

Transitions between
Containers of Organic
and Ceramic
Materials:

Comparison of
Near Eastern and
Polynesian
Contexts.

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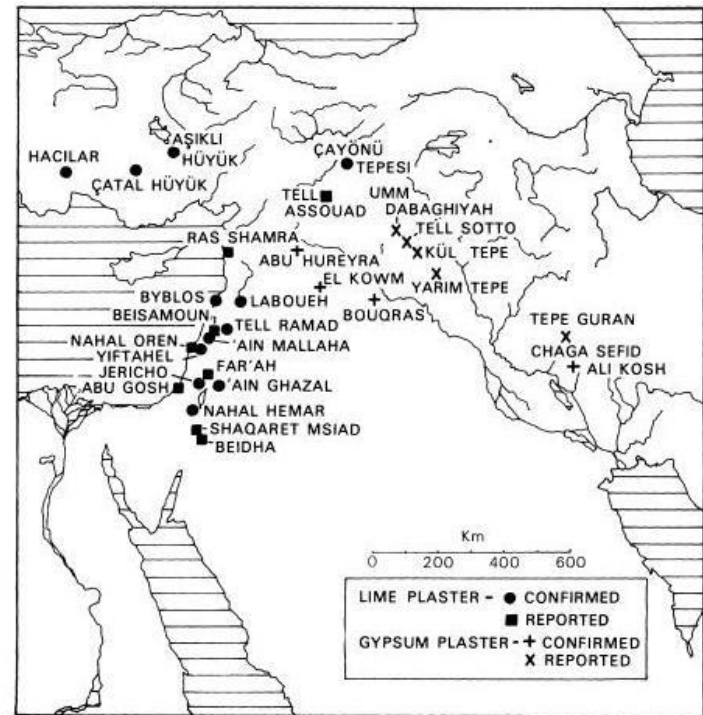
Origins of Ceramic Containers

Ceramic Containers (Pottery)



White-Ware / Vaisselle Blanche

(Mellaart, 1975:62-64; McCarter, 2007:99-102)



(Kingery, *et al.*, 1988)

Origins of Ceramic Containers

- Ceramic material in Gravettian: Venus of Dolní Věstonice (29,000-25,000 BC).
- Ceramic containers at Xianrendong Cave, China, 20,000 BC (X. Wu, *et al.* 2012).
- Ceramic containers in eastern Russia, at Gromatukha and Novopetrovka (Amur River basin), 16,000-14,000 BC (Derevianko, *et al.* 2004).



Origins of Ceramic Containers

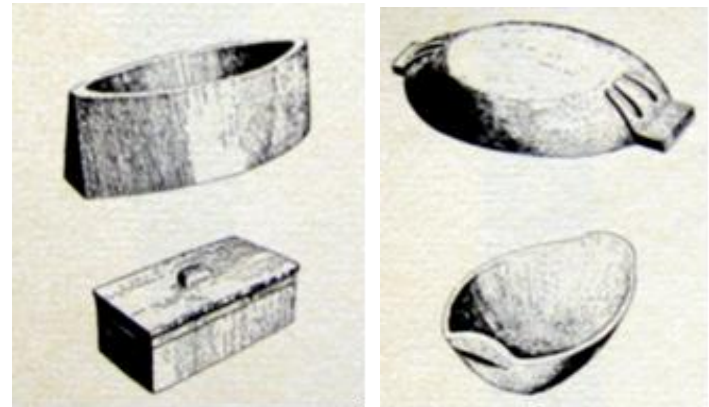
Ceramic Containers (Pottery)



(A. McMahon 2008:25 “Morphologically similar containers existed before pottery, in stone, lime-plaster, basketry, and wood...”)

Problem: Preservation of organic materials.

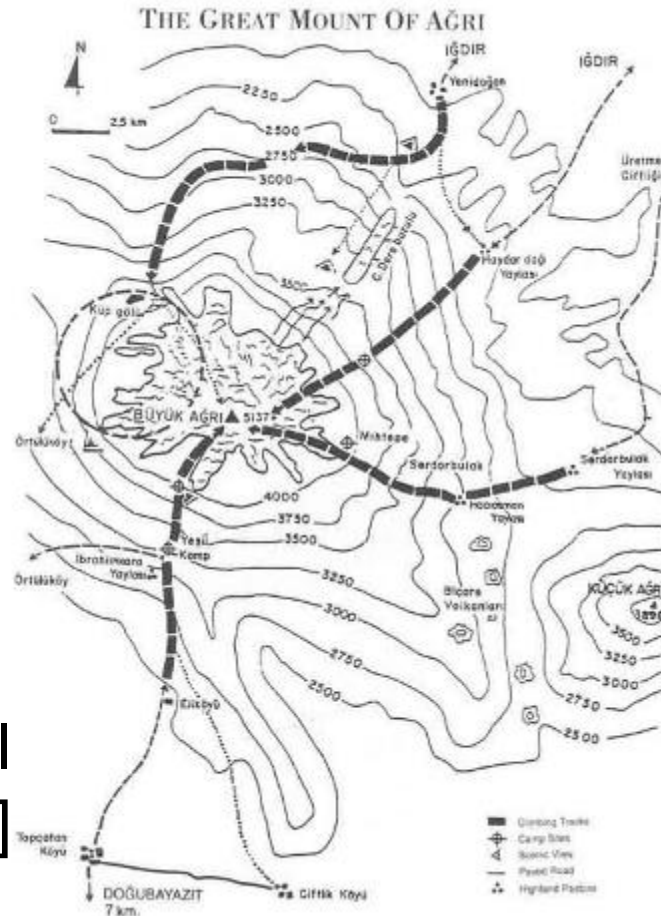
- Epipaleolithic: Bowls, statues, and other artifacts made of lime plaster (Kingery et al. 1988).
- PPNA: Beidha, flint blades within a burnt wooden box (Mortensen 1988).
- Wood artifacts from Çatal Höyük VI, 7,400-6,000 BC (Mellaart 1975:104).
- Kefar Samir, Israel, PN, 5,000 BC (Galili et al. 1993).



Areas of Research: Anatolia and Polynesia.



Location of Ararat Prehistoric Site: 2011 Survey.



[Location of Ararat Archaeological Site Removed]

Ararat Prehistoric Site

- From 3,000 to 4,700 m a.s.l.
- All areas within 1,200 m (1,347 m with elevation) linear extent.
- Divided into three areas: A, B, and C.
- Area A: Monumental wood structure; fourteen (14) loci; minimum LWH measurements:
 - 1) Possible features and artifact scatter: 159.23 m, 91.34 m, and 10.21 m.
 - 2) Wood fragments: 119.88 m, 91.34 m, and 10.21 m.
 - 3) Fully or partially intact wood loci: 96.53 m, 45.28 m, and 10.21 m.
- Architecture mostly of cypress (*Cupressus* sp.).
- Loci 4, 5, 6, 7, 10 & Loci 3, 14 constructed together.
- Shahid Beheshti University in Iran, Uncharred wood sample, 300 mm, $6,891 \pm 4,647$ CalBP

Surface of the site.

[Photographs of Surface of Ararat
Archaeological Site Removed]



[Map of Area A of Ararat
Archaeological Site
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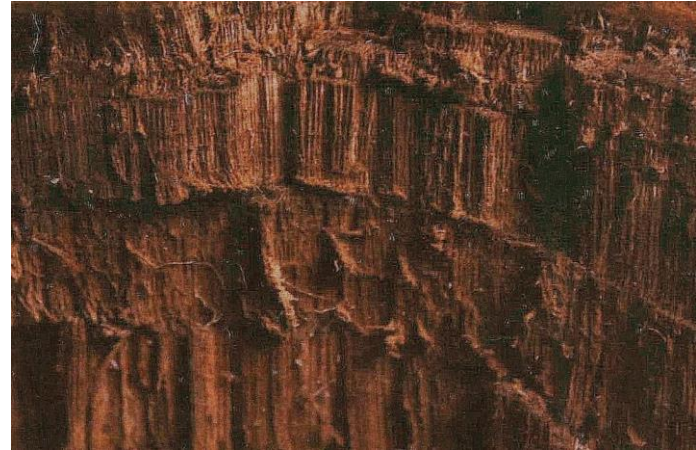
Artifact Seriation

- Thick-walled globular stone vessels date from the 12th to 7th Mil. BC (Kozlowski and Aurenche, 2005).
- Vegetal remains dominated by legumes (chick pea & bitter vetch) and small amounts of wild cereals; similar to Hallan Çemi (bitter vetch & lentils without cereals) dating to 10th Mil BC (Rosenberg & Nesbitt).
- Ararat wood bowls coarser, more robust compared to Kefar Samir from 5th Mil BC (Galili et al., 1993).
- Lithic core technology and microliths: 40th to 3rd Mil. BC (Gatsov, Pers. Com., 2013).



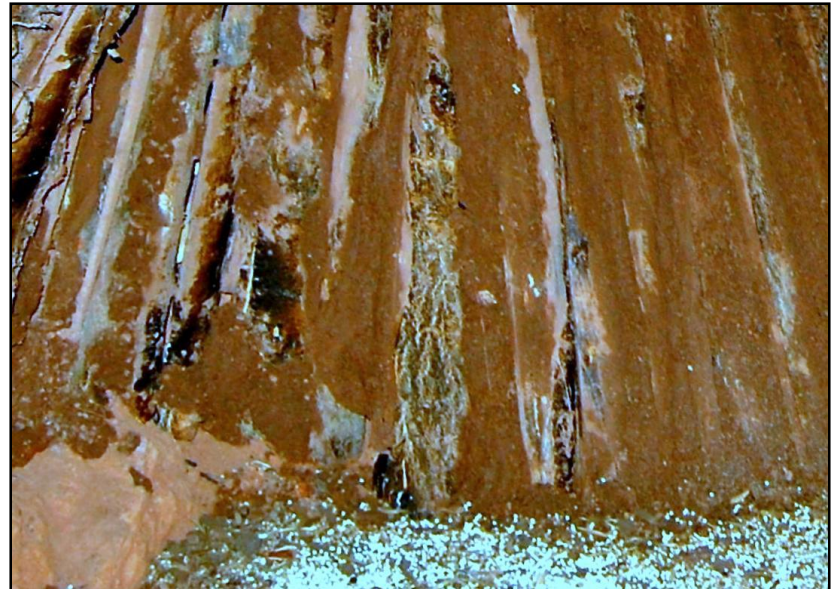
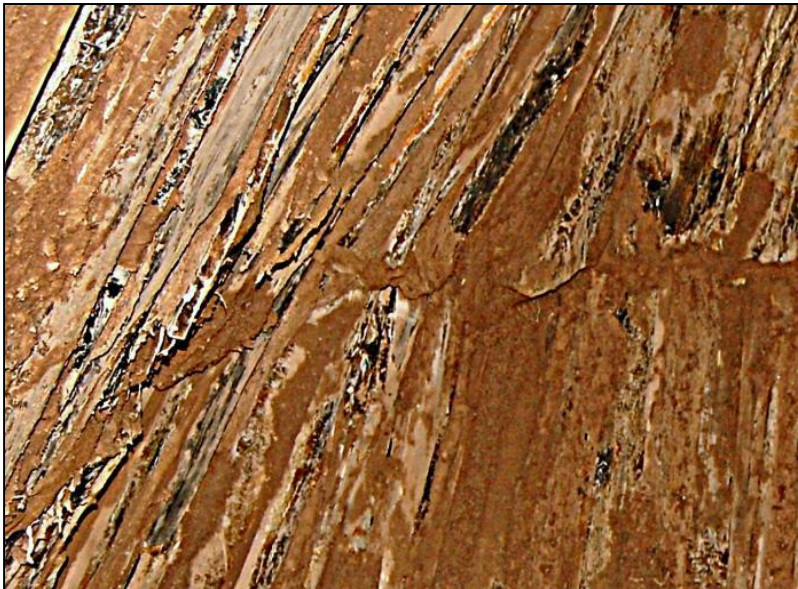
Wattle Architecture

- Bundles of tree stems, wrapped in vegetal material (covered in mud).
- Anatolian S. Coast: Fikirtepe, Pendik, İstanbul Yenikapı, and Aktopraklık, round/oval wattle-and-daub huts, semi-sunken floors, 6,450-6,100 BC (Özdoğan and Başgelen, 2007).
- Shillourokambos in southern Cyprus dating to 8,200 BC (Guilaine and Briois, 2001); Çatal Höyük with contexts around 7,500 BC (Hodder, 2003); Hallan Çemi at ca. 9,000 BC (Rosenberg et al.).
- Çayönü, horizontal bands of wattle (Braidwood 1981, Schirmer 1988).
- Ararat A, Locus 8, wattle without daub. Stem bundles wrapped in cords of flax (*Linum* sp.).
- Similar to Loci 2, 3, and in Area C.



Vertical Timbers with Clay Coating

- Wooden posts with clay coating at Jarf el Ahmar in Syria dating to 9,500-8,500 BC (Stordeur et al. 2001); at Mureybet III B (van Loon 1966).
- Ararat, Locus 3, Area A, vertical slats of wood covered with clay coating.



Timber Courses in Clay

- Pre-Pottery Neolithic features at Mureybet II, IIIB, Cheikh Hassan, Çayönü, and Jericho where vertical timber courses were emplaced in clay (van Loon 1968; Cauvin 1980; Schirmer 1988).
- Ararat Locus 2, Area A, timber course adhered to wall by clay material.



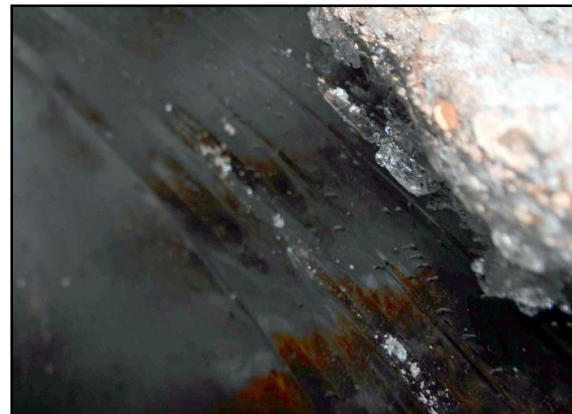
Retaining Walls with Wood Posts

- Features found in PPNA strata at Hallan Çemi and Jarf el Ahmar (Rosenberg, 1994; Stordeur et al, 2001).
- Ararat Locus 6, Area A, wood posts preventing lithic material from entering structure.



Bitumen or Resin Coating

- Base of SF289, Wadi Faynan, southern Jordan, 9-8th Mil BC (Wicks, 2007).
- As-Sabiyah, Kuwait, 6th Mil BC (Carter, 2010).
- Ararat sites: Thick or thin coatings exhibited in most loci. Exceptions in Area A: Loci 3, 8 (with clay coating or waddle) and 6 (retaining wall).



Domestication

- Wild grains and legumes (chickpea, bitter vetch, and lentils) domesticated c. 9,000 BC.
- Ararat sites have very large and well-preserved unburnt samples of early domesticates.
- Legumes (*Cicer*, *Vicia*) predominant; similar to Hallan Çemi (*Vicia*, *Lens*).
- Similar or smaller: Tell el-Kerkh, Ain Ghazal, Jericho, Ramad, Cayönü (Tanno & Willcox 2006). Ht: 4.43 mm & Wdth: 3.54 mm (N=10).
- *C. arietinum* or *C. bijugum*?



Area B: Smaller Edifices

- Area B:
Smaller wood structures at lower elevations.
- Early historic preservation?
- Ararat Locus 2, Area B.



Ararat Prehistoric Sites

- No surprises; archaeological analogues; prior hypotheses.
- Potentially adds to discussion of transitions during PPNA (9.6-8.5k BC).

Additional Surveys

- Archaeologists from University of Leiden surveyed Area B loci in May, 2013.
- Detailed measurements and high resolution photographs.
- Area B, Locus 1 exhibits mortise-and-tenon joints < 20 mm in diameter.



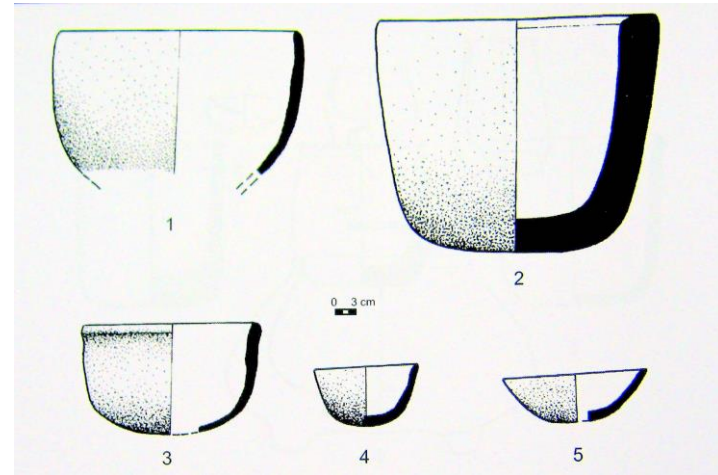
Locus 3, Area A



Area C, Cave Site



Locus 14, Area A



Concerns

- Preliminary report sent to Turkish, international, and academic archaeological authorities in March, 2013.
- Melting ice and retreating glacier. Natural fissures.
- Lack of preservation efforts.
- Looting by locals and enthusiasts.
- Paucity of organized mitigation efforts.



Areas of Research: Anatolia and Polynesia.



Disappearance of Ceramic Containers ca. 1600 BP in Polynesia.

Theories:

- Population Migration.
- Socio-Economic Transition.
- Demise of Inter-Island Trade.
- New Technology: *Umu* Ovens.

Processes favoring discoveries of ceramic sites:

- More surveys in areas with triple-canopy vegetation.
- In-House archaeology department in American Samoa Power Authority ("ASPA"), largest construction company in Tutuila.
- Increasing emphasis on historic preservation by the American Samoa Historic Preservation Office ("ASHPO").
- Greater political, cultural, and legal focus on NHPA and Coastal Zone Act and preservation of Samoan prehistoric and historic sites.
- Increasing local measures (PNRS Surveys).

Tutuila Prior to 2012

- Malaeimi (SL-1994)
- Auto (ST-2005, 2007)
- Alao (ST-2005)
- Pago (SL-2004)
- Faleniu (SL-2009)
- Pava'ia'i (SL-2009)
- Nu'uuli (ST-2009)
- Aunu'u (ASG-1993)

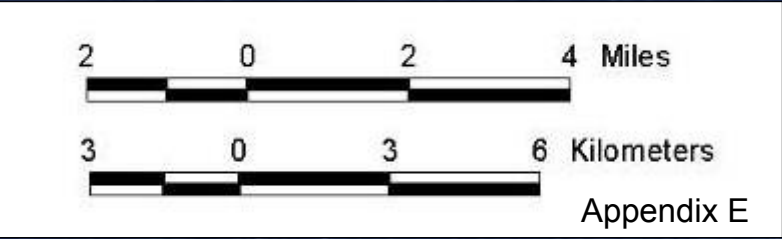
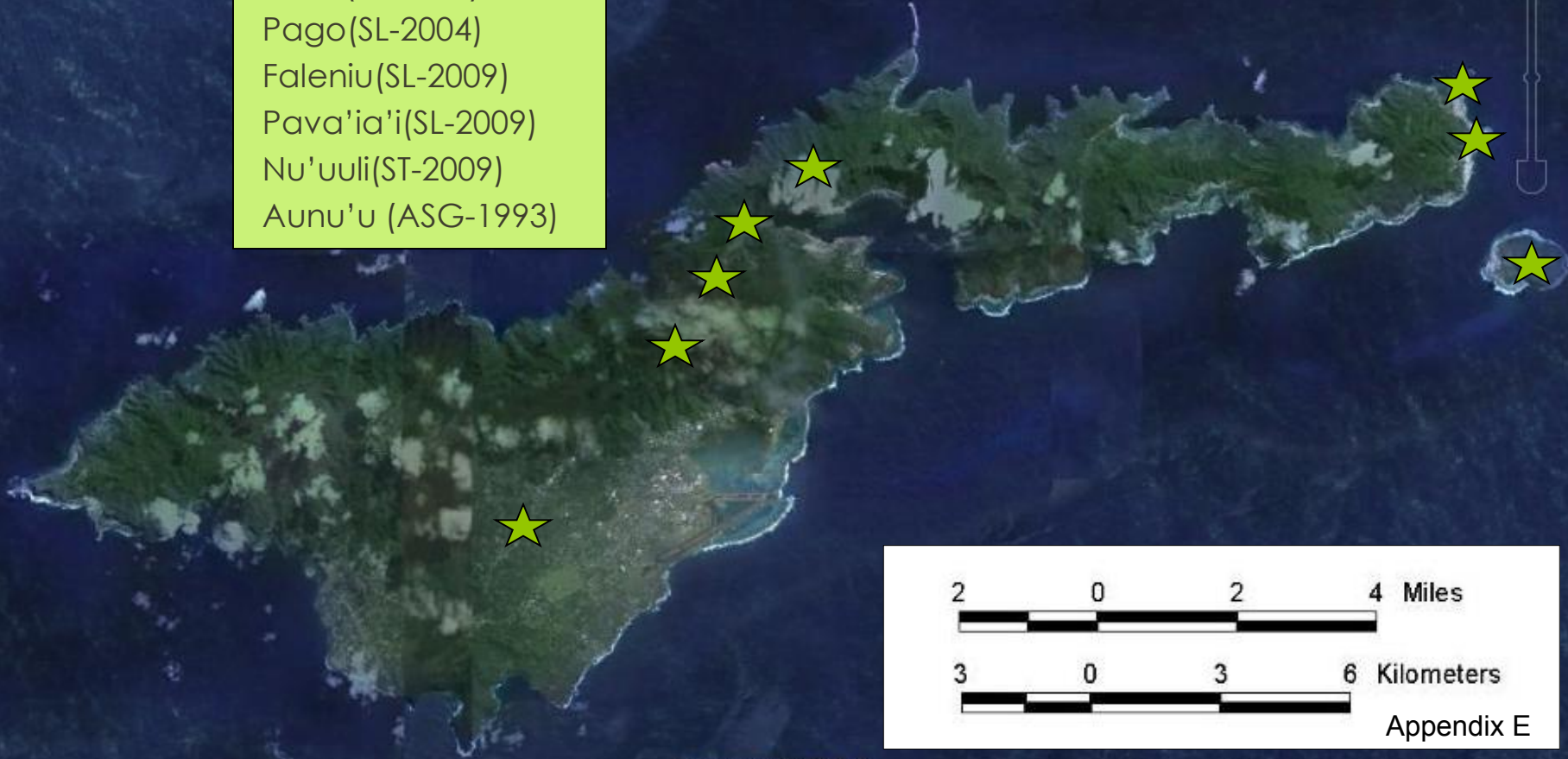


Image NOAA
Data LDEO-Columbia, NSF, NOAA
Image © 2014 DigitalGlobe

Tutuila Island During 2012



Image NOAA
Data LDEO-Columbia, NSF, NOAA
Image © 2014 DigitalGlobe

Google e

Imagery Date: 7/5/2012 14°17'13.22" S 170°41'59.12" W elev 312 m eye alt 29.92 k

Leone

- Remains of a *fale* (domestic dwelling) impacted by rising sea levels.
- Stone pavement filled with debitage.
- Polynesian plainware discovered during PNRS survey and Phase 3 mitigation led by ASHPO, assisted by ASPA.

Remains of a *fale* (domestic dwelling) impacted by rising sea levels.



Lithic tools or retoucheddebitage (flakes) from Leone.



Polynesian plain ware discovered during PNRS survey & Phase III mitigation led by ASHPO, assisted by ASPA.



Maloata

- Salvage archaeology during pipe-replacement project.
- Along side of roadway.
- Significant quantity of artifacts: Adzes, debitage, fire-cracked rocks, and five (5) sherds of Polynesia plainware, and clay material annealed to cinders.
- No features.
- All mitigation phases (I, II, and III) led by ASPA, assisted by ASHPO.

Salvage archaeology during pipe-replacement project.





East Wall Profile, Maloata: Salvage archaeology after discovering of ceramic site.

Adzes and Ceramic Sherds from Maloata.



Sherd 1, interior w/out scale.



Sherd 2, exterior w/ scale.

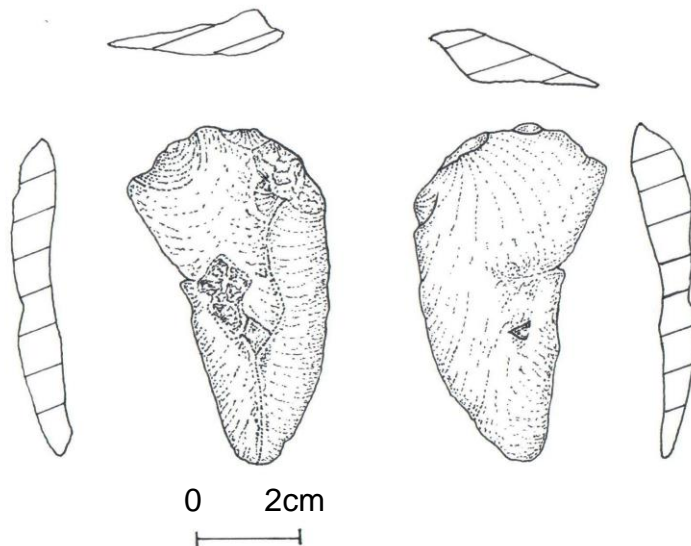


Sherd 3, interior w/scale



Sherd 4, exterior w/scale

Ceramic material annealed to cinders and lunate lithic artifacts from Maloata.



Fagamalo

- Salvage archaeology during pipe and water tank construction project.
- Along side of ramp to construction project.
- All Mitigation phases (1-3) led by ASPA, assisted by ASHPO.
- Sherds of Polynesian plainware ceramics discovered during Phase I survey.
- Phase III mitigation ensues.

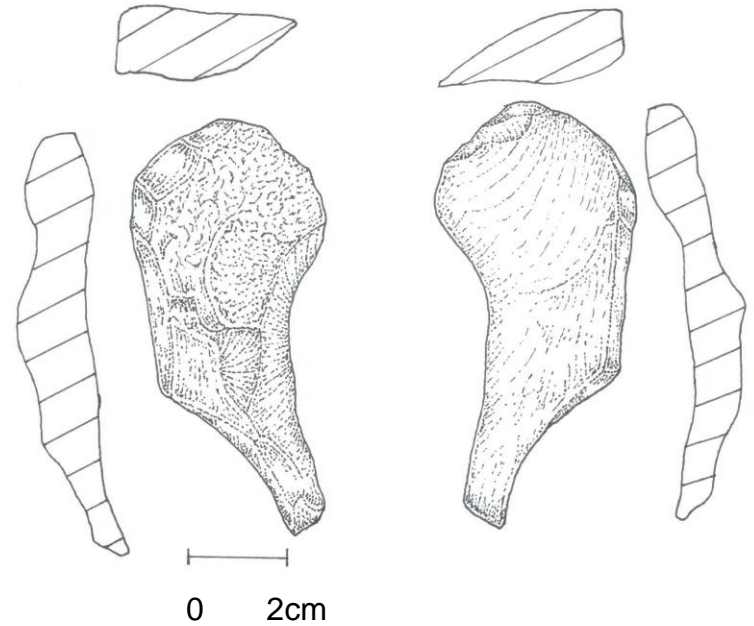
Fagamalo Site: Adzes and denticulate artifact.



Fagamalo (continued):

- Evidence of Ceramic Manufacturing:
- Ceramic sherds of different types, colors, and different levels of firing.
- Large boulders covered with clay.
- Different colored clays in strata.
- Lunate lithic artifacts.
- Ceramic materials annealed to cinders.
- Circular arrangement of boulders on flat pavement stones.

Ceramic sherds and lunate artifacts from Fagamalo Site.



Stone features, pavement stones, cinders with annealed ceramic material, and multi-colored clays.



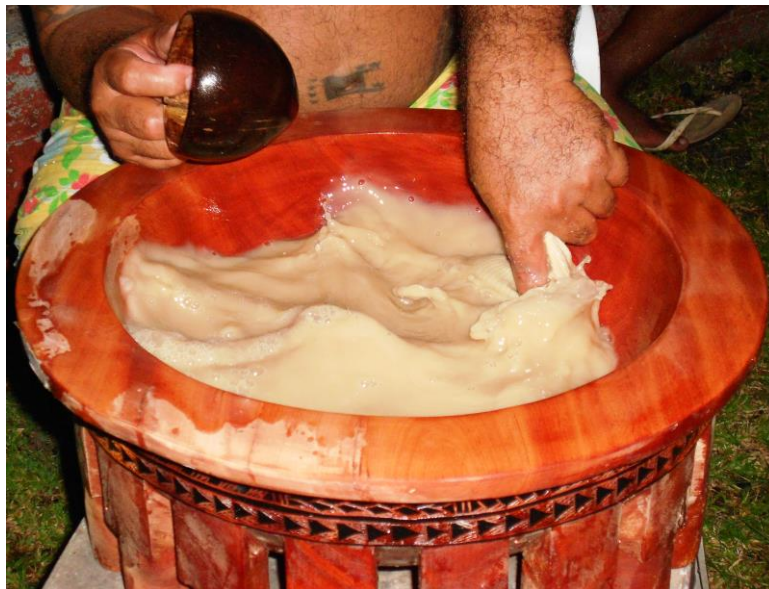
Until Fagamalo, ceramic manufacturing sites in Polynesia are unknown. At Fagamalo, larger lithic circles surround smaller features with partially fired ceramic sherds.



Jeff Clark's 2011 & 2013 excavations at Olosega and Ofu Island: *Umu*-like features around and in the ceramic containers.



Containers made of organic materials continue in Samoa: *Ipu Ma Tanoa* containers.



Containers made of organic materials continue in Samoa: *Ipu Tau Ava* cups.



Containers made of organic materials continue in Samoa: *Umeke* containers.



Containers made of organic materials continue in Samoa: *Ato* baskets.



Containers made of organic materials continue in Samoa: *Ipu Salafa* container.



Continued use of *Umu*-ovens in Samoa.



Polynesian Factors in the Disappearance of Ceramics

- Environmental stability: Abundance of organic materials used to make containers.
- Cohesiveness and self-sufficiency of Samoan polities.
- Trade limited, ceremonial and gift exchanges.
- Technological change: *Umu* ovens.

Near Eastern Factors ca. 9000 BC in the Invention and Distribution of Ceramic Containers.

- Environmental change: Transition from pluvial to increasingly arid environs (9,600-4,000 BC).
- Increasing competition: Local, regional, & inter-regional.
- Long-distance trade expands.
- Technological change: Kilns.

Impact of Global Warming



Teşekkür Ederim, Fa'afetai, and Thank You.

- Ömer Çelik. Minister of Culture & Tourism, Republic of Turkey.
- Restorasyon Dairesi Başkanlığı & Kazılar Dairesi Başkanlığı.
- Director-General Philippe Allard & Dr. Donald Jones, ICOMOS.
- Dr. Kishore Rao, Director, World Heritage Centre.
- Dr. Stefano De Caro, Director-General, ICCROM.
- Prof./Dr. Mehmet Özdoğan, İstanbul Üniversitesi.
- U.S. Environmental Protection Agency (“EPA”) & U.S. Department of the Interior (“DOI”).
- Mr. David Herdrich, Director of the ASHPO.
- Mr. Utu Abe Malae, Executive Director, ASPA.
- Mr. Fa'i Mareko, Manager of Water Division, ASPA.
- Dr. David Addison, American Samoa College.
- Society for Applied Anthropology.



Appendix E
Fa'afetai Tele Lava!