CAPPADOCIA'S FIRST POTTERY PRODUCTION, TEPECIK-ÇIFTLIK NEOLITIC EARLIEST LEVELS

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Introduction

The Neolithic and Chalcolithic site of Tepecik-Çiftlik, lying in the middle of the Melendiz plain, is under excavation by Istanbul University since 2000, excavation reports being published every years in the *KST*. Pottery analyses began in 2002 and the corpus under study concern now the whole archaeological sequence, with results already showing cultural developement between ca. 6500 and 5500 BC cal., specific to Cappadocia, thus shedding light on Central Anatolian Neolitic and early Chalcolithic diversity.

A research funding delivered by the TÜBİTAK-BİDEB for the year 2010-2011 and hosted by Istanbul University Prehistory Department allowed us to tackle the issue of the earliest pottery productions in Cappadocia, last year excavation season having reach archaeological levels not evidenced before in the region. As fieldwork goes on, it is likely that the hypothetical gap between aceramic and early Chalcolithic occupations in Cappadocia is getting controvert and that studies on material cultures from those earlier levels will deliver new evidences balancing our actual knowledge of Central Anatolian Pottery Neolithic, still mainly focused on the Konya plain and the Çatal Höyük long-standing excavation.

As far as pottery is concerned, we are keen to give an insight of our preliminary results, delivering aspects that are not encountered within Çatal Höyük's long archaeological sequence, hence showing the cultural diversity between the Konya Plain and Cappadocia.

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Earlier results about pottery productions at Tepecik-Çiftlik

Yet, this dichotomy was already visible within the later levels of Tepecik-Çiftlik (V to II) (Godon 2005, Bıçakçı *et ali.* 2007; Godon *in press*), with a graduation towards more interactions between Cappadocia and the Konya plain.

If levels V and IV potteries were definitively anchored in a Cappadocian tradition with some decors sharing similarities with south-eastern patterns rooted in aceramic Neolithic, potteries from level III, dated between 6400-6000 BC cal. (Bıçakçı *et ali.* 2007) are delivering evidences of new ties throughout Central Anatolia.

With the increase in Red Slipped Wares and storage pottery productions, new building methods like moulding are now attested (Godon 2010). Eventually, the most striking example of links between the Konya Plain and Cappadocia can be seen in the relief-decorated patterns ornamenting neck-jars[1]. From the wall paintings of Çatal Höyük to the figurative decors represented on those jars (as well as on the ones from Köşk Höyük[2]), the same attention is given to anatomical details such as bovid hoofs, human bodies in hunting position, loincloth tied with large belts (Godon *in press*). Let's simply underline that those central Anatolian bonds emerge while the Neolithic drives towards western Anatolia are at their climax.

Then, between 6000 and 5500 BC cal., a fast shift in pottery typology and technology is identified. Jars are gaining in volumes, carinated bowls appears, and burnishing processes as well as reduction cooking are now highly mastered.

However, it is the sudden occurrence of geometric incised decors, known in Cappadocia as the "Gelveri type" (Esin 1993), that marks the end of Tepecik-Ciftlik sequence up in the Chalcolithic, involving it within this tremendous

1 Lithic productions on obsidian showing bipolar technologies and bifacial points shaped on large blades are also technological marks shared between the two regions that still need further analyses.

2 See Öztan 2007

style harmonisation seen not only from Can Hasan IIB to Çatal Höyük but affecting Anatolia in its whole from Cilicia to the Balkans (Godon & Özbudak *to come*).

From this development, nothing was known about pottery production in Cappadocia prior to 6400 BC cal. Thus, the importance to embark on a study of the pottery corpus coming from the earlier levels.

The methodology applied challenges the traditional typological approach as well as wares classification based on ceramic paste variability and surfaces colours, two steps end to end of the ceramic production process (clay acquisition/preparation and cooking) which are the less easy to interpret due to the number of unknown parameters they result from.

Less identifiable but directly link to technological traditions, buildings methods are good marks to track technological evolutions that may be related to cultural ones. Following the pioneer works from M. Mauss (1936) and A. Leroi-Gourhan (1943) linking technological acts to the social organisation in which they are inserted, a new field of archaeological studies emerged. Conceptualize as a *system* or *technological system* (Lemonnier 1976, 1993), the relationship between the techniques and the social spheres can be infer through the analyse of the whole technological process or *chaine opératoire*, i.e. a series of operations leading a raw material to a construct state (Cresswell 1976)[3].

Archaeological context and pottery corpus of Tepecik-Çiftlik level VI

The specific development seen in pottery productions, far from being static in diachrony, somehow matches the variability in Tepecik-Çiftlik's settlement pattern throughout the sequence. To come down to a brief account of the general settlement characteristics, one should underline the total lack of continuity in the use of space within the architectural levels. Furthermore, as opposed to the honeycomb plans characterizing the aceramic site of Aşıklı and the one of Çatal Höyük, Tepecik-Ciftlik reveals individual structures

3 See also Roux 2003, Van de Leeuw 1993

separated by open areas. Thus, as far as the excavated portion of the site is concerned, the hold of buildings on open areas started, in a loosen form, in level IV. Before, in levels V and VI, no large structures were encountered but open areas dedicated to large shallow pits and short-term activities like obsidian tools shaping.

Level VI was excavated during summer 2010 on a limited surface, in order to get an understanding of the complete stratigraphy in the most accurate excavation sector, namely 16K trench (Bıçakçı, in this year *KST*). If the surface is quite restricted, the stratigraphic context is well secured by a horizontal layer of clayish mud sealing the lower sub-levels of occupation.

A total of 4685 individual sherds were preliminary analysed, coming from 128 archaeological units dispatched between trenches 16K, 17K and 17J, in order to get a broad reference that could confirm the homogeneity of the level VI trench 16K assemblage or invalid it. On this scale, before undertaking the detailed analyse of the 16K samples, we could discard the risk of representativeness bias, as we could not find any significant deviations in the typology and in the main technological characteristics. However, parameters like presence of Red Slipped potteries and Black Burnished Wares do confirm the tendency revealed in levels V and IV. This two stylistic groups related to specialize finishing and cooking processes are almost absent in level VI, found in the shape of tiny eroded pieces that might well come from upper levels by taphonomic processes and the long utilisation of this open area up to level III. It is only from the beginning of level III, around 6400 BC cal., that Red Slipped Wares are found in significant amount. The same can be said for the Black Burnished Wares[4] as well as the reduction type of cooking, which are rather scanty in level VI. Eventually, this confirmation of BBW and Red Slip near absence in Tepecik-Çiftlik's earlier levels reinforces the notion of a major cultural development after 6400 BC cal. seen in level III.

The analyse of Level VI, trench 16K ceramic assemblage, preliminary results.

4 We strictly restrict the definition of BBW to its technological aspects: identification of highly invested surface burnishing followed by a definitively controlled cooking in reductive atmosphere in order to obtain a black coloration of the paste.

This analyse followed two axes: the study of the *chaine opératoire* on a macroscopic and mesoscopic scale and the study of the typology. The corpus at hand, after excluding typologically and technologically undetermined sherds from the database, is up to NI 349 individuals. Typological and technological parameters were record on Excel, each entry corresponding to one individual sherd. Documentation is realize by Photoshop drawing and details macro photos of technological marks illustrating the drawings.

Technological marks recorded include the composition of ceramic pastes, the building methods, surface treatments methods and variation in cooking atmospheres.

After a presentation of the typology, we will apprehend the different technological marks following the *chaine opératoire* phases.

Typology

Unlike the variability in shapes and volumes appearing in level IV and increasing up to level II, Tepecik-Ciftlik's early pottery productions is dominated by three main types (graph. 1): large open pots (B6b), straight wall pots (DR) and large bowls with restricted rims (A1b). Straight wall pots present frequently a single ribbon around the rim, less than an inch under the lip (fig. 1a-b, fig. 2a, fig. 3a-d).

In less amount are also present small closed bowls (B6a), trays (B3), and basins (B4); cups (B5b) and hole mouth pots (A2; fig.5a). The state of fragmentation do not allow to draw a clear picture of the variability among those types however, the repertory of shapes clearly indicates plain forms with simple delineations, a trend which will disappear with the emergence of carinated necked jars at the beginning of level III.

As for the decors, the few evidences at hands show already the presence of wipped-back or applied thin coils, mainly chevron layered on two or three rows, a common pattern up to level IV.

Shall we speak about a very specific pottery production for the early Neolithic levels, showing cultural traditions which are not any more present in upper phases? Concerning the typology, it would be better to speak about a development towards more variability, going with developments in cultural and economical behaviours such new storage systems more dependent on potteries, an increase in place devoted to culinary practices and a realigning of the iconography in the form of figurative decors similar to the wall paintings seen at Çatal Höyük (Godon in press).

Clay acquisition and paste preparations

As far as clay acquisition strategies are concerned, one should keep in mind two parameters, namely the geological one and the cultural one. In a micro-region were various geological contexts are predominant and well-identified, petrographic analyses may help to differentiate specific areas for clay procurement. However, it is only if those different clays are related to specific types of potteries and/or technological processes that one can assert that choices were done to fulfil technological goals. Otherwise, interpreting variation in clay geological properties coming from the vicinity of the production site faces the countless possibilities arising from cultural and daily social activities. Without listing the many beliefs and taboos related to human behaviours *versus* environment, let us keep in mind that basically, clay procurement can be a secondary task determined by primary activities such as harvesting or cattle breeding watches. In those cases, clay procurement sources will change according to the primary task locations (Gosselain 2002)[5]. In the case of the Melendiz plain, clay beds are easily found on the Melendiz riverbanks and its tributary watercourses. The hydrographical system draining water from the surrounding massifs is dense and, maybe contemporary with Tepecik-Çiftlik occupation, a lake was flooding the western quarter of the plain. Geological cores indeed reveal clay presence under the actual level of

5 See also Degoy 2005; Dietler & Herbich 1994; Gelbert 2003; Gosselain 2000; Livingstone-Smith 2000; Stark *et ali. 2000*

the plain. However, their secondary positions among alluvial deposits make it almost impossible to track their location from archaeological material to specific spots in the plain. The slight variation in clay represented among the corpus may well be due to local changes induced by water drainages. A deep sounding at the höyük's southern foot reveal a natural geological substrate rich in clay deposits. Experimental works realized with this clay prove its suitability for pottery production. This clay, like all the ones collected in Melendiz plain, comprise a high percentage of sandy volcanic tephra inclusions. It induces an important degree of shrinkage during the drying of the pots, giving way, at least, to micro-cracks if not major breakage during the cooking process. It could have been a technological reason for the adding of organic tempers during paste preparation process.

Tempers

As for clay acquisition, the preparation of the paste does not always follow a technological or utilitarian determinism. Numerous ethnological studies shed lights on the cultural and symbolic dimension of tempers in the clay (*Op. cit.*). However, unlike Mesopotamian Neolithic pottery assemblages as well as Çatal Höyük's one in the Konya plain, Tepecik-Çiftlik potteries display a rather long constancy in the use of organic (mostly grass and hay bale) as clay temper. This parameter could be a sign of technological tradition stability but also a technological answer to raw clay constraints. As shown by the experiments, as far as the collected clay samples are concerned, the density of thin mineral fractions in the Melendiz clays require a specific preparation of the ceramic paste to avoid cracks while cooking. Our experiments show that adding a minimum of 25% of vegetal to the clay, following the archaeological examples, redress this problem. Both the building process is made easier by a better water retention, reducing shrinkage and micro cracks, and cooking, tested up to 760°C in open fire, were completed without any accident.

Level VI ceramic pastes are roughly showing the same types and repartition percentage than in later levels. First of all, vegetal temper stand out among the

corpus, 1% only being exempt of organic material and 7% being tempered with cow dung, a trend which is followed up to level III were it tend almost to disappeared. Repartition of this type of temper, both in term of techniques and typology, do not point out a particular production. If burnishing is more frequent than other surface treatments, it is encounter with the other types of tempers as well.

As for the majority of vegetal tempers, the variability concern the size and the amount include in the clay. As a rule over the corpus, the more pottery walls are thin, the less and fine will be the vegetal temper. The one percent of vegetal temper plus mica temper concerns two of the few Black Burnished Wares of the level VI corpus. The almost systematic use of mica temper for the Black Burnished Wares appears only in level II, after 6000 BC cal. when BBW product reach a perfect degree of mastery.

Building process

Two main phases are distinguished for the building process: the building of the volume, than its definitive shaping. According to the chosen methods, these two phases can overlap each other's, especially in the case of complex shapes on big volumes. To identify the complete building process is a task requiring a very well preserved corpus with a sufficient amount of complete potteries or complete profiles. Like in the case of Level VI corpus composed of fragmented potteries, the identification of the building process can only be done by distinguishing technical marks composing stages of the process. Their recurrence in both number and typological correlation can be evidences of technological tradition. The second issue is their representativeness, as only a few percent of the ceramic sherds will undoubtedly present significant technological marks. The interpretation of the building processes among a corpus will thus depend on representatives relevant marks.

The 16K sample analyzed reveals significant technological marks on 90 individual sherds, showing at least eight different techniques that should not be

considered each as building method in itself but part of different technological actions forming a couple of methods (graph. 2). As an example, technological marks identified on bases can only be considered as a technological sequence, part of the building method.

Technological marks on pottery bases

Where a few of the bases superior to 15 cm in diameters show on their external surface irregular negative ground prints, most of the sherds large enough to be analyzed do show evidences of concave or convex supports. Those supports should be considered as static and regular work surfaces on which bases of potteries were shaped. Sections of the bases present a specific curved delineation with a central curvature point at the middle of the base radius. The most probable type of support could have been a broken pottery, its bottom used to shape the base of a new pottery. In those cases, the external face of the pottery base presents a regular surface texture without any digit or scraping-smoothing marks. When such un-worked and smooth surfaces are found on the bottom of the pottery, with the curved delineation of the section on the inside, it is seemingly that the base was shaped on an upended pottery (fig. 3d).

As we mainly have fragments of potteries whose small sizes do not permit a systematic diagnostic, it would be simplistic to shorten the possibilities to those only ones. However, such recourse to pottery bottoms as a matrix for shaping new ones flat bases disappear in later levels in favour of moulding inside basketry (Godon 2010). Two example of basins bases set-up on weaved mat are worse to mention as they are the unique evidences of such a recourse to mats between the ground and the pot in the whole Tepecik-Çiftlik's sequence (fig. 5a)[6].

6 Aşagı Pınar (Thrace) ceramic corpus deliver a wide example of mat impressions on pottery bases (Özdoğan 1999, 2007).

Slab building

Almost 30 sherds from individual pots present characteristics of slab building methode. This methode is identified by the presence of junctions around the circumference of the pottery walls[7]. To main techniques are visible: a joint between the circumference and the added part overlapping completely the inner and external sides of the pot circumference (fig. 6b); and a junction showing the plating of the slab's lower part on the inner side of the pot (fig. 6d).

In the first case, traces of digital pinching all over the pottery wall indicate a far reaching stretching of the added slab which can signify the application of a thick slab, thin down while being stretch-up.

In the second case, added slabs do not show specific stretching marks and are add almost in their final high and thickness.

Coil building

Also identified on a relevant amount of individual sherds, evidence of coil building is the second building method largely used among level VI ceramic corpus. Recognize in sections or on broken junctions, they are differentiated from slabs junctions both by the preparation of the juncture surface and the limited spacing between two junctions (fig 6a.c). The rim receiving the coil is ridge shaped, the coil gently covering and overlapping it both from the inner and outer sides. No strong pressure is applied on the junction, as shown by the very clear demarcation between the superposed coils.

Pinching and beater methods

Pinching describes the digital action of pressing the paste, while giving it uplift dynamic. From a single core of ceramic paste, one can build-up a complete pottery by digging in it, applying vertical and internal pressure, then pinching the walls in order to bring-up the paste and lift-up the pottery

7 See Martineau 2005.

(fig. 1c). This method is used for both complete building of a pottery or step in the building process for elongating and shaping coils for example (fig. 1a, 4b). When no marks of slabs and coils junctions can be identify on sections, especially in the case of small volumes, pinching method, if identified by irregularities in section delineations and by negative digit prints, can be assess as the main technological process involve.

As for pinching, the beater method is mostly part of a more complex building process (Martineau 2005). The pottery is roughly build, at least the initial depression, than the walls are elevated by beating them from the outside with a beater, the free hand being used as an anvil in the inside of the pottery. This method can also be used for shaping the pottery after building-it up. Technological marks are of two kinds:

1- Large depressions on the inside and outside of the pottery walls, showing in negative the places of the anvil and the locations of the beats on the walls (fig. 1b).

2- Vertical stratified organisation of the clay, visible in section, due to the difference of paste compression between wall surfaces and internal part of the pottery walls.

Shaping processes

After buiding-up the volume, the shaping process consists in giving it its final shape. Frequently building techniques and shaping ones are overlapping each others; especially the use of beater and pinching to constraint the ceramic paste to takes its final shape. Scraping the paste is also frequent, as seen in level VI corpus. Scraping marks are characteristic, occasioning streaks and thin parallel grooves on wet clay. This can be the result of clay removal to thinner the pottery walls but also the evidence of a potter's tool motion on the pottery to shape it by perpendicular pressures. Such tools are found all over Tepecik-Çiftlik's sequence in the form of shaped sherds presenting used and smoothed surfaces of utilization (Godon 2010).

Surface treatments

Extern and inner surface treatments are dominated by smoothing, mainly horizontal motioned ones. On external surfaces, the smoothing occurs mostly on leather hard paste, occasioning a very homogenise and hard finish (fig. 3a). On the inner part of the walls, when dealing with closed pots, the smoothing is rather a simple regularisation of the surface done while the paste is still wet.

If one should underline surface treatment specificity for the level VI, it would be the few but striking vertical or oblique smoothing realized on leather hard paste, leaving very clear marks on the surfaces (fig. 3b-d, 4a).

Burnishing occurs as well, but if technically the burnishing is attested, its aim is not to cover with care the whole surface in order to give a visual polish effect, in opposition to the ones appearing in Level III and II.

Red Slipped are also present, consisting on a very thin coat highly polished after drying, a trend that will diminish in later levels in favour of a coarse and thick slip coat.

The very few scraping marks left after surfaces finishing show that the overall level VI ceramic production received a specific investment in surface treatments, erasing most of the shaping marks and providing a high degree of surface homogeneity, a parameter that will be more balance in later levels.

Cooking processes

Final oxidation of the surfaces dominates the assemblage, a fact that goes on in later levels. Variation between internal and external oxidation is not pertinent enough in term of choices and links to specific productions to determine if it is a voluntary control of cooking atmosphere or a simple result of potteries disposition in the fire inducing involuntary reductive atmospheres on some pots.

Total reduction atmospheres are attested for 20% of the corpus, showing enough homogeneity in reduction of the pottery surfaces to state that control

of cooking atmosphere was already present in Level VI. However, it do not reach the level of reduction inducing real black pottery surfaces as it can be seen in level II.

Conclusion

The level VI corpus still needs to be widened in order to bring convincing representatives variability among the typology and the techniques. Yet, the 16K trench earliest potteries display sufficient information to draw some conclusive remarks:

The typology repertory in level VI match the one from level V and VI, and if simple shapes are not of great help for chrono-cultural comparisons, the straight wall pots with ribbon rims are, eventually, the most recurring typological characteristic throughout level VI up to level IV. We can underline as well the absence of jars, carinated pots, red slipped wares and highly invest burnishing on the few black potteries, even if technologically speaking, both burnishing and reductive atmosphere cooking were already mastered.

The technology itself show a specific characteristic in the recourse to coiling building techniques, a method which will clearly subsides throughout level IV and almost disappeared in Level III, to the advantage of slab building and moulding methods. However, the two latter methods are already present in Level VI, contradicting the idea of a clear shift in technological traditions between the earliest levels and the later ones.

No straight cultural parallels can be stressed between this earlier Cappadocian production and the one in the Konya plain however, the presence of two pieces of "husking trays[8]" between levels VI and IV, as well as geometric decor patterns and stylized snake patterns (Bıçakçı *et ali* 2007; Godon *in print*) might be a hint leading to a more close relationship between Upper Mesopotamia and Southern Cappadocia during the Pottery Neolithic.

8 For a technological definition of the tools grouped under the "husking tray" terminology, see Kılıçbeyli 2004.

Far to be an assertion, this hypothesis would need a lot more evidences coming from fieldworks covering the wide area merging the Aladağları to the Anatolian plateau.

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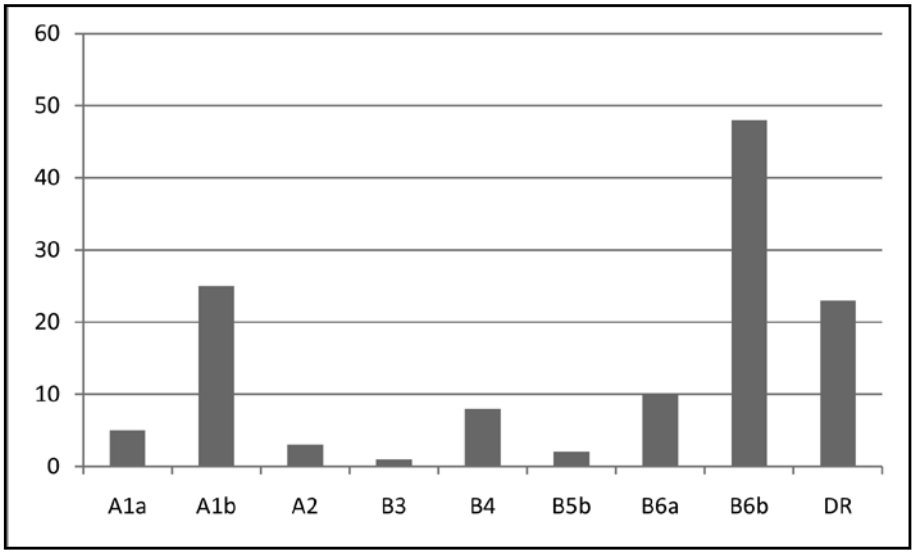
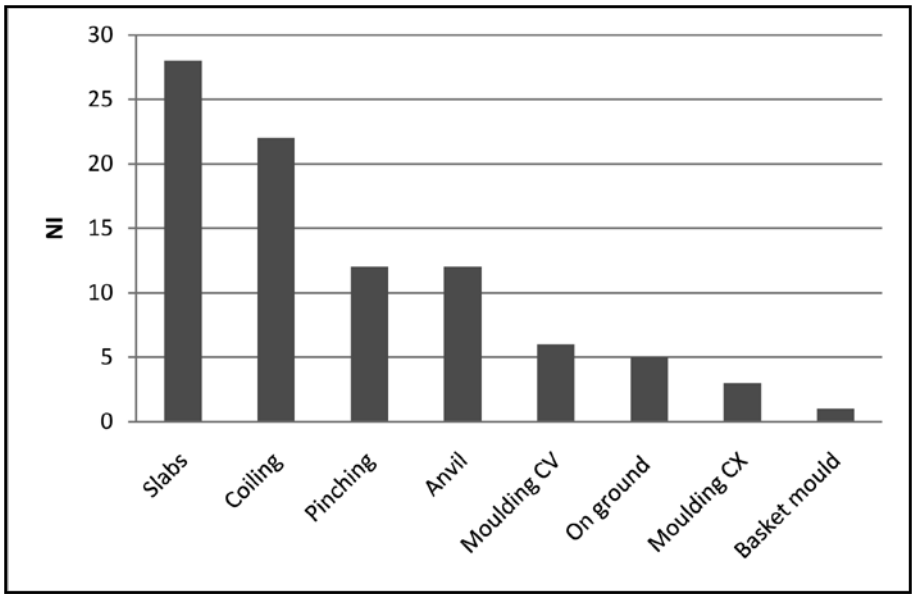


Graph 1: Typology in NI. A1a : Close bowl ; A1b: Close pot; A2: Holemouth; B3: Plate; B4: Bassin; B5b: Cup; B6a: Open bowl; B6b: Open pot; DR: Straight Wall pot.



Graph 2: Building Methodes in NI.

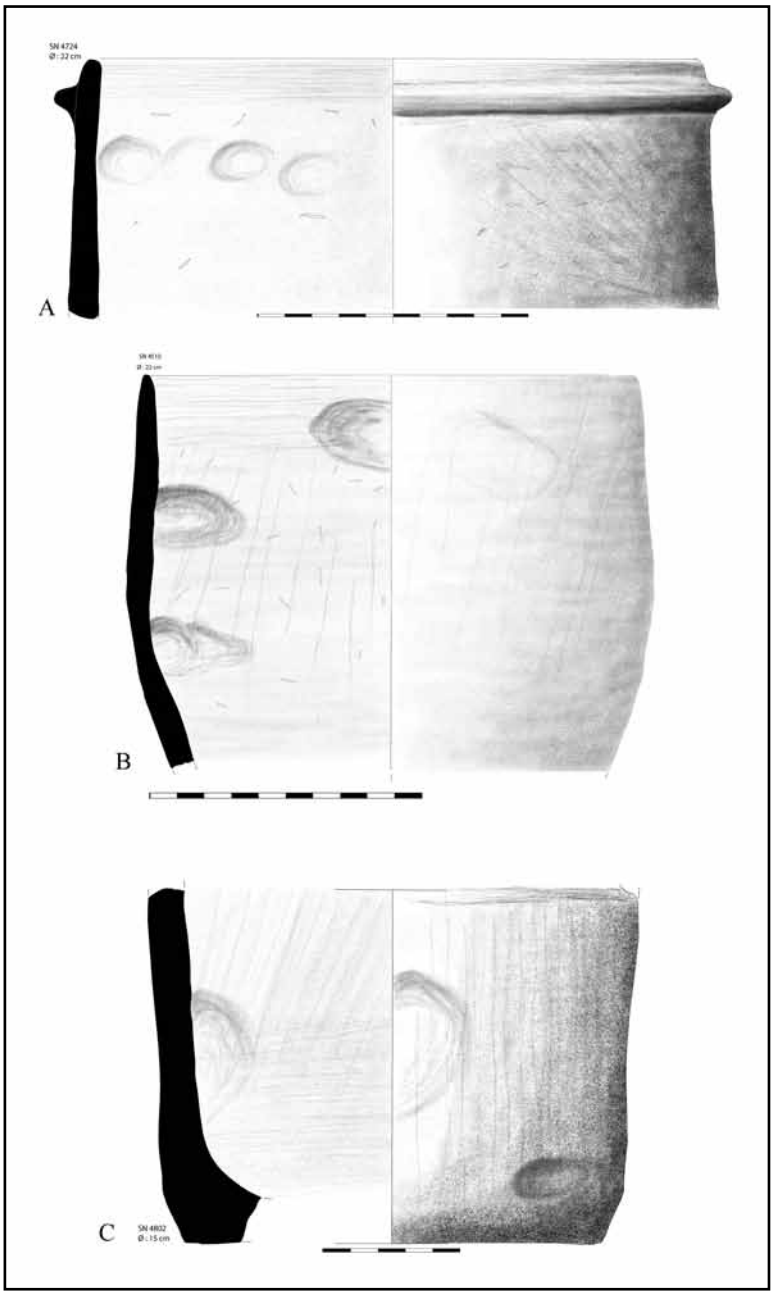


Fig.1: A: Straight Wall pot with rim ribbon; B: Straight Wall pot with beating marks; C: Bowl with pinching marks.

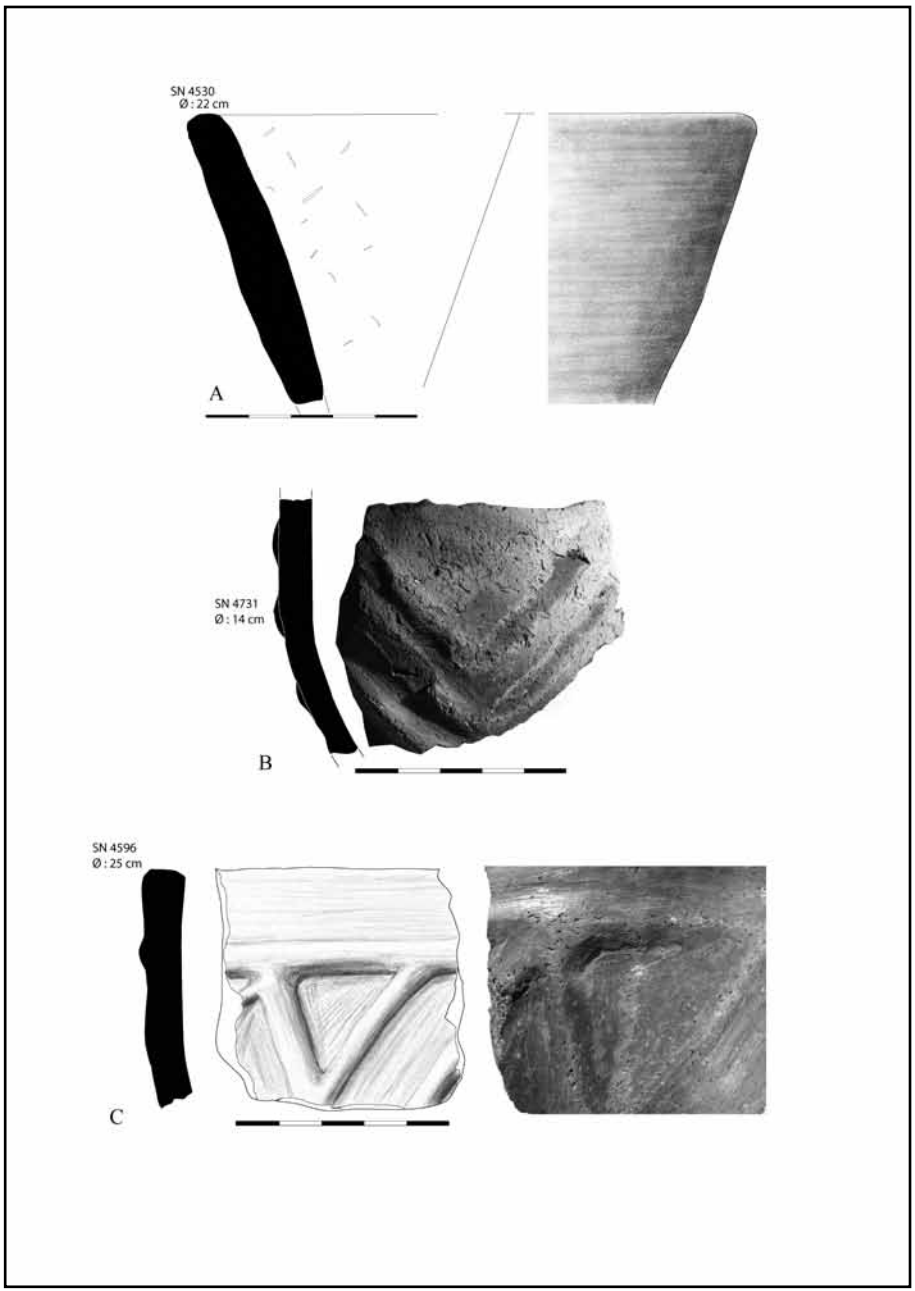


Fig.2: A: Open pot; B: Applied chevrons on bowl; C: Wipped-back triangualr decor on straight pot.

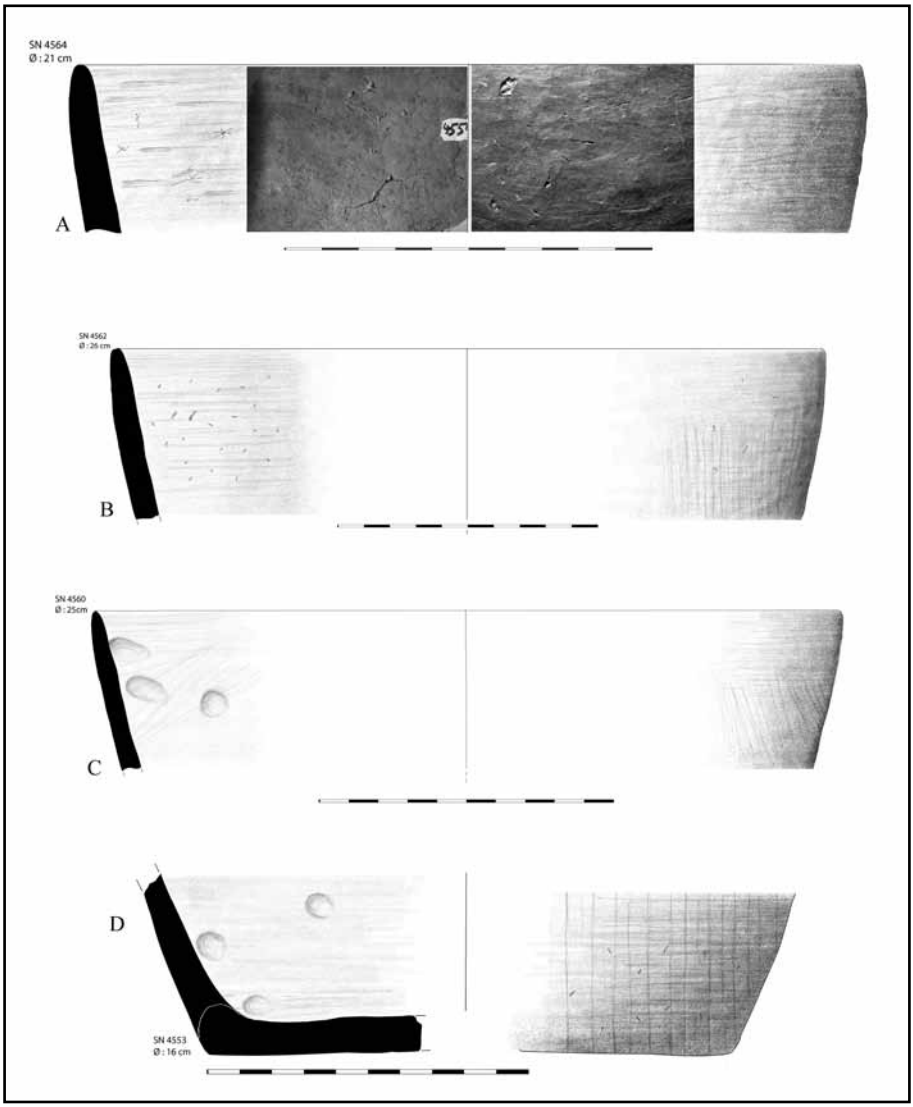


Fig.3: A: Open pot with leather-hard smoothed surface; B: Open pot with vertical leather-hard smoothing; C: Open pot with pinching marks; D: Base presenting one slab layer and pinching lifting-up marks.

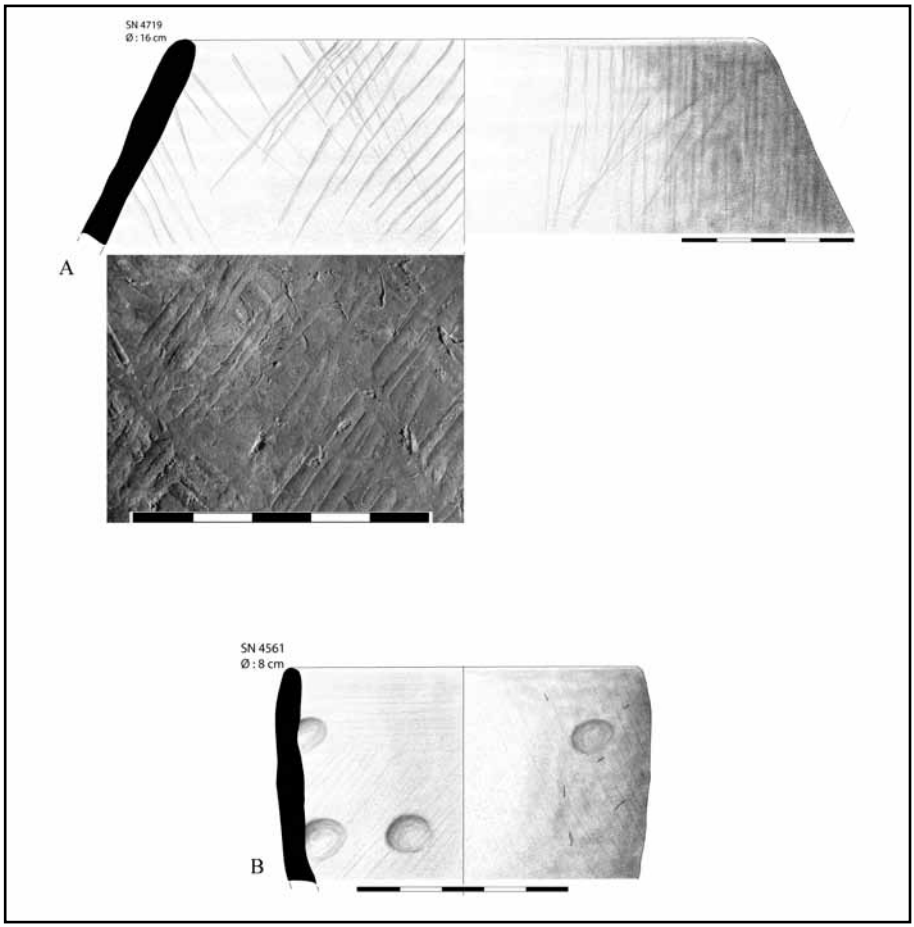


Fig.4: A: Cross-pattern's oblique smoothing marks on leather-hard surface; B: Bowl with pinching marks.

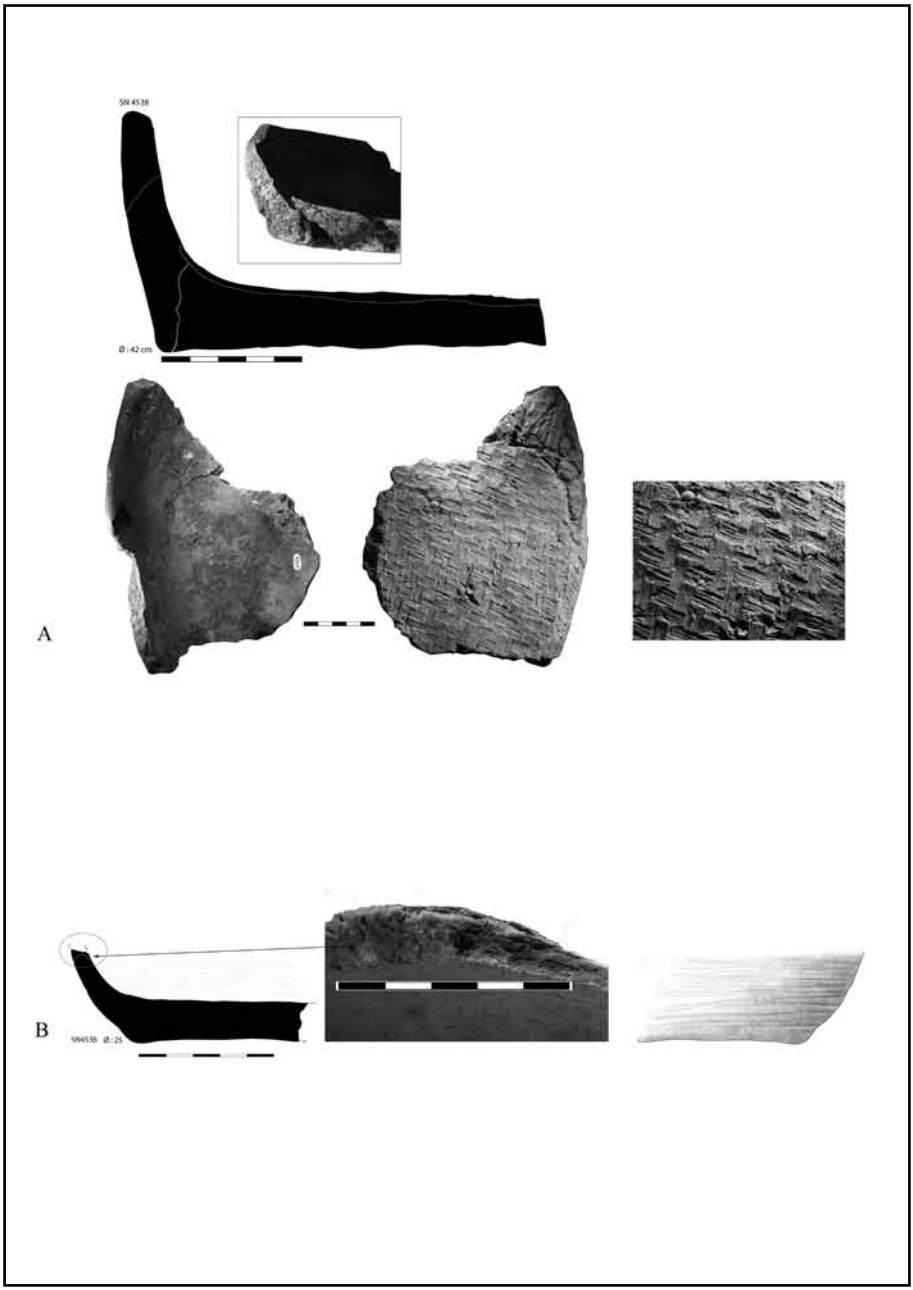


Fig.5: A: Bassin build-up with one layer of slabs plus a terminal one of coil, with weave-mat prints on the bottom; B: Base with a coil junction.

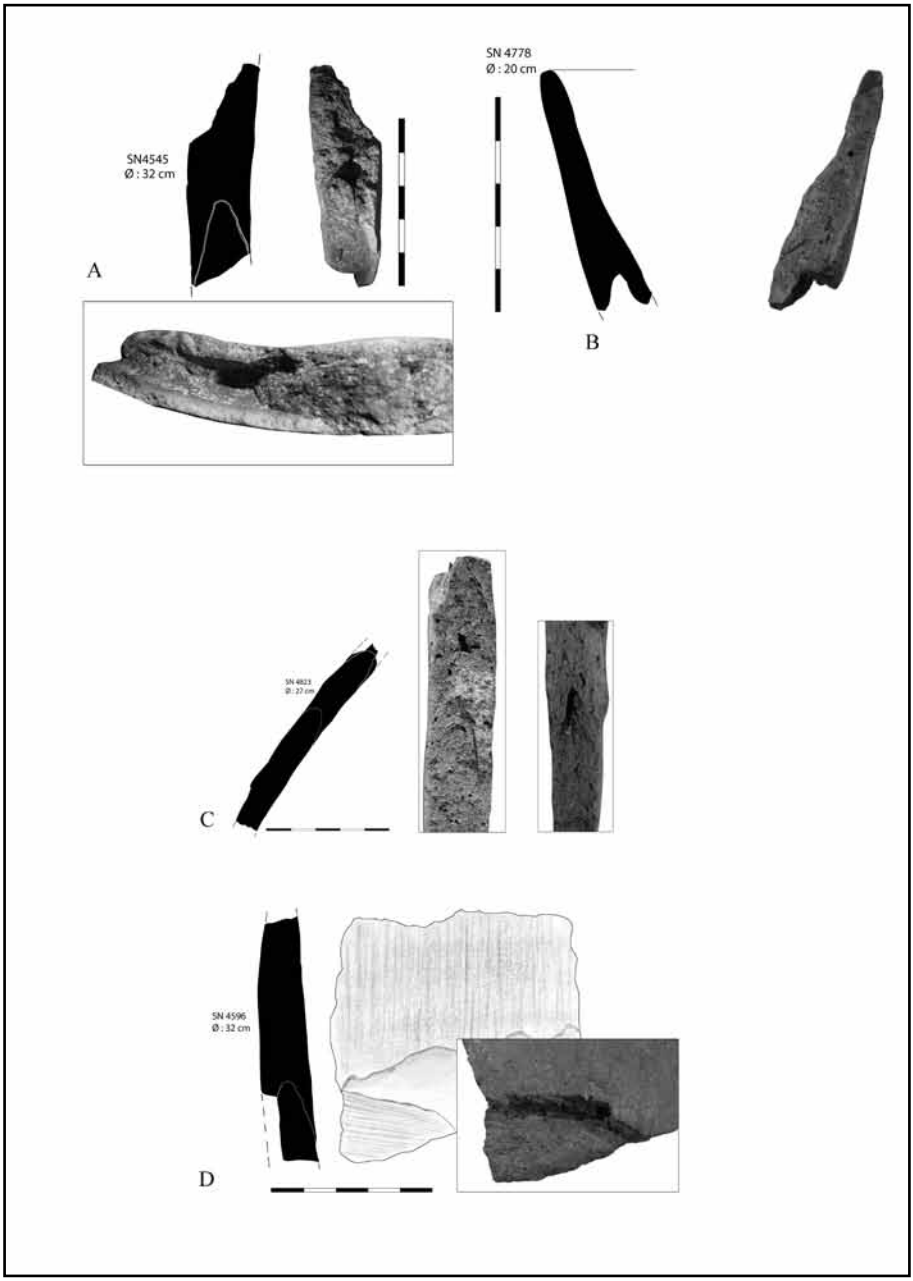


Fig.6: A: Sherd with a coil junction; B: Overlapping junction of a slab; C: Three coil's junctions on a sherd; D: Superposition of two slabs.