

RED WARE: CHARACTERIZING A POTTERY PRODUCTION AT TELL HALULA AT MID SIXTH MILLENNIUM CAL BC.

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Una de las producciones cerámicas más reconocidas de Oriente Próximo es la cerámica Halaf, si bien esta aparece acompañada de otras producciones como es la denominada red ware. Este tipo de producción se caracteriza por tener una pasta anaranjada y un acabado pulido en gris claro y rojo oscuro asociado a cuencos y platos abiertos, algunos de ellos pintados de color oscuro con motivos geométricos básicos.

Neolítico cerámico, Halaf final, Alta Mesopotamia, Red ware.

One of the most easily recognized ceramic productions in Near East is the Halaf pottery among other productions such as red ware. This kind of ware is well defined because of its characteristic clay with a light gray and dark red slip associated to closed bowls and open dishes, some of them painted with dark geometric motifs.

Pottery Neolithic, Late Halaf, Upper Mesopotamia, Red Ware.

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INTRODUCTION

Red ware pottery has been defined as a foreign production and it has been related to Late Halaf horizon in a chronologic and cultural period between 5600-5300 cal BC. Also, their presence is well recognized in several archaeological sites as Yarim Tepe II, Tell Halaf or Tell Halula, among others, and it has also been attested in surveys developed in the Jezirah or the upper Tigris regions.

The set recovered from Tell Halula, belonging to a well-known stratigraphic sequence and dated by radiocarbon dates, allows the characterization of the red ware pottery production from an archaeometric point of view (Gómez Bach 2011, 2013; Gómez Bach *et al.* 2014). The analysis of 86 potsherds from a comprehensive perspective by using archaeometric techniques such as chemical analysis, petrographic, and PIXE as well as morphometric and basic techno functional charac-

terization analysis set new guidelines to identify their spread and production.

The Neolithic settlement of Tell Halula is located in the middle Euphrates valley, in a zone of contact between several natural ecosystems. The known site covers nearly 2500 m² with an uninterrupted chronological sequence ranging from 7800 to 5300 cal BC. Excavations have been ongoing since 1992, under the direction of Miquel Molist, Autonomous University of Barcelona, Spain (Molist ed. 1996, 2013).

HALAF POTTERY PRODUCTION IN THE EU-PHRATES VALLEY

The characterization of pottery production in the mid-sixth millennium cal BC context at Tell Halula arises from the need to understand how structured and organized consolidated agricultural and pastoral communities of the Fertile Crescent were. (Fig. 1).

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Figure 1. Map of Euphrates valley and the location of the Tell Halula site. SAPPO, UAB.

The opportunity to study the pottery assemblages from Tell Halula (with 16,668 sherds) allowed us to study, from a comprehensive perspective, well stratigraphic sets dated between 5600 to 5300 cal BC. (Fig. 2) by using archaeometric techniques (chemical and petrographic) as well as morphometric and basic techno-functional adscription (Gómez Bach 2011). Halula Late Halaf ceramic assemblages include a large variety of wares. There are fine wares, plain or decorated, simple and burnished coarse wares, either with mineral or plant inclusions.

Overall it is a finely made pottery with monochrome and scarce polychrome decoration. This decoration has good adhesion and the pigment is highlighted in matte and glossy combinations, although the latter is less abundant. Most documented colors comprise brown, black and red; some productions are orange (Fig. 3). Related to this ware, a small group that can be attributed to *red ware* (0,04%) has been identified.

Red ware was identified by Oppenheim and Schmidt at Tell Halaf as a very late pottery production (Oppenheim 1943). These sets were attributed to the sequence called Late Halaf and later to Halaf transitional Obeid



Figure 2. Image of the Halaf levels from sector 49. SAPPO, UAB.

(Davidson 1977, Leenders 1989) when these were identified at Tell Aqab (Davidson 1977; Campbell 1992). While attribution is doubtful, red slipped productions are also available in Late Halaf sets from Yarim Tepe (Merpert; Munchaev 1993) or Shams ed-Din (Gustavson-Gaube 1981). 26 fragments were recovered in the course of prospecting at the Khabur from 4 specific sites: Aïn el Qerd, Khaneké Tell, Tell Baqar, all in the Wadi Dara (Nieuwenhuys 2000: 169). Some authors speak of a much more heterogeneous production of what might have been thought (Breniquet 1996). Through archaeometric analysis (Davidson 1981; Davidson, Kckerrrell 1976, 1980), *red ware* will be definitely characterized and bounded in space and time within the Halaf horizon (Campbell 2007; Campbell/Fletcher 2010).

ARCHAEOMETRIC RESULTS

Pottery known as *red ware* is present at Tell Halula with 7 potsherds. Broadly, these pieces are characterized by the presence of a red slip, often with a polished finish, and a black painted decoration in some of their simple geometric patterns (horizontal and vertical lines or triangles). These series have been attributed to Late Halaf and are also well documented at Tell Halula deposits-external floors and pits- in sector 30, 31 and 49. (Fig. 4).

This set has been sampled and numbered as: THL-412, THL-416, THL-417, THL-502, THL-505, THL-506, THL-508, THL-509, THL-512, THL-514, THL-515, THL-517, THL-523, THL-530, THL-541, THL-549, THL-601, THL-604 and THL-608. This production corresponds to 18,8% of the petrographic group identified as THL3, and the chemical group SI-1; and it is mainly represented by small and medium sized open bowls (G.III) and closed bowls (G.IV). (Fig.5)

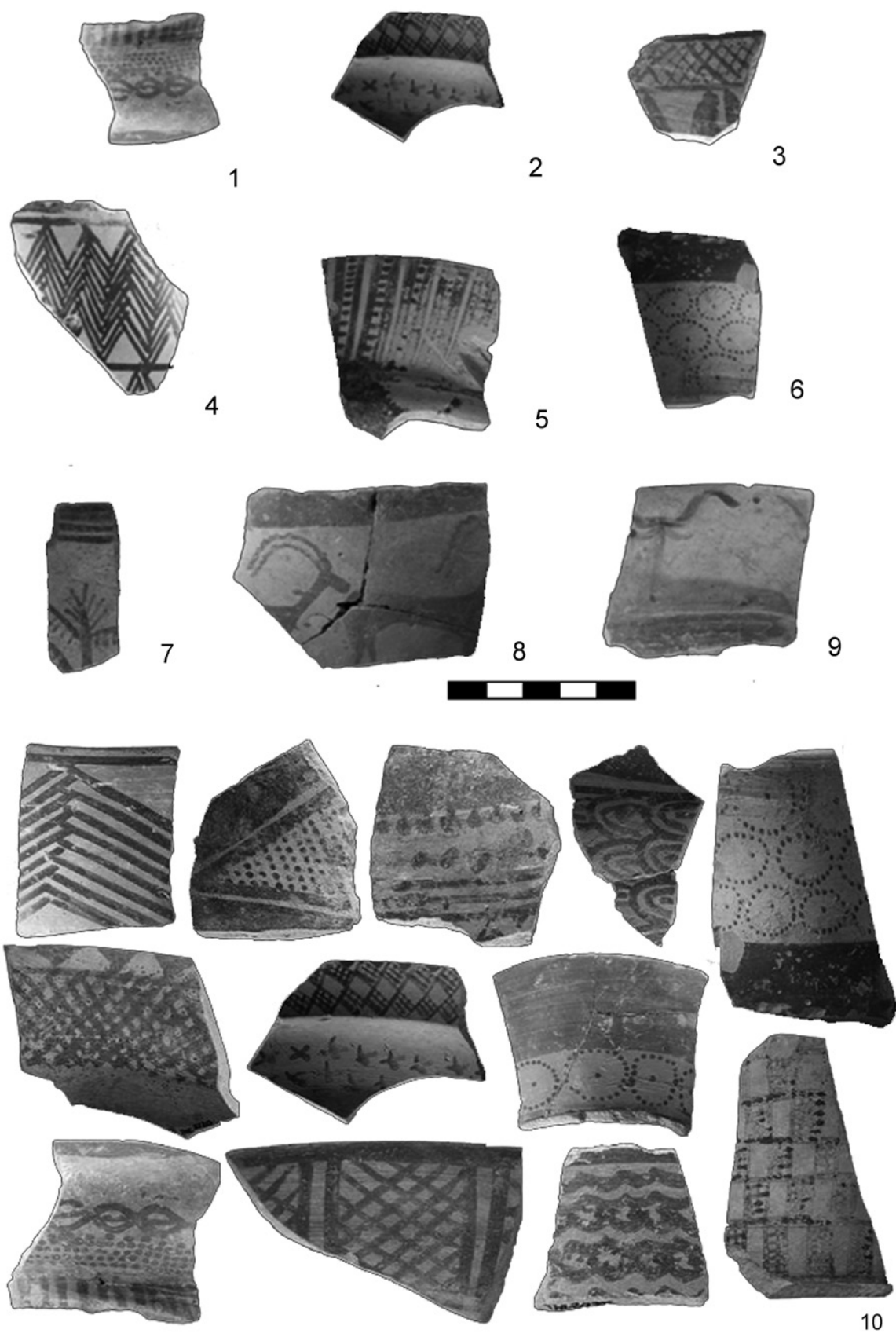


Figure 3. Main Late Halaf sets. Cream bowl (fig.3. 2,3.5,3.9); Jars (fig.3.1,3.6) Bowl with flat bottom and straight side (fig.3.3, 3.4, 3.7, 3.8), a complete decorated assemblage from ue.49.5 (fig.3.10), SAPPO, UAB.

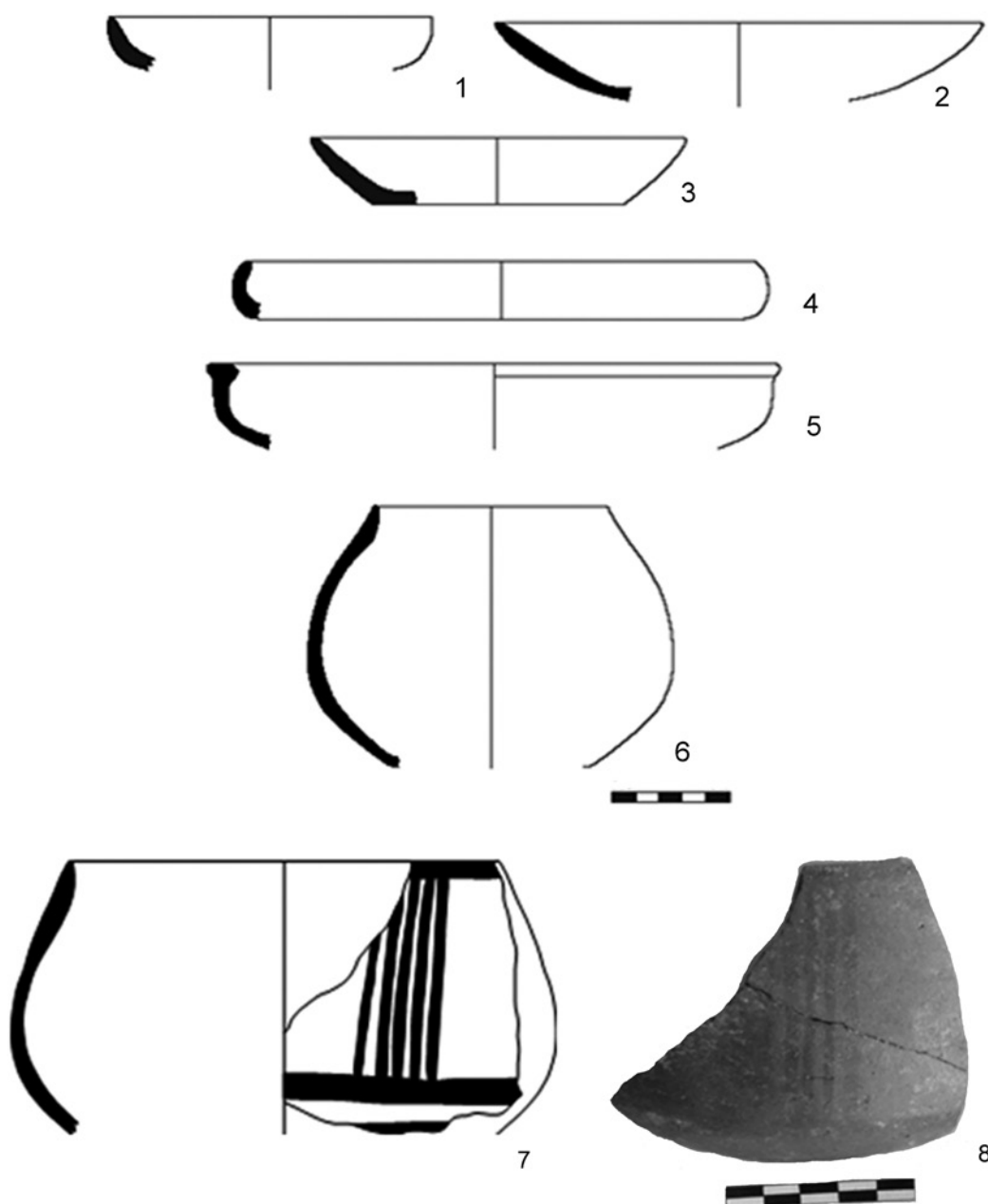


Figure 4. *Red ware* shapes from Tell Halula. SAPPO, UAB.

REMARKS

The archaeometric analysis done at Tell Halula's Late Halaf pottery has documented an association between the chemical group SI-1, the petrographic group HL3 and *red ware*. From a petrographic point of view, the HL3 group presents abundant mineral inclusions, small to medium in size with acicular clay. (Fig. 6). The appearance is heterogeneous when polarized light is used, while the polarized light with the analyzer is more anisotropic. The structure of the dough is fluidal. Pores are abundant, not too large and elongated and arranged

parallel to the vessel wall forms. The temper consists on: quartz (wavy extinction), biotite, plagioclase, a few fragments of basalt and pyroxene. The presence of carbonates, due to contamination on the outer surfaces of the sample, is observed. From a chemical point of view, the group SI-1 has relatively low values of CaO and a larger relative presence of SiO_2 . Also, in relation to the other defined Tell Halula groups, SI-1 shows lower values of MgO, P_2O_5 , Fe_2O_3 , and MnO. This group was preliminary attributed to Tell Halula local productions and opens a new perspective about *red ware* provenance (Fig. 7).

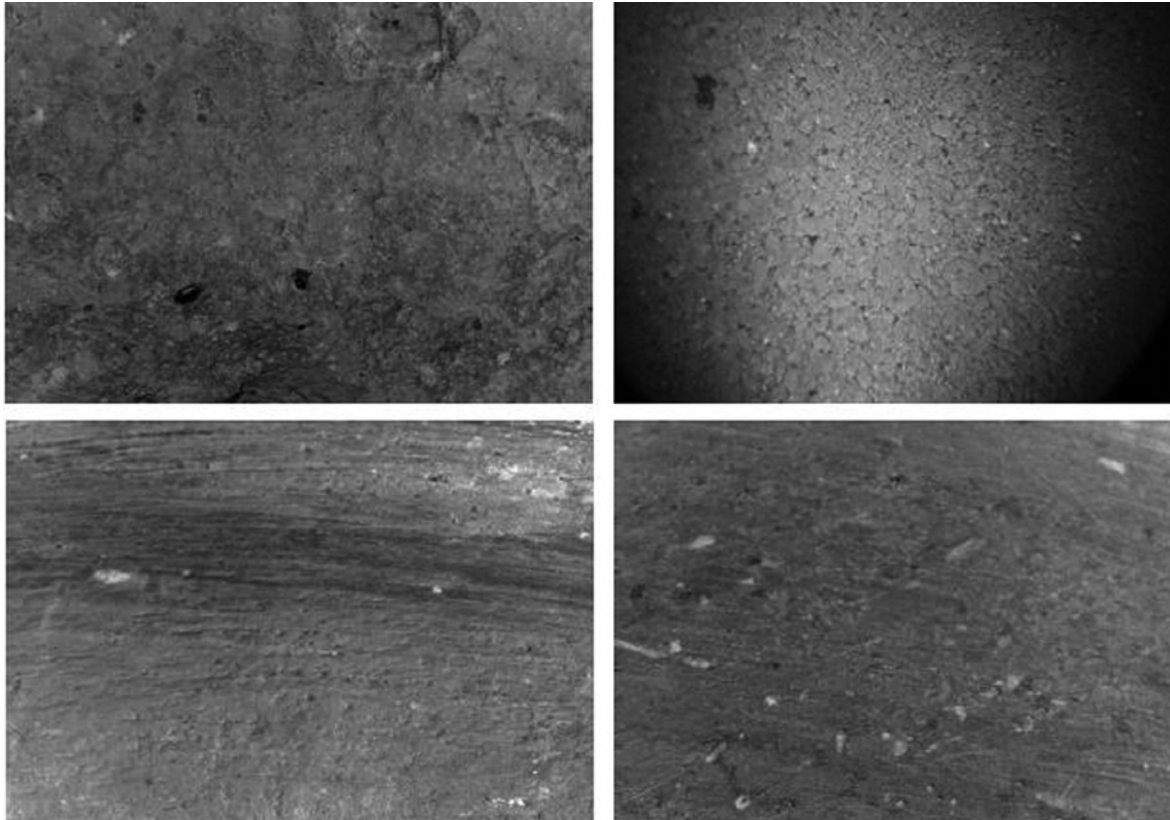


Figure 5. The mineralogical composition of *Red ware* and finishing techniques (polish and burnish). SAPPO, UAB. Microscope WF10 x 18 mm.

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SECTOR	UE.	PETRO IDENT.	PETRO GROUP	CHEMICAL ID. NUM.	CHEMICAL-GROUP	WARE	SHAPE
THL 2007-49	E10 (A1j).4	HL512	THL-3	SI-78	SI-1	Plain ware (red-dish yellow 7 / 8)	VIII- pot
THL 2007-49	E42 (A6b).1	HL514	THL-3	SI-80	SI-1	Paint ware (red 4 / 6) (brown 5 / 2, 5)	IV-Closed bowl
THL 2007-49	E32(A7c).8	HL508	THL-3	SI-76	SI-1	Plain ware (red-dish yellow 7 / 8)	II-Bowl with flat bottom and straight side.
THL 2007-49	E8 (A1i).4	HL505	THL-3	SI-74	SI-1	Paint ware (red 4 / 8) (brown 5 / 8)	III-Hemispherical bowl with flat base
THL 2007-49	E24(A7d).16	HL515	THL-3	SI-81	SI-1	Coarse ware (reddish yellow 8 / 6)	III- Hemispherical bowl with flat base
THL 2007-49	E24(A7d).17	HL530	THL-3	SI-93	SI-1	Paint ware (red 4 / 6) (brown 5 / 3)	VII-Hole-mouth bowl
THL1999-32	A4	HL604 red ware	THL-3	SI-65	SI-1	Paint ware (red 4 / 6) (brown 5 / 2)	IV- Closed bowl
THL 1996-30-Ag	A3b	HL608	THL-3	SI-69	SI-1	Plain (brown 5 / 8)	III- Hemispherical bowl with flat base
THL 1996-30-Ag	A3b	HL608	THL-3	SI-69	SI-1	Plain (brown 5 / 8)	III- Hemispherical bowl with flat base

Figure 6. Table with main sherds that belong to S1 chemical group. SAPPO, UAB.

	SI-1 (n=8)	
	m	ds
Fe ₂ O ₃ (%)	6.31	0.27
Al ₂ O ₃ (%)	12.91	0.42
TiO ₂ (%)	0.76	0.03
MgO (%)	5.00	0.22
CaO (%)	21.75	1.81
SiO ₂ (%)	53.18	1.59
Rb (ppm)	72	9
Th (ppm)	10	1
Nb (ppm)	19	1
Zr (ppm)	191	11
Y (ppm)	27	2
Ce (ppm)	55	4
Ga (ppm)	15	1
V (ppm)	109	9
Zn (ppm)	108	11
Ni (ppm)	163	9
Cr (ppm)	187	14

Figure 7. Table with S1 petrographic group composition. SAPPO, UAB.

Like other archaeological sets, *red ware* has been associated to open forms, mainly open and closed bowls, and to a lesser extent, to plates and medium jug types; with red slip surfaces applied to a smoothed or burnished surface and may have a geometric decoration in black color. Numerous authors have identified *red ware* as a foreign and late product. Usually, the movement of these vases has been related with the existence of social networks, to exchange ideas, materials or persons equated between groups. In these contexts, variables such as human group mobility and the assignment to specific morphometric or functional groups were considered.

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