Ristvet, L. and H. Weiss, 2000 *Orient-Express* (Paris) 2000.4: 94-99

Imperial Responses to Environmental Dynamics at Late Third Millennium Tell Leilan

Lauren Ristvet and Harvey Weiss,
Tell Leilan Project,
Yale University, New Haven CT 06520-8236

The Tell Leilan Project's regional survey (1984, 1987, 1993, 1995, 1997) seeks the interrelationships between dynamic environments and human settlements during the last 10,000 years in the area from the Turkish border to the Wadi Radd (Figure 1). The ca. 30km survey transect crosses ecotones and climate micro-regions, from the present 500mm isohyet in the North to the 300mm isohyet in the South---but these values changed considerably during decadal to centennial scale climate changes of the Holocene. The dynamic Holocene precipitation and temperature affected vegetation, agriculture, and human settlement choices and patterns such that "habitat-tracking" was one of several adaptations to environmental changes (Weiss 2000). During the Akkadian/Post-Akkadian period, for example (Figure 1), paleoclimate proxies document annual precipitation that varied significantly from instrumental and present-day records. Period-wise settlement distributions along these dynamic isohyet gradients are now being analyzed within the Tell Leilan Project survey area.

Tell Leilan Excavations 1999: Leilan IIb1-3

A dramatic response to abrupt climate change is also recorded in the Tell Leilan excavation record for the late third millennium. The May-June 1999 excavations at Tell Leilan comprised a 600m² area directly east of the 1993 excavations on the Acropolis Northwest. The excavations exposed the major period IIb (2300-2200 BC) occupation, and traces of periods I (1900-1728 BC), IIa (2400-2300 BC), and modern village pits. The recovery of the complete architectural plans for two period IIb buildings (Figure 2), the western parts of which were recovered in 1993, allowed us to further refine the buildings' chronology and imperial responses to abrupt climate change during this period.

Three phases of these buildings' construction and habitation are now understood. Traces of the preceding period IIa walls supporting the initial construction of these buildings were exposed but only explored to reveal the history of IIb construction. For the most part, these period IIa walls were leveled and their rooms filled in to create a new construction surface.

Period IIb1, the earliest phase explored, has a northern mudbrick building, the *Akkadian House*, built of two rows of 37 X 32 X 8 cm dark red bricks, approximately 75cm thick, enclosing an area of approximately 20 meters from east to west. The clay used for these bricks came from calcic horizon virgin soil procured from outside the occupational area of Leilan. These walls enclosed a kitchen area, containing tanurs (in addition to the one excavated in 1993), a clay grain silo, mortars, several smashed storage jars, as well as complete stone and ceramic bowls. The floor surface of period IIb1 was paved with baked bricks (both whole, 30 X 30 cm and half, 14 X 30 cm, bricks were used) and stones, placed over truncated IIa walls; later, plaster floors were added. A tanur and grain silo are the two features related to this phase.

The walls were reused during the second phase, ***Period IIb2,*** but in this phase, the floor surface was stamped earth. Some of the earlier features were probably reused during this phase, but the earlier tanur was abandoned in favor of two new ones. Additionally, a packed clay feature, containing about 20 clay balls was constructed during this phase. Seven Akkadian sealings (studied by Elena Rova, Universita di Venezia) and a tablet fragment (studied by Lucio Milano, Università di Venezia), were recovered from the floors and tanur, indicating bureaucratic control over Akkadian House activities. To the north of this room lies an outdoor surface, where the same two phases were observed. This probably represents a narrow path or street between the kitchen installation and the Acropolis wall.

Period IIb3, the latest IIb phase, saw the partial construction of a large building with dressed basalt foundations to the south of the *Akkadian House*. The western wall of this *Unfinished Building* lies at an odd angle to the house, while its construction seems to have disturbed some of the house's later floors. The basalt foundations, thick walls, large rooms, and administrative artifacts dumped onto unfinished floors (tablet fragments, studied by Lucio Milano, Università di Venezia, and punctated clay balls) suggest that this was an imperial project of large scale. The Unfinished Building measured 14 meters from east to west and 9.6 meters from north to south.

The *Unfinished Building's* exterior walls are 1.86m thick. These walls are built out of roughly worked, basalt boulders, topped with a surface of mud plaster and carefully-laid large potsherds (Figure 3), as well as, in some cases a few courses of calcareous, red mudbrick (35 X 35 cms) (Weiss 1997: Fig. 25). The western wall of this building also had a few baked bricks placed between the boulders and the mudbricks to level the intended brick wall construction.

Several basalt boulders, were situated to the southeast of the building near a partially built wall abandoned several meters from its corner wall. These basalt boulders were in various stages of preparation, some already worked into usable blocks, some with visible chisel marks but not yet a usable shape, and some still unworked. Similar boulders were found to the west of this building in 1993.

Adjacent to the unfinished building, bordering its eastern wall, a 2.8 X 2.7m plastered foundation deposit pit was found in a period IIa leveled wall. This deposit contained three bronze pins, several bone, frit, and shell beads, three grinding stones, as well as nineteen whole or reconstructable period IIa vessels (fig. 4: 1-2). The deposit at least superficially resembles those recovered from pre-Akkadian/Early Akkadian contexts at other Northern Mesopotamia sites, such as Brak and Taya (Matthews 1994; Reade 1968). This wall foundation deposit, as well as the size and height of the period IIa walls, suggests that the massive unfinished period IIb/Akkadian building was placed atop a similarly massive IIa structure.

A large contemporary ditch oriented northeast-southwest, following and cutting period IIa walls, lay directly east of these two buildings. The ditch was deeper than 2.5m below the IIb construction surface and extended throughout the remaining occupation site and to the unexcavated area to the east across at least 20 x 25m. This ditch may have been an uncompleted foundation trench for another uncompleted building, or it may have been defensive, protecting the eastern flank of the unfinished building, as the Acropolis wall protects the northern flank of this building.

Tell Leilan 1999 Period IIb Ceramic Assemblage

The 1999 season at Tell Leilan offered an opportunity to sensitively define the characteristics of IIb (Akkadian) pottery on the Acropolis Northwest. Fine-tuning the

chronology of late third millennium pottery in Northern Mesopotamia has presented difficulties (Bretschneider and Jans 1997: 135) including only gross chronological control in surveys of the region (Wilkinson and Tucker 1995; Eidem and Warburton 1996). Archaeological and epigraphic data each document elements of the Akkadian imperialization and sudden abandonment of northern Mesopotamia during this period, hence fine ceramic chronology would permit finer regional documentation of these processes.

The 2,046 third millennium diagnostic sherds retrieved during the 1999 excavation add to the ceramic documentation from the 1989 excavation of the Lower Town (Operation 5) (Weiss 1989; Senior and Weiss 1992) and 1993 excavation at the Acropolis Northwest (Ristvet 1999). 370 of the sherds retrieved in 1999, those found lying on both the floors of the Akkadian House, a IIb food preparation facility, and the adjacent area, were analyzed in detail.

255 of these 370 sherds are rim sherds, 106 are base sherds, and 9 are decorated body sherds. The four most common rim types for fine wares in this assemblage were: open simple rims (n=58, 22.7%, Figure 4:7), open pinched rims (n=18, 7.1%), closed, slightly inverted simple rims (n=10, 3.9%, Figure 4:5), and open, beaded rims (n=9, 3.5%, Figure 4:3). Similarly, the four most common rim types for medium wares were: closed, everted beaded (n=18, 7.1%, Figure 4:6), open, collared (n=12, 4.7%, figure 4:4), closed, inverted rims (n=12, 4.7%, figure 4:10), and closed and slightly cocked rim (n=11, 3.9%, figure 4:8). Fine versus medium ware was calculated according to amount of temper and sherd thickness. Fine pastes were designated as those with very little or no temper, with grit or straw particles <.5mm. Medium pastes were designated as those with little to moderate temper, with most grit or straw particles between .5 and 1mm. The overwhelming majority of IIb bases were flat (n=95, 90%), of these almost half were string-cut (n=41, 39%). About 10% of these sherds were decorated, usually rather carelessly (n=40, 10.8%). The three common motifs were, incised horizontal lines (n=18, 6.7%), four lightly incised, undulating lines (n=7, 2.6%), also common in levels VIa and b (late third millennium) at the Kuyunkik Gully Sounding (McMahon 1998: fig.25, 26, 27) and Taya VII (Akkadian) (Reade 1968: 254), b) and a braid-like, twist appliqué (n=7, 2.6%, Figure 4:11). These three elements often appeared in combination. Sila bowl base and rim fragments, which are ubiquitous in the Lower Town during this period (Senior and Weiss 1992), were also found on the Acropolis for the first time (n=8, 2.2%, Figure 4:9).

Comparing these sherds to 317 sherds similarly recovered from IIa floors in a storehouse in square 44W13 in 1993 at the Acropolis highlights several differences between Leilan IIa and IIb pottery. The key distinguishing characteristics that emerged from a statistical comparison of IIa and IIb diagnostics are: 1) a change from round or pedestal to flat bases (Figure 3: 1 and 2), 2) a change in medium ware rim types, as none of those cited for IIb are common in the Leilan IIa assemblage, 3) an increase in decoration, the introduction of the braided-rope appliqué motif, and 4) signs of hurried manufacture: including fewer smoothed sherds, more fingerprints, more wheel rills, and more trimming marks. In both periods, simple rims, or pinched simple rims dominate the assemblage. Additionally, ware types change only slightly from IIa to IIb. In both periods, light buff wares dominate, although more green and red wares are used for the IIb pottery, echoing the situation at Beydar (Bretschneider and Jans 1997: 135). Finally, firing practices also remain constant from one period to the next, with approximately the same proportions of both under and over-fired pottery in both assemblages. Further research aims to investigate ceramic variation

during the three occupational phases of IIb, as well as spatial variation of ceramics to delineate activity organization within the *Akkadian House*.

Conclusions

This excavation confirms and clarifies several previous interpretations of Leilan and Habur Plains history. First, the presence of large period IIa walls suggests an eastern extension to the ritual quarter excavated in 1993. Further excavation may reveal the large building that provided the foundation for the Akkadian *Unfinished Building*. As one of the leveled walls for this building stood to a height of nearly two meters, such excavation is expected to reveal well-preserved buildings.

Second, documentation for the Akkadian imperialization of Tell Leilan is refined by the several Akkadian clay sealings and tablet fragments synchronous with administrative and settlement changes (Weiss 1997). The three sub-phases of period IIb Akkadian occupation indicate the duration and intent of the Akkadian presence while the construction of the Unfinished Building with its dressed basalt boulders and defensive ditch document the mobilization of a large work force.

Third, the mid-construction abandonment of the *Unfinished Building* in period IIb3 emphasizes the socioeconomic impacts of the synchronous abrupt climate change (Cullen et al 2000) upon Akkad and the Akkadian imperialization of Subir.

Acknowledgments. We are grateful to the Directorate-General of Antiquities, Damascus, for coordination and administration of Tell Leilan Project excavations and surveys, and to Maryam Bshesh for her special contributions to the 1999 excavations. Additionally, the results reported here are the product of the devoted labors of Heidi M. Cullen, Francesca deLillis, Ulla Kasten, Torben Larsen, Ed Lupyak, Lucia Mori, Gul Pulhan, and the brilliant workmen of Tell Leilan village.

Figures (click to jump to figure)

Figure 1: Habur Plains, Northeast Syria, urban settlement system from 2300-2200 B.C. Circles indicate probable areas of agriculture and herding sustaining each city. The circle enclosing the Leilan region also indicates the approximate boundaries of the survey area. Diagonal lines are elevations ≥500m above sea level; dotted lines are precipitation isohyets in millimeters, a 30% reduction from present-day, derived from the stable isotope record at Soreq Cave (Bar-Matthews and Ayalon 1997; Bar-Matthews et al. 1999). Large circles are sites from 50-100 hectares. Medium circles are sites from 25-50 hectares. Small hollow circles are sites less than 10 hectares.

Figure 2: Tell Leilan 1999, Acropolis Northwest, Period IIb2-3 architecture, view from north.

Figure 3: Tell Leilan 1999, Acropolis Northwest, Period IIb3, Unfinished Building, dressed basalt wall foundations with prepared potsherd surface.

Figure 4: Common IIa/IIb Base, Rim and Vessel Types. Scale 1:4.

1: 44X16. Period IIa goblet with beaded rim and pedestal base; uniform buff (10YR6/3); fine ware with grit temper; no slip; rim diameter: 9cm; base diameter: 5cm; wheel-made.

2: 44X16, Period IIa round cup with simple rim; uniform cream (10YR8/1); self-slip; fine ware with grit temper; rim diameter: 6.5cm; wheel-made.

3: 44W16, Period IIb beaded rim; uniform brown (10YR7/3); no slip; fine no visible temper; fingerprint on interior; rim diameter: 12cm; wheel-made.

4: 44W16, Period IIb open collared rim; uniform brown (10YR7/4), self slip; medium straw temper and lime pops; rim diameter: 15cm; wheel-made.

5: 44W16, Period IIb bowl with closed, slightly inverted, simple rim and flat base; orange buff (5YR6/6), self-slip, fine straw and grit temper; trimming marks on exterior wall; rim diameter: 14cm; base diameter: 5cm; wheel-made. (Fielden 1977: XI 15, 16; Numoto 1990: Fig. 8, 133).

6: 44W16, Period IIb closed, everted, beaded rim with neck; green buff (5Y8/2); fine grit temper and lime pops; rim diameter: 13 cm; wheel-made. (Lebeau 1993: Pl. 141: 22).

7: 44W16, Period IIb bowl with open, simple rim and string-cut base; uniform buff (7.5YR8/2); cream slip (10YR8/2); fine straw and grit temper; fingerprints on interior of base; rim diameter: 11cm, base diameter: 4cm; wheel-made

8: 44W16, Period IIb closed and slightly cocked rim; green interior (5Y8/3); brown slip (10YR7/4); medium grit temper; trimming marks on exterior wall; rim diameter: 34 cm; wheel-made.

9: 44W16, Period IIb sila bowl base; flat but slightly “sucked-up”; uniform green (5Y8/3); clinky ware; very fine grit temper; base diameter: 4.5 cm; wheel-made. (Oates 1982, Fig 1: 11-13).

10: 44W16, Period IIb closed, everted rim with neck; pinkish brown (7.5YR7/4); exterior cream slip (10YR8/1); wall trim; rim diameter: 12 cm; wheel-made. (Lebeau 1993: Pl.142: 13; Fielden 1977: XIV: 24).

11: 44W16, Period IIb open ledge rim; orange buff (5YR6/4); exterior buff slip (10YR7/3); medium straw and grit temper; ridge on body with braid-like, twist appliqué; rim diameter: 48cm; hand-made.

Works Cited

Bar-Matthews, M, and A. Ayalon

1997. "Late Quaternary Paleoclimate in the Eastern Mediterranean Region from Stable Isotope Analysis of Speleothems at Soreq Cave, Israel". *Quaternary Research*, 47:155-168.

Bar-Matthews, M., A. Ayalon, A. Kaufman, and Gerald Wasserburg

1999. "The Eastern Mediterranean Paleoclimate as a Reflection of Regional Events: Soreq Cave, Israel," *Earth and Planetary Science Letters*, 166:85-95.

Bretschneider, G. and Jans, G.

1997. "Spätfrühdynastische und akkadische Keramik von der Hügelkuppe" in ed. Lebeau, M. and Suleiman, A. *Subartu III: Trois campagnes de fouilles à Tell Beydar (1992-1994)*, (Turnhout, Belgium: Brepols). Pp.135-143.

Cullen, H. M., P.B. deMenocal, S. Hemming, G. Hemming, F.H. Brown, T. Guilderson, F. Sirocko

2000. "Climate change and the collapse of the Akkadian empire: evidence from the deep sea," *Geology* 28.4: 379-382.

Eidem, J. And Warburton, D.

1996. "In the Land of Nagar: A Survey Around Tell Brak," *Iraq* LVIII: 51-64.

Fielden, K.

1977. "Tell Brak, 1976: The Pottery" *Iraq* 39: 245-255.

Lebeau, M.

1993. *Tell Melebiya: Cinq Campagnes de Recherches sur le Moyen-Khabour (1984-1988). Akkadica*, Supplementum IX. Leuven.

Mallowan, M.E.L.

1936. "Excavations at Chagar Bazar," *Iraq* 3: 1-86.

Matthews, R.J., Matthews, W., and McDonald, H.

1994. "Excavations at Tell Brak, 1994." *Iraq* 56:177-194.

McMahon, A.

1998. "The Kuyunjik Gully Sounding, Nineveh, 1989 and 1990 Seasons," *Al-Rafidan: Journal of Western Asiatic Studies* 19: 1-32.

Numoto, H.

1990. "Findings from Tell Jessary," *Al-R ƒ dan: Journal of Western Asiatic Studies*. Volume XI. Pp. 201-244.

Oates, J.

1982. "Some Late Early Dynastic Pottery from Tell Brak," *Iraq* 44.

Reade, J.E.

1968, “Tell Taya (1967)” *Iraq 30*: 234-264.

Ristvet, L.

1999. *What is Akkadian? An Examination of Ceramic Variability in a Third Millennium Imperial Province*. B.A. Thesis, Department of Anthropology, Yale College.

Senior, L., and H. Weiss

1992. “Tell Leilan "Sila Bowls" and the Akkadian Reorganization of Subarian Agro-Production,” *Orient-Express* 1992(2):16-23.

Weiss, H.

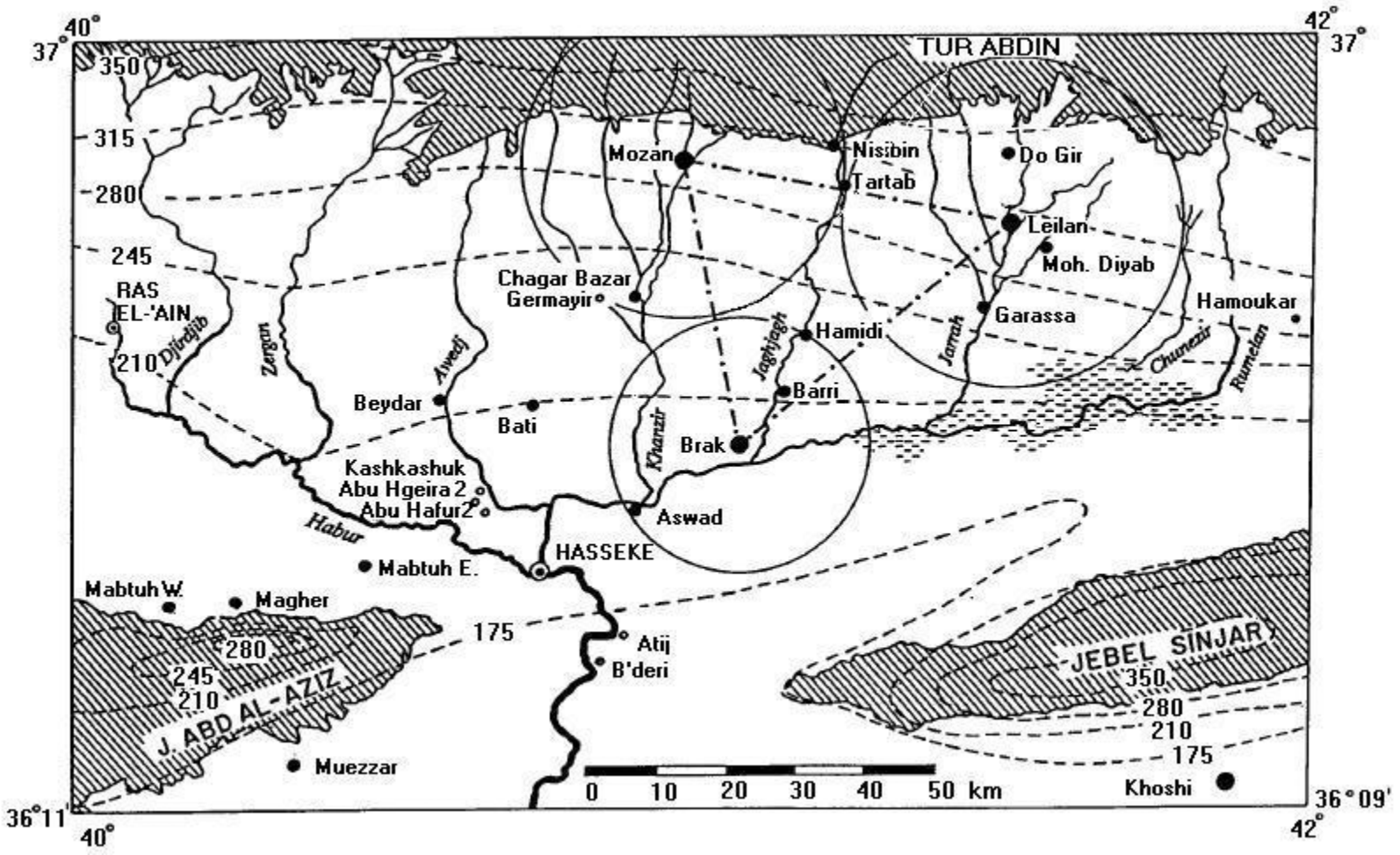
2000. “Beyond the Younger Dryas,” in ed. Bawden, G. and Reycraft, R. *Confronting Natural Disaster: Engaging the Past to Understand the Future*. Albuquerque: University of New Mexico Press. pp. 75-98.

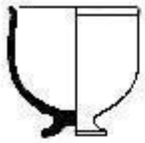
1997. Tell Leilan (Archaeology in Syria, H. Weiss, editor). *American Journal of Archaeology*. 101:126-129.

1990. “Tell Leilan 1989: New Data for Third Millennium Urbanization and State Formation,” *MDOG* 122: 193-218.

Wilkinson, T.J. and Tucker, D.J.

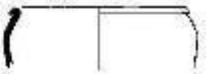
1995, *Settlement Development in the North Jazira, Iraq: A Study of the Archaeological Landscape*. British School of Archaeology in Iraq.


40°
42°
37°
37°
TUR ABDIN
350
315
280
245
210
175
Mozan
Nisibin
Tartab
Do Gir
Leilan
Moh. Diyab
Garassa
Hamoukar
Chagar Bazar
Germayir
Hamidi
Barri
Brak
Aswad
Beydar
Bati
Kashkashuk
Abu Hgeira 2
Abu Hafur2
HASSEKE
Mabtuh E.
Mabtuh W.
Magher
Atij
B'deri
Muezzar
RAS
EL-'AIN
Djedjib
Zergan
Awedj
Khanzir
Jaghjagh
Jarrah
Chuneziz
Rumelan
Habur
J. ABD AL-AZIZ
JEBEL SINJAR
0 10 20 30 40 50 km
Khoshi
36°11'
36°09'
40°
42°

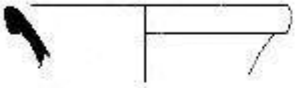


1

2



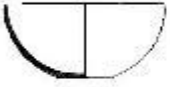
3



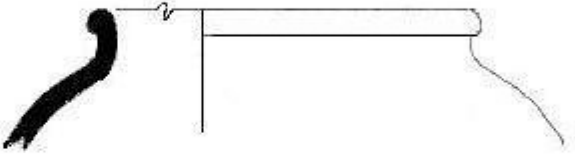
4

5

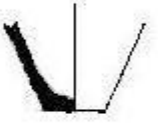
6



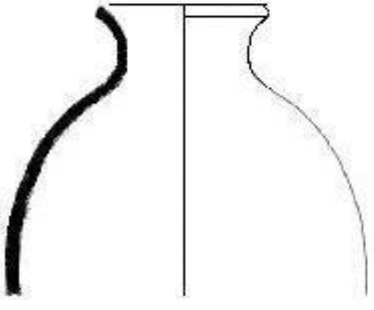
7



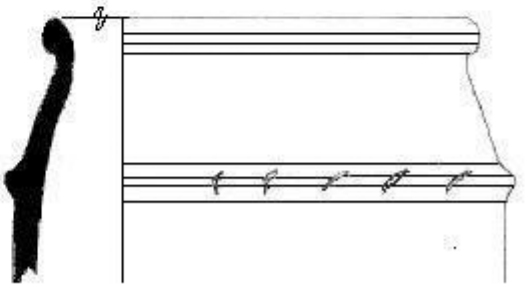
8



9



10



11