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# NEW EVIDENCE ON URUK EXPANSION IN THE CENTRAL MESOPOTAMIAN ZAGROS PIEDMONT

R. VALLET, J.S. BALDI, H. NACCARO, K. RASHEED, S.A. SABER and S.J. HAMARASHEED

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**Abstract:** *The new data from the sites of Girdi Qala and Logardan (Iraqi Kurdistan) are starting to change the picture of Uruk culture expansion. In the Central Zagros Piedmont, it began as early as the second half of the local Late Chalcolithic 2 (LC2), contemporary with South Mesopotamian Early Uruk. The Uruk presence is documented not only by a large ceramic assemblage, characterized by a broad range of shapes and techniques, but also by numerous production facilities which show that Uruk pottery was made on-site by resident craftsmen. These discoveries lead us to revise traditional conceptions of the Uruk expansion, based on the simple dichotomy between local populations and Uruk colonists. We can now assess the actual forms of intercultural exchange that were taking place over an unexpectedly long period of time.*

**Résumé:** *Les nouvelles données provenant des sites de Girdi Qala et Logardan (Kurdistan d'Irak) commencent à offrir une image renouvelée de l'expansion de la culture d'Uruk, qui débute, dans le piémont mésopotamien du Zagros central, dès la seconde moitié du Chalcolithique récent 2 local (LC2), contemporain de l'Uruk ancien du Sud mésopotamien. La présence urukienne est documentée non seulement par un vaste assemblage céramique, caractérisé par une grande diversité de formes et de techniques, mais aussi par de nombreuses installations de production, démontrant que la poterie Uruk était fabriquée sur place, par des artisans installés à demeure. Ces découvertes amènent à nuancer les conceptions traditionnelles de l'expansion urukienne, fondées sur une dichotomie élémentaire entre populations locales et colons urukiens, si l'on veut apprécier les modalités précises d'échanges interculturels s'inscrivant dans une durée insoupçonnée.*

**Keywords:** *Iraqi Kurdistan; Mesopotamia; Qara Dagh; Uruk expansion; Late Chalcolithic; Ceramic technology.*

**Mots-clés:** *Kurdistan d'Iraq; Mésopotamie; Qara Dagh; Expansion de la culture d'Uruk; Chalcolithique récent; Technologie céramique.*

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## INTRODUCTION

Excavation on the sites of Girdi Qala and Logardan, west of the Qara Dagh range in Chamchamal District (Sulaymaniyah Governorate) in Iraqi Kurdistan, started in 2015 with three weeks of fieldwork (6-27 October)<sup>1</sup>. The scientific purpose of this new project is to study the formation of complex societies,

the appearance of territorial polities and long-term intercultural processes. Indeed, despite recent developments (Kopanius and MacGinnis 2016), Southern Kurdistan remains poorly documented, although it seems an ideal laboratory for investigating these research questions. It is no exaggeration to say that the region is at the very heart of the Near East, a crossroad between Northern and Southern Mesopotamia as well as between Mesopotamia and Iran (fig. 1). The project more specifically focused on the Chalcolithic period, following on from our previous work at both ends of the Fertile Crescent, at Tell el 'Oueili in Southern Iraq (Huot et Vallet 1990; Vallet 1990 and 1996) and Tell Feres in Northern Syria (Forest *et al.* 2014; Vallet 2014 and in press; Vallet and Baldi 2016), and on the

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1. The project, under the responsibility of Régis Vallet, gathered 15 researchers and engineers from France, Belgium, Italy and Iraq. It is funded and supported by several institutions, mainly, in France, the Commission des fouilles (Excavations committee) of the Ministry of Foreign Affairs (MAEDI), and in Belgium the University of Liège, but also the CNRS, the University of Paris 1 and the IFPO.

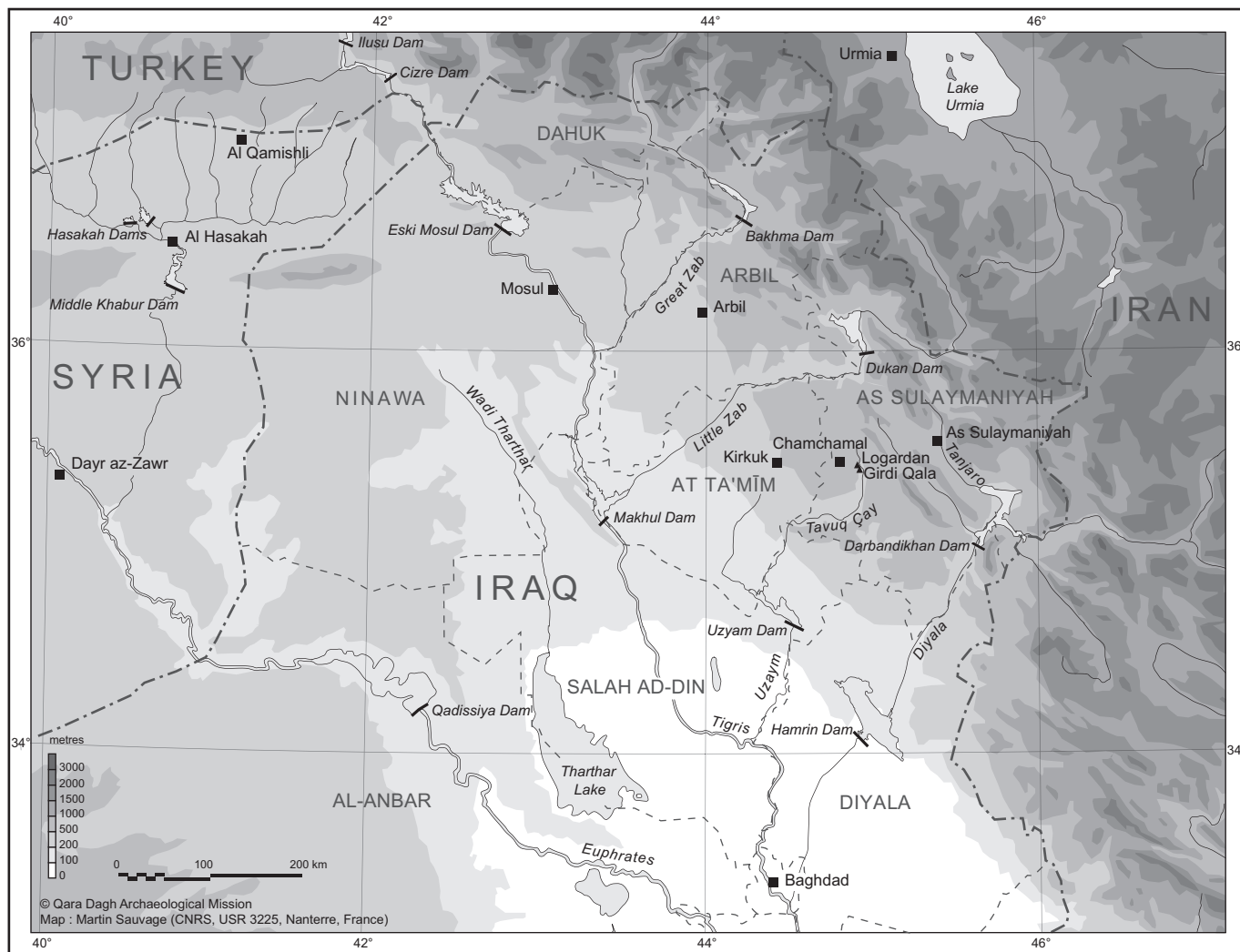


Fig. 1 – Geographical location of Girdi Qala and Logardan, Northern Iraq.

Bronze age, two periods for which the redefinition of cultures on a regional basis is a major issue.

The main goal of the first campaign was to begin to establish the sequence of the sites, by excavating well preserved *in situ* levels. At both sites we opened three trenches (A, B and C), of 10 x 5 m. We shall only present here the trenches that provided Chalcolithic remains.<sup>2</sup> The Uruk presence is docu-

mented by a series of features that excavations are just starting to reveal: a large craft area in Trench C at Girdi Qala and a stone ramp at Logardan (Trenches A and B). Moreover, the settlement located on a secondary north mound at Girdi Qala is still unexcavated, but the pottery identified during the surface collection belongs exclusively to Southern Uruk traditions and is characterized by a low rate of fragmentation (Orton 1993). It could suggest the presence of an Uruk enclave abandoned even before the end of the Late Chalcolithic, with little disturbed contexts. Likewise, the understanding of the Uruk presence at Logardan requires the identification of larger and well-stratified evidence. But the presence of the stone ramp (as well as its chronology) offers a glimpse of the degree of social organization and integration between local inhabitants and

2. At Girdi Qala, Trench A, under the responsibility of Dominique Parayre (University of Lille 3) and Martin Sauvage (CNRS), was set to test the upper levels of the main mound and the possibility of an extensive excavation of its flat summit, while the operation in Trench B, conducted by L. Colonna d'Istria (University of Liège), at the opposite side of the hilltop, had a stratigraphic purpose. They encountered Hellenistic, Sasanian and Islamic levels (forthcoming report).

southern settlers. In other words, in the coming years, the archaeological record from Girdi Qala and Logardan will enable us to re-open the debate on Late Chalcolithic–Uruk ‘culture-contact’.

### CULTURE CONTACTS IN THE URUK PHASE

In the archaeological literature on late prehistoric Mesopotamia, the relations between the northern and southern part of the region have always been examined with a special attention. In particular during the 1990s and the first half of the 2000s, many archaeological studies and reflections have stressed differences, parallelisms and connections between North Mesopotamian Late Chalcolithic polities and Southern Uruk proto-cities (Rothman 1993 and 2001; Rothman and Peasnell 1999; Stein 1999; 2001 and 2002a; Gut 2002; Postgate 2002). This dynamic was mainly fueled by new information about northern proto-urban centers (especially Tell Brak and Arslantepe: Oates and Oates 1993; Frangipane 1993; 1996; 2000; 2001 and 2002), as well as by reassessment of ancient excavations (as Nineveh and Tepe Gawra: Gut 1995 and 2002; Rothman 2002). Data from Southern Anatolia and Northern Syria were clearly showing that Northern Mesopotamia has been the center of an independent proto-urban development as old as the southern one. As a consequence, the debate focused both on dynamics and chrono-cultural issues of North–South relations (Marro et Hauptmann 2000). On the one hand, micro-scale approaches have been applied at specific sites (especially at Hacinebi: Stein 2001 and 2002a-b)<sup>3</sup> as mirror of a wide complex organization; whereas the large-scale perspective of Wallerstein’s (1974 and 1980) theory of the “World System” has provided a main interpretative outlook since the 1990s (Algaze 1993; Stein 1999). On the other hand, the adoption of the Santa Fe chronological chart (based on the Late Chalcolithic periodization: Rothman 2001) clarified several cultural and terminological misperceptions, largely due to the fluid (and inappropriate) definition of ‘Northern Uruk’ to indicate the phase of culture contact. However, since the reassessment carried out by P. Butterlin (2003), discussions have virtually ceased. Ever since the paradigmatic model of Greek expansion in the Mediterranean was proposed (Stein 2002b) and the idea of political expansion revised in favour of economic and trade models (Stein 1998; Algaze 1999),

no further theoretical arguments have emerged to feed the debate.

The same reasons that had awakened interest in North–South relations—namely increasing evidence for a highly structured social complexity in the North—gradually pushed attention towards indigenous northern dynamics (al-Kountar and Reichel 2008; Reichel 2009; Frangipane 2009 and 2010). At the same time, since the new data mainly concerned northern polities, the interpretive schemes about the Uruk network and settlements remained quite stable. Despite the biased character of the available data on the Uruk expansion—almost exclusively limited to the Euphrates basin—general explanatory models have not evolved (Badler 2002; Habibi and Karami 2008–2009). Indeed, scholars had noticed the unsatisfactory nature of theories based on a too incomplete record (Butterlin 2003; Reichel 2008–2009), but they did not have sufficient information to suggest alternative hypotheses. Actually, despite many re-evaluations of the theoretical schemes based on a core-periphery dichotomy, the Uruk expansion is still often conceived (Eichmann 1991 and 2007; Goulder 2010; Gopnik and Rothman 2011) as a dynamic between a dominant area (the South, with focus on highly skilled intensive production) and a marginal zone (the North, with focus on low skilled extraction and production of raw materials). Indeed, as regards the so-called Uruk colonial expansion, solid archaeological evidence exists in the North for the second half of the 4<sup>th</sup> millennium BC (Late Chalcolithic [hereafter LC] LC4–5 phases), with the foundation of main colonies as Habuba Kabira, Jebel Aruda, Brak TW 12, Jarablus Tahtani or Hassek Höyük (Strommenger 1980; Strommenger *et al.* 2014; Van Driel and Van Driel-Murrey 1979; Van Driel 1980; Oates and Oates 1993; Vallet 1997a–b and 1998; Stephen and Peltenburg 2002; Helwing 2002; Forest and Vallet 2008).<sup>4</sup> But for the first stages of the Uruk expansion in the North, current knowledge is restricted to the settlement of Sheik Hassan (Boese 1995; Bachmann 1998a–b) and to some southern enclaves within northern villages (as at Hacinebi, Samsat or el-Kowm: Stein 2001; Özguç 1992; Cauvin et Stordeur 1985).

Obviously, after just one short season of excavations, the evidence from Western Qara Dagħ is still limited and the aim of this paper is not to use some scattered elements to develop general theories. The purpose is rather to present and briefly

3. In this sense, the thematic issue on the Uruk expansion in *Paléorient*, vol. 25.1 (1999), with its large discussions about Hacinebi and the Uruk colonial sphere, marked a focal moment of the archaeological debate.

4. It is never superfluous to stress that, in the same time, the archaeological record for the South is quite limited. The notion of “Uruk sphere” in itself is an *antonomasia*, based essentially on the sounding in the Eanna area (Nissen 2002).



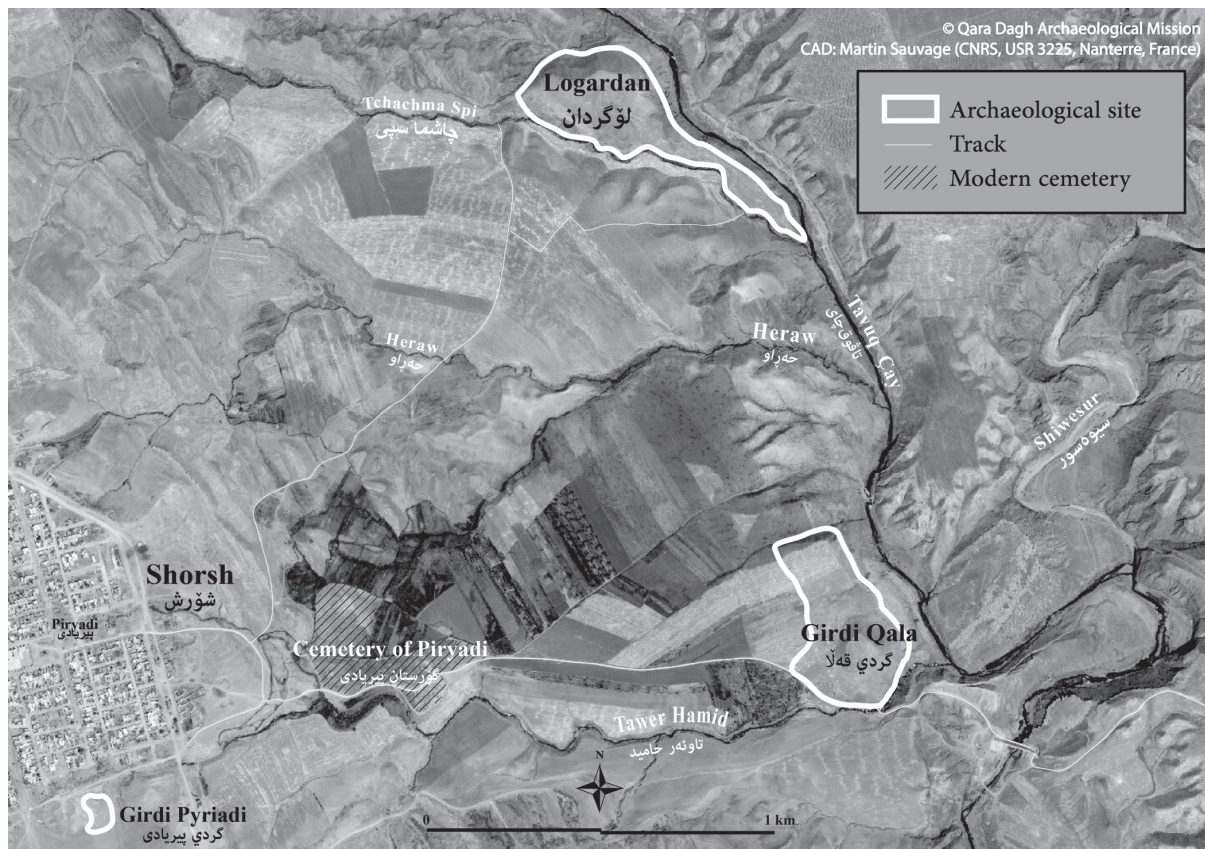


Fig. 2 – Satellite view of the micro-region around Girdi Qala and Logardan with their respective position and limits.

discuss data which contradict some longstanding chronological assumptions about the Uruk expansion and shed new light on the very poorly known topic of craft production within the Southern Uruk colonial network.

## THE SITES

The sites of Girdi Qala and Logardan are located in the eastern part of the plain of Chamchamal (fig. 2), on the west bank of the river Tawuq Cay that runs to the south-east, parallel to the djebel Qara Dagh and then, more to the south, to the south-west to join the Nahr al Uzaym that flows itself into the Tigris. The river has many tributaries, mostly on its west bank, and both sites are built at the junction of two of them, the Tachma Spi and the Tawer Hamid (fig. 2). Two brief surveys of the sites in April 2014 and June 2015 had convinced us of their scientific potential. According to the surface material that

we were able to identify, Girdi Qala displays a sequence ranging from the LC1 to Islam, and Logardan, less than 1.5 km to the north, from the Halaf period to the Iron Age. Girdi Qala (Lat. 35°30'59.10"N/S – Long. 44°53'00.93"E/W) is a typical tabular tell of 15 m high (figs. 3-4) with a diamond-shape flat top (80 x 70 m; 0.45 ha). The base of the tell covers an area of approximately 140 m (NS) x 120 m (EO), *ca* 1.32 ha, but the site is not limited to the proper tell and extends beyond, particularly to the south (over a length of 40 m), according to the topography, the distribution of the surface material (that covers *ca* 3.5 ha), the geomagnetic survey and our Trench C. Moreover, we discovered during the campaign that the site has a northern extension, 150 m to the north-west, over a secondary low mound (of *ca* 200 x 150 m, adding at least 2 ha to the site) entirely covered by Chalcolithic material (fig. 4). The total length of the site is about 380 m from the north-west to the south-east. Logardan (Lat. 35°31'42.17"N/S; Long. 44°52'34.78"E/W) is quite different (fig. 5). It is not a regular tell. The site is set on top of a high (27 m) natural hill, roughly triangular in

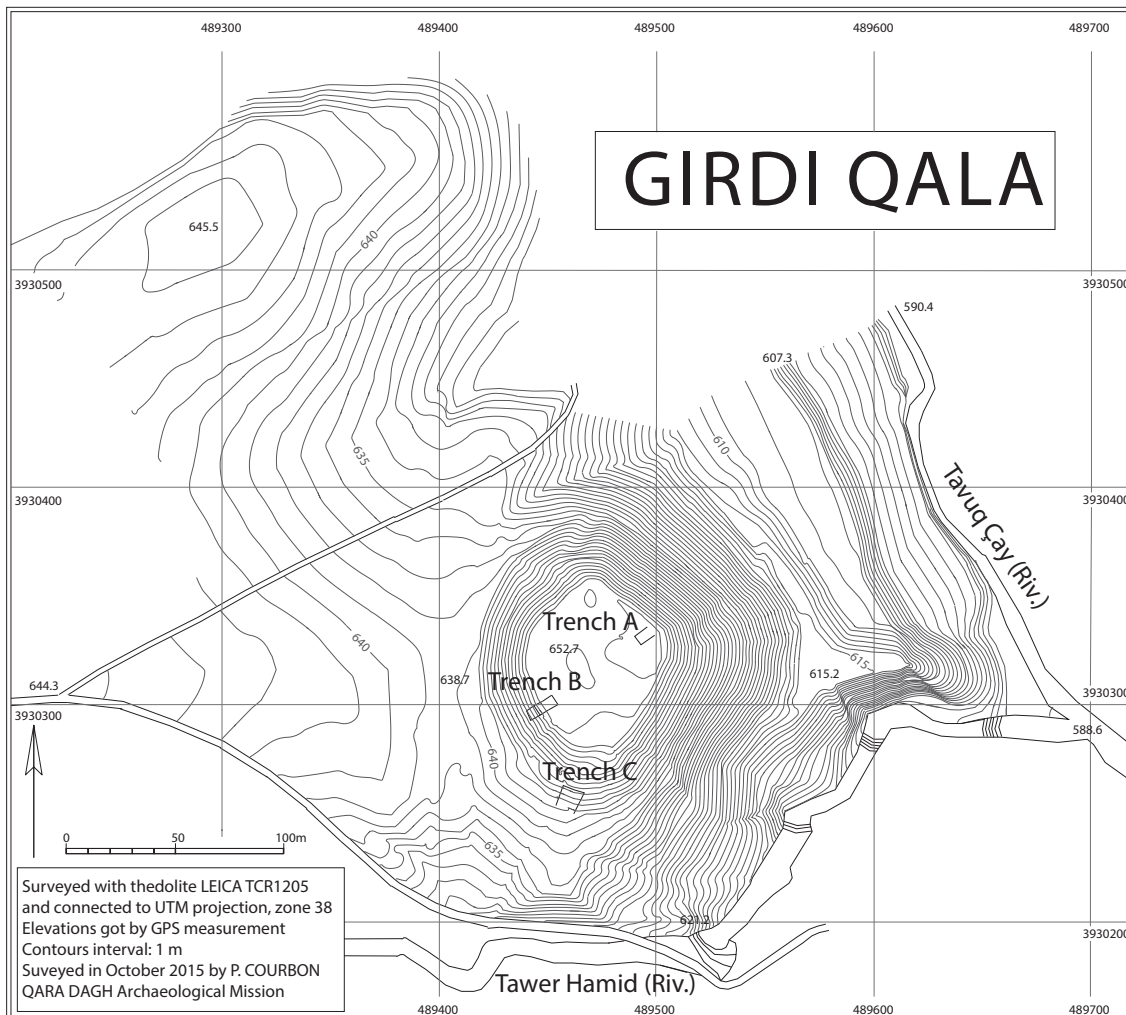


**Fig. 3** – *Girdi Qala, a view from the southwest.*

shape with steep slopes, except to the east where the ground gently slopes down through three successive terraces (225 x 165 m altogether at the summit of the hill, *ca* 3.7 ha) that proved to be partly artificial (fig. 6).

### FIRST EVIDENCE OF THE URUK PRESENCE AT LOGARDAN

At Logardan, the main stratigraphic operation (Trench C) has yielded limited Uruk evidence and much more extensive remains dating back to Halaf, Early Ubaid and the Bronze Age. It confirms the results of the surface collection previously carried on in April 2014 and June 2015.



**Fig. 4** – *Girdi Qala, topographic map.*



The excavation in Trenches A and B has focused on the retaining wall of a ramp identified on the south-western slope. Initially, Trench A was conceived as a small test trench on the south-west flank of the mound, where the Chalcolithic finds



Fig. 5 – Logardan, a view from the west.

(from Halaf to Late Uruk) were so abundant. The aim was to clarify the issue of the substratum of the site, rather than to begin immediately with a time consuming deep sounding at the top, that would not have given us decisive information in time. As we thought, the artefacts had slipped down from the top and the site rests upon a natural hill. At the same time we discovered a completely unexpected feature: the retaining stone-wall of a ramp. Some of its stones were visible on the surface higher to the east, where we placed a second trench (Trench B). So it turned out that the main goal of both operations was to clarify dimensions, stratigraphic relationships and dating of this massive stone structure, clearly inherent to an important phase of the settlement. Such a construction implies the use of considerable workforce to provide an access to the high part of a site. If the top of the hill (a quite restricted space) deserved a similar investment in terms of time and labor, it was obviously considered as significant.

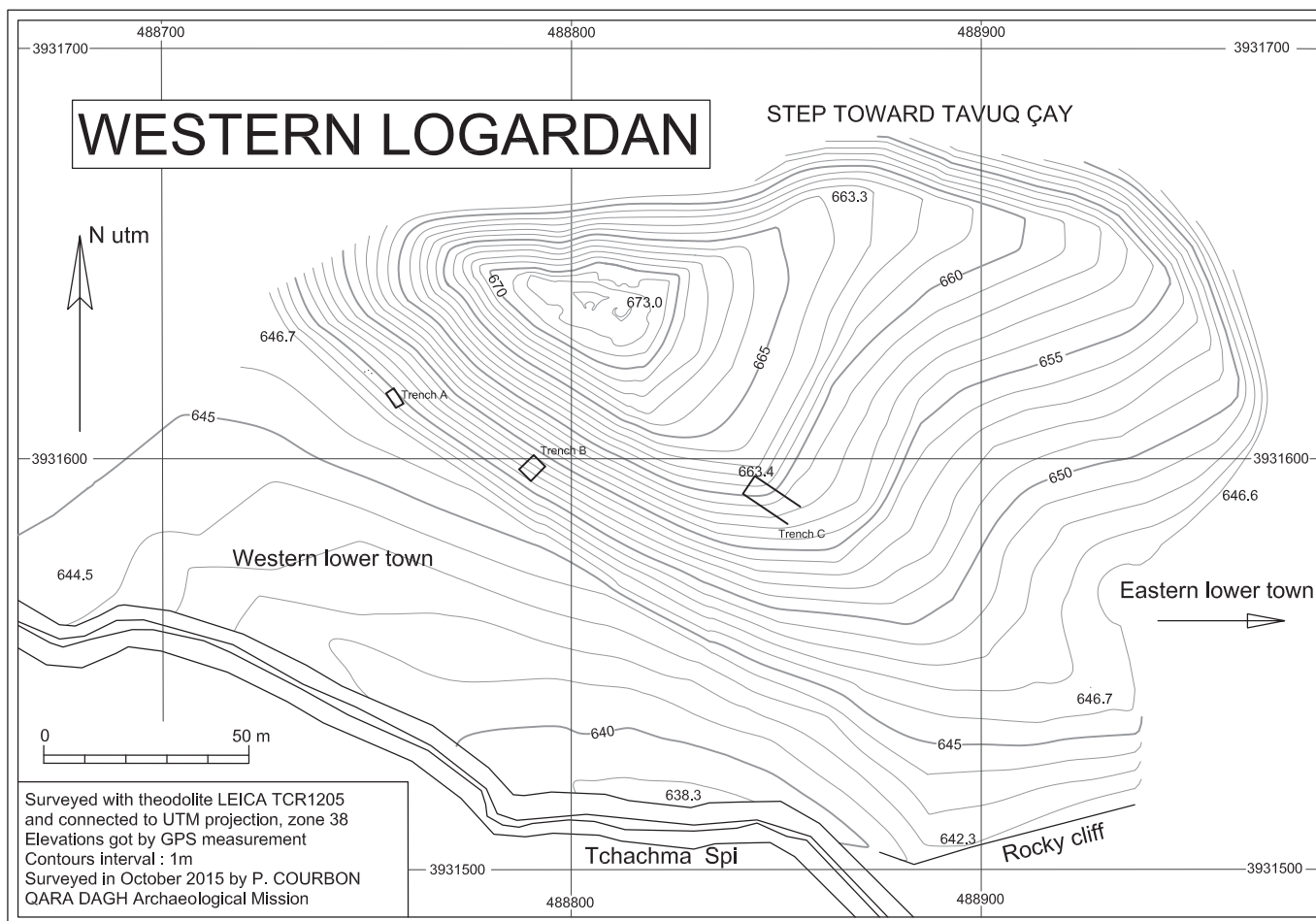


Fig. 6 – Logardan, a partial topographic map.

According to the South Mesopotamian Uruk sherds collected amongst the stones and in the basal level, the ramp dates back to the first half of the 4<sup>th</sup> millennium BC. On the other hand, on the top of the mound (amongst Halaf, Ubaid, Middle Bronze and Early-Middle Southern Uruk sherds), a clay Uruk cone has also been recovered (fig. 7). This very rare kind of architectural decoration, generally reserved to conspicuous (or even monumental) buildings, seems to confirm the presence on the top of the site of important installations, to which the stone ramp gave access.

Trench A is a 4 x 8 m operation, which enabled us to define the orientation and size of the retaining wall. It is a 2 m thick structure composed of uneven rubble stones supporting a causeway excavated in the virgin soil. In this area, above and below the ramp, there was no structure and the soil is completely natural. The retaining stone wall lies on a 3 cm thick floor. This floor—easily recognizable in section—is made up of a layer of sherds placed on a hardened hearth deposit. The whole gently upwards-sloping structure shows traces of mortar as well as some fragments of unbaked bricks and sherds between the stones (fig. 8). It is clear that it was built to climb the hill by arranging non-anthropogenic levels.

Trench B is a 4 x 7 m operation (figs. 9-10) carried out to recognize another sector of the ramp. The nature of this structure is confirmed by the fact that between Trenches A and B the causeway rises over two meters.<sup>5</sup> Dimensions and structural features of the ramp are identical to the characteristics observed in Trench A, with mortar, sherds, fragmentary bricks between stones and a basal floor paved with sherds.

Further east, along the southern slope of the hill, several stone alignments of the causeway emerge according to a fairly gentle but uniform slope. The easternmost remains of the ramp have been identified close to the limit of an anthropic terrace of the upper town, on the south-eastern slope, where natural erosion and modern agricultural activities have erased the causeway. In this sector of the site, the residual stone blocks were found on some extremely eroded remains of Halaf constructions, which lied on the virgin soil. It indicates that, in this area, the retaining wall of the ramp, built to facilitate climbing up the natural slopes, had been placed over the remains of an Early Chalcolithic settlement to give access to Late Chalcolithic facilities or structures.

Close to this sector, on the south-eastern slope of the hill,



Fig. 7 – Uruk architectural cone found on the top of Logardan.



Fig. 8 – Girdi Qala Trench B. Sherds of bevelled-rim bowls amongst the stones of the 4<sup>th</sup> millennium ramp.

5. The solidity of the retaining wall of the ramp is confirmed by the large lime furnaces stacked upon and recessed below the causeway during the Middle Bronze Age, many centuries after the structure had been abandoned (fig. 9).

some slight traces dating back to mid-4<sup>th</sup> millennium (LC3-LC4 phases) have been identified in the Level 4 of Trench C. Amongst the phases documented by this operation (from the Early Chalcolithic to the Bronze Age), Level 4 has yielded a very elu-



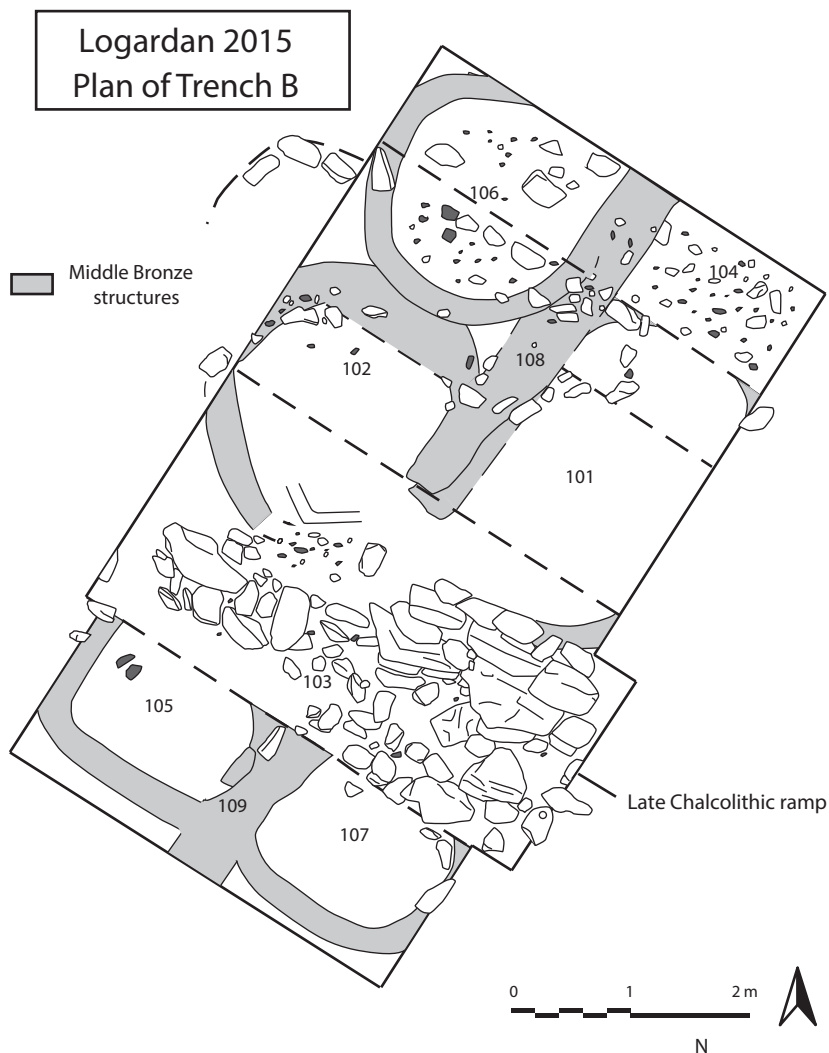


Fig. 9 – Logardan, plan of Trench B.

sive evidence, with poorly preserved structures and a limited amount of ceramics (64 Southern Uruk sherds, with just four diagnostic shapes),<sup>6</sup> coming from the heating chambers of two middle-sized kilns. Both of them belong to the same simple up-draught typology documented by the majority of the kilns in Trench C at Girdi Qala (see below). The only value of this very limited evidence is, therefore, to confirm the existence of a settlement on the top of Logardan in the mid-4<sup>th</sup> millennium BC.

More generally, it is obvious that, despite the fact that architectural cones represent a regular element of the Uruk cultural package (Eichmann 1989; 1991 and 2007; Nissen

2002; Strommenger *et al.* 2014), a specimen from a surface collection is just a suggestive indicator of the possible existence of a monumental building on the top of the site. In the same way, the fact that the stone ramp and two kilns (two secondary depositional contexts) have yielded only Southern Uruk ceramics cannot in any way be considered as a mark of the South Mesopotamian identity of the people who built and used these structures. For the moment, it indicates that South Mesopotamian-related people were implicated in some degree in their construction. However, with its well-planned design, regular layout and massive dimensions, the ramp (fig. 10) provides evidence for a level of organization and local integration hitherto unsuspected for Southern Uruk communities settled in the area during the first half of the 4<sup>th</sup> millennium BC.

6. According to morphology and fabrics of the sherds, local specimens were virtually absent.



**Fig. 10** – Overview of the 4<sup>th</sup> millennium ramp near Trench B, from the east.

### EXCAVATIONS AT GIRDI QALA TRENCH C: STRATIGRAPHY OF A CRAFT AREA

With the aim of identifying *in situ* levels dating back to Chalcolithic times, a 5 x 10 m stratigraphic trench was set up along the southern slope of the main mound. This choice was justified by the concentration of Late Chalcolithic ceramic materials collected in this area during the preliminary surveys carried out in April 2014 and June 2015.

Indeed, during the first half of the 4<sup>th</sup> millennium BC, the south-eastern slope was intensely settled and this sector was the center of large-scale pottery production. The excavation has enabled us to identify ten well-preserved overlapping layers close to the surface (figs. 11-12) and almost the whole sequence has shown traces of pottery production or firing structures. These are remarkable for their quantity, technical features, concentration and permanency in a same area during a time span of several generations.

Although it is likely that during the first half of the 4<sup>th</sup> millennium BC Girdi Qala was an indigenous Late Chalcolithic settlement (with a southern enclave probably located on the north mound), the large majority of the ceramic assemblage collected in Trench C belongs to South Mesopotamian (Uruk) classical traditions. This is why this sector provides unexpected information about the organization of the productive systems, as well as new evidence for relations between local inhabitants and South Mesopotamian settlers.

The stratigraphic sequence, with many phases concentrated in a relatively short period, testifies to the intensity of the production, which implied frequent refurbishment and reconstructions of the firing structures:

- Level 10 has yielded five huge two-storey pottery kilns (2053, 2055, 2056, 2057 and 2060; fig. 13) connected to each other by a ventilation duct. Their average dimensions (above all concerning 2053 and 2055), with diameters *ca* 1.8 m, are quite exceptional for the Chalcolithic





**Fig. 11** – *Girdi Qala. Trench C, general view from the southwest.*

period (Hansen Streily 2000: 80). The heating chambers are uniform in depth and the aeration channels were at the same height, indicating that all the features were designed as a single complex;

- Level 9 is represented by two large perpendicular walls (2058, which cuts kiln 2060 of the bottom level, and 2059), made of bulky stones and three rows of mud bricks above the stones. The size and the careful construction of these walls suggest that they probably bordered buildings of some importance;
- Level 8 is composed of two round pottery kilns (2051 [fig. 14] and 2052). Unlike the kilns identified in the deepest level, they were independent installations. The firing chamber of 2051 has been completely excavated, while that of 2052 has been partially emptied and an interior section has shown different filling layers and several layers of clay applied on the interior walls. It clearly indicates an intensive and long-lasting activity. A bench (2061, with one row of bricks conserved on five layers of bricks) was connected to the kiln 2052. An outdoor floor (2054), facing the two installations and probably used for drying pots, was also identified;

- Level 7 is composed of several firing installations. The main complex of kilns is represented by three circular structures (2035, 2036, 2037; figs. 15-16) connected by an internal ventilation shaft and by an external duct devoted to evacuate the smoke (by a chimney [2049] looking like a small cell on the eastern side of the trench, delimited by walls 2046 and 2048). These three installations are similar in shape and size: the eastern one (2037) was excavated by taking out a section of the firing chamber and pierced sole, while the two other firing chambers were emptied, yielding a great deal of slag and firing waste. Three other kilns, 2032, 2033 and 2034, in the northern sector of the exposed surface, were separated and independent structures, but their basic firing system was the same, that is an up-draught two-storey system. The small kiln 2032, only partially preserved and cut by the structures of Level 6, had a sub-circular mouth to supply the fuel on the southern side. Even if kilns 2034, 2032 and 2033 were built a little higher up on the slope, they were contemporary with the triple kiln (2035-2036-2037) because they were associated with the same external floor. As in Level 10, the complex fir-



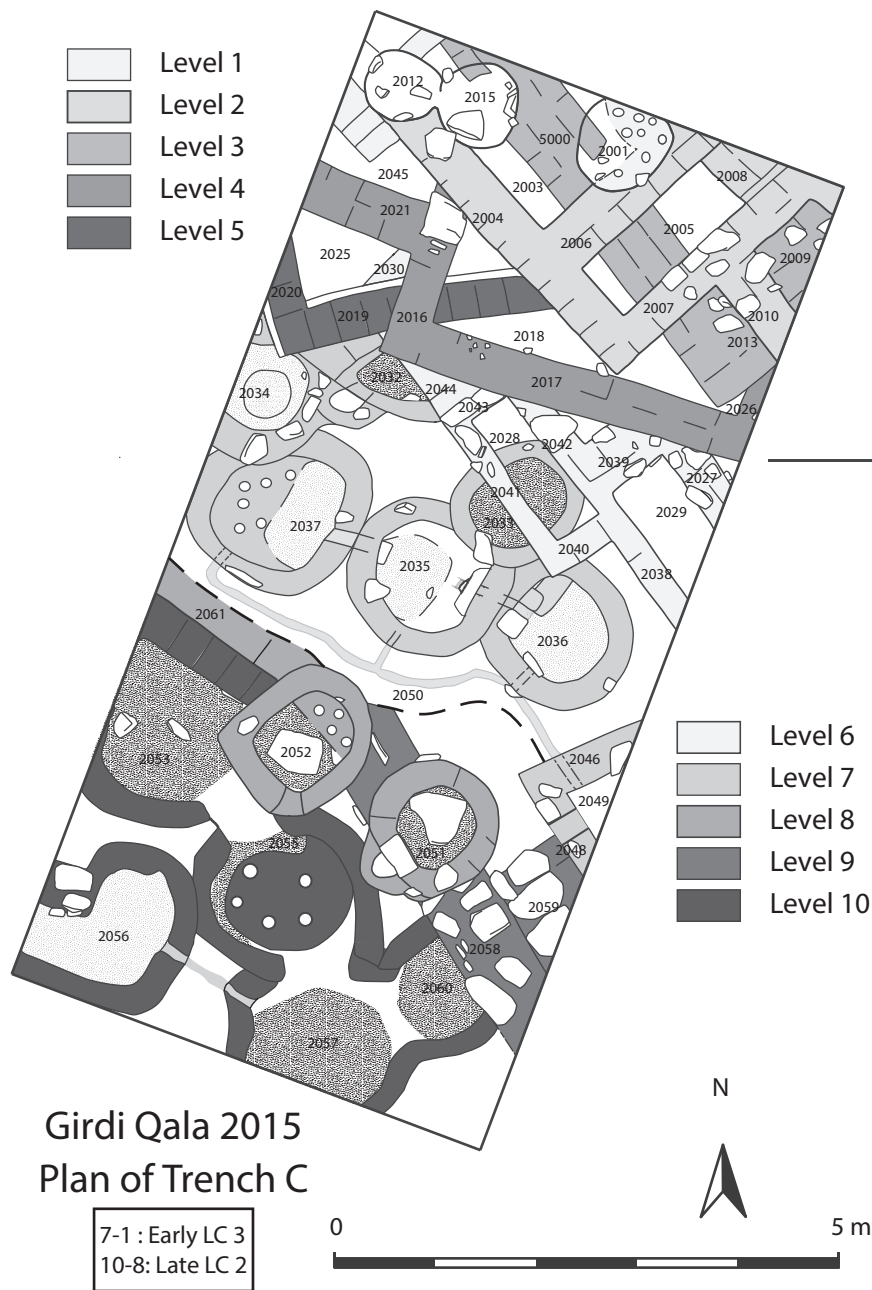


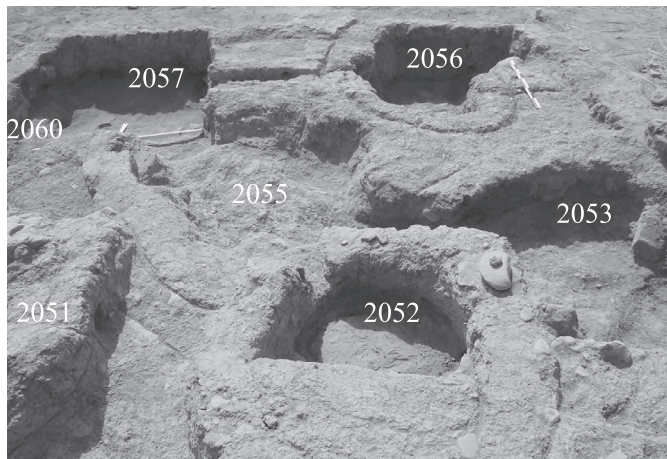
Fig. 12 – Girdi Qala, plan of Trench C.

ing structure is composed of several kilns connected by a duct is absolutely unique in the technical panorama of ancient Mesopotamia;

- Level 6 is composed of two rectangular units (2028 and 2029) and maybe a third structure on the western side. These small rooms were enclosed by walls 2030, 2044, 2043, 2042, 2041, 2048, 2039, 2038 and 2027. This

locker or pigeonhole structure could be interpreted as a granary, but also as basins for clay decantation because of the lime coating on the internal surface of its walls.

This is an important point to clarify during future campaigns. In fact, if this structure was a warehouse, then this would mean that the stratigraphy shows an interruption of the use of this space as an area for firing pottery (a food store would never



**Fig. 13** – Girdi Qala. Trench C, view of the kilns of Level 10 (2053, 2055, 2056, 2057, 2060) and Level 8 (2051 and 2052), from the north.



**Fig. 14** – View of the kiln 2051 (Level 8) from the south.

have been built next to the kilns because of the danger of fire; Moorey 1994: 154). Otherwise, if this pigeonhole structure was a basin for refining clay, the kilns would not be the only craft structures concentrated in one area, but large workshops would have been built at the edge of the village, something which would imply a different organization of the production system;

- Level 5 is represented by the walls 2019 and 2020, delimiting a room (2025);
- Level 4 comprises the walls 2016, 2017 and 2026. These delineate a large room, where an indoor floor has been brought to light (2018). Another wall (2021), delimiting another room (2045), has been identified on the western side of the trench: it is parallel to 2017 and perpendicular to 2016;
- Level 3 is composed of two perpendicular walls (2000 and 2013). Even if the walls have been identified on the bottom of Level 2, their massive structure is three-rows of bricks wide.<sup>7</sup> An outdoor floor (2022) was associated with this level;
- Level 2 is composed of the walls 2004, 2006, 2007, 2008 and 2010. They delineate a small rectangular fully excavated unit (2005) and two other units in the north-western sector of the trench. Further excavations are needed to establish if this building could be interpreted as a tripartite dwelling.

Indeed, for the Levels 6-2 the same question—whether the constructions brought to light belong to dwellings and ware-

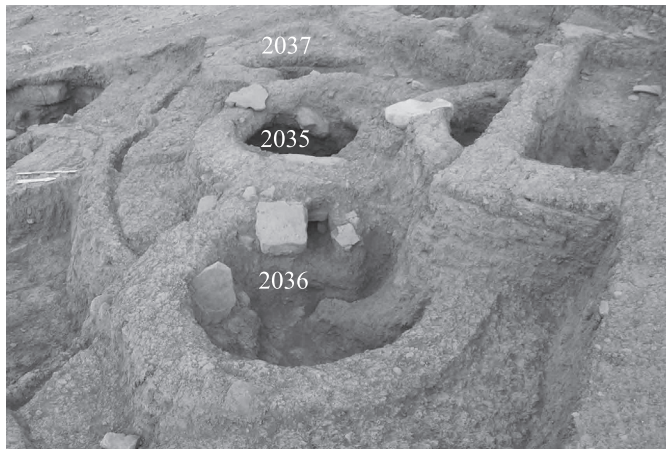
houses or rather to large ceramic workshops centralizing structures other than kilns—will have to be resolved during future campaigns. In particular, the walls of Level 2 seem to delineate a tripartite (perhaps domestic) edifice and, in this case, there would be no continuity in the use of the southern slope for craft purposes. But, at the same time, during the first half of the 4<sup>th</sup> millennium BC a partitioned structure and large walls do not always indicate a house, as demonstrated by the workshops at Tell Brak TW20-TW19, Grai Resh IIB or Tepe Gawra X spaces 1085-1086 and annexes (Oates *et al.* 2007; Kepinski 2011: 37, fig. 13; Rothman 2002: fig. 3.10);

- Level 1 is represented by three kilns (2012, 2015 and 2001). These installations have cut the walls of the previous Level 2. A floor associated with these kilns is visible in the northern section of the trench.

## FIRING TECHNOLOGIES

Apart from some structures interpreted as domestic units or utilitarian buildings, the main results from Trench C are definitely the working spaces and firing installations. Some comparable contexts from other Uruk sites have never been extensively published, such as the firing area from Tell Qraya, on the Middle Euphrates, with over 40 kilns and fire installations (Reimer 1989). In the same way, other craft areas for ceramic production are difficult to interpret, such as the kilns in the courtyard of NC-NF compounds at Djebel Aruda (van Driel and van Driel-Murray 1983: 22-23, Map 3). Trench C at Girdi Qala offers limited evidence for the firing area, although

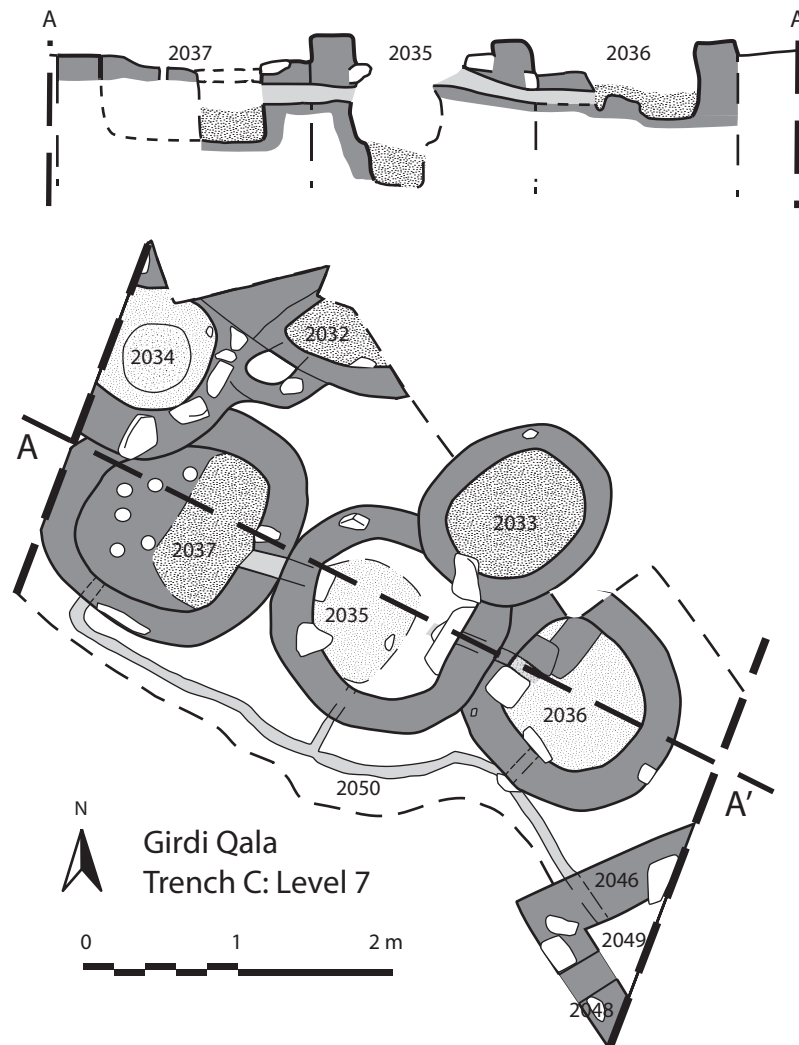
7. The average dimensions of the bricks are 55 x 35 x 15 cm in Levels 10-8 and 40 x 25 x 15 cm in Levels 7-2.



**Fig. 15** – Girdi Qala Trench C. Triple kiln of Level 7 (2037-2035-2036), view from the west.

for the moment it is not possible to understand its internal organization. However, several firing installations have been identified and some of them are absolutely remarkable. All the kilns have yielded Southern Uruk ceramics (from the filling layers, accumulated when the installations were already dis-used, but also from the bottom of the firing chambers, which is an *in situ* context). Local Late Chalcolithic finds come exclusively from walls and filling layers accumulated on the floors and between the different levels. This indicates that South Mesopotamian craftspeople were the only firers of ceramics in the large area on the slope of Girdi Qala.

From a technological point of view, the firing installations belong to a well-known two-storey up-draught type of pottery kilns. These kilns appear in the Halaf-Ubaid phase and spread in the 4<sup>th</sup> millennium throughout the Uruk cultural area in



**Fig. 16** – Girdi Qala Trench C. Plan and section of triple kiln of Level 7.



Mesopotamia (in the south as well as in the north) and Western Iran (Delcroix et Huot 1972; Majidzadeh 1977; Hansen Streily 2000). Some samples of these kilns used for firing Southern Uruk ceramics are known from Choga Mish Protoliterate period, Tell Rubeidheh, Tell Ahmad al-Hattu, Kirbet Hatara or Abu Salabikh.<sup>8</sup> But the multiple kilns of Girdi Qala Trench C, in Levels 10 and 7, had never been documented so far.

These complex kilns, composed of many furnaces connected to each other, have yielded exclusively ceramics belonging to the South Mesopotamian tradition and therefore constitute a hitherto unknown Uruk firing technology. Even if consisting in several up-draught kilns, these firing structures cannot be considered as the mere result of the juxtaposition of separated furnaces of a previously well-known type. From an architectural point of view, the multi-kiln complexes of Levels 10 and 7 have been conceived as unitary structures (fig. 16). As demonstrated by the uniform height of the ventilation channels, as well as by the structural connections and entanglements between some of the heating chambers (such as 2035-2037 in Level 7 and 2055-2056-2057-2060 in Level 10), these facilities were built as unitary large installations. For 2035-2037 and 2055-2056-2057-2060, this means that each circular chamber was not built independently from the other(s): each includes bricks which also belong to the adjacent firing space. This indicates that the construction was not carried out as for a series of distinct kilns (one chamber after another), but rather by building all the chambers at the same time, a row of bricks after another. This method was also quite flexible, since it enabled other chambers to be added by digging a nearby pit, lining it with bricks and connecting it to the other chambers through a ventilation duct (at the same level as the other heating spaces). It is the case of the heating chamber 2036, which is part of the triple kiln 2035-2036-2037, but without being structurally linked to 2035-2037. In fact, 2036 has been added and connected to a previous double kiln (constituted by 2035-2037). This is not just further evidence for a frequent and intensive production. This kind of firing installation shows that the Ubaid and post-Ubaid up-draught technology was not only perfectly mastered (Kingery 1997; Pool 2000),<sup>9</sup> but also sig-

nificantly improved by the craftsmen. In fact, the same modular criterion observed for the architecture of the kilns is also applied to the cycles of firing on the technological level. Even if it would have been possible to place vessels in one single firing chamber (the upper one), the presence of ventilation ducts between the heating chambers (the lower ones) implies that, once one of them had been used (with the fuel burning inside), all of them would be heated. Despite the limited size of the duct, it is sufficient to establish a partially horizontal circulation of the heat (Gosselain 2002: 161), even if the main draft remains vertical. In other words, the multi-kiln structures were built as unitary constructions because designed to operate as unitary devices.

In terms of their structural and dimensional features, these are remarkable installations. They also provide unsuspected evidence for mastery of very complex technology in the Early Uruk phase.

## THE CERAMIC ASSEMBLAGE OF GIRDI QALA AND LOGARDAN

In the light of this unexpected evidence for pottery kilns, the ceramic assemblage has been studied not only to establish a consistent relative chronology, but also as a means to investigate the production systems. The chronological issue is fundamental because the Chalcolithic phases in the western Qara Dagħ region (and, more generally, in the northern sector of Central Mesopotamia) have never previously been studied. On the other hand, the presence of a large amount of South Mesopotamian Uruk sherds has provided an opportunity to observe the modalities of the diffusion of the Uruk material culture in this area, as well as its interaction with the local pottery traditions. This is the central topic of all the archaeological literature about 'culture contact': to recognize and understand culturally-particular ways of envisioning and representing the 'own' and the 'foreign'. The implicit assumption in the archaeological approaches to the 'Uruk expansion' is that there are two distinct cultural entities represented by two different material cultural assemblages: the 'Uruk' and the 'local'. From a ceramic point of view, the easy distinction between an indigenous traditional chaff-faced tempered ceramic assemblage (Marro 2010) and a mineral tempered

8. See Delougaz and Kantor (1996: 29, pl. 275); Alizadeh (1983: 39); Nöldeke (1937: 7); Delcroix et Huot (1972: 66); Killick *et al.* (1988: 18); Sürenhagen (1979: 48); Fiorina (1997: Figs. 12, 13 a-c); Postgate and Moon (1982: 127). On the other hand, during the Late Chalcolithic, circular up-draught two-storey kilns are not a specificity of the Southern Uruk, but rather a long-standing Ubaid tradition, in the South as in the North (as demonstrated by the LC2 kilns of Tell Musharifa; Numoto 1987: Fig. 12). The Late Uruk/Proto Ninevite 5 kiln of Tell Karrana 3 shows the continuity of the same technology after the Uruk phase (Wilhelm and Zaccagnini 1993: Fig. 16).

9. The same up-draught technology was also used in a large Late Uruk rect-

angular bitumen (or brick) furnace at Uruk (Nöldeke 1937: Plan 27.b). Despite the functional difference, it confirms a use of the up-draught installations for large-scale productions.

South Mesopotamian tradition (Wright 2014) is a schematic analytical tool. It enables us to establish a classificatory dichotomy between sites affected by an ‘Uruk’ presence (such as Hacinebi, Nineveh, Tell Brak: Pollock and Coursey 1995 and 1996; Pearce 2000; Gut 1995 and 2002; Oates and Oates 1993) or just involved in the exchange network (like Zeytinli Bahçe, Leilan, Kenan Tepe or Tell Feres: Balossi Restelli 2006; Schwartz 1988; Creekmore 2007; Forest *et al.* 2012; Vallet 2014 and in press). However, there are potential problems with this kind of schematic division of the cultural panorama into two distinct groups. First, the ‘local’ and the ‘Uruk’ taxonomies create internally undifferentiated entities represented by ideal artifact types. Secondly, they are analytic categories creating arbitrary and static cultural boundaries, while the relationships between ‘Uruk’ and ‘local’ cultural traits and people changed over time.<sup>10</sup>

These problems are even more serious in a region like the Qara Dagħ area, where almost nothing is known about the Uruk expansion. Indeed, the whole north-eastern side of the Mesopotamian alluvium is quite poorly known. Some data are available for an Uruk presence in Nineveh (Gut 1995) and in the Hamrin (Killick *et al.* 1988; Sürenhagen 1979). But, since many decades, the concentration of archaeological research in Syria has created the (false) impression that the Euphrates was the main (and almost the sole) route of the Uruk expansion. The Qara Dagħ appears as a major area for the understanding of when and how Uruk people settled in Central and Northern Mesopotamia.

In order to reconstruct some cultural dynamics underlying the production processes, the sherds (5627 from Girdi Qala and 64 from Logardan:<sup>11</sup> rim, bases and decorated sherds as well as common body fragments) have been examined to recognize traditional *chaînes opératoires*.

## METHODOLOGICAL PROCEDURE

In the technical analysis of the ceramic materials from Girdi Qala and Logardan, all aspects of the ceramic *chaînes opératoires* have been examined in order to encompass all stages of the manufacturing process, traditionally disregarded to analyse just shapes and decorations, seen as the only vectors of differences between “cultures” – “*derniers degrés de fait*” according

10. More generally, the essentialist approach to the “Uruk” and the “local” implies all the problems intrinsic to the notion of “archaeological culture” (Welsch and Terrell 1998; Veit 1994; Baldi 2013b: 17-18).

11. 4987 sherds were collected at Logardan, but only 64 of them date back to the 4<sup>th</sup> millennium and are consistent with the topic of this paper.

to Leroi Gourhan (1945: 30). The classificatory analysis of the sherds highlights different technical traditions corresponding to different producer groups, according to a methodology already employed for Chalcolithic assemblages from the Levant (Roux and Courty 2005 and 2007; Baldi 2013b) and Northern Mesopotamia (Baldi 2012a, b and c; 2013a). Shaping methods, surface treatments, petrographic compositions of the pastes, firing procedures and morphological variants of the assemblage have been sorted so as to identify traditional ways to produce ceramics, specific to certain social groups.

As demonstrated by recent ethno-archaeological and anthropological studies about technical behavior and social boundaries (Gelbert 2003; Gosselain 2002; Patton 2008; Stark 1998; Stark *et al.* 2008), each *chaîne opératoire* is typical of a particular group of craftspeople because it was transmitted through generations by a specific network of apprenticeship (Wallaert 2001 and 2008; Gosselain 2008). Therefore, it expressed the technical identity of the social group underlying the technical tradition (Roux and Courty 2005 and 2007; Roux 2010; Baldi 2013a and b). Hence, the different traditional *chaînes opératoires* can be observed in their synchronic spatial distribution as well as in their diachronic evolution through conservatism, borrowings (*i.e.*, in their continuities), disappearance of some of them and emergence of some innovations (that is in their discontinuities).

The first part of the study involves distinguishing technical entities and their variants: recurrent combinations of macro-traces of fashioning and finishing show a set of specific operations or techniques that correspond to different technical groups. In a second phase, within the different technical groups, all sherds are classified to sort their petrographic features, both on the basis of the fine mass (its colour, aspect and granulometry) and of non-plastic inclusions (nature, size, distribution, morphology and quantity). The third and concluding stage of the analysis is represented by the morphological and stylistic classification (as in traditional typology) of the sherds within each techno-petrographic group (Roux 2010).

## TECHNICAL FEATURES OF THE CERAMIC PRODUCTION

At Girdi Qala, Levels 10-1, vessels (fig. 17) were shaped by:

- 1) a moulding technique;
- 2) overlapping coils (namely rings) of 2-2.5 cm thick;
  - 2.i) wheel-coiling technique by overlapping coils of 2 cm thick and finishing the containers by the rotational kinetic energy;

- 3) overlapping flattened coils of 3-3.5 cm thick;
  - 3.i) wheel-coiling technique by overlapping coils of 3.5 cm thick and finishing the containers by the rotational kinetic energy.

The autoptic analysis of the macro-traces depending on the different shaping techniques clearly indicates that wheel-coiling, attested by some rare and fine small-sized bowls, constitutes a complex and uncommon variant of two distinct coiling traditions (2 and 3). These ones are characterized by an important dimensional difference of the coils and by an unlike disposition of the junctions (sub-elliptic section with external oblique orientation for the Technique 2 *vs* sub-elliptic section with alternating oblique orientation for the Technique 3).

The restricted number of techniques and petrographic variants indicates that, as already demonstrated for other areas of the 4<sup>th</sup> millennium in Northern Mesopotamia (Baldi 2012c and d), the ceramic production was a very hierarchized and centralized activity, conducted by a restricted number of specialists. These artisans were in charge of the manufacture for large groups, exceeding by far the horizon of their own village community. Future campaigns will clarify this panorama, but so far it does seem to fit the evidence from the kilns in the centralized firing area at Girdi Qala Trench C.

Four main petrographic macro-groups have been identified (fig. 17):

- 1) Group A: beige or light orange porous fabrics, fired in an incomplete oxidizing atmosphere during short firing cycles (grey or black core), with abundant coarse vegetal and dispersed mineral inclusions (mainly basalt, quartz, sub-angular calcite, ferruginous particles and micas);
- 2) Group B: beige and light orange dense mineral fabrics, fired in oxidizing atmosphere, with traces of serpentine and carbonates in the fine mass of the clay, and significant quantities of grinded shells and ferruginous inclusions;
- 3) Group C: orange-reddish fabrics, fired in incomplete oxidizing atmosphere (short firings, black core) with large vegetal and small-sized mineral inclusions (basalt, limestone) and coal particles;
- 4) Group D: orange-brownish fabrics, fired in reducing atmosphere (grey core and surfaces), with abundant basalt, quartz and metamorphic inclusions (silicates, chlorite, marble, etc.).

Petrographic Groups A and B gather different common wares and some (rare) fine wares (with depurated small-sized inclusions), while Groups C and D match with cooking wares. On the one hand, fabrics belonging to Groups A and C perfectly fit the definition of the well-known North Mesopotamian

Late Chalcolithic 'Chaff-Faced' wares. Indeed, they represent the local version (with raw materials readily available in the Qara Dagh) of the large North Mesopotamian 'Chaff-Faced *koiné*' (extended from Central Mesopotamia to the Southern Caucasus: Marro 2010). On the other hand, the Groups B and D reflect the South Mesopotamian mineral tradition (Helwing 2002). This general framework includes some (rare) specimens belonging to Groups A and B sharing firing in a reducing atmosphere and, therefore, a grey aspect. These grey wares can be coarse chaff-faced vegetal (A) or mineral and relatively fine (B) tempered wares.

This quite sharp division is also apparent on the basis of the shaping methods, since techniques 2-2i and 3-3i are always respectively associated with local (A-C) and southern (B-D) fabrics.<sup>12</sup> These technical traits seem to confirm a sharp divide between the 'Uruk' and the 'local'. But the technical panorama is not really dichotomous. Indeed, even if the shaping by moulding represents a minority of the vessels (about 16%), it is indistinctively associated with both North and South Mesopotamian wares. Besides, it is often associated to culinary vessels in C or D pastes. Further studies (and a longer chrono-stratigraphic sequence) are needed to establish whether Technique 1 constitutes a remnant of an ancient shaping method that gradually disappeared in the LC3, or rather an innovation that has spread (and in this case, was it a North or South Mesopotamian native innovation?).

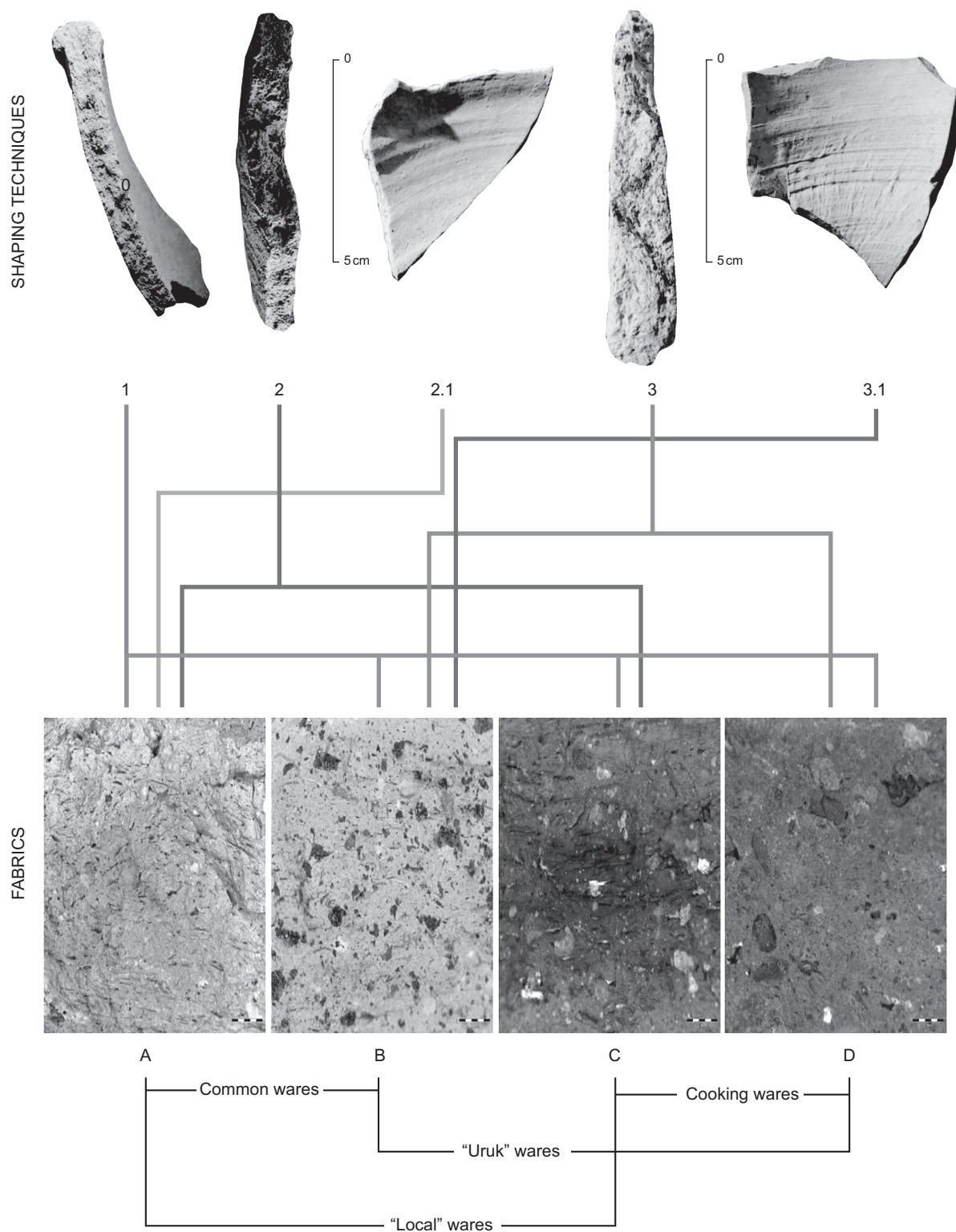
#### MORPHO-STYLISTIC FEATURES: REGIONAL PARALLELS AND RELATIVE CHRONOLOGY

The ceramic assemblage of the Trench C Levels 10-1 at Girdi Qala and Trenches A, B and C Level 4 at Logardan can be generally ascribed to the local LC2-LC3 (South Mesopotamian Early Uruk phase). It means that the ten levels recognized on the southern slope at Girdi Qala correspond to a relatively short time span.

Nevertheless, a difference is quite evident between Levels 7-1, dating back to the beginning of the LC3 North Mesopotamian horizon, and Levels 10-8, whose ceramic assemblage belongs to the late LC2 North Mesopotamian repertory. The whole sequence yielded a large amount of Southern Uruk pottery, representing a clear majority (*ca* 69%) of the 915 diagnostic sherds. Therefore, the chronology can be defined

12. Obviously, rare and fine wheel-coiled 2i and 3i little bowls are respectively associated with fabrics A and B, and never with culinary coarse fabrics of the Groups C and D.





**Fig. 17** – Schematic representation of the chaînes opératoires (on the basis of their main phases) within the 4<sup>th</sup> millennium ceramic assemblage of Girdi Qala.

using the terminology generally adopted for Southern Mesopotamia: it covers the end of the Early Uruk phase and the very beginning of the Middle Uruk period. In other words, it seems that this sequence documents the oldest Uruk presence known in Central and Northern Mesopotamia.

However, the morpho-stylistic analyses confirm the presence of two distinct traditions: the indigenous one, characterized by North Mesopotamian shapes and chaff-faced fabrics (Groups A and C) and the South Mesopotamian one, with mineral pastes (Groups B and D) and Uruk-related shapes.

Levels 10-8 show a local repertoire of the beginning of the 4<sup>th</sup> millennium (late LC2), already devoid of Ubaid-related traditions. Indeed, there is no trace of fine thin-walled beakers, everted rim urns and serially produced *Coba bowls* with scraped rounded bottoms.<sup>13</sup> In the same way, painted decorations are totally absent. Some V-shaped Wide Flower Pots with flattened bases are attested, but they are no longer ‘mass’-produced (as in the previous LC1 and early LC2 phases in Gawra XII-XI, Nineveh, Khirbet Hatara or Tell Brak CH13).<sup>14</sup> In the late LC2 assemblage, one can recognize the outcome of the converging processes of regionalization and homogenization that had occurred over centuries in Northern Mesopotamia. On the one hand, the assemblage of Girdi Qala shows specific micro-features, which appear different from the Gawra-Nineveh area and from the Zammar region. In particular, flaring-rim jars have thinned and pinched rims (fig. 18: 1) and samples of beaded rims<sup>15</sup> are very rare; cannon spouts are sporadic and have flared trumpet-like edges (fig. 18: 2),<sup>16</sup> while double rim jars and neckless jars with sharply everted rims (flange-rim jars) have relatively short rims (fig. 18: 3-4 and 7) compared with the samples from Gawra X-IX or Hamoukar ‘southern extension’.<sup>17</sup> On the contrary, very close parallels can be identified for all these shapes with Yorghan Tepe.<sup>18</sup> Anyway, similar local particularities are well documented in every meso-region of Late Chalcolithic Northern Mesopotamia (Helwing 2000; Baldi and Abu Janyab 2012). On the other hand, the ceramic repertoire appears very homogeneous, when compared to the North Mesopotamian general typology. Hole-

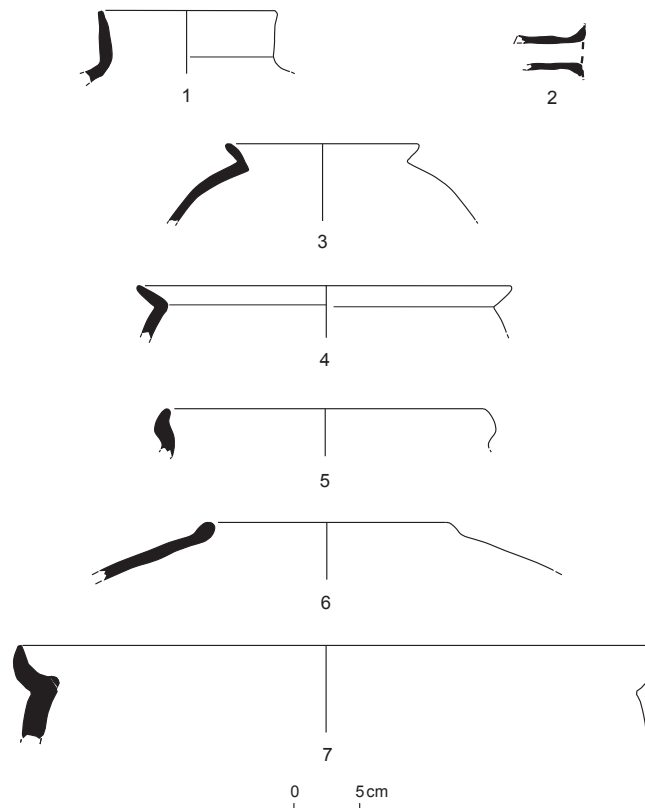


Fig. 18 – Ceramic types from Girdi Qala Trench C. Late LC2 jars.

mouth, flange-rim and double mouth jars are well documented at Girdi Qala Trench C 10-8, as well as inward bevelled-rim bowls (fig. 19: 1-2), cannon spouts, little-sized fine carinated bowls (fig. 16: 5-6) and a small quantity of fine wheel-coiled bowls (fig. 19: 3-4). The same assemblage is documented in Tell Brak, Norşuntepe, Gawra, Grai Resh, Yorghan Tepe, Qalinj Agha, Khirbet Hatara, and Musharifa.<sup>19</sup>

According to Gut (1995: 256-258) and Rothman (2002: 56) terminology, the late LC2 assemblage from Girdi Qala Trench C 10-8 clearly belongs to the so-called ‘Gawra B’ phase (like at Gawra X-VIII, Hammam et-Turkman late VB, and Tell Brak TW 21-20), characterized by a rising proportion of bowls with inward bevelled rim and thick flattened rim.<sup>20</sup> Since this LC2 period, the majority of the indigenous assemblage is

13. But some specimens of *Coba bowls* have been collected on the surface, which suggests the presence of LC1 *in situ* levels in the deepest strata.

14. See Rothman 2002: Pl. 14.1460; Gut 1995: Pl. 53.795-798; Fiorina 2001: Figs. 2.3-4, 3.15-23; Oates 1987: Fig. 3.4-5.

15. For flaring-rim jars with a beaded rim see Abu Janyab 2012: Fig. 9.5.

16. At Tepe Gawra, an isolated specimen, quite different from the other local common spouts, is similar to the samples from Girdi Qala (see Rothman 2002: Pl. 12.1453).

17. See for instance the specimens with quite developed rims in Rothman 2002: Pl. 20.2245; Abu Janyab 2012: Fig. 13.6-8.

18. See Starr 1937: Pl. 42.

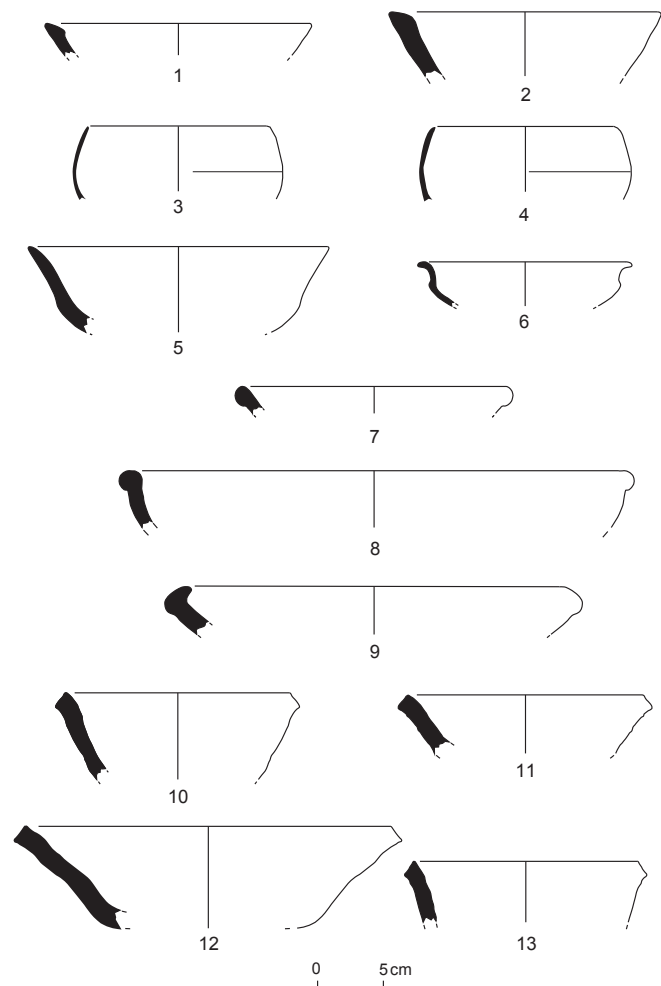
19. See Oates 1986 and 1987; Oates and Oates 1993; Hauptmann 1972; 1976; 1979 and 1982; Gut 1995: 248; Starr 1937-39; Lloyd 1938 and 1940; Numoto 1987: Fig. 14.

20. The so-called ‘Gawra A’ phase (documented at Gawra XIA-XA, Hammam terminal VA – early VB, Hamoukar phases 3-1), characterized by the last samples of thin-walled beakers, post-Ubaid painted wares and *Coba bowls*, has not yet been reached.

represented by morphological categories which continue in the LC3 phase: hole-mouth types (fig. 18: 6), “S”-shaped rim jars (fig. 18: 5), bowls with inwards bevelled rim and club-headed bowls (fig. 19: 7-8). In the whole of Northern Mesopotamia, the latter type announces the appearance of the ‘hammerhead’ type, as in Hacinebi A and Brak HS1.<sup>21</sup> Its presence in the Qara Dagħ area is remarkable because, as in the whole sector east of the Tigris River (Gavagnin *et al.* 2016),<sup>22</sup> real Hammerhead bowls are virtually absent during the LC3.

Indeed, between late LC2 and early LC3, the assemblage of Girdi Qala shows a remarkable morpho-stylistic continuity, as well as including some diagnostic shapes of the transitional phase (hole-mouth with beaded or triangular-section rims, short neck jars with internal angled rim, club-headed bowls, fine carinated bowls and grey carinated bowls with everted rim). These transitional types have close parallels at Tell Ferēs 4b-4a, Tell Brak TW 20-19, Hamoukar ‘southern extension’ Level 1, Hammam et-Turkman late VB and Tell Boueid II.<sup>23</sup>

In the first part of LC3, all these types are still attested. In particular, despite the absence of genuine hammerhead bowls, the club-headed type is always moulded according to the Technique 1. The morphology of these bowls is close to the early type of hammerhead containers, with an in-turned rim (or thickened on the interior side; fig. 19: 7-9) like in Brak HS1, Leilan V, Hacinebi A, Nineveh -45-37 ‘Norduruk A’.<sup>24</sup> Their late morphology, with a rim thickened on both the interior and exterior side,<sup>25</sup> is documented by only one example from the surface collection.<sup>26</sup> In the same way, the other main hallmark of the North Mesopotamian LC3-LC4 assemblages, *i.e.* carinated casseroles, is also virtually absent.<sup>27</sup> Moreover, it is remarkable that coarse conical bowls with a pouring lip (Boese 1995: 84, fig. 21) are not documented at all. On the contrary, some internally hollowed-rim<sup>28</sup> or angled-rim jars<sup>29</sup> are attested



**Fig. 19** – Ceramic types from Girdi Qala Trench C. **1-9**) Local late LC2 – early LC3 bowls; **10-13**) Southern Uruk bevelled-rim bowls from late LC2 and early LC3 contexts.

21. See Pearce 2000; Matthews 2003: Fig. 4.17:12.

22. The same absence of hammerhead bowls is documented on the other side of the Qara Dagħ mountains, at the site of Kani Shaie in the Bazian Valley (A. Tomé and S. Renette, personal comm.).

23. Baldi and Abu Jayyab 2012: Fig. 6; Akkermans (1988: Figs. 107.97, 108.107); Suleiman and Nieuwenhuys (2002: Fig. 8.1.17).

24. See Matthews 2003: Fig. 4.17.12; Schwartz 1988: Fig. 57.2; Pearce 2000: Figs. 5.a-e, 6.c; Gut 1995: Pl. 58.853-857.

25. Rova 1999-2000: Fig. 5.2.

26. The dating of this much eroded specimen to the LC3-4 is hypothetical.

27. This feature is also shared by a wide area east to the Tigris river, as demonstrated by the LoNAP survey (Gavagnin *et al.* 2016) and by the French Archaeological survey of the Sulaymaniyah Governorate in the area of the Rania plain (directed by J. Giraud).

28. See for instance LC3 samples from Tell Brak CH9-12 (Oates 1985: Figs. 1.13, 2.17-18), Hacinebi (Pollock and Coursey 1995: Fig. 8.J; Pearce 2000: Fig. 4e-g) and Leilan V (Schwartz 1988: Fig. 60.5).

29. See for instance LC3 samples from Kenan Tepe 6-7 (Creekmore 2007:

(fig. 20: 1-3) and, according to a quite early dating, have a more developed neck than that of the late LC3 and LC4 specimens.<sup>30</sup> Therefore, even exclusively on the basis of the indigenous ceramic materials, it is evident that Levels 7-1 of Girdi Qala Trench C date back to the early LC3 and do not show any trace of late LC3 and LC4 diagnostic types.

But during the whole sequence local shapes in chaff-faced wares represent a minority (31%) of the assemblage. The large majority of the ceramics are of Southern Uruk morphological

Fig. 11.A, J), Zeytinli Bahçe (Balossi Restelli 2006: Figs. 9.G, 11B-C, H, K, and 12.A-F) and Tell Brak CH9-12 (Oates 1985: Fig. 1.13).

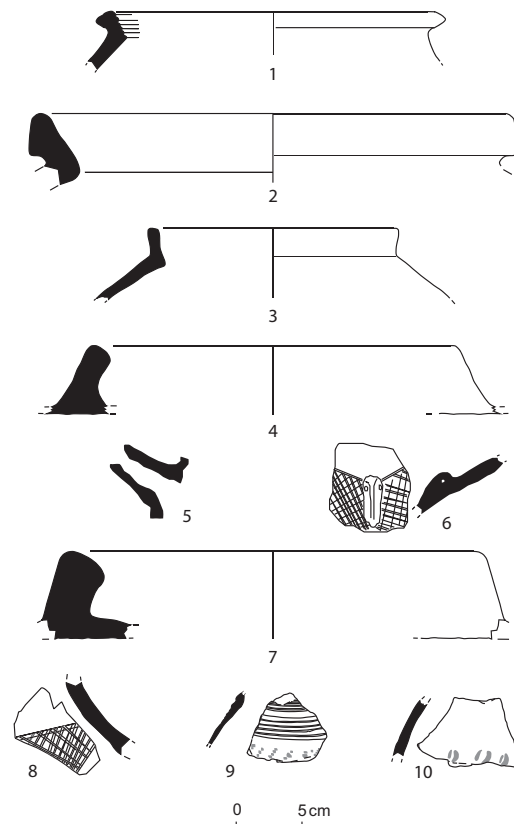
30. For samples of LC4 hollowed-rim or angled-rim jars with short neck, see Rova 2007: Group 4 – O.3, O.5.



tradition and their typology is consistent with an Early Uruk (Eanna XII-IX) chronology (Wright 2014). As well as bevelled-rim bowls (or rather proto-bevelled rim bowls, with the rim sometimes slightly rounded and never sharply bevelled), Levels 10-8 have yielded some jars with inaccurate and crude (*i.e.*, the earliest variety) cross-hatched decorations,<sup>31</sup> rare bands of impressed dots, shallow basins (fig. 20: 4, 7-10), short necked jars with upwards spouts and sharp angled-rim jars. Starting from Level 7, these southern types become more frequent and differentiated, with flaring or rectangular rim spouted jars, vertical pierced handles (fig. 20: 5-6) and sharp angled jars with triangular rim. All these shapes are always attested with their early morphological features (for instance, spouts are quite short—like examples from Sheikh Hassan 13-10, Nineveh 'Norduruk A' or Susa 22-21—and never drooping and downwards curved) (Bachmann 1998a; Gut 1995; Le Brun 1971 and 1978a and b).

Since the late LC2, the most frequent Uruk type is represented by bowls with bevelled rim (fig. 19: 10-13), first characterized by a loosely oblique rim, then, at the beginning of the LC3, by the mature shape. This widespread South Mesopotamian material is remarkable because, despite many old-dating misconceptions, they are not serially produced at all. On the contrary, they show many technical and morphological differences (they are shaped by Techniques 1, 2 and 3, with rims sometimes thinned, rounded, or cut and bevelled in various ways and with varying orientations). Moreover, although they are considered as the main indicators of the Southern Uruk ceramic assemblage, their pastes belong both to A (chaff-faced, supposed to be 'local') and B (mineral-tempered, supposed to be 'Uruk') petrographic groups. All these features seem to describe material whose production did not respect the separation between local and southern traditions. Further studies are needed to establish the reasons for the unexpectedly hybrid character of these bowls that are generally considered as the hallmark of Southern Uruk. But one can speculate that this blending of technical traditions could indicate very early technical borrowing (as attested during the LC4-5 in Hassek Höyük, Tell Feres and Zeytinli Bahçe).<sup>32</sup> Such a cultural interpenetration would be consistent with very early and stable relations between local and southern people.

Starting from Level 7 (beginning of the LC3), mineral-tempered Southern Uruk types increase in number. Sharply everted rim jars, bevelled-rim bowls (with more regularly bevelled



**Fig. 20** – Ceramic types from Girdi Qala Trench C. **1-3)** Early LC3 jar; **4-10)** Early Uruk – Middle Uruk southern types from late LC2 and early LC3 contexts.

rims) and jars with incised shoulders are more frequent. Incisions (crosshatched bands and triangles, horizontal lines, impressed ribs and punctuations) are more regular (fig. 20: 8-9), while the average dimensions of the storage jars increase significantly. The ceramic material from the stone ramp (Trenches A and B) at Logardan perfectly matches the assemblage from Levels 7-1 of Trench C at Girdi Qala.

## CONCLUSION

If analysed separately, the indigenous and Southern Uruk assemblages do not portray any unusual features. But they are not separate repertoires: they are a single assemblage and, in this sense, it is anomalous to find associated in the same stratified contexts (as far as Levels 10-8 of Trench C at Girdi Qala) both indigenous late LC2 shapes and southern Early Uruk diagnostic types. Chronology is not a problematic issue in

31. See for instance at Nineveh MM.37-21 (Gut 1995: Pl. 59-68) and Tell Sheikh Hassan (Bachmann 1998a: Figs. 8.b, d; 10.c-d; 12-13).

32. See Helwing 2000 and 2002. Concerning Zeytinli Bahçe, M. Frangipane, personal comm.

Table 1 – Comparative chronological table.

Date	Period		Northern Mesopotamia								Central Mesopot.	Southern Mesopotamia		Iran			
	North Mesop.	South Mesop.	Hacinebi	Habuba Kabira	Sheikh Hassan	Tell Leilan	Tell Brak	Tell Feres	Nineveh	Tepe Gawra	Girdi Qala	Nippur	Uruk Eanna	Geoy Tepe	Godin Tepe	Choga Mish	Susa Acropole I
3100	LC5	Late Uruk		Late Uruk			TW 11-10 Phase G		Nineveh IV -31-20			XV	IVA				17 18
3200							TW 12 beginning Ph. G					1A	XVI				
3300	LC4	Middle Uruk	B2		Levels 8-6	IV	TW 14-13, CH 14-13 Phase F	1B 1C	NordUruk B -37-31		XVII XVIII	VI VII					19
3600	LC3	Early Uruk	B1		Levels 10-13	V	TW 19-15, CH 16-15, HS1 Phase F	2A 2B 3	NordUruk A -45-37		Trench C Level 1-7	hiatus					VIII
3900	LC2		A	hiatus			TW 22-21 (20) CH 17a	4A 4B 5	Gawra B Phase -45	VIII X-IX		Level 8-10		X XII	VI: 3	Terminal Susa	
4200		Ubaid 5					CH 17-18	6	Gawra A Phase -59	Xa XI XIA-B	Trench C Level 8-10			XIII	Phase M	VIII	

itself, because local late LC2-early LC3 ceramics and Early Uruk-Early Middle Uruk potteries are contemporaneous. What is surprising is their coexistence and concomitance in the same site during a very early period.

Despite longstanding assumptions that the Uruk expansion started during the late LC3 phase (or southern 'Middle-Uruk' phase: Rothman 2002; Stein 2001; Helwing 2002; Rothman and Badler 2011; Gopnik and Rothman 2011; Gut 2002), it is now clear in the Qara Dagh area that contact with Southern Uruk people occurred from a very early period (late LC2). In terms of absolute chronology, the Uruk expansion at Girdi Qala does not appear *ca* 3600 BC (the date supposed for the entire North), but rather *ca* 3900 BC.<sup>33</sup> Incidentally, the Qara Dagh seems to represent the limit of this expansion in the late LC2, as there is not (yet) evidence of a Southern Uruk manifestation east of this range before the LC3.

Furthermore, in Trench C at Girdi Qala, Southern Uruk materials not only make up the majority of the assemblage but they are also the only ones from *in situ* contexts. All the morphologically indigenous sherds in chaff-faced fabrics (A and D Groups) come from filling layers, walls or open-air workspaces. This indicates that all the furnaces and firing installations were used to fire Uruk ceramics. In other words, South

Mesopotamian people had a centralized workspace for their own activities that was not shared with local artisans. On the other hand, despite the relatively short time-span covered by the excavated sequence (between late LC2 and early LC3), many technological features reveal borrowing and hybridization from a very early phase.

This kind of organization and spatial pattern, with a very early foreign presence, segregated spaces and ceramic traditions in close contact, opens the way for future research on the chronology (table 1) and collaborative processes involved in Uruk culture expansion in Central Mesopotamia. In particular, the fundamental dichotomy which still shapes the approach to the Uruk expansion had been nuanced to reassess the essentialist nature of notions such as North *vs* South, or 'core' *vs* 'periphery'. But the spatial and technical modalities of the encounter between these two traditions have never been the focus of the analysis. On the contrary, the evidence from Girdi Qala and Logardan suggests that it will soon be possible to observe how local and foreign traditions intertwined, as well as their distribution within residential and architectural spaces. As for Uruk ceramics, whose local production at Girdi Qala confirms recent studies on other Uruk assemblages in Northern Mesopotamia (Emberling and Minc 2016; Minc and Emberling 2016),<sup>34</sup> the analytical

33. Such a dating is paralleled by another noticeable evidence, provided by the presence of well-stratified Uruk materials in late LC2 levels at Grai Resh, in the Sinjar area (Kepinski 2011: 37). However, Grai Resh yielded no trace of Southern Uruk ceramic production or presence of southern people during the late LC2.

34. Indeed, it has to be emphasized that our discoveries mirror the results of the Uruk pottery analyses by G. Emberling and L. Minc, showing that there was virtually no (long-distance) trade in ceramic vessels in the Uruk network. But despite this we would not conclude that settlements in the Uruk expansion were not connected by regular exchange.

focus is about to shift. In fact, the definition of 'local' and 'foreign' repertoires is not really useful without a stronger emphasis on the local evolution of these traditions (and, therefore, of the underlying groups of producers), with their conservatism, hybridizations, specificities or technical borrowings. The discovery of a major craft district at Girdi Qala is in itself a significant element, since previously there was no direct information about the structures and organization of ceramic production in the Uruk colonial network for this phase. It raises the possibility of studying relationships between local and South Mesopotamian settlers in terms of pottery production, opening new perspectives on economic and cultural practices of cooperation or segregation. Girdi Qala and Logardan have already provided and should continue to provide in coming years startling new archaeological evidence, re-opening the debate on the Uruk expansion and interactions between Southern and Northern Mesopotamia.

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