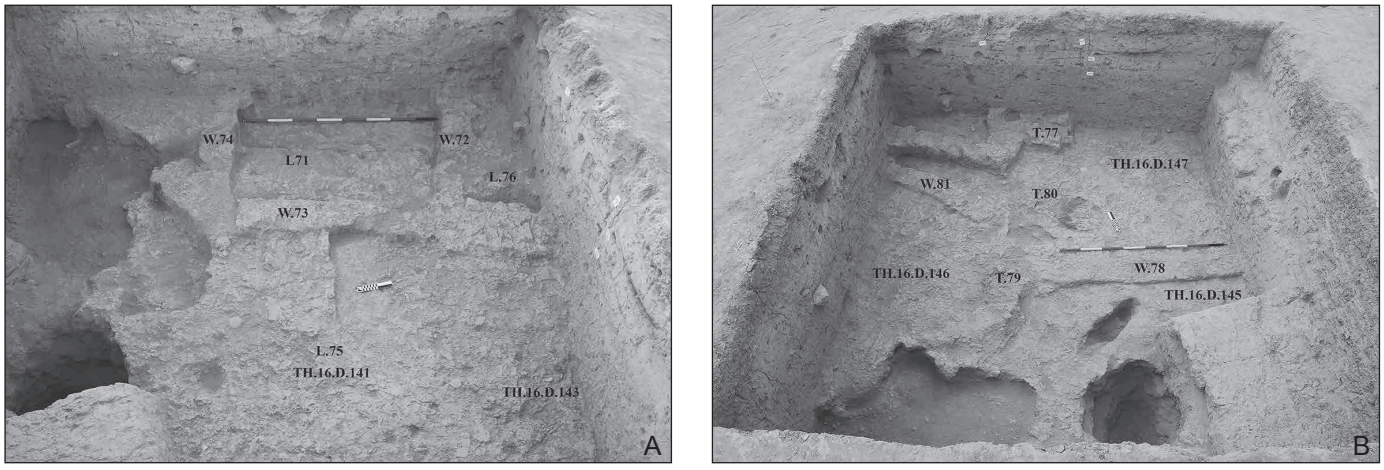


Fig. 5 – *Helawa, early LC 3 structures in Operation D:* ***A.*** *Phase 5B from the west;* ***B.*** *Phase 5C from the north (MAIPE University of Milan).*

abandoned LC structures at a certain moment during the LC 3 the area was used for dumping discarded material and was then partially levelled, probably at the end of the Middle Bronze Age when the site was re-settled.

The LC stratigraphy investigated in Operation D overlaps with that identified in Operation B1 and Step Trench B, located along the top edges of the main mound (fig. 3). Although erosive processes have caused the washing away of mud-brick structures, the original southern limit of the buildings appears to be preserved and corresponds to a terrace wall (W.18) running E-W that was documented in both Step Trench B and Operation B1.

STEP TRENCH B AND OPERATION B1

Immediately below the topsoil, the uppermost square (B1) of Step Trench B revealed a modern trench dug after the second Gulf War of 1991, when Helawa was used as a military outpost by the Iraqi army (Phase 0). In the western enlargement (Operation B1), an occupation dated to the Early Islamic Age (7th century AD, Phase 1) was responsible for some large circular pits cutting layers and installations (with a well-preserved *tannur*) dating to the Middle Bronze and Late Bronze I (Phase 2), as well as the LC stratification.

This later stratigraphy covers and partially cuts a sequence of LC levels identified on the top of the mound. The latest LC architectural phase (Phase 2 of the Step Trench, Phase 3 of Operation B1) consists of a sequence of building, refurbishing, filling and abandonment activities, which probably occurred during a limited time-span during the late LC 2 and early LC 3.

The earliest phase of the late LC includes a large building (Building 1, also named the "Burnt Building", because it was destroyed by an intense conflagration), only partially exposed during 2018 over an area of *ca*. 45 sqm, (fig. 6-8). It is located at the upper edge of the mound's southern slope and is aligned with its east-west axis. The portion of the building brought to light consists of a large rectangular hall (L.232) and a row of rooms of different sizes located on the southern side of the main hall (from east to west L.6, L.240, L.236, L.241+L.443; fig. 6). It is probable that L.232 is the central hall and that the building was tripartite in plan, although only the southern and eastern limits have been identified so far.

The southern limit of the building probably corresponds to W.450, which runs east-west and was constructed over a mud-brick terrace/basement (W.18), and the eastern limit is represented by the south-north walls W.4 and W.447. The structures extend beyond the excavation area to the north and west. The walls are *ca*. 50-60 cm thick, with two rows of quite regular square mud-bricks measuring 25-28 × 25-28 × 10 cm. The only exception is the rear wall W.447 which is 110 cm thick and seems to have been refurbished. The maximum preserved height of the walls is about one metre (W.4 and W.224, with ten courses of mud-bricks), while near the southern slope only the first course of the walls is preserved, for a maximum height of 10-15 cm, with the structures largely eroded and washed away. The floor of some rooms including L.232 is plastered, while beaten-earth floors characterise the other rooms.

The room in the building's southeastern corner, L.6, has been completely uncovered: it is almost square in shape (200 × 180 cm) and is connected toward the west with room L.240 (fig. 7). A door on W.224, leading to the central hall L.232, was

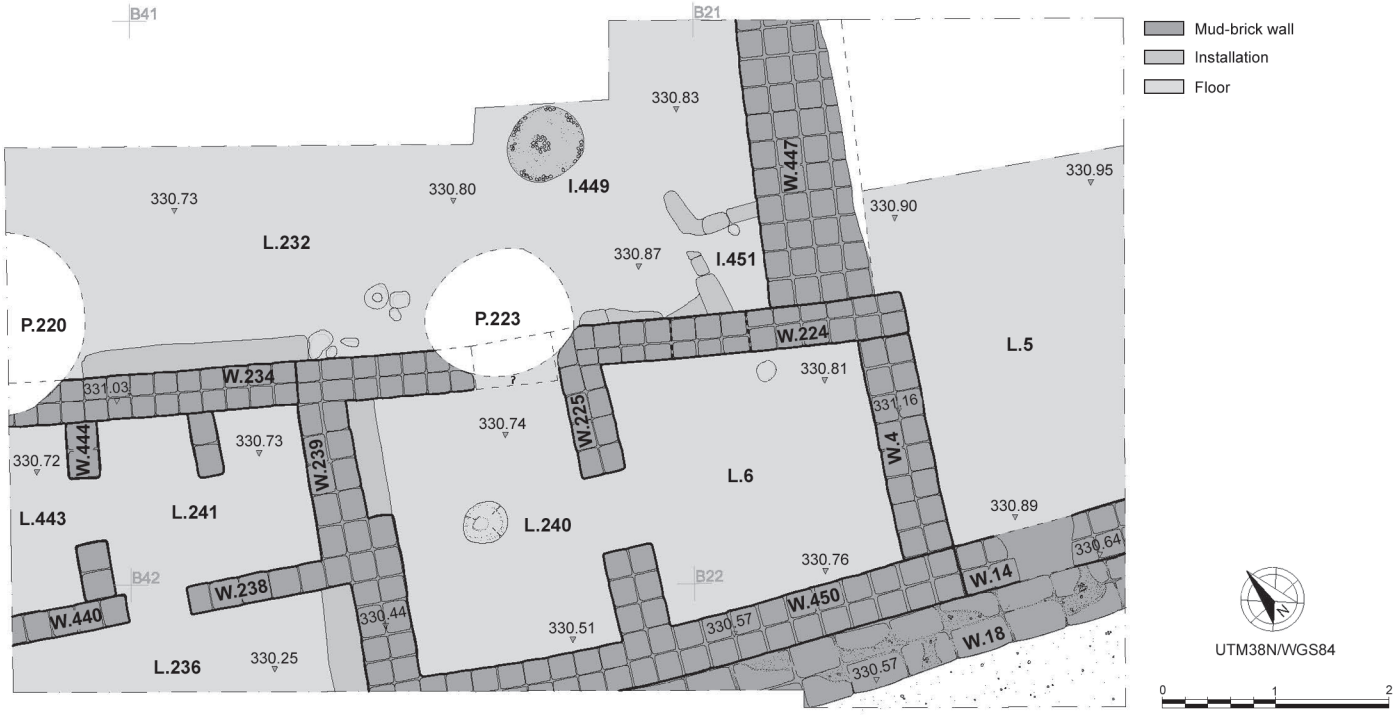


Fig. 6 – *Helawa, plan of Building B1 and Step Trench B Phase 2C, LC 2-3 period (MAIPE University of Milan).*

Fig. 7 – *Helawa, Building 1, LC 2-3 period. General view from the north (MAIPE University of Milan).*

Fig. 8 – *Helawa. Building 1, LC 2-3 period. General view from the south-west (MAIPE University of Milan).*

blocked during the last phase of use, then the room was sealed by a destruction layer (SU TH.16.B.8+TH.18.B.267), with collapsed mud-bricks and crushed vessels spread over the floor.

Several tools, including stone pestles and flint blades, a gypsum ornament and eighteen *cretulae* (nine of which with stamp seal impressions) were also retrieved from the room's fill (see *infra*). This space might be therefore considered a small storeroom, accessed only by certain individuals or officials who used to seal different kinds of containers (baskets, vessels), as suggested by the impressions present on the back of the sealings (see *infra*).

Immediately to the west of room L.6, another nearly Square room L.240 (250 × 234 cm) had a whitish lime-plastered floor equipped with a shallow basin in the middle and a low bench which abutted the western wall W.239. Two additional rooms were identified to the west, L.241 and L.236. Unfortunately, the marked erosion of this sector of the mound largely washed away the original deposit. Room L.241 is a small square room measuring 2 × 2 m, with a north-south internal wall made of a single row of mud-bricks dividing the northern sector, while room L.236, only partially investigated, has an elongated rectangular shape and is furnished with a terra *pisé* bench leaning against the eastern wall.

Only the southeastern part of the presumed central hall L.232 has been excavated, and therefore its original dimensions cannot be reconstructed at the moment (it was more than 6 m long east-west and more than 2 m north-south), although it was certainly a long rectangular room, and probably the central hall of a building belonging to the well-known tripartite typology attested during the LC period in northern Mesopotamia and Jezirah.

During the last phase of use some changes occurred: the passage connecting L.232 and L.6 was blocked and a new one was probably built, linking the long hall with L.240 (although a later pit cut the wall in correspondence with the presumed doorway), and a small trapezoidal installation was added to the eastern side of L.232.

Hall L.232 was carefully floored with whitish gypsum plaster, covered by a thick burnt layer containing ash and charcoal, probably from the roof, and mud-brick fragments from collapsed walls (fig. 7). A circular hearth was located in the eastern sector of the room (I.449), consisting of a shallow depression dug into the floor, *ca*. 80 cm in diameter; it was filled with charcoal and burnt clay. Four stamped *cretulae* were found in the destruction layer covering the room's floor, together with shell ornaments, spindle-whorls and stone tools.

Fig. 9 – *Helawa, Phases 2B-C of the Step Trench B, LC 2-3 period. View from the north (MAIPE University of Milan).*

In the excavated area, immediately east of W.4 (corresponding to Square B1 of Step Trench B) mud-brick walls and associated floors partially abutted Building 1 (Phases 2B-C of the Step Trench), may be considered to belong to another structure (Building 2), contemporary with the former. Overall, Phase 2 of Step Trench B is composed of three sub-phases (2A-C), all dating to within the same chronological horizon and comprising a sequence of rebuilding episodes, characterised by frequent repaving operations and mudbrick (re) constructions.

In the earliest sub-phase (Phase 2C), part of a large room (L.5) was exposed in the southern portion of Square B1 (fig. 9). The building's original floor lies at the same elevation as that of room L.6 of Building 1 and consists of a white plastered surface. It was covered by a destruction layer containing collapsed mud-bricks, pottery, lithic implements and burnt plant remains. Building 2 underwent a series of rebuilds assigned to Phases 2B.1-2 of the Step Trench. These involved the narrowing of the previous room L.5, through the insertion of a wall abutting W.4 and the construction of new east-west partition walls (W.9 and W.42; fig. 10). Two floor renewals are documented in both the southern (L.11 and L.40)

Fig. 10 – *Helawa, Phase 2A, LC 2-3 period (MAIPE University of Milan).*

and northern rooms (L.10 and L.41), raising the floor level by about 15-20 cm. The northern room (L.10/L.41) is equipped with a horseshoe-shaped hearth, which remained in use throughout both sub-phases 2A and 2B. At the present state of research, although it is not possible to assess with certainty the function of these structures and related refurbishments due to the limited area exposed (4 × 1.5 m), it seems likely that they can be ascribed to a building extending to the east of Building 1. Also, with regard to pottery assemblages it is not possible to recognise a marked chronological difference, and both Phase 2B and 2C have been assigned to a late LC 2 and early LC 3 horizon, and are considered contemporary with Building 1. A series of radiocarbon determinations are currently under way. However, a single ^{14}C date (LTL 17207A) already obtained from room L.5 (Phase 2C) and derived from a short-lived sample (*cerealia* indet. seeds) indicates a range of 4040-4013 cal. BC (6.6% probability), 4001-3894 cal. BC (52.4%), 3880-3799 cal. BC (36.4%; Peyronel and Vacca 2020: 321).

The most recent phase assigned to the LC period documented on the top of the main mound, in Operation B1 and Step Trench B, encompasses ephemeral rebuilding activities consisting of the restructuring of previous buildings and repaving operations. In Operation B1 a beaten-earth floor laid over the collapsed remains of Building 1 is documented. Conversely, the latest LC phase in the Step Trench (Phase 2A) features a mud-brick structure, which reused some walls of the previous phases. A new, badly preserved, east-west wall (W.8) was built up against W.3, delimiting room L.2 and a southern room that is not preserved. The floor of the southernmost room is, in fact, almost completely lacking and largely disturbed by later pits. However, the northern room (L.2) is better preserved and the floor covered by a few-centimetre-thick ash deposit, mixed with mud-bricks, sherds and charred barley remains. Wall W.4 was cut through to insert a triangular-shaped installation (L.7) that contained the bottom of a jar. This latest phase is badly preserved since it remained exposed for a prolonged time, a situation similar to that documented in Operation D (Peyronel *et al*. 2019: 21, fig. 23). The nature of the structures, and the common reuse of previous buildings, seem to argue in favour of the hypothesis of the site's gradual abandonment in the course of the early LC 3 period, as also proposed on the basis of survey data and the evidence from Operation D.

The finds found in the layers assigned to the last LC phase in the Step Trench and Operation B1 consist especially of stone tools and artefacts of various types, with a large number of chert and obsidian blades and implements. There were also occasional personal ornaments (micro-beads and small calcite, and terracotta beads, perforated shells) and some clay spindle-whorls.

The finds from Building B1, on the other hand, point to elite and administrative functions. A rhomboidal gypsum object was found in the filling of L.6 in Building 1 and an obsidian core from the same room is an indication of blade manufacture from raw material imported into the site.

Moreover, several sealings were retrieved in L.6 and in the central hall L.232. A total of thirteen sealings bearing stamp seal impressions and nine unsealed *cretulae* indicate that administrative operations were performed in the building.

The *cretulae* were sealed with square, circular or lenticular stamp seals depicting animals, plant and geometric motifs; no human figures have been recognised on the specimens found. The main group consists of schematic animal representations, with quadrupeds in a *tête-bêche* composition with a snake, quadrupeds with crossing long necks, and animals variously placed in the field (fig. 11A-C, F and 12A-B). One seal depicts a single schematic plant motif (fig. 11E and 12C) and another a geometric composition with a cross and four dots (fig. 11D and 12D). All the sealings bear one stamp-seal impression and their reverse sides show that they were used to close perishable mobile storage containers (bags and sacks, wicker baskets and wooden containers). Peg impressions (very badly preserved) are attested in two sealings from room L.6: they were probably used to secure a sack, but a possible function as door-sealings cannot be completely ruled out. No *cretulae* that were clearly applied to storage jars have been identified, and their absence corresponds with the paucity of this kind of pottery container in the Building 1 pottery assemblage, which is mainly composed of common table ware and a lesser quantity of cooking ware.

The presence of container sealings is particularly interesting since Helawa is one of the few sites in northern Mesopotamia and the Jazirah where LC seal impressions have been found (Pittman 2001: 418-426; Frangipane 2006). The closest parallels come from Gawra VIII, but also among the seals and sealings found at Brak (TW especially 18-14, HS1 and Majnuna), Hamoukar, Hacinebi B1 and even at Arslantepe VII some similarities may be seen, revealing the existence of a common interregional glyptic imagery elaborated during the LC 2 and 3 periods (Gawra: Rothman 2002a: 141-142, pl. 57-60; Brak/Majnuna: McMahon *et al*. 2007: 163-166; McMahon 2009; Hamoukar: Reichel 2002; Hacinebi: Pittman 1999: 46, fig. 2; Arslantepe: Pittman 2012). Currently, the only other evidence of LC 3 seal use from the Erbil Plain comes from Tell Surezha; this is a container sealing bearing a stamp impression with a geometric motif (Stein and Alizadeh 2014: fig. 5).

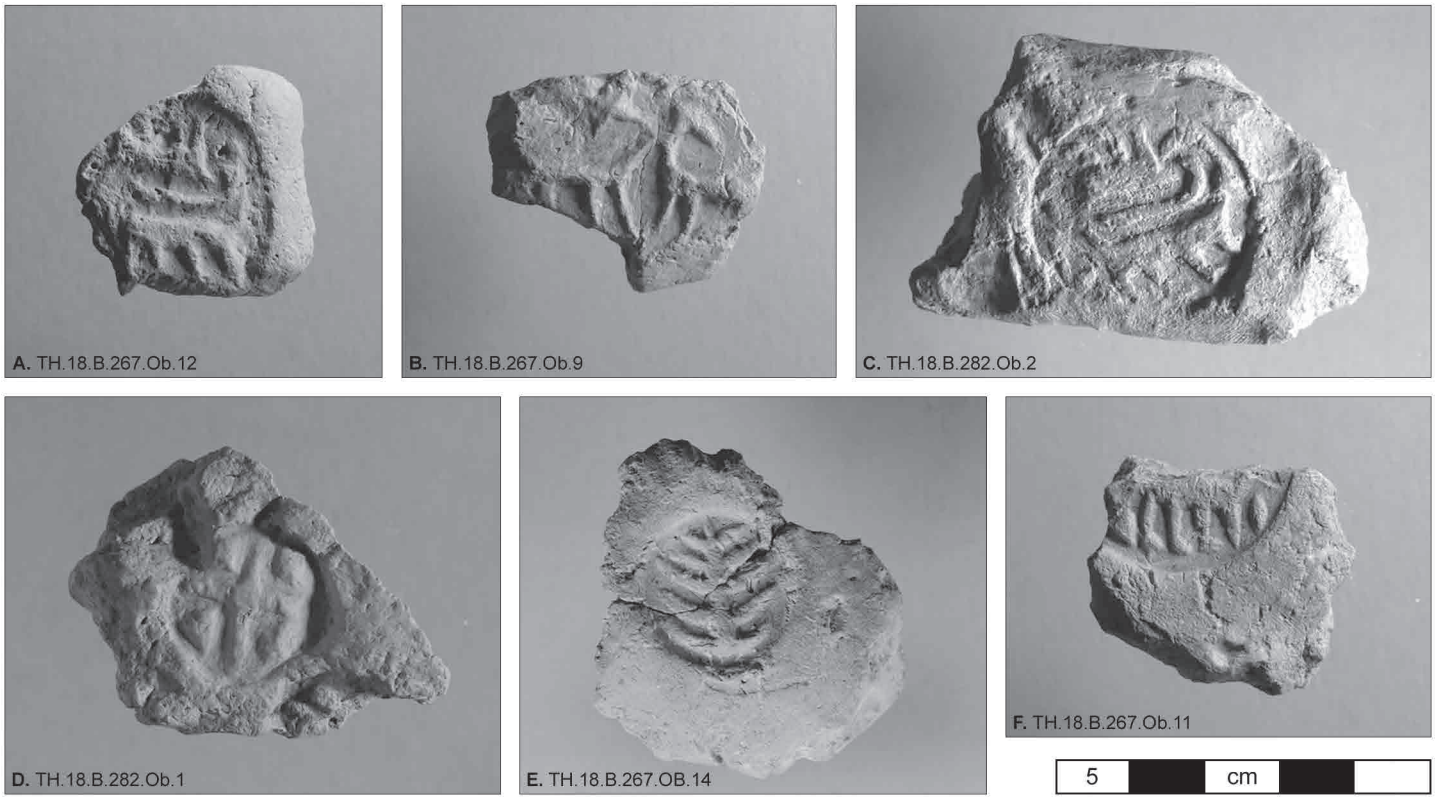


Fig. 11 – *Helawa, Building 1, LC 2-3 period: seal impressions from room L.6 (**A-B**, **E-F**) and L.232 (**C-D**; MAIPE University of Milan).*

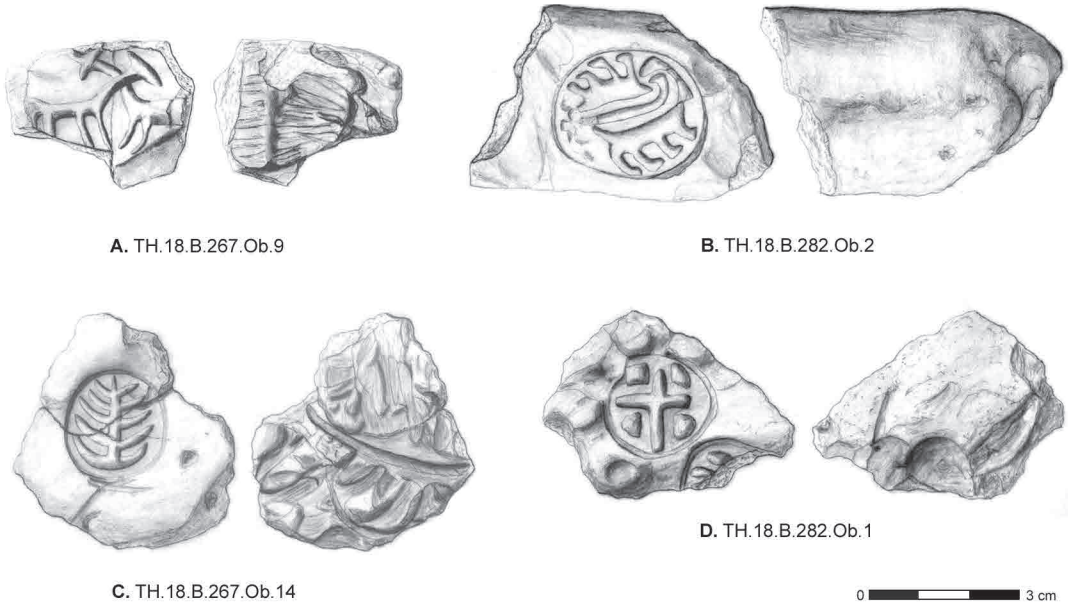


Fig. 12 – *Helawa, Building 1, LC 2-3 period: seal impressions from room L.6 (**A**, **C**) and L.232 (**B**, **D**; MAIPE University of Milan, drawings A.M. Masud).*

THE LATEST CHALCOLITHIC OCCUPATION AT HELAWA: POTTERY ASSEMBLAGES FROM OPERATIONS B AND D, STEP TRENCH B

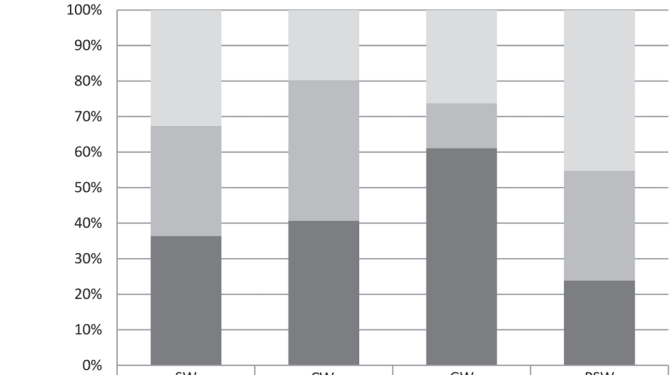
The pottery collected from buildings and layers assigned to periods Helawa IVB-C (the latter encompassing Phase 2 of Step Trench B and Phase 3 of Operation B1) and Helawa IVC (Phase 5 of Operation D) appears to form a coherent assemblage dating to the late LC 2 and early LC 3 horizon. Besides several common features documented in both Operation D and Operation B1, Step Trench B, there are also several features that suggest a certain chronological décalage between the two assemblages, with the occupation recorded in Operation D being slightly later (early LC 3) than that documented on the top of the mound (dating to the late LC 2 and early LC 3). This preliminary assessment will be maintained as a working hypothesis to be explored in further detail through the enlargement of the excavation areas on the top of the mound and the prosecution of the deep sounding in Operation D, the latter aimed at detecting the occupational sequence of the lower north-eastern mound.

Overall, the most common ware class is plain simple ware (SW), followed by cooking ware (CW), grey ware (GW), and painted simple ware (PSW; fig. 13).[4] The occurrence of the different ware categories is similar throughout the three excavated sectors, except for GW that is more frequently attested in LC 3 layers from Operation D, encompassing a greater variety of forms (fig. 13).

Among open forms in SW and PSW, wide flower pots, bowls with inwardly turned bevelled rims and platter-bowls either plain or painted, and deep bowls with a rounded profile and thinned lip are the most common types (fig. 14.1-6).

Wide flower pots are produced with chaff- and mineral-temper; two different types are documented: a squatter variety, with straight, very open walls, the so-called "V-shaped wide flower pot" (fig. 14.1; Baldi 2012: 398-399, type IV; 2016: 123, fig. 5.5),[5] and a second variety of wide flower pot, with flaring walls, thickened and rounded rim, manufactured with clearly visible large smoothed coils on the outer surface (fig. 14.2). Several of these vessels were found in room L.5 of Building 2 (2 complete items and 38 rim and base fragments) and in rooms L.6 and L.232 of Building 1 (3 complete exemplars from room L.6 and 10 large rim fragments from rooms L.6 and L.232). Conversely, in Operation D wide flower pots occur in low numbers (14 fragmentary vessels from Phases 5A-C), probably depending on the type of context (administrative *versus* domestic; Baldi 2012: 399-403).[6] These coarse, chaff-tempered bowls are widely attested from the LC 1 and throughout the LC 2-3, occurring at Gawra in two varieties: one earlier coarser variety (levels XII-X, LC 1-2), and a later finer variety, manufactured with a little chaff temper and with smoothed surfaces (levels IX-VIII, LC 2-3; Rothman 2002a: 55). The two types of wide flower pots from Helawa are identical to exemplars from Tepe Gawra IX-VIII (Rothman 2002a: fig. 9n-o). Vessels similar to those documented at Helawa occur also at Qalinj Agha levels I-VI and layer A (Abu Al-Soof 1966: pl. 4.10; Hijara 1973: pl. 14.8, 10-13, 15, fig. 23), Grai Resh (Kepinski *et al*. 2011: pl. 12: 9-10), Nineveh Lower Ninevite 3 (Gut 2002: fig. 11.17-20), Musharifa (Fuji *et al*. 1987: fig. 14.16-17), and Telul eth-Thalathat II level VIIa (Egami 1959: fig. 51.2), Muqable I (Sconzo 2019: fig. 9.1), and several LC sites in the EHAS, LoNAP and MAFGS surveys (Gavagnin *et al*. 2016: fig. 8.4; Giraud *et al*. 2019: 104; Sconzo 2019: fig. 7.4-5).

Another very common type is the deep or shallow bowl with inwardly turned bevelled rim, displaying different sizes, finishing and surface treatments, varying from large (maximum



	SW	CW	GW	PSW
Operation B1	157	19	25	19
Step Trench B	149	38	12	13
Operation D	175	39	58	10

Fig. 13 – *Percent occurrence of the different ware classes (MAIPE University of Milan): Operation B1 (n=220 sherds), Operation D (n=282 sherds) and Step Trench B (n=212 sherds).*

4. These counts should be considered preliminary since the registration of sherds is ongoing. Percentages are calculated from the preliminary total number of sherds per phase (fig. 13).
5. At Nineveh, this type is documented from Lower Ninevite 3 or Gawra B period at Nineveh (Gut 1995: pl. 55).
6. Significant concentrations of discarded çoba bowls and wide flower pots are generally found in association with public/communal and large private buildings in contexts related to food consumption or redistribution (Feres al-Sharqi level 9, Norşuntepe level 10, Gawra XI-XA, Hammam et-Turkman VA).

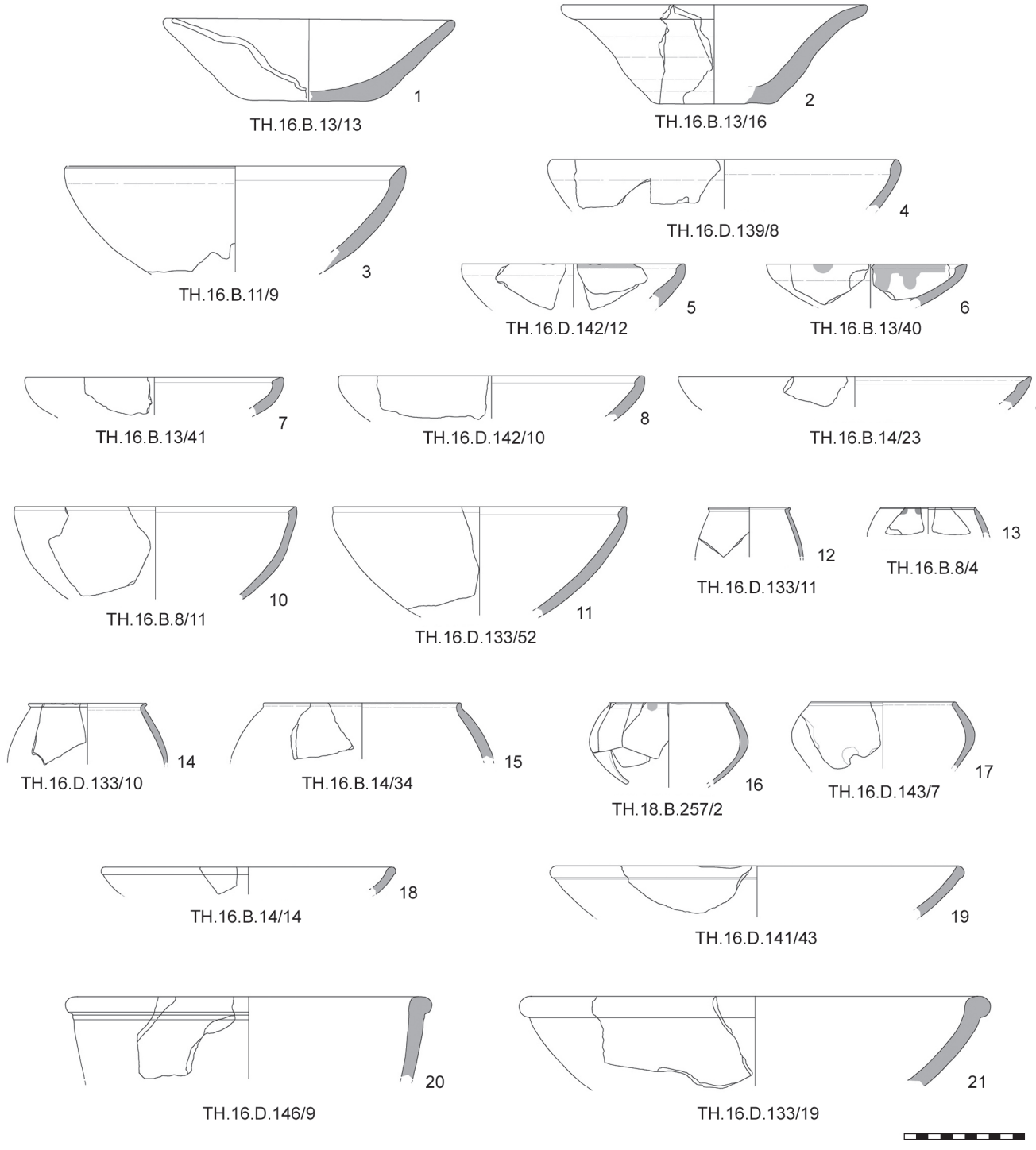


Fig. 14 – *SW and PSW open shapes: Operations B1 and D, Step Trench B, phases Helawa IVB-C and IVC, LC 2-3 and early LC 3 periods (MAIPE University of Milan).*

diameter *ca*. 30-40 cm) to medium-sized exemplars (diameter ranging from *ca*. 12 to 20 cm). The outer surface is generally horizontally and diagonally scraped, although several exemplars with carefully smoothed surfaces occur as well. Slight variations in the morphology of the rim can be observed, ranging from flattened to channelled upside rims, protruding inside or protruding both inside and outside (fig. 14.3-11). This bowl type is widely documented during both the LC 2 and early LC 3 in northern Mesopotamian sites.[7] Unpainted sherds prevail, while painted decorations occur on a limited number of items (fig. 14.5-6), and usually consist of red bands applied to the inner and outer rim. A few exemplars from Operation B1 and Step Trench B show a "blob decoration" painted on the edge (fig. 14.6), which is completely absent on vessels from Operation D, further supporting a chronological difference between these contexts. This painted motif is, in fact, quite common in late LC 2 levels at Tepe Gawra and is considered diagnostic of the "Gawra B" phase (levels X-IX; Rothman 2002b: 56, fig. 7l-t).

Moreover, Gawra impressed and incised wares are not documented in LC 2-3 contexts, while a single fragment of Gawra impressed ware was found in Phase 4 of Step Trench B (table 1). The fragment comes from an earlier building dating to LC 2 and represents the southernmost occurrence known at present of this specialised production (Peyronel *et al*. 2019: 30, fig. 31.7).

A further recurrent type, found in contexts of both Operation D and B, is represented by deep cups with a rounded or slightly carinated profile (fig. 14.12-17), which are also characteristic at Nineveh and Qalinj Agha (Gut 1995; 2002: 19). In this case too, a few morphological and decorative differences occur between the different assemblages. Cups from Operation B in some cases bear a painted decoration consisting of red bands and "blobs" (fig. 14.13, 16), suggesting an earlier late LC 2 date, while cups from Operation D are often characterised by a channelled rim and resemble exemplars from Nineveh assigned to the Gawra/Uruk period (fig. 14.12; Gut 1995: pl. 56.824, 826). Another frequent form is the club-headed bowl, encompassing various size categories in terms of rim diameter and wall thickness (fig. 14.18-21). This type can be considered to be a diagnostic form of a LC 2-3 transitional phase based on their stratigraphic occurrence at different sites; moreover, their morphology has been considered close to that of later types of hammerhead bowls characteristic of the LC 3-4 horizon in the Jezirah and Sinjar areas (Vallet *et al*. 2017: 79). The evidence from Helawa follows the trend already observed at other sites, with the earliest club-headed bowls occurring in LC 2-3 contexts and increasing numbers from levels assigned to the LC 3, when they are manufactured in both SW and GW.

Among closed forms, necked jars with vertical and interior-angled rims are the most frequent types, showing lingering profiles of the LC 2 tradition continuing well into the LC 3 phase (fig. 15.1-5).[8] Other recurrent shapes include neckless jars with sharply everted and angular rims (fig. 15.6-7),[9] necked jars with triangular rim (fig. 15.8-9),[10] and hole-mouth with beaded or triangular rims (fig. 15.10-11), manufactured in both SW and GW (fig. 16).[11] A few cannon spouts from globular jars are also documented among the Building 1 assemblage (fig. 15.12). A new feature that can be considered as a marker of the LC 3 period is the internally grooved rim jar which occurs exclusively in Operation D contexts (fig. 15.13-14). This type is widely documented in the eastern Tigris area at Nineveh (Gut 1995), Girdi Qala (Vallet *et al*. 2019: fig. 7.21) and in the eastern EHAS survey (Sconzo 2019: fig. 10).

Cooking ware includes a few varieties of globular vessels with out-flaring or flanged rims, as well as hole-mouth pots (fig. 15.15-17).

The ceramic repertoire of Phases IVB-C and IVC is characterised by a progressive increase of mineral tempered fabrics, fired in a reducing atmosphere. Grey ware (fig. 16) is quite common in levels assigned to the early LC 3 from Operation D, amounting to *ca*. 27% of the Phase 5 assemblage.[12] In particular, the majority of GW comes from the latest accumulation and dumping layers of Phase 5A (*ca*. 64%), while in Phases 5B and 5C it corresponds to 22% and 14% of the GW assemblage respectively (tot. no. of GW sherds 122). In the sequence documented by Step Trench B and Operation B1, GW occurs only

7. Parallels for vessels documented at Helawa can be drawn with Nineveh, Musharifa and Gawra XI-IX (Fuji 1987: fig. 14; Gut 2002: fig. 11.8-14, 13.16; Rothman 2002b: fig. 7, 10), Girdi Qala Trench C 10-8 (Vallet *et al*. 2017: fig. 19.1-2), as well as with Hamoukar, Feres al-Sharqi and Hammam et-Turkman VB (Akkermans 1988: fig. 9.140-142; Baldi and Abu Jayyab 2013: fig. 4). This type is documented also among surface materials in the MAFGS survey (Giraud *et al*. 2019: 105).

8. Globular jars with interior-angled rims are documented at Tell Brak HS 6 levels 6-7 (Matthews 2003: fig. 3.13); Nineveh, Lower Ninevite 3 (Gut 2002: 19, fig. 12.15-25); Qalinj Agha (Hijara 1973: fig. 20.14-20). This type also occurs among surface finds from the MAFGS (Giraud *et al*. 2019: 105) and LoNAP (Gavagnin *et al*. 2016: fig. 8.11) surveys.

9. Parallels for this type of angular-rim jars from sites that are currently being investigated in the Kurdistan Region of Iraq are from Gurga Ciya (Wengrow *et al*. 2016: fig. 12.4-7) and Girdi Qala (Vallet *et al*. 2019: fig. 18.3-4).

10. Comparisons for necked jars with triangular rim are with Tell Brak HS 6 levels 4-6 (Matthews 2003: fig. 3.14); Nineveh (Gut 2002: fig. 12.45-46); LoNAP survey (Gavagnin *et al*. 2016: fig. 9.9).

11. The closest resemblances are with Nineveh, Uruk grau (Gut 1995: pl. 58.859-862).

12. Out of 454 sherds recorded from Phase 5 levels in Operation D, 58% is SW, 27% is GW and 13% is CW, while PSW comprises 2% of the assemblage.

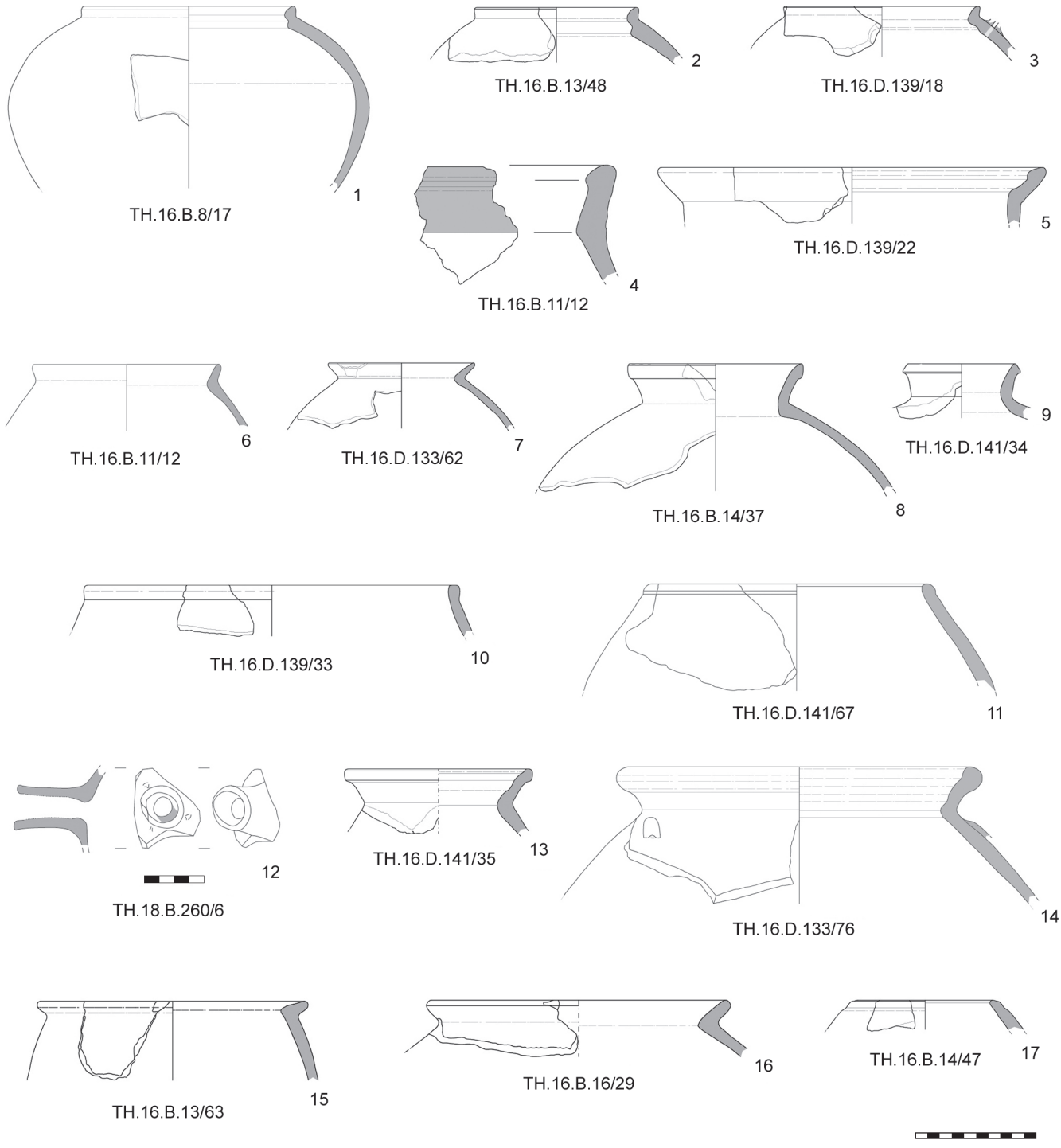


Fig. 15 – *SW (**1-14**) and CW (**15-17**) closed shapes: Operations B1 and D, Step Trench B, phases Helawa IVB-C and IVC, LC 2-3 and early LC 3 periods (MAIPE University of Milan).*

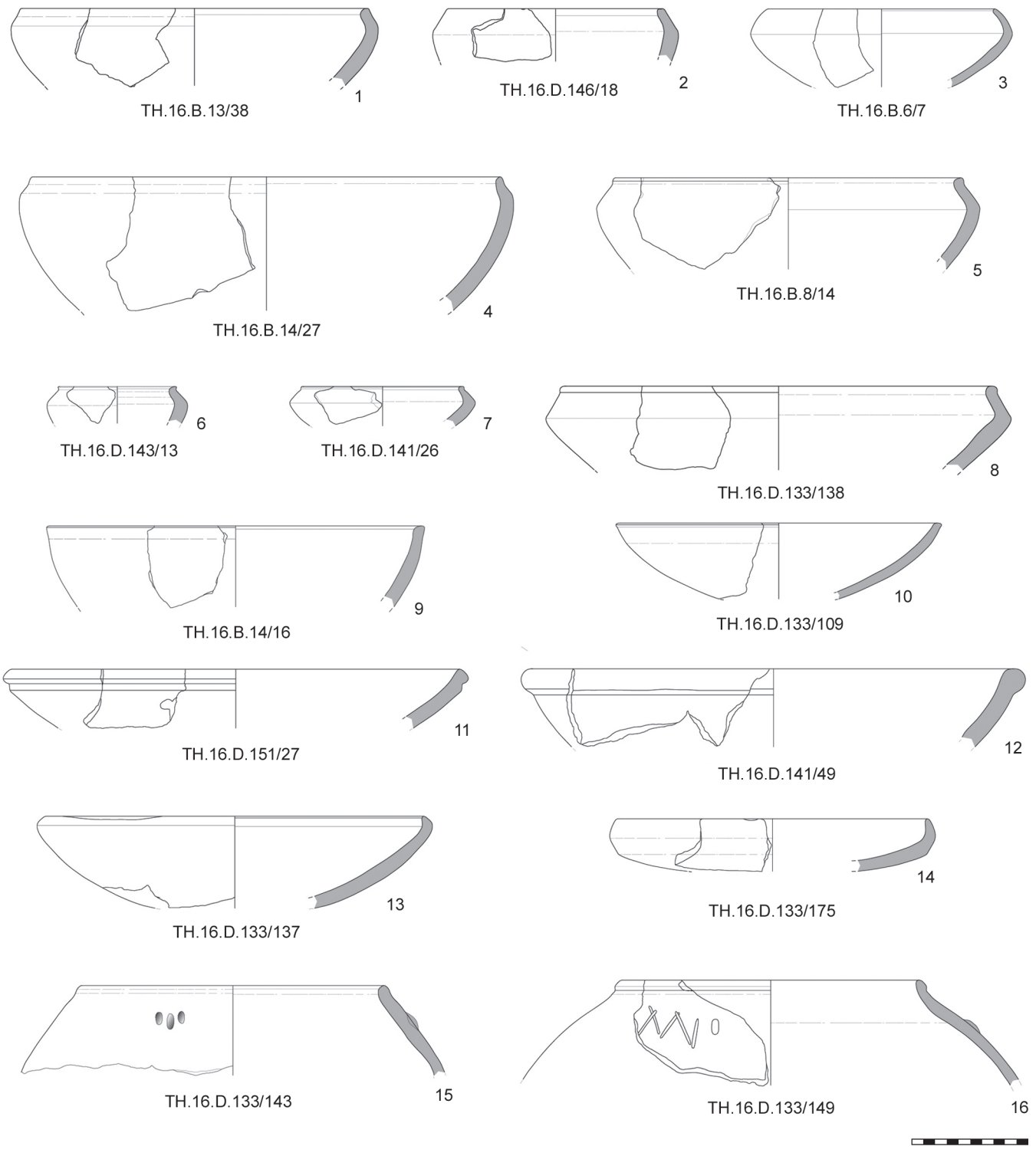


Fig. 16 – *GW open and closed shapes: Operations B1 and D, Step Trench B, phases Helawa IVB-C and IVC, LC 2-3 and early LC 3 periods (MAIPE University of Milan).*

in the latest LC levels dated to the LC 2-3, while it is absent in the assemblage of earlier LC 1-2 phases excavated thus far (Phases 3-5 of Step Trench B; Peyronel *et al*. 2019: 22-36).

The morphological repertoire of GW is standardised with few recurring forms. Besides common types documented in all three excavation areas, such as deep carinated bowls with in-flaring rims (fig. 16.1-2, 4-8) and hemispherical bowls with thinned rims (fig. 16.9-10), there are a few exclusive types found only in Operation D, including shallow bowls with inwardly flaring or club-headed rims (fig. 16.11-14) and hole-mouth jars with club-headed rims (fig. 16.15-16). In addition, some morphological differences can be recognised, for instance the more flattened shape of carinated bowls from Operation D (fig. 16.6-8) with respect to that documented in Operation B1 and Step Trench B (fig. 16.4-5).

GW is documented at other sites in the Jezirah and Trans-Tigris area, with the earliest occurrence dating to the late LC 2 period. In the Jazirah and Sinjar regions, it is found in late LC 2 and early LC 3 stratified contexts (such as Grai Resh IV-IIB: Kepinski *et al*. 2011: 60; Tell Brak: Felli 2003: fig. 4.21) or among surface collections (Wilkinson and Tucker 1995: 94, type 138). Al Quntar and Abu Jayyab (2015: 106) note a progressive trend through the LC 2-3 in the manufacture of GW bowls at Brak, Area TW, levels 21-19. At the beginning of the LC 3, burnishing became a rare surface treatment, and carinated thinned-lip bowls are progressively replaced by shallow bowls with thick rounded rims, suggesting a shift from fine labour-intensive to coarser mass-produced vessels (Al Quntar and Abu Jayyab 2015).

In the area east of the River Tigris, GW is documented at Nineveh and in its hinterland (Nineveh: Gut 1995: 248-251; 2002: 20; LoNAP survey: Gavagnin *et al*. 2016: fig. 9.22-24), at Tepe Gawra (Rothman 2002b: 56-57, fig. 9-10),[13] Qalinj Agha (Hijara 1973: fig. 15.9-12), Surezha (LC 3: Minc *et al*. 2019: 129), in the Eski Mosul Dam at Khirbet Hatara (Fiorina 1997: fig. 29) and at various sites in the Rania and Peshdar plains (Giraud *et al*. 2019: 105). Archaeometric analysis (INAA) carried out on four GW sherds from Surezha (Operation 5, LC 3 contexts) suggest the possibility that GW was both locally produced and imported. Two sherds—*i.e*., half of the sample—are characterised by a high arsenic and chromium content, absent from local clays around Surezha, suggesting to the authors the existence of multiple GW workshops and the circulation of GW vessels in a region extending beyond the Erbil Plain (Minc *et al*. 2019: 131-132). The other two GW samples from Surezha were manufactured with local clays of the Surezha group, and are characterised by chaff-tempered fabrics, and more rarely by chaff and sub-angular grit inclusions. Surfaces of "rolled-rim bowls and jars" are generally plain or lightly burnished (Minc *et al*. 2019: 129, table 2). At the site of Grai Resh, GW is one of the most common ware classes, being attested in increasing percentage from Level IV (*ca*. 14%) to Level IIB (*ca*. 43%), *i.e*., from the LC 2 to LC 3 (Kepinski *et al*. 2011: 60-61, fig. 23). In the latest IIB level, the morphological repertoire of forms appears more varied and significant changes may also be seen in the kind of fabrics employed, characterised by a progressive increase in organic tempers (from fine grit ware [FG] in Level IV to fine grit ware with abundant chaff [FGAC] in Levels III and II) to speed up the firing process, that took place in a reducing atmosphere. GW vessels appear coiled and wheel-finished, with slipped and burnished surfaces (Kepinski *et al*. 2011: 61-66).

Macroscopic observations of GW sherds from Helawa, coupled with petrographic analyses carried out on a few sherds from the 2013 survey, suggests the prevalent use of calcareous clays (with quartz, feldspars, iron oxides and rare dolomite crystals among the inclusions, <10 μm), with colours ranging from pale-brown to pale-yellow, tempered mainly with vegetal inclusions (porosity is *ca*. 5-30% of the total volume), but also with grit, and fired at 800-850°C in a reducing atmosphere.[14]

The closest parallels for the Helawa repertoire are from Nineveh, middle Ninevite 3 and northern Uruk A phases. In particular, club headed bowls and jars, as well as carinated bowls, are widely attested at Nineveh (Gawra and Uruk grau: Gut 1995: 248-251, pl. 57-58) with exemplars almost identical to those found at Helawa (fig. 16.1-2, 4-8, 11-12, 15-16). Similar types are also documented at the nearby site of Qalinj Agha (level IV; Hijara 1973: fig. 19.19) and at Tepe Gawra (level VIII; Rothman 2002b: fig. 10a, k) and include deep bowls with in-flaring rims and burnished surfaces.

Overall, the analysis of the pottery assemblage from the latest LC levels excavated thus far on the top of the main mound—in Operation B1 and Step Trench B—and in the lower mounded area to the north-east—Operation D—suggests a date between the LC 2-3 and early LC 3, without any clear later LC 3-4 diagnostics. The existence of several types common to the three excavated areas depends on the strong continuity in the local assemblage between the LC 2 and LC 3 periods, with several long-lasting LC 2-3 morphological forms. Nevertheless, a slightly later date might be suggested for the Operation D assemblage.

13. "Green-gray ware", as defined by Speiser, is documented from Gawra IX and continues in level VIII.

14. A program of archaeometric analysis is currently being carried out on a large sample of LC 1-3 sherds from Step Trench B and Operations D and B1.

The pottery repertoire from the latest LC occupational levels at Helawa shows very close parallels with Gawra (IX)-VIII, assigned by M. Rothman to the LC 2-3, and with the "Northern Uruk A" horizon, dated by R. Gut to the LC 3 (Gut 1995, 2002; Rothman 2002b: 58). A large number of parallels exists with several sites that are currently being investigated in the Trans-Tigridian region, arguing in favour of the formation of a large north-eastern Mesopotamia "ceramic area", encompassing the Kurdistan Region of Iraq, and characterised by the widespread occurrence of identical, yet locally manufactured, pottery types (Baldi 2016). Looser similarities may be observed with several sites located in the area west of the river Tigris, in the Jezirah and Sinjar regions, reflecting similar productive systems and common trends towards specialisation and intensification in pottery manufacture in the whole northern Mesopotamia from the LC 2 to LC 3.

DISCUSSION AND CONCLUSIONS

Some general observations may be outlined in this preliminary evaluation of the evidence of the latest LC occupation at Helawa. Based on excavation data from Step Trench B it appears that Helawa was continuously occupied from at least the Halaf period to the beginning of the LC 3. Shortly after, the site appears to have been abandoned, probably in the course of the early LC 3 (around 3700 BC?), although this reconstruction will be further explored through the extension of LC deposit excavations and the refinement of chrono-typological pottery studies coupled with a program of radiocarbon date determinations. However, during this timespan Helawa seems to have been gradually abandoned; the destruction event documented in Building 1 probably contributed to the onset of a slow crisis, as indicated by coarse refurbishments, additions and re-use of the main LC 2-3 buildings brought to light on the summit of the main mound—and as also documented by the thick dumping and accumulation layers excavated in Operation D, immediately below the LBA occupation.

By the early LC 3 period, the southern slope of the mound appears to have been unoccupied, probably in connection with the very frequent terracing and building activities evidenced in the previous LC 1-2 period, that caused a rapid vertical growth of the stratigraphy and consequently of the mound (Vacca *et al*. 2020). The LC 1-2 building activities probably made the southern side of the settlement unstable, possibly also as a result of landslides, compromising additional construction efforts, which were concentrated atop the main mound, where a large, probably tripartite, construction (Building 1) associated with centralisation and the redistribution of primary products and goods, was excavated (lying at an altitude of *ca*. 330 m a.s.l.).

During this time-span the lower mounded area to the north-east was also settled as a residential district. This small elevation, lying (at *ca*. 326 m a.s.l.) *ca*. 4 m lower than the summit of the main mound, appears to be the result of a later Late Bronze Age I stratification, which covered a 2-metre thick sequence of early LC 3 layers and structures. Overall, a substantial expansion of the settlement during the LC 1-2, a subsequent contraction during the late LC 2 and early LC 3, and its abandonment in the course of the LC 3 can be postulated.

The presence of an administrative building and associated structures seems to indicate that a sizeable complex was built on the highest part of the settlement, after terracing the thick, compact earlier levels. Although the archaeological investigation of the 4th millennium settlement is at an early stage, the architectural evidence already obtained invites comparison with the other contemporary sites in northern Mesopotamia (fig. 1).

The excavations at Tell Surezha, a small mound only 7 km distant from Helawa with a very similar occupation sequence, are bringing to light a series of well-preserved structures dating to the LC 1 period (Area B, Operations 2, 9-10: Stein and Alizadeh 2017; Stein 2018a; 2018b; Stein and Fisher 2019), while a limited sample of LC 2-3 levels has been identified in the step trench (Operation 1: Stein and Alizadeh 2014).

The only site known to possess significant LC 2-3 architectural features in the Erbil Plain is Qalinj Agha, excavated during the 1960s by an Iraqi expedition (Peyronel and Vacca 2015: 97-98, fig. 2-3). The small site (*ca*. 3.3 ha) revealed a substantial occupation dating to the LC 2 and early LC 3 periods (Levels I-V). Level III and IV settlements were both characterised by quite large tripartite buildings with annexes and other independent structures, probably domestic in function (Abu Al-Soof 1969; Hijara 1973). The "Western Temple" of Level III stands out for its overall size, the thickness of its mudbrick walls, and the presence of a niche with painted plastered decoration and a central hall divided by two pillars. It opened onto an irregular street and was part of a more extensive complex that included a second tripartite building to the west.

The large-scale excavation of a series of building phases dating to the Late Chalcolithic period makes Tepe Gawra, in the Upper Tigris region, one of the reference sites for the chronological periodisation of northern Mesopotamia (Speiser 1935; Tobler 1950; Rothman 2002a; Butterlin 2009). The lengthy 5th and 4th millennium BC sequence is crucial to the understanding of the emergence of social complexity in a small centre (*ca*. 3 ha), notwithstanding the stratigraphic

uncertainties and problems related to the old excavations, and the debated interpretation of the architectural evidence (Forest 2001; Frangipane 2009; Rothman 2009). After the Ubaid period (Levels XVIII-XIII), the LC settlement (XII-VIII) underwent a series of modifications and rebuildings, and generalised destruction on—at least—two occasions (Level XIIA and VIIIA). The late LC 2 and early LC 3 periods roughly correspond to Levels IX and VIIIA-C: the Level IX settlement results from the development of the previous settlement and is characterised by a large tripartite construction with axial in-antis entrance and protruding side rooms. A striking change is attested in the following Level VIIIC, with the appearance of a "public" building complex with a series of in-antis-type tripartite buildings and annexes atop the mound, from which a large number of container sealings have been retrieved (Butterlin 2013; 2018: 270-279). Whatever the specific interpretation of the tripartite buildings, the Gawra sequence undoubtedly testifies to the progressive development of centralised institutions that were able to exercise some forms of political and socio-economic control in this small specialised site.

Further west lies Tell al-Hawa, the largest site in northern Jezirah, which attained a size of 50 ha during the LC 3 and possessed a hinterland densely settled with villages up to 7 ha in the area (Ball 1990; Wilkinson and Tucker 1995: 43-47). The test-pits confirmed the importance of the 5th-4th millennium BC occupation, with abundant finds including a stamp seal impression, although no significant building remains were brought to light due to the limited excavation areas (Ball *et al*. 1989: 39-40).

Occupation of the Grai Resh site, located just south of the Jebel Sinjar in the drainage system of Wadi Tharthar, consisted of four main architectural phases (IV, III, IIB and IIA) dated to the LC 2 and early LC 3 (Kepinski 2009; Kepinski *et al*. 2011). In Area B, a tripartite building with a bead-making atelier in its southern annexe probably opened onto a courtyard to the east, revealing an arrangement similar to the coeval building complexes at Hamoukar (Kepinski *et al*. 2011: 55-57, fig. 13).

In the Upper Khabur, the LC 2-4 settlement of Hamoukar corresponds to the main mound of the site, with an area of *ca*. 12-15 ha which was enclosed by a thick defensive mud-brick wall, identified in the Step Trench (Area A: Reichel 2008: 81-82). An articulated complex with tripartite buildings, courtyards and annexes was excavated on the uppermost south-eastern part of the mound (Area B, Level 3). The complex is made up of three sectors (called Complexes A, B and C by the excavators), each one consisting of a tripartite building (TpB-A, the so-called "Burned Building", TpB-B and TpB-C), with the entrance on the southern side of the central hall, leading to a courtyard around which other smaller rooms, mainly devoted to the storage and processing of primary products, were arranged (Reichel 2011, fig. 2; 2012, fig. 6). A large number of finds was found in the collapsed debris and layers covering the floors, including nearly two thousand clay sealings with stamp-seal impressions, concentrated in secondary rooms of the tripartite buildings and in long narrow rooms added to the western long side of TpB-A and TpB-B.

The last occupation phase may be dated to the end of the LC 3 and was marked by an intensely destructive event, which might have occurred during the mid-4th millennium BC according to radiocarbon determinations. The evidence was interpreted by the excavators as the result of a siege based on of thousands of what are thought to be clay sling projectiles and correlated with the arrival of Uruk people from the south (Reichel 2006a; 2006b: 73-74; 2009: 81-82).

The largest LC settlement of the Upper Khabur is Tell Brak, where the final LC 2 and LC 3 occupation is mainly documented in Area TW, Levels 18-16. The British excavations brought to light a large tripartite building with a courtyard equipped with circular ovens and an area of residential structures to the east, which replaced the monumental complex of Levels 19-20 (Oates 2005; Oates *et al*. 2007). The Level 16 occupation ended in a conflagration, and with this last phase is associated an extraordinary cache of beads in a range of semi-precious stones, testifying to the LC 3 town's far-reaching contacts. Contrary to the first interpretation of the so-called "Eye Temple" brought to light by M. Mallowan, it has been ascertained that the building was founded before the LC 4-5 (Uruk period) and that the "gray" level from which the "eye idols" come from can be dated to the LC 2-3 (Emberling 2002). The site experienced impressive growth, reaching 130 ha during the LC 3 with an urban sprawl: the core area was surrounded by a large outer town, characterised by decentralised discontinuous occupation and the peripheral location of industrial areas, scattered dwelling clusters and refuse discharge areas (McMahon 2019: 28-30).

Occupation of the northern Mesopotamian regions is quite dense all over, although a striking difference is attested in relation to dimensions: the sites in the Trans-Tigridian area (*i.e*., Qalinj Agha, Gawra and Helawa) are small, never exceeding 10 ha, while evidence from the Upper Khabur and Sinjar regions testifies to the growth of mega-sites which reached their maximum size during the LC 2 period, when also monumental complexes and administrative buildings were erected, and continued well into the LC 3, although with a change in organisation and a probable reduction in the settled

area. The extensive and intensive surveys conducted in the Syrian Jazira and the Sinjar region revealed a multi-tier settlement hierarchy during the LC 2-3, usually characterised by an empty area outside the largest centres and two or three rank-size groups of sites beyond them. Recent data from the EPAS survey argue in favour of the substantial development of LC 1-2 sites in the Erbil Plain, documenting a process of settlement nucleation and concentration in well-watered land, especially along the tributaries of the Chai Siwasor and Chai Kurdara rivers.[15] Later on, from around the LC 3, a dramatic decrease in the number of sites has been observed—in parallel with the massive presence of southern Mesopotamian artefacts throughout the plain—and the process of settlement nucleation initiated in the LC 1-2 seems to have stalled.[16]

The reason why large sites apparently never developed in the eastern region cannot be yet fully understood and more archaeological investigations are necessary to shed light on the regional trajectories and settlement dynamics. However, it is clear that size differences did not prevent the emergence of socio-economic complexity, and it is noteworthy that Gawra and Helawa (and even the smaller village of Surezha) shared with the major LC 2-3 centres the administrative practice of sealing movable perishable containers of different types and the use of stamp-seals to manage and control goods. Helawa seal imagery closely resembles that from Gawra and Hacinebi especially, but also Tell Brak and Hamoukar, suggesting the development of a common LC 2-3 glyptic style that shared a very similar figurative repertoire, although with local/regional peculiarities, deeply rooted in the administrative devices and the common cultural background attested since the Late Neolithic in the northern regions.

Similarly, the results from ongoing survey and excavations suggest the existence of an extended eastern ceramic area encompassing the Trans-Tigris region, from the eastern Khabur to the Sharizor and Rania plains, that emerged in the course of the LC 2 and also characterised the following LC 3 horizon (Baldi 2016; Gavagnin *et al*. 2016; Sconzo 2019: 149; Giraud *et al*. 2019). This ceramic tradition, following the "Gawra horizon", shows connections with the western Iraqi Jezirah and Sinjar regions (Grai Resh, Tell Brak, Tell Feres al-Sharqi, Tell Hamoukar), although some significant differences do exist. During the LC 3-4 period, some of the pottery markers that were widespread west of the river Tigris, such as hammerhead bowls and carinated casseroles, were instead rare, if not totally absent, on the eastern bank of the river (Gavagnin *et al*. 2016; Giraud *et al*. 2019: 105; Sconzo 2019: 151, fig. 10.6-11). Typical markers of the Trans-Tigris LC 3 pottery horizon are club-headed bowls and jars, as well as jars with internally grooved rims manufactured in simple and grey ware. These types are documented in stratified contexts at Helawa (fig. 16), Nineveh, Tepe Gawra, and Gurga Ciya, as well as among surface finds collected in the eastern Khabur area (Sconzo 2019). Starting from the LC 2, the Erbil Plain appears highly integrated within the eastern Tigridian cultural horizon, becoming part of a wide network of multidirectional interactions (towards the Zagros and Iran, the Jezirah, the Taurus piedmont and further north the Van and Urmia districts, as well as towards Central Mesopotamia), featuring the circulation of raw materials and commodities. Both the largest, though non-urban, sites and the smaller centres participated in a *koiné* of cultural and technological traits, with homogeneous pottery and lithic traditions, clearly indicated by similar trends towards serial and standardised production (Baldi 2016) and the circulation of finished vessels (Ball 1997; Rothman and Blackman 2003; Minc *et al*. 2019), as well as by the inclusion of obsidian exploitation and distribution within the same circuit (Khalidi *et al*. 2016). A strong interaction can be also suggested for the network of long-distance exchange, as the distribution of beads and amulets in semi-precious stones, small copper items and rare objects in precious metals reveals.

Overall, the small centres located east of the Tigris, from the Zab plains to the Zagros piedmont, share most of the features found in the major towns of the Jezirah, although they never attained an "urban" status. Sealing practices and accounting devices, the architectural tradition of tripartite buildings, funerary customs, procurement of exotic materials, technical innovations and specialisation in manufacture processes indicate the trend towards growing socio-economic complexity and the emergence of institutional powers. It is therefore probable that these settlements were also "hubs" of the same northern Mesopotamian network of exchanges and interactions which fostered urbanism in the Jazirah (Lawrence and Wilkinson 2015).

However, more detailed information from archaeological contexts is needed to specify the general framework and to propose a reliable interpretative model. Evaluation of the Uruk-contact phase and its chronological variability is also crucial to propose explanations of regional developments, and data from LC 3-5 settlements are still scarce in the Erbil Plain (Vallet *et al*. 2019).

In this respect, ongoing excavations at Helawa and other sites are adding important new pieces of evidence concerning the Trans-Tigridian regions that enable a multi-scalar and

15. A similar trend has been observed in the EHAS survey area (Sconzo 2019).
16. Ur *et al*. forthcoming, *supra* note 1.

integrated approach, aimed at modelling diachronic changes in small-scale northern settlements (and among small-scale communities) in the course of the Ubaid and Chalcolithic periods, ultimately permitting the reconstruction of the core mechanics that triggered major changes in the settlement patterns and the overall organisation of human communities during the 5th-4th millennium BC in the Erbil Plain.

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