



# REPORT ON THE FIRST SEASON OF EXCAVATIONS AT GIRDI QALA AND LOGARDAN

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UMR 7041 ARSCAN – VEPMO

‘FROM VILLAGE TO STATE IN THE NEAR AND MIDDLE-EAST’

MAISON ARCHEOLOGIE ETHNOLOGIE (M.A.E.) – NANTERRE



*The Tavug Cay river seen from Girdi Qala, in the background, the Qara Dagh*

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NOVEMBER 2015





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# INTRODUCTION

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Régis VALLET

**T**he first campaign of the archaeological mission to Girdi Qala and Logardan lasted from 6th to 27th October 2015, through three weeks of fieldwork. The team, under the responsibility of Régis Vallet (CNRS/University of Paris 1), included 15 researchers and engineers from France, Belgium, Italy and Iraq (in alphabetic order): Johnny Samuele Baldi (IFPO, archaeologist), Victoria de Casteja (CNRS, database expert), Laurent Colonna d'Istria (University of Liège, epigrapher and archaeologist), Paul Courbon (topographer), Lionel Darras (CNRS, geophysicist), Sami Jamil Hamarasheed (Directorate of Antiquities of Souleymanieh, archaeologist), André Louchet (University of Paris 4, geographer), Juliette Mas (University of Liège, archaeologist), Laetitia Munduteguy (drawer), Hugo Naccaro (University of Paris 1, archaeologist), Dominique Parayre (University of Lille 3, archaeologist), Saber Ahmed Saber (Directorate of Antiquities of Souleymanieh, archaeologist), Martin Sauvage (CNRS, archaeologist) and Ohnan Tunca (University of Liège, archaeologist). The logistic team was composed of Hallo Wasie Karim (cook), Faizulla Abdullah Muhammad (driver), Jamal Jalal Muhammad (sites and storage keeper) and Bahzad Taïb (Directorate of Antiquities of Souleymanieh, driver). The whole team was accommodated in the city of Shorsh, nearby Chamchamal and close to the sites (3.5km to the east).

The aim of this new research project is to study the formation of complex societies, the appearance of territorial polities and long-term intercultural processes. Indeed, despite recent developments (Kopani et MacGinnis 2016), southern Kurdistan remains poorly documented, although it seems an ideal laboratory for addressing these research issues. It would be 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 is more specifically focused on the Chalcolithic, following on from our previous work at both ends of the Fertile Crescent, at Tell el 'Oueili in southern Iraq (Huot and Vallet 1990, Vallet 1990, 1996) and Tell Feres in northern Syria (Forest, Vallet, Baldi and Emery 2014, Vallet 2014, Vallet in press, Vallet and Baldi 2016) and on the Bronze age, two periods for which the redefinition of cultures on a regional basis is a major issue (for a more detailed scientific argument, see our 'scientific proposal').



**Fig.1** - Map of Northern Iraq showing the localization of the sites.

The project is funded and supported by several institutions. In France, these are mainly the ‘Commission des fouilles’ (Excavations committee) of the Ministry of Foreign Affairs (MAEDI), but also the CNRS, Paris 1 University and the IFPO, and in Belgium the University of Liège. We would like to express our warmest thanks to our Kurdish partners, the DGA in Erbil and above all to Kamal Rasheed and his team at the Directorate of Antiquities of Souleymanieh, who invited us to Kurdistan and whose continuous support was greatly appreciated by all of us. We wish to thank Saber Ahmed Saber and Sami Jamil Hamarasheed, who were precious collaborators at all times. We also address special thanks to Salah Salman Rumayydh (SBAH) and Shayban al Rawi (University of Ramadi), both of whom visited the sites and gave us much useful advice. Lastly, we are very grateful to the authorities of Chamchamal and Shorsh for their support, the people of Shorsh for their friendly welcome and, last but not least, the 15 fine workers that we were able to recruit there.

The sites of Girdi Qala and Logardan are located in the eastern part of the Chamchamal plain (fig. 2), on the west bank of the river Tavuq Cay that runs to the SE, parallel to the djebel Qara Dagh and then, more to the south, to the SW 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 these, the Tchachma Spi and the Tawer Hamid (fig. 3). Two brief surveys of the sites in April 2014 and June 2015 had convinced us of their archaeological potential. According to the surface finds that we



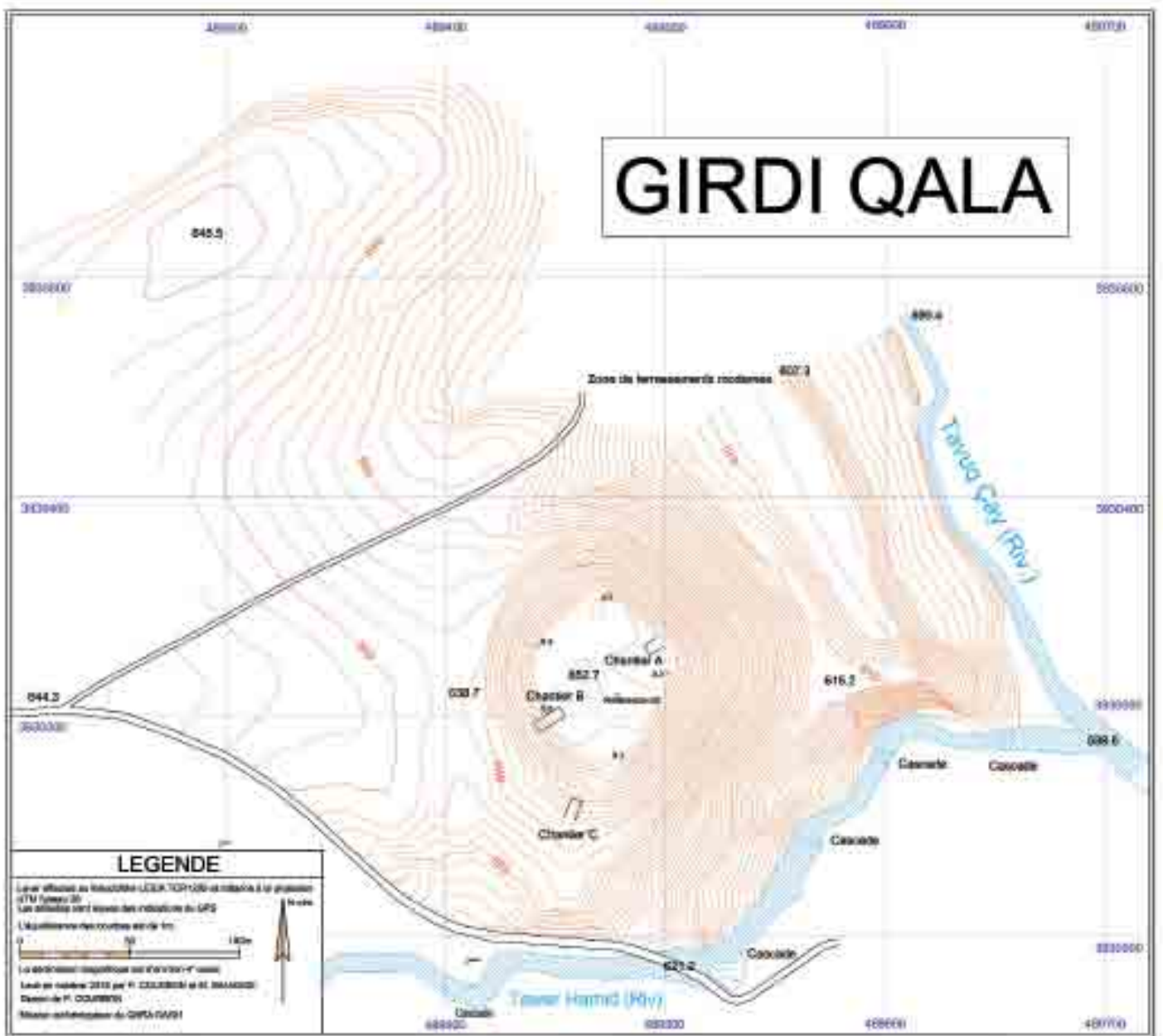
**Fig. 2** - Map of the upper Tavuq Cay Valley.



**Fig. 3** - Satellite view of the micro-region around the sites.



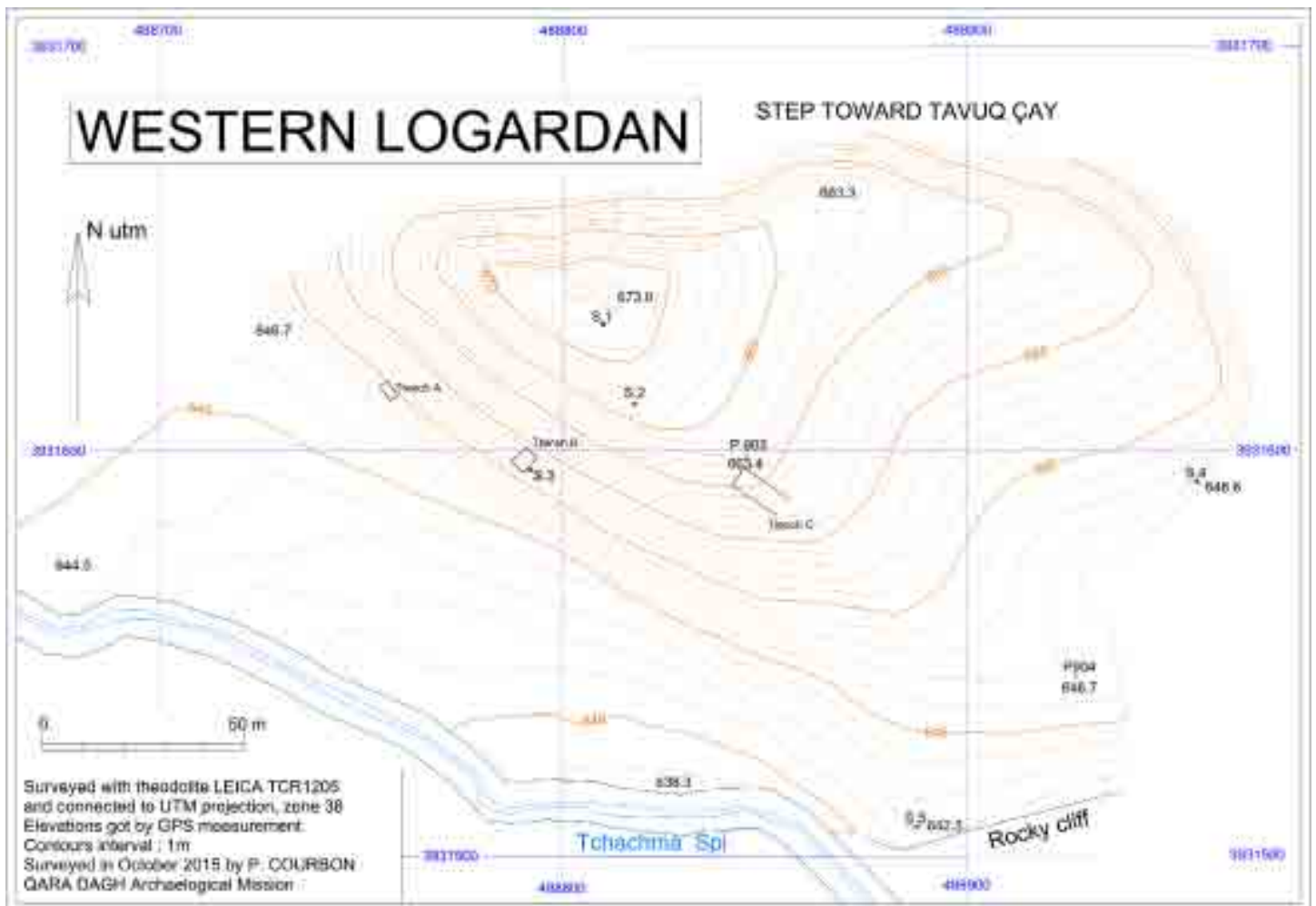
**Fig. 4** - Satellite view of Girdi Qala showing the limits of the site.



**Fig. 5** - Topographical map of Girdi Qala.



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 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, 15m high (fig. 4) with a diamond-shaped flat top (80 x 70m, 0.45 ha). The base of the tell covers an area of approximately 140m (NS) x 120m (EO), c. 1.32 ha, but the site extends beyond the actual tell, particularly to the south (over a distance of 40m), according to the topography, the distribution of surface finds (covering c. 3.5 ha), the geomagnetic survey and our Trench



**Fig. 6** - Partial topographical map of Logardan.

C (below). Furthermore, we discovered this autumn that the site has a northern extension, 150m to the NW, over a secondary low mound (of c. 200 x 150m, adding at least 2 ha to the site) entirely covered by Chalcolithic finds (fig. 5). The total length of the site is about 380m from the NW to the SE. Logardan (Lat. 35°31'42.17"N/S – Long. 44°52'34.78" E/W) is quite different (fig. 6). It is not a regular tell. The site is set on top of a high (27m) natural hill, roughly triangular in shape with steep slopes, except to the east where the ground gently slopes down through three successive terraces (altogether 225m x 165m at the summit of the hill, c. 3.7 ha) that proved to be partly artificial (Logardan Trench C, below).

In 2015, for our first campaign, the main goal was to begin to establish the sequence of the sites, by excavating well-preserved in situ levels, as well as undertaking topographic survey (Paul Courbon)<sup>1</sup>, geographical study of the micro-region (A. Louchet), and geomagnetic survey (L. Darras) that provided

1. During the campaign we learnt that Japanese colleagues had briefly surveyed Logardan a few weeks before and had already made a topographic map of the site (cf. Tsuneki and Saber 2016). Access to this document would be very useful.

an image of the sites' main structures, if not a detailed map. At both sites we opened three trenches (A, B and C), generally 10 x 5m. At Girdi Qala, Trench A, under the responsibility of D. Parayre and M. Sauvage, at the highest point of the site, above the Tavuq Cay to the east, was located to test the upper levels of the mound and the possibility of an extensive excavation of its flat summit. This trench encountered badly preserved Late Islamic levels, mostly large pottery kilns abutting the mudbrick enclosure of the high mound, together with a wall also revealed by the geomagnetic survey (fig. 5, p. 26). These layers provided an Ayyubid coin (cf. fig. 8, p. 27 and Appendix C; dating to be confirmed after restoration) and have the advantage of dating the last occupation and final abandonment of the site, at the latest in the 12th century A.D., a date also in accordance with C14 dating obtained from grain at the base of the site (Appendix B). Trench B at the opposite side of the hilltop had a stratigraphic purpose. The operation, conducted by our Belgian colleagues from Liège University, led by L. Colonna d'Istria, met unsuspected Sassanian and Hellenistic layers, below an Islamic level completely disturbed by modern agriculture. In fact the sites have seriously suffered and still suffer from cultivation. The Sassanian occupation includes several pits and the Hellenistic layers some fragmentary architecture. Both periods are not very well attested in the region and are interesting in their own right. The Iron and Bronze age levels have not yet been reached, at over 1.8m below the surface.

Trench C at the base of the southern slope (J. S. Baldi, H. Naccaro and R. Vallet) was aimed at finding Chalcolithic levels. Its location was justified by the concentration of Late Chalcolithic pottery collected in this area during the preliminary surveys carried out in April 2014 and June 2015. As expected, the southern slope was intensely settled and this sector was the centre of a large-scale pottery production in the first half of the 4th millennium. The excavation has enabled us to identify ten well-preserved overlapping levels, LC2 (levels 10-8) and LC3 (levels 7-1) in date, very close to the surface (fig. 1, p. 47 and fig. 2, p. 48). Almost the whole sequence shows traces of pottery production or firing structures, remarkable for their quantity, technical features, concentration and permanency in a same area. Moreover, the large majority (70%) of the ceramic assemblage from Trench C belongs to south-Mesopotamian (Uruk) classical traditions, and 100% of the in situ material is Uruk, the local pottery being found exclusively in the filling layers. While there is no doubt that Girdi Qala was an indigenous late Chalcolithic settlement, it is clear that it was also a southern enclave, with, below some sort of acropolis, an Uruk craft zone producing pottery for a wide region, as well as a residential quarter perhaps located on the newly discovered North Mound. In any case, this sector provides astonishing information about the organization of productive systems, as well as on relations between local inhabitants and south-Mesopotamian settlers. It provides, to our knowledge, the earliest evidence for Uruk presence north of the alluvial plain<sup>2</sup>, and it dramatically changes our conception of the beginning of the Uruk expansion, its pace and modalities (fig. 3, p. 65). Incidentally, the Qara Dagh seems at some stage in late LC2 to have been the frontier of this expansion, as there is not (yet) any evidence for a southern Uruk presence east of this range before LC3.

The work in Trench C at Girdi Qala lasted a week, after which the same team went to Logardan where three trenches were opened. Here, rather than starting with a time-consuming deep sounding at the top, that would not have given us decisive information in time, we chose to open a small test trench (Trench A) on the SW flank of the mound, where Chalcolithic finds (from Halaf to Late Uruk) were so abundant, to clarify the issue of the site's substratum. As we thought, the finds had fallen from the top

2. Probably with Gray Resh (Kepinski 2011) but the context is much clearer in Girdi Qala.

and the site is set on a natural hill. At the same time we discovered a completely unexpected feature: the retaining stone-wall of a ramp, provided with a 2m wide causeway cut into the hill, and gently mounting the steep slope to provide access to the high terraces to the east (fig. 2 - 5 p. 54 - 55). Some of the stones were visible on the surface higher to the east, where we placed a second trench (Trench B). According to the south-Mesopotamian Uruk sherds collected amongst the stones and in the bottom level, the ramp dates back to the first half of the 4th millennium (LC3). Much later, during the Middle Bronze period, it was blocked (in Trench B) by a battery of lime kilns.

At the same time, a clay Uruk cone was found on the top of the mound (Fig. 1, p. 53). This rare kind of architectural decoration, generally used only for conspicuous or monumental buildings, suggests the presence on the top of the site of important structures, to which the stone ramp gave access. The easternmost remains of the ramp were identified close to the limit of the (anthropic) upper terrace, on the south-eastern slope, where we positioned our main stratigraphic operation (Trench C). It yielded limited Uruk evidence and much more extensive remains dating back to Halaf, Early Ubaid and the Bronze Age, confirming the results of the surface collection carried out in April 2014 and June 2015. Nine levels from Late Halaf to Middle Bronze Age were identified (fig. 9, p. 56), the latter appearing to be a period of intense building (fortification) of the hilltop (hence the lime kilns in Trench B).

Altogether, these first results have surpassed our expectations. Our understanding of the region in the early 4th millennium has already been deeply changed and the perspectives seem very promising. In 2016, we plan to continue Trenches B and C at Girdi Qala, and to begin the exploration of its (cultivated) North Mound, if possible. At Logardan, we can now launch a stratigraphic trench at the very top, and another operation on the important Bronze Age remains on the upper terrace.



# GEOMORPHOLOGICAL ANALYSIS IN LOGARDAN AND GIRDI QALA AREAS

André Louchet

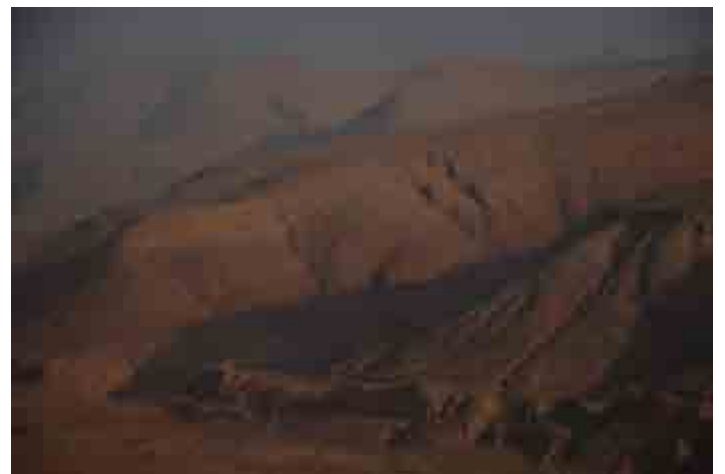
**B**etween Kirkuk and Suleimaniyah, the area including the plain of Chamchamal and the Tavuq Cay River represents the transition between the Zagros Mountains and the Mesopotamian Plains.

## TOPOGRAPHY

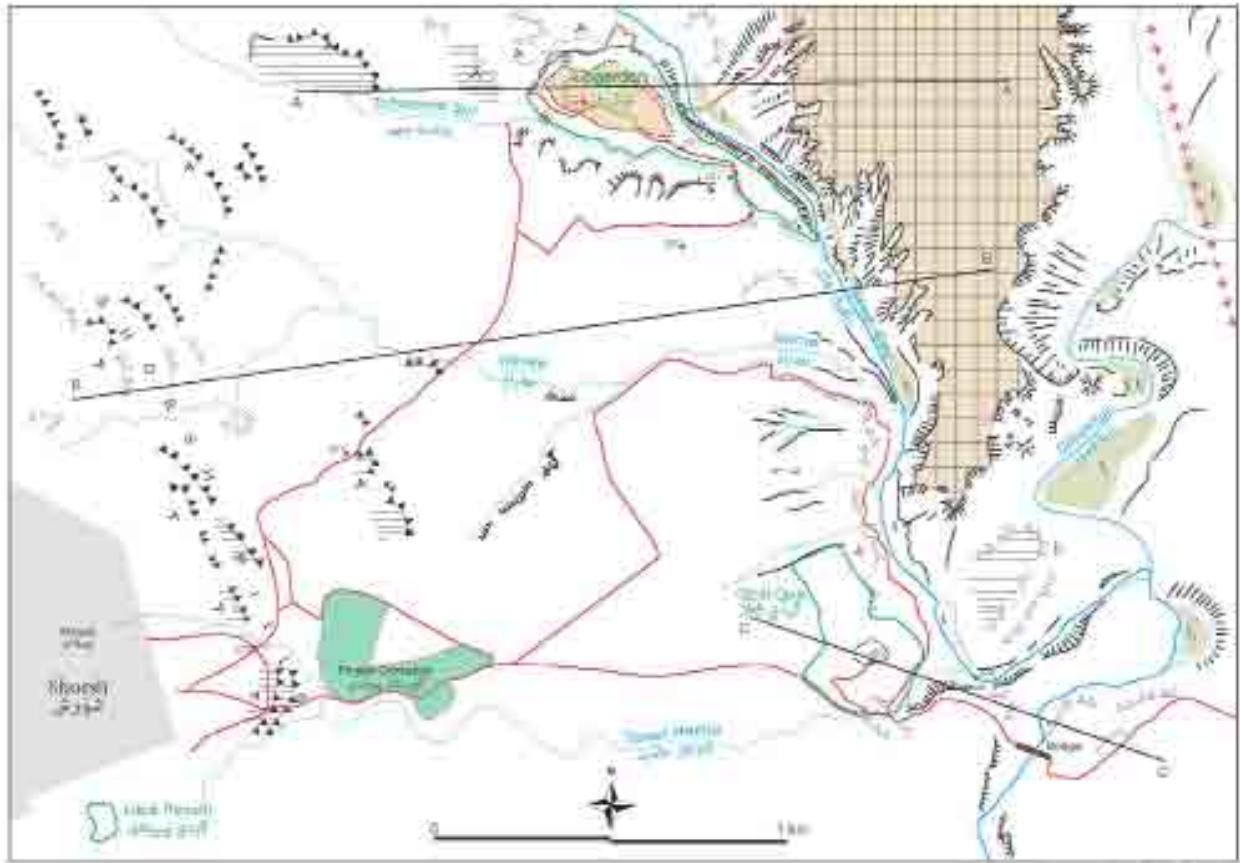
The main feature of the landscape is a plateau or a high plain at about 600-650 m high (1800-2000 ft.), overlooked by some lonely prominences and delicately carved out by few narrow valleys (map, p. 14). As a whole, however, the topographical differences are relatively faint. Three main landscapes are prominent:

▶ In the western part, near the city of Shorsh, arranged in an approximately North-South direction, some asymmetrical ridges raise over the plateau, with their forehead looking eastwards: near Piryadi only one or two main scarps are conspicuous (Fig. 1), but one can notice up to ten scarps in the north western corner of the quadrangle. The maximum altitude of each one of these ridges is tangent to a hypothetical 690 m (2100 ft.) surface.

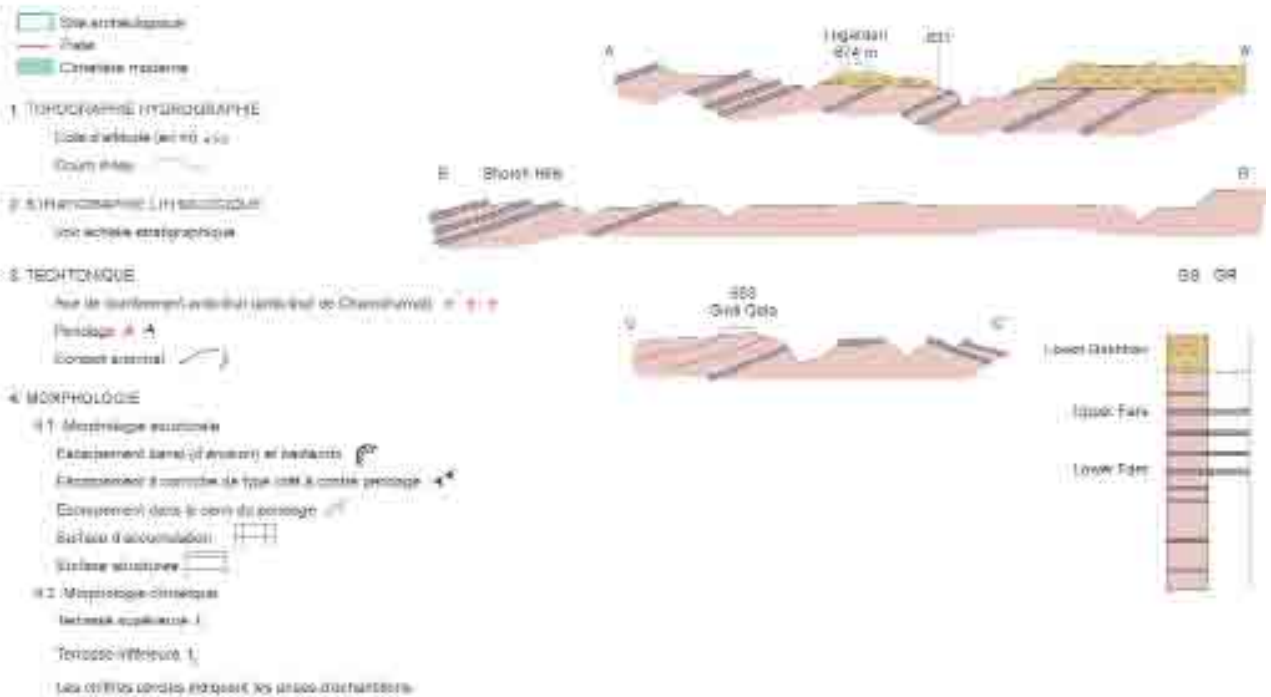
▶ In the eastern part of the quadrangle an oak leaf shaped high plain at 650 m (2000 ft.) ends up with flapped and cut up gullies, looking like badlands with carved out recesses (Fig. 2).



**Fig. 1** - Escarpements massifs à proximité du cimetière de Piryadi. Le revers des crêtes est une surface structurale parfaite dans les grès. **Fig. 2** - Badlands de la "feuille de chêne". L'épaisseur des argiles contraste avec la minceur des affleurements gréseux.



© Mission archéologique de Giza Douk  
CAD: Merit Savage (CART, L'IMP 3.05, Havana, France)



Map - Geomorphological map of the upper Tavuq Cay Valley

▶ In the central part, a large 'plateau' with an ESE gentle slope (650 m/2000 ft. in the north western part, and 600 m/1800 ft. in the South East) is scarcely notched away by steeply embanked watercourses or wadi, particularly the main one, the Haraw River (Fig. 3).

**The most original area is formed by two or three flat topped hillocks:**

▶ The Lugardan Hill (674 m/2020 ft.) culminating at the 'Citadel', is a kind of SE/NW elongated mound between the two gullies of the Tavuq Cay River and of the Tchachma Spi River, overlooking its own plateau about 50 m (150 ft, Fig. 4)

▶ The Girdi Qala Hill (653 m/1960 ft.) in the north eastern part of the quadrangle, at about 23-25 m (70-76 ft.) over the plateau itself and overlooking the junction between Tavuq Hamid and Tavuq Cay river systems (Fig. 5).

▶ The hydrographic network is arranged around the Tavuq Cay basin:

▶ The main flow is North-South, with an uneven meander on the eastern part of the Girdi Qala tell. This river is steeply embanked in its surroundings, but fringed by particularly broad terraces in two levels



**Fig. 3** - Encaissement de l'oued tchachma spi. la butte à l'horizon est artificielle. vue vers l'ouest.



**Fig. 4** - Butte et tell de lugardan. vue prise vers le nord est. on distingue à flanc de coteau, l'un des trois chantiers de fouilles du site. le plus proche est stérile, car en dessous du tell et est donc bien dans la roche en place. Au premier plan on note le pendage accentué des sédiments argilo-gréseux.



**Fig. 5** - Le magnifique chantier de fouilles de Girdi Qala. En contrebas, la vallée du Tavuq Cay, bordée de terrasses.

and overlooked by curved scarps. On the opposite way, its tributaries flow on a West-East direction, as do the Tchachma Spi River, and Tawer Hamid River, cutting the plateau surface with gullies of approximately 5 m (15 ft.) deep (Fig. 6).

### Structural Analysis

Alternating layers of thin sandstones and thick clays are easily distinguished by their respective colours, being greenish gray for the sandstones and reddish for the clayish material. The log should be about 500 m (1520 ft.) for the whole, from the bottom of Tavuq Cay valley up to Shorsh surroundings. This sedimentation sequence is perfectly regular. Nine or ten layers of sandstones, about 2 to 4 m thick (6 to 12 ft.) are interstratified with thick layers of clay or silt clay (section on the map). Notwithstanding the uncertainty of the geological sketch, this log seems to pertain to Lower Fars- Upper Fars (Helvetian) and Lower Bakhtiari (Messinian).

The main discovery is the angular unconformity (approx. 15 degrees) upon this sequence by a thick layer of Pliocene clays, as it appears on the right and left banks of the Tavuq Cay River, particularly on the south eastern slope of Logardan Hill. The Pliocene strata are resting horizontally over the slightly tilted Miocene layers, with a western dip (Fig. 7). It is self-evident that the western tributaries of the



**Fig. 6** - Ravinement accéléré sur la rive gauche de la Tavuq Cay. La remontée des têtes de ravins limite l'extension des drailles à la partie supérieure du versant, manifestation d'une interaction négative, sorte de "cercle vicieux" de l'érosion.



**Fig. 7** - Discordance angulaire de Lugardan : sur le flanc tourné vers l'Est, la discordance angulaire (env. 15°) est très visible.  
Altitude : 631 m.



**Fig. 15** - Pendage général des couches vers l'Ouest sur le flanc occidental du Lugardan. Vue vers le Nord.



Tavuq Cay, flowing eastwards, as the dip of the Helvetian and Messinian layers is westwards (Fig. 15) are superimposed rivers with an anaclinal direction, and are therefore young tributaries having been captured by the orthoclinal Tavuq Cay.

## GEOMORPHOLOGY

The main sandstone scarps are typical *cuestas*, or monoclinical scarps according to their dip (Fig. 8). Their very top seems to be an erosional surface, marked by numerous pisolithic gravels, witnesses of a wet tropical sequence (Fig. 16). On the opposite way, the south western slopes of these monoclinical scarps are plain structural surfaces (Fig. 9).

Pliocene layers lie unconformably on the whole. The whole disposal is probably in agreement with an Appalachian structure, slowly unearthed from the overlying Pliocene clays. As a matter of fact, Logardan Hill is therefore not a remnant hill of a so-called former Helvetian *cuesta*, but a plain remnant of the Pliocene transgression.



**Fig. 8** - Shursh Hills : pavage du front de crêt. Le façonnement des glacis d'érosion en roches tendres avait été attribué par le Père de Vaumas, d'après ses observations au Liban, au glissement sur la pente des dallages exfoliés du front du crêt . Cette conception est abandonnée depuis une soixantaine d'années. Vue vers le SW.



**Fig. 16** - Recul du front de l'escarpement monoclinical à la confluence Haraw-Tavuq R. Les dallages minces de grès sont brisés et couvrent le versant argileux.



**Fig. 9** - A l'Est de Lugardan : revers des crêts représentant une surface structurale parfaite .Shursh, Oct 27th, 2015.



**Fig. 10** - Cailloutis emballés dans les argiles sous la cote 604 m (Mare de la Tortue), preuves d'une crise rhexistatique.

An interesting fact about the climatic and tectonic conditions prevailing in this morphology is the existence of a pebble layer at the bottom of the Pliocene strata (Fig. 10), probably due to a tectonic event or a tectono-climatic event at this time. A strong erosion revival during historic times, mostly owed to overgrazing practices, led to the formation of superposed terraces on each bank of the Tavuq Cay River (Fig. 11), and a vivid erosion of the slopes as well (Fig. 12, 13 and 14).



**Fig. 11** - Modelé en "maille de filets de pêche", résultat d'une surpécoration des versants par les moutons et les chèvres. (Versant le long de la Tavuq R.) Les affleurements discrets de grès apparaissent à mi-versant et donnent quelques replats structuraux de faible ampleur.



**Fig. 12** - Niches de creusement et érosion régressive dans la rive gauche de la Tavuq. Position anaclinale de la rivière.



**Fig. 13** - Terrasses emboîtées du Tavuq Cay (1)(Plateau de la "feuille de chêne"): on distingue, au centre de l'image, au dessus de la basse terrasse, les fragments de la terrasse supérieure, fortement inclinés et disséqués par l'érosion .



**Fig. 14** - Terrasses emboîtées du Tavuq Cay (2) : la terrasse supérieure est utilisée pour les cultures. Vue vers le Sud.

# MAGNETIC SURVEYS ON THE ARCHAEOLOGICAL SITES OF GIRDI QALA AND LOGARDAN

Lionel Darras and Christophe Benech

From October 6th to October 15th, a geophysical survey has been carried out in the frame of the archaeological mission of Girdi Qala and Logardan in Iraki Kurdistan, directed by Régis Vallet (CNRS-UMR 7041 ArScAn/University of Paris 1). The geophysical method used for this campaign is the magnetic survey which is a fast and efficient method for a first approach of an archaeological site. The principle of the magnetic method is to measure the local variations of the Earth magnetic field due to the presence of iron oxides in the soils and in the archaeological structures. On both sites, the magnetic survey has been carried out with a cesium gradiometer G858 (Geometrics Inc.) with a mesh grid of 1 m x 0.10 m interpolated at 0.50 m.

## RESULTS OF THE MAGNETIC SURVEY

### 1. Girdi Qala (Fig. 1A and B)

In this area, a surface of 1.5 ha has been covered by magnetic survey.

On the upper part of the tell, we can observe a continuous anomaly (marked with red lines) all around

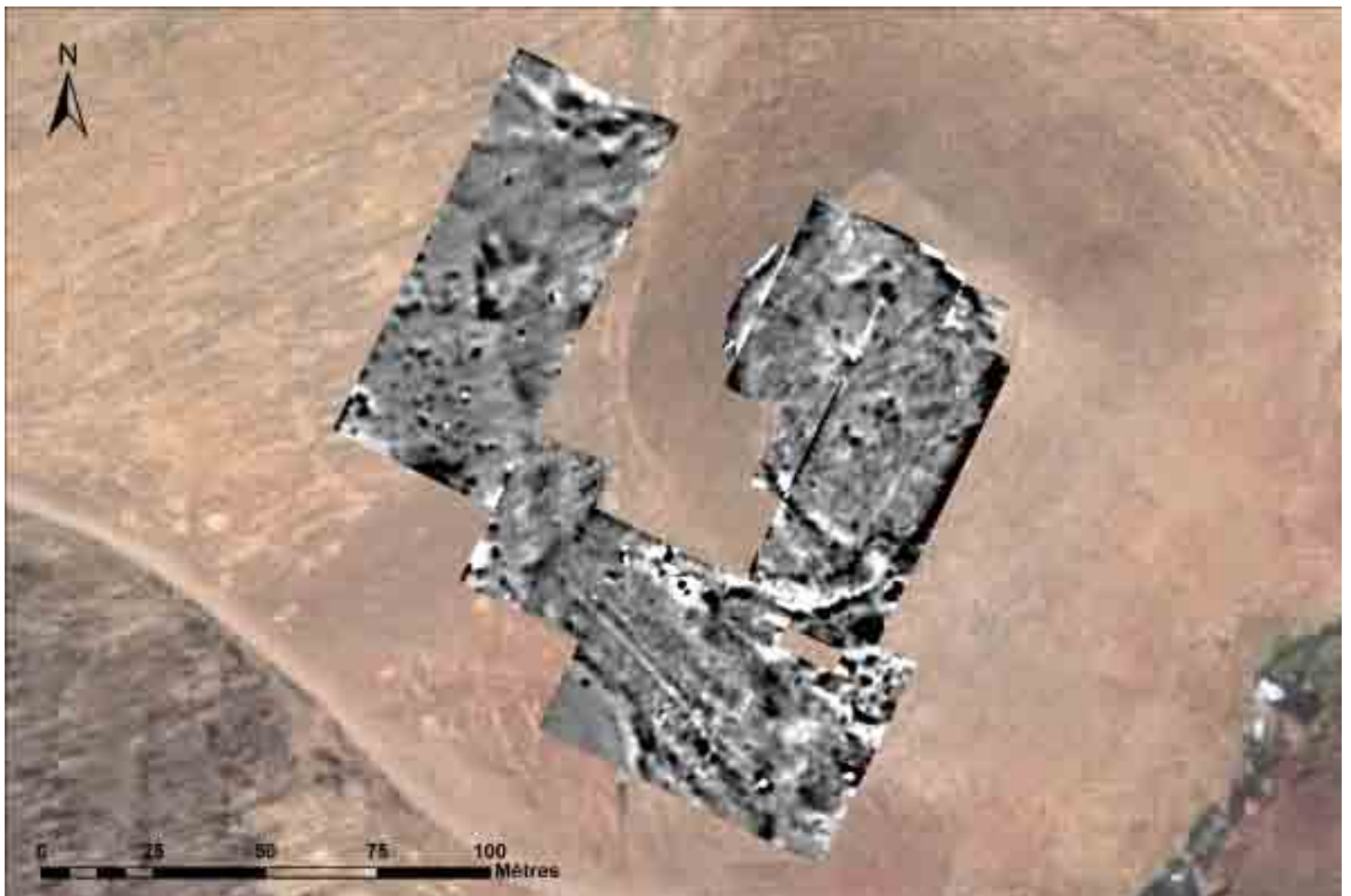


Fig. 1A - Magnetic map of Girdi Qala.



**Fig. 1B** - Interpretation of the magnetic map of Girdi Qala.

the edge of the tell: this anomaly might be associated to a wall encountering the top of the tell. Two other almost linear and parallel anomalies seem to delimitate the path access from the bottom to the top.

In the lower part of the tell, a continuous magnetic anomaly (marked with green lines) seems to delimitate the extension of a lower town because the magnetic signal of the ground on each side of this limit is radically different. Outside of this lower town, in the north-eastern part of the magnetic map, there is a set of small magnetic anomalies (inside the blue circle) which can be associated to pits (probably graves).

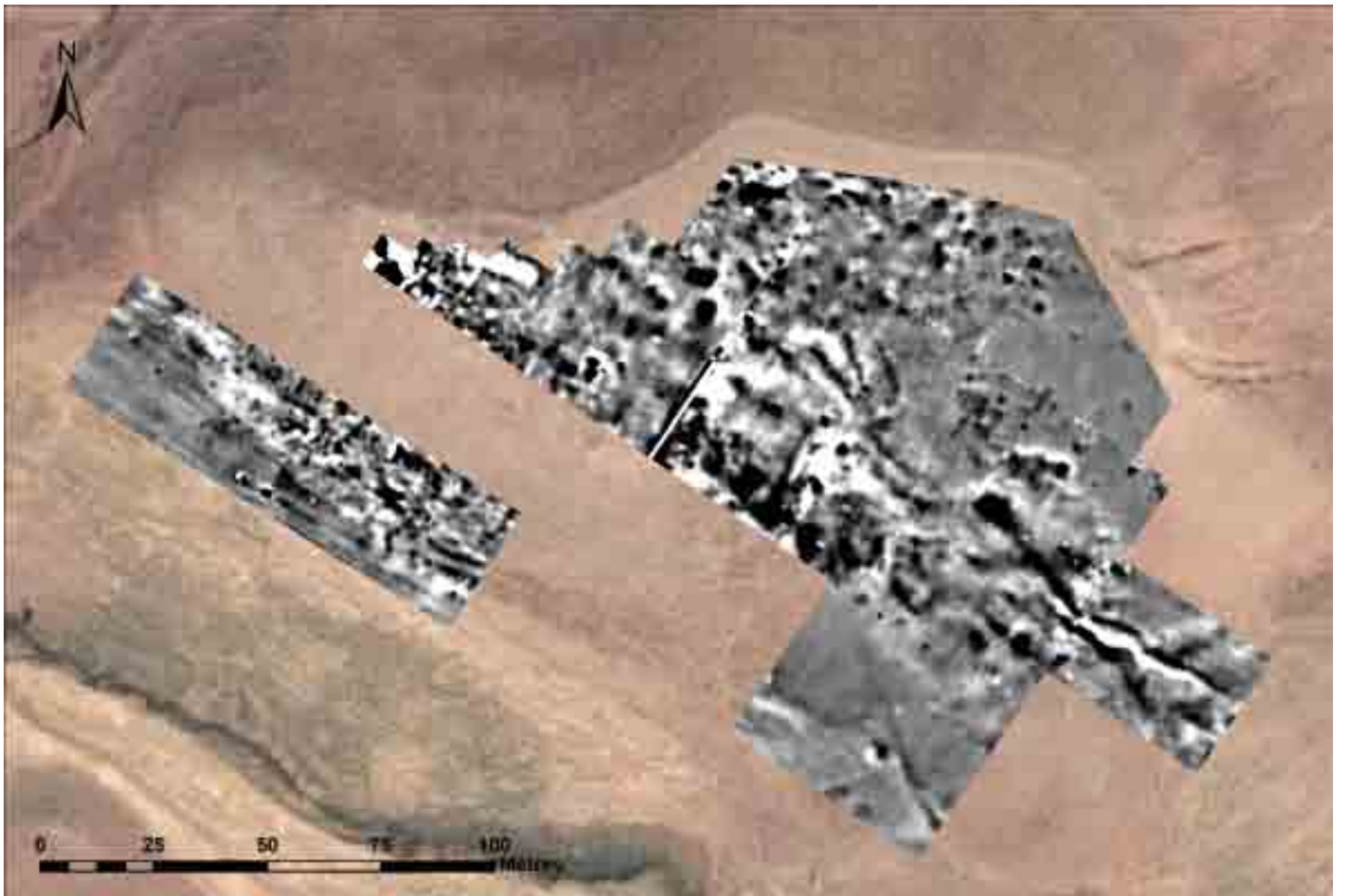
The two parallel magnetic anomalies (marked with a pink line) don't look to be due to archaeological structures: it is more likely the traces of a temporary path made by a tractor or a bulldozer.

## 2. Logardan (Fig. 2A and B)

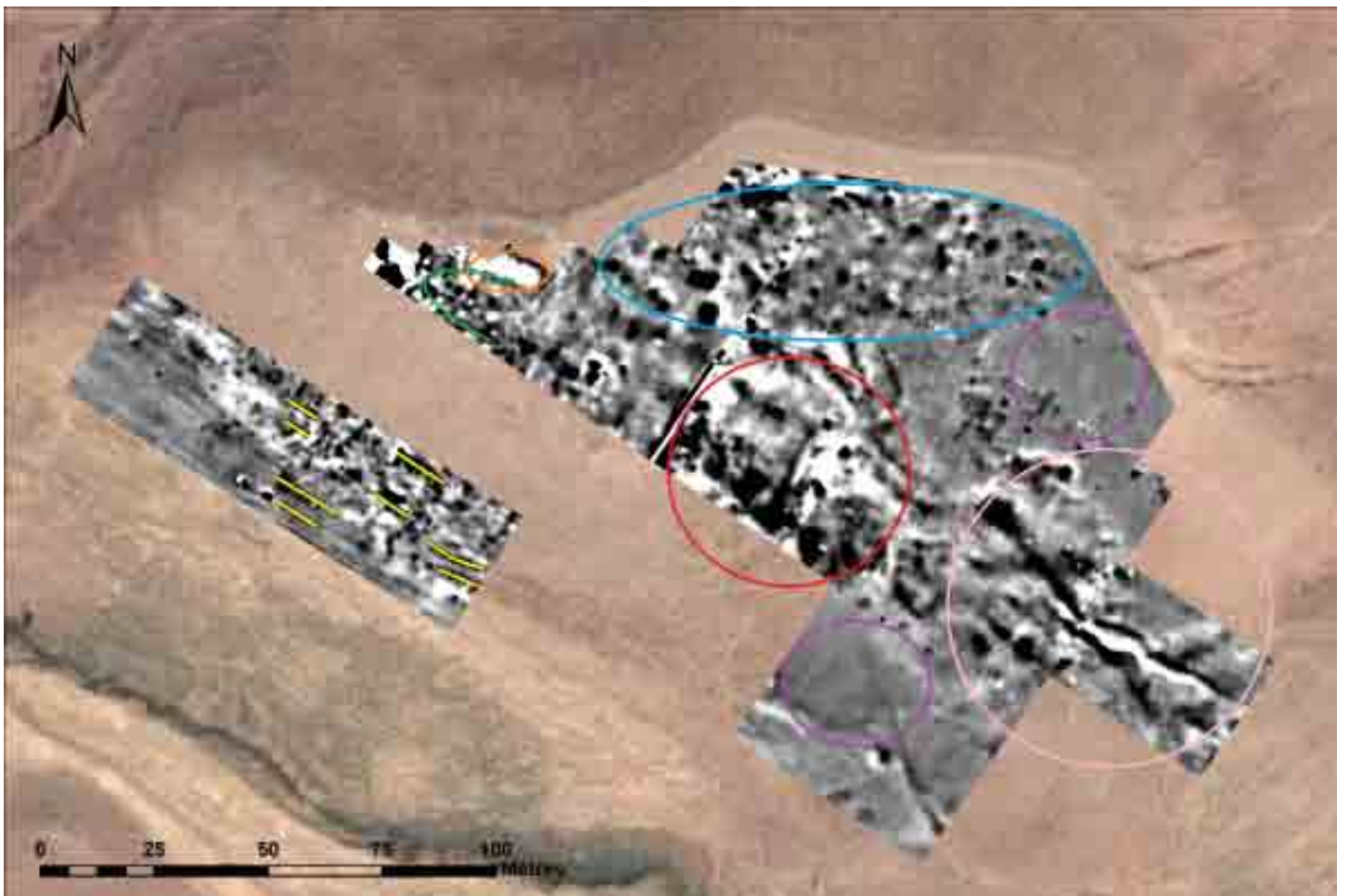
For this first campaign, the magnetic survey was focused on the upper part of the site. The lower parts will be surveyed at the next campaign in 2016. In this sector of Logardan, a surface of 1.5 ha has been covered by magnetic survey.

In the upper part of the tell, we can delimitate four different kinds of areas where the magnetic signal is radically different:

- ▶ The first one (blue circle) is mostly located in the northern area and composed by a set of punctual anomalies whose origin is probably pits.
- ▶ The second one concerns two sectors (purple circles), one to the North and the other one to the South. In these sectors, the magnetic signal is very 'quiet' and the boundary with the other areas is well



**Fig. 2A** - Magnetic map on the site of Logardan.



**Fig. 2B** - Interpretation of the magnetic map on the site of Logardan.

delimited. It can be therefore considered as a non-built area during the phase of occupation revealed by the magnetic map.

▶ The third one (red circle) is characterized by strong and negative magnetic anomalies in a rather well delimited area: these anomalies could indicate the presence of a building. The lack of details of the image of this building could be due to its destruction and therefore the magnetic map shows the piles of ruined walls.

▶ The fourth one (pink circle) concerns magnetic anomalies whose origins are rather due to pedological or geological events. These long traces shows the erosion of the tell and the flow of earth from the top to the bottom through a topographical depression. This depression might have an anthropic origin and could be the access laid out to reach to the top of the tell.

▶ There are also some more isolated magnetic anomalies but nevertheless, which are of great interest for our understanding of the organization of the site:

▶ A magnetic anomaly with a curved form (marked with green line) is visible, but it is difficult to determinate what it is exactly. Near this anomaly, we observe an important negative magnetic anomaly (orange circle), which corresponds to a long and linear topographical depression.

▶ There is also a set of linear anomalies (yellow lines) at the bottom of the southern side of the tell would might indicate the presence of retaining walls

## CONCLUSION

In Girdi Qala, beside few local disturbances, the magnetic map is rather clear and shows the most important structures of the tell. On the other hand, there is no clear detail of the constructions in both upper and lower parts of the site. This can be due to a bad state of conservation of the archaeological structures and/or they are too deep to be detected by the magnetic method.

In Logardan, the magnetic map shows very different areas which seems to be linked to different kind of archaeological structures or types of occupation. As in the case of Girdi Qala, there is no clear details of the spatial organization of the top of the tell but the identification of these different areas will certainly help the archaeological exploration.

This short report presents a preliminary step of the interpretation of the magnetic map. The analysis of the different areas and elements which are visible needs to be detailed after a more accurate data processing of the magnetic data. The comparison with the first results of the excavations will also certainly help to go further in our understanding of both sites.

# GIRDI QALA CITADEL, TRENCH A

Dominique Parayre and Martin Sauvage

**G**irdi Qala is a tell with straight slopes lying upon a high rocky bedrock. Its upper part was used until recently by the local peasants for their cultures: a narrow bulge made of earth and stones surrounded the rather flat surface of its top, and during the excavations we saw many ribbons made by agricultural engines. Many reasons explain the choice of the area of Sounding A for excavations: the hypothesis of a Bronze Age citadel (BM and BR) after the brief survey of the site, the topography and the results of the geophysical survey (see above): they allowed to think that there was in that place a structure with a strong wall and a defensive precinct. The Sounding A lies SE of the summit of tell. It measures 7 m long and 5 m large, and is oriented towards the slope (Fig. 1). In the eastern part of the trench, it was soon very clear that the defensive precinct, completely decayed, would be long and difficult to excavate. In the NE area 4 pits encircled by stones (1005-1008) were visible on the surface. Maybe used by the peasants for agriculture or herding, it proved to be empty. Here are the main results of the season:



**Fig. 1** - Surface of Trench A.

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 CAD : Martin Sauvage (CNRS, UMR 3225, Nanterre, France)

GIRDI QALA 2015 : OPÉRATION A : NIVEAU 1

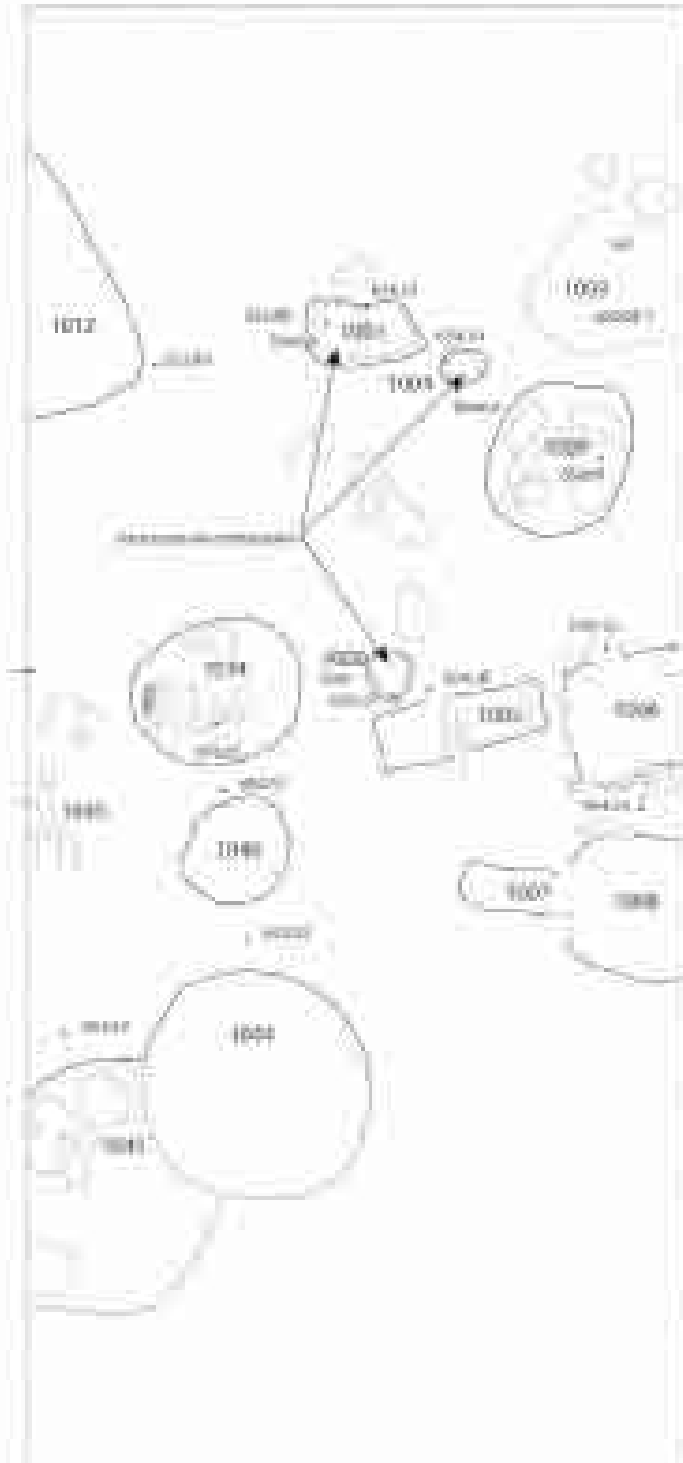


Fig. 2 - Trench A, Plan of level 1.



## LEVEL 1 (ISLAMIC)

Immediately under the surface appeared a first level belonging, according to its material, to an Islamic occupation of the site (Fig. 2). This level is characterized by open spaces equipped with fire facilities: a simple fire place filled with ashes and charcoal (1000) and two tannurs or ovens used to cook bread (1001-1002, Fig. 3). These last ones have a large orange wall, a thick grey bottom, and they were filled with reddish earth lying upon grey ashes. The thick ashy floor of this level 1 (1013) was very well preserved along the northern balk. Among the archaeological material we can notice a glass fragment, pieces of bangles made of black glass and 3 stone beads (Fig. 4).



**Fig. 3** - Ovens 1001 and 1002.



**Fig. 4** - Fragment of black glass and stone beads.



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 CAD: Martin Saurage (CNRS, UMR 3225, Nîmèges, France)

GIRDI QALA 2015: OPERATION A - NIVEAU 2

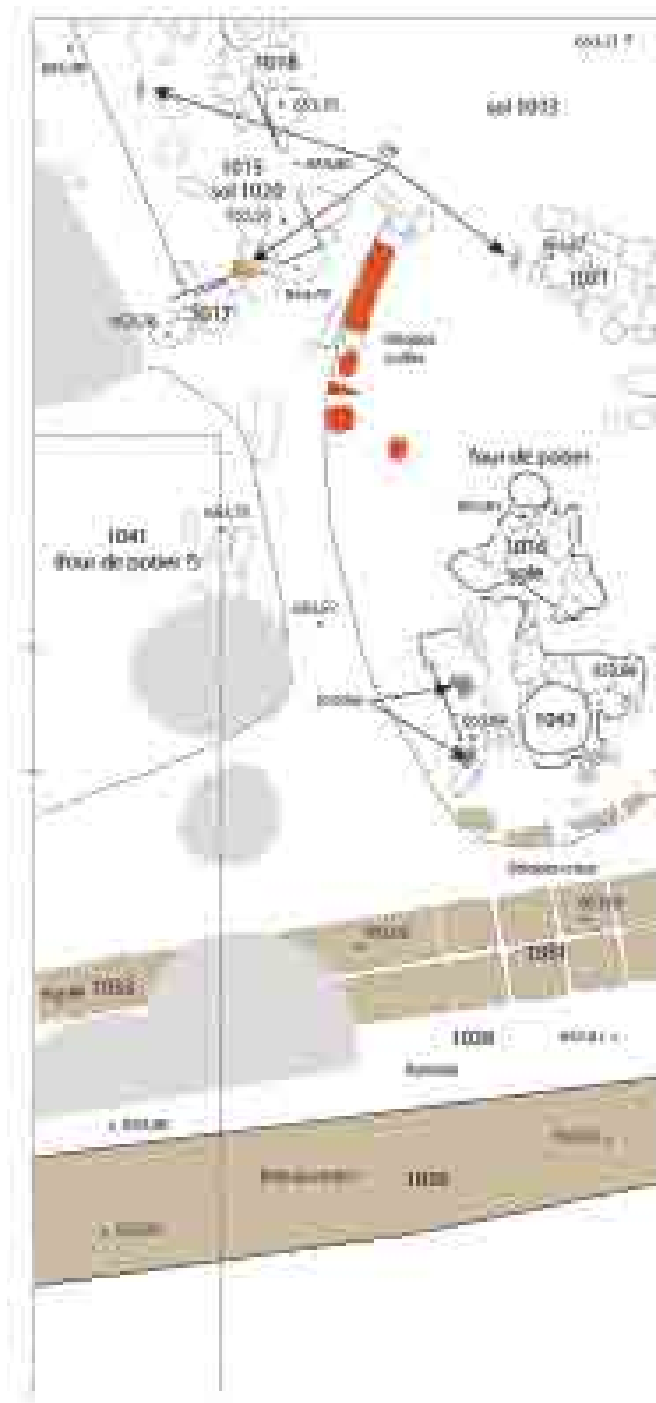


Fig. 5 - Trench A, Plan of level 2.

## LEVEL 2 (ISLAMIC)

Below the last level of occupation, we excavated an earlier Islamic level, also characterized by fire structures: large pottery kilns (Fig. 5).

A room surrounded by stone walls was excavated in the SW corner of the trench. This space (1015), cut by a pit filled with bedded clay (1012), was surrounded by two walls made of carved stones and slabs (1017-1018, Fig. 6). The clay superstructure, probably made of pisé, was not preserved. A thick ashy floor dated from this phase of occupation (1020). In the northern and eastern open spaces outside the room, the same kind of floor was discovered (1013), connected with pottery kilns. A first kiln (1016) was delimited in the western part of the trench by a stone wall (1021) and by a curved white and red mudbrick wall, with a passageway between the two walls. In the eastern part of the trench, the kiln was abutting the precinct wall. Its diameter is especially large (ca 5.3m, its northern part being in the balk). This oven was covered by a domed roof made of mud strengthened by pieces of wood and reed. The roof can be seen in the northern section, and many pieces of it were found on the sole of the oven. This sole, albeit cut by a modern pit, was rather well preserved, with a few small hollows full of ashes or charcoal or reddish earth (Fig. 7). Many slags were stuck on the surface of the sole. Under the sole, the bottom of the firing chamber was filled with burnt wood and other combustibles. It seems that a second pottery oven was built close to the first one towards the SO (1041).

Among the archaeological material we can notice fragments of black glass bangles and a coin (Fig. 8) which may be a good hallmark. The coin needs restoration but is Islamic



Fig. 6 - Walls 1017 - 1018.



Fig. 7 - Kiln 1016



Fig. 8 - Coin 3078-1

and according to Cécile Bresc (University of Paris 4) could be Ayyubid and minted in Aleppo.

#### 'Sounding' 1038 (Fig. 9)

In the last days of the excavations we opened the small 'Sounding' 1038, under room 1015, to get an idea of the underlying layers. Here are the main points to notice:

- ▶ In the southern balk, a red-brown mud brick wall (1039)

- ▶ In the eastern balk, a thin layer filled with small stones (maybe an apron, 1036), just under a thick green-grey layer (1037) which may have been a surface lying on a brick collapse (bricks from the wall 1039).

- ▶ In the eastern and northern balks, a thin and hard black floor (1035), that may have corresponded to the mudbrick wall 1039.

- ▶ In the southern balk, just under the wall 1039, a thick black floor (1040).

- ▶ In the NO corner of the sounding, a pit filled with stones (1041).

- ▶ Under the wall 1039 and the floor 1040 we removed a thick ochre layer. Under this layer we stopped the excavation on a very clear yellow surface (3091), which may have corresponded to mud bricks.



**Fig. 9** - "Sounding" 1038

## THE DEFENSIVE PRECINCT

The magnetic survey shows that the citadel was probably surrounded by a city wall (see above). This structure could have reached in some place a width of almost 5 m (Fig. 10). The trench A has been thus open on the slope in order to find the evidence of this city wall, to understand its structure and to date its different stages. The slope of the tell in this area is very sharp, so we were not able to investigate as far as we wished for security reasons. We found in the slope a first wall, probably made of unbaked mud bricks, which external face has been followed on the entire width of the sounding (i.e. 5 m) with a vertical face followed on 50 cm of height: it was impossible to go down further because of the slope. We, thus, could not remove the top of the wall, very badly preserved because of the erosion, to try to reach a better preserved part and to check the building material, the size of the mud bricks and their layout.



**Fig. 10** - The defensive precinct.

The width of the wall 1029 is of 1m. Another wall (1031-1033), very close and parallel to it, has been uncovered inside the tell. It is made of unbaked square mud bricks measuring 40 x 40 cm laid on two rows with a 5 cm line of mud mortar. The width of the wall is 85 cm. Between these two walls, a filling of natural earth has been packed on an average width of 70 cm. These three structures were preserved at different heights, according to the slope of the tell on a total width of 2.60 m.

A test trench, of 1.50 of width, along the south-eastern side of the sounding, has been investigated the last days of the campaign to cut through the city wall structures and to go on inside the tell to the west in order to understand the stratigraphic relations of the city wall structures and the rest of the excavation. Unfortunately, this place was densely occupied on the eastern side by late pits (1045, 1044, 1046 and 1034) and on the western side by the remnants of another Islamic pottery kiln (1041). It is thus not yet possible to date these structures, but one can notice that the pottery kiln 1016 from level 2 has been obviously backed on the internal wall 1031-1033, which was thus probably always in use at this period. The other wall 1029 could belong to an earlier phase of construction.



# GIRDI QALA, STRATIGRAPHICAL TRENCH B

Laurent Colonna d'Istria and Juliette Mas

**T**rench B is located in the western part of the summit of Girdi Qala. It consists in two contiguous 5 × 5 m squares at the top of the slope: Square 1 to the east and Square 2 to the west, partly in the slope. This trench was aimed at exploring the stratigraphic sequence of the site, from its top till its base. During the campaign, about 2m of stratified layers have been excavated and six occupation levels were identified so far.

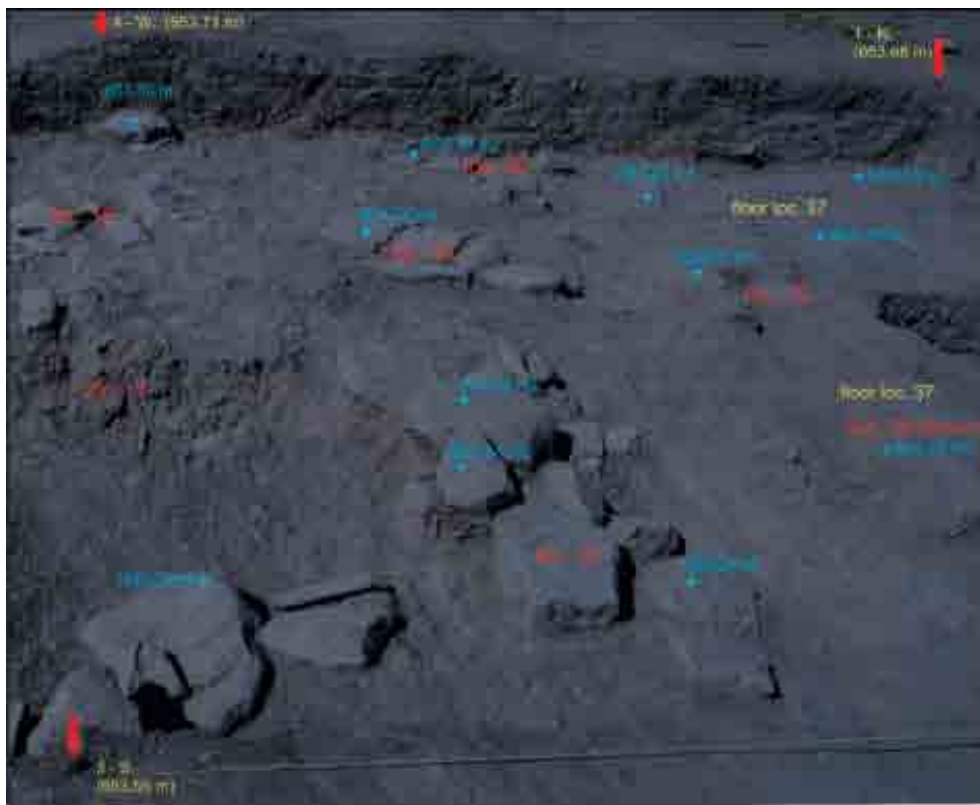
## LEVELS 0 AND 1 (ISLAMIC)

As witnessed by the numerous furrows on the top of the site, the site was used for agriculture until recently. The agricultural work damaged the archaeological layers deeply. Chisels and ploughshares disturbed level 0 (sub-surface) but also damaged level 1 remains (Fig. 1). Immediately under the sub-surface, several large stone slabs alignments were found (loc. 12, loc. 16, loc. 19 and loc. 20). Loci 12 and 16 were the first discovered, as they were the highest (653.41 m and 653.35 m respectively). Loci 16, 19 and 20 were oriented in an east-west direction, when loc. 12 was oriented southeast-northwest. Loc. 12 apparently corresponds to a wall collapse. It was composed of a 35cm thick stones accumulation (alt. 653.41 m to 653.06 m). If these stone alignments were undoubtedly part of an architectural structure, its layout could not be reconstructed because of the modern plowing disturbances.



**Fig. 1** - Area B - Square 1 - General view to the Northwest.

In the Northern part of Square 1, to the west of the disturbed stone alignments, domestic installations were found: i.e. a floor (loc. 37, alt. 653.20 m) with a tannur (loc. 24, alt. 653.28 m) and an ashy floor. Floor 37 may have likely been connected to the “stone building”. The dating of Level 1 is uncertain as no in situ material was found. Nevertheless, it should belong to the Islamic period (Fig. 2a and b).



**Fig. 2a** - Trench B - Square 1- View to the Northwest.



**Fig. 2b** - Trench B - Square 1- View to the Southwest).



## LEVELS 2 AND 3 (SASANIAN)

Level 2 is characterized by no built structures but pits (loci 18, 21 and 28). They seem to have been dug from a completely leveled level of occupation (earlier than Level 1). Pit 18 (alt. max. 653.20 m - alt. min. 652.74 m) is located in Square 2, at the limit of the slope. Pits 21 and 28 are located in Square 1. The latter were both deeply intrusive into the underlying structures. Pit 21 was more than one meter deep. All these pits offered heterogeneous material: faunal remains, flint blades, and mixed potsherds dating from the Late Chalcolithic to the Sasanian periods (Fig. 3). Of level 3 below, no built structure was preserved, and all the area has been largely disturbed by the pits. We attribute to Level 3 several layers cut by the pits of level 2 and recovering Level 4 remains. Level 3 layers can also be dated to the Sasanian period, showing in particular a nice stamped potsherd with a ram and a scorpion (see Mas below).



**Fig. 3** - Trench B - squares 1 and 2 - View to Southeast.

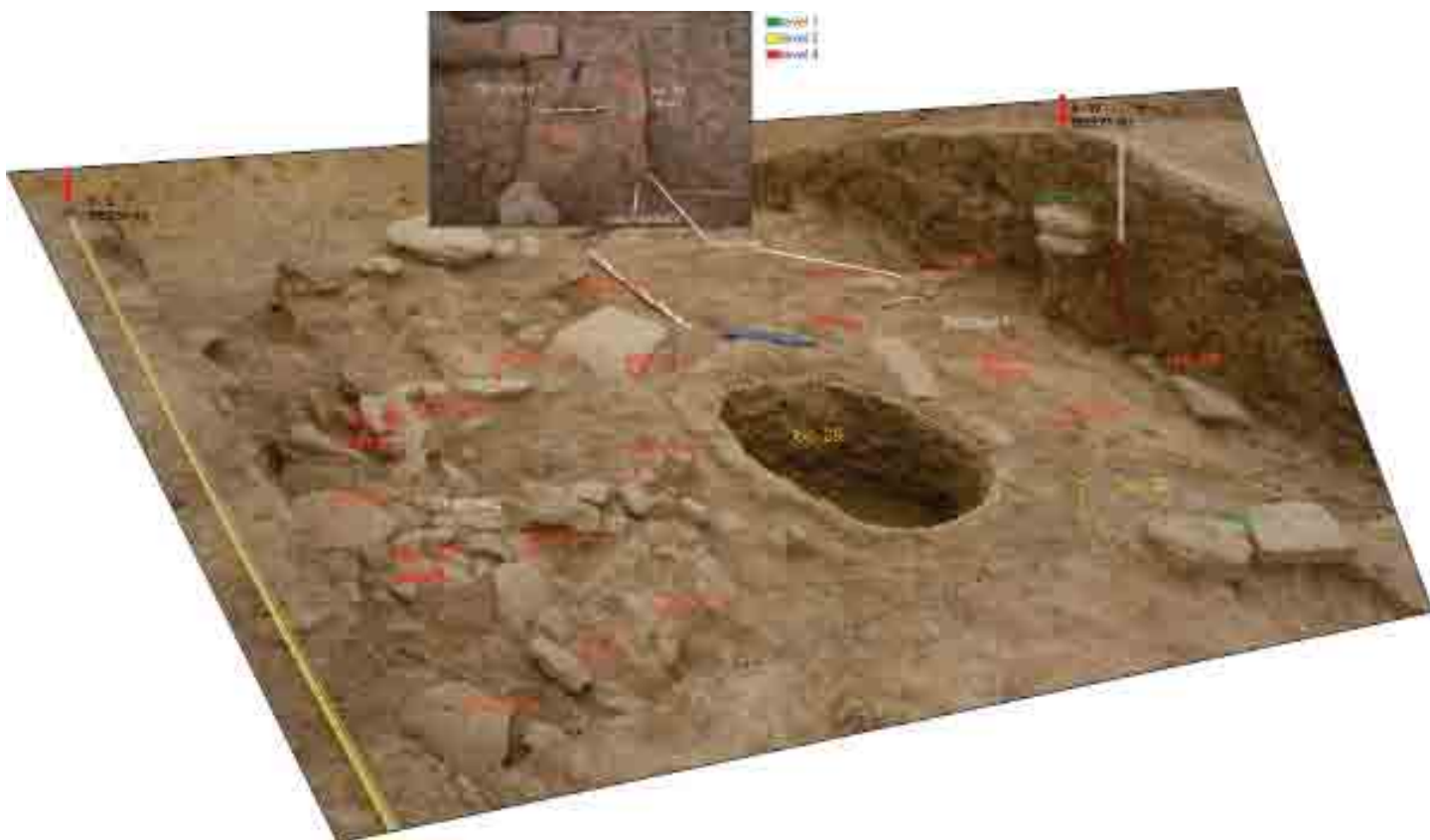
## LEVELS 4/5 (HELLENISTIC)

Although Level 4 has been disturbed by Level 2 pits (pits 18 and 21), two main structures could be identified:

- ▶ Structure 1, in the northern part of the Square 2: Walls 30 and 38, floors 31 and 39, installation 26.
- ▶ Structure 2, in the southern part of Square 1: Walls 27 and 40, floors 41, tannur 29.

The structure 1 is composed of mud-bricks walls 30 and 38, associated to internal floor 31. Wall 30 is preserved on a very short length (less than 1m), while wall 38 is running into the northwestern berm. Floor 31 was made of beaten earth and equipped with an installation (loc. 26) made of stones and potsherds. The presence of a passageway, in the western part of wall 30, is attested by a baked brick door-socket and a threshold stone (in the northwestern berm). An external floor associated to walls 30 and 38 was also identified (Loc. 39, alt. ca. 652.60 m).

The structure 2 is composed of two stone-built walls (27 and 40). The stones are of different shapes and size. These walls are associated with beaten earth floor 41 (alt. 652.65 m), equipped with a tannur (loc. 29). The relation between the two Structures could not be defined, as the pit 28 (Level 2) cut the area in between. Nevertheless, they may have been contemporary, notably because of their similar altitude. The Level 4 can be attributed to the Hellenistic period by the material it yielded (Fig. 4).



**Fig. 4** - Trench B - Squares 1 and 2 - View to the West.

Below Level 4, several elements appeared, labelled “Level 5” but that could be an earlier phase of level 4:

- ▶ Floor 32, made of djuss, below Level 4 floor 31 (floor 32: alt. 652.36m)
- ▶ Floor 34, also made of djuss and covered with a thin layer of ashes, to the west of wall 38.

We could not yet determine if floors 32 and 34 were associated to walls 30 and 38 (that were not removed) or ran below them. Nevertheless, the two floors were likely part of the same occupation phase. The analysis of the pottery collected on floor 34 points towards a dating of ‘Level 5’ to the Hellenistic period, but that remains to be confirmed by further excavations. A pit (loc. 33, alt.: 652.45 m), underneath wall 27 (Level 4) in the southern part of Square 1, also probably belongs to Level 5. Its filling contained a grinding stone (Fig. 5).



**Fig. 5** - Trench B - Grinding stone QQB P1029-1.

## LEVEL 6

The deepest level of occupation excavated so far has been reached in Square 2 in the very last days of the campaign, on a very limited surface in the slope of the tell. Underneath floor 34 of Level 5 were several ashy layers (NV 1036 and 1037) recovering a floor (loc. 42) equipped with a tannur (loc. 36), of what we made a 'Level 6'. The tannur was cut by a pit (loc. 35, at 651,97 m), whose origin is unknown due to the erosion, but that can be dated to the Hellenistic period. The study of the material coming from the 'Level 6' layers remains to be done and its dating needs further excavations to be established (Fig. 6).



**Fig. 6** - Trench B - Square 2, View to the Northwest-View to the Northeast.



# POTTERY FROM GIRDI QALA TRENCH B

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Juliette Mas

If two brief surveys were carried out in April 2014 and in June 2015<sup>1</sup>, no real archaeological exploration was conducted at the site before September 2015. A first evaluation of the material from these surveys provided us with some chronological ranges of Girdi Qala sequence of occupation. The recognized periods in the gathered material were the Late Chalcolithic period, Early and Middle Bronze Age. The first season of excavation and the analysis of pottery stratified assemblages helped to define with certainty some of the occupation periods of the site. The most ancient occupations could be traced back to the Late Chalcolithic period and were excavated in Area C at the bottom of the tell (see below). Two other areas were excavated at Girdi Qala, at the top of the tell: Areas A and B. Because of the short length of the campaign, an exhaustive study of the pottery was impossible. Nevertheless, the preliminary analysis of the pottery from specific contexts brought some interesting dating interpretations.

## THE POTTERY FROM TRENCH A

The material from the excavated contexts of Trench A (especially from levels 2 and 3) could not be studied during the Fall 2015 campaign. The excavated levels in Area A did not provide us with much pottery material and did not count many diagnostics sherds. Nevertheless, they might be dated back to the Islamic times. However, some of the collected material as the handles (e.g. GQ15 3021 - 1 and GQ15 3082 - 1, Fig. 1), the triangular<sup>2</sup> or squares rimed jars<sup>3</sup> (e.g. GQ15 3020 - 16 and GQ15 3032 - 1, Fig. 1) or the double club-rimmed bowls<sup>4</sup> (e.g. GQ15 3037 - 1, Fig. 1) possibly date to the Sasanian period. In fact, this material could notably be compared with the pottery from Tell Mahuz or Thaj, and was also attested in the North Jezirah Survey. Nevertheless, these few sherds, from levels 1 and 2, come from secondary contexts (rooms and pit fillings). Therefore, they cannot date Levels 1 and 2. The already collated material shall be analyzed to get a more accurate view of this occupation and of its dating. However, the results from trench B gave us a more precise picture of the upper levels of Girdi Qala.

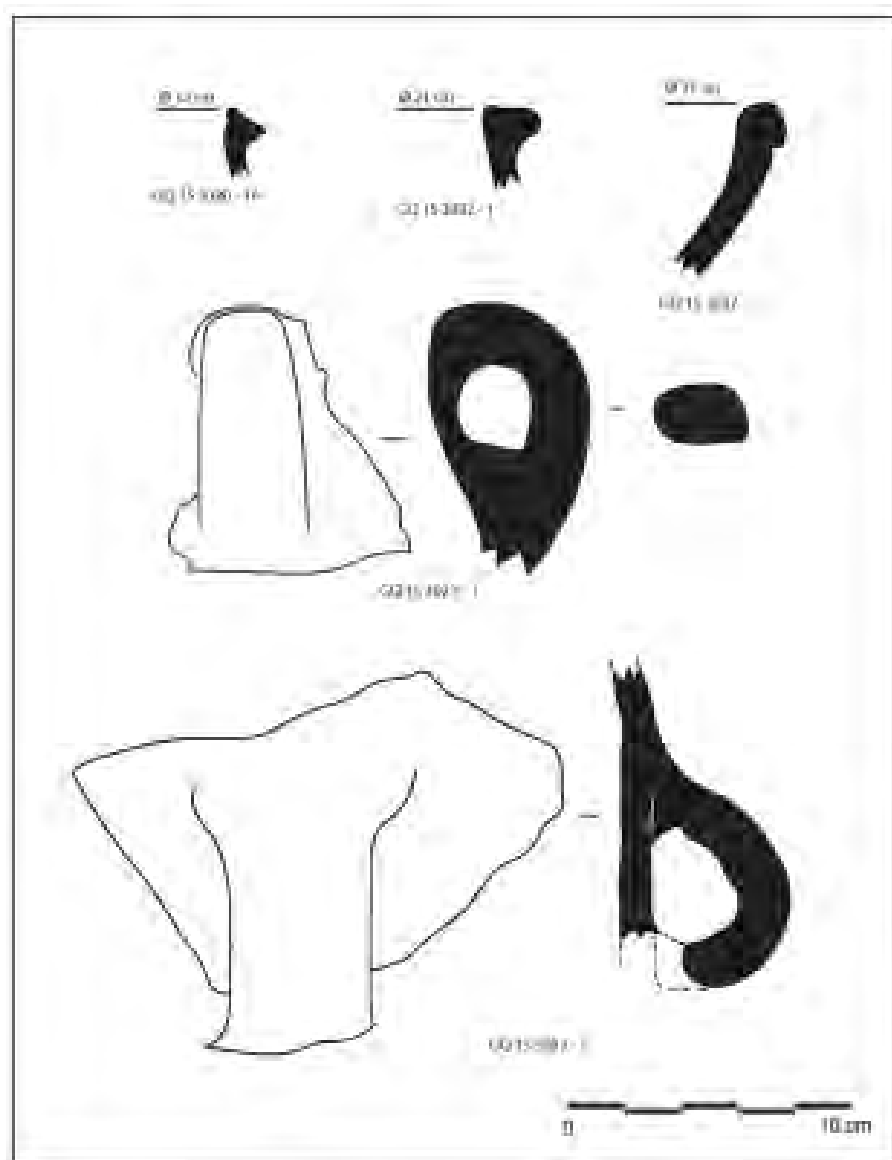
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1. Vallet 2015.

2. Compare to Tell Mahuz jugs rims: see Venco-Venturi 1970-71, Fig. 88.3 and Fig. 88.10. This type has also been found in the North Jezirah Survey: see Wilkinson & Tucker 1995, types 75.

3. Compare to Tell Mahuz jugs rims: see Venco-Venturi 1970-71, Fig. 88.5-6 and Fig. 89.11.

4. Compare Thaj: see Potts 1993, Fig. 10.13.2.



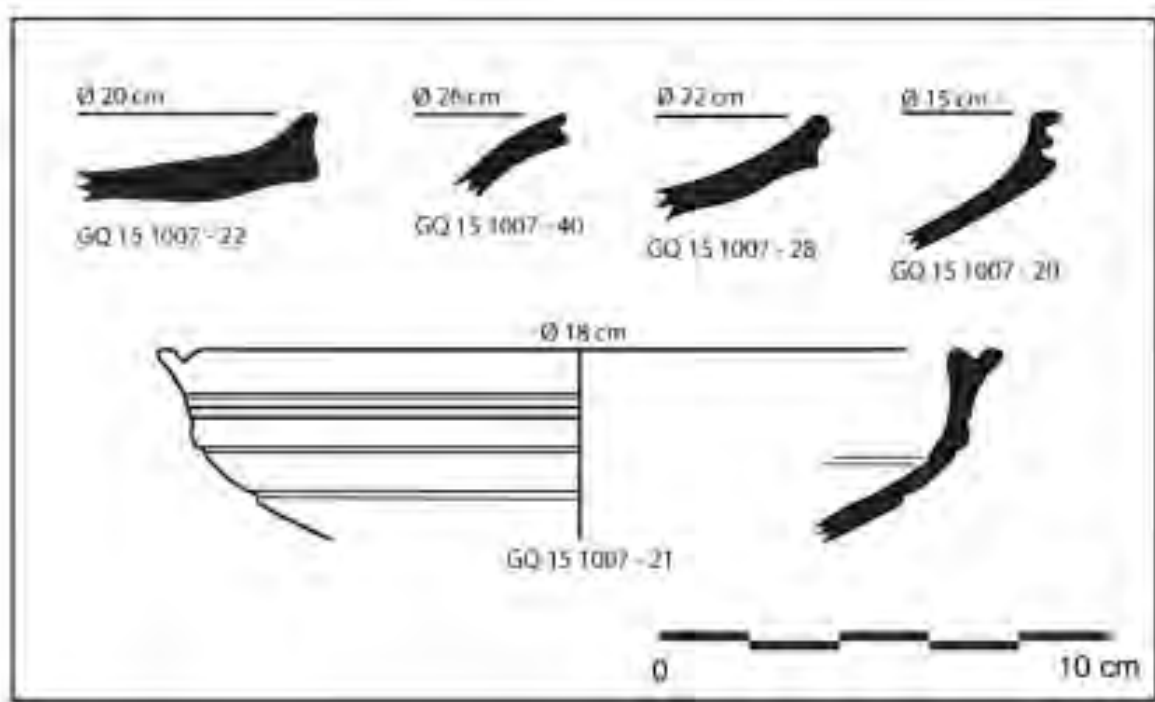
**Fig. 1** - Sasanian pottery from Trench A.

## THE POTTERY FROM TRENCH B

### Pottery material from surface and sub-surface

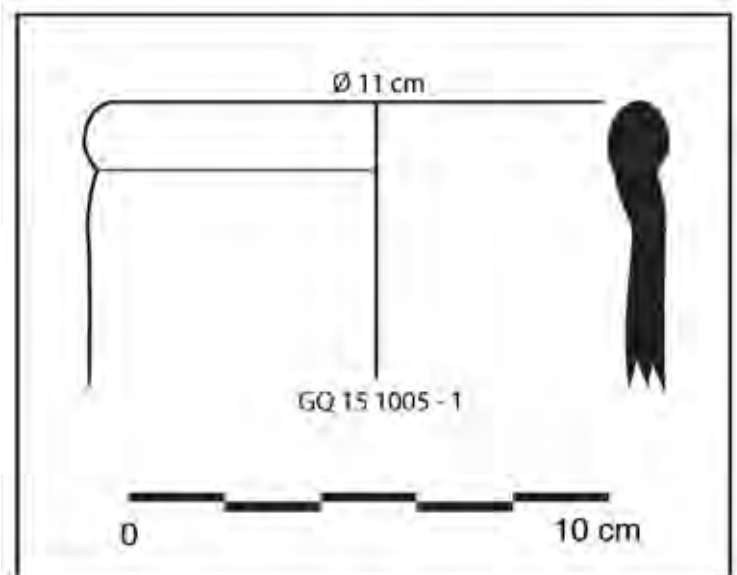
Although the material from the surface, sub-surface and pits is mixed and not in situ, it can provide us with some clues concerning the sequence of occupation of the site. Beside the Middle and Early Bronze Age material already identified by J.S. Baldi and R. Vallet during their survey<sup>5</sup>, Late Bronze Age material was identified in Girdi Qala sub-surface layers during the Fall 2015 excavation campaign, so there is no doubt that the site has been lastingly occupied throughout Bronze Age. Additionally, the material from the subsurface (Area B NV 1005, NV 1007 and NV 1009) offered a large quantity of Hellenistic/Parthian pottery. This assemblage notably counted numerous cups and 'fish-plates' fragments (Fig. 2). This well-known morphological type is a common feature of Near Eastern Hellenistic ceramic assemblages and can be dated between the 2nd century B.C. and the 2nd century A.D. Girdi-Qala fish-plates can

5. Vallet 2015.



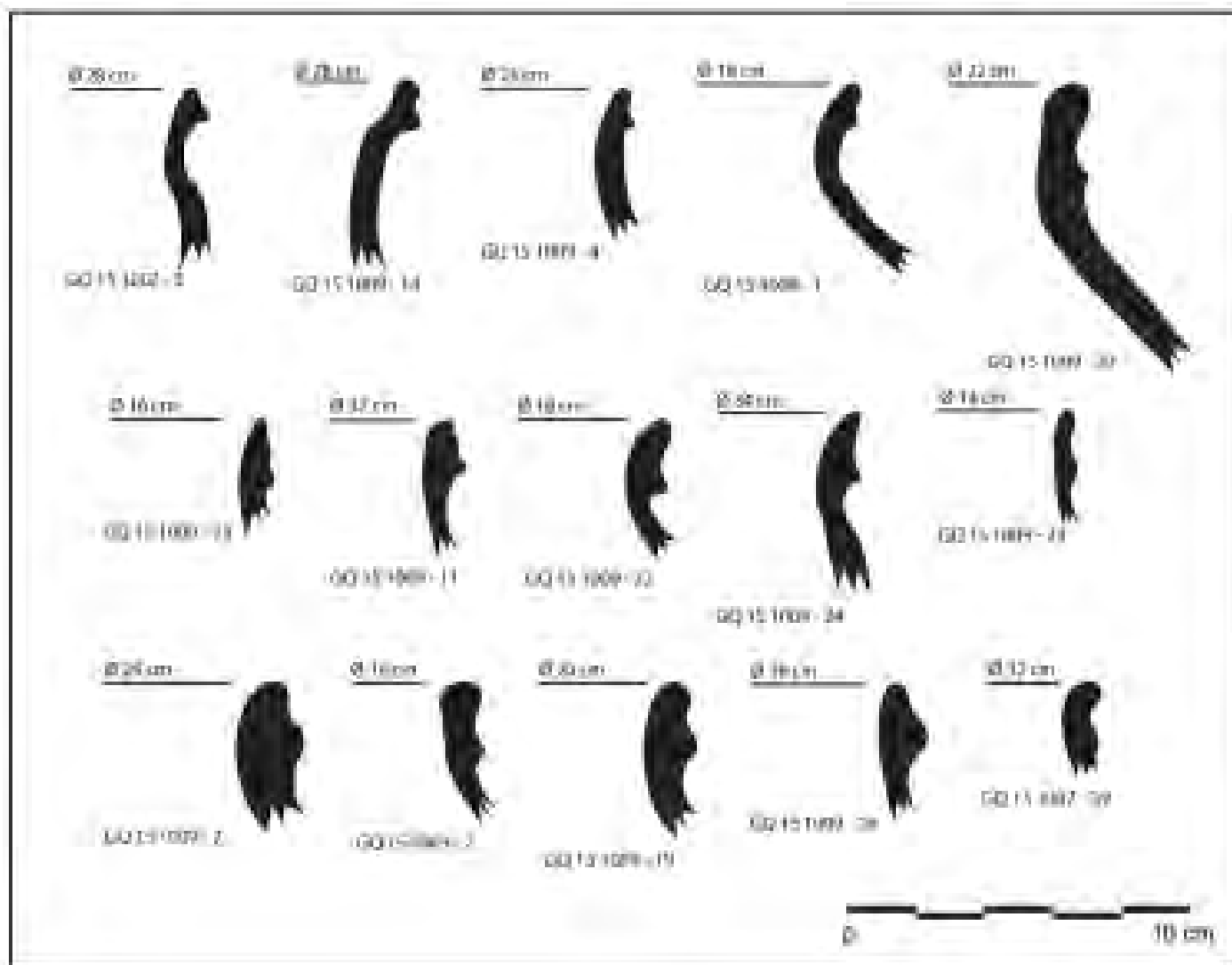
**Fig. 2** - Hellenistic/ Parthian cups and "fish-plates" from Trench B sub-surface (NV 1007).

notably be compared with pottery discovered in Upper and Central Mesopotamia excavations or survey<sup>6</sup>. Their distribution extends at least to Qal'at al-Bahrain<sup>7</sup>. We can also notice the presence of high and cylindrical necked amphora (Fig. 3), which could be compared to material from Dura-Europos<sup>8</sup> and of a large quantity of folded rimed jars (Fig. 4; also discovered in situ, cf. Levels 4/5). Several sherds with 'Dog tooth' and triangles motives were also discovered in NV 1007 (Fig. 5). This kind of decoration is typical of the Hellenistic pottery repertoire but continues during the Parthian period. It is notably attested at Hatara<sup>9</sup>, Nimrud<sup>10</sup>, Khirbet Khatuniyeh<sup>11</sup>, Jebel Khalid<sup>12</sup>, Tell Barri<sup>13</sup>, Tell Beydar<sup>14</sup>, Tell Hamoukar

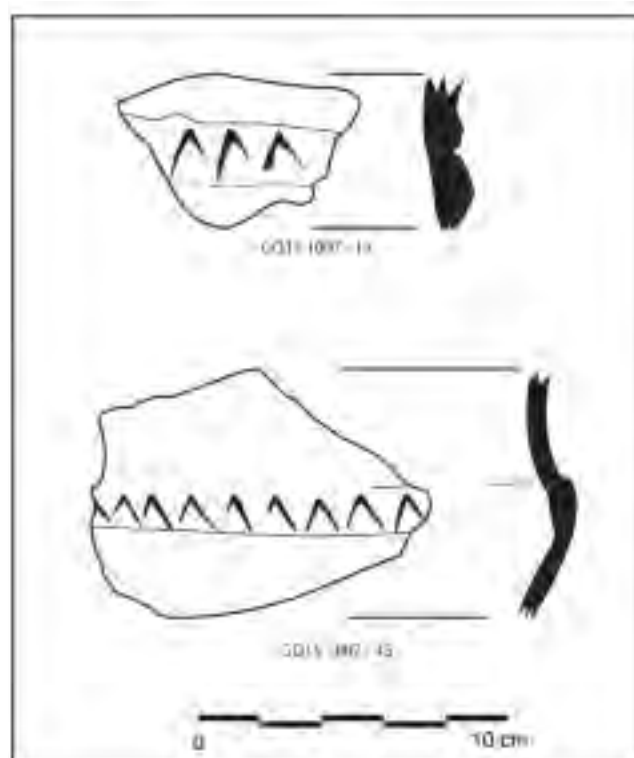


**Fig. 3** - Cylindrical necked amphora from Trench B sub-surface (NV 1005).

6. For comparanda found at Babylon, see Cellarino 2004, Fig. 6; Tell Barri, see Parmegiani 1998, Fig. 1.2; at Tell Sabra, see Tunca 1987, Pl. 38; in the Balikh valley, see Gerritsen 1997, Fig. 4.21; Upper Khabur Survey, see Dorna Metzger 1996, p. 372 and Fig. 5.39; Tell Hamoukar Survey, see Ur 2010, Fig. B.31.13 and 16.
7. Lombard & Kervran 1993, Fig. 13 and 18.
8. Alabe 1992, Fig. 1-2.
9. Venco-Ricciardi 1997, Fig. 6.72.
10. Oates & Oates 1958, Pl. XXI.17-18, XXI.20 and XXIV.8.
11. Curtis & Green 1997, Fig. 66.
12. Jackson & Tidmarsh 2011, Fig. 71.
13. Parmegiani 1987, Fig. D.
14. Martín Galán 1997, Pl. IV.4.



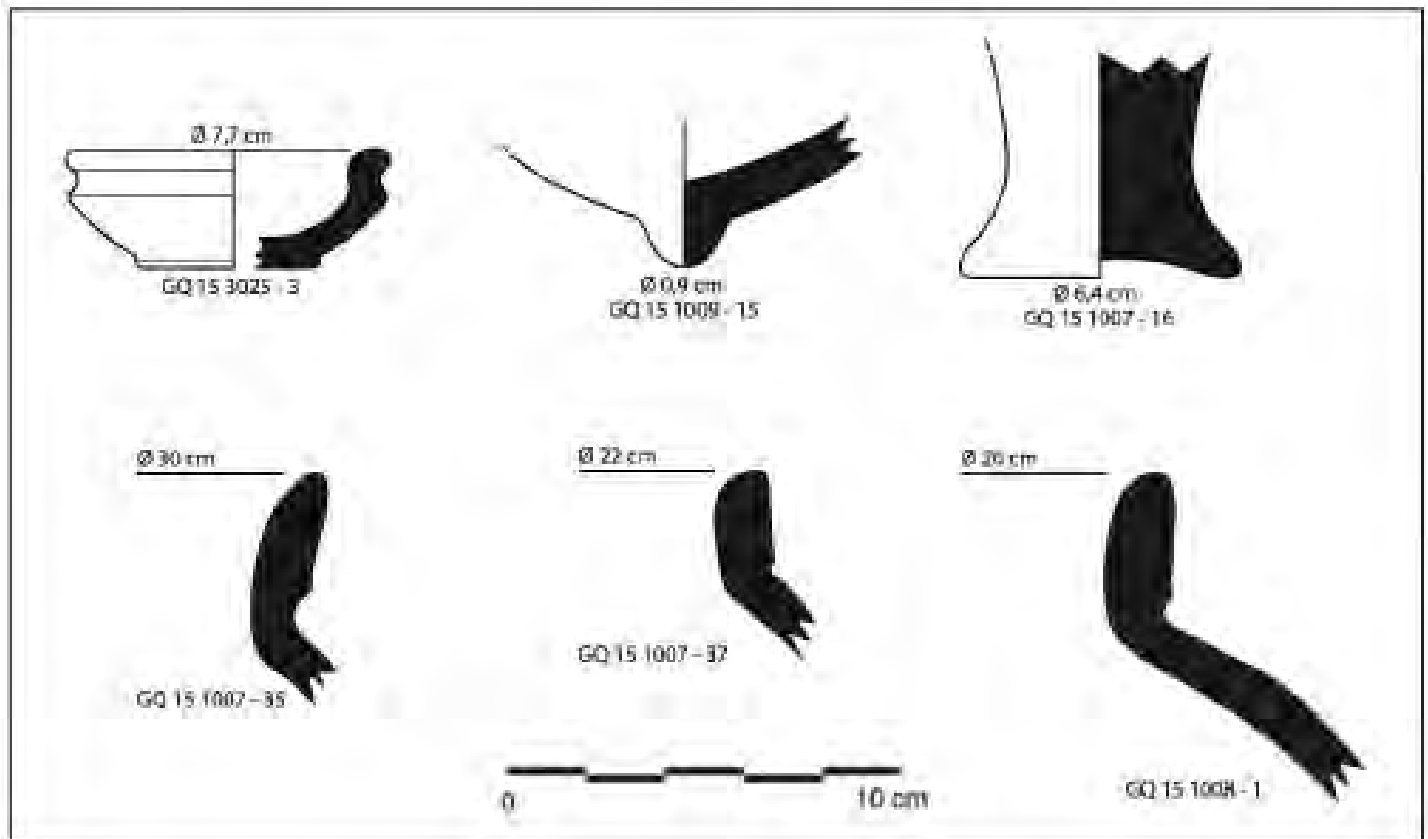
**Fig. 4** - Hellenistic folded rimmed jars from Trench B sub-surface (NV 1007 and NV 1009).



**Fig. 5** - Potsherds with "Dog-tooth" motives from Trench B sub-surface (NV 1007).



Survey<sup>15</sup> and Failaka<sup>16</sup>. Finally, the sub-surface layers also provided us with some Middle-Assyrian pottery, among which we could distinguish small carinated bowls (e.g. GQ 15 3025 - 3; Fig. 6)<sup>17</sup>, collared rim jars (e.g. GQ15 1007 - 35, GQ15 1007 - 37 and GQ15 1008 - 1; Fig. 6)<sup>18</sup>, a fragment of Kassite beaker (GQ15 1007 - 16; Fig. 6)<sup>19</sup> and nipple bases<sup>20</sup> (e.g. GQ15 1009 - 15; Fig. 6). These types are notably attested in Late Bronze Age Levels from Tell al-Rimah, Tell Brak, Tell Sabi Abyad, Tell Bderi, Tell Sheikh Hamed or Bash Tapa.



**Fig. 6** - Middle Assyrian potsherds from Trenches A and B sub-surface.

15. Ur 2010, Fig. B.31.

16. Hannestad 1983, Pl. 40.364.

17. Compare Bash Tapa: Mas 2015, Pl. 7 and 9; Tell Barri: Anastasio 1998, Fig. 6; d'Agostino 2008, Fig. 1; Tell Bderi: Pfälzner 1995, Fig. 9 and 77; Tell Brak: Oates, Oates & McDonald 1997, Fig. 181; Tell Sabi Abyad: Duistermaat 2008, Fig. IV.12, IV.37-38, IV.99 and IV.114; Tell Sheikh Hamed: Pfälzner 1995, Taf. 34, 67, 71, 77 and 113.

18. Compare Tell Barri: d'Agostino 2008, Fig. 1-2; Tell Bderi: Pfälzner 1995, Taf. 120; Tell Brak: Oates, Oates & McDonald 1997, Fig. 183; Tell Sabi Abyad: Duistermaat 2008, Fig. IV.29 and IV.31; Tell Sheikh Hamed: Pfälzner 1995, Taf. 85, 117 and 120.

19. Concerning Kassite beakers geographical and chronological distribution, see in fine, Gasche & Armstrong 2014, p. 61-63 and Pl. 103.

20. Compare Tell al-Rimah: Postgate, Oates & Oates 1997, Pl. 72.729; Tell Barri: Anastasio 1998, Fig. 18 and 23; d'Agostino 2008, Fig. 1 and 3; Tell Bderi: Pfälzner 1995, Taf. 63 and 114; Tell Brak: Oates, Oates & McDonald 1997, Fig. 183; Tell Sabi Abyad: Duistermaat 2008, Fig. IV.33, IV.90-91 and IV.110; Tell Sheikh Hamed: Pfälzner 1995, Taf. 36, 63, 97 and 130.

## LEVEL 3

The first undisturbed occupation level excavated in Trench B was Level 3 (see above). The pottery material yielded by Level 3 indicates a dating to the Sasanian period. The most relevant clue to attribute this dating was a stamped sherd with a ram and a scorpion decorating a large Standard ware jar (Fig. 7). This typical Sasanian motive (i.e. rounded stamp with animals in a circle) is one of the main indicators of Sasanian occupations<sup>21</sup>. Similar Sasanian stamped sherds have been discovered in many sites (notably at Tell Barri<sup>22</sup>, Nineveh<sup>23</sup>, Nuzi<sup>24</sup> and Borsippa<sup>25</sup>) and within the framework of several surveys carried out in the region<sup>26</sup>.



**Fig. 7** - Sasanian sherd with stamped decoration representing a ram and a scorpion (Trench B, NV 1019).

## LEVELS 4/5

Most of the pottery from these levels can be dated to the Hellenistic period. The main part of the discovered ceramics belongs to a Standard Ware fabric mainly mineral tempered, highly fired and well-smoothed. Its range color is between whitish yellow, pale pink and orange or red. Layer NV 1030 (a mudbrick collapse) yielded an example of 'Black Glazed Ware' (Fig. 8). This well-known



**Fig. 8** - Black Glazed Pottery from Area B (NV 1030).

fabric occurs in Syro-Mesopotamia between the 4<sup>th</sup> and 2<sup>nd</sup> centuries B.C. It probably constitutes an oriental imitation of the Black Glazed Attic pottery which could be traced back to the 6<sup>th</sup> century B.C. Attestations of this specific oriental fabric could notably be pointed out at Antioch<sup>27</sup>, Hama<sup>28</sup>,

21. Simpson 1996, p. 124.

22. Pierobon Benoit 1998, Fig. 30 and 31.

23. Campbell Thompson & Mallowan 1933, Fig. 77.

24. Ehrich 1939, Pl. 136.

25. Simpson 1996.

26. Lyonnet 1992, Fig. 1.3; Wilkinson & Tucker 1995, type 78; Ur 2010, Fig. B35; Algaze et al. 2012, Fig. 28; Gavagnin, Iamoni & Palermo in press.

27. Waagè 1948.

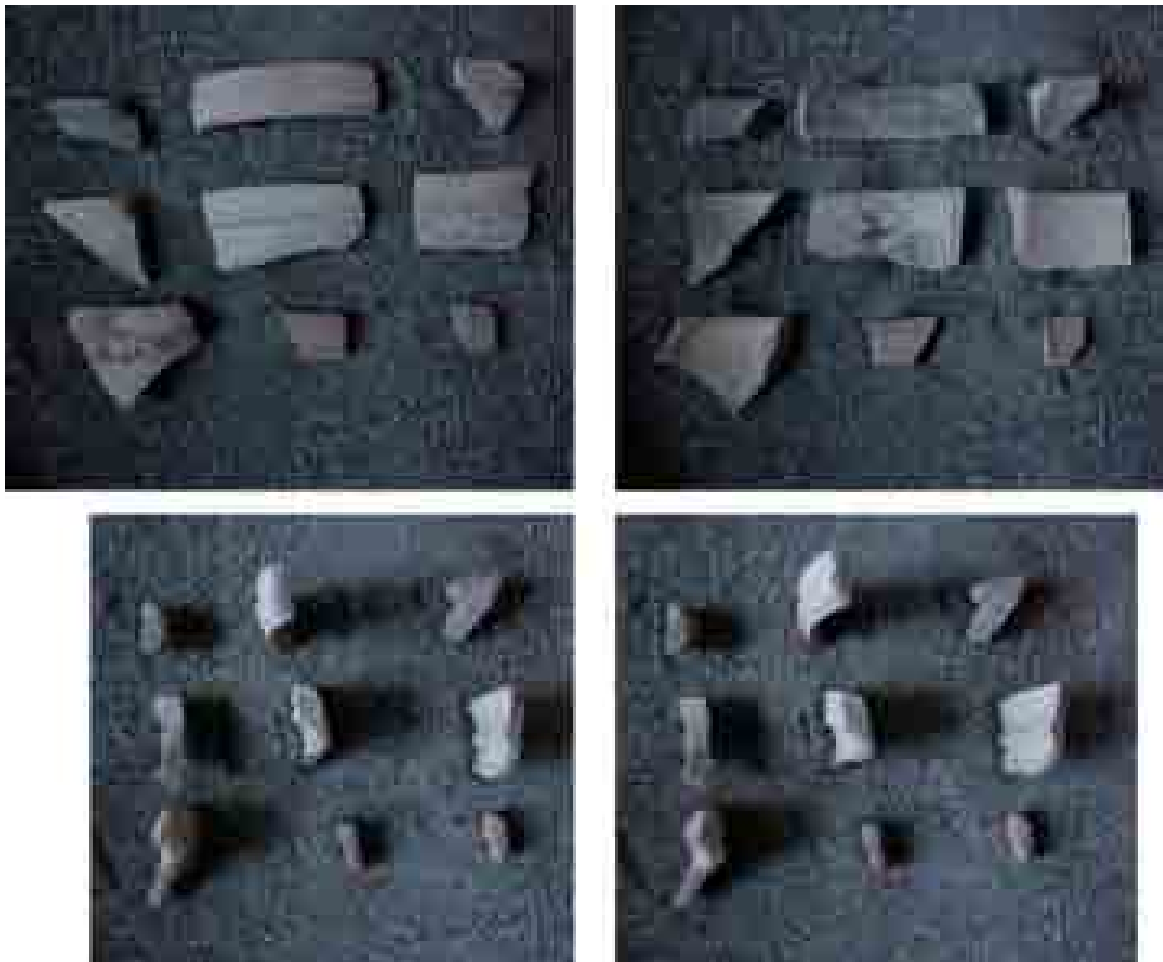
28. Christensen-Johansen 1971.

Dura-Europos<sup>29</sup> and at Failaka<sup>30</sup>. The same layer also yielded a fragment of Grey ware double rimmed holemouth cooking pot (Fig. 9). This type is notably attested at Tell Sabra<sup>31</sup>, Uruk<sup>32</sup>, Thaj<sup>33</sup> or Ayn Jawan<sup>34</sup>.

The pottery from the floor 34 below (NV 1031, Fig. 10) offered a diversified set of shapes, among which were represented thickened rimmed bowls (GQ15 1031 - 7 and GQ15 1031 - 9, also attested at Hatara Level 9<sup>35</sup> and at Tell Sabra<sup>36</sup>), banded rimmed jars with external grooved lines (GQ15 1031 - 1, also attested at Dura-Europos<sup>37</sup>) and folded rimmed jars



**Fig. 9** - Double rimmed holemouth Cooking pot from Trench B (NV 1030).



**Fig. 10** - Pottery assemblage from Area B, Floor 34 (NV 1031).

29. Cox 1949.
30. Hannestad 1983.
31. Tunca 1987, Pl. 79.
32. Finkbeiner 1993, Abb. 9.
33. Potts 1993, Fig. 12
34. Potts 1984, Fig. 8.
35. Venco-Ricciardi 1997, Fig. 1.5.
36. Tunca 1987, Pl. 46.
37. Alabe 1992, Fig. 21.

- or rolled-over rimmed (GQ15 1031 - 3 and GQ15 1031 - 6). The folded rimmed jars are well represented in Upper and Central Mesopotamia and can be attributed to the Hellenistic or Parthian periods<sup>38</sup>. In fact, they can be dated between the 3<sup>rd</sup> century B.C. and the 1<sup>st</sup> century A.D.

Hellenistic decorated sherds were also collected in Levels 4/5. A jar rim with finger impressions was discovered in between the stones composing the wall 27. This rim (Fig. 11) is similar to one discovered in the so-called 'Shu-Anna' Sounding at Babylon, which layers are dated between the Late Achaemenid period and the half of the 2<sup>nd</sup> century B.C.<sup>39</sup>. A fragment of a large jar with applied discs decoration around the body was found in layer NV 1032 (Fig. 12)<sup>40</sup>.

The Hellenistic dating seems the more convenient when looking at the whole Levels 4/5 assemblage, nevertheless, some of the Level 5 diagnostic sherds show similarities with Jezirah Iron Age material<sup>41</sup>. Further excavations should allow us to confirm and precise Levels 4 and 5 dating.



**Fig. 11** - Jar rim with finger impressions (Trench B, Wall 27)



**Fig. 12** - Decorated sherd from Trench B (NV 1032).

## CONCLUSION

The analysis of the pottery collated during the Fall 2015 campaign allow to preliminary date excavated levels from Trench A and B of Girdi Qala to the Islamic, Sasanian and Hellenistic/Parthian periods. The pottery from the deepest level excavated (Level 6) still has to be studied. Nevertheless, we cannot completely secure this dating at the moment because these levels were highly disturbed, their assemblages always mixed (containing Iron, Bronze and/or Chalcolithic pottery) and part of the material still has to be analyzed. Even though the Sasanian pottery is often difficult to identify with certainty, a Sasanian occupation is undoubtedly attested at Girdi Qala, thanks to the presence of highly diagnostic sherds such as a stamped sherd. In fact, the Sasanian pottery repertoire is still little known because of the continuation of some Parthian types during this later period and of the

38. Babylon: Cellierino 2004, Fig. 20; Hammam et-Turkman: Lázaro 1998, Pl. 165-167; Hatara: Venco-Ricciardi 1997, Fig. 6-7; Khirbet Khatuniyeh: Curtis & Green 1997, Fig. 66; Nimrud: Oates & Oates 1958, Pl. XXV.14 and XXVII.10-11; Tell Sabra: Tunca 1987, Pl. 81.16 and 82.13; Cizre-Silopi Survey, Algaze et al. 2012, Fig. 27; North Jezirah Survey, Wilkinson & Tucker 1995, types 65 and 130; Upper Khabur Survey, Dorna Metzger 1996, p. 373; LoNAP Survey: Gavagnin, Iamoni & Palermo in press.

39. Cellierino 2004, Fig. 21.

40. Compare Jebel Khalid: Jackson & Tidmarsh 2011, Fig. 71; Tell Sabra: Tunca 1987, Pl. 99.1.

41. Compare Anastasio 2007, Abb. 117 and 124.

scarcity of Sasanian excavated levels<sup>42</sup>. The archaeological exploration of the site of Girdi Qala is undoubtedly promising in this regard and will complete our knowledge of the Sasanian material and ceramic cultures in Upper Mesopotamia.

The large quantity of Hellenistic/Parthian material indicates that the occupation of this period must have been important at Girdi Qala. Furthermore, as pointed out by Gavagnin, Iamoni and Palermo, the presence of fish-plates, folded rimmed jars, dog-tooth patterns, etc. reveals 'the existence of a sort of common material culture horizon that pervaded the entire Hellenistic world as well as the likely pivotal role of Upper Tigris basin area in this period'<sup>43</sup>. Finally, further excavations shall allow verifying if the site of Girdi Qala was occupied during the Iron Age. They will also help us to understand the Bronze Age material culture in the region.

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42. Gavagnin, Iamoni & Palermo in press.

43. Gavagnin, Iamoni & Palermo in press.



# GIRDI QALA TRENCH C, STRATIGRAPHY AND ARCHITECTURE

J. S. Baldi and H. Naccaro

**T**he excavation of Trench C has been carried out within a week, between October 6<sup>th</sup> and October 15<sup>th</sup>. In the aim to identify *in-situ* levels dating back to the Chalcolithic times, a 5x10 m stratigraphic trench has been located on the S/SW 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 4th millennium, this sector was intensely settled and was the center of a large-scale pottery production, probably for the wide area of the Qara Dagħ region. The excavation has allowed us to identify 10 well-preserved overlapping layers close to the surface (Fig. 1-2) and almost the whole sequence has shown traces of pottery production or firing structures. These ones are remarkable for their quantity, dimensions, technical features, concentration and permanency in a same area during a time span of several generations if not centuries.



**Fig. 1** - Girdi Qala Trench C, general view.

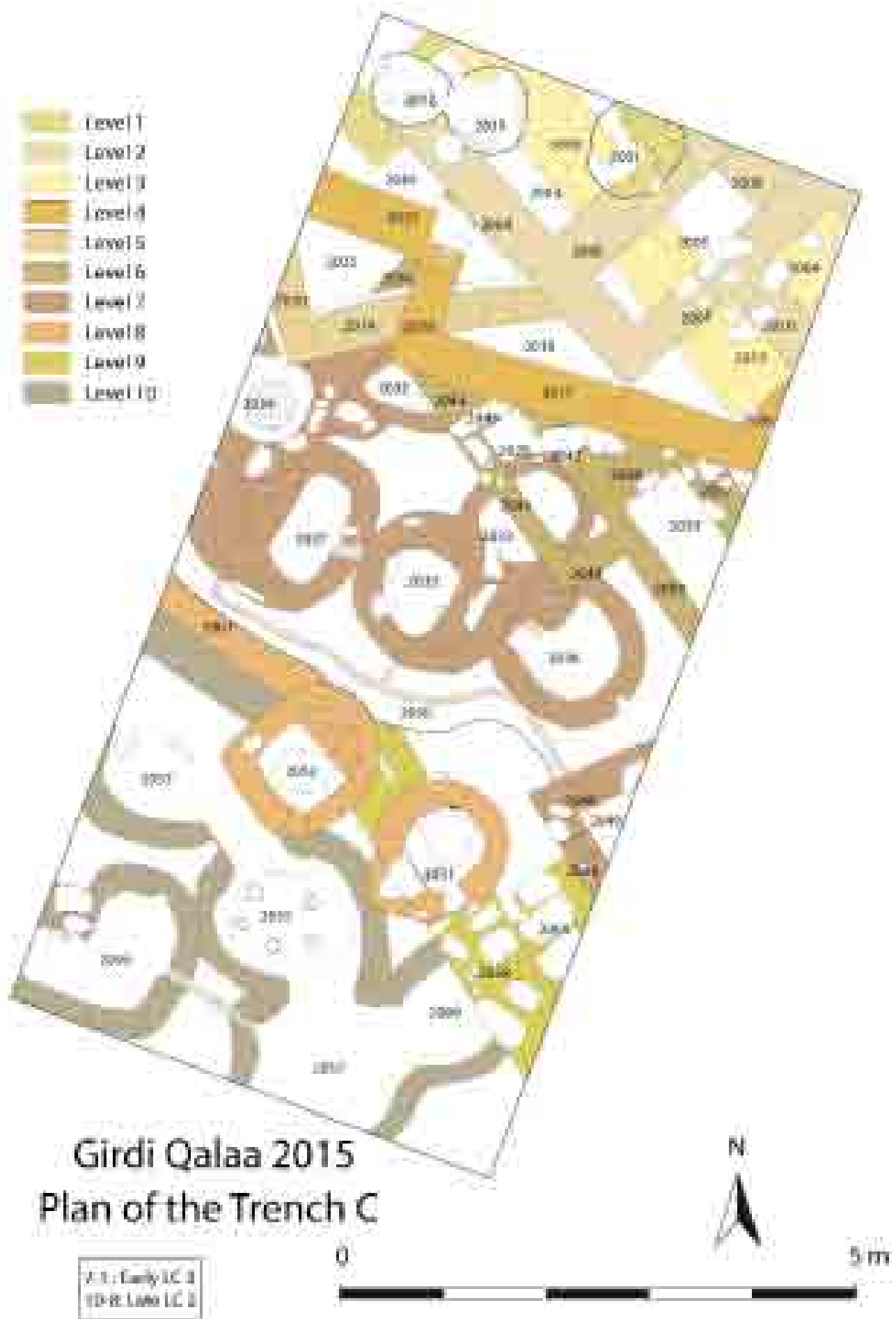


Fig. 2 - Girdi Qala , plan of Trench C.



On the one hand, the discovery, for the first time, of a major craft district in this region is very significant in itself. But, on the other hand, it implies the possibility to study the relationships between local and south-Mesopotamian people on the plan of the pottery production, opening a new perspective on some main chrono-cultural issues about the first Mesopotamian complex societies. In fact, even if during the first half of the fourth millennium Girdi Qala was an indigenous late chalcolithic settlement, the large majority of the ceramic assemblage collected in the Trench C belongs to south-Mesopotamian (Uruk) classical traditions. In other terms, this sector provides unexpected information about the specialization process, the organization of the productive systems, as well as the 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, subjected to frequent refurbishment and reconstructions of the firing structures.

► **Level 10**, at the bottom of the trench, has yielded 5 huge two-storey pottery kilns (2053, 2055, 2056, 2057 and 2060 – Fig. 3) connected to each other by a ventilation duct. Their average dimensions (above all concerning 2053 and 2055), with diameters around 1,8m, are exceptional for this period. The heating chambers show a uniform depth and the aeration channels were at the same height, which indicates an overall design and structuring of the whole complex.

► **Level 9** above is represented by two large perpendicular walls (2058, which cuts the kiln 2060 of the bottom level, and 2059), made of bulky stones and 3 rows of mud bricks. The size and the careful construction of these walls suggest that they probably delimited buildings of some importance: during the next campaigns it will be interesting to bring to light larger portions of these buildings.

► **Level 8** is composed of two round pottery kilns (2051 – Fig. 4 – 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 a section of the content has shown different filling layers and several layers of clay applied on the interior walls. It clearly indicates an intensive activity. A bench (2061, with one row of bricks preserved on 5 layers) was connected to the kiln 2052. A built floor (2054), facing the two installations and probably devoted to the drying of the pots, has been also recognized.



**Fig. 3** - Kilns 2056, 2055, 2053, 2057 et 2052.



**Fig. 4** - Kiln 2051.



**Fig. 5** - Kiln 2028.



**Fig. 6** - Kilns 2037, 2035 and 2036.

► **Level 7** displays several firing installations. The main complex of kilns is represented by three circular structures (2035, 2036, 2037 – Fig. 5-6) interconnected through an internal and an external ventilation duct, the latter devoted to centralize the evacuation of the smoke by a built chimney (2049), a small room on the eastern side of the trench (walls 2046 and 2048). These three installations are similar in shape and dimensions: the eastern one (2037) has been excavated by carrying out a section of the firing chamber and of the pierced sole, while the two other firing chambers have been emptied and have yielded a lot of slags and firing wastes. 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-drought two-storey system. The small kiln 2032, partially preserved and cut by the structures of the Level 6, had a sub-circular mouth to supply the fuel on its southern side. Even if kilns 2034, 2032 and 2033 were built a bit higher up on the slope, they were contemporary of the triple kiln (2035-2036-2037), sharing the same external floor.

► **Level 6** is composed of two rectangular cells (2028 and 2029) and maybe of 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 the clay decantation. This is an important point to clarify during the next 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 potteries (food storage would not have been built next to the kilns because of the danger of fire). Otherwise, if this pigeonhole structures were basins for refining the 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 composed of walls 2019 and 2020, delimiting a room (2025).

► **Level 4** is composed of the walls 2016, 2017 and 2026. These walls delineate a large room (2015), where an indoor floor has been found (2013). 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 the Level 2, the architecture is massive with three-rows of mudbricks. An outdoor floor (2022) is associated.

► **Level 2** is composed of the walls 2004, 2006, 2007, 2008 and 2010. They delineate a little rectangular room) and two others in the north-western part 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 has to be answered during the next campaigns: whether the architectures brought to light are inherent to dwellings and warehouses, or rather to wide ceramic workshops centralizing structures other than kilns. In particular, the walls of the Level 2 seem to delineate a tripartite edifice and, in this case, there would be no continuity in the use of the southern slope for artisan purposes. But a partitioned structure and large walls do not always indicate a house, as demonstrated by the workshops of Tell Brak TW20-TW19, Grai Resh IIB or Tepe Gawra X spaces 1085-1086 and annexes (Oates and alii 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 Level 2. A floor associated with these kilns is visible in the northern section of the trench.

Beyond some structures that could be interpreted as domestic units or utilitarian buildings, the main results of the Trench C are definitely represented by the working spaces and the firing installations. All the pottery kilns have yielded southern Uruk ceramics (collected in the filling layers, accumulated when the installations were already dismissed, but also on the bottom of the firing chambers, that is 'in situ' contexts), while local late chalcolithic materials come from walls and filling layers accumulated on the floors and between the different levels. It means that southern-Mesopotamian artisans were used to fire their ceramics in a large area on the slope of Girdi Qala.

From a technological point of view, some structures are startling and constitute a proper discovery. Indeed, two-storey up-draught pottery kilns are known since the Halaf-Ubaid phase and, in the 4<sup>th</sup> millennium, were spread throughout the entire Uruk cultural area in Mesopotamia (in the South as well as in the North) and Western Iran. Some samples of these kilns are known from Choga Mish Protoliterate period, Uruk, Tell Rubeidheh, Tell Ahmad al-Hattu or Abu Salabikh<sup>1</sup>. But the multiple kilns of Girdi Qalaa 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 exclusively yielded south-Mesopotamian ceramics and therefore constitute typical Uruk kilns hitherto unknown. 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 the Levels 10 and 7 have been conceived as unitary structures. As demonstrated by the presence of ventilation channels placed at a uniform height, as well as by some heating chambers structurally connected and entangled (like 2035-2036 in Level 7 and 2055-2056-2057-2060 in Level 10), these facilities were built as unitary large installations. In the same way, even if it was eventually possible to put some vessels to be fired just in one 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. So the multi-kiln structures were built as unitary constructions because designed to operate as unitary devices.

1. See Delougaz and Kantor 1996, 29, pl. 275; Alizadeh 1983, 39; Nöldeke 1937, 7; Delcroix and Huot 1972, 66; Killick et alii 1988, 18; Sörenhagen 1979, 48; Postgate and Moon 1981, 127.

On the one hand, they are remarkable installations as far as their structural and dimensional features, while, on the other hand, they witness an unsuspected and very high technology. The discovery of these multi-kilns structures since the Early Uruk phase indicates the extraordinary level of expertise of the craftsmen mastering the firing cycles and invites re-analysing the whole production process of the Uruk ceramics.

# EXCAVATIONS AT LOGARDAN, STRATIGRAPHY AND ARCHITECTURE OF TRENCHES A, B AND C

J. S. Baldi And H. Naccaro

The excavation in the Trenches A and B have been focused on the retaining wall of the ramp identified on the south-western slope of the hill of Logardan. The main goal of both the operations was to clarify the dimensions, the stratigraphic relationships and the dating of this massive stone structure. Some of its stones were visible on the surface and, because of their dimensions and regular organization, it was quite clear that they were inherent to an important phase of the settlement. Such a huge construction implies the use of a significant workforce to arrange an access to the high part of a site that, deserving a similar investment in terms of time and labor, was obviously considered as important.

It was surprising to ascertain that the ramp dates back to the first half of the 4<sup>th</sup> millennium and has yielded a lot of south-Mesopotamian classical Uruk sherds. But it is evident that during this phase there was an important presence of Uruk settlers in the Qara Dagh area (as also shown by the kilns of the Trench C at Girdi Qalaa, see above). Moreover, on the top of the mound, amongst some Early and Middle southern Uruk sherds, a clay Uruk cone has also been collected (Fig. 1). This very rare kind of architectural decoration, generally reserved to conspicuous (or even monumental) buildings, confirms the prominence of the site in a context of a very early south-Mesopotamian “colonial” presence. Therefore, the massive stone ramp excavated in Trenches A and B, leading to the top of an important site, participates to the image of a region where the southern Uruk presence was very ancient, longstanding and quantitatively significant.

Trench A is a 4 x 8 m operation (Fig. 2), which allowed us to define the orientation and size of the retaining wall. It is a 2 m thick structure composed of unequal 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 – if constituted of a layer of sherds arranged on a hardened hearth deposit. The whole gently upwards sloping structure shows traces of mortar as well as some fragments of bricks and sherds between the stones (Fig. 3). It is evident that it was built to climb the hill by arranging non-anthropogenic levels.



Fig. 1 - Uruk clay cone from Logardan.



**Fig. 2** - Logardan Trench A.



**Fig. 3** - In-situ Uruk material at the base of the ramp.

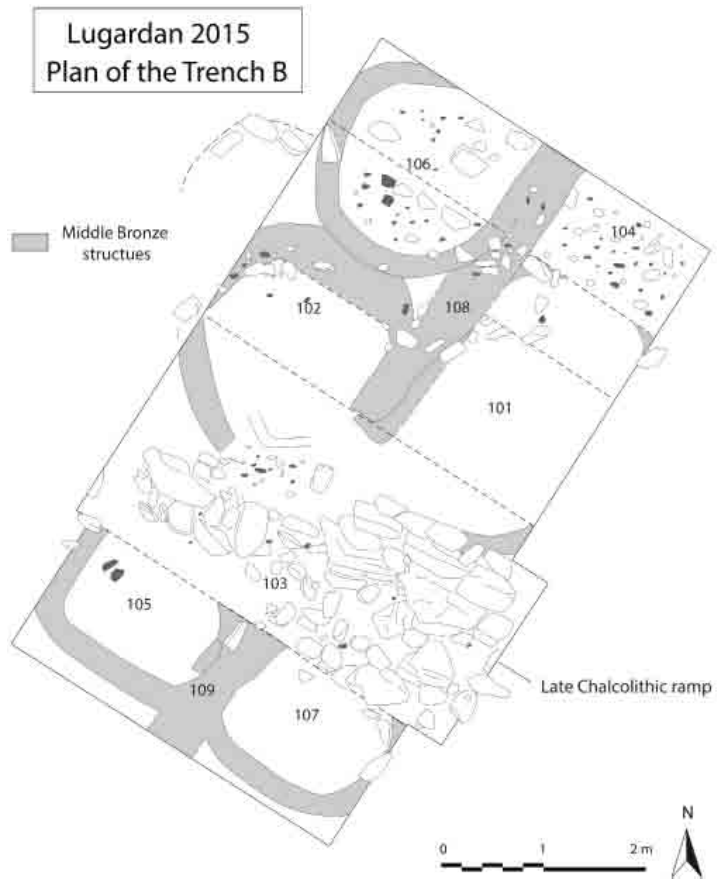
Trench B is a 4 x 7 m operation (Fig. 4-5-6) carried out to recognize another sector of the ramp. The nature of this structure is confirmed by the fact that between Trenches A and B the causeway rises over two meters. Dimensions and structural features of the ramp are almost identical to the characteristics observed in the Trench A, with mortar, sherds, fragmentary bricks between stones and a basal floor paved with sherds.



**Fig. 4** - Logardan Trench B from the west.



**Fig. 5** - Logardan Trench B from the east.



**Fig. 6** - Logardan plan of Trench B.

Originally, when the structure was built (in LC3 times), it was cut in the natural soil, as in the Trench A. But after the abandonment of the ramp as way of access to the settlement, the retaining wall has been re-used to support some lime furnaces stacked upon and recessed below the stone structure. On the slope above the ramp three firing structures have been identified: two of them (101 and 102 – Fig. 7) have been excavated and their firing chambers have yielded some Middle Bronze Age sherds and large chalky slags of limestone. The bottom of another furnace (106) has been recognized above the kiln 102, what demonstrates that the firing installations were stacked on each other in order to adapt their piling to the slope of the hill and be supported by the remains of the ramp.



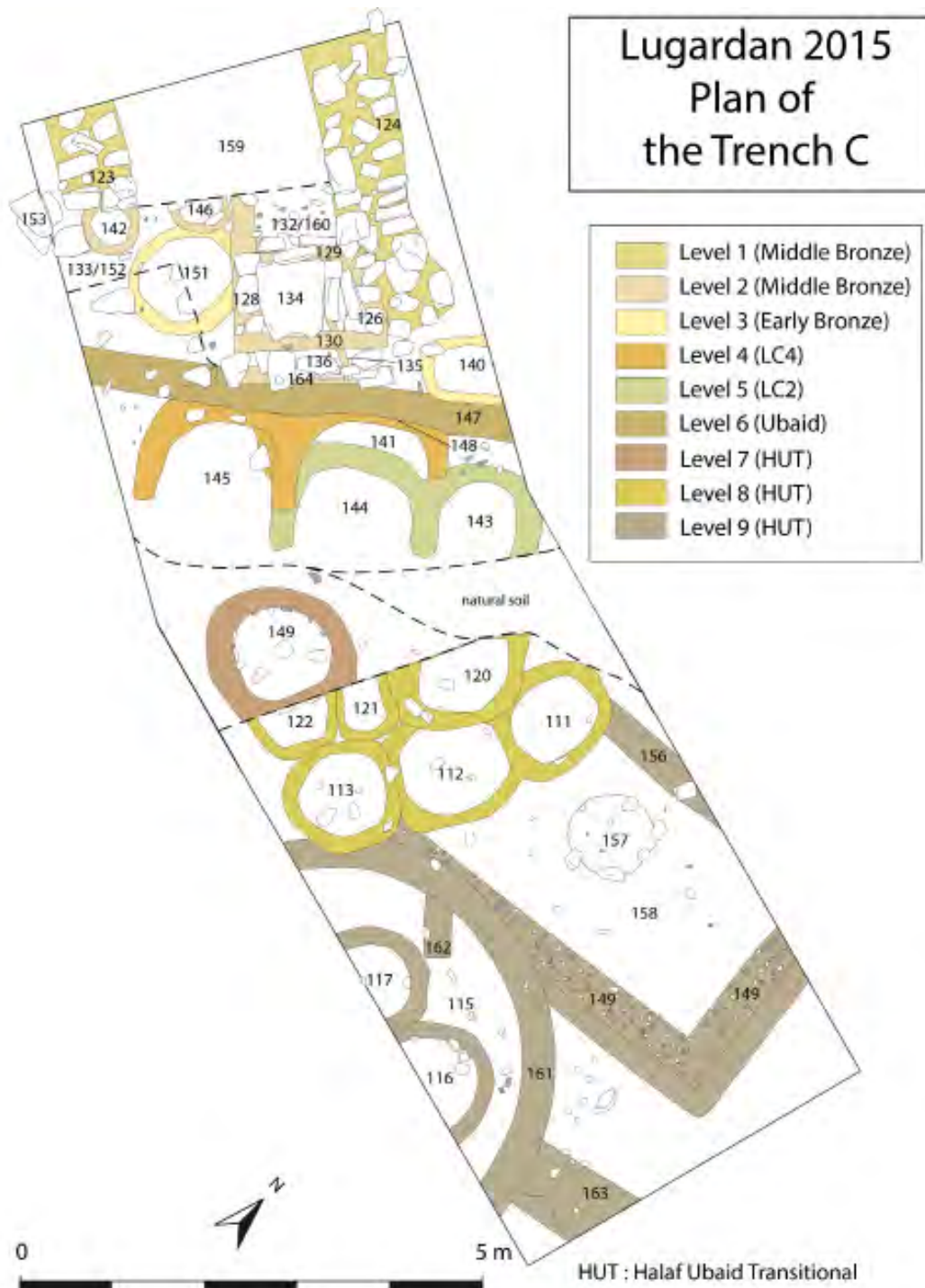
**Fig. 7** - Logardan Trench B, Middle Bronze Lime kilns 101 and 102.



**Fig. 8** - Logardan Trench C, General view from the east.

It is evident that this organization is not random at all. In fact a wall (108) separates two distinct piles of kilns (above the furnace 101, the floor 104 probably represents a working space in front of another kiln). The same organization of the firing installations is visible below the ramp, where two other furnaces (105 and 107) have been excavated. Their firing chambers were separated by the wall 109 (perfectly lined to the wall 108 above the ramp) and yielded the same kind of Middle Bronze Age ceramic materials and huge chalky slags. It is clear that, if the construction of the ramp was due to a need for an easy access to the site during the early 4<sup>th</sup> millennium, its re-use as retaining wall indicates a well-planned reorganization of this sector of the slope as crafts area during the Middle Bronze Age.

The Trench C has been established on the middle terrace of the 'upper town' to clarify the stratigraphy of this sector. Nine different levels have been identified (Fig. 8-9), from a Halaf village (which, in



**Fig. 9** - Logardan, plan of Trench C.



this area of the mound, is directly based on the virgin soil, that is on top of the natural hill) to a Middle Bronze Age (probably fortified) settlement.

► **Level 9**, at the bottom, is composed of two structures, a tholos and a rectangular unit. The both have been destroyed by a fire that probably started inside the rectangular unit. The entire surface of its floor is hardened by an intense heat, while the tholos was covered by a 50 cm thick ash deposit, which has been levelled by the builders of the following Level 8. The tholos was bordered by the wall 161 (made of bricks and pisé) and included two circular ovens or fireplaces (116 and 117), while a little wall (162) partitioned the internal space. On the eastern side of the tholos, a solid wall (163) connected it to other structures. The tholos was contemporary to the rectangular structure since their walls (161 and 149) were overlapped and embedded to one another. It indicates that the two buildings constituted a single architectural unit. It is possible that the rectangular structure was a dwelling, with the wall 156 delimiting a room heated by a hearth (157). On the southern and western sides of this room (along the wall 149), the floor was paved with a lot of sherds, probably to drain and prevent moisture at the base of the walls. In fact, the whole Level 9 is built close to the slope of the natural hill and it is likely that rainwater constantly threatened the buildings.

► **Level 8** is composed of six kilns arranged on two levels. In the lower row, the installations 111, 112 and 113 were aligned and supported the upper row, with the kilns 120, 121 and 122. The six kilns worked together and the upper row lies on the edge of the lower one. Despite their small dimensions, the installations had a handicraft purpose.

► **Level 7** is composed by only one kiln (149). It is similar to the installations of the Level 8 but it has been built on the ruins of the collapsed roof of the Level 8 kilns 121 and 122. Therefore, the stacking of the firing structures of Levels 8 and 7 is due to the superposition of different constructions according to the slope of the virgin soil.

► **Level 6** is represented by the terrace wall 147. It is a solid wall, visible on two rows of mudbricks and preserved on four layers of bricks. Its function has been to support an area that was probably occupied by structures of which no trace remains. The wall 147 was based on a floor (148) paved with late Ubaid sherds, what seems to offer a reliable dating.

► **Level 5** is represented by 2 kilns dating back to the LC2 phase (143 and 144). Their sub-circular firing chambers were excavated below the wall 147, in order to re-use its remains to restrain the dispersion of heat and support the domed roof.

► **Level 4** displays two other kilns (141 and 145) that, during the LC4 adopted the same technical solution of the firing installations of the Level 5. Therefore, in (at least) two occasions, the lower part of the terrace wall 147 (Level 6) has been re-used as support for craft facilities.

► **Level 3** demonstrates that, much later, a similar solution has been adopted for other craft facilities built above the remains of the terrace wall of the Level 6. In fact, kilns 140 and 151 were part of a larger craft area (traces of other kilns have been identified on both the sides of the trench). Both the kilns were two-storey up-draught structures and have yielded ceramic materials dating back to the third quarter of the 3<sup>rd</sup> millennium. It is possible that the development of this craft area has obliterated the traces of previous structures (some early 3<sup>rd</sup> millennium sherds come from filling layers). Since the aim of a stratigraphic trench was not to dismantle the structures, during this campaign it has been impossible to excavate the area between the kilns 151 and 140, recovered by Level 2 structures.

► **Level 2** is constituted by a Middle Bronze Age equipped area that included two little cooking ovens (142 and 146), some walls supporting a platform (128, 129, 130, 126 and the large flat stone 134), a duct for evacuation of rainwater (135) and paved rooms (153) on both the sides of this workspace.

► **Level 1** represents the radical change of this area occurred in a later phase of the Middle Bronze Age. The ceramic materials display the same features observed in the Level 2, but the architectural remains are completely different. The area has been covered by several floors included in a room (159) delimited by two thick stone walls (123 and 124). The eastern side of this room is not preserved because the stones have probably rolled down the slope, but the presence of two important walls on the side of a small room could indicate that the edge of the terrace was protected by a system of casemates or by a fortified structure during the Middle Bronze Age.

Trenches A, B and C allowed us to confirm that the ancient Chalcolithic site was located high up on a natural hill. It is not yet known whether the Chalcolithic phase is characterized by a continuity of the settlement or if it is affected by some hiatus, but even if the explored area is relatively peripheral, the Halaf-Ubaid transition is definitely well documented, as well as the 4<sup>th</sup> millennium. The identification of this very ancient phase in well-stratified levels represents a major result of the first campaign. The Halaf-Ubaid Transition (often also indicated as HUT) is very badly known (above all from deep or little soundings, as at Tell Masaikh and Tell Zeidan in Syria – Robert 2008; Stein 2009, 2010) and has never been extensively excavated. The possibility to study this elusive period on large surfaces opens unexpected possibilities for the next campaigns. In particular, as documented by the ceramic materials, Logardan already appears as a major site as regards the Ubaid expansion and the relationships between north- and south-Mesopotamian communities in the 6<sup>th</sup> millennium. In a different context, this same North-South topic is also fundamental for the 4<sup>th</sup> millennium, when the late chalcolithic village was accessible through an Uruk ramp. Once abandoned, this ramp has been re-used as retaining wall for a wide craft area of the Middle Bronze Age. And in this same period the top of the hill was occupied by a large stone architecture, which may have had a defensive purpose.



# CERAMIC ASSEMBLAGE OF GIRDI QALA TRENCH C

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J.S. Baldi

**F**rom a ceramological point of view, the main goal of the first campaign at Girdi Qala was to establish a consistent relative chronology, especially because the Chalcolithic phases in the western Qara Dagh region (and, more generally, in the north-eastern sector of the central Mesopotamia) has never been studied before. Moreover, the presence of a large amount of south-Mesopotamian Uruk sherds provided since this first campaign an opportunity to observe modalities and timing of the diffusion of the Uruk material culture in this area, as well as its interaction with the local pottery traditions.

Indeed, almost nothing is known about the Uruk expansion in the eastern side of the Mesopotamian alluvium. Some data are available about the Uruk presence in Nineveh (Gut 1995) and in the Hamrin (Killik et alii 1988; Sürenhagen 1979). But, since many decades, the concentration of the archaeological researches in Syria has created the (false) impression that the Euphrates has been the main (and almost the sole) route of the Uruk expansion. Girdi Qala (and quite likely in the next years Logardan too) appears as a major site to understand when and how Uruk people settled in central and northern Mesopotamia. In the next years, with the enlargement of the trench, this ceramic perspective on the so-called “culture contact” between local inhabitants and Uruk settlers should offer a new perspective on exchanges, coexistence and mutual integration of the first Mesopotamian complex societies.

In the aim of a deeper cultural understanding of the assemblages, beyond the chronological aspects, ceramics have been also studied as a mean to reconstruct cultural dynamics on the basis of the production processes. In this sense, all the collected sherds (5627 at Girdi Qala and 4987 at Logardan – rim, bases and decorated sherds as well as common body fragments) have been examined through a technical analysis aiming to recognize traditional ‘*chaînes opératoires*’.

## METHODOLOGICAL PROCEDURE

In the analysis of the ceramic materials of Girdi Qala and Logardan chalcolithic trenches, all passages of the ceramic ‘*chaînes opératoires*’ have been examined through a technical approach in order to broaden the archaeological perspective (traditionally linked to the exclusive observation of shapes and decorations, seen as the only vectors of differences between cultures – ‘*derniers degrés de fait*’, see Leroi Gourhan 1945, 30). The classificatory analysis of the sherds encompasses all stages of the manufacturing process and highlights different traditions corresponding to different producer groups, according to a methodology already employed for chalcolithic assemblages from the Levant (Roux and Courty 2005, 2007; Baldi 2013b) and northern Mesopotamia (Baldi 2012a, 2012b, 2012c, 2012d, 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. Every ‘*chaîne opératoire*’ was typical of a particular group of craftspeople because it was transmitted through generations by a specific network of apprenticeship and, therefore, it expressed the technical identity of the social group underlying the technical tradition (Gelbert 2003,

2005; Gosselain 2002; Roux and Courty 2005, 2007; Roux 2010b; Baldi 2013a, 2013b). Hence, the different traditional 'chaînes opératoires' can be observed in their synchronic spatial distribution as well as in their diachronic evolution through conservatisms, borrowings (i. e. in their continuities), disappearance of some of them and emergence of some innovations (that is in their discontinuities).

The first moment of the study consists in 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 (that is a traditional typology) of the sherds within each techno-petrographic group. The sorting of all these aspects allows to recognize both regional parallels and evolutionary elements.

## TECHNICAL FEATURES OF THE CERAMIC PRODUCTION AT GIRDI QALA TRENCH C

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

- ▶ 1 : a moulding technique,
- ▶ 2 : overlapping coils of 1-1,5 cm thick,
- ▶ 2.i: wheel-coiling technique by overlapping coils of 1,5 cm thick and finishing the containers by the rotary kinetic energy,
- ▶ 3 : overlapping coils of 3-3,5 cm thick,
- ▶ 3.i: wheel-coiling technique by overlapping coils of 3 cm thick and finishing the containers by the rotary kinetic energy.

Therefore, the analysis of the macro-traces depending on the different shaping techniques clearly indicates that the wheel-coiling – attested by some rare and fine little-sized bowls – constitutes a complex and infrequent variant of two distinct coiling traditions (2 and 3). These ones are characterized by an important dimensional difference of the coils as well as 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).

Four main petrographic macro-groups have been identified.

▶ A Group: 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).

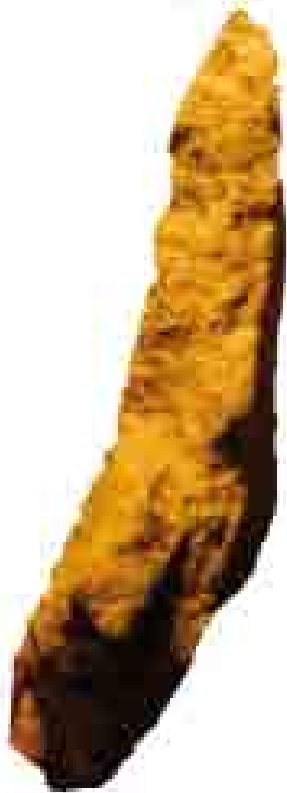
▶ B Group: beige and light orange dense mineral fabrics, fired in oxidizing atmosphere, with traces of serpentine and carbonates in the fine mass of the clay, and important quantities of grinded shells and ferruginous inclusions.

▶ C Group: 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.

▶ D Group: orange-brownish fabrics, fired in reducing atmosphere (grey core and surfaces), with abundant basalt, quartz and metamorphic inclusions (silicates, chlorite, marble, ecc.).



1 - Moulding



2 - Coils (1,5 cm thick)



3 - Coils (3,5 cm thick)



2.i - Wheel-coiling (1,5 cm thick)



3.i - Wheel-coiling (3,5 cm thick)



Fig. 1 - Technics of the ceramic Production identified at Girdi Qala.

Groups A and B gather the components of different common wares and of some (rare) fine wares, while Groups C and D match with cooking wares.

On the one side, fabrics belonging to the A and C Groups perfectly fit the definition of the north-Mesopotamian Late Chalcolithic well-known Chaff-Faced wares. Indeed, they represent the local version (with raw materials easily available in the micro-region of Girdi Qala) of the large north-Mesopotamian Chaff-Faced 'koiné' (extended between central Mesopotamia and southern Caucasus: Marro 2010). On the other side, the B and D Groups witness the south-Mesopotamian mineral tradition. This general framework includes some (rare) variants of the A and B groups sharing a 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 visible 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>1</sup> But the technical panorama is not really dichotomous. Indeed, even if the shaping by moulding (1) represents a minority of the vessels (about 16%), it is indistinctively associated with both northern and south-Mesopotamian wares. Yet, it is never documented as a way to shape culinary vessels in C or D pastes. Further studies are needed to establish if the Technique 1 constitutes a remnant of an ancient shaping method that was running out in the LC3, or rather an innovation that was being spread (and in that case, was it a north or south-Mesopotamian native innovation?).

However, as already demonstrated for other areas of the 4<sup>th</sup> millennium Northern-Mesopotamia (Baldi 2012c, 2012d), the general framework indicates that the ceramic production was a very hierarchized and centralized activity, carried on by a restricted number of specialists. These artisans were in charge of the manufacture for large groups, possibly broader than the village community.

## MORPHO-STYLISTIC FEATURES:

### REGIONAL PARALLELS AND RELATIVE CHRONOLOGY

The ceramic assemblage of the Trench C Levels 10-1 can be generally ascribed to the local LC3 – Southern-Mesopotamian Early Uruk phase. It means that the 10 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 potteries, which constitute the large majority (around 69%) of the 915 diagnostic sherds.

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

Indigenous ceramic shapes in Levels 10-8 show a local repertory 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>2</sup> In the same way, painted decorations are totally absent. Some V shaped crudely made Wide flower pots with

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

2. 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.

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>3</sup> In the late LC2 assemblage, it is possible to recognize the outcome of the converging processes of regionalization and homogenization that since centuries had invested the Northern Mesopotamia. On the one side, the assemblage of Girdi Qala show very 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 and samples of beaded rims are very rare; cannons spouts are sporadic and have flared trumpet-like edges; while neckless jars with sharply everted rims (flange rim jars) have relatively short rims compared with the samples from Gawra X-IX or Hamoukar 'southern extension'. On the contrary, very close parallels can be identified for all these shapes with Yorghan Tepe<sup>4</sup>. Anyway, similar local specificities are well documented in every region of the Northern Mesopotamia (Helwing 2000b; Baldi and Abu Jayyab 2012). On the other side, the ceramic repertoire appears very homogeneous if compared with the north-Mesopotamian general typology. Hole-mouth, flange rim and double mouth jars are well documented at Girdi Qala Trench C 10-8, as well as inward bevelled rim bowls, cannon spouts and a little quantity of fine wheel-coiled bowls. The same assemblage is documented in Brak, Norşuntepe, Gawra, Grai Resh, Yorghan Tepe, Qalinj Agha, Khirbet Hatara, and Musharifa.<sup>5</sup>

According to Gut and Rothman's terminology,<sup>6</sup> LC2 assemblage clearly shows the distinction between an early phase (called 'Gawra A' – Gawra XIA-XA, Hammam terminal VA – early VB, Hamoukar phases 3-1 – this phase has not been reached), displaying the last samples of thin-walled beakers, post-Ubaid painted wares and Coba bowls, and a later phase (called 'Gawra B' – Gawra X-VIII, Hammam et-Turkman late VB, Tell Brak TW 21-20), comprising a rising proportion of bowls with inward bevelled rim and thick flattened rim. Since the late LC2 period (Gawra B phase – Girdi Qala Levels 10-8), the majority of the indigenous assemblage is represented by morphological categories which continue in LC3 phase: hole mouth types, jars with short neck and interior angled rim, 'S' shaped rim jars, bowls with inwards bevelled rim and club-headed large bowls (that announce the appearance of the 'hammerhead' type in Hacinebi A and Brak HS1).<sup>7</sup>

Indeed, between late LC2 and early LC3, the assemblage of Girdi Qalaa show a remarkable morpho-stylistic continuity, but also some diagnostic shapes of the transitional phase (hole-moth 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 find close parallels at Tell Feres 4b-4a, Tell Brak TW 20-19, Hamoukar 'southern extension' Level 1, Hammam et-Turkman late VB and Tell Boueid II.<sup>8</sup>

In the first part of the LC3, the continuity in wares and types with the previous assemblage is quite high. However, amongst the indigenous shapes it is possible to recognize the first appearance of hammered bowls (always moulded according to the Technique 1). The specimens of these large bowls belong to the early type, with an in-turned (or thickened on the interior side) rim, like in Brak HS1, Leilan

3. See Rothman 2002, pl. 14.1460; Gut 1995, pl.53.795-798; Fiorina 2001, fig. 2.3-4, fig. 3.15-23; Oates 1987, fig. 3.4-5.

4. See Starr 1939, pl. 42.

5. See Oates 1986, 1987; Oates and Oates 1993; Hauptmann 1972, 1976, 1979, 1982; Gut 1995, 248; Starr 1939; Lloyd 1938, 1940; Numoto 1987, fig. 14.

6. Gut 1995, 256-8 and Rothman 2002, 56.

7. See Pearce 2000; Matthews 2003, fig. 4.17, 12.

8. Baldi and Abu Jayyab 2012, fig. 6; Akkermans 1988c, fig. 107.97, 108.107; Suleiman and Nieuwenhuyse 2002, fig. 8.1.17.

V, Hacinebi A, Nineveh -45-37 'Norduruk A.'<sup>9</sup> Their late morphology, with a rim thickened on both the interior and exterior side,<sup>10</sup> is documented by only one specimen. In the same way, the other main landmark of the north-Mesopotamian LC3-LC4 assemblages, that is carinated casseroles, is virtually absent.<sup>11</sup> Moreover, it is remarkable that coarse conical bowls with a pouring lip are not documented at all. Therefore, even exclusively on the basis of the indigenous ceramic materials, it is evident that Levels 7-1 at Girdi Qala 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 belong to southern Uruk morphological tradition and their typology is consistent with an Early Uruk (Eanna X-IX) chronology (Fig. 2). Beyond bevelled rim bowls, Levels 10-8 have yielded some jars with inaccurate and crude (i. e. the most ancient variety)



**Fig. 2** -Early Uruk assemblage from Girdi Qala.

9. See Matthews 2003, fig. 4.17.12; Schwartz 1988a, fig. 57.2; Pearce 2000, fig. 5.a-e, 6.c; Gut 1995, pl. 58.853-857. Anyway, proper hammerhead bowls, with rims thickened on the both sides, are very rare in the assemblages of the Qara Dagh area, not only at Girdi Qala and Logardan, but also at Kani Shaye (Tomé and Renette, personal communication). Indeed, it seems that the rarity of the hammerhead bowls is a typological feature shared by the whole Kurdistan area on the east side of the Tigris basin (Gavagnin, Iamoni and Palermo 2016).
10. Rova 1999-2000, fig. 5.2.
11. This feature is also shared by a wide area east to the Tigris river, as demonstrated by the LoNAP survey (Gavagnin, Iamoni and Palermo 2016) and by the French Archaeological survey of the Sulaymaniyah Governorate (dir. J. Giraud) in the area of the Rania plain (Giraud, Baldi et al., forthcoming).



cross-hatched decorations, bands of impressed dots and sharp angled rim jars. Starting from level 7, these southern types become more frequent and diversified, with noosed spouted jars, vertical pierced handles and sharp angled jars with triangular rim. Anyway, all these shapes are always attested with their early morphological features (for instance, spouts are quite short – like samples from Sheikh Hassan 13-10, Nineveh ‘Norduruk A’ or Susa 22-21 – and never downwards curved)<sup>12</sup>.

Since the late LC2, the more abundant Uruk type is represented by bowls with bevelled rim. 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 a lot of technical (they are shaped by Techniques 1, 2 and 3) and morphological (the rims are cut and bevelled in various ways and with unlike orientations) differences. Moreover, they have hybrid pastes, with mineral and coarse vegetal inclusions. Indeed, it is possible to recognize whether the fabric of each specimen basically belongs to A or B Groups, but A vegetal fabrics show deliberate additions of mineral inclusions and, inversely, mineral B fabrics show a deliberate use of coarse vegetal inclusions. These characteristics seem to describe a material whose production did not respect the separation between local traditions and southern-ones. Further studies are needed to establish the reasons of this unexpected hybrid character for these bowls generally considered as the hallmark of the South Uruk. But it is not impossible to speculate that this blending of technical traditions could indicate very early technical borrowings (as attested during the LC4-5 in Hassek Höyük, Tell Feres and Zeytinli Bahçe)<sup>13</sup>. Such a cultural interpenetration would be consistent with stable relations between local and southern peoples.

From Level 7 (at the beginning of LC3), mineral-tempered southern Uruk types increase in number. Sharply everted rim jars, bevelled rim bowls and jars with incised shoulders are more frequent. Incisions on jars shoulders (crosshatched bands and triangles, horizontal lines, impressed ribs and punctuations) are more regular, while the average dimensions of the storage jars increase significantly.

If analysed separately, the indigenous and southern Uruk assemblages do not show any unusual features. But they are not separate repertoires: they constitute only one assemblage and, in this sense, it is anomalous to find associated in the same stratified contexts both indigenous late LC2 shapes and southern Early Uruk diagnostic types. Chronology is not problematic because we know that local late LC2-early LC3 ceramics and Early Uruk potteries are contemporaneous. What is absolutely new, it is their coexistence and concomitance in the same site during a very early period.

It is evident that, despite old assumptions stating that the Uruk expansion starts during the late LC3 phase, at Girdi Qala a contact with southern Uruk people is documented since a very early period (late LC2). In terms of absolute chronology, the Uruk expansion at Girdi Qala does not appear around 3600 B.C. (as it was believed to date for the entire North), but rather around 3900 B.C. (C14 analyses of grain samples from Level 10 are under way). Such a dating, matching with some traces of very early Uruk presence in some sites as Grai Resh (Kepinski 2011, 37), suggests a reassessment of the modalities of interaction between South and North Mesopotamia. Until now, there were many speculations about possible cultural-technical exchanges between north-Mesopotamian and southern-Uruk so-called ‘Grey Wares’ (Gut 1995). At Girdi Qala (Levels 10-8) these wares are documented next to each other.

12. See Bachmann 1998; Gut 1995; Le Brun 1971, 1978a, 1978b.

13. See Helwing 2000a, 2002. Concerning Zeytinli: Frangipane, personal communication.

Southern Uruk materials constitute a majority of the assemblage and are the only ones from ‘in situ’ contexts, while all the indigenous sherds come from filling layers, walls or open-air workspaces. It indicates that all the furnaces and firing installations were dedicated to Uruk ceramics and southern-Mesopotamian people had a workspace for their own activities that was not shared with local artisans. Such an organization and spatial structure, with very early foreigner presences, segregated spaces and ceramic traditions in close contact, opens the way to further researches about the redefinition of the chronology (higher) and modalities (collaborative) of the southern Uruk expansion in central Mesopotamia (Fig. 3).

BC	Chronological Phase		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 Qalaa	Nippur	Uruk Eanna	Geoy Tepe	Godin Tepe	Choga Mish	Suse	
3100	LC5	Late Uruk		Late Uruk	Levels 5-4		TW 11-10 - Phase G	1A	Nineveh IV 31-20			XV	IVA				17	
3200																		
3300	LC4	Middle Uruk	B2		Levels 8-6	IV	TW 14-13, CH 14-13 - Phase F	1B 1C	"NordUruk B" - 37-31			XVI	VI				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					XVII XVIII
3800														XIX XXI	VIII	VI:2		
4200	LC2	Ubaid 5	A			hiatus	TW 22-21 (20) - CH 17a	4A 4B 5	Gawra B Phase -45	(VIII) X-IX								
							CH 17 18	6	Gawra A Phase - 59	Xe XI XIA-B				Phase M	VIII	Law'surata I	Farukh	Suse A (Acropole 23-27)

Fig. 3 -Comparative chronological table..



# CERAMIC ASSEMBLAGE OF LOGARDAN

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J. S. Baldi

**T**renches A, B and C at Logardan have yielded contexts belonging to different chrono-cultural horizons, between the Late Halaf/Halaf-Ubaid transition and the Middle Bronze Age. The Halaf-Ubaid Transition (HUT) has been the most largely excavated area within the Trench C at Logardan. This phase, extremely rare in well-stratified context, has yielded a very peculiar assemblage, with local features, Iranian influences and typical Halaf and Ubaid motifs mixed together.

The hiatus recorded between the different occupations in the excavated areas do not necessarily imply an abandonment of the site during the periods that have not yet been documented. Their absence could be justified by the radical changes of the settlement over the centuries. The main purpose of the excavations carried out this year was to recognize the major anthropic stratigraphic phases and their organization with regard to the natural part of the mound. In the next campaigns, further excavations will clarify the chronology by carrying out new trenches in less peripheral areas of the site.

## METHODOLOGY AND TECHNICAL FEATURES OF THE CERAMIC ASSEMBLAGES

The analytical method for the ceramic assemblages from Trenches A, B and C at Logardan has been the same adopted for the Trench C at Girdi Qala. In order to identify traditional ‘chaînes opératoires’ and their technical interactions as distinctive ‘ways of doing’ of different groups of artisans and their social relationships over the centuries, all the 4987 sherds (rims, bases and body sherds) have been processed. Different groups, characterized by specific shaping methods have been recognized and then sorted by fabric pastes and diagnostic shapes and decorations, in order to examine all the passages of the productive process (selection and treatment of the raw materials, shaping, finishing, decorating and firing).

**Several shaping methods have been recognized (Fig. 1):**

- ▶ 1 : hammering on a convex support
- ▶ 2 : overlapping coils of 1-1,5 cm thick, with sub-elliptic section and external oblique orientation,
- ▶ 3 : overlapping coils of 3-3,5 cm thick, with sub-elliptic section and alternating oblique orientation,
- ▶ 4 : construction by overlapping flattened slabs of around 5 cm thick, with sub-elliptic section and internal oblique orientation,
- ▶ 5 : hollowing out a lump of clay and pinching and stretching it.

Techniques 2 and 3, documented since the 6<sup>th</sup> millennium (in the Halaf-Ubaid transitional levels in the Trench C at Logardan), are the same attested at Girdi Qala during the first half of the 4<sup>th</sup> millennium. Therefore, it is quite likely that they have been employed between 6<sup>th</sup> and 4<sup>th</sup> millennia without any interruption in the region. Techniques 1, 4 and 5 are documented since the 6<sup>th</sup> millennium in the



Logardan Technique 1:  
hammering on a convex support



Logardan Technique 4: construction by  
overlapping flattened slabs of around 5 cm thick



Logardan Technique 5: hollowing out a lump  
of clay and pinching and stretching it

**Fig. 1** - Shaping methods identified at Logardan

Trench C at Logardan and have also been detected on Bronze Age ceramics. But for the moment it seems very questionable to imagine a technical continuity between ancient Chalcolithic and Middle Bronze Age. Indeed, even if Early and Middle Bronze Age materials are quantitatively limited (734 sherds), Technique 4 – that is well attested in the Middle Bronze Age in Trenches B and C – has not been detected amongst Early Bronze ceramic fragments of the Trench C. In the same way, Technique 5 has been recognized during the Early Bronze, but not yet in the Middle Bronze levels.

Anyway, the presence of all the shaping methods within the Halaf-Ubaid transitional assemblage in the lowest levels of the Trench C indicates that the 6<sup>th</sup> millennium technical horizon was characterized by an extreme variability of the traditions.

This outcome has been also stressed by the analysis of the ceramic fabrics. Within the five technical groups recognized since the 6<sup>th</sup> millennium, several different pastes are documented, but further microscopic observations are needed to fully document the internal variability of each group.

- ▶ A Group: beige or light orange dense fabrics, fired in a completely oxidizing atmosphere during long firing cycles (beige-rose core), with abundant and very fine mineral inclusions (mainly quartz, sub-angular calcite, olivine particles and micas).

- ▶ B Group: orange dense mineral fabrics, fired in oxidizing atmosphere (orange core), with traces of serpentine and carbonates in the fine mass of the clay, and abundant ferruginous inclusions.

- ▶ C Group: orange-reddish fabrics, fired in incomplete oxidizing atmosphere (short firings, black core) with coarse vegetal and mineral inclusions (basalt, limestone, calcite) and coal particles.

- ▶ D Group: orange-brownish fabrics, fired in incomplete reducing atmosphere (grey surfaces and orange core), with abundant chaff and basalt, quartz ignite and silicates.

- ▶ E Group: beige quite porous fabrics, fired in a completely oxidizing atmosphere during long firing cycles (beige core), with fine vegetal inclusions and dispersed micas.

The important technological variability of the 6<sup>th</sup> millennium horizon is confirmed by the analysis of the pastes.<sup>1</sup> Groups B and C represent the majority of the pastes in the Halaf-Ubaid transition and matches with the so-called Halaf ‘Orange wares’, with different degrees of fineness (B pastes are quite fine – some samples belong to red slipped-burnished pots – while the C ones are always coarse). D fabrics correspond to the so-called vegetal (or mixed)-tempered coarse wares of this period, often associated to cooking pots or coarse basins (Le Mière and Nieuwenhuyse 1996, 189; Castro Gessner 2008, 198). Conversely, A and E groups of fabrics are quite rare in the lowest levels of the Trench C and are associated to Ubaid-like decorations and shapes.

In Late Chalcolithic 4<sup>th</sup> millennium contexts, ceramic fabrics show a composition closely similar to the A and B groups of Girdi Qala. In the same way, as already observed for Girdi Qala early LC3 phase, 4<sup>th</sup> millennium bevelled rim bowls have chaff-faced or mixed fabrics.

Concerning Early and Middle Bronze Age, it is striking to note the continuity in the use of raw materials already exploited during the Late Chalcolithic. Fabrics belonging to the A and B groups identified at Girdi Qala continue to be documented between third and second millennia B.C. Vegetal inclusions of the A Group become rarer and fine (which is absolutely normal since the last centuries of the fourth millennium mark the exhaustion of the local tradition of coarse Chaff-Faced potteries). While mineral-

1. The extreme variability of the fabrics is a well-known Halaf feature (Spataro and Fletcher 2010; Gómez 2011).

tempered wares of the B Group – which in the 4<sup>th</sup> millennium are associated to southern-Uruk ceramic traditions – continue to be attested during later phases. This clear continuity contrasts with many old assumption about a radical cultural rupture between the end of the Late Chalcolithic and the beginning of the Early Bronze Age, with the collapse of the local and Uruk proto-urban systems. Next campaigns at Logardan, with the excavation of well stratified 4<sup>th</sup>-3<sup>rd</sup> millennia levels, could elucidate this aspect.

## MORPHO-STYLISTIC FEATURES:

### REGIONAL PARALLELS AND RELATIVE CHRONOLOGY

The ceramic assemblage of the Trench A is represented by a limited number of sherds collected both inside the retaining wall of the ramp (in the interstices between the stones) and on the floor upon which the wall was founded. A more reliable quantity of ceramic materials has been collected inside and under the retaining wall of the ramp in the central sector of the Trench B. All these materials are completely comparable in technology, pastes and shapes with the assemblage from the Trench C at Girdi Qala and particularly with the early LC3 sherds from Levels 7-1. The only indigenous shape recorded in the assemblage from the excavated sectors of the ramp in Trenches A and B at Logardan is represented by some samples of hemispherical bowls with inwards bevelled rim. This late LC2-LC3 type is ubiquitous in Northern Mesopotamian assemblages of the second quarter of the 4<sup>th</sup> millennium (for instance at Tell Feres 5-3, Hamoukar 'southern extension' 3-1, Brak TW 20-18, Hacinebi A2-B1, Nineveh 'Norduruk A', Gawra X-VIII).<sup>2</sup> But the large majority of the materials from the ramp and its basal floor are typically southern-Uruk: sharply everted rim jars, a fragment of pierced lug, bevelled rim bowls and jars with incised shoulders. Incised decorations are essentially crosshatched bands and triangles, horizontal lines, impressed ribs and punctuations. As in the Trench C at Girdi Qala, these features show their early morphology: incisions on the shoulders of the jars are unorganized and impressed ribs are unequal, like in Sheikh Hassan 13-10, Nineveh 'Norduruk A' or Susa 22-21.<sup>3</sup>

In the upper and lowest sectors of the Trench B, the furnaces stacked above and recessed below the ramp have yielded ceramic materials dating back to the early phase of the Middle Bronze Age. The most diagnostic sherds are sharply everted rim jars decorated by incised bands, comb-incised ribbons<sup>4</sup> and, above all, circle-impressed decorations.<sup>5</sup>

Additional evidences that during this phase Logardan was intensely settled come from the upper levels of the Trench C, where the ceramic materials are completely comparable with the samples collected in the furnaces of the Trench B. Channel-bases, indented-cordoned jars, jars with horizontally grooved shoulders, comb-incisions and circle impressed decorations find close parallels in some Old Babylonian sites as 'Usiyeh area A and Haradum Levels 3A-3D'.<sup>6</sup> Amongst these materials, comb-incised jars constitute a decorated group characterized by a long evolution since the second half of the 3<sup>rd</sup> millennium BC. This development is visible in the Trench C, where some post-Akkadian sherds have been identified. Some combed jars with lid seated rims or with collared rims and sloping shoulder represent the beginning of the development of the comb-incised decoration during the Early Bronze Age. The assemblage

2. See Baldi and Abu Jayyab 2012, fig. 4.1-2; Oates 1985, 1986; Pierce 2000; Gut 1995; Rothman 2002.

3. See Bachmann 1998; Gut 1995; Le Brun 1971, 1978a, 1978b.

4. See Pruss 2007, fig. 2-3; Oates and Oates 2001.

5. See Oguchi 1997, fig. 1, 2.2, 3.8a.

6. Fuji, Okada, Matsumoto, Oguchi, Agi and Numoto 1984-1985; Kepinski-Lecomte 1992, p. 354, Figs. 66-6, 66-7, 67-1, 67-2, 79-1, 79-2 and 100-9; De-lougaz 1952.

from the Level 3 of the Trench C at Logardan, characterized by these jars and by round rim bowls, shows close parallels with Akkadian and post-Akkadian phases at Tell Brak (phases N and O), Mozan (6b-6a), Taya VI-V, Assur G-E or Chagar Bazar 'post-Akkadian Levels'.<sup>7</sup>

Even if not 'in situ', a little group of sherds from the Trench C (deep filling layers of the Level 3) suggests that the site was occupied during the first quarter of the 3<sup>rd</sup> millennium. The most diagnostic amongst these specimens are everted rim jars in mineral pastes, fine beaded-rim bowls, a crescent-handle holemouth cooking pot and a fragment of black burnished (on both the surfaces) incised Kura-Araxe.

Going back in history, Trench C has yielded two LC4 pottery kilns with some southern Uruk materials, in particular mineral tempered coarse conical bowls, bevelled rim bowls, angled rim jars and cross-hatched incised jars (with regular incised triangles, like in Sheikh Hassan 7-5, Nineveh 'Norduruk B' -37-31, Hacinebi B2, Choga Mish Protoliterate B and later LC5 contexts as Habuba Kabira Sud).<sup>8</sup>

The kilns dating back to the LC4 (145-141) have been built in the same area that during the LC2 was occupied by two other kilns (144 and 143). The materials collected in the firing chambers of these installations are very common: flaring rim jars, bowls with inwards bevelled rim and deep bowls with pinched rims, as in Gawra XA, Norşuntepe or Tell Brak CH 17A.<sup>9</sup>

All these firing installations were recessed below a terrace wall (Level 6) dating back to the late Ubaid phase. The diagnostic materials collected from the floor at the base of this wall show all the features of the Ubaid 4: very coarse and simplified black-on-buff painted decorations (mainly wavy lines and basic geometric motifs), porous vegetal-tempered fabrics and shapes closely comparable to the assemblage from Tell Madhhur in the Diyala Valley.<sup>10</sup>

Before the phase documented by the terrace wall (locus 147), three levels have yielded ceramic materials dating back to the Halaf-Ubaid transition. The lowest level (Level 9), with the circular building and the rectangular burnt structure, shows the whole panoply of the so-called Halaf culture: perforated potsherds,<sup>11</sup> spindle whorls,<sup>12</sup> circular ceramic discs,<sup>13</sup> coarse flattened-base basins,<sup>14</sup> a miniature stone vessel,<sup>15</sup> fine painted wares, orange (sometimes painted) common potteries, a roughly conical figurine<sup>16</sup> and a rounded tholos. But since this level the ceramic assemblage is characterized by some anomalous features (Fig. 2). In particular, 11% of the collected sherds show proper Ubaid characteristics, as black-on-buff (dense mineral A Group fabrics) geometric designs and morphologies not consistent with the Halaf typology (short neck internal angled flaring rim jars, hemispherical bowls with in-turned rims and shallow bowls with beaded rims).<sup>17</sup> Moreover, these sherds witness a very distinctive combination between geometric stylistic motifs that are absolutely typical of southern Mesopotamia with peculiarly local motifs, such as a "Maltese cross" which is documented both on Halaf red painted sherds and early Ubaid black painted ceramics.<sup>18</sup> Proper Halaf sherds from Level 9 are both red-on-orange, black-on-

7. See Oates and Oates 2001; Orsi 2011; Pruss 2007, fig. 2-3; Tunca; McMahon and Baghdo 2007.

8. See Bachmann 1998, figs. 8, 10, 12-13; Gut 1995, pls. 60-62, pl. 68, 952; Gut 2002; Pearce 2000, fig. 15: d-e; Delougaz et Kantor 1996; Sürenhagen 1974-1975, pl. 27.95, pl. 28.130.

9. See Rothman 2002, pl. 15.1791; Hauptmann 1976, pl.49.1-2; 1979, pl.42.3; 1982, pl. 37.5; Oates 1986, fig. 2.38, pl.7.14-16.

10. Roaf 1989.

11. See at Tell Amarna (Cruells Banzo 2004, fig. 8.2-b).

12. See at Arpachiyah (Mellowan and Rose 1935, 88, Fig. 49.15-16).

13. See for instance at Girikihaciyah in Southeastern Turkey (Watson and LeBalnc 1990, 107); at Banahilk, on the other side of the Zagros mountains (Watson 1983, 569); at Tell Amarna (Cruells Banzo 2004, Fig. 8.1, 8.2).

14. See at Chagar Bazar (Cruells Banzo 2006, Pl. 3.16-CB 4178, CB 3983).

15. See at Khirbet esh-Shenef (Akkermans 1993, 95), Tell Damishliyya (Akkermans 1988, pl. 10) and Tell Amarna (Cruells Banzo 2005, fig. 8.1-AM 10467).

16. See at Umm Qseir (Tsuneki and Miyake 1998, 119-120, Fig. 51).

17. See the Halaf-Ubaid transitional phase at Tell Zeidan (Stein 2010, Fig. 16-17).

18. This same motif is also attested in the later Ubaid 3 at Tepe Gawra XVI-XV (Tobler 1950).



**Fig. 2** - Halaf Ubaid transitional material from Logardan.

orange and polychrome-painted (black, orange and purple), with a predominance of red decorations. Their morphological typology includes tall necked everted rim common jars, bow rim jars, wide mouth globular pots with everted rims, S-shaped bowls with flared rims and simple hemispherical or everted rim bowls with thinned rims.<sup>19</sup> In other terms, even if clearly fitting with the Halaf cultural phase, Level 9 typology does not perfectly coincide with the repertoire traditionally considered as ‘final’ Halaf. Indeed, the presence of polychrome decorations and bow rim jars seems to suggest a quite late Halaf phase. But, in the same time, final Halaf typology is characterized by miniature zoomorphic and anthropomorphic vessels, as well as by shallow bowls with footed vessels.<sup>20</sup> All these elements are absent in Level 9, while the carinated so-called ‘cream-bowls’ – that are another late Halaf hallmark<sup>21</sup> – are very rare (just one piece).

These specificities could be partially explained within a regional perspective. Indeed, many similarities can be stressed between the Halaf assemblage from Level 9 and Halaf painted wares from the Hamrin basin at Songor A and B. In particular, deep bowls with S-shaped profile and cross-hatched pattern in an oval shape, inverted triangles, and vertical bands are attested in the Hamrin,<sup>22</sup> as well as bowls with horizontal bands and a wavy line applied on the upper part of interior and exterior of the walls.<sup>23</sup> Halaf

19. See at Tell Amarna (Cruells Banzo 1998, Fig. 4-7) and Tell Halula (Cruells Banzo 1996, fig. 7).

20. Gómez 2011.

21. See for instance at Tell Zeidan late Halaf levels in Operations 1 and 4 (Stein 2009, Fig. 9).

22. See Kamada and Ohtsu (1993, Fig. 6. P11, Fig. 7. P20, 23, 27, Fig. 8. P33); Matsumoto and Yokoyama (1995, Fig. 101. 616 and 618).

23. See Matsumoto and Yokoyama (1995, Fig. 103. 636, and 637).



painted ceramics from Songor A and B are generally dated to the late Halaf.<sup>24</sup> Moreover, even if Tsuneki (2004, 133–34) points out that the western foothills of the Zagros mountains seem to be the limit for the distribution of the Halaf painted ware (with a lot of sherds dating to the Late to Terminal Halaf periods), Halaf-related assemblages are well known on the eastern side of the Zagros with the same features observed at Logardan (as at Banahilk: Watson 1983).

However, a regional perspective cannot answer all the open questions about the chrono-cultural horizon documented in Level 9. Above all because it is evident that Ubaid-related sherds fit with a very early Ubaid phase, characterized by Samarran-like linear decorations, zig-zag thick painted bands and thin vertical lines organizing the painted motifs. All these features, with the presence of some fragments of ‘rusticated’ (finger nails impressed) ware,<sup>25</sup> are consistent both with an earlier Halaf phase<sup>26</sup> and with Ubaid 1-2 and Early / Early Middle Susiana Phases.<sup>27</sup> The same chrono-cultural problems were already evident in the phases III and II of the Ubaid village of Tell Abada (Jasim 1985), where some Halaf wares and Ubaid 2 ceramics have been collected in the same stratified contexts.

In the Trench C at Logardan the Halaf-Ubaid Transition goes on in the Levels 8 and 7, with an increasing percentage of black-on-buff Ubaid ceramics. Since Level 8, the Halaf-related red painted decorations become extremely rare. Some material-cultural elements, like the presence of little stone vessels and pierced potsherds, are still attested in the Level 7. But orange common ware dramatically decreases in number and, even if some motifs are conservative (above all the “Maltese cross”), the ceramic typology and the set of painted decorations are more and more consistent with the horizon documented in Tell Abada phase II (Jasim 1985).

The overall ceramic evolution of the Levels 9-7 seems to match with a progressive Halaf-Ubaid transition as at Tepe Gawra Levels XX-XVIII or at Tell Masaikh.<sup>28</sup> But, on the one side, there is few sites dating back to this period and, on the other, the regional dynamics between southern Halaf, Samarran-like traditions and emerging Ubaid have specific features. For these reasons, the identification of well stratified Halaf-Ubaid

Absolute chronology (B.C.)	Relative chronology	Levels	
		Girdi Qalaa Trench C	Logardan Trench C
1700 1900	Middle Bronze		1 2
↑			?
2200 2300	Early Bronze IV-V		3
↑			?
3400	LC4		4
↑			?
3700 3800	Early LC3	1 7	?
3900 4000	Late LC2	8 10	5
↑			?
4700	Late Ubaid		6
↑			?
?	Early Ubaid		7 9

Fig. 3 - Chronological comparative chart.

24. Tsuneki 2004, 132, Table 4.4.  
 25. See at Chagar Bazar (Cruells Banzo 2006, Pl. 3.2 CB 1440/13).  
 26. See at Chagar Bazar (Cruells Banzo 2006, Pl. 3.10-3.11).  
 27. See Choga Mish (Alizadeh 2008, Fig. 41, 44.J, L, 55.B, J, 58.D, E).  
 28. Tobler 1950; Robert et al. 2008; Robert 2010.

transitional contexts will be amongst the main goals of the next campaigns.

Trenches C at Girdi Qalaa as at Logardan open new perspectives on the relationships between north- and south-Mesopotamian complex societies. Both the trenches provide evidences for much earlier chronologies (Fig. 3) and unexpected modalities of emergence for the Ubaid and the Uruk horizons. A critical focus of the next campaigns will be on verifying and understanding this kind of completely new issues.



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## APPENDIX

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### **APPENDIX A: TOPOGRAPHICAL REPORT**

*Paul Courbon*

The purpose of the mission was the first study of the Girdi Qala and Logardan areas, close to Shorsh and Chamchamal cities. Our field surveying has been attached to UTM38 projection, to be integrated in a national Kurdish GIS. Our surveying has been done with the total station LEICA TCR1205 of the Kurdish archaeological service. Fastenings of this surveying with UTM38 have been done with the GPS. We recommend to the future field surveyors to provide a pocket GPS to find the stations of the topographical map.

**– Girdi Qala Area, located 2km east of Shorsh:**

**Geomagnetic statement:** our first work was to set up the grid, permitting to do the geomagnetic statement of the area. Later, this grid was integrated to the field survey to get a correspondence between the geomagnetic pictures and the general survey of the area.

**Altimetric surveying:** our altimetric surveying covered about 9 hectares, limited on the north by Tavuq Çay. It has been observed from 5 stations. We have also determined the coordinates of 3 electric pylons permitting to do resections on numerous points of the area. We have done a repertory of these stations and pylons, to be used by the next missions. The goal of this altimetric survey is to understand the shape of the site and its location in the local relief.

**Excavations areas:** moreover, we have given to the archaeologists all the necessaries points for the three excavations areas, Trenches A, B and C.

**– Logardan Area, nice long hill located 1.5 km to N.N.W of Girdi Qala:**

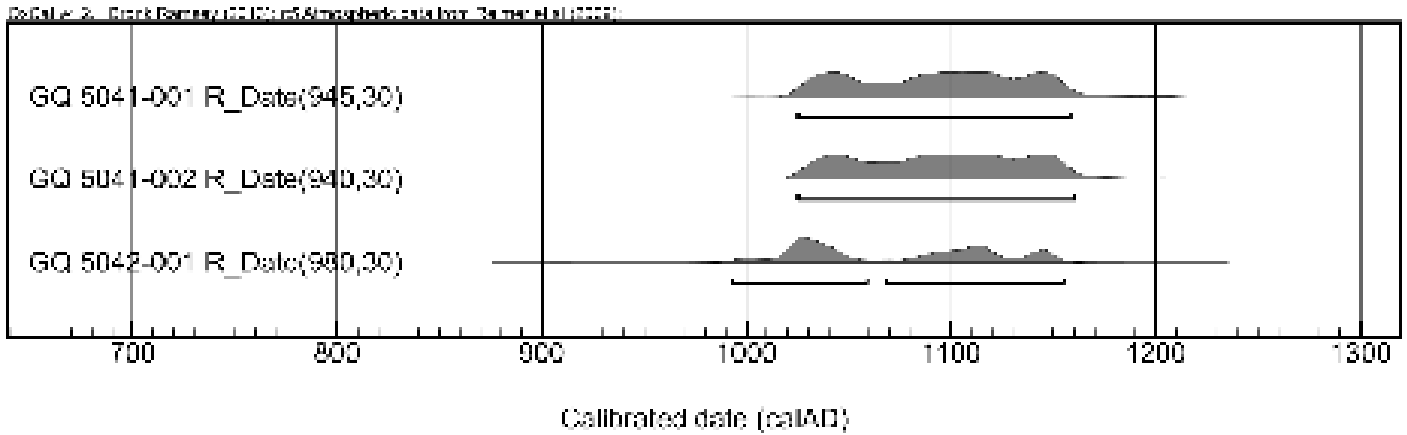
**Geomagnetic statement:** our first work was also, like at Girdi Qala, to set up the grid, permitting to do the geomagnetic statement of the area.

**Field surveying:** we have created a station network before beginning the surveying of the area. A repertory of these stations has been done for the surveyors of the next seasons. Like for Girdi Qala, an altimetric map has been done on the western part of the area.

**Excavations areas:** we have given to the archaeologists all the necessaries points for the three excavations areas, Trenches A, B and C.

## APPENDIX B: RADIOCARBON DATING

Three radiocarbon dating were done on grains (*Hordeum*) coming from the filling of the kilns of level 10 of the Trench C of Girdi Qala. It appears that the sub-surface filling layer, or at least part of it, is much



later than the underlying structures: the three samples are dated around the late 11<sup>th</sup>- early 12<sup>th</sup> century A.D., roughly contemporaneous with the late Islamic level of Trench A (that provided an Ayyubid coin –to be confirmed after restoration). If this result doesn't give an absolute dating of the chalcolithic kilns of level 10, as we had hope, it is nonetheless interesting as it probably dates the last occupation of the site and its final abandonment, during the 12<sup>th</sup> century A.D. at the latest.

<i>Sample name</i>	<i>Lab. no.</i>	<i>Age 14C</i>
GQ 5041-001	Poz-81927	945 ± 30 BP
GQ 5041-002	Poz-81928	940 ± 30 BP
GQ 5042-001	Poz-81929	980 ± 30 BP

Given below are intervals of calendar age, where the true ages of the samples encompass with the probability of ca. 68% and ca. 95%. The calibration was made with the OxCal software v4.2.1 Bronk Ramsey (2013); r: 5; Atmospheric data from Reimer et al (2009);

### GQ 5041-001 R\_Date (945, 30)

68.2% probability

1031AD (16.3%) 1052AD

1081AD (37.6%) 1128AD

1134AD (14.3%) 1152AD

95.4% probability

1025AD (95.4%) 1158AD

### GQ 5041-002 R\_Date (940, 30)

68.2% probability

1035AD (13.7%) 1052AD

1080AD (54.5%) 1152AD

95.4% probability

1025AD (95.4%) 1160AD

**GQ 5042-001 R\_Date (980, 30)**

68.2% probability

1018AD (36.1%) 1046AD

1093AD (25.4%) 1121AD

1140AD (6.6%) 1148AD

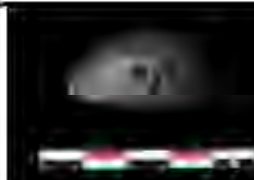
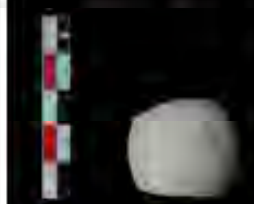


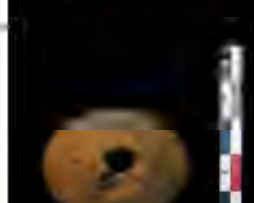

95.4% probability




993 AD (45.9%) 1059AD

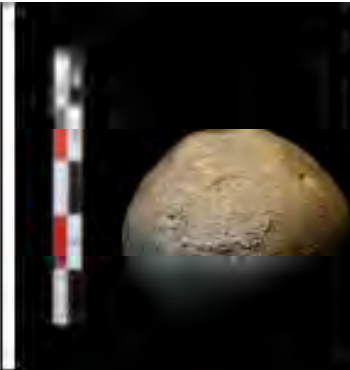

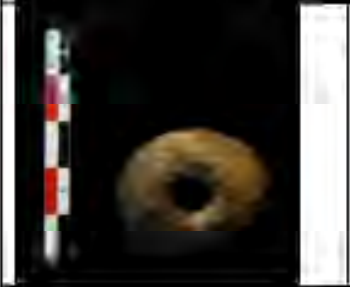



1068AD (49.5%) 1155AD


## APPENDIX C: FINDINGS LIST

## تكتيفات 2015 (LOG) and (GQ) Excavations at Girdi Qalaa

الصورة أو رسم Photo or drawing	الوصف description	رقم المستقر locus no	التقاسمات dimensions	مادة الأثر material	نوع الأثر kind of object	الرقم Code
	oval bead, lower side flat. Polished	MV 3003	34 x 32 x 2D mm	agate	Bead	GQA P3003.1
	Barrel- shaped	MV 3003	26 x 19 mm	shell	Bead	GQA P3003.2
		MV 3078	Diam 31.8 mm th 0.79 mm	Metal	Coin	GQA N3078.1
	Round, flat bottom	2053	38 x 22 mm	terracotta	Loom- weight	GQC 5040.3
	Biconical, slightly flattened	1996	terracotta	terracotta	Spindle- whorl	LOG 1996.2
	Complete	9999	L: 81.2 H: 19.2 mm Head diam 25.4	terracotta	Clay nail	LOG T1.1

	<p>Cylinder-shaped, broken at both ends. Bottom part slightly flaring. 3 red bands painted around upper part and 1 at bottom. Probably Halaf period</p>	9999	55.2 x 23.4-17.5 mm	terracotta	Clay Figurine (fragment)	LDG TC1.2
	<p>Cylinder-shaped, with one preserved tapered end. 1 red band painted around bottom part. Probably Halaf period</p>	9999		terracotta	Clay Figurine (fragment)	LDG TC1.4
	<p>Bottom part from a small modelled figurine. Cylinder-shaped, with end flattened into 2 short rounded legs</p>	132	34.7 x 24.4 x 34.8 x 17.1 mm	terracotta	Clay Figurine (fragment)	LDG TD40.1

	Round. Complete	MV 1007	34 x 38 mm	Terracotta	Clay loom-weight	GQN TC1007.5
	Square section	MV 1015	46 x 18 x 17 mm	Glass	Glass sherd	GQN V1015.1
	Complete. Round, flat base	MV 1007	Diam 29 mm Ht 14 mm	Terracotta	Clay loom-weight	GQN TC1007.4
	Rectangular section, one rounded end with deep groove at the base. Slight striation on surface	9999	49.6 x 21.12 x 13.5-9.9 mm	Grey stone	Small stone rod (uncomplete)	LOG P16.1
	Wade, and fragment of chariot bottom pierced with a hole	9999	51 x 53-33 x 23.7 mm	Terracotta	Clay miniature chariot (fragment)	LOG TC1.3
	Spur-shaped Grey core	MV 1019	73 x 53 x 19 mm	Terracotta	Clay object	GQN TC1019.2


	<b>Round section. Incised braid on upper side</b>	<b>NV 1019</b>	<b>47 mm. Section 6.6 mm</b>	<b>Black glass</b>	<b>Glass bangle (fragment)</b>	<b>GQN V1019.1</b>
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## APPENDIX D: EXPORTED SAMPLES

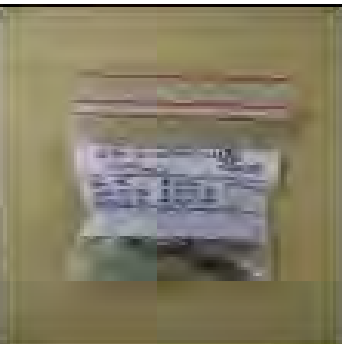
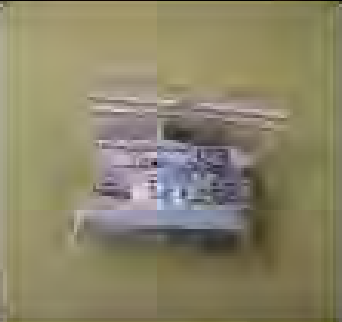
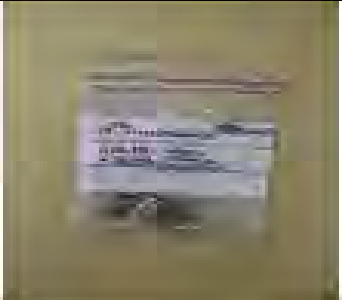


## QARA DAGH ARCHAEOLOGICAL MISSION


## AUTHORISATION FOR EXPORT OF ARCHAEOLOGICAL SAMPLES

SEASON 2015

Qty	description	sample no.	Photo	
1	Charcoal (grains)	GQC 5041.001		
1	Sediment (grains)	GQC 5041.002		
1	Sediment (grains)	GQC 5042.001		
6	Pottery Samples 4th mill A Group			



5	Pottery Samples 4th mill A Group_2			
1	Pottery Samples 4th mill BRB Group Mixed Ware			
5	Pottery Samples 4th mill B Group			
6	Pottery Samples 4th mill C Group (cooking)			
2	Pottery Samples 4th mill D Group (cooking)			

5	Pottery Samples 4th mill. Grey Wares				
9	Pottery Samples 6th mill. HUT			