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Abu Tbeirah Excavations I. Area 1

Last Phase and Building A – Phase 1

edited by
Licia Romano and Franco D'Agostino

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Abu Tbeirah
Excavations I. Area 1
Last Phase and Building A – Phase 1

edited by
Licia Romano and Franco D'Agostino

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In copertina: Modified satellite imagery of Abu Tbeirah site (courtesy of © DigitalGlobe, distributed by e-GEOSx). Logo: Iraqi SBAH

This book is dedicated to Amir Doshi,
whose friendship is the pillar
of our work at Abu Tbeirah

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CHAPTER 1

INTRODUCTION

CHAPTER 1
FOREWORD

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When the Italian Ministry of Foreign Affairs (MAECI) started a program for the civil and cultural rehabilitation of Iraq in 2008, run by the "Task-Force Iraq", a grant was requested by F. D'Agostino in order to carry out a project aimed at capacity building in the field of Heritage and Archaeology of Mesopotamia for the representatives of the *State Board of Antiquities and Heritage* (SBAH). The area selected for the development of the project was that of Dhi Qar, where the local Provincial Reconstruction Team (PRT), at that time with their headquarters in the Tallil Air Base, was led by Dr Anna Prouse, representative of the Italian MAECI. The Minister of Culture, and our good friend, HE Abdulamir al-Hamdani in Ch. 2 tell the story that led to the excavations of Abu Tbeirah.

The following report presents a general introduction to the site and its palaeo-environment as well as the results of the work in Abu Tbeirah's Area 1, focusing in particular on the last phases of occupation. In § 2 Abdulamir al-Hamdani reassumes perfectly the premises of the project and all the events that led to the beginning of the Abu Tbeirah archaeological mission, reporting, in addition, useful carthographic and Corona imagery of Abu Tbeirah and its surrounding area.

§§ 3-5 focus on the geological and environmental setting of the site as well as on the ancient canalization system surrounding it. Salvatore Milli and Luca Forti (§ 3) revise the previous literature on the geological setting of the site, and also present the Quaternary Deposits and the Holocene stratigraphy and sedimentology of the southern Mesopotamian plain. In addition, the chapter focuses on the reconstruction of the palaeo-shoreline of the Arabian Gulf and its historical changes. Preliminary data from a recent bore-hole made with a hand auger inside the Abu Tbeirah Area 5 artificial basin is included.

Alessandra Celant and Donatella Magri present a survey of the scientific literature on the Mesopotamian palaeo-environment, on the basis of pollen records and plant macroremains, depicting the changes in the postglacial vegetational landscape, due to the geomorphological evolution of the floodplains, as well as changes in the precipitation regime and the impact of anthropic activity. Some preliminary results from Abu Tbeirah records confirm the general outlined framework. The realization of the chapter has been possible thanks to the late Prof. Maria Follieri: years ago, when Abu Tbeirah project was far from begun, she left to Celant and Magri a collection of notes and article on Iraqi plant and pollen records.

Jaafar Jotheri's reconstructs Abu Tbeirah's ancient landscape (§ 5) on the basis of remote sensing and groundtruthing. The features surrounding the Tell, such as other settlements, palaeochannels, the southern Mesopotamian version of "hollow-ways", crevasse splays and grooves in Abu Tbeirah's region are discussed by the author.

Licia Romano (§§ 6-8) presents a general archaeological overview of the site, including an analysis of the post-depositional agents and their effects on Abu Tbeirah's record and the interpretation of the described contexts as well as formulating some hypotheses on the funerary practices, on the function of Building A and on its abandonment timeline. Some considerations on the implications of Abu Tbeirah's evidence on the interpretation of other 3rd mill. BC Mesopotamian contexts are presented, *e.g.* a proposal of a revision of the "burnt burials" excavated by Woolley in the so-called Royal Cemetery of Ur. All the material recovered in these phases and their relative contexts are reported in detail in the catalogues of §§ 7-8. We decided to gather together the information on the contexts, the tables of the finds and their description, avoiding a final general section of pictures. We hope in this way to allow a faster and more profitable consultation of the book by the reader. The catalogues are enriched with the description of use-wear on macro-lithic artefacts by Stefano Caruso.

In § 9 Susanna Cereda analyses the heavy residues (HRA) of the pavement of Building A - phase 1 Room 23, showing the workshop-like (processing of bitumen) connotation of this space: this chapter clearly demonstrate the potentiality of HRA in defining the original function of a room on abandoned contexts such as Abu Tbeirah's Building A last phase.

§§ 10-11 present a preliminary description of the pottery recovered during the excavation of the phases analysed in the book. Licia Romano and Marta Zingale describe Abu Tbeirah's pottery from the typological point of view, preliminarily approaching also the *ch*âine *op*é*ratoire* and behavioural sequence in pottery production, use and reuse. Giulia Festa, Licia Romano and Vanessa Forte in § 11 present the fabrics subdivision and the results of Neutron investigation on selected pottery fragments, providing some hints about the firing process.

Mary Anne Tafuri's and Francesca Alhaique's analyses (§§ 12-13), respectively of human bones and faunal remains, sketch a preliminary picture of lifeways at Abu Tbeirah, contributing in defining the palaeo-diet and the impact of the ancient life style on the population of the settlement. The results of the isotopes analyses, though limited due to post-depositional alterations, are also presented.

Though often underestimated, the impact of lithic industries on metal using society is worth noting, as demonstrated by the frequency of lithic industries and tools in the strata excavated at Abu Tbeirah. Daniele Moscone and Davide D'Errico analyse this important but often neglected material class in §§ 14-15, respectively from the technological and functional points of view. The authors describe in detail the sickle found in Room 23, hafted through the use of bitumen as adhesive: their analysis might in the future contribute to a better understanding of gestures and movements of the ancient user of the tool.

Franco D'Agostino and Angela Greco (§ 16) present a group of toponyms as possible candidates for the identification of Abu Tbeirah's ancient name: the toponyms are selected on the basis of Sumerian literary compositions which depict routes involving the city of Ur.

Most of the authors of this book are exophonic writers: we believe that our readers will appreciate the content and be lenient with us and our misuse of idioms or poor grammar. We choose to write in English to reach a wider audience, as the Italian language is surely more difficult both for Iraqi and other non-Italian readers.

1.1 Registering Systems

Whilst excavating Abu Tbeirah, we decided to use the stratigraphic method, labelling with the acronym "US"(unit of stratigraphy) each action identified on the field.

US found in Area 1 (south-eastern sector of the tell) are numbered from 1 to 499. The US excavated in Areas 2- 4 and 6 (north-eastern sector of the Tell) are numbered from 500 to 999. Area 5 (Harbour – western sector) US are numbered from 2000.

As far as graves are concerned, these are numbered from 1 to 99 in Area 1, from 100 to 199 in the north-eastern area. The numbering of the graves follows the order of discovery and thus does not have any relation with their stratigraphic position.

Findings are numbered as follow:

Objects:

AbT.13.1 ….AbT.13.86

Where AbT = **Ab**u **T**beirah

13 = 2013

1 = progressive inventory number. The numbering restarts every year.

Pottery:

AbT.13.534.1…..AbT.13.534.75

Where AbT = Abu Tbeirah

13 = 2013

534 = number of the US

1 = progressive inventory number

1.2 Acknowledgments

This book is the achievement of the efforts of the entire Iraqi-Italian team working at Abu Tbeirah and is the output of several field seasons and years of study and research of scholars and archaeologists from both countries. We have so many people to thank for these results that it would be impossible to acknowledge the support of all the colleagues and friends that helped us in these years, to whom we are all deeply grateful.

First of all we wish to thank the Dean Prof. Eugenio Gaudio and his predecessor Prof. Luigi Frati who strongly believed and believe in our project in Iraq. The work at Abu Tbeirah is sponsored bygenerous grants from Sapienza University of Rome (Grandi Scavi) and from the Italian Ministry of Foreign Affairs and International Cooperation (MAECI), and from the following organizations to which our sincerest gratitude is given for their generous support: Prof. F. Pomponio and the University of Messina, Gennaioli Foundation, Iveco and MTT Iraq, Studio Galli Ingegneria (SGI), and Egeos Telespazio.

A special thanks to Giovanni Bardelli and the Franco Bardelli Foundation for their generosity and their continued trust in our archaeological mission.

The Italian Ambassadors in Iraq and their staff have given a fundamental contribution to the success of our activities in Iraq. In particular we would like to express our gratitude to HE Gerardo Carante, HE Massimo Marotti, HE Marco Carnelos and HE Bruno Pasquino.

We would like to acknowledge the outstanding efforts of the Iraqi Ambassadors in Italy and to the Holy See and their staff who have eased our work in every way in Iraq during these years. Our deepest gratitude goes to HE Saiwan Barzani, HE Habib al- Sadr, and HE Ahmad A.H. Bamarni. Special thanks are due to Diyar Saaid, secretary of the Ambassador.

The report on pottery at § 10 is the result of the project "C.U.P.S. Cataloguing and Understanding Pottery of Sumer" financed by Sapienza University of Rome and the Department Italian Institute for Oriental Studies (DIISO). For this support we thank Prof. Matilde Mastrangelo and Prof. Alessandra Brezzi, respectively former and actual

Head of the Department. In these years DIISO has also helped us in managing administrative tasks, so far removed from our archaeological competences. In particular, we are deeply grateful to Dr Olivia Mauro and Dr Claudio Lombardi, for providing the "administrative" foundation of our work.

We deeply appreciate the efforts and help given to us by Fondazione Sapienza and Prof. Antonello Folco Biagini, and by the Centro Interdipartimentale per la Ricerca Scientifica e la Cooperazione con l'Eurasia, il Mediterraneo e l'Africa Subsahariana (CEMAS) and Prof. Andrea Carteny. We are confident that by working together we can continue to do great things.

Our gratitude also goes to our Sapienza colleagues who, though not directly involved in the writing of this book, gave us fundamental scientific help: our thanks to Cecilia Conati Barbaro, Maria Paola Bracciale, Cristina Lemorini, Maria Laura Santarelli, Giovanni Carboni and Marco Scarsella. A special thanks to Savino Di Lernia for the precious inputs he gave us in organizing and creating the book's outline.

In these years we have taken advantage of the invaluable expertise of Sapienza Press Office staff, who have allowed us to expound the discoveries made by our Iraqi-Italian team to a wide public. We offer them our heartfelt thanks.

We are most grateful to the State Board of Antiquities and Heritage and its staff for their hard work and assistance in all these years of common work in Iraq and for giving us all the necessary permits for the field studies and laboratory analyses (including destructive processes) presented in this work. Our warmest thanks to Dr Qais Hussein Rasheed, vice-minister of MOTA, who since the beginning has strongly believed in our project, signing our first permit of excavation, with the support of Abdulamir al-Hamdani . We offer our warmest congratulations to Abdulamir al-Hamdani now appointed as the Iraqi Minister of Culture: we are sure that His work will be invaluable tothe future of the new Iraq!

We have only been able to achieve most of our objectives thanks to all the SBAH representatives who, on the base of their responsibility and competence, have invariably advised and supported us, not only on the field, in these years: Wusal Na'im Jasim, Wasan Abd-el-Isa, Aqbal K. Ajel, Saba Omeri, Ali K. Ghanim, Taher al-Hosseini, Amjad Neama, Dr. Ahmed Kamil, Saleem Khalaf al-Hadary, Dr Haider al-Mamori, Dr Mohammad Sabri, Amer Abdul Razzaq and the other colleagues of the SBAH and Museums of Nasiriyah and Baghdad.

When we started our project in 2012 we had the pleasure of sharing the dig-house and equipment with the Iraqi-American team led by Elizabeth Stone, whose help and generosity we will never forget. We have had in these years the opportunity of enjoying the collaboration with other archaeological missions in Southern Iraq. Among them we are as ever grateful to Jane Moon, Robert Killick and Stuart Campbell, leading Tell Khaiber team, for their kindness, friendship and openness in sharing the methodology and the results of their excavations. We are confident that this excellent spirit of cooperation will continue in the future with all the archaeologists working in Southern Iraq.

Living inside the dig-house of Ur, kindly provided us by the SBAH, we have had the opportunity to build a strong relationship with the Mohsen family, whose members, Dhaif above all, are the guardians of the site. We have found in them not only fabulous collaborators but close and trustworthy friends.

Our work in Iraq was made easier by the laudable work of the Iraqi police department: we are deeply thankful to General Hasan Salman Dakhil, Colonel Fuad Karim Abdallah and to Dhaher Al-Bakka'.

We greatly appreciate the support of HE the Governor Yahya al-Nasri and of all the staff of Dhi-Qar Governorate and Province Council.

Specific mention should be made of important groups within the Nasiriyah civil and scientific society that have shown an active interest in our Iraqi-Italian archaeological mission: Nature Iraq with our great friends Jassim al Asadi and Azzam al-Awash; Luay Khairullah; the members of the Writers Union; the University of Dhiqar with Dean Prof. Ridha Shanti and His scientific staff; Ali ash-Shayal.

1.3 Members of the Excavation Campaigns at Abu Tbeirah

The book will show how much credit is due to a relatively small and mostly very young staff for the admirable way they have carried out their work and also coped with the unexpected demands outside their specific duties and competences.

1st campaign: January-February 2012

Massimo Vidale, Mauro Angelozzi, Ali K. Ghanim, Wusal Na'im Jasim, Wasan Abdel Sahib 'Isa, Jamal Abdel'ali, Rafeet Abd el-Kadhem Manshad.

2nd campaign: October-December 2012

Giulia Barella, Francesca Gorello, Silvia Santiloni, Mary Anne Tafuri, Melania Zingarello, Ali K. Ganim, Wasan Abdel Sahib 'Isa, Jamal Abdel'ali.

3rd campaign: September-November 2013

Francesca Alhaique, Giulia Barella, Silvia Santiloni, Mary Anne Tafuri, Melania Zingarello, Ali K. Ghanim, Wasan Abdel Sahib 'Isa, Hussein Sadoon.

4th campaign: September-December 2014

Ali K. Ghanim, Taher al Hosseini, Wusal Na'im Jassim Hussein Sadoon, Desiré Bragalone, Giulia Barella.

5th campaign: September-November 2015

Taher al Hosseini, Haider M. Nassir, Firas A. Farhan, Ghazwan M. Shaalan, Giulia Barella, Ludovica Bertolini, Desiré Bragalone, Stefano Caruso, Maddalena Diaco, Vanessa Forte, Shirin Khalatbari, Mirabello Mattera, Daniele Moscone, Flavia Pacelli, Mary Anne Tafuri, Tommaso Scarpelli, Edoardo Zanetti, Marta Zingale.

6th campaign: September-November 2016

Taher al Hosseini, Saud Khalaf, Shamil Daikkh, Giulia Barella, Desiré Bragalone, Marina Berardi, Stefano Caruso, Davide D'Errico, Maddalena Diaco, Flavia Pacelli, Marta Zingale.

7th campaign: September-November 2017

Taher al Hosseini, Saud Khalaf, Mustafa F. Hossouni, Stefano Caruso, Emanuela Peverati, Veronica Porzi, Lorenzo Ricci, Alice Spizzico, Mariachiara Cretone, Marta Zingale.

8th campaign: November-December 2018

Wusal Na'im Jasim, Wasan Abdel Sahib 'Isa, Rafeet Abd el-Kadhem Manshad, Jafar Jotheri, Luca Forti, Marta Zingale, Veronica Porzi, Leonardo Antonucci.

We would like to acknowledge here the fundamental work of our archaeological collaborators, whose expertise in digging in the Iraqi contexts has been pivotal for our understanding of each context described here. Our deepest gratitude to Haider, Nghamesh, Takleef, Amir, Akram, Aqeel, Nabil, Ghani, Ghali, Jihad, Ahmed, Ali, Mustafa, Abdallah, Nasrallah, Azar, Maithem, Mohannad, Dergham, Bessam, Seif, Karrar, Sajad.

CHAPTER 2

LET'S DIG IT!
THE STORY OF ABU TBEIRAH
IN THE VICINITY OF UR

CHAPTER 2
LET'S DIG IT!
THE STORY OF ABU TBEIRAH IN THE VICINITY OF UR

Abdulameer al-Hamdani
Minister of Culture
Republic of Iraq

In 2008, I was in New York taking a training course in remote sensing techniques and Geographic Information Systems (GIS) at Stony Brook University, when I got a message from my colleague and best friend Amir Doshi telling me that Franco D'Agostino, an Italian Assyriologist and scholar, was visiting the ancient city of Ur.

At the time, I had just convinced the American forces at *Tallil* Air Force Base, which is located in the vicinity of Ur, to conduct civil projects to support and protect the ancient ruins at Ur. These projects were carried out through the Provincial Reconstruction Team (PRT) in Dhi-Qar province, where D'Agostino was residing. One of these projects involved the construction of a modern arch as a gate to the city. This arch was designed to have, on its upper frontage, the inscription of the Sumerian name of Ur written in cuneiform. Franco, and his other colleagues from the University of Rome, had come to the region invited by the PRT to investigate opportunities to teach training courses in ancient Mesopotamian languages.

At that time, I knew very little about D'Agostino, but the late Donny George, the former Director of the Iraqi Museum (2003-2005) and chairman of the State Board of Antiquities and Heritage (2005-2006), who was teaching at Stony Brook University at that time, told me many good things about him. Elizabeth Stone of the Department of Anthropology and Paul Zimansky of the Department of History, both at Stony Brook as well, also informed me about D'Agostino, so when I went back from the US to Iraq, I had a clear and nice picture in my mind about him as a person and scholar.

Franco visited Ur from time to time with the PRT team, stopping by the arch that was under construction to talk to Amir Doshi about archaeology-related subjects. In one of his visits to Ur, Amir took a photo of Franco and sent it to me. In early June 2008, I came back to Iraq with an international team to investigate the situation of looting and destruction of major archaeological sites in southern Iraq, especially in Dhi-Qar province (Fig. 2.1). When the team visited Ur, Franco, Sergio Alivernini, and Amir Doshi were there as well.

Since that initial meeting, Franco and I have been talking about possible ways of conducting fieldwork in Iraq, especially in the area around Ur. Franco, as an Assyriologist, was interested in excavating a site from the 3rd mill. BC that could potentially reveal cuneiform documents. This site should be as close as possible to Ur for safety and logistic reasons. At that time, the State Board of Antiquities and Heritage (SBAH) only gave out permits for excavation of sites that were heavily looted and destroyed, or under high risk and threat. Therefore, it was clear to me, at that stage, how to select a suitable site for excavation. I was also thinking of selecting a place that could shed a light on the economic, social, cultural, spatial, and ritual relations between a medium settlement and the nearby major urban centre of Ur.

The site of Abu Tbeirah (Figs 2.2-4), located 5 km to the south of the modern city of Nasiriyah, the capital city of Dhi-Qar province in southern Iraq, was under real threat of destruction. As the director of the antiquities office of Dhi-Qar province, I had visited the site several times and noticed that the local population extracted soil from the western and southern edges of the site and would continue to do so if we did not act

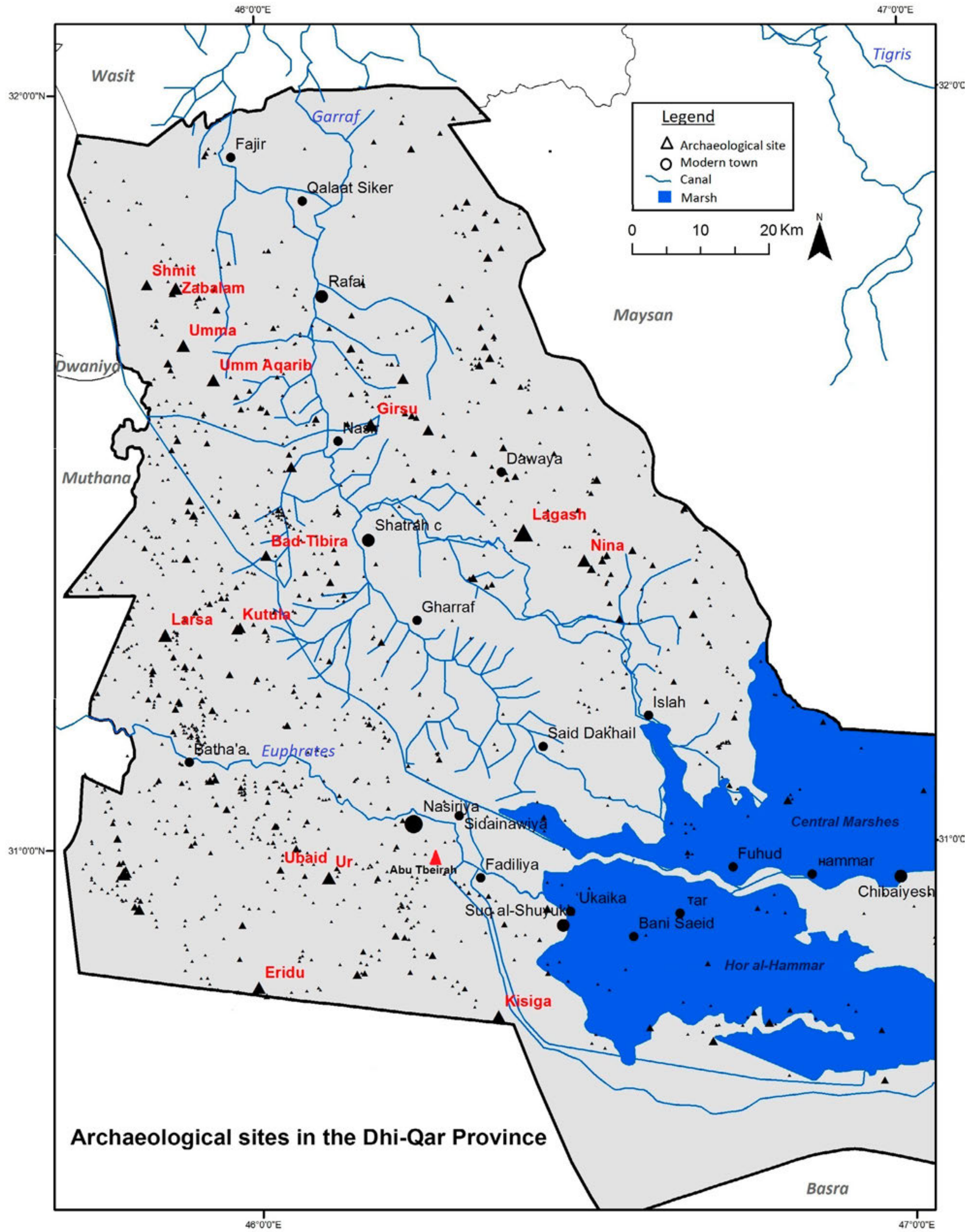

Fig. 2.1 Map showing major sites in the Dhi-Qar Province.

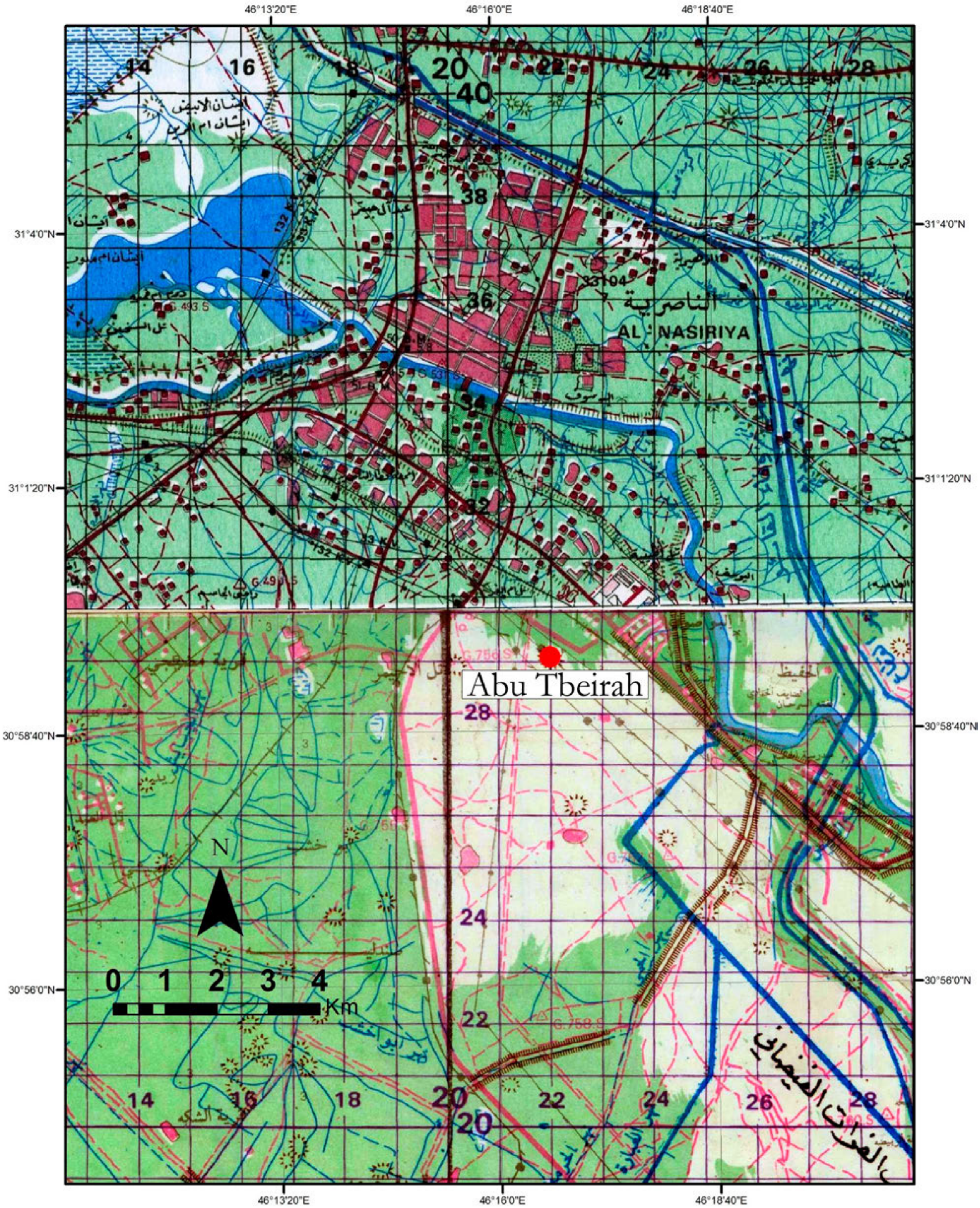

Fig. 2.2 Map of Nasiriyah area by the Iraqi Army Department.

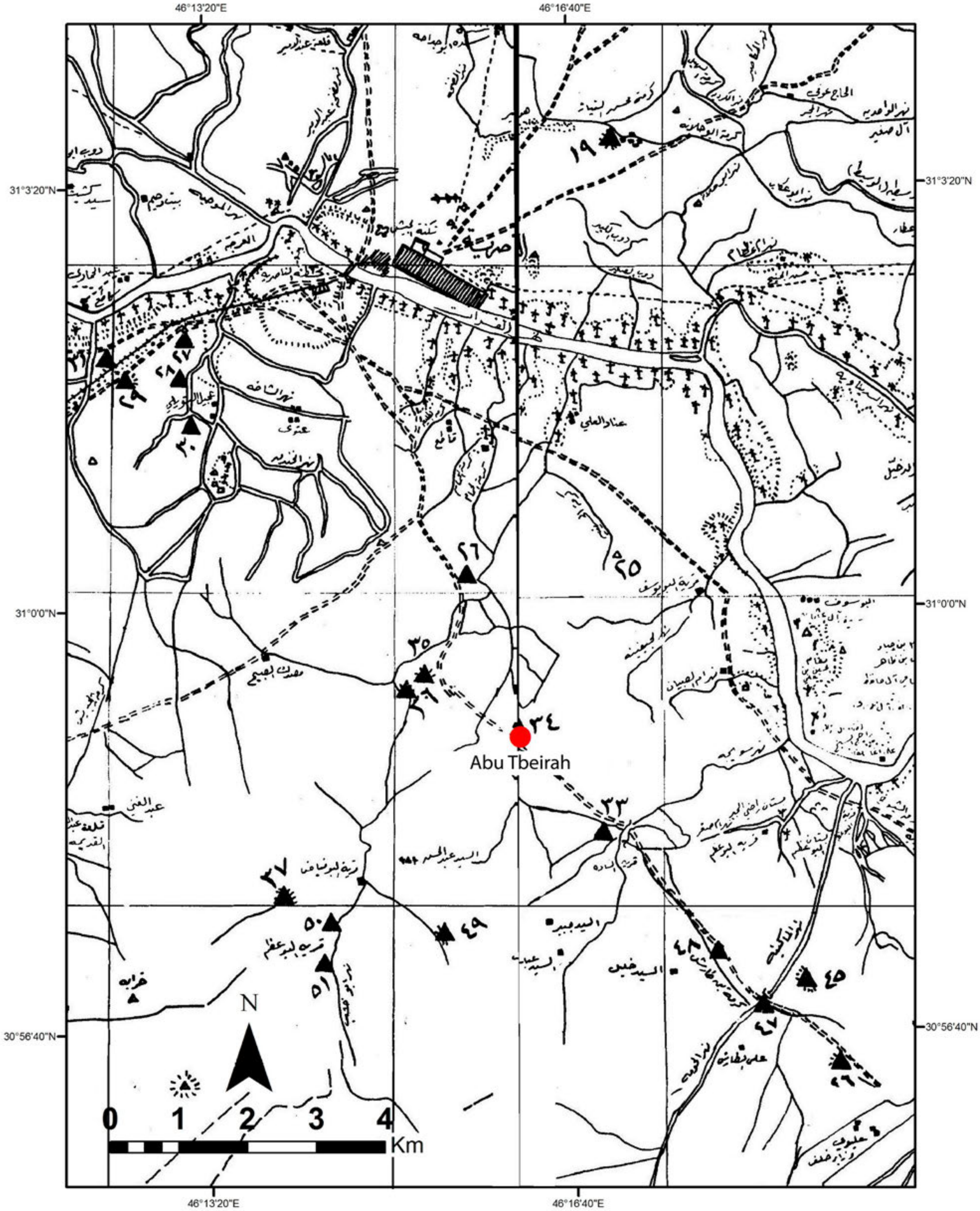

Fig. 2.3 Picture revised from *Al-mawāfi' al-athariyyah fi' l-Iraq*, Baghdad 1970: Pl. 74, n. 34 (*Išān* Abū Tbeirah, described on the 17/11/1957, nr. riv. 4064, 10-8 (recorded as ED-Old Babylonian).

محافظة ذي قار ـ قضاء الناصرية ـ ناحية سيديناوية

الاضبارة	اسم الموقع	القرية	رقم الجريدة	تاريخها	الادوار التاريخية
٣٦٠	ابو طبيرة (اشان)	السيد عبدالحسين	"	٤	٨ـ١٠

Fig. 2.4 Picture revised from *Al-mawāfi' al-athariyyah fī 'l-Iraq*, Baghdad 1970: Pl. 74, n. 34 (*Išān* Abū Tbeirah, described on the 17/11/1957, nr. riv. 4064, 0-8 (recorded as ED-Old Babylonian).

immediately. In addition, the South Oil Company was forming plans to dig trenches across the western part of the site to install another oil pipe connecting the Basra/Nasiriyah oil fields to the Nasiriyah refinery, 3 km to the west of the site.

The surface of the site was heavily salinized and seasonal floods would sometimes lead to the site being surrounded by marshes. Therefore, it was hard to determine the chronology of the site, although several diagnostic sherds that were found at the edges of the site indicated a Sumerian Early Dynastic settlement (Fig. 2.3-4). Franco and I had an opportunity to visit the site before he left back to Italy in 2008.

Then, in September of the same year, I went to Rome on a cultural exchange program at the American Academy in Rome. During this stay, Franco invited me to a meeting at Sapienza University of Rome. The excavation of Abu Tbeirah was one of the topics to be discussed. After many meetings, Franco decided to write a proposal to excavate the site and sent it to SBAH through the Dhi-Qar antiquities office. I went to Baghdad to discuss the proposal with the director of excavations and investigations at SBAH where the first question, as expected, was if the site was under threat or destruction. As the answer to that question was 'yes', approval was given to the project.

Various logistic, administrative, and financial issues postponed the start of the excavation until the beginning of 2012, but Franco and his colleagues kept coming to Dhi-Qar province for training purposes. These included training the staff of Dhi-Qar SBAH antiquities office and the staff of Dhi-Qar University in ancient Mesopotamian languages.

The site of Abu Tbeirah provided an excellent case study for my theoretical classes in anthropology that I took as part of the coursework for my doctoral program at Stony Brook University. I wrote three term papers for two different classes - Research Design in Archaeology (Fall 2010), and Using GIS in Archaeology (Spring 2011) - about the site of Abu Tbeirah. The two papers for the first class were titled: "A proposed project to digging Abu Tbeirah", and "Distribution of the ancient rural villages and towns surrounding the city of Ur". In the second paper, I wrote the following about the site:

Ga-eš^{ki} = Gaeš (see § 16.4.4): the name means "town/place of milk and barley". Based on Ur III cuneiform texts and satellite imagery that show foundations of buildings that are likely to date back to the Early Dynastic IIIb (2400 BC ca.) and the third Dynasty of Ur (2113-2006 BC ca.), the archaeological site of Abu Tbeirah could house the remnant of the ancient town of Gaeški. Based on the satellite images and archaeological survey, the settlement at Abu Tbeirah (N 46° 26' 97.35" E 30° 98' 43.93") contains housing area, supposed institutional buildings, and a harbour. The circular shaped site stretches on an area of more than 42 ha, and the height point is about 4 m above the plain.

During the period from December, the 17th 2011 to January the 21st 2012, I joined a team from the State University of New York at Stony Brook, led by Prof. Elizabeth Stone. In collaboration with a team from the Iraqi State Board of Antiquities and Heritage, we dug another small remote site in the vicinity of Ur. The site of Tell Sakhariya dates back to the period between the late Old Babylonian to early Kassite periods, or what is known as the first Sealand Dynasty (1721-1340 BC). A week before we finish the excavation, Franco and his team arrived to start their first field season at

Abu Tbeirah. We were delighted to share the dig house at Ur with them as well as the equipment and tools. The goal of digging both Abu Tbeirah and Tell Sakhariya was the same: shedding light on the socio-economic, cultural, ritual, and spatial relations between a large urban centre of Ur and a nearby town and village.

Overall, after seven seasons of hard work, the site of Abu Tbeirah revealed the structure of a town that emerged in the 3rd mill. BC. The data have also shed light on the socio-economic relations between a medium town in the hinterland and the large urban centre of Ur. It also demonstrated that the site was located in a marsh area and was connected to Ur and other nearby settlements - as well as ones further afield - by a network of water passages, with a main and secondary canals connected to a water basin at the western edge of the site. Ethnographic data from villages and towns in the contemporary marshes support the notion that the site had a harbour; Corona satellite imagery from 1960s shows that the site was surrounded by seasonally submerged marshes (Figs 2.5-6).

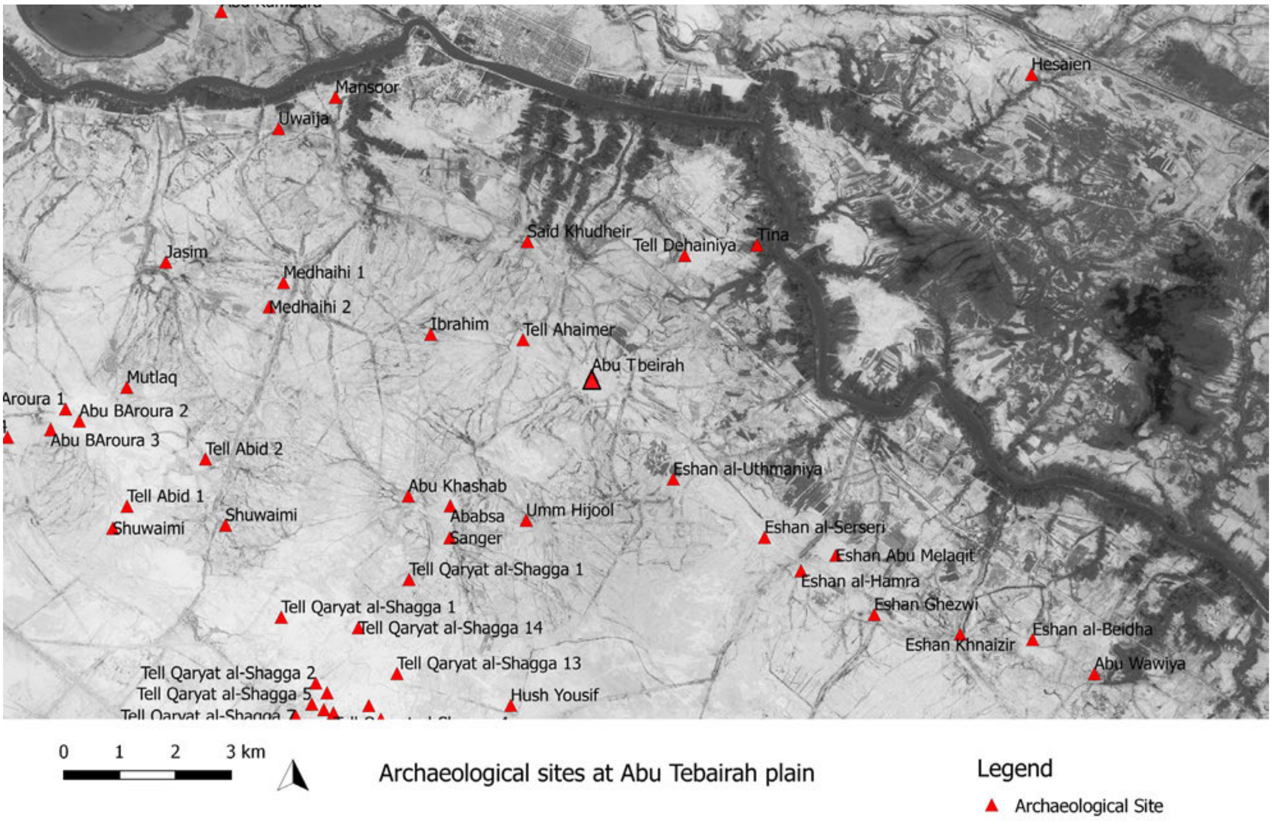

Fig. 2.5 Corona satellite imagery of Nasiriyah area with indication of the major archaeological sites (1969).

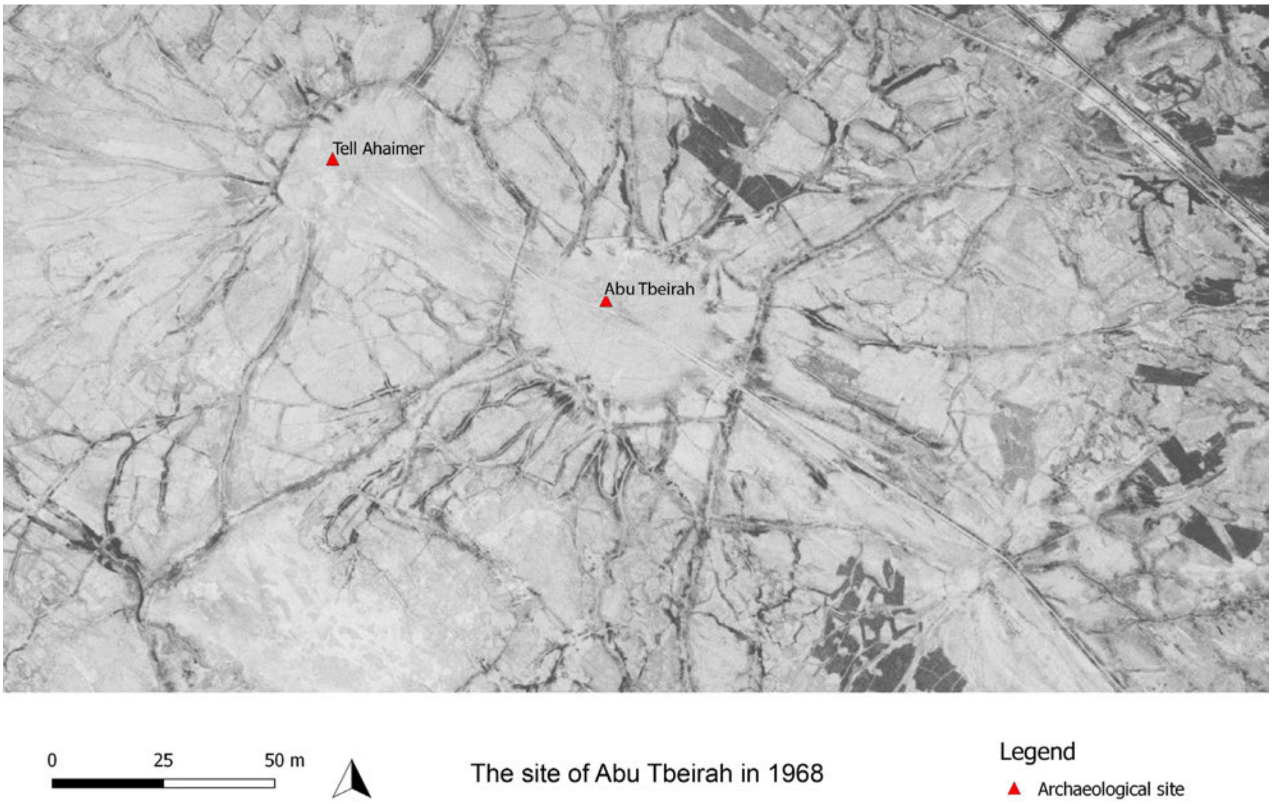

Fig. 2.6 Corona satellite imagery of Abu Tbeirah and Tell Ahaimer (1968).

CHAPTER 3

GEOLOGY AND PALAEOENVIRONMENT OF NASIRIYAH AREA/SOUTHERN MESOPOTAMIA

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3.1 Geomorphology

The Mesopotamian Plain constitutes the central and southern sector of the Iraqi territory having a length and width of about 720 km and 200 km respectively. It is a relatively flat terrain extending from Baiji in the north-west to the Arabian Gulf in the south-east; it is bordered to the north-east by the Zagros mountains belt and to the west by the Arabian Desert (Fig. 3.1). The Tigris and Euphrates rivers and their tributaries are the main waterways of the region, flowing through the plain for almost all of its extension. The two rivers, in fact, run separately onto a wide, flat, hot, and poorly drained floodplain for several hundred kilometres and merge to form the Shatt Al-Arab river in the south-eastern sector of the Mesopotamian Plain. Here the Shatt Al-Arab river flows for about 180 km before it enters in the Arabian Gulf where it forms, together with the Karun river, the Shatt Al-Arab estuary. In this last sector intermittent lakes, and marshy environments fed by the rivers in flood, are also present. Although much of the Marshland has been drained or has diminished as a result of drought, there are still large areas of permanent marsh, with additional areas becoming marshland only in years of great flooding.

The actual deposits of the plain are essentially fluvial and are represented by floodplain and channel deposits.[1] In particular the most prominent feature is a complex system of natural levees following the courses of the Euphrates and Tigris rivers, up to 3-4 m high, which laterally passes into a flood plain basin.[2] Such deposits are also associated to aeolian deposits and alluvial fans along the margins of the plain and to lacustrine and marshy deposits in the south-eastern sector of the plain.

Fig. 3.1 Geographic map showing the location of the Mesopotamian Plain.

Southern Mesopotamia, which is the investigated sector in this study, shows a present landscape characterized by a wide floodplain including active fluvial channels, natural levees, crevasse splays, flood basins that are inundated by the water of the Tigris and Euphrates during the Spring floods (Fig. 3.2); this sector displays also desert environments with dune fields and deflation areas that are

[1] Pournelle 2003; Pirasteh *et al.* 2009; Yacoub 2011b; Hritz *et al.* 2012.

[2] Verhoeven 1998.

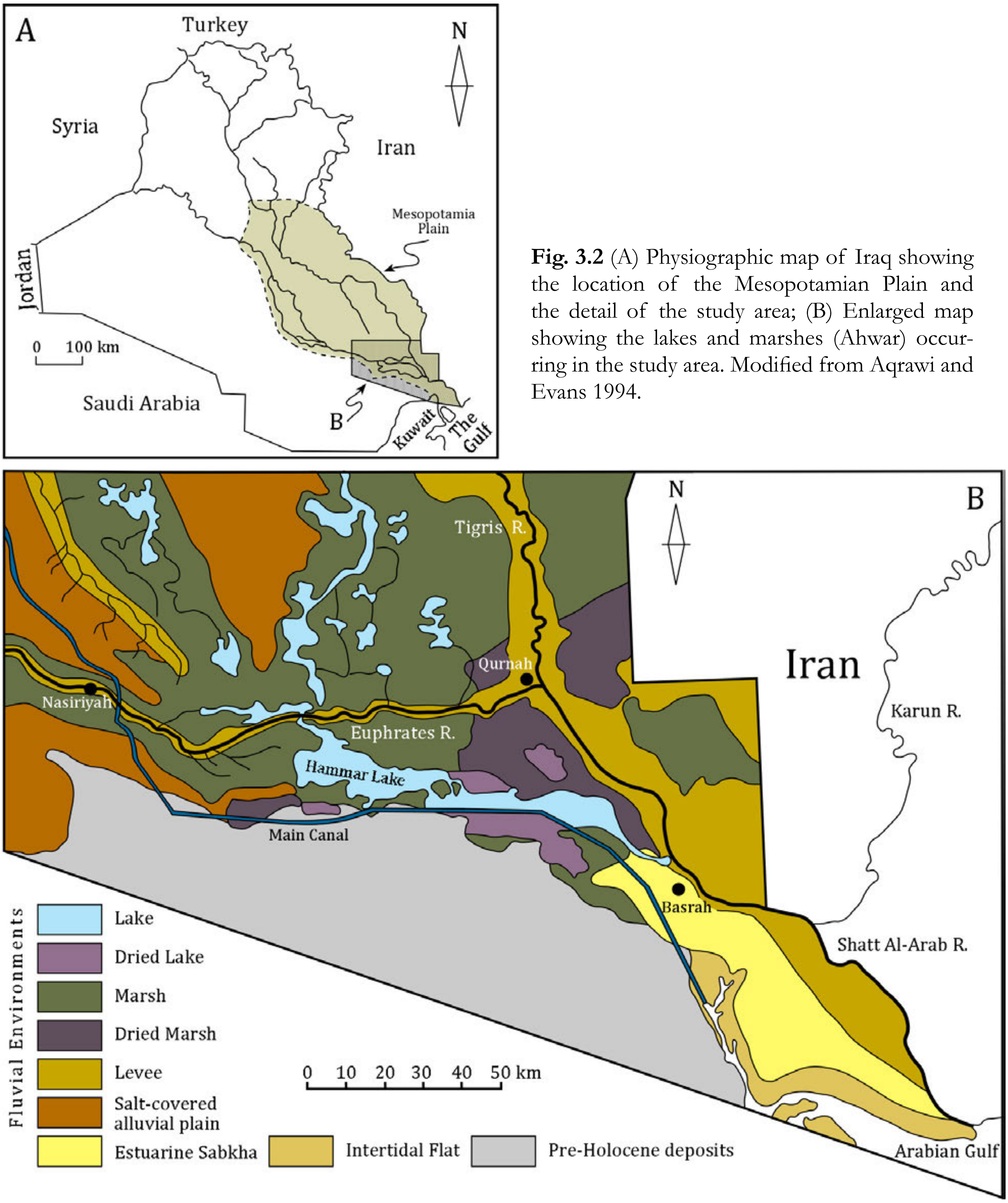

Fig. 3.2 (A) Physiographic map of Iraq showing the location of the Mesopotamian Plain and the detail of the study area; (B) Enlarged map showing the lakes and marshes (Ahwar) occurring in the study area. Modified from Aqrawi and Evans 1994.

subject to intensive salinization.[3] This sector of the Mesopotamian Plain is also covered by shallow (generally less than 3 m deep), fresh-brackish water lakes, surrounded by reed beds and marshes, which together are locally called "Ahwar".[4] The two main freshwater lakes are the Zechri and Baghdadiyah Lakes, whereas the most extensive brackish water lake is the Hammar Lake (Fig. 3.2). Generally, the water of these lakes shows salinity and temperature fluctuations related to the seasonal variation of the air temperature, rainfall and evaporation, as well as the effect of varying river discharges during the year.[5] As evidenced by Aqrawi and Evans[6] during winter and spring the high river discharges raise

[3] Aqrawi - Evans 1994; Verhoeven 1998; Morozova 2005.
[4] Aqrawi - Evans 1994; Verhoeven 1998; Aqrawi 2001.
[5] Bozkurt - Sen 2011.
[6] Aqrawi - Evans 1994.

the water level in the Ahwar and lower the salinity of the water. By contrast, during the summer and early autumn, the low discharges coupled with the high air temperatures and evaporation result in an increase of salinity and water temperature.

The waters of the Tigris and Euphrates were extensively exploited for irrigation of the lower Mesopotamian Plain since the 6th mill. BC, consequently human impact played a leading role in modifying the ancient and the more recent landscape of this region through the construction of canals and settlements. Thus, the location of the ancient Tigris and Euphrates channels and the avulsion processes played an important role in the development of Mesopotamian civilization and in the settlement distribution of the urban centres, as well as their emergence and decline.[7] As highlighted by more recent studies, which investigated this area using a combination of geological, geomorphological, remote sensing, historical and archaeological approaches,[8] the present drainage pattern of the plain is rather different from that formed during the last 6000 years; in fact, several palaeochannels were identified and dated also evidencing a different age of the channels between the eastern sector (where the channels are older) and the western sector (where the channels are younger). Such changes reflect the effects of the autogenic and allogenic processes as well as the human influence,[9] so that most of the archaeological studies which were carried out in this area[10] have assumed that periods of active channels are closely linked to the age of archaeological settlements and most of the identified ancient settlements were established on the sectors where active channels occurred.[11] On this basis Jotheri and Allen[12] recognized in the Uruk area (just about 50-70 km north of Nasiriyah), more than 400 archaeological sites (period of time between 5950-2950 yr. BP) that are associated with palaeochannels having an anastomosing pattern that encloses flood basins. It is suggested here that a similar setting could probably have occurred in the Abu Tbeirah area about 4200 yr. BP, although this last area was nearest to the coast, occupying the internal plain of the Euphrates delta.

3.2 Geological Setting

From a geological point of view, the Mesopotamian Plain represents a portion of the larger Mesopotamian Foredeep,[13] a basin placed between the Arabian plate and the south-west-migrating Zagros fold-and-thrust belt, (ZFTB),[14] which extends from the north-east Syria to the Strait of Hormuz (Fig. 3.3). The Mesopotamia Foredeep consists of two main domains: 1) a terrestrial domain (the Mesopotamian Plain) that covers part of north-east Syria, Iraq, Kuwait and the coastal plain of Iran, and 2) a marine domain represented by the Arabian Gulf.[15]

The Mesopotamian Plain that occupies a large part of the Iraqi territory constitutes a subsiding basin,[16] with a thick Phanerozoic succession that was subdivided into three main tectono-stratigraphic units:[17] 1) the older Cambrian - Early Permian unit, 5 km thick, is dominated by siliciclastic sediments deposited in a shallow epicontinental sea;[18] 2) the Late Permian - Middle Cretaceous unit, also 5 km thick, consists of neritic and lagoonal evaporites, shales and carbonates at the base, passing upward to an alternation of shallow water carbonates and sandstones deposits; 3) the Late Cretaceous presents foreland deposits that show a highly variable thickness in different parts of the Iraqi territory; they consist of Palaeogene carbonate at the base passing upward to Neogene lagoonal and restricted marine evaporate facies, further replaced upwards by terrigenous continental and deltaic deposits.[19]

[7] Gibson 1972; Schumm 1977; Adams 1981; Diakonoff 1991.
[8] Hritz - Wilkinson 2006; Jotheri *et al.* 2014; 2016; 2018.
[9] Heyvaert - Baeteman 2008; Heyvaert *et al.* 2010; 2012; Wilkinson *et al.* 2015.
[10] See for example Adams 1981; Cole 1994; Cole - Gasche 1998; Morozova 2005.
[11] *E.g.* Adams 1981; Wilkinson - Jotheri 2015; Wilkinson *et al.* 2015; Jotheri *et al.* 2016; 2018.
[12] Jotheri - Allen 2017.
[13] Fouad 2010.
[14] Baltzer - Purser 1990; Alavi 1991; 1994; Allen - Talebian 2011; Carminati *et al.* 2013; Aldega *et al.* 2014; Garzanti *et al.* 2016.
[15] Berberian 1995; Alshrhan - Nairn 1997; Sharland *et al.* 2001; Alavi 2004; Fouad - Nasir 2009.
[16] Jassim - Goff 2006; Jassim - Al-Jiburi 2009.
[17] Fouad - Sissakian 2011; Sissakian 2013.
[18] Beydoun 1991; Alsharhan - Nairn 1997; Sharland *et al.* 2001.
[19] Fouad 2010.

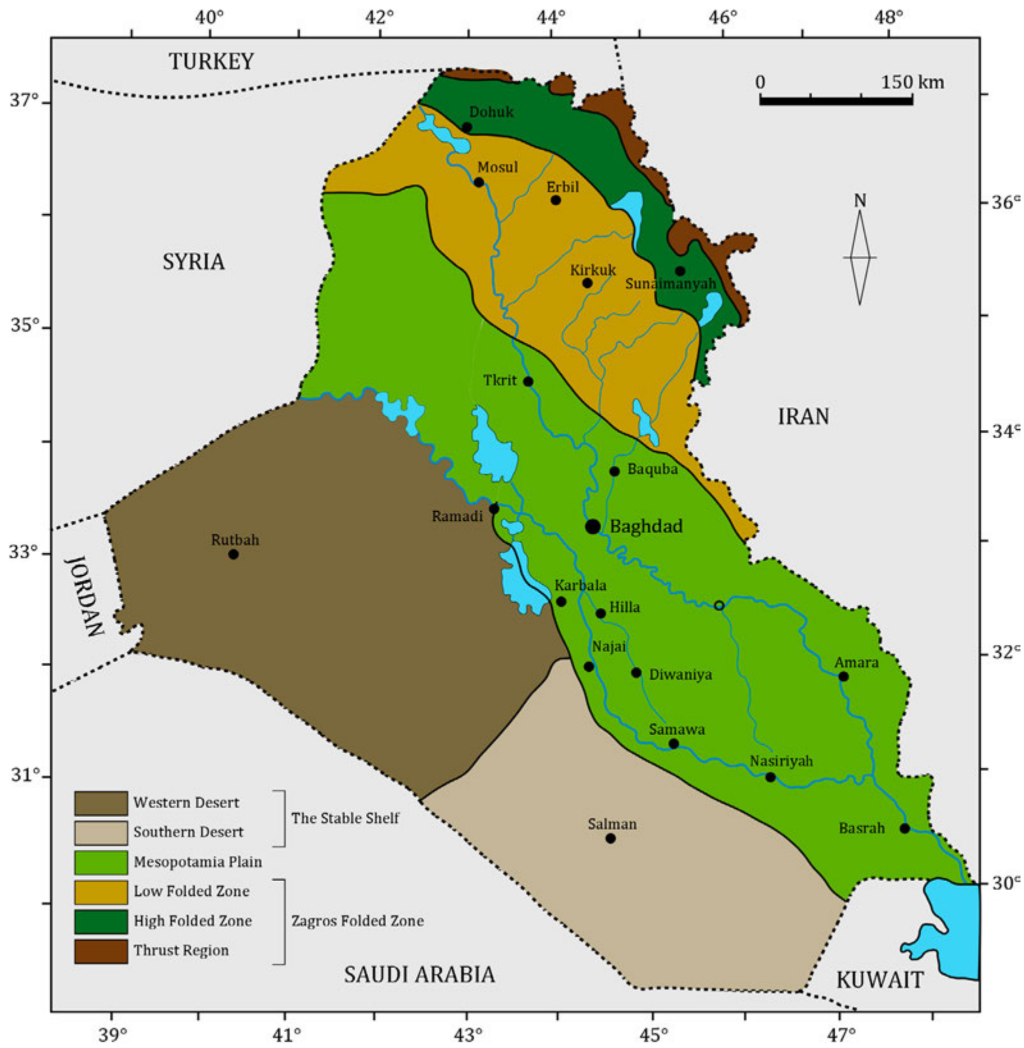

Fig. 3.3 Physiographic map of Iraq showing the location of the Mesopotamian Foredeep between the Arabian Plate and the Zagros fold-and-thrust belt. Modified from Sissakian 2013.

Subsurface investigations of the Mesopotamian Plain have revealed an asymmetric geometry of this basin with a wedge-shaped profile and a maximum sediment thickness in correspondence to the Zagros orogenic front that gradually decreases south-west towards the undeformed continental interior.[20] Such investigations have shown that a number of buried tectonic structures including folds, faults and diapiric structures occur. Many of these buried structures are still active, indicating neotectonic movements that can be observed through their effects on the Pleistocene-Holocene stratigraphy and coastline position, and through a modification of the Quaternary landforms; the latter is, in fact, characterized by abandoned river channels and shifting of river courses (both processes recognized for the Tigris and Euphrates rivers), and the different activities of the alluvial fans, mainly developed along the eastern margin of the Mesopotamian Plain.[21]

3.3 The Quaternary Deposits

The Quaternary deposits cover the totally of the Mesopotamian Plain and are mainly represented by gravels, sands, silts and clays that are essentially related to the cyclic fluvial sedimentation of Tigris and Euphrates rivers with their tributaries and distributaries. During the Pleistocene and Holocene, the basin, in fact, was supplied with

[20] Sissikian - Deikran 1998.

[21] Al-Sakini 1993; Fouad - Sissakian 2011.

sediments, derived by erosion of the Zagros fold-and-thrust belt and the Arabian Platform, through active fluvial systems. Thus, the infill sediments of the basin are essentially fluvial, deltaic, and lacustrine deposits although during the Holocene, estuarine, marine and aeolian sediments were also deposited (Fig. 3.4).[22] The Quaternary sediments of the Mesopotamian Plain, were investigated through a detailed geological survey either of the cropping out deposits, or of the subsurface deposits. The latter, in particular, were examined through several shallow and deep boreholes (from 20 to 200 m depth respectively),[23] which allowed to show a progressive thickening of the Quaternary deposits from north-west to south-east, with their maximum thickness, about 180 m, near Basrah city.[24]

On this basis and taking into account the climatic changes occurred during the Quaternary, three main stratigraphic units were recognized in these deposits on the basis of their age:[25] 1) a unit of Pleistocene age; 2) a unit of Late Pleistocene-Early Holocene; 3) a unit of Mid-Late Holocene age. For the chronostratigraphic subdivisions of the Quaternary we referred to the *International Chronostratigraphic Chart* (2018).

The Pleistocene sediments are constituted by fluvial and alluvial fan deposits that occupy the central and marginal sectors of the Mesopotamian Plain respectively. Such deposits are essentially represented by an intricate interbedding of gravels, sandy gravels, sands, silt and silty clay, with a prevailing of sands and silt on large part of the plain and the coarser sediments along the margin. They record alternating pluvial and inter-pluvial phases, which correspond to the well-known glacial and inter-glacial phases that have characterized the Pleistocene and that have produced significant glacioeustatic sea-level changes. In our opinion, such Pleistocene fluvial deposits contain several subaerial unconformity surfaces, which represent the depositional sequence boundaries formed during the Pleistocene glacioeustatic sea-level oscillations. The most recent of these unconformity surfaces was formed during the sea-level fall that followed the last highstand phase correlated with the MIS 5.5. In our opinion, such unconformity occurs on top of the Pleistocene fluvial deposits, which show in the southern portion of the Mesopotamian Plain a distinctive and slightly weathered brown silt clay or clay layer, from 2 m to 5 m thick, which constitutes

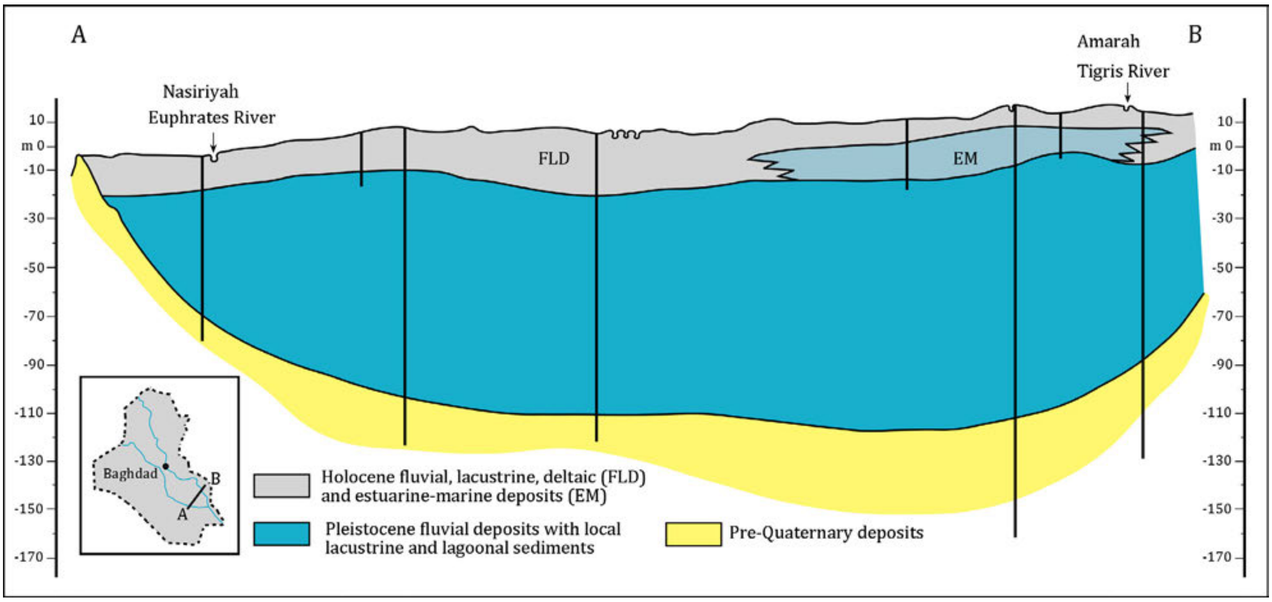

Fig. 3.4 Subsurface geological cross-section of the southern Mesopotamian fluvial basin between Nasiriyah and Amarah. Modified from Yacoub *et al.* 1985.

[22] Yacoub *et al.* 1985; Aqrawi - Evans 1994; Yacoub 2011b.
[23] Hamza - Domas 1980; Hamza - Yacoub 1982; Domas 1983; Yacoub 1983; Yacoub *et al.* 1985.
[24] Yacoub - Barwari 2002.
[25] Yacoub 2011b.

the expression of a mature palaeosoil, indicating a long subaerial exposure.

Based on what was stated previously, both units 2 and 3 are here considered to be the product of deposition during the last glacial-interglacial cycle of post-Tyrrhenian age. The unit 2 (Late Pleistocene-Early Holocene age), consisting of i) alternating layers of sand, silt and silty clay forming the distal portions of alluvial fan, ii) coarse-grained subaerial gravity flows sediments mixed with gypsiferous sands, and iii) gypsum-indurated layers (Gypcrete), was deposited in a hot, arid or semiarid climate condition and in a basin that had internal drainage; it is considered to be formed during the falling, stillstand and the rise of relative sea-level. The unit 3 (Mid-Late Holocene age) which includes sediments of different origins, such as fluvial, lacustrine, marine, estuarine, aeolian, anthropogenic and all the deposits of the modern sedimentary environments of the Mesopotamian Plain is, instead, considered to be formed under rising and highstand sea-level conditions that determined a landward (transgression) and a subsequent depositional regression of the coastline respectively. Data from MacFadyen and Vita-Finzi and Purser *et al.*[26] suggest also a tectonic deformation of these recent deposits with an elevation of +2 m at Amarah and a subsidence from Nasiriyah to Qurnah. This suggests that the highstand progradation was probably also favoured by a slight drop of sea level.

3.4 The Holocene Stratigraphy and Sedimentology of the Southern Mesopotamian Plain

The presence of Holocene marine sediments (*e.g.*, Hammar Formation) was particularly recognised in the southern Mesopotamian Plain where different locations for the point of maximum marine transgression, *e.g.* the maximum landward migration of the shoreline at 6000 yr. BP, were proposed on the base of stratigraphic, sedimentological and archaeological data. Cooke [27] suggested the sea reached the locations of Diwaniya and Kut, whereas Sanlaville, Aqrawi and Kennett and Kennett suggested the alignment between Nasiriyah and Amarah as coastline position at 6000 yr. BP (about 270 and 260 km north of the present day northern Arabian Gulf respectively).[28] As suggested in these notes, based on the recent acquisition of stratigraphic-sedimentological data and through various remote sensing techniques, it is possible to confirm this last coastline position as the most probable. This is also confirmed by the spectacular remote sensing images that show the plan geometries of the coeval Euphrates and Tigris deltas, geometries that resemble the river-dominated deltas.

More in detail the subsurface Holocene deposits of the southern part of the Mesopotamia Basin are well preserved in Amarah, Nasiriyah and Basrah areas; they are about 15-20 m thick and can be subdivided into three stratigraphic units (from bottom to top): 1) a lower fluvial sandy unit, rich in gypcretes often associated to ancient plays deposits; 2) an estuarine brackish/marine unit, and, 3) an upper fluvial/lacustrine unit.[29] Both the unit 1 and 2 are transgressive and were deposited during the Holocene sea-level rise (Early-Mid Holocene), whereas the unit 3 was formed during the Holocene highstand phase (Late Holocene) and shows a progradational character.

1) The lower fluvial unit consists of floodplain silty sand sediments rich in gypcretes; it prevalently occurs on the eastern side of the basin and grades laterally into marsh/lacustrine silty sand deposits rich in organic matter along the axis of the Mesopotamia depression. Playa evaporitic clayey sandy silt occurs towards the western desertic margin.[30] Such unit was formed during the Early Holocene, and shows a thickness that increases toward south, from Qurna to Basrah.

2) The estuarine brackish/marine unit, from 5 to 12 m thick, is known in literature as the Hammar Formation[31] and is attributed to the Mid Holocene.[32] It is constituted by fine to medium grey sand, alternating with brownish and greenish grey silty clay and clayey silt. Clayey silts and silty clays are more abundant from Amarah to Qurnah, whereas south of Qurnah the fine

[26] MacFadyen - Vita-Finzi 1978; Purser *et al.* 1982.

[27] Cooke 1987.

[28] Sarnthein 1972; Sanlaville 1989; Aqrawi 1995a; 2001; Kennett - Kennett 2006.

[29] Yacoub *et al.* 1985; Aqrawi 1995a; 1995b; Yacoub 2011b.

[30] Aqrawi 2001.

[31] Hudson *et al.* 1957.

[32] Aqrawi 1995a; 1995b; 2001.

sands are the dominant sediment. This unit is subdivided into four subunits, from bottom to top: i) a basal shelly layer with authigenic brackish-water dolomite; ii) a thick, grey marine clayey silt with abundant marine fauna; iii) a coastal marsh/intertidal silty clay; and iv) a sabkha gypsum evaporite, particularly developed in the western margins of the plain.[33] The mixture of fresh water and marine fauna, essentially represented by mollusks, and numerous foraminifera, crab and echinoid fragments,[34] suggests that the southern part of the Mesopotamian Plain was flooded during the Mid Holocene. In fact, as evidenced by Sanlaville, Lambeck, Kennett and Kennett,[35] from the peak of the glaciation until about 14000 yr. BP, the Arabian Gulf was totally in subaerial conditions. Starting from 14000 yr. BP with the post-glacial sea-level rise, the Gulf was flooded. The rise of sea-level was rapid until ~ 9000 yr. BP (estimated value ~10-11 mm per year) allowing a landward migration of the coastline that probably exceeded 1000 m per year.[36] Such flooding of the Arabian Gulf coincided with a major humid conditions associated with an increased seasonal rainfall between 10000 and 6000 yr. BP, which is witnessed by several indicators including geochemical evidences,[37] sedimentological and geomorphological evidences,[38] pollen evidences,[39] and palaeoceanographic and climatic evidences from oxygen isotopic values.[40] Successively the rate of sea-level rise slowed reaching a value of ~3 mm per year in the last 7000 years. This sea-level rise trend is similar to that documented in the Mediterranean basin in correspondence of the main deltaic apparatus.[41]

In the Arabian Gulf the present shoreline was reached probably about 7000-8000 yr. BP (Fig. 3.5) and was surpassed as sea level rose above its present level by about 2-2.5 m. The sea-level rise reached its maximum about 6000 yr. BP; this allowed to flood much of the Mesopotamian Plain giving rise to an estuarine shallow-marine-lagoon environment, which stretched along the axis of the valley developed in the most depressed sector of the Mesopotamian Plain (Fig. 3.6).[42] What was the real northern extension of this estuary is not known precisely, although Cooke[43] indicated about 400 km inland from the present shoreline. With the stabilization of the sea-level and the strongly reduced accommodation space, fluvial aggradation was at the minimal; the Tigris and Euphrates rivers moved rapidly towards south-east, forming a shoreline along the alignment between Amarah and Nasiriyah with well-developed river-dominated deltas.

3) The upper fluvial/lacustrine unit developed essentially during the Late Holocene and includes also the modern sedimentary environments of the plain.[44] This unit, some meters thick, was deposited in connection to a seaward coastline migration related to the highstand progradation of the Tigris and Euphrates deltas. Deltaic progradation was particularly rapid between 6000 and 4000 yr. BP[45] due to the well-developed multiple fluvial channel networks (Fig. 3.6). Such environmental setting increases avulsions processes, and this consequently brought an increase in irrigated floodplain areas, agricultural productivity, and human settlements;[46] these processes could not have been developed without a near-stable (stillstand) position of sea-level.[47]

Deltaic progradation slowed significantly between 4000 and 3000 yr. BP (sedimentation rate of about 1.0 mm/yr) due to the increase of aridity, a process that had already begun between 6000 and 5000 years ago, and which continued to increase through the Late Holocene. The consequence of this was the gradual abandonment of these channel networks and the transition to the present two-channel system.[48] This determined the

[33] Aqrawi 1995a; 1995b; 2001.
[34] MacFayden - Vita-Finzi 1978.
[35] Sanlaville 1989; Lambeck 1996; Sanlaville 2003; Kennett - Kennett 2006.
[36] Teller *et al.* 2000.
[37] Sirocko *et al.* 1993.
[38] Diester-Haass 1973; Hötzl *et al.* 1984; Dabbagh *et al.* 1998.
[39] Wright 1993; Yan - Petit-Maire 1994.
[40] Rossignol-Strick 1987; Haynes *et al.* 1989; Street-Perrot - Perrott 1990; Almogi-Labin *et al.* 1991.
[41] See Warne - Stanley 1993; Amorosi - Milli 2001; Milli *et al.* 2013; 2016.
[42] See the proposed reconstruction reported in Cooke 1987, Aqrawi 1995a, 1995b, 2001, Kennett - Kennett 2006, and what we proposed on the basis of our considerations.
[43] Cooke 1987.
[44] Larsen - Evans 1978; Aqrawi 1995a; 1995b; 2001.
[45] Sedimentation rate of about 1.8 mm/yr; Aqrawi 1995a.
[46] Morozova 2005.
[47] Kennett - Kennett 2006.
[48] Sanlanville 1989; Aqrawi 2001; Sanlaville 2003.

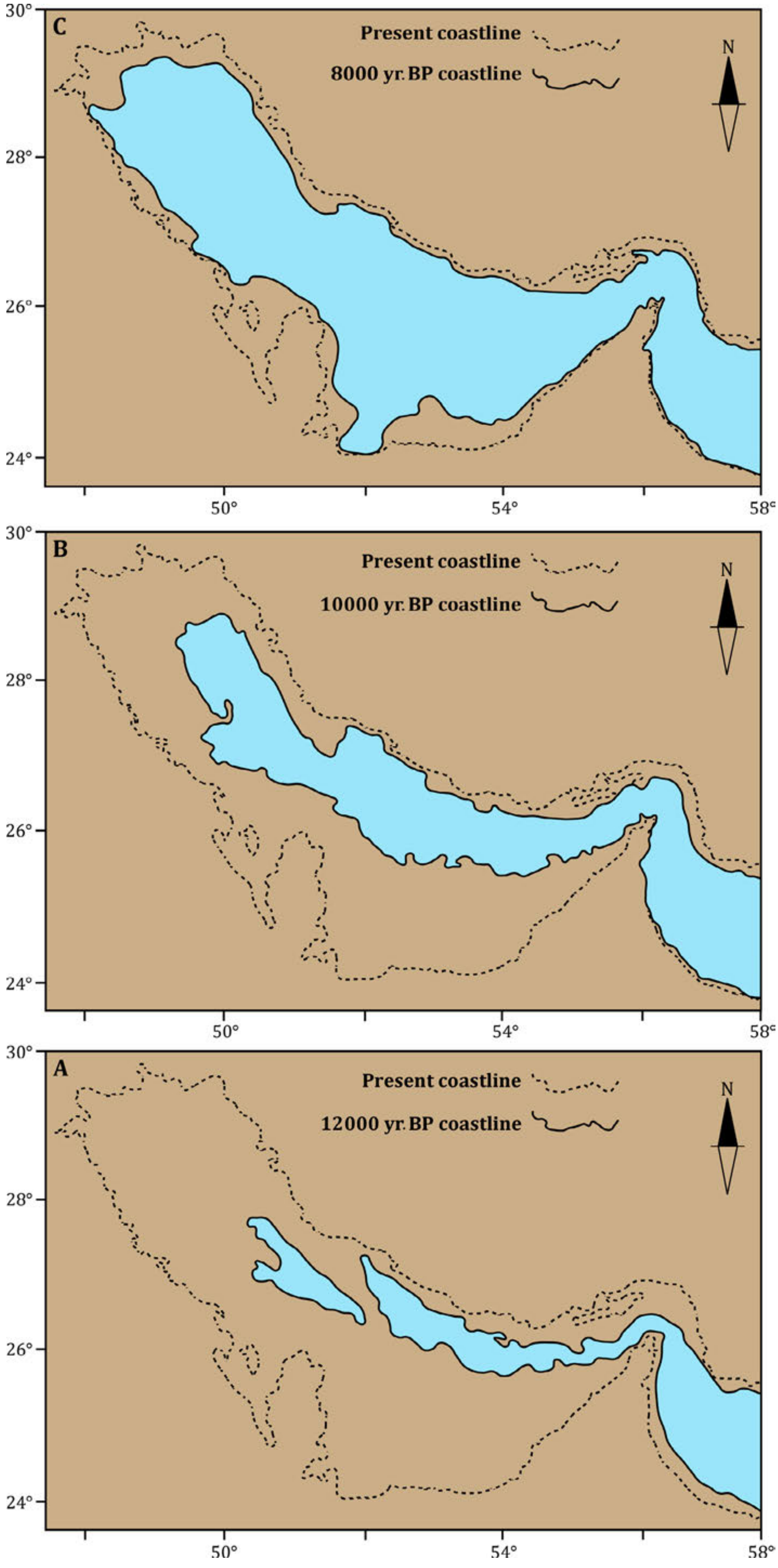

Fig. 3.5 Palaeoshoreline reconstructions of the Arabian Gulf at: (A) 12000 yr. BP; (B) 10000 yr. BP; (C) 8000 yr. BP. Modified from Lambeck 1996.

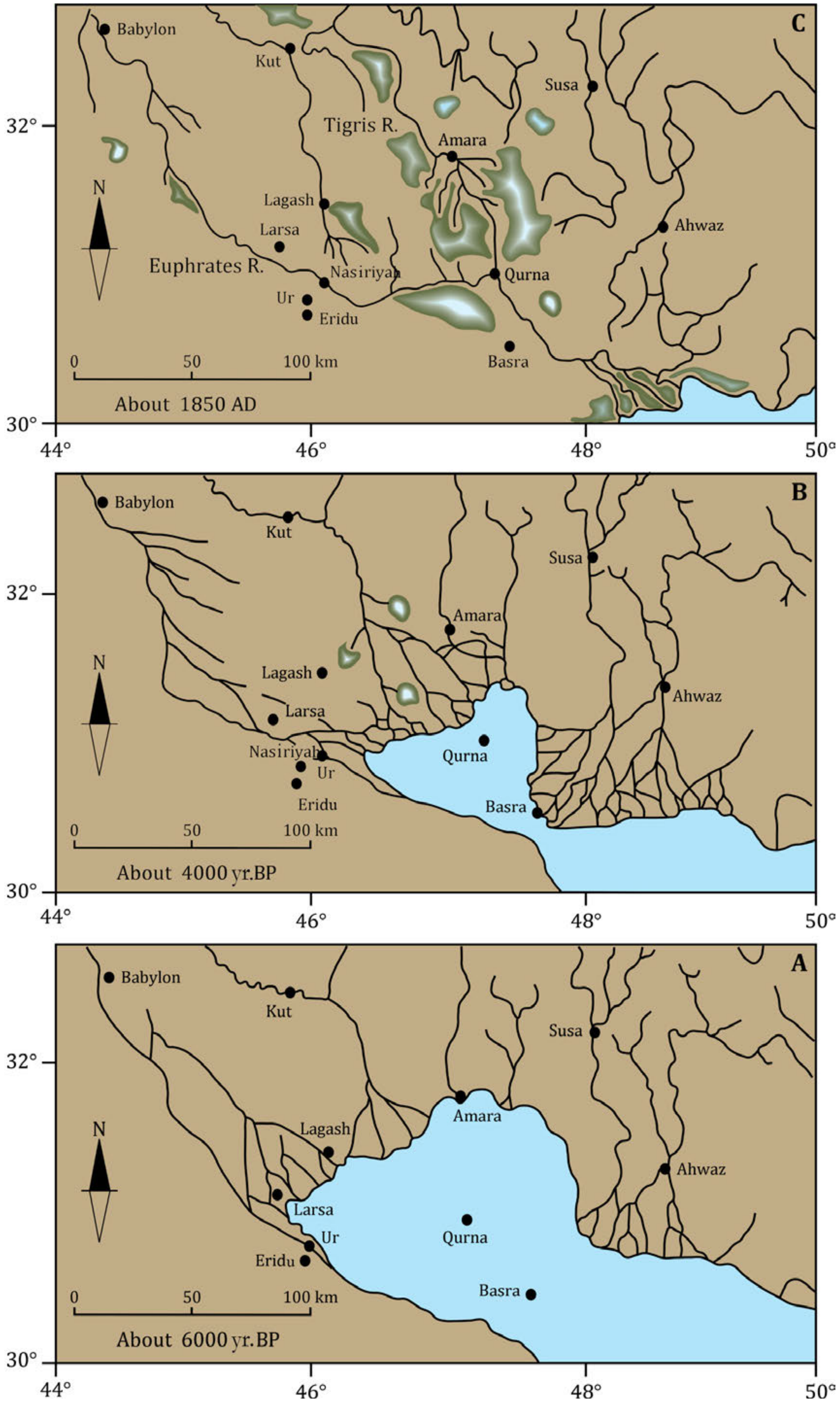

Fig. 3.6 Palaeogeographic maps of southern Mesopotamia showing the historical changes of the Gulf shorelines at: (A) 6000 yr. BP; (B) 4000 yr. BP; (C) 1850 AD. Green areas indicate marshlands. Modified from Aqrawi 2001.

decline of many urban and rural settlements and the migration of population to other areas.[49] As evidenced by Aqrawi and Evans[50] in the Ahwar area, freshwater conditions have persisted since about 3000 yr. BP. During the later stages of the Holocene the sedimentation rate of about 0.4 mm/yr was not exceeded.

The Gulf probably attained its present configuration around 1000 AD as result of the construction, south of Basrah, of the Shatt Al-Arab delta. This latter is, at the present, mainly supplied by the Karun river, whose sediments are essentially derived from the northern Zagros mountains and from the small rivers draining the Arabian Platform.

During this last period several depositional environments (briefly described below) developed in this area, whose characters reflect the important climate changes that occurred during the last evolutionary phase of the Mesopotamian Plain.

The floodplain environments (mostly with fine and medium sand, clayey silt and silty clay) are the most extensive environments occupying the Mesopotamian Plain where interfingering sinuous channels, levees, crevasse splays and flood basins occured. Deposition of these sediments is strictly related to the Euphrates, Tigris, Shatt Al-Arab Rivers and their tributaries.

Extensive reed-marshes dominated by *Phragmites* sp., and *Typha* sp. and lakes with fresh and brackish water are strongly represented in the southern Mesopotamian Plain forming the marshland areas called Ahwar. The sediments occurring in these environments, generally silts with minor percentage of clay and fine sand, are supplied by the Tigris and Euphrates seasonal floodwaters, and by wind that transport aeolian dust and sand during the storms from the western deserts in summer.[51] Such deposits, about 1 m thick, consist of three separate layers (from bottom to top): 1) a basal brackish/marine silty clay or/and clay layer with foraminifera and ostracods; 2) a clayey silt with mollusc shells; and 3) an organic-rich sandy silt layer. Radiocarbon dates indicates that these deposits do not exceed the 2500 yr. BP and that the layer 3 began to develop about 400 year sago. All these data suggest that this sector of the Mesopotamian Plain was once brackish shallow water restricted environment, which became infilled by fluvial sediments carried by Euphrates, Tigris, and by aeolian sediments transported by wind.[52]

Sabkhas are typical arid and semiarid climatic environments, which develop due to the alternating wet and dry seasons and for intensive evaporation of salty water occurring on the surface or rising to the surface from shallow underground water. In the Mesopotamian Plain they occur in the inland and coastal sectors. The inland sabkhas are mainly developed along the western and southern margins of the Plain, between the Tigris floodplain and the eastern alluvial fans, and in the central sector of the Plain between the Tigris and Euphrates Rivers. In the coastal sector, well-developed sabkhas occur between the Shatt Al-Arab floodplain and Khor Al-Zubair. From a compositional point of view sabkha sediments are rich in sulfates, mainly gypsum and are less than 0.5 m thick. In the western and southern sabkhas due to the major influence of winds the sediments show a higher content of sand. Regarding the age of these deposits, sabkhas began to develop during the last phase of Holocene and continue to the present day.[53]

Moving towards the coastal sector, associated with Shatt Al-Arab floodplain and the sabkha environment a tidal flat occurs south of Basrah. Along the tidal flat, silt and clay are the predominant sediments, whereas sand occurs in minor percentage. These deposits that are about 2 m thick began to form starting around the Late Holocene and continued to recent time.[54]

Aeolian sediments were formed during the arid and semi-arid climatic conditions, which were active from the Late Holocene. Most of them form extensive sand dune fields with a north-west/south-east orientation that are located along the north-eastern and south-western margins and the central part of the Mesopotamian Plain. The

[49] Wright 1981; Nissen 1988; Weiss *et al.* 1993; Morozova 2005.

[50] Aqrawi - Evans 1994.

[51] Aqrawi - Evans 1994.

[52] Aqrawi - Evans 1994; Aqrawi 2001.

[53] Yacoub 2011a.

[54] Yacoub 2011a.

thickness of aeolian deposits range from one meter to five meters, although it attains 25-30 m in the south-west of Samawa.[55]

The most important human activitiy in the Mesopotamian Plain is represented by the artificial irrigation canals system that developed starting around 7000 years BP (see § 4). Such canals are generally concentrated near the ancient cities and along the main abandoned river courses. The modern irrigation network extends over the floodplain deposits and is able to transport and deposit even coarse sediments during river flood events.

3.5 Stratigraphy of the Nasiriyah Sector

The area of Nasiriyah where Abu Tbeirah is located is essentially occupied by fluvial floodplain environment where several sub-enviroments including marshes, levee, crevasse splay and salt-covered plain occur. These environments developed during the latest phase of the Holocene and are substituted downward by the brackish/marine deposits of the Hammar Formation (Middle Holocene), which, in turn overlie playa and fluvial deposits rich in gypcretes of the Early Holocene. In terms of composition these Holocene deposits are on average constituted by quartz (20%), feldspar (10%), calcite (30%), dolomite (20%), Mg-calcite (< 5%), aragonite (< 5%), gypsum (15%). In particular detrital calcite and quartz mainly occur in the fluvial and aeolian sediment. These two minerals are usually followed in abundance by dolomite and feldspar. Dolomite, in particular, reaches its highest values in the playa and sabkha environments, as well as in the brackish marine unit of the Hammar Formation. Aragonite generally occurs as main component of the molluscan shells, while gypsum is restricted mainly to the upper near surface layers of the dried-out areas and to the evaporitic units as scattered crystals.[56] All these data suggest that brackish conditions mainly occurred in southern Mesopotamia from 6000 yr. BP to 3000 yr. BP, although locally the chemistry of the water changed related to sea-level fluctuations and fluvial input. Starting from 3000 yr. BP brackish conditions were replaced by freshwater conditions as a consequence of the further seaward progradation of the Tigris and Euphrates deltas.

A recent boring made with a hand auger that reached the depth of about 6 m, was realized in the middle of the area where a human structure interpreted as a harbour was identified (Fig. 3.7).

Grain size and other textural attributes, as well as colour of the sediments were the main described features. Other aspects such as the presence of shelly debris, organic matter, wood fragments, peat and roots were also taken into consideration as useful features for environmental interpretation.

The extracted cores revealed a stratigraphy that can be attribute to the latest Middle and Upper Holocene fluvial floodplain deposits, which formed during the seaward progradation of the Tigris and Euphrates deltas in the last 6000 yr. BP. From top to bottom the following units can be recognized (Fig. 3.7):

1. a yellowish brow clay, silty clay and clayey silt unit (about 1.80 m thick) with a major organic matter concentration between 0.75 and 1.2 m depth. This unit was interpreted as a floodplain environment with local marsh;
2. a 1.2 m thick fining upward unit, with greyish brow sand at the base passing upward to light olive brown sand and light greyish olive clayey sand. The character of this unit suggests interpreting it as the filling of a small channel;
3. a 0.30 m thick unit of greyish brown clay alternating with sand layers. This unit was interpreted as a levee deposit;
4. a 2 m thick dark yellowish-brown clay and sandy clay unit, with small lens of sand, sparse organic matter and fragments of pottery, interpreted as a floodplain environment with local marsh;
5. a 0.70 m thick unit showing very dark greyish peat with fragments of shells at the base evolving upward to brow clay and silty clay with organic matter and fragments of shells. These features suggest deposition in a marsh environment;
6. a 0.7 m thick light olive brown sandy clay and clay unit that has been attribute to a floodplain environment.

[55] Yacoub 2011a.
[56] Aqrawi 1995b.

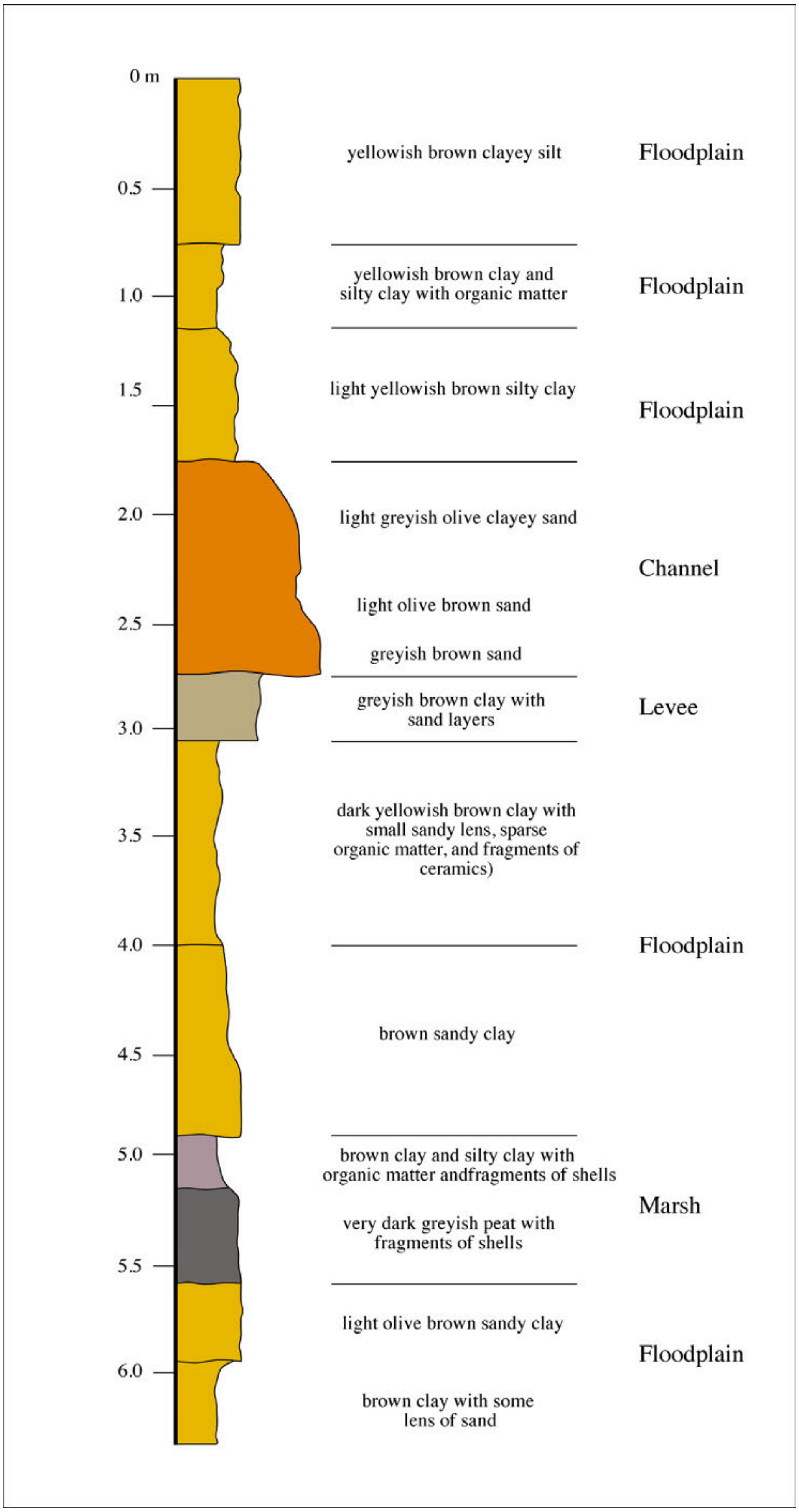

Fig. 3.7 Stratigraphic and environmental interpretations of the core recently made with a hand auger until the depth of about 6 m in the study area.

All the described features are consistent with a deposition of these sediments in a floodplain environment. It is not clear if the channel was artificial or natural; however, some elements seem to converge towards what was hypothesised through the archaeological studies: *e.g.* the presence of a fluvial dock, located on a secondary channel, which was connected with a main and large channel to the north (both placed south of Nasiriyah and Euphrates river), and probably with the sea to the south, through others secondary channels. This suggests that during the Sumerian period, and probably during the previous Ubaid, Uruk periods, the human communities also experimented with maritime activities, which helped to mobilize food surplus between settlements.[57] Such consideration highlights that during the Middle and Late Holocene the human cultural evolution in southern Mesopotamia was strongly influenced by important environmental changes in turn induced by global eustatic sea-level rise and climate changes (passage from humid to arid conditions). They modify the landscape and the environments, but most of all modify the lifestyle of the communities, favouring the emergence of highly centralized, urban-based states.

[57] See discussion in Kennett - Kennett 2006.

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CHAPTER 4

PALAEOENVIRONMENT, CLIMATE AND LAND USE IN SOUTHERN MESOPOTAMIA/NASIRIYAH AREA

CHAPTER 4
PALAEOENVIRONMENT, CLIMATE AND LAND USE IN SOUTHERN MESOPOTAMIA/NASIRIYAH AREA

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4.1 The Mesopotamian Palaeoenvironment

The past vegetation and climate changes in Mesopotamia have been the subject of several investigations through the analysis of pollen and Non-Pollen Palynomorphs (NPPs) (Fig. 4.1).[1] Although the available palaeoenvironmental reconstructions are supported by very few radiocarbon dates, they depict an interesting series of changes in the postglacial vegetational landscape, partly related to the geomorphological evolution of the floodplains and partly to changes in the precipitation regime and increased human activity.

Pollen records from caves and river valley sections in north-eastern Iraq show a quite different vegetation composition from the Mesopotamian Plain, with significant percentages of oak pollen, accompanied by *Pistacia*, *Olea*, and cereals, as documented by pollen analysis from several sites, often located near Palaeolithic caves, for example Zawi-Chemi Shanidar, Hawdian Cave, and Hazar Merd Cave.[2] This vegetation type is consistent with the orography of the region, which promotes rainfall (600-800 mm/year) and winter snow, thus allowing even at present the formation of oak and chestnut woodlands.

In addition to pollen records, plant macroremains were recovered in the early Neolithic village (ca. 9450-9300 cal BP) of Jarmo (Iraqi Kurdistan; Fig. 4.1), whose inhabitants cultivated and stored wheats (*Triticum*), two-rowed barley (*Hordeum*), peas (*Pisum*), lentils (*Lens*) and pistachio (*Pistacia*).[3] Remains of domesticated and wild animals were also found at Jarmo, including goat, gazelle, sheep, bovid, deer, dog, pig, bear, wolf, fox, leopard, cat, badger, beech marten, rodent, birds, tortoise, fishes, and rats.[4]

Several investigations on archaeobotanical remains from prehistorical archaeological sites in Iraq were published in the Sixties and Seventies, but they are not supported by radiometric datings. Zohary *et al.* report the results from the following sites:[5] Tell es-Sawwan, Samarra (7300-7000 cal BP),[6] Yarym Tepe (8th-6th mill. BP),[7] and Choga Mami (second half of the 8th mill. BP)[8] (Fig. 4.1). Here, plant remains of cereals (*Triticum monococcum*, *T. dicoccum*, and *Hordeum* sp.), legumes (*Lens*, and *Pisum*), and *Linum*, accompanied by wild taxa (e.g. *Pistacia*, *Prosopis*, *Capparis*, *Lolium*, *Avena* and other grasses) document agricultural activity and land use.

In the western Iraqi desert along the Euphrates River, an area currently characterized by mean annual precipitation around 150 mm, pollen data were published from the section of Barwana, 6 km south of Haditha City. They indicate that an open forest with *Pinus* (13-46%) and *Quercus* (up to 8.5%) was present during a postglacial

[1] Al-Rawi *et al.* 2005; Al-Ameri - Jassim 2011; Al-Ameri *et al.* 2011; Awadh *et al.* 2011; Al-Ameri - Al-Dolaymi 2013; Kumar 2015.
[2] Al-Ameri *et al.* 2011.
[3] Helbaek 1960.
[4] Al-Ameri *et al.* 2011.
[5] Zohary *et al.* 2012.
[6] Helbaek 1960.
[7] Bakhyeyev - Yanushevich 1980.
[8] Helbaek 1972.

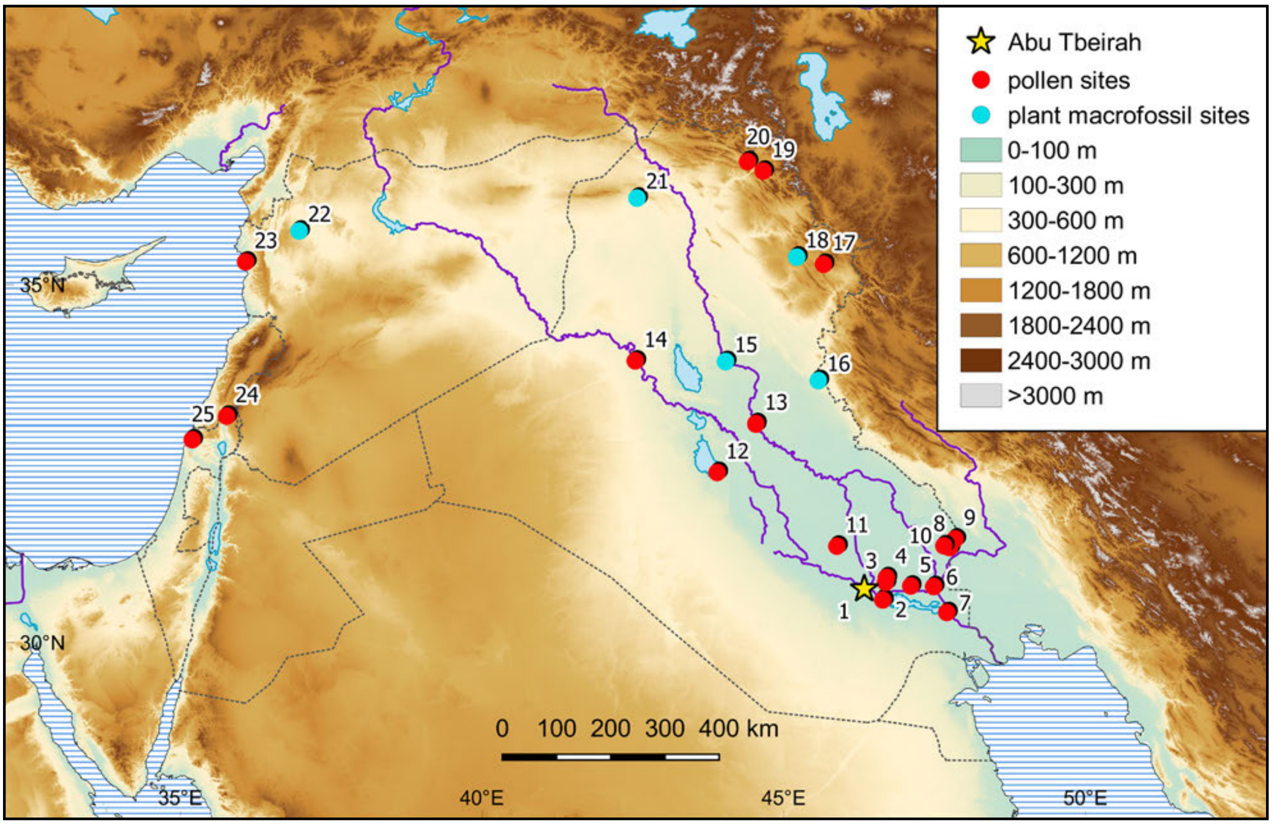

Fig. 4.1 Pollen and plant macrofossil sites mentioned in the text: 1. Abu Tbeirah; 2. Al-Kurmashiyah K6a; 3. Abu Zarak AZ6; 4. Abu Zarak AZ11; 5. Al-Baghdadiyah core 8C; 6. Borehole 18; 7. Al-Mashab core 11C; 8. Hwaiza-Ummulnaage core 1A; 9. Hwaiza-Udaem core 2; 10. Hwaiza-Ummulnaage core 11A; 11. Tell Umm al-Aqarib; 12. Razazza; 13. Al-Dora (South Baghdad); 14. Barwana; 15. Tell es-Sawwan; 16. Choga Mami; 17. Hazar Merd Cave; 18. Jarmo; 19. Hawdian Cave; 20. Zawi-Chemi Shanidar; 21. Yarim Tepe; 22. Tell Mardikh (Ebla); 23. Jableh; 24. Tel Dan; 25. Tel Akko.

phase when marine sediments were deposited.[9] This pollen assemblage suggests a climate much wetter than at present, with winter and summer precipitations supporting tree growth. Pine and oak pollen in significant percentages (>20% and >2%, respectively) are recorded for some time after the sediment deposition was not in marine environment any more. Then, an increase in Palmae is found (up to 19.4%), indicating warm climate, less humid than in the previous period, and presence of human activity. A subsequent increase in Poaceae (up to 45.3%) and Chenopodiaceae (up to 13.6%), indicating the emergence of steppe vegetation, together with Asteraceae (up to 15%) and Palmae (up to 15%), suggests a warmer climate. After a level characterized by sediments containing many archaeological pottery of different sizes, where pollen is absent, the pollen assemblage reflects widespread steppe-desert plants under semi-arid warm conditions, and the beginning of a desertification phase.[10] Towards the top of the record, an increase in Cyperaceae, probably deposited in swamps and wetlands, suggests a lowering of the river as a result of drought and possibly also of human intervention to cultivate the area surrounding the river. At the same time, a wide distribution of *P*almae, reaching the highest values (>20%) of the studied section, is recorded. At the top of the sequence, increasing percentages of desert shrubs show semi-arid warm climatic conditions similar to the current climate of the region, and continuous human impact on the environment.[11]

In the western Iraqi desert near Lake Rezazza (Fig. 4.1), where the mean annual precipitation is less than 100 mm, the vegetation of the last glacial period, characterized by percentages of

[9] Al-Ameri - Al-Dolaymi 2013.

[10] Al-Ameri - Al-Dolaymi 2013.

[11] Al-Ameri - Al-Dolaymi 2013.

chenopods over 80%, was replaced during the Holocene by a grassland with significant values of oaks and palms.

In central Iraq, a pollen record from the eastern bank of the Tigris river at Al-Dora site (south of Baghdad) shows an anthropogenic vegetation dominated by Poaceae, including cereals, and palms. Similarly to western Iraq, there is also a significant amount of *Pinus*, whose pollen may also be of distant origin.[12] A progressive increase in chenopods recorded at the top of the sequence suggests dryness and soil salinity in recent times.

In the wetlands of southern Iraq, a 152 m deep sediment core (borehole 18; Fig. 4.1), spanning approx. 50.000 years, was drilled between the cities of Qurna and Amarah.[13] The early Holocene sediments are mainly composed of clay and characterized by occurrence of marine dinoflagellate cysts, foraminifera linings, gastropods, and pelecypods. The pollen record of this time interval shows high occurrences of Poaceae and low values of chenopods and *Artemisia*, indicating an overall wet climate. The presence of palms may indicate high temperatures. In the upper part of the record, the sediment is mainly composed of clay and sand, deposited during the progradation of the shoreline. The vegetation was dominated by Poaceae and palms, with increasing values of *Artemisia* and chenopods in the top layers, indicating a progressive increase in temperature and annual evaporation rates, leading to the formation of evaporite beds and the current semiarid climate.[14]

Pollen analyses of eight 1 m long sediment cores (Al-Mashab core 11C, Al-Kurmashiya K6a, Al-Baghdadiyah core 8C, Abu Zarak AZ6, Abu Zarak AZ11, Hwaiza-Ummulnaage core 1A, Hwaiza-Ummulnaage core 11A, Hwaiza-Udaem core 2) (Fig. 4.1) depict the late Holocene development of vegetation of the wetland of Ahwar of southern Iraq.[15] Although the regional vegetation was always characterized by Poaceae and Palma*e*, two main environments can be distinguished: a permanently flooded one, with abundant *Typha* and other marshy plants, associated with the deposition of peat and/or organic clay, and a partially dry marshland where *Typha* is missing, but abundant chenopods, indicating a salt-rich substratum, are found.

A pollen record was also obtained from the archaeological site of Tell Umm al-Aqarib, 25 km west of Al-Rifai city within Al-Nasiriyah region, approx. 90 km north of Abu Tbeirah.[16] Samples were collected from a 3 m deep section in an ancient river channel crossing the ancient city. The pollen record shows dominance of *Typha*, palms and Poaceae, including cereals, as well as rising percentages of chenopods, suggesting increasingly arid conditions, which may have been the cause for the demise of the ancient city of Tell Umm al-Aqarib around 2100 BC.[17]

4.2 The 4.2 ka BP Event

The new pollen data from Abu Tbeirah are expected to provide new insights into the climate event that affected the vegetational landscapes and human societies of the Near East between approx. 4200 and 3900 years BP.

The hypothesis that an abrupt and marked climate change caused the sudden collapse of Subir, a 3rd mill. BC rain-fed agriculture civilization of northern Mesopotamia on the Khabur Plains of Syria, and of the Akkadian empire based in southern Mesopotamia was first advanced by Weiss *et al.*[18]

A marked increase in aridity, dust, and wind circulation, inducing a considerable degradation of land-use conditions, were considered the main factors causing the abandonment of a large region across the Khabur and Assyrian Plains starting around 4200 cal BP. This megadrought event may have eliminated dry farming cereal cultivation across the north Mesopotamian and Syrian plains, following a 30-50 percent reduction in Tigris-Euphrates flow.[19] At the end of the "4.2 ka event", around 3900 cal BP, entire regions of northern Mesopotamia, Syria and Palestine were resettled

[12] Awadh *et al.* 2011.
[13] Al-Ameri - Jassim 2011.
[14] Al-Ameri - Jassim 2011.
[15] Al-Ameri - Jassim 2011.
[16] Al-Ameri - Jassim 2011.
[17] Al-Ameri - Jassim 2011.
[18] Weiss *et al.* 1993.
[19] Weiss 2017.

Fig. 4.2 Reed-mat from the floor of Room 1, Building A - phase 2.

Fig. 4.3 Fragment of a charred date palm (*Phoenix dactylifera* L.) stem from Room 3, Building A - phase 2.

intensively and reorganized fundamentally,[20] probably in response to a recovered precipitation regime.

In southern Mesopotamia, the social effects of the 4.2 ka BP event are perceptible unevenly as there is no high-resolution archaeological survey data for this period.[21] However, the megadrought effects are documented further south, in the Gulf of Oman, where Cullen *et al.*,[22] using mineralogic and geochemical analyses of a marine sediment core, in a location directly downwind of Mesopotamian dust source areas and archaeological sites, found a very abrupt increase in eolian dust and Mesopotamian aridity dated 4025 cal BP, which persisted for approx. 300 years.

A clear climatic instability is recorded also in northern Syria.[23] At Tell Tweini (Jableh; Fig. 4.1), a pollen-based environmental reconstruction shows that drier conditions prevailed during the 4.2 ka BP event, with ecological shifts induced by lower winter precipitation. The drier conditions ended at about 3950 cal. BP.[24] In continental Syria at the Ebla archaeological site, modeled precipitation estimates suggest a regional crisis in the rainfall regime beginning at around 4200 cal. BP that may be related to the 3rd mill. BC political and structural collapse occurred at Ebla (Early Bronze Age IV B).[25]

Along the Levantine coast, at Tel Akko, a pollen-based climate reconstruction shows an approximate 12% decrease in annual precipitation between 4200-4000 cal. BP, followed by an urbanization phase at the termination of the drought event.[26] At the foothills of mount Hermon in Galilee, the site of Tel Dan shows clear signatures of an arid event characterized by a sharp drop in surface water between ca. 4100 and 3900 cal. BP.[27] During this phase of enduring drought in the area of Tel Dan the societal structure appears to have become extremely fragile. The migration toward river banks and karst-fed spring zones, such as the fertile area of Tel Dan, may have created rivalry for resources, tensions between groups, and finally the semi-abandonment of the city.[28]

In this perspective, the recognition of environmental changes at Abu Tbeirah related with the 4.2 ka BP event appears especially relevant and deserves attention. The pollen and plant macrofossil analyses from the archaeological excavation, interpreted in the light of the environmental changes recognized in the Near East, may offer novel insights into cultural development, societal changes and climate dynamics of the region.

[20] Staubwasser - Weiss 2006.
[21] Staubwasser - Weiss 2006.
[22] Cullen *et al.* 2000.
[23] Kaniewski *et al.* 2018.
[24] Kaniewski *et al.* 2008.
[25] Fiorentino *et al.* 2008.
[26] Kaniewski *et al.* 2013; 2018.
[27] Kaniewski *et al.* 2017.
[28] Kaniewski *et al.* 2017.

4.3 The Abu Tbeirah Plant Remains: Preliminary Insights

The study of plant macroremains retrieved from archaeological layers connected to human activity at Abu Tbeirah makes a valuable contribution to the palaeoenvironmental reconstruction of southern Mesopotamia. Several limitations are to be considered when interpreting the plant macrofossil record, especially concerning the preservation of plant remains, which by their nature are the most fragile among bioarchaeological ones, being very sensitive to environmental modification processes over time (*e.g.*, strong temperature variations, salt deposition, taphonomical processes, waterlogging, and desiccation of clayey sediments containing the plant remains). On the other hand, plant macrofossils, complemented by pollen analysis, provide different kinds of information useful to archaeologists, to reconstruct palaeoenvironment, land use, as well as economic, nutritional, ritual, and technological aspects connected with the human presence in the territory. Thus, the multifaceted purposes of archaeobotanical research largely depend on the archaeological contexts and structures present on the site.[29]

A total of five plant macroremains, consisting of fragments of unburnt vegetable fibers, were identified as reeds and selected for AMS radiocarbon dating from the Abu Tbeirah excavation. They were collected from various layers not contaminated by circulating Carbon and were sent to the Dating and Diagnostic Center (CEDAD) of the University of Salento and to the Institute of Nuclear Fisics in Florence. The obtained reliable datings are unfortunately limited in number due to a diffused bitumen contamination (see § 6.1.1.2).

A preliminary list of plant remains from Abu Tbeirah abitative contexts includes interwoven fibers and mats, a palm stem and some charred cereal grains (Figs 4.2-4). Fragments of reed-mats were retrieved on the floor of Building A Room 1 (phase 2) in connection with a hearth and some post holes (Fig. 4.2).[30] Besides, intertwined reeds were found in domestic contexts and burials as baskets (*e.g.*, the small basket in Grave 12, Room 4 Building A - phase 1 - see § 8.4).[31] Through anatomical and morphobiometrical analyses it was possible to attribute them to *Arundo donax* L., common reed, still used at present in the marshland territory of southern Iraq as building and roofing material, as well as in the internal floor surfaces. An unburned fragment of palm stem, about 15 cm long, retrieved from Building A Room 3 - phase 2, was identified as *Phoenix dactylifera* L., date palm (Fig. 4.3). It was tentatively interpreted as the handle of a copper-alloy chisel found nearby. In the northern sector of the excavation, evidence of agricultural activity of the Abu Tbeirah community is documented. A number of charred cereal grains, probably escaped from roasting processes, were found in a tannur located in a corner of Room 1 Building C (Area 2).[32] Other charred caryopses were found on the floor of Building A Room 5 phase 2, in proximity of a millstone.[33] These caryopses, not well preserved, belong to two different taxa: barley

Fig. 4.4 Caryopses of cereals from the pavement of Room 5, Building A - phase 2. Top: einkorn wheat (*Triticum* cf. *monococcum* L.); bottom: barley (*Hordeum vulgare* L.). Scale bar is 1 mm.

[29] Celant *et al.* 2015.

[30] D'Agostino *et al.* 2013.

[31] See Montorfani 2019; Romano *et al. forth.*

[32] D'Agostino *et al.* 2015.

[33] Cereda - Romano 2018.

(*Hordeum vulgare*) and einkorn wheat (*Triticum* cf. *monococcum*) (Fig. 4.4).

Pollen analyses from the sediment cores collected from the Area 5 and from the borehole realized north of Abu Tbeirah settlement are currently being carried on (see § 3). They will be directly compared with the available pollen records from the southern Mesopotamian Marshland to depict a detailed picture of the landscape changes during the 4th-3rd mill. BC. Anyway, the results so far obtained from plant macroremains largely confirm the palaeoenvironmental reconstructions provided by the published pollen data, as they indicate that cereals, reeds, sedges, rushes and palms were the dominant elements of the large wetland surrounding Abu Tbeirah.

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CHAPTER 5

THE ENVIRONMENT AND LANDSCAPE ARCHAEOLOGY OF THE ABU TBEIRAH REGION

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THE ENVIRONMENT AND LANDSCAPE ARCHAEOLOGY OF THE ABU TBEIRAH REGION

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5.1 Introduction

The main aim of this paper is to understand and reconstruct the ancient landscape around the Abu Tbeirah site and also to uncover ancient environments. To accomplish these goals, a multi-disciplinary method of research including remote sensing analysis, ground-truthing and digging shallow boreholes was carried out to identify the origin, properties and nature of landscape features in the region. Geomorphological features, including archaeological sites, palaeochannels, "hollow ways", crevasse splays and grooves were traced and mapped. A six-metre borehole was dug to recognise the lithological facies and environments. Then 3 samples of organic materials were dated by ^{14}C analysis to determine the age of these environments.

The Mesopotamian floodplain was mostly built by the accumulation of sediments from the Tigris and the Euphrates during the Holocene period, as these rivers transported material from the highlands of southern Turkey, eastern Syria and northern Iraq and released it in the lowland area in central and southern Iraq, which is a large geological basin.[1] The geomorphological structure

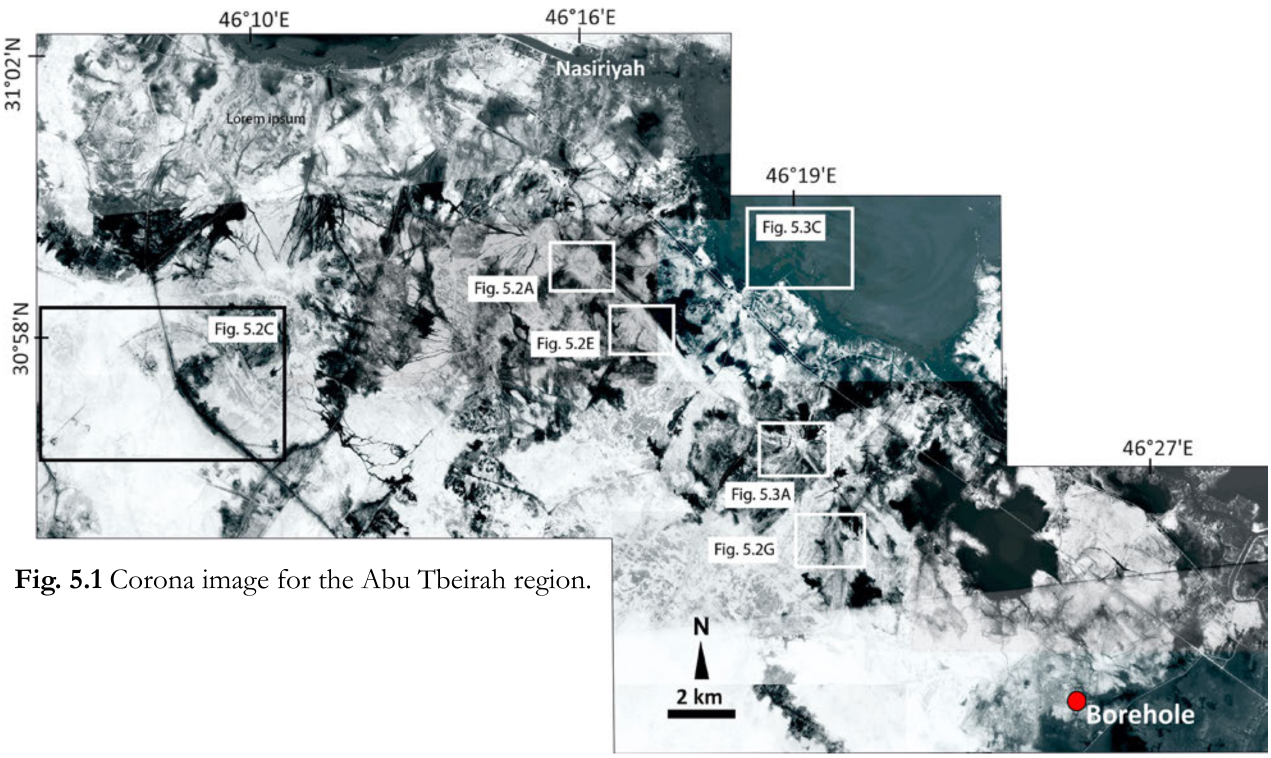

Fig. 5.1 Corona image for the Abu Tbeirah region.

[1] Garzanti *et al.* 2016.

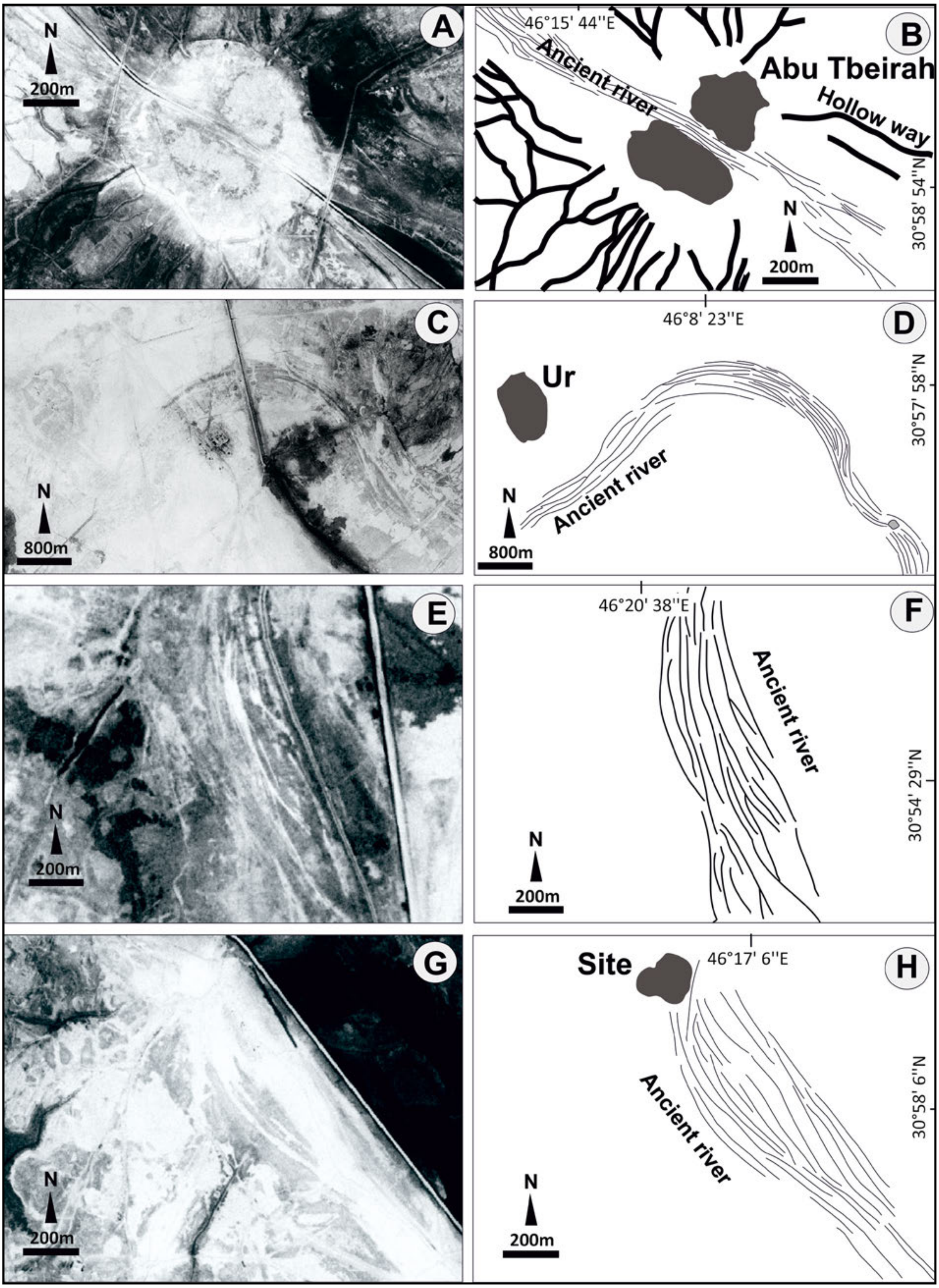

Fig. 5.2 Reconstruction of archaeological sites and palaeochannels.

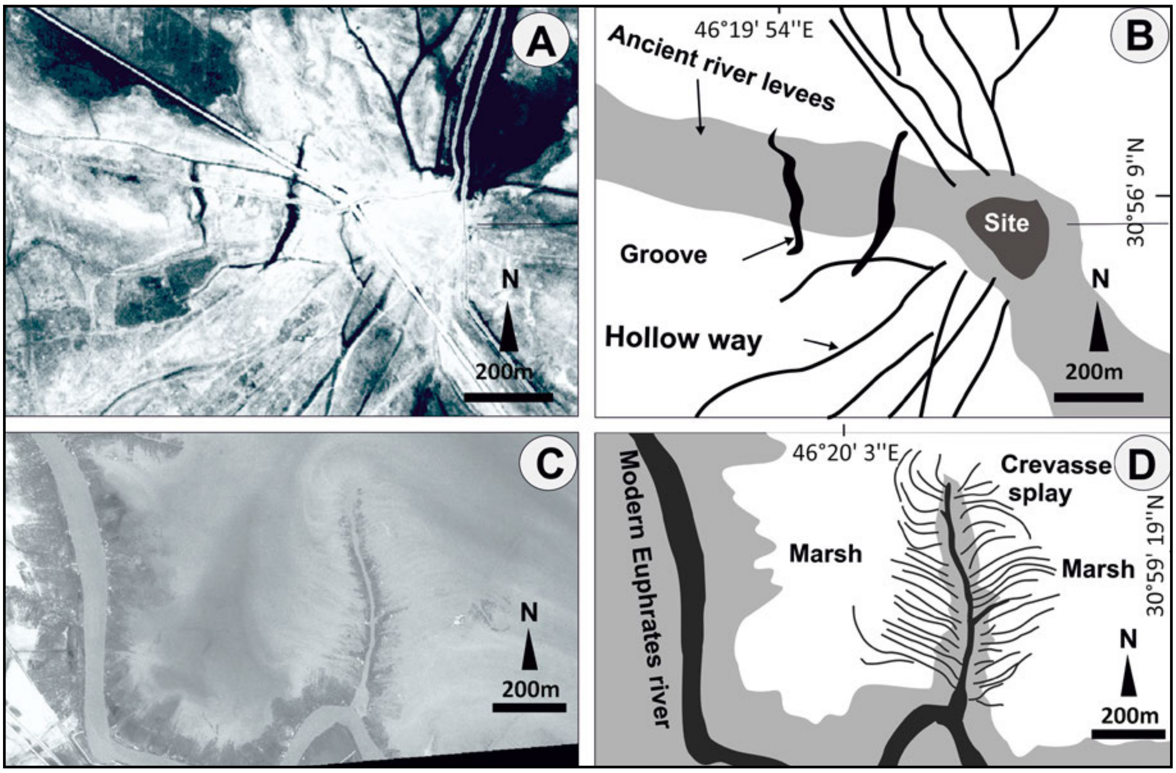

Fig. 5.3 Reconstruction of grooves (A and B) and crevasse splay (C and D).

of this plain is mainly composed of and structured by channel-related processes such as the genesis of levees and marshes that led to the formation of different types of environments, mainly riverine and marshy.[2] These two main and alternative environments dominated this floodplain as a result of river avulsions, as the rivers are always subject to change in their courses.[3] This plain has a generally arid climate and there are no adequate sources of water except the rivers. Therefore, people were totally reliant on the rivers in their lives and for building their settlements associated with them.[4] As a result, during the last five to six years people have made significant changes to the hydraulic landscape in the floodplain in terms of the construction of canals, settlements, farms and other activities associated with water management.[5]

[2] Jotheri *et al.* 2017.

[3] Jotheri *et al.* 2016.

[4] Wilkinson 2003.

[5] Wilkinson *et al.* 2015.

5.2 Methodology

Four methods of research were carried out in the present study: remote sensing analysis, ground-truthing, digging shallow boreholes and radiocarbon dating.

5.2.1 Remote Sensing

Remote sensing analysis for the Abu Tbeirah region (Fig. 5.1) includes investigation using ASTER (Advanced Spaceborne Thermal Emission and Reflection Radiometer), CORONA and QuickBird images. In each type of satellite data, surface features including archaeological sites (Fig. 5.2), palaeochannels, "hollow ways", grooves and crevasse splays (Fig. 5.3) were identified. Jotheri and Allen's method[6] was employed to detect and trace these features using remote sensing techniques.

5.2.2 Groundtruthing

After carrying out the remote sensing analysis, several locations of "hollow ways", channel levees, archaeological mounds, crevasse splays,

[6] Jotheri - Allen *in press*.

marshes and grooves were visited by the author to carry out general observations to ensure that the features identified in the satellite data existed on the ground. This step is very important to avoid any misinterpretation of remote sensing.

5.3 Results

5.3.1 Archaeological Sites

36 archaeological mounds have been identified in the surveyed Abu Tbeirah region including the Ur sites (Fig. 5.4). These sites differ in size, but all the sites are smaller than Ur and it became apparent that Abu Tbeirah is the second largest site after the Ur one.

5.3.2 Palaeochannels

Only two palaeochannels were clearly identified in the surveyed area (Figs 5.5 and 5 . 5): the larger one is associated with the Ur site; the other one is associated with the Abu Tbeirah site. Moreover, most of the sites show a location and alignment consistent with identified palaeochannels. However, although the palaeochannels of other sites have not been identified, the consistent linear alignment of these sites is a good indication of existing palaeochannels that can be associated with them.

5.3.3 "Hollow Ways"

"Hollow ways"[7] are shallow weavy depressions that indicate ancient routes/water ways used by people and animals for travelling between settlements and the surrounding areas, which might be farms, marshes or pasture.[8] These features were identified and mapped in the Abu Tbeirah region (Fig. 5.6) as they can be easily recognised in satellite images and during ground-truthing processes. The density and the number of the identified "hollow ways" can provide an indication that there was considerable traffic in the region and there were active movements from and to the sites.

5.3.4 Grooves

Certain features cannot be considered "hollow ways" or palaeochannels because they demonstrate different criteria. These features will be named here as 'grooves'. These grooves are not parallel with the "hollow ways" nor the tracks of palaeochannels, but in fact are (nearly at right angles) to them (Fig. 5.7) These features may have been formed as a result of breaching of older channel levees by flooding from the younger channel (Fig. 5.2). The importance of identifying these features is in differentiating them from other features that may have a similar appearance, such as "hollow ways" and channels tracks.

5.3.5 Crevasse Splays

These features are very common in the Mesopotamian floodplain and are normally associated with rivers. They can be easily identified because of their relatively large size and fan shape (Figs 5.2 and 5.8) The existence of crevasse splays in a given area is a good indication that the area was subject to seasonal flooding.[9] Several studies have pointed out that these features were the best, most suitable riverine environment for living in and for the formation of systematically irrigated farms.[10]

5.4 Conclusions

The region was covered by the sea before the 6th mill. BC and after that riverine and marsh environments dominated the area. Thus, the area was suitable for human settlements since the 6th mill. BC. The palaeochannel of Abu Tbeirah might have been fed from a branch coming from the Ur palaeochannel running from Ur towards Abu Tbeirah or another channel from the north connecting with the Abu Tbeirah channel. However, the possibility of the existence of both of these water supply resources can be accepted, as the area was relatively flat and able to receive water from different directions. The common orientation of both the identified and the suggested channels (Fig. 5.5) in the present study is north-west to south-east which is the same as the direction of the present-day Euphrates

[7] The term "hollow ways" used here is borrowed from Northen Mesopotamian archaeological literature. However the completely different environment suggests a different nature of these features (water ways) that still needs to be verified on the field.

[8] Jotheri - de Gruchy *forth.*

[9] Bristow *et al.* 1999.

[10] Wilkinson *et al.* 2015.

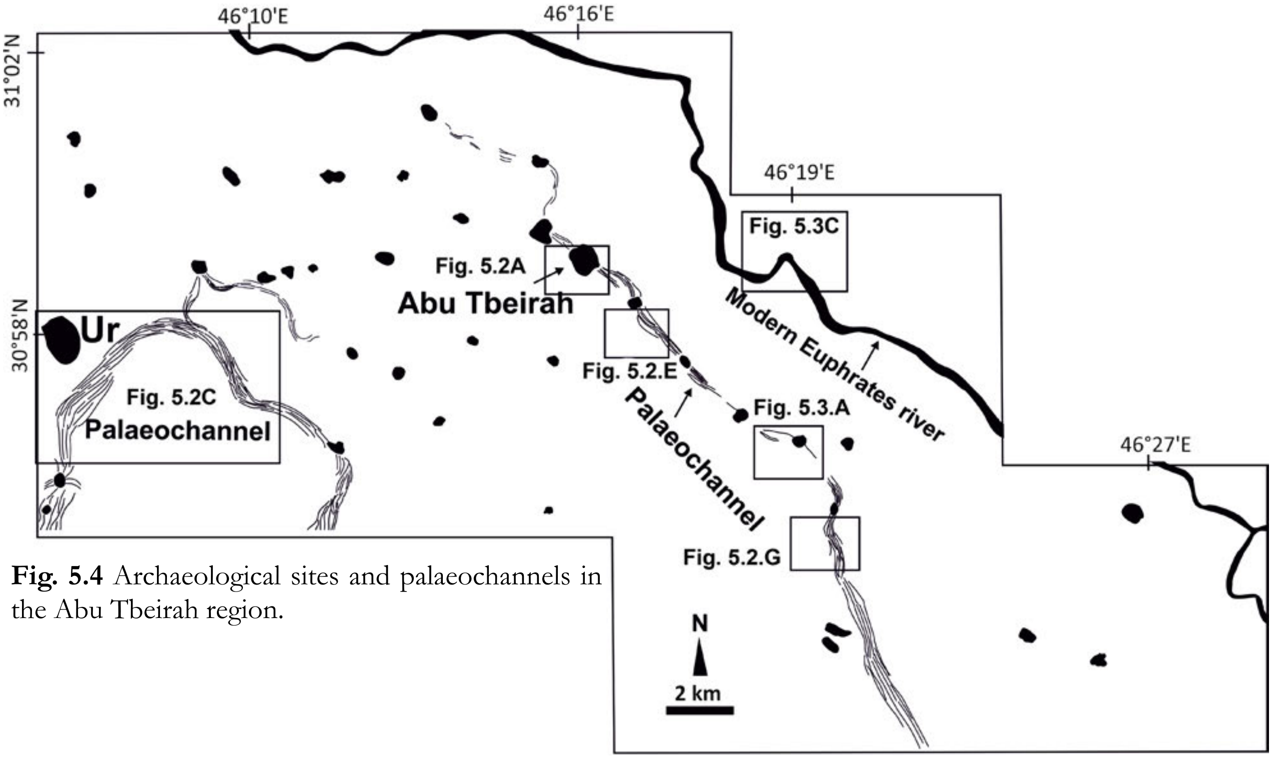

Fig. 5.4 Archaeological sites and palaeochannels in the Abu Tbeirah region.

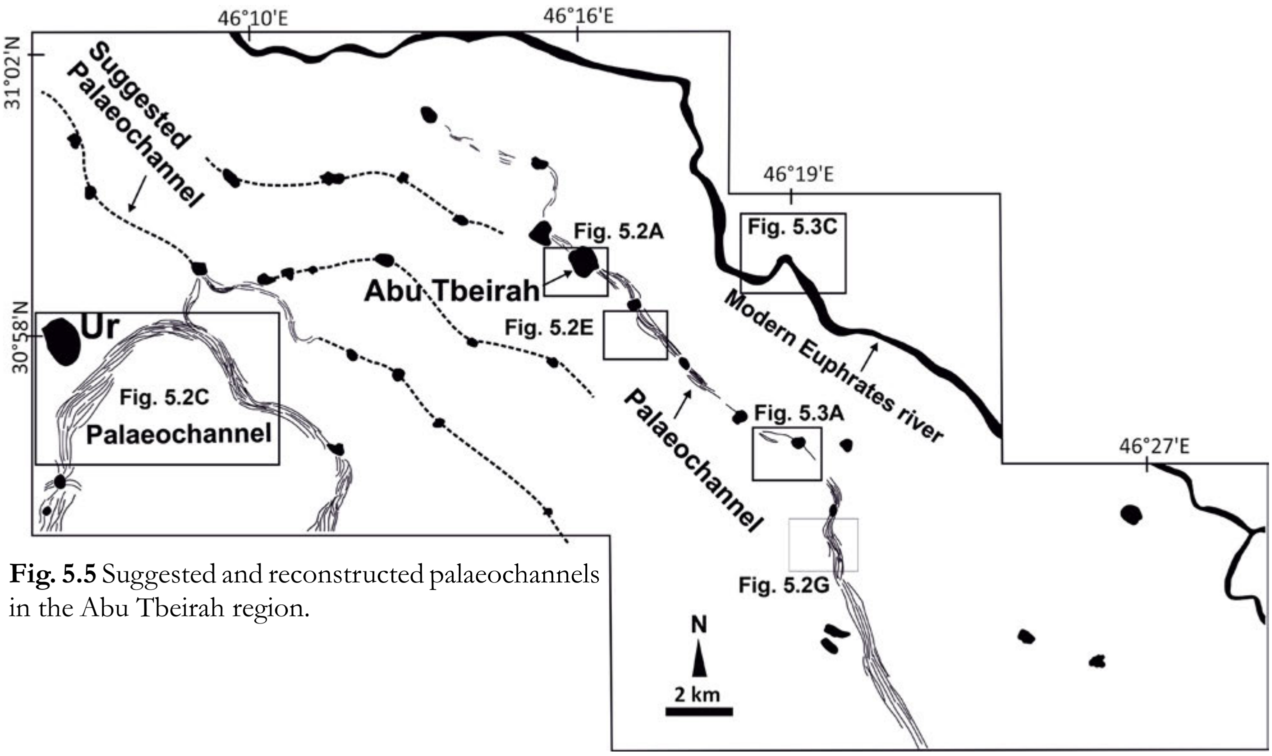

Fig. 5.5 Suggested and reconstructed palaeochannels in the Abu Tbeirah region.

in the area. This means that the direction of the slope in the area is relatively constant. The reason might be that rivers in this part of the floodplain contained the lowest amount of sediment loads, leading to slowness in the formation of river levees. As a result avulsion conditions would not arise and rivers could be active for a longer time without changing their locations.[11]

[11] Mohrig *et al.* 2000.

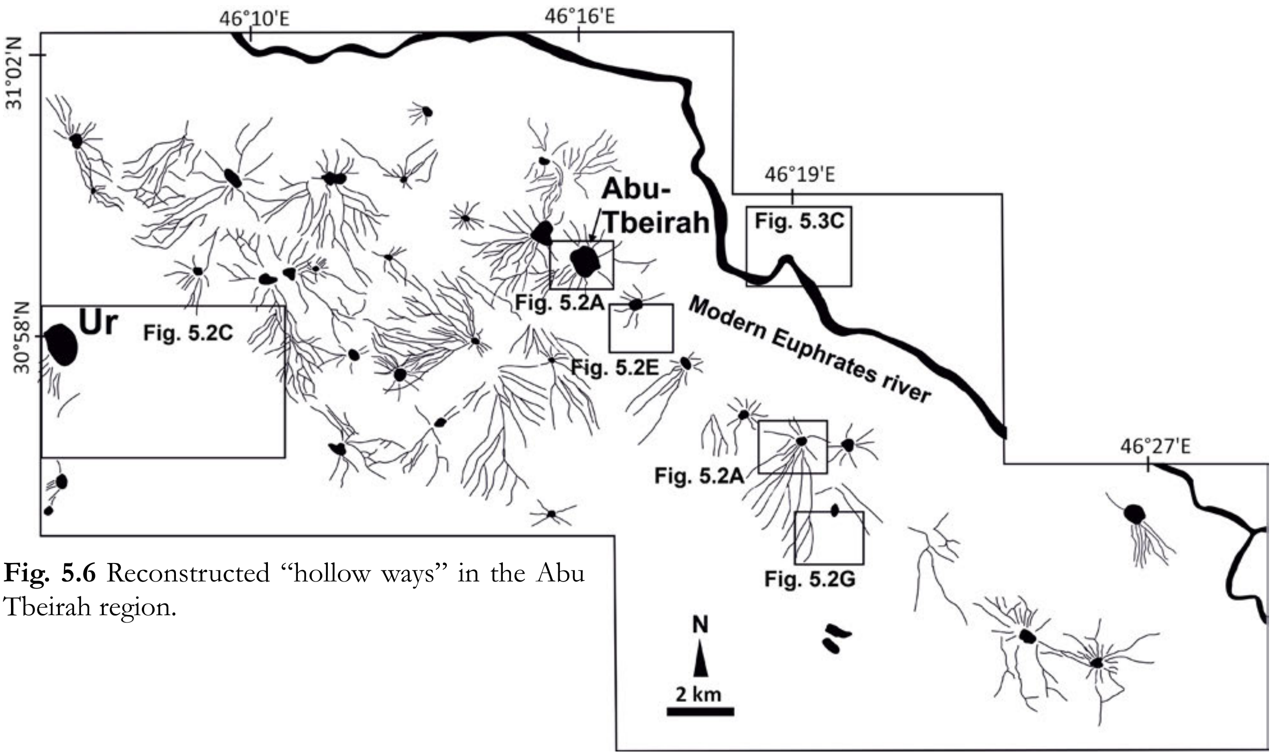

Fig. 5.6 Reconstructed "hollow ways" in the Abu Tbeirah region.

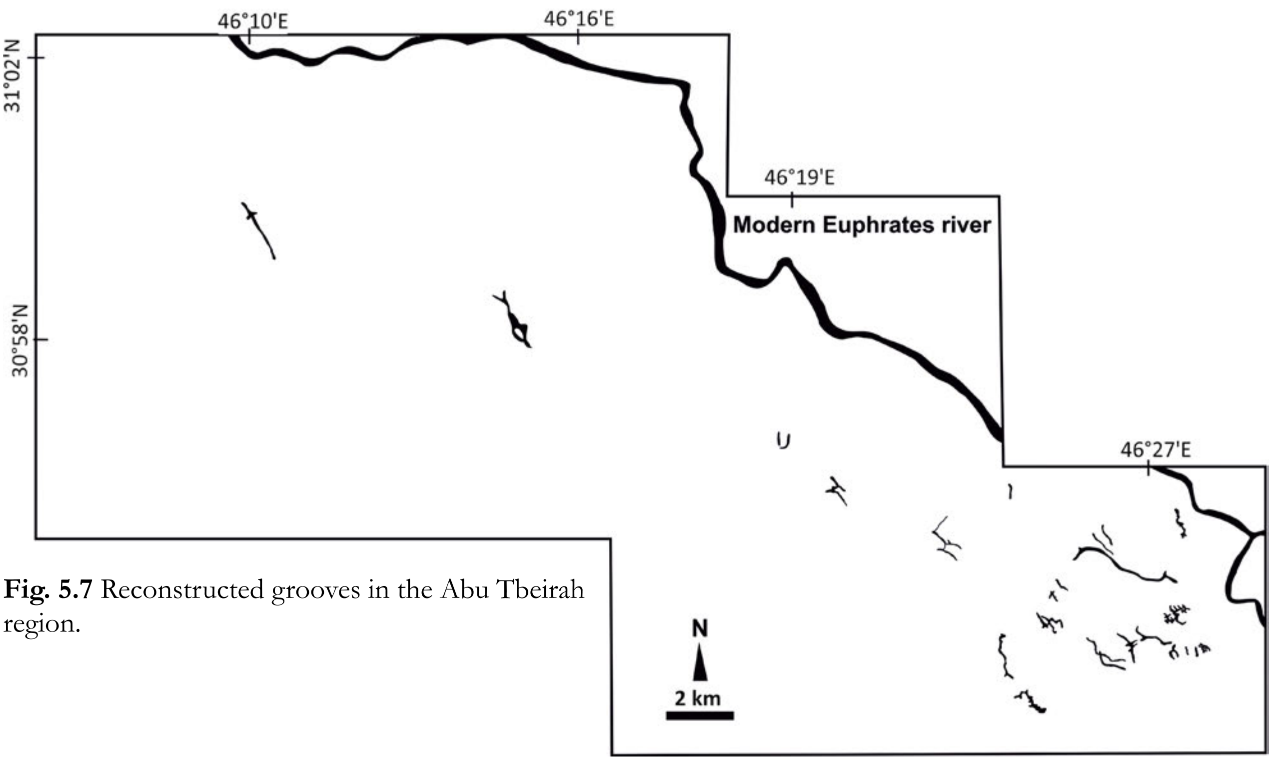

Fig. 5.7 Reconstructed grooves in the Abu Tbeirah region.

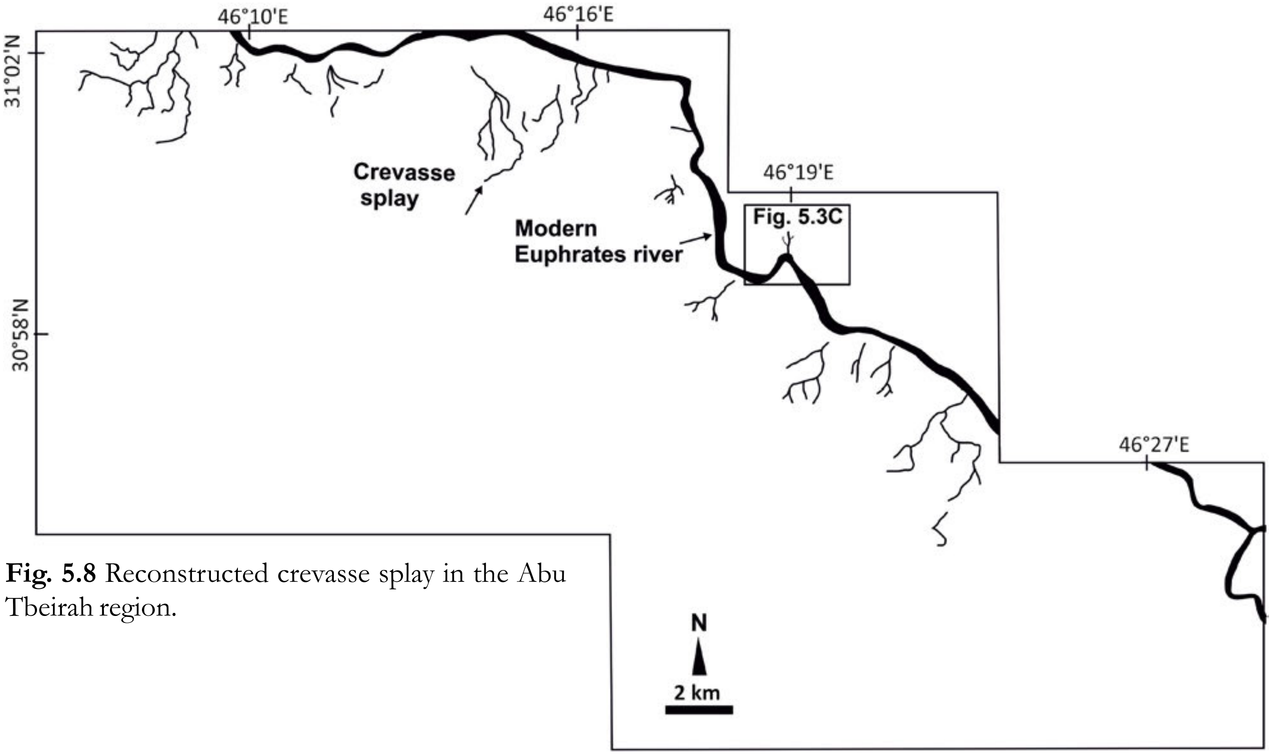

Fig. 5.8 Reconstructed crevasse splay in the Abu Tbeirah region.

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CHAPTER 6

ABU TBEIRAH AND AREA 1
IN THE SECOND HALF OF THE 3RD MILL. BC

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6.1 Abu Tbeirah: Overview of the Site

Abu Tbeirah is located 7 km south of Nasiriyah, in a petrol area known as Al-Rafidayn, and is divided in four sectors by traces of an ancient channel running north-west to south-east (flanked by a secondary and smaller artificial channel) and by a pipeline running north-east to south-west (Figs 6.1-2). The site covers an area of approximately 42 ha that in different parts was damaged by large modern pits and trenches (see § 2). The north-east sector is the highest portion of the site and reaches a maximum height of 4.30 m in respect to the surrounding area, that has an elevation of 4 m above sea levels.[1] On the surface, pottery and other materials are not particularly abundant, due to erosion, with the exception of the northern part of the mound (and some isolated spots of the other sectors) where archaeological materials were brought to the surface by modern activities and by deep gullies excavated by rainfall, more pronounced in this higher sector of the Tell.[2] Sporadic findings, both from the surface and the excavation of the south-eastern area, revealed a possible occupation since the Uruk-Jemdet Nasr Period. However, it must be stressed that our periodization can be affected by the strong erosion and salinization of the Tell surface: at present it is not possible to determine how much of the site has been eroded and, moreover, the low amount of artifacts dispersion on the surface can hide a chronological span wider than that detected until now.

Fig. 6.1 Abu Tbeirah satellite imagery (24th September 2013). © DigitalGlobe, distributed by e-GEOS.

The geological and palaeo-environmental setting described (§§ 3-5) allows to reconstruct a brackish water environment surrounding Abu Tbeirah in the 3rd mill. BC, with sedges, reeds, rushes, palms and cereal fields. The possible reconstruction of the position of the ancient shoreline seems to point towards a close proximity of Abu Tbeirah to the sea, a resource that was surely exploited by its ancient inhabitants.[3] The analysis carried out by J. Jothery (§ 5) of the complex canalization system, characterizing southern Mesopotamia during the

[1] The absolute elevation of the Tell will be specified in the next publications. Due to problem with border customs, the instruments for geo-referring of the site were only recently reacquired from Basra airport. Without undermining the overall interpretation here presented, plans and sections were realized using relative elevations.

[2] On the survey of this area see D'Agostino - Romano 2017.

[3] See § 13 on the sweet water and salt water fishes and shell fishes recovered during the excavation.

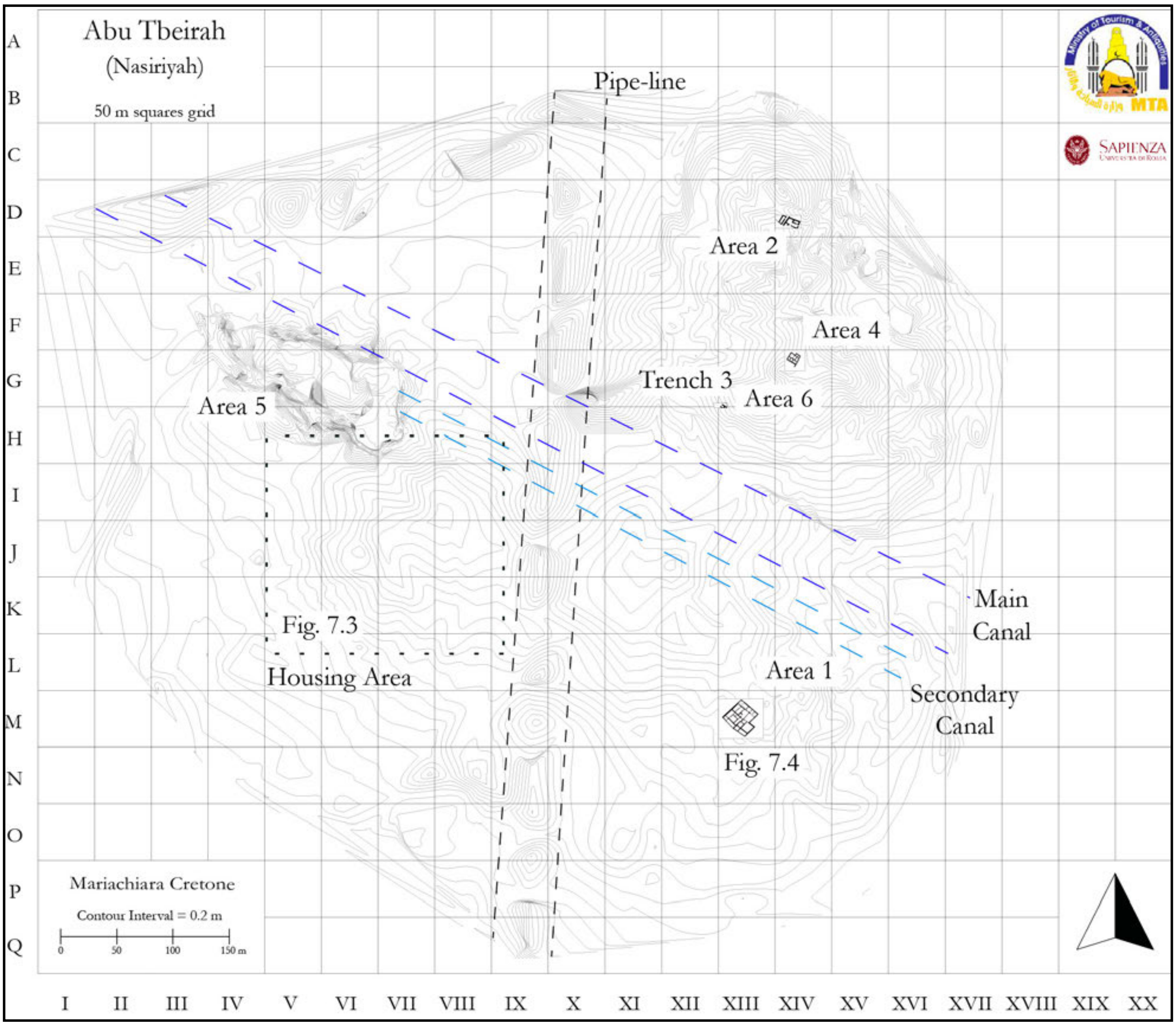

Fig. 6.2 The topographic grid is based on squares of 50 ×50 meters, oriented to the magnetic north. Each square takes the name of its north-west pinpeg, with a capital letter and a Latin number. Every main square is divided in 100 little squares of 5×5 m, indicated by a small letter and a number. Realized by M. Cretone.

3rd mill. BC and Abu Tbeirah Area in particular, suggests the possible connection with Ur through the main channel crossing the site. This channel coming from Ur crosses the small settlement of Tell Ahaimer, a 3rd mill. BC site located 1 km north-west from Abu Tbeirah (see Fig. 2.6) and almost destroyed by modern activities and Bedouin encampments. A rapid survey made during 2018 did not reveal a significant ancient artifacts dispersion, though rare fragments of ED III/ Akk. pottery were found scattered especially along the ancient channel benches. Notwithstanding the extremely poor state of conservation of the site, with large modern dump pits, a possible dependence of Tell Ahaimer from Abu Tbeirah, given the difference in size, the apparently coeval occupation and the reduced distance between the sites, can be hypothesized.

Some general considerations about the ancient urban layout of Abu Tbeirah can be derived from the analysis of satellite imagery and the topographic characteristics of the Tell. The two channels, running parallel across the site, were the two main elements according to which the settlement was organized. Moreover, satellite imagery[4] allowed to identify different mud-bricks buildings, revealed on the surface by the darker traces left by the buried walls. In particular, in the south-west area (Fig. 6.3) a dense settlement is easily recognizable, rising aside what looks like a wide straight road oriented from south-east to north-west. According to the few materials

[4] We are deeply grateful to E. Stone, Stony Brook University, that kindly granted us the satellite imagery discussed here.

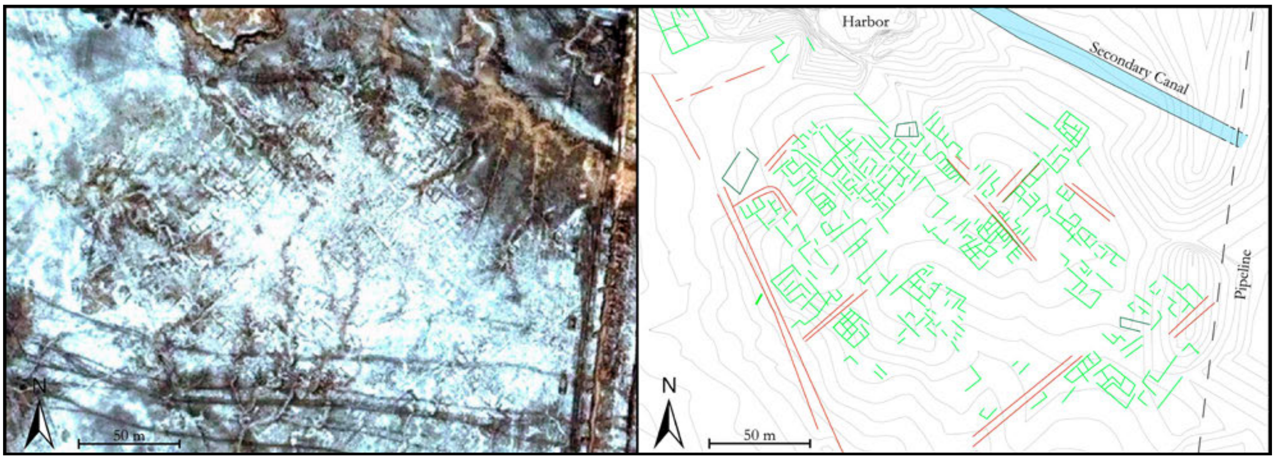

Fig. 6.3 Abu Tbeirah south-west area. Courtesy of the Digital Globe Corporation.

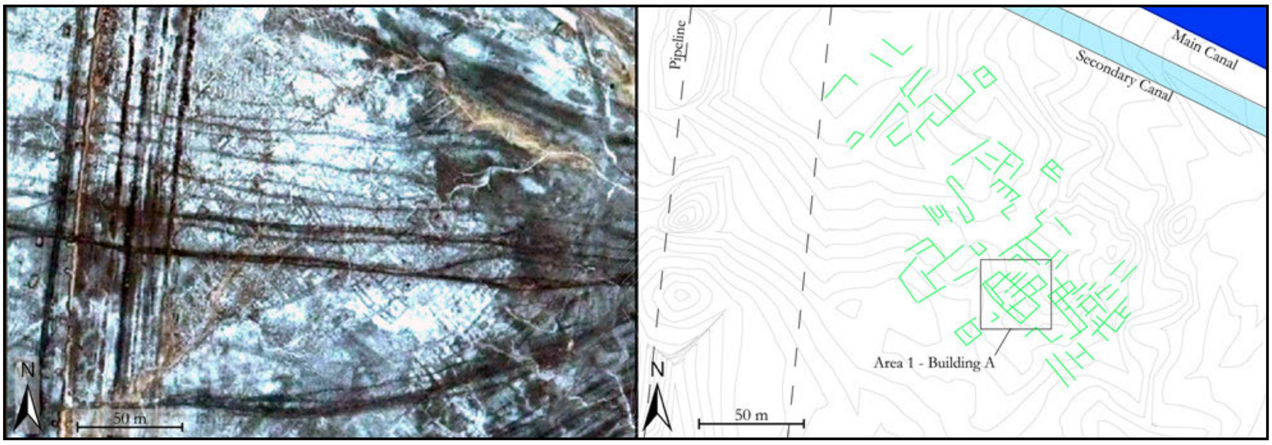

Fig. 6.4 Abu Tbeirah south-east area. Courtesy of the Digital Globe Corporation.

recovered on this section of the Tell a dating to the end of the 3rd mill. BC is hypothesized.

The south-eastern area (Area 1 - Fig. 6.4) shows a large articulated complex of buildings which seem to form a unit and that, given the size, might have played a peculiar role in the life of the settlement. Building A, which is described in its last occupational phase in § 8, seems to be the southernmost part of this complex. The excavations carried out in Area 1 involved a surface clearance of 1000 sqm while the excavations were realized only in correspondence of the Building A structure. Consequently, the presence of a connection between Building A and the huge structure made of small rooms visible north-eastward is still not proved on the ground.

The north-western area of the Tell suffered the heaviest damages: for almost all its extension there are modern large and deep pits and the corresponding heaps of unearthed soil.

Other excavations have been carried out so far in the north-eastern sector of the Tell (Areas 2, 3, 4 and 6 - Fig. 6.2) and in the Harbour (Area 5). The north-eastern part shows an occupation at least until the Amar-Suena reign on the basis of two half-bricks discovered in the foundation of Building E (Area 6) in 2017 (see § 16).[5] Area 2 and 4 present instead other apparently domestic buildings though realized with bigger walls than those of Area 1 Building A.[6] At present the artifacts recovered in this part of the Tell, with the exception of Area 6 Ur III pottery, do not show substantial differences with the assemblages in Area 1, though it is possible to assign this context to a later chronology.[7] Area 5, as well as the houses quarter south of the Harbour - which have a low

[5] D'Agostino - Romano *in press* a; *in press* b.

[6] D'Agostino - Romano 2015; *in press* a.

[7] Area 2 pottery seems comparable to the Area 1 assemblages, while Areas 4 and 5 show pottery shapes similar to those of the ED III/Akk Transition but with (at least from the autoptic observations) slightly different fabrics.

Fig. 6.5 Modern bricks on the Tell surface.

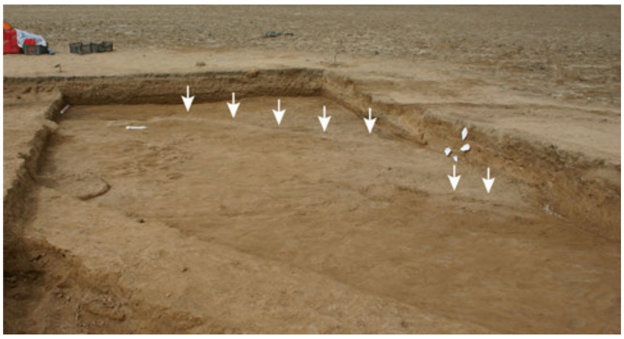

Fig. 6.6 Accumulation of salt between strata. View of Grave 4-5-13 during the excavation. The white arrows indicates the limits of the cut.

artifacts dispersion - seem to be more correlated to Area 4 findings, based on the few pottery fragments recovered. Further excavations and studies are needed to have a clearer chronological correlation among Abu Tbeirah areas.

6.1.1 Post-Depositional Alterations and Taphonomic Agents

In the following section information regarding post-depositional alterations and taphonomic agents, gathered mainly through direct experience on the field, will be summarized. Though these factors described below could have characteristics connected with the geological setting of Abu Tbeirah, they are commonly attested in all southern Mesopotamia. However, due to the span separating modern investigations in southern Iraq and the previously undertaken archaeological activities, it might be useful to describe the experience gained, in most cases in an empiric way, in digging and "reading" Abu Tbeirah's soil and in analysing its artifacts.

6.1.1.1 Salinization

Salinization has always been an important problem for the inhabitants of the Mesopotamian alluvial Plain[8] and it is also a disturbing agent during the excavation of ancient settlements. The salt crystals infiltrate the soil and then "burrow" towards the surface through the empty spaces generated by differences in consistency. For example, the maximum concentration of salt crystals is usually found on the vase/shard surfaces (both external and internal in entire vessels) and inside bones. In particular, bones and pottery shards (especially those coming from the surface) are flaked apart due to the accumulation and expansion of salt crystals. In Fig. 6.5 the flaking of a modern brick on the surface of the Tell is shown: this gives an idea of the degree of alteration to which the surface findings underwent and explains the low surface dispersion and the small amount of information coming from the survey.[9]

In combination with the continuous passing of wheeled and heavy vehicles on the Tell in the years preceding the beginning of the excavation,[10] salt accumulation caused a peculiar phenomenon: the compression realized by vehicles also affected the underlying layers, causing post depositional accumulation and creating white parallel sub-traces that can continue for at least on meter under the original surface (Fig. 7.1).

The stratigraphic units are often very compact, cemented by salt accumulation, making the excavations more complicated: for horizontal strata not pertaining to important contexts heavy excavation methods (picks) are used, while for more delicate contexts, such as burials, it is necessary to use water in order to soften the soil and allow a more careful excavation. Nevertheless, the use of water causes further accumulation of salt crystals and damages to the findings, thus this procedure is limited only to peculiar situations.

The accumulation of salt between different strata is however a good indicator for understanding the stratigraphy: the extreme difficulty in discerning clay strata one from the other is sometimes mitigated by the accumulation of salt at the interface of the units of stratigraphy (US) (Fig. 6.6). This however means that limits between US are usually diffused, the whitish hard area probably

[8] Altaweel 2018.
[9] D'Agostino - Romano 2017.
[10] At present only the street running parallel to the pipeline continues to be used.

mixing materials from both the strata: in these cases it is usually preferred to over-excavate the later stratum in order to avoid (or at least reduce the impact of) artifacts mixing and having a clearer chronological differentiation.

Other than being a good indicator for the interpretation of the stratigraphy, salt is also responsible for the traces visible from the satellite. After a rainfall, the dissolved salt crystals are recreated more rapidly in the clay filled rooms, while their penetration in the ancient walls is slowed down by the similar but more compact nature of the mud-bricks: this allows to discern the city layout, though with some limits (see § 6.3).

6.1.1.2 ^{14}C Datings, Isotope Analysis and Bitumen Contamination

At present a reliable set of ^{14}C datings for Abu Tbeirah contexts is not available. Abu Tbeirah short-lived vegetal samples (see chapter 4) were analysed by CEntro di Fisica applicata, DAtazione e Diagnostica (CEDAD - University of Salento) in Lecce, and mostly by the Istituto Nazionale di Fisica Nucleare (INFN) and Istituto Nazionale di Ottica (INO) in Florence. The cooperation with these research groups of INFN and INO started in the frame of the Consortium of Italian Research Infrastructure for Cultural Heritage (CoIRICH). Its aim, on one side, is to obtain reliable ^{14}C datings of Abu Tbeirah stratigraphic sequence through the INFN AMS, and on the other side to test and improve the INO SCAR (saturated-absorption cavity ring-down spectroscopy) apparatus.[11]

Of all the analysed samples, only three have yielded reliable datings while the others show clearly inappropriate ancient dates: the mixing of organic sample with the ^{14}C "dead" bitumen alters the relative quantity of carbon isotopes. Unfortunately, the contamination did not only affected reed-mats or baskets, that could have been water-proofed with bitumen coating, but also cereal caryopses and other unsuspected vegetal samples. Moreover, the generalized contamination of reed artifacts seems to be limited to the samples recovered in Area 1, while similar findings from the north-eastern Area 2 revealed no contamination.[12] It is thus possible that the results from Area 1 can be due to a general post-depositional contamination, probably influencing the results of the isotope analyses performed on animal and human bones (see § 12.5).

Further investigations will be aimed at understanding this issue, but the omnipresence of bitumen in our archaeological record deserves attention, in particular after the discovery of bitumen processing activities inside Building A (see § 9). Bitumen characterization is being performed by S. Nunziante Cesaro, of the Italian National Research Council, Rome CNR and by M. Santarelli, M. Scarsella and M. Bracciale of the Dept. of Chemical Materials Environmental Engineering CISTeC - Research Centre in Science and Technology for the Conservation of the Historical-Architectural Heritage. The results of these studies will be published in the near future.

As far as ^{14}C datings are concerned, the range of materials to be analysed will be widened, including bones and teeth, though the bad results of isotopes analysis performed on bone collagen inspires little confidence. Bitumen extraction methods on contaminated samples will also be attempted.

6.1.1.3 Manganese Oxide Coating of Abu Tbeirah Bones and Artifacts

A common characteristic of Abu Tbeirah findings, especially those connected to funerary contexts, is the presence of black-dark reddish stains. At Abu Tbeirah these taphonomic coatings are probably generated from manganese oxide precipitation. Manganese oxides can form different compounds

[11] This cooperation and the obtained results might pave the way to radiocarbon dating on archaeological sites, being the SCAR apparatus much more transportable than any AMS machine. See Galli *et al.* 2017.

[12] Two of the datings come from Area 2. The only dating from Area 1 comes from the Cemetery layers and its calibrated age confirms the general attribution to the ED III/Akk. Transition. A single ^{14}C dating cannot unfortunately be valuated alone and thus absolute chronology for Abu Tbeirah occupational phases will be discussed when a good set of datings will be available. The recent studies by Wencel (2016; 2018) on ^{14}C datings from ED Mesopotamian context seem to confirm the Middle Chronology: hopefully Abu Tbeirah's focus on well stratified material will add a contribution in the completion of the chronological frame of 3rd mill. BC with datings also from Akkadian and Ur III contexts.

Fig. 6.7 Manganese oxide coating on AbT.17.631.6 (context not described in the present volume).

generating stains of different colour.[13] These oxides can be formed by chemical or biological oxidation of manganese and are linked to the presence of high humidity.[14] The biological oxidation of manganese involves the action of bacteria and fungi,[15] that grow on the basis of the environmental condition (*e.g.* humidity or PH). Among these, saprophyte bacteria find an optimum growth temperature between 15 and 45 °C.[16]

The process from metal decomposition to precipitation and accumulation on bones in archaeological contexts was clearly explained for El Mirón Cave, Cantabrian Spain.[17] The role held by the decomposition of organic matter that would justify the presence of these stains in Abu Tbeirah burial contexts is interesting.[18] Manganese precipitation and adhesion to bones and pottery could be possibly due to the difference of density between the findings and the sediment.[19]

Though geochemical tests have not been yet performed on Abu Tbeirah's findings,[20] manganese contamination on our material was recognized by E. Peverati in 2016. The confirmation of this identification has an empirical base: manganese stains were effectively removed both from objects and from bones through the use of ®B.D.G.86 (Fig. 6.7).[21]

6.2 Cemetery and Other Activities

The label "Area 1 Cemetery and Other Activities" indicates all the anthropic traces found immediately under the surface, cutting or covering the strata of Building A - phase 1 (Fig. 6.8).

The chronological distance between the last phase of Building A and the latest graves and activities cannot be at present specified. The pottery horizon discussed in § 10 confirm the continuum of shapes of the ED III/Akk. transition. Since the excavation in Area 1 and in other contemporaneous contexts will continue in the next years, the assessment presented here should not be considered definitive. The detailed description of each grave and activity is reported in § 7. In what follows, general considerations about the burial practices found in Abu Tbeirah will be presented with a special focus on Area 1 findings. In addressing graves and burial practices of the last phases preserved in Area 1, unpublished information from earlier phases or other areas will be also used. From the chronological point of view the only interesting sequence is represented by Graves 15 and 16 which cut the dump pit in MdXIII5+6+MEXIII5 (see Figs 6.10-11 and § 7.2), that destroyed a part of Building A structure. The relative dating of the other activities cannot be ascertained only on the basis of pottery.

6.2.1 Cemetery or Sub-Pavimental Burials?

As stated above (§ 6.1) it is not possible to determine the degree of erosion to which Area 1 was subjected. This implies that the graves discovered immediately under the surface and

[13] Schalm *et al.* 2011.
[14] Schalm *et al.* 2011: 104; Gabucio *et al.* 2012: 162.
[15] Shahack - Gross 1997: 445.
[16] Marín-Arroyo *et al.* 2008: 808.
[17] Marín-Arroyo *et al.* 2008: esp. 810-812.
[18] The low permeable Abu Tbeirah clay soil shows apparently perfect conditions (humidity and temperature) for manganese coating.
[19] Arroyo *et al.* 2008: 810.
[20] Effects of manganese post-depositional modifications were studied on glass coming from the Sasanian site of Veh Ardašīr, 30 km south of Baghdad (Gulmini *et al.* 2009).
[21] Bandini *et al.* 1989; Bandini 1994. On the use of ®B.D.G.86 on pottery see: Banegas de Juan 2007.

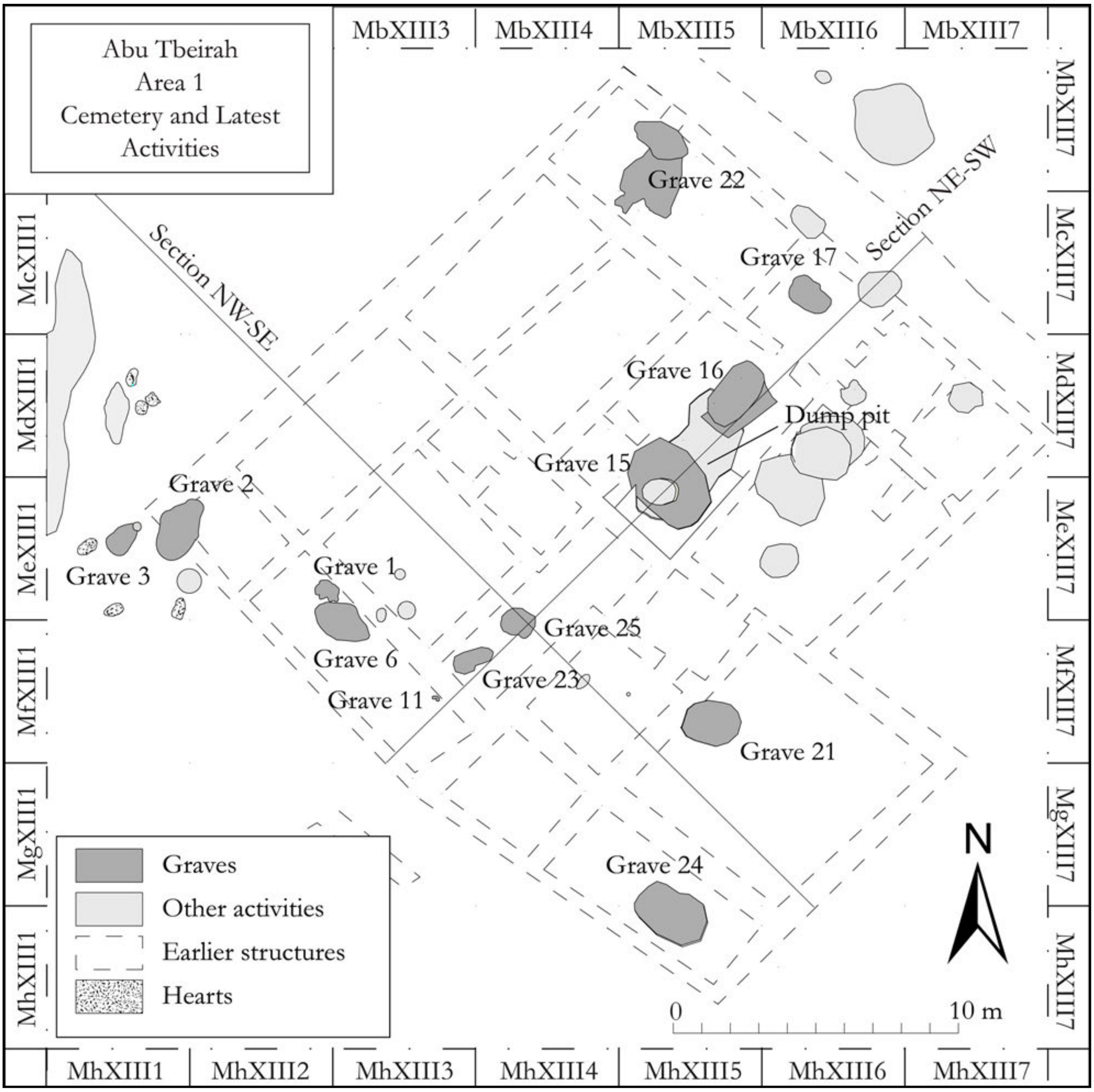

Fig. 6.8 Plan of Area 1 Cemetery and other activities.

cutting Building A - phase 1 (Fig. 6.8) might be part of a later and eroded constructive phase of Building A or another not preserved later structure. At Abu Salabikh the graves found under the surface were attributed to later buildings, not to a proper Cemetery area.[22] Though a similar attribution for some of the graves described in chapter 7 cannot be excluded (*e.g.*, Grave 22) it seems that at a certain point Building A was abandoned (see § 6.5).[23] A step towards this interpretation is the fact that the drain pipe (US 128), located in the north-western outside of Building A, was not reconstructed and raised anymore, due to the abandonment of the structure, and that Area 1 started to be used as dump pit. Some of the graves discovered, such as Grave 21 (§ 7.6.2), clearly cut the building walls or internal structures (*e.g.*, Grave 17 cuts the tannur of Room 8). The huge dump pit discovered in MdXIII5+6+MeXIII5 (§ 7.2.3) shows the change of use of the area, followed by the realization of Grave 15 and 16 (§§ 7.2.1-2).

If the orientation of the graves is considered (Fig. 6.16), the disposition of the bodies under Building A pavements clearly follows the structure, while

[22] Postgate 1980. Martin interpreted in the same way the ED Burial from Ubaid (Martin 1982: 146). See on the same problem Almamori 2014.

[23] Abu Tbeirah settlement was reduced to the north-eastern area, where Ur III contexts were discovered. A

the graves of the Cemetery shows a wider range of orientations.[24]

The similar orientation between Building A rooms and several graves of the Cemetery can also be explained by the presence of preserved structural remains when the graves were first realized (Fig. 6.9)[25] or to the difference in soil hardness. It is important not to underestimate the ancient Abu Tbeirah inhabitants' knowledge of the area and its soil. In this regard it is significant to quote a singular discovery made in 2016 in Area 4. In this sector several Bedouin graves were discovered:[26] these were realized digging a vertical shaft and then a horizontal chamber. The interesting fact is that the shaft was realized along the walls of a 3rd mill. BC building and the small chamber obtained excavating directly into the ancient wall. Bedouins were probably aware that the areas with a strong brown colour were different in hardness from the surrounding white, richer in salt crystals soil. It cannot be excluded thus that people using Area 1 in its latest phase possessed the same knowledge of the settlement soil.

6.2.2 Abu Tbeirah's Burial Practices

The excavated graves were always realized as simple pits: their position immediately under the surface makes it impossible to determine, in most of the cases, the original shape and height of the cut. Some graves were apparently covered by a heap of soil, as in the case of one of the inhumation in sarcophagus (Grave 15 - § 7.2.1). A deep cut was realized for Graves 24 (§ 7.7.1) and 16 (§ 7.2.2): in the first case the cut was bigger and probably with a bottom sloping towards north-west.[27]

Abu Tbeirah funerary practices show a greater variation than expected, and the following typologies of depositions were identified:

1. simple inhumation;
2. double inhumation (Grave 33 – Building A - phase 2 - Fig. 6.13);
3. double inhumation with secondary burial practice (Grave 6);
4. secondary burial (Grave 3; Grave 201 -Fig. 6.14);
5. in coffin;
6. in jar (Area 6 Ur III - Grave 211 - Fig. 6.15).

Fig. 6.9 Partially eroded modern bedouin house on the street toward Umma (photo taken by the author in 2013).

Simple inhumations in pit can host both adults and children and can show a great variety of equipment. Sometimes the reed-mat wrapping the body was found preserved in context (*e.g.* in Grave 1 - § 7.1.2). In Area 2, in the north-eastern sector, a grave of an infant, apparently in a sort of cradle, was found.[28]

Only two double inhumations were found up to now. A couple (Grave 33 - Fig. 6.12) was deposed under the door between Room 16 and Room 9 in Building A - phase 2: the grave was excavated in 2017 and the skeletal elements will be studied in the coming years. In Grave 6 two individuals were discovered, the second one in secondary deposition, deposed at the feet of the main occupant. Recomposing and piling bodies, such as the second inhumed body of Grave 6, is a practice attested also in the northern part of the Tell, where a similar procedure was used to relocate the skeleton of Grave 201, a sub-pavement grave of Building D (Fig. 6.13).[29]

Grave 6, Grave 201(Area 4 - Fig. 6.13) together with Grave 3, which contains only part of a skull,

[24] Grave 22 (§ 7.3.1) is the only one with striking differences.
[25] See the state of degradation after 100 years of a mud-brick Bedouin house dated to the 20th century AD in Friesem *et al.* 2011: 1137 Fig. 1.
[26] After the identification the graves were filled again with soil.
[27] Unfortunately not clearly identifiable.
[28] D'Agostino *et al.* 2015: 218, Fig. 17.
[29] D'Agostino *et al. in press* a.

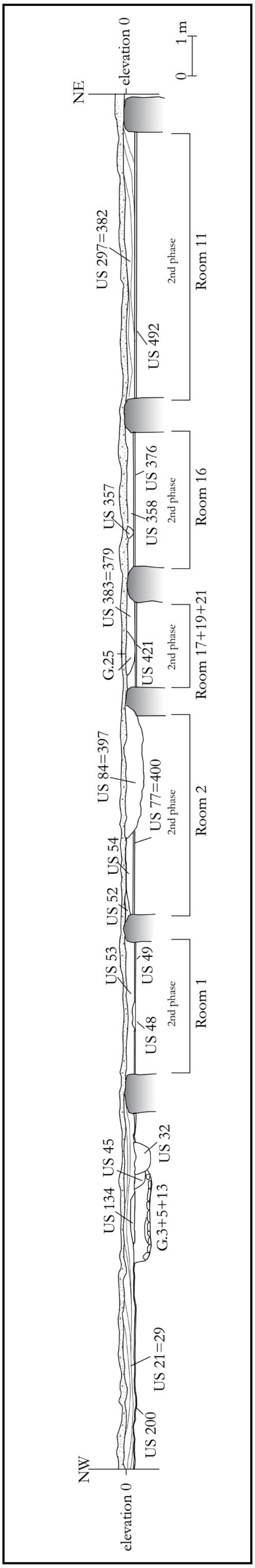

Fig. 6.10 Area 1 north-west/north-east section.

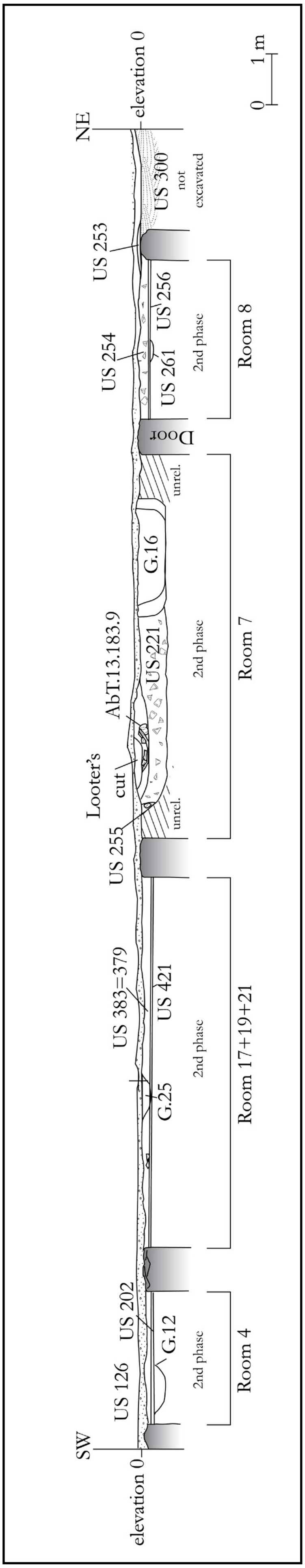

Fig. 6.11 Area 1south-west/south-east section.

Fig. 6.12 Grave 33, Room 16, Buildinga - phase 2, Area 1.

Fig. 6.13 Grave 201, Building D, Area 4.

Fig. 6.14 Grave 211, Building E, Area 6.

clearly document practices of manipulation and relocation of the skeletons, seldom discussed and noticed in previous archaeological literature. The missing head of Grave 19,[30] under the pavement of Room 5 (phase 2), was the result of an activity that took place while the room was still inhabited, as demonstrated by the heavy residue analyses that showed no gap in micro residue distribution.[31] Also the pile of bones (Grave 201) placed in the corner of Building D Room 1 (Area 4) clearly point towards practices of intentional retrieval and re-deposition of skeletal elements, a phenomenon probably underestimated for the 3rd mill. BC.[32] In the Diyala region, residential graves and sub-pavement inhumations[33] were clearly opened several times, in order to host multiple bodies,[34] thus attesting that skeleton manipulation and displacement was not considered a taboo.[35] Probably, some contexts from other contemporaneous sites, described as poorly preserved or disturbed inhumations, might need to be reinterpreted. It seems indeed quite unlikely that this kind of practice was a peculiarity of Abu Tbeirah. Obviously, the ancient looters usually violated the graves removing the upper part of the body but it cannot be excluded that, when missing, the skull could also have been relocated elsewhere like in the case of Grave 3 (§ 7.1.4).

Presently, at Abu Tbeirah coffins in connection with a building pavement have not yet been discovered. The coarse pottery sarcophagi do not show particular decoration, except ridges on the wall and can vary in dimension from bigger examples like Graves 15 and 24 or smaller ones like Grave 17.

A single inhumation in jar (Fig. 6.14) of the latest part of the 3rd mill. BC was excavated in Area 6 during 2016. This context can be preliminarily attributed to the Ur III period.

6.2.2.1 "Burnt Burials"

Based on the archaeological evidence and experience acquired at Abu Tbeirah in these years, it is possible to say something on the so-called

[30] Cereda - Romano 2018.

[31] Pollock suggests that "the re-excavation and removal of objects may have been part of a more or less accepted practice of reclaiming goods (one's inheritance?) after 'a decent interval'" (Pollock 1999: 215).

[32] This was however a common and widespread practice in the Neolithic Near Eastern funerary practices (see the discussion in Haddow - Knüsel 2017: 54-56).

[33] For a terminological discussion on the definition of "intramural" or "residential" burial see Laneri 2013. Abu Tbeirah graves found until now are never an intentional part of the domestic architecture and thus the definition of "sub-pavement" is here preferred.

[34] Pollock 1999: 210.

[35] See for example the frequent incomplete bodies or the "dislocated skulls" in the Diyala graves (Delougaz *et al.* 1967: *passim*; see *e.g.* of Grave 124 at p. 115-116 or of Grave 137 at p. 122) or at Abu Salalbikh (Martin *et al.* 1985) or at Fara (Martin 1988: *e.g.* 42 Grave 36-37).

"burnt burials", discovered by L. Wolley in the lower strata of the Cemetery of Ur.

Woolley admits that these graves show no cremation signs, that the bodies were in the ordinary position and posture, furthermore that the equipment located near the skull usually showed "burning traces" as well. However, the fire that burnt Ur bones did not affect metal objects, or wooden coffins or reed-mats. Thus, Wolley concludes that "the fire could not have been violent and that it was confined to one small part of the grave and did not extend over the whole."[36]

Digging Abu Tbeirah burials and findings, the frequent black and reddish stains on the bones (Fig. 6.15) caught our attention and were object of intense discussion among M.A. Tafuri and F. Alhaique and the archaeologists of the group.[37] Though the idea of burnt bodies, such those discovered by Woolley, was exciting, there were some clues, common to the Ur contexts, that led us to search another explanation. First of all, the fact that the bones did not show any sign of calcination and that the bodies were in perfect anatomic connection went against the "burning" theory: the severe burning that led to the complete destruction of soft tissues and reached the bones should have caused a dislocation of the latter and would have produced at least signs of partial calcination.[38] Nonetheless, the burning process is influenced by bone condition,[39] and though de-fleshing procedures can be excluded (no cut marks on the bones were found), the possibility of desiccation, however unlikely, came to our mind. The discovery in 2016 of a Bedouin grave with the same stains on the bones[40] proved without doubt that Abu Tbeirah "burnt" effect was due to postdepositional transformation. Thanks to E. Peverati experience, it was possible to identify the stains as manganese oxidation (see § 6.1.1.3). Are Woolley's "burnt burials" the result of a similar post depositional modification or still attesting a singular funerary procedure?[41]

Fig. 6.15 Detail of manganes stainis on Grave 16 skull.

6.2.2.2 Equipment Disposition

Apparently, Abu Tbeirah's graves do not show any normative frame in the deposition of the burial equipment: neither the quantity nor the location of goods seem to follow any precise pattern. However, some general considerations can be drawn from the evidences discovered. With the exception of Grave 11 and Grave 23,[42] at least one drinking vessel is always associated with the body and often positioned near the head or near the hand. The main occupant of Grave 6 (H1) was found with an organic vessel in its hands, while the skeleton in Grave 16 apparently was grasping something with the right hand (one of the drinking vessels found nearby?). These two graves are also associated by the presence of clusters or piles of drinking vessels at the feet of the deceased. In general, the graves with the highest amount of pottery vessels

[36] Woolley 1934: 142-143.

[37] What follows is the resumé of our team discussion, for which I thank Mary Anne Tafuri and Francesca Alhaique. Mistakes and errors in what presented are obviously mine.

[38] See for an archaeological example Ullinger - Sheridan 2015: 405 fig. 232.2 *sub* b. "As the body is subjected to the conditions of a fire, all of the muscles become affected and contract due to dehydration and protein denaturation" (Fojas *et al.* 2015: 207).

[39] Whyte 2001: 440. "Hard tissues can be damaged on a macroscopic, microscopic, chemical, or molecular level, depending on numerous variables, such as the type, duration, and intensity of the fire, the physical, biological, and pathological condition of the body itself" (Chrysostomou 2015: 189).

[40] After the identification the graves were filled again with soil.

[41] Molleson and Hodgson (2003: 123) state indeed: "Woolley considered that most of the bones had been lightly burnt and, from the nature of the breaks,f ragmenteds ubsequently, whereasr ecentt ests of some of the bones (PG1573, LG154) show them not to have been burnt, only heated. Gypsum (CaSO4.2H20) had formed as a very fine creamy white powder in small patches on the bones. The gypsum could have formed at any time since burial; it would not, however, have survived heating.

[42] Grave 23 has instead a reed basket in front of the body.

show group of jars and conical bowls (used as lids?) around the body or the coffins.

With the exception of the already discussed presence of drinking vessels near the head, the position of the rest of the pottery assemblage in relation to the body can vary, being placed near the body back (*e.g.* Grave 16; Grave 24), in front of it (Grave 6) or partially covering the body (Grave 1 and Grave 25). In the case of coffin inhumation, the equipment is usually deposed around the sarcophagus, though no peculiar pattern was detected. In particular, inside Grave 24 and in Grave 17 some pottery vessels were deposed also inside the coffin.

Some of the graves discovered show peculiar findings: Grave 1 has a limestone spouted vessel; Grave 6 H1 was deposed with a small vase with holes, probably for hanging (AbT.12.56.12 - Fig. 10.15); Grave 23 has a small reed basket[43] and Grave 25 is rich in miniaturistic vessels, all placed near the head; the stemmed-dish inside Grave 16 could probably be in secondary deposition, originally deposed in a destroyed grave or thrown in the dump pit later cut by the grave.

Though apparently burning traces found on pottery equipment are the results of manganese oxidisation, in two cases the use of bitumen and burning seem to be attested. It is the case of the conical bowl and small bottle with bitumen in Grave 22[44] and of jar AbT.13.195.6 showing many manganese stains but also apparent external soothing traces (Figs 7.41 and 10.15).

The pottery equipments of the graves do not tell us more about the chronology and the sequence of the inhumations: the ceramic horizon does not differ from equivalent contexts of Building A phases, including the earlier one (phase 2) not discussed in this volume.[45]

6.2.3 Insights into the ED III - Akk. Funerary Practices

In the last decades a consistent number of studies on ED funerary rituals and practices has focused on the impressive exhibition of the Royal Cemetery of Ur. The funerary propaganda of the Cemetery excavated by Woolley surely cannot be compared with the Abu Tbeirah evidence. Though funerary practices of the second half of the 3rd mill. BC are ethno-historically known, cuneiform sources tell us about the rituals concerning a restricted portion of the society, surely not the same highlighted at Abu Tbeirah. Ur private graves, and Abu Salabikh, Kish, Fara and Diyala graves surely constitute the main reference of comparison for our record. The general picture of the funerary practices explained for Area 1 Cemetery does not differ from the frame outlined by previous researches, but some new hypotheses and further evidences can be drawn from our record.

Abu Tbeirah Cemetery once again testifies the absence of a particular ritual behaviour regarding the position and posture of the bodies, that can be in a more or less contracted position, on the left or on the right side. Wrapping in reed-mat is the only evidence of the preparation of the body. If the orientation of the bodies is considered (Fig. 6.16), an extreme variety is attested, in particular if compared to the sub-pavement burials of Building A, that are clearly oriented following the structure. Looking at the orientation of the bodies in the Cemetery in Fig. 6.16, it seems singular that, with the exception of Grave 22, all the studied individuals have the head in the left part of the schema, with the upper part of the body never pointing towards east. It is early to propose a clear interpretation of this evidence, but it might be tentatively supposed that the bodies were deposed towards west, following the setting of the sun or of the moon: sun and moon settings along the western horizon change position northward or southward during the year. The same interpretation of a similar pattern was proposed for Oman EBA tombs.[46] After all, the precision of the ancient looters in making holes exactly over the deceased head could be based on a clear knowledge of the orientation of the graves.

43 See Montorfani 2019.

44 See however the doubts about this context (§§ 7.3.1 and 8.14).

45 Jars with the tall neck were found in sub-pavement graves of the second phase, as well as spouted vessels and trumpet based jars. See Nishimura 2015.

46 Belmonte - González-García 2014 (from which the graphic representation of Fig. 6.16 was derived and adapted).

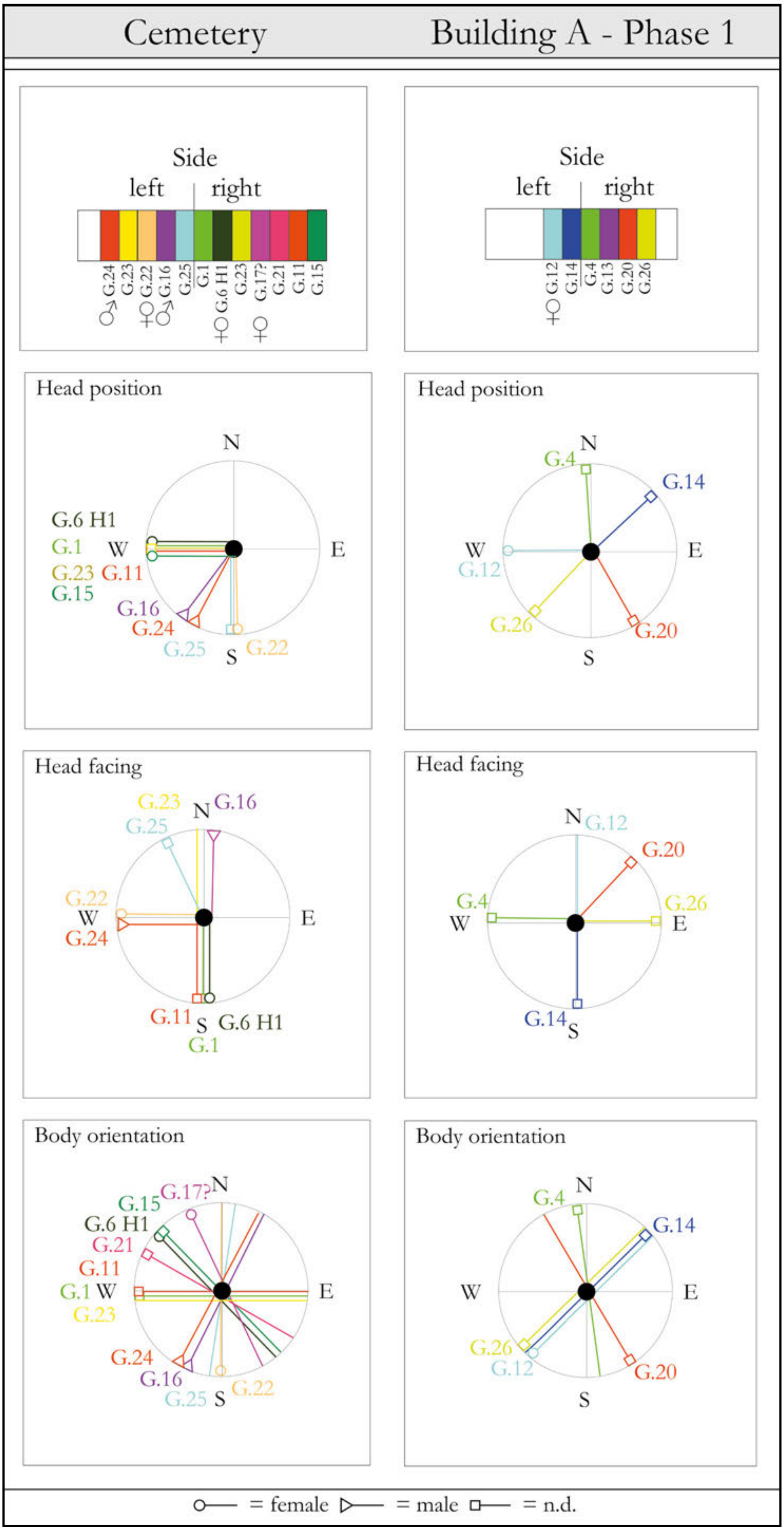

Fig. 6.16 Orientation and head position of the inhumations recoverd in Area 1 (Cemetery and Building A - phase 1).

Indeed, no clear indication of the presence of the graves on the surface were found.[47]

From the isotopic analyses (§ 12) it is clear that all the individuals belonged to the same region. Moreover, the osteological traits show, for the adult individuals, stress signs connected with hard labour (*e.g.* teeth used for extra-masticatory purposes). The part of the adult population inhumed in the Cemetery was thus directly involved in the productive activities of the settlement. Distinctions in quantities of pottery deposed with the body or the presence/absence of a coffin cannot be at present attributed to differences in status or be due to chronological variation.

Faunal remains (§ 13) showed the association of *sus scrofa* with the individual of Grave 16: the bones scattered in the filling might be related to the sex of the individual (male) and with his activities, though the presence in secondary deposition cannot be excluded. Sex differentiation are otherwise not present.[48]

The only case of possible familiar grouping in the Cemetery are the Graves 1-6. Grave 1 partially cut Grave 6 and thus can be considered more recent. The relationship between the two graves was previously highlighted.[49] However isotopic analyses performed on the bones (§ 12) show a difference in the protein intake of the diet of the individual (H2) of Grave 6, if compared to the 6-year-old child in Grave 1. The difference in nitrogen values between the adult and the child could be due to a elevated nitrogen values in the infant due to breastfeeding.[50] However, given the age of the child we could also argue in favour of prolonged breastfeeding or high-protein diet due to status difference between the two individuals and thus the absence of familiar liaison. This few data do not allow further conclusions. Nonetheless, it should be interesting if, in a familiar group, children were given a higher protein ratio than adults. The high mortality of children, also attested at Abu Tbeirah, might justify the supplementary feeding reserved to them.[51]

Infants at Abu Tbeirah are indeed clearly regarded as members of the society and are object of inhumation practices that also include the deposition of grave goods. The only exception is Grave 11, a simple inhumation of a child of perinatal age: in later cuneiform sources the foetus is not considered as human and this can justify the absence of a "proper" inhumation.[52]

The function of the equipment of 3rd mill. BC burials is uncertain and a unique interpretation for all the context seems improbable. Pottery vessel assemblages, other than being considered personal belongings, could also be connected with the everyday life and thus intended to sustain the deceased in the netherworld, or being deposed as offering for the deities, or, again, as provisions for the deceased to travel to the underworld.[53] Traces of funerary banquet, discovered in Grave 4-5-13 of Building A - phase 1, are not evident in the Cemetery: only the presence of clusters of drinking vessels, as in Grave 6 or 16, usually at the feet of the body might be interpreted as evidence of this practice. The low amount of animal bones connected to the Cemetery graves (§ 13) seems to point towards the predilection of liquids, fish and bread, foods that do not always leave evident archaeological traces.[54] The frequent presence of one vessel near the head or the hand can be quite confidently interpreted as a personal belonging of the deceased.[55] The spouted vessel in Grave 1 could be connected with libations, a practice often considered part of the ED funerary ritual.[56] Due

[47] Obviously Grave 15 heap should have been quite visible.

[48] See Building A Grave 14 for a "female" equipment. The only two secondary inhumations (Grave 23 and Grave 6 H2) are of two male individuals.

[49] D'Agostino *et al.* 2013: 72 and Fig. 1.

[50] However, according to Stol "there is abundant evidence in the ancient and traditional modem Near East that children were nursed for two or three years" (Stol 2000: 181 quoting an OB text BM 16950).

[51] This practice is attested in traditional society with intensified agricultural production activity (Bentley *et al.* 1993: 276). See moreover the study by Valk (2016) on the material and textual evidence concerning infant loss in Mesopotamia, showing "the scale of the efforts that ancient Mesopotamians channeled into the warding off of infant loss". See also Brereton 2013.

[52] Valk 2016: 725.

[53] Postgate 1980: 77; Winter 1999; Nebelsick 2000: 216; Selz 2004: 186-188; Cohen 2005: 84-85.

[54] In TSA 9 bread loafs and beer are distributed by Šaša, Uru'inimgina's wife, in the occasion of Barnamtara death. Selz 2004: 198-199.

[55] A practice widely attested in coeval sites. See Postgate 1980: 68 with other references.

[56] Winter 1999; Selz 2004: 196; Cohen 2005: 29, 43.

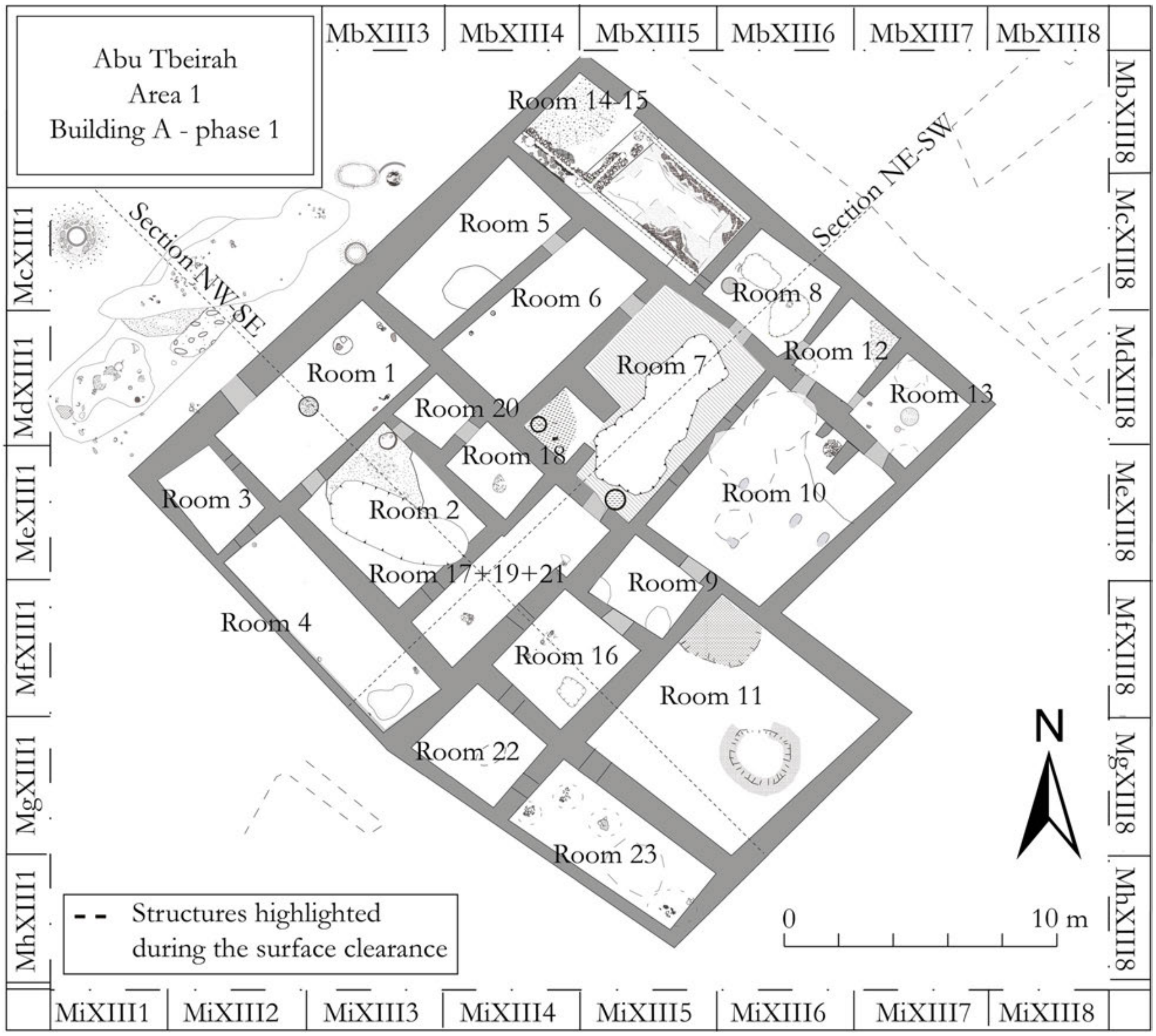

Fig. 6.17 Plan of Area 1 Building A - phase 1.

to the not univocal connection between shape and function at Abu Tbeirah (§ 10.5), it is possible that different vessel kinds, present in the other graves, were used with the same purpose. The hanging vessel in Grave 6 might possibly have been used for containing a peculiar substance,[57] and the same could be hypothesized for the miniaturistic vessels in Grave 25.

The hearths located in the western part of Area 1, near Grave 3 might be related with the funerary ceremonies or, possibly, to other chronologically different activities.

As said above, the discovery of secondary inhumations at Abu Tbeirah implies other activities conducted after the burial that go beyond commemoration and mourning practices. At present the details of the ritual behaviour involved in this practice are unknown, but the presence in Grave 3 of a small circular pit full of ashes is singular It might be suggested that, after the relocation of the bones, a small hole was realized and some substances burned inside it. A similar connection between burial and ash pit was indeed found, *mutatis mutandis*, in the Donkey burial discovered in Area 2.[58] The difference between the two contexts is striking but the similar association of a small pit with burned substances might hide a common practice with different ritual implications for the two contexts.

[57] Incense burning should be excluded due to the absence of burning traces.

[58] D'Agostino - *et al.* 2015; Alhaique *in press* c;

Fig. 6.18 View of Building A from south-east.

Fig. 6.19 Mud-bricks set as header and stretcher in the wall between Room 6 and 20 (2nd phase highlighted).

6.3 Building A

Building A (Figs 6.17-18) is located in the south-east part of the Tell and was identified thanks to satellite imagery kindly granted by E. Stone. In the satellite imagery it was possible to recognize a huge "L" shaped complex of structures. Our first 5 years of excavations focused on the south-western part of this complex: its dimensions and the satellite evidence (Fig. 6.4), showing whitish (and thus presumably empty) areas surrounding it, probably indicated a certain independence of the structure. The area immediately adjacent to the Building was only scraped in order to have some hints on the connection to the other complex of rooms north-east to it.

Building A occupies a surface of 560 m^2 ca. and at the present state of investigation of the area it seems surrounded by open spaces north-west[59] and south-east. In the north-eastern part, the scraping revealed the presence of a possible street (or corridor) dividing Building A from the other structures of the "L" complex. After the scraping, a series of narrow spaces were outlined under the surface. Moreover, south-west of Room 4 some other structures, hardly recognizable from the satellite, were highlighted. The excavation indeed revealed the partial reliability of the satellite imagery. The traces of the mud brick structures visible in the satellite imagery are due to the strong salinization of the soil: salt crystal easily reach the surface in the empty spaces, while the compact clay of the mud-bricks slow the spreading of the salt crystal down creating these darker lines (§ 6.1.1).

The picture derived from the satellite might be distorted by a series of factors. First of all, they show a synchronic picture of structures that might belong to different phases: *e.g.* from the satellite imagery Room 11 (Fig. 6.4) seems divided in two parts, while during the excavation it appeared clear that this subdivision was probably due to the presence of a lower and earlier structure, causing the post-depositional transformation of the soil to transpire to the surface. Moreover, mud-brick structures could be invisible on the satellite imagery due to recent activities that evened the Tell surface. At the beginning the hypothesis was that Building A rooms were organized around a bigger central court and a second open space to its south-east. A modern encampment, traces of which were revealed by the excavations, probably contributed in evening the surface of this part of the site. Hence, it cannot be excluded that the peculiar position and the same "L" shape of the complex are the illusory effects of salinization. Further investigation in the area will clarify the nature of this complex and confirm or dismiss the presence of an effective connection of Building A with the structures at north-east.

The excavation brought to light at least two phases of the structure without noticeable changing in the internal organization of the building. In what follows a general interpretation of the Building and of activities carried out in its last phase will be presented. A detailed description of each action recognized in the Building rooms are found in § 6.

Building A was abandoned during its last occupational phase and the low dispersion of artifacts on the floors does not yet allow a clear indication of the functions of all the rooms, though future studies of the sampled pavements

[59] Nevertheless, in the north-west corner of the section exposed by the excavation in square McXIII1 (immediately north-west of the drain pipe US 128), it is visible a mud-brick wall belonging to another structure. Moreover, thanks to the autumnal rainfalls, when the soil dries it is possible to recognize the outline of other buildings in this direction.

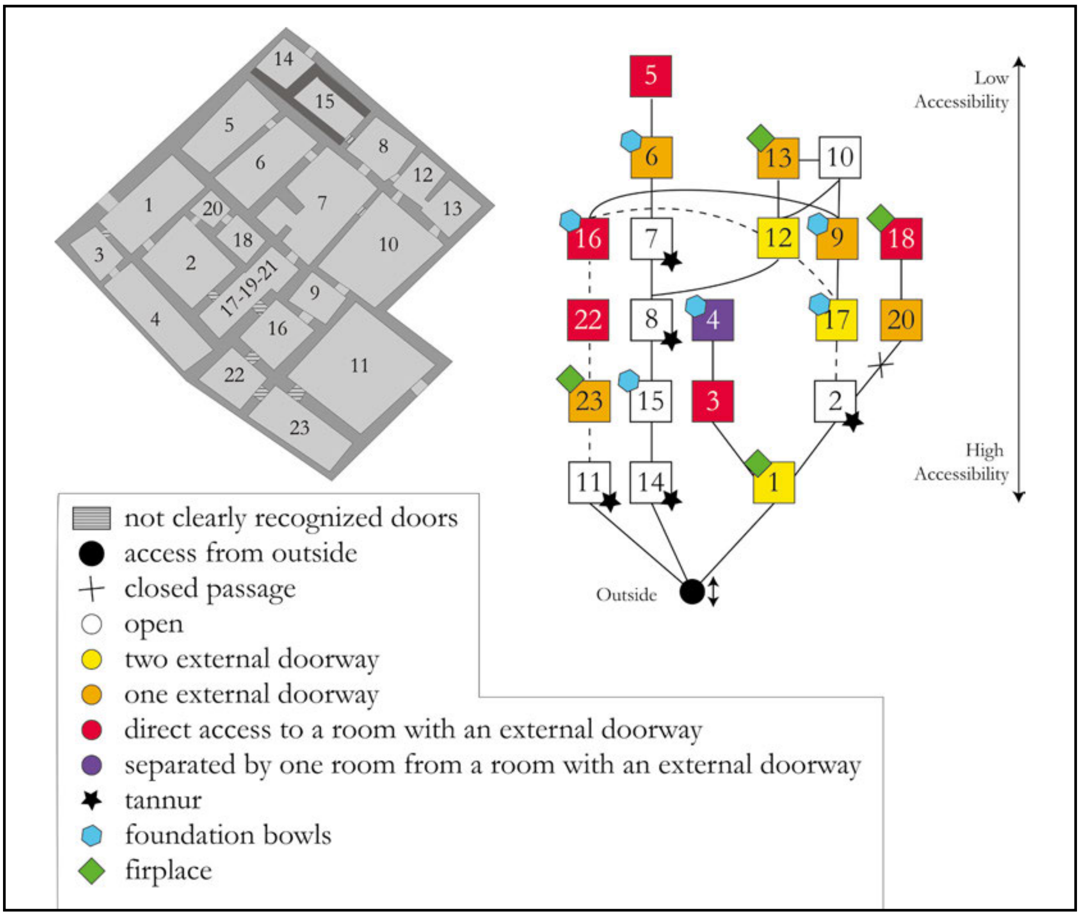

Fig. 6.20 Permeability diagram of Building A - phase 1.

are promising (see below and § 9). Nonetheless the available information (structural elements such as movable structures, tannur and hearths and the presence of sub-pavement depositions) that can contribute in understanding the functions of the Building will be presented in what follows.

6.3.1 Building Techniques and Materials

Building A - phase 1 mud-brick walls were poorly preserved due to their proximity to the surface (Fig. 6.19).[60] In general, only a few centimetres belonging to a single course of mud-bricks were found preserved, and this did not allow the recording of the dimensions of the building elements in all cases, and the identification of doors was not always possible. The mud-bricks were shaped with extremely pure dark yellowish brown clay possibly mixed to vegetal temper.[61] The dimensions of the best preserved mud-bricks were 30/35 x 30/35 x 15/20 cm, usually set as header in clay mortar of the same colour. In some cases, in particular in the perimeter walls, mud-bricks seem to have been set as header and stretcher (Fig. 7.19). A difference in the used mud-bricks was noticed in the small walls inside Room 7, where the mud-bricks were 15x20 cm of dimensions and apparently set on a loose thin stratum of sand. Walls were never covered with plaster and their thickness ranges from 70-60 cm (2 lines of bricks for perimeter and main walls) to 30 cm ca. for the internal divisions of the spaces, though the poor state of conservation could have biased our analysis. The width of the recognized doors usually ranges from 70 to 50 cm.

The living surfaces inside the rooms of the building were not clearly recognized in all cases due to the extreme difficulty of discerning the clay pavement from the filling of the rooms. No plastered pavements was found at Abu Tbeirah up to now. Nonetheless, in some cases the ground surface was identified due to its particular hardness[62] and thanks to the presence of some

[60] See D'Agostino *et al.* 2013: 73-75.

[61] Small black traces in the fabric might indicate the presence of vegetal temper

[62] Always associate to the presence of a firing structure or hearth on the living surface.

elements like tannur, fireplaces or the so-called "foundation bowls". The relative elevation of the pavements vary from -0.1 to -0.2 m ca.

In abandoned buildings, such as Building A, findings *in situ* in the rooms are quite rare and there is the risk of describing the building as empty. However, the presence of past activities are embedded in these hard soil pavements. Since 2014, with the collaboration of S. Cereda, heavy residue analysis of the identified pavements started, aimed at gaining a clearer picture of the activities carried out in Abu Tbeirah's structures. This volume presents the results of the analyses carried out in Room 23 (see § 9): as far as it is possible to see from the first results this research will surely contribute to a better understanding of the function(s) not only of the single rooms but of the Building in its complex.[63]

As far as roofing is concerned, the extremely poor state of conservation of the 1st phase walls does not allow any hypothesis regarding the covering of the structure. However, it could be possible to hypothesize a sort of movable or light cover - a kind of "pole and thatch" structure - at least for some rooms, like the one supposed for the Room 1 - phase 2: here a post-hole was found on the pavement covered by a reed-mat, probably used to host one of the poles that sustained the cover.[64] A post-hole inside Room 16 might point towards the same interpretation and furthermore the probably unroofed Room 10 showed - though not clearly - traces of a movable structure.

6.3.2 Plan, Circulation System and Natural Lighting

Building A is oriented according to the cardinal points, as is usual for Mesopotamian architecture. The orientation of Building A should be seen in relation with the surrounding structures that, though not necessarily coeval, shaped Abu Tbeirah's settlement layout. Both in the south-western and south-eastern part of the site, the dense settlement seems invariably organized on the basis of streets running diagonally north-east/south-west. M. Shepperson recently showed how city and buildings layouts and orientations played an important role in developing a thermal comfort in southern Mesopotamia hot arid region. The orientation with corners at the cardinal points reduce indeed the area subjected to direct light during the day, in particular in summer period. As stated by Shepperson for Ur contexts, the reason behind the cardinal points orientation of Building A (and the other Abu Tbeirah visible buildings) should be linked to practical rather than ritual reasons.[65]

As far as the plan and the internal circulation system is concerned, Building A's most direct comparisons are the structures excavated at Abu Salabikh.: in contrast with Diyala domestic buildings, these houses were clearly huge, abandoned domestic units.

The unclear identification of all the doors unfortunately does not give us a perfect picture of the internal circulation system. Nonetheless, a reconstruction of the possible paths inside the building is attempted, indicating the identified doors and the uncertain ones. The picture that will be presented should be thus considered as hypothetical or at least partial. Fig. 6.20 uses the graphic representation from Hillier and Hanson regarding the permeability degree from the outside.[66] In addition, the diagram was enriched with the indications on lighting, according to the scale elaborated by Shepperson.[67]

As said above the poor state of conservation of Building A structure does not allow a precise reconstruction of the walls and roofing. Nonetheless, Shepperson convincingly argued that in ED Mesopotamian houses the main light sources were doors: small passages and few windows are indeed a good compromise between light and insulation from hot air for houses located

[63] For an example of the results obtained at Abu Tbeirah with the heavy residue analysis see Cereda - Romano 2018. The results of the analyses in the other rooms will be published separately.

[64] See the ethnographic comparisons in D'Agostino *et al.* 2013: 79-82.

[65] Shepperson 2017: 78-81, 94-96.

[66] Hillier - Hanson 1984. The Room position in the diagram is realted the number of doors that have to be passed through in order to reach the space from the outside. The same methodology was already used for the description of Mesopotamian domestic space by Brusasco (2004; 2007) on later contexts and on 3rd millennium households by Salvin 2018.

[67] Shepperson 2017.

in hot-arid regions.[68] Hypothesizing a similar situation for Building A, the presence of tannur and similar firing structures of great dimensions were considered as an indication of an open space.

From Fig. 6.20 the presence of less accessible areas of the Building seems evident: though part of the diagram has a high degree of uncertainty, it however shows the presence of rooms less accessible from the outside, that can be thus interpreted as more private spaces inside the building.

The access from outside was provided by three doors located in Rooms 3, 11 and 14.[69] The subdivision between Room 14 and 15 was realized with a reed structure and it is one of those "invisible boundaries" present inside buildings but usually not recovered in the excavations.[70] Rooms 2, 7, 8, 11 and 14 were characterized by the presence of at least one tannur (or another firing structure) and thus could plausibly be interpreted as open spaces. Room 10, with its big dimensions, could be a kind of courtyard too. It is worth noting that the main open spaces of Building A were located on the south-eastern side, that received more light during the day, while the innermost chambers (in particular Room 5 see below) were instead located in the opposite direction.

The distance between a room and an open space (and light source), combined with the number of doors separating it from an external access (its permeability degree), could be an indication of the more or less private vocation of the space. All the rooms in the higher part of the diagram show a lower permeability from the outside, but Room 5 should be considered the least accessible spaces of the Building.[71] If the lighting is considered, Room 4 is the room with less available light.[72] The presence of internal courtyards or open spaces, not directly connected with the outside of the building, allowed not only an adequate lighting provision of the internal chambers, but also to carry out activities (like cooking inside tannur) in a more private environment.

Salvin's recent study on 3rd millennium households shows similar results for Abu Salabikh and Fara, with permeability diagrams comprising several steps from the outside to the inner and more private rooms of the buildings.[73] The permeability diagram of Building A should also be compared with the "ideal" early Mesopotamian Building plan incised on the RTC 145 tablet, dated possibly to the Ur III period.[74] A direct comparison cannot be drawn due to the difference in dating. However, it is interesting to notice the clear distinction between public and private spaces in the sequence of rooms reported on the cuneiform tablet: outside, entrance room, courtyard, reception room, living room, inner chamber.[75] In the tablet the private section of the house is separated from the outside by 4 doors: in the same way, the fourth row of Building A rooms from below should be considered as private. The only incongruence is Room 4, its private character is derived on the basis of light provision: Room 4 received light through Room 1, a closed space connected both with an internal courtyard and to the outside.[76]

6.3.3 Fire Installations and Artificial Illumination of the Building

Tannur and hearths are the main types of fire installations found at Abu Tbeirah.[77] Open hearths of Building A are usually found as fire-hardened rounded clay areas.[78] The tannur vary from 60 to 70 cm in diameter (taken at the base). Though most of them were preserved only at base level, it can be supposed that they were coiled, like other bread ovens found in the north-eastern part of the site. Abu Tbeirah's tannur usually lack a built pavement or floor, and they generally consist of

[68] Shepperson 2017: 120-125.

[69] The accesses were recognized on the basis of the upper part and the internal face of the wall.

[70] See on this problem Salvin 2018: 17.

[71] This remains true even assuming the presence in Room 10 of an unidentified doorway to the exterior of the building.

[72] Perhaps to contrast the higher sun-light rate to which it was exposed during the day, being located on the southwestern side of the Building (see Shepperson 2017).

[73] Salvin 2018: *e.g.*, Figs 5.7 and 5.13.

[74] Gruber - Roaf 2016.

[75] Gruber - Roaf 2016.

[76] The presence of tannur and of a huge multiple inhumation (Grave 4-5-13) following the Building orientation might indicate a more private connotation of the north-west external area. At present it is not possible to know if the outside was in some way divided from other buildings.

[77] As well as in other Near Eastern sites. See Crawford 1981; 1983.

[78] With the exception of the almost oval fireplace of Room 18.

Fig. 6.21 "Foundation bowl". Room 4, Building A - phase 1.

ground clay hardened by fire. Only Room 2 tannur showed the use of pottery fragments to reinforce the lower part of the firing structure.[79]

Two tannur were found side by side in Room 8 (though strongly damaged by a later grave), while in Room 7 two tannur were located in different corners of the space. The contemporary use of two different facilities is largely attested both ethnographically and archaeologically.[80] However, it is also possible that the second tannur was built after the first one was no longer in use: in the seasonal Bedouin encampment near Abu Tbeirah a new tannur is, indeed, built every year (Fig. 8.8). The presence of six tannur inside a single building, even if not all in use simultaneously, indicates that a huge number of people lived and was fed in it.[81]

It is however clear that Abu Tbeirah's fire installations were probably multifunctional, used in different stages of food preparation (cooking, roasting and baking).[82] At Abu Tbeirah, indeed, cooking pottery is rarely found in the excavation and it is possible to suppose that most of the cooking activities took place directly on the fire, inside the tannur[83] or thanks to the use of light movable structures in connection with the hearths. In association with tannur open shapes are usually found, in particular beakers, whose role in food preparation is still unknown: were they used for the water needed in bread preparation?[84] Or were the beakers particularly suitable for emptying the firing structures from the ashes in between uses?

The peculiar firing structure found inside Room 14-15, a vaulted oven built with the same clay used for tannur and connected to a movable structure made of reed panels and bundles, seems to be a *unicum*, showing a mix of features of *taboon/tandir* and pit oven typologies. The use of the facility for cooking activities is testified by the ashy heap recovered inside the Room, full of animal bones[85] and pottery fragments. The larger faunal assemblages were recovered from Room 14, followed by Room 8 with its two tannur and Room 1.

As far as combustible is concerned, ethnographic comparisons with the Marshlands seem to point towards a use, not only for tannur, of dried dung patties and reeds.[86]

Fire installations were in general located both in courtyards or enclosed open spaces and in roofed rooms. While usually tannur were found in courtyards or open spaces, hearths were probably located in roofed rooms[87] and were used not only for food preparation but also for heating and lighting closed spaces. Smoke from the hearth could escape through a window or a hole in the roof or side of the wall which could be closed during rainy weather.

If the spaces of Building A in which tannur were found are considered, while it is certain that Room 6 and Room 11 were unroofed[88], the reduced dimensions of Room 2 and Room 8 surely allowed the presence of a roof.[89]A seasonal use of the

[79] On the experimental reconstruction of a tannur see Mulder-Heymans 2002; Parker 2011.

[80] Crawford 1981: 105-107; Smogorzewska 2012: 246.

[81] Crafword (1981: 114) counts 16 tannur in all Abu Salabikh Area E.

[82] See for example Cereda - Romano: 2018 on charred seeds and post-holes in connection with a hearth. Moreover see Crawford 1981 and Smogorzewska 2012 on household firing installations.

[83] See Alhaique *et al. in press* a on Abu Tbeirah "Ray-Fish" recipe. In Room 2 tannur also bivalve shells were found.

[84] Crawford 1981: 108. On the use of water in bread preparation see Ochsenschlager 2004: 50-51.

[85] See § 12.15.

[86] "The reeds burn quickly and hotly, thoroughly igniting the dung patties and quickly raising the inside temperature. Hot coals from the dung patties will then maintain the heat in the tannur's walls for a considerable length of time" (Ochsenschlager 2004: 50, 141).

[87] See also the Marshlands evidence compared to Abu Tbeirah's findings in D'Agostino *et al.* 2013: 80-82.

[88] The soil found inside Room 11 was clearly created by the seasonal accumulation of soil.

[89] The evidence connected to a peculiar structure made of reed screens found inside Room 14 in connection with the

rooms and their installations might be supposed, whereas covered tannur were used in winter.[90] A tannur was also found outside Building A, along the perimeter north-western wall, plausibly indicating that this external space was considered as belonging to the household.[91]

Fig. 6.20 shows the distribution inside the building of tannur, fireplaces and the so-called "foundation bowls". The conical bowls found in connection with the pavement of the rooms are usually associated with foundation rituals of the building itself.[92] Nonetheless another interpretation is possible, at least for Abu Tbeirah contexts.[93] The "foundation bowls" in Building A are usually found along the walls or in the corners, in pairs, one over the other, sometime slightly inserted in the ground and often containing burnt substances.[94] Going back to Fig. 6.20, it is singular that the "foundation bowls" are never associated to an open space[95] or to the presence of a firing structure. It is thus possible that these bowls were instead lamps used to light the rooms.[96] In the evening an artificial light source was surely necessary, considering that in a house the light is less than 1/100 of that available outdoors. Surely the hearths on the room floor were used to lit the space, radiating a diffused and shifting light.[97] On-going analyses on the content of the bowls will contribute in clarifying this issue, also yielding information regarding the kind of used fuel, apparently bitumen.[98]

built oven does not allow to make hypothesis about the presence of a cover.

[90] See Crawford 1981: 108.

[91] The presence of a perishable fence dividing this space was not recovered during the partial excavation of this area.

[92] McMahon 2006: 13, fn. 11.

[93] As noticed by A. McMahon (*pers. comm.*) a ritual function should be preferred for those contexts in which foundation bowls were found containing burned bones and residue and located under clearly identified pavements.

[94] No fish-bones or animal bones were found inside them.

[95] With the exception of Room 15, in which a movable structure divides the space from the firing structure in Room 14. It cannot be excluded the presence of a movable cover for this part of the space.

[96] A similar interpretation was given for the Larsa conical bowls by Thalman 2003: 50.

[97] Torches were likely in use too, as attested from later cuneiform sources (Kertai 2015: 189).

[98] Sesame oil was suggested as fuel in lamps, but it is also possible that liquid bitumen was used for this purpose (for a history of the bitumen use see Glassford-Speight 2009: 144).

6.3.4 Sub-Pavement Graves

Seven graves were found in connection with Building A - phase 1. Four of these were sub-pavement simple inhumations. With the exception of Grave 12, all the inhumed bodies were children and infants.

In striking contrast with the graves of the Cemetery, all the bodies found in connection with Building A were located near the corners or along the walls and following the orientation of the mud-brick structure. Apparently only Grave 26 was void of equipment[99], while the others were characterized by the deposition of some pottery vessels (in Grave 12 some stone tools and a small reed basket with a cosmetic shell were also found). Leaving aside the complex of Graves 4-5-13, the number of vessels vary in the graves from the poorest one, Grave 26, to the richest one, Grave 12. As in the Cemetery, the common characteristic of the equipment is the presence of at least one drinking vessel and one jar (miniaturistic jars were found in Grave 20).

Grave 12, the only sub-pavement adult grave, contained objects probably connected with the sex (a reed basket with a cosmetic shell) and with the activities carried out during life by the female adult (the stone tools recovered inside the grave had pounding, abrading and polishing use-wear), and with her status (copper alloy ring). The presence of the grave inside the Building could be related to a particular role played by the woman inside the community.

The complex formed by the inhumations of Graves 4-5-13 stands out: it is clearly a multiple grave, re-opened several times or disturbed by later activities and with evidence of a funerary banquet. The location of this grave is outside the Building but is aligned with it, hence it might indicate that the courtyard was considered as attached to the household (as the presence of a tannur

[99] There is the possibility that the conical bowl AbT.14.274.1 was connected to Grave 26 (§ 8.9), but the context of the pottery was not clarified: the day after the discovery the context was damaged by some Bedouins. Nevertheless the elevation seems to point towards the absence of any connection with the grave.

testifies - see above). The heaps of pottery and shells discovered above the grave can be related to commemorations following the closure and filling of the grave. It is not clear if this part of the funerary practice was performed immediately after the inhumation but surely it was not an act that was repeated several times on the same spot. The presence of the decorated jar (AbT.13.143.1 - Figs 8.127 and 10.42 *sub p*) on the ground surface, almost on the same line of the grave, as well as the presence of burnt and ashy areas could be significant. If compared with the ceremonies, well known from the cuneiform texts, as reminded by Alhaique (§ 13.2.21), the faunal remains of the funerary banquet points towards a ritual among a relatively restricted number of individuals. Though Grave 4-5-13 banquet is surely a more "familiar" event than the funerals well known form the Lagash texts, if the enormous quantity of vessels found in connection with the three bodies is considered,[100] it could be supposed that the ritual act related to these multiple inhumations involved a wider group of individuals connected to Building A household.[101] If the deposition of the three bodies is considered as a unique event or as the result of different interments,[102] the peculiar location could indicate a single and specific tragic event that led the people of Building A household to perform a ritual practice different from the common one attested inside the building.[103]

If the sub-pavement graves of the second phase are considered (Tab. 6.1), there is no striking difference in Area 1 between the number of adults

Context	Adults	Infants/Children
Cemetery	6	4
Building A - phase 1	1	6
Building A - phase 2	5	5

Tab. 6.1 Adult and infant graves recovered in the Cemetery and in Building A - phase 1 and 2.

and children/infants buried in the Cemetery and in Building A - phase 2.[104]

The table, nevertheless, shows a decreasing number of adults buried in the later phase 1 of the Building, a fact that could possibly be related to the gradual (see below) abandonment of the structure.[105]

The short chronological span between the Cemetery and Building A sub-pavement burials indicates the coexistence of two ritual practices. S. Pollock suggests that this difference, already noticed in coeval sites, could be connected to the presence of kin-based household alongside more institutional *oikoi*,[106] an interesting theory that needs to be further verified.

6.3.5 Dog (Ritual?) Deposition

The discovery in Room 22, under the pavement, of an almost complete skeleton of a dog, found in connection but missing the head (see § 13.2.20 and Figs 8.91-92), opens some interesting questions.[107] The absence of a pit and its deposition under the supposed ground surface, suggest a particular ritual practice. Textual sources attest a wide range of attitudes regarding dogs, based on the role of these animals in the domestic context or on their healing aspects connected to the cult of Gula.[108] Dogs are moreover present in Mesopotamian sources and frequently quoted in proverbs and

[100] *E.g.* more than 250 bases of drinking vessels were recovered in the three clusters. Though a multi-functional nature of these shapes is evident at Abu Tbeirah (see § 10.5), it is however an exceptional number and it can be plausibly supposed that at least a good percentage was used for consuming food or beverages.

[101] Or at least this ritual led to a higher archaeological visibility of the performing group.

[102] The peculiar "seated" position of Grave 5 skeleton (§ 12.3.1.2) might point towards this hypothesis, as if it was deposed from above through a hole smaller that the limits of the grave.

[103] Ethnographically, in the community of Birifoh-Sila Yiri (Ghana, Upper West Region), still performing sub-pavement burial practices, 'communal graves' in front of the house or the compound limits are used as "back-up" in emergency cases (Rattray 1969: 445).

[104] The excavation of the second phase is not complete.

[105] For a discussion of the mortality profile see § 12.4.

[106] Pollock 1999: 206-210.

[107] See Alhaique *et al. in press* b. Dogs remains were rarely found in 3rd mill. BC contexts. J. Clutton-Brock and R. Burleigh (1978: 90) justify the absence of dog skeletons at Abu Salabikh hypothesizing they were disposed outside the settlement. See also the dog skeleton found at Tell Brak (Clutton-Brock 1989).

[108] The 1st mill. BC dogs' Cemetery discovered at Isin (see Ramos-Soldado 2016: 27 for a recent assessment) was realized in the ramp leading to the Gula temple.

fables that recall their multifaceted relationship with man, emphasizing both the positive aspects (guarding, shepherding, hunting etc.) and the negative ones.[109] Though the seated dog became clearly a divine symbol only in the Old Babylonian period, 3rd mill. BC iconography depicts dogs also in very diverse attitudes. A ED votive plaque from Nippur[110] represents a dog in a typical domestic scene under the chair of a banqueting character, while Sargon Stele SB1 shows domestic dogs and vultures devouring and dismembering enemies' bodies.[111]

The dog skeleton recovered in Room 22 surely represents an intentional interment: the articulated body, missing the head, points towards a sacrifice. This practice is widely attested in the ancient Near East[112] and in all the Mediterranean region and it is clearly connected with the nature of the relationship between human and dog, and it might be interpreted both as offering and/or protection of the house.

The choice of the location inside Building A is probably not casual, though at present there are not many hints towards an explanation on the position of the interment. However, some considerations can be drawn on the basis of the discoveries of Building A first and second phases: most of the adult sub-pavement graves were found in this part of the Building,[113] distinguishing, as for Abu Salabikh (see above), this section of the structure. Moreover, Room 22 is one of the perimeter spaces of the structure: though it would be extremely interesting to identify this room as the access to the Building from south-west,[114] the poor state of conservation of the walls did not allow us to detect any passage. In addition, the absence of a clear ground surface complicates the interpretation: was the dog deposed during the life of the Building, as a sort of foundation deposit? Or is its presence to be connected with the abandonment of the building and thus as a ritual deposition?[115] The relative elevation of the dog[116] and the absence of a clear cut hosting the skeleton might point towards the first hypothesis.

6.3.6 Rooms Function(s) and Building A Household

The evidence presented above, together with the findings described in detail in the following chapters, allow us to sketch a preliminary outline of the activities performed inside the Building.

The most clear situation is that described by the HRA for Room 23 (§ 9), a space with a strong workshop connotation in which food was consumed, bitumen melted, tools and objects stored and repaired/assembled. Among these objects a sickle with three hafted chert elements (AbT.14.144) and the other chert blades found in association tell us that people living inside Building A also performed agricultural tasks (cutting of cereals and other siliceous plants) and that some of them might have been also able to repair or create their tools.

More indications regarding food production come from the open spaces with tannur and other facilities, such as the oven in Room 14. The presence of tannur inside small rooms or connected with structures that can sustain a cover might point towards a use of these structures depending on the external temperature and weather conditions. The other open area, Room 10, with its probable movable structure demonstrates with its findings that in ED III/Akk. houses open spaces and courtyard should not be considered simply as passages but as a fulcrum of several activities.[117] Indeed a huge jar AbT.14.278.1 (Fig. 8.55) with a pierced convex base in connection with two small walls was found. The position of the jar on a raised structure (of which only the lateral walls were found) is probably linked with the hole at its base, and its elevated position allow pouring or pressing

[109] See for example the proverbs and fables in Gordon 1958 or the incantations against the bite of a rabid Dog in Wu 2001, or the role of dogs in Ur III army as described by Tsouparopoulou 2012.
[110] Boese 1971: 182, N3 Pl. XVI, 1.
[111] Nigro 1998: 99.
[112] See Ramos-Soldado 2016: 12 Figs 6, 38.
[113] Grave 12 inside Room 4 - phase 1, Grave 28, and the double inhumation Grave 33 from the earlier phase (Fig. 6.12).
[114] The dog crouching on the threshold or behind the door is one of the recurrent pictures depicted by cuneiform texts (*e.g.* Gordon 1958: 56; Wu 2001: 33).
[115] Schiffer 1985: 29.
[116] The dog position is indeed deeper than the usual elevation of the other Building phase 1 ground-surfaces and higher than the pavements of the second phase.
[117] See also on this matter Shepperson 2017: 127.

out of its content through the pierced base: it thus represents evidence of food preparation and/or storage.

As far as the other internal rooms of the Building are concerned, the multifunctional nature of Room 23 could probably be extended also to the other rooms of the complex. Pending further information on HRA analyses of the pavements, some provisional indications will be given on the basis of the findings. Room 1 showed both food processing and consumption activities: a reversed plate with fish-bones was on the pavement together with a multifunctional tool, a grinder and a grinding stone. A grinder was also found on the pavement of Room 13. The other findings inside the fill of the rooms, thus not in direct association with the occupation of the Building, seem to confirm that in most of the rooms activities connected with food processing and consumption were performed. The occurrence of loom-weights might also be indication of textile production.

Room 5 stands out for the peculiar finding of two complete stone vessels on its pavement and of a crystal rock bead. The more private vocation of the Room was already highlighted on the basis of the permeability diagram and by the discovery of one sub-pavement inhumation. It is interesting that these elements (stone vessels *in situ* and sub-pavement grave) characterize the macro-finds of the earlier phase of the Room. Here the HRA revealed a subdivision in four zones devoted to burial-related practices, food preparation and cooking, domestic production/maintenance activities and a probable sitting/gathering area.[118] Thus, it cannot be excluded that a similar variety of activities was also performed in the later phase. A more private vocation could be supposed for Room 4, which is the room with most indirect access to the external daily light and its innermost part hosted the only adult grave found in the Building. The same could also be said for Room 22 and its dog deposit and Room 9 with the two sub-pavement inhumations. The presence in the earlier phases of the aforementioned rooms of several inhumations (an adult and a child in Room 22, two adults under the door between Room 10 and 16) testifies a continuity, at least for the ritual aspects, of some of the activities carried out in this sector of the Building.

Abu Tbeirah Building A evidences can be directly compared to Abu Salabikh buildings where the same range of activities were performed.[119] The pattern in the location of the sub-pavement graves identified at Abu Salabikh might help in future to understand Abu Tbeirah's evidence. At Abu Salabikh, indeed, the location of the graves inside the building seems to be regulated by the age, role and sex of the deceased.[120] At present, the only evident factor considered by Building A inhabitants in choosing the grave location is the complexity of access routes (at least three rooms need to be crossed) from the outside of the Building.

The evidence presented indicates that Building A was a big domestic unit, a household whose residents, probably joined by kinship ties, took part to the harvesting and other productive activities, at least finalized to the satisfaction of their primary needs. The huge number of firing structures and the direct connection of Room 14 and its peculiar fire-structure with the exterior might indicate also an exchange (with the outside? with the rest of the supposed "L" shaped complex?) of food but also of other more or less ordinary goods: from the chert blades, probably only assembled and not realized inside the building, pottery, copper alloy tools and ornaments, luxurious objects such as stone vessels and beads. The participation of Abu Tbeirah household to a more complex frame of administrative tasks is not attested, though its association to a larger institution cannot be excluded.

6.4 Area 1: Towards an Abandonment Time-Line

In his article on the "Pompei Premises"[121] regarding the interpretation of the archaeological record, M.B. Schiffer warns against a simplistic analysis of the dynamics of abandonment of a settlement or building, emphasizing the importance of the "cultural and non-cultural formation processes" that led to the composition of the floor

[118] See Cereda - Romano 2018: 27.

[119] See Matthews *et al.* 1994; Matthews 1995; Pollock 1999: 139; Salvin 2018.

[120] Pollock 1999: 210 quoting Steels 1990: 158-159, 186.

[121] Schiffer 1985.

assemblages.[122] The activities discovered in Area 1 and Building A

can indeed shed light on the duration and on the mechanism of the abandonment process of this part of Abu Tbeirah's settlement. The materials recovered inside Building A - phase 1, analysed in the previous paragraphs and described in detail in the following chapters, should not be considered *in toto* as an expression of the original distribution of the findings inside rooms.

Few findings can surely be attributed to the actual occupation of the rooms of this phase: firing structures and hearths, "foundation bowls", floor assemblages of Rooms 10, 23, 14-15, 17-19-21 and few other sparse artifacts indicated in the plans in § 8. Moreover, only the "primary refuse", embedded in the floors and recognizable through the heavy residue analysis, can be considered as expression of the activities actually carried out in the Building,[123] and help to understand if the macro-artifacts discovered on the floors are indication or not of an activity carried out on that precise spot. The sub-pavement burials and the dog deposit should also be considered as part of the activities carried out during the life of the Building.

Following Schiffer's study, the quantity of "*de facto* refuse", still usable objects left behind by the inhabitants of the building, is connected with the duration of the same abandonment process. First of all, it is important to stress that the abandonment of Building A and then of Area 1 did not coincide with the abandonment of the settlement, which, in its northern part, shows an occupation until at least the Ur III period. Though the reasons why people inhabiting Building A moved elsewhere cannot yet be hypothesized, it is not necessary to suppose a sudden and critical event at the origin of this decision.

The only evidence of a critical abandonment event connected with the life of the Building comes from Room 14-15, where the reed structure was found burnt and collapsed. Nevertheless, the signs of a violent destruction by fire are limited only to this space. It is not possible to say in which moment of the life of the Building Rooms 14-15 were burnt down but, at the same time, it cannot be excluded that after this destruction, other spaces continued to be used.

Building A, as a structure within a settlement, was probably in "a constant state of construction, repair, abandonment and reuse",[124] as demonstrated by the closure of the wall between Room 2 and Room 20. The passage between the two spaces might have been closed either to create a new circulation system or simply to re-define/re-purpose the inhabited space, limiting, *e.g.*, the access to a chamber no longer in use: this would indeed in both cases justify the presence of a tannur almost blocking the passage.

If the specific case of the closure of the passage between Room 2 and Room 20 is considered or not as evidence of a gradual abandonment of certain sections of the building, a similar process might justify the scarce "*de facto* refuse" of Building A and, above all, its concentration in few rooms. The limited number of sub-pavement burials, in comparison with that attested for the earlier phase (Tab. 6.1), could also be related to this gradual process. The tendency to "draw down" or reduce the household inventory during the abandonment period was highlighted by the same Schiffer[125] and it is influenced by numerous factors. For example the huge jar found in fragments inside Room 10 might have been too heavy to be moved and/or any effort in this sense might have been deemed not convenient, given the availability of this kind of artifact.[126]

Moreover, the rooms with the "*de facto*" refuse found *in situ* might be either the last spaces occupied before the complete abandonment of the structure or evidence of a re-occupation of the chambers for specific purposes (*e.g.*, bitumen melting in Room 23). It is thus possible that, in a moment in which the Building was already abandoned, Abu Tbeirah inhabitants decided

[122] Schiffer 1985: 19. See also the reconstruction of the "missing equipments" related to the activities originally carried out in the private houses of Tell Bazi (Otto 2015).

[123] For a definition of the primary refuse see Schiffer 1985: 25 and the discussion at § 9.

[124] Cameron 1991: 155.

[125] Schiffer 1985: 27.

[126] Nevertheless, Abu Tbeirah's evidence demonstrates that pottery was not disposal (see § 10), and thus it seems plausible that still usable vessels were, when possible, moved for further uses.

to re-purpose the available spaces for specific activities or for short-term re-occupation.[127]

In the abandonment process described by Schiffer, after the "post-abandonment uses", structures can undergo a new phase and be used as trash disposal ("secondary refuse"),[128] such as the huge dump pit realized inside Room 7 demonstrates,[129] and finally as a graveyard.[130]

These considerations regarding the possibility of a complex time-line in the abandonment can help to better define the reliability and limits of our record. First, the function of Building A rooms cannot be further specified in absence of an HRA of the pavements and it is necessary to rely on the general considerations carried out above. Secondly, the pottery fragments considered as belonging to Building A - phase 1 in the preliminary analysis of the pottery sequence in § 10 might be later intrusions in the post-abandonment filling layers of the rooms. However, in the light of the current knowledge of 3rd mill. BC pottery sequence and on the basis of the similarity of the assemblages recovered in the Building, in the graves, and in the other Area 1 activities, the analysis of the pottery should not be particularly biased by the absence of a distinction between floor assemblages and shards in secondary deposition. The separate publication of each activity will however allow a future revision, as our knowledge of this aspect increases. Nonetheless, the uniformity of pottery production in 3rd mill. BC Mesopotamia will probably never allow to chronologically distinguish activities differentiated during such a short time span. Lastly, notwithstanding the difficulties due to the bitumen contamination, ^{14}C measurements combined with the stratigraphy through Bayesian statistics might give more precise hints but plausibly no datings would be so accurate as to clarify our doubts on the entire abandonment sequence.

6.5 Future Perspectives

The overall target of the Abu Tbeirah project is to understand, with a bottom-up perspective, how the Southern Mesopotamian population faced the dramatic political, cultural and environmental changes that occurred during the last centuries of the 3rd mill. BC. Our interdisciplinary research team is trying to incorporate as much diversified information as possible in order to create the most inclusive and comprehensive account of the interests and motives of all ancient Mesopotamian agents. In our research the efforts of the team are aimed at combining the fine details of the archaeological record and the complex dynamic of its formation inside the environmental frame, linking the statics of the archaeological remains with past dynamical and dialectic happenings between cultural and biological structure and individual agents. Abu Tbeirah is a paradigmatic site for understanding this period because of its liminal characteristics, that make the settlement extremely sensitive to not only cultural and political but also environmental changes.

Abu Tbeirah is located almost in the lower part of the Southern Mesopotamian flood plain, at the southernmost edges of Sumer, in a semi-arid and thus sensitive zone. The site was connected to at least three different ecological zones: the irrigation zone of the alluvial plain, the steppe/desert areas of the interior, and the coast of the Gulf sea at the time located near the city. Its position allowed the exploitation of several subsistence strategies (*e.g.*, plant cultivation, pastoralism, fishing). Though the area is located near the 30th parallel north, inside the semiarid zone, agriculture was possible thanks to the presence of a rich irrigation system. This peculiar position makes the area still today extremely sensitive to climate change also involving the surrounding areas. Abu Tbeirah was initially chosen for its medium size in order to understand its relationship with the main city of Ur, and its nature and function inside the regional system. Abu Tbeirah, given its size, is not a specialized settlement, as for example an agricultural one, that thus can be strongly affected even by minimal change. At the same time, Abu Tbeirah is neither a Southern Mesopotamian capital, able to survive major, different and contemporaneous threats. Thus, the shift which occurred during the end of the 3rd mill. BC affected Abu Tbeirah inhabitants, but leaving them the opportunity, at least for a long

[127] See for example the tannur highlighted after surface removal near the southern corner of Room 7, evidence of an occupational layer later than phase 1.
[128] Schiffer 1985: 29.
[129] Secondary refuse might be also at the origin of the pottery intrusions in the layers filling the rooms. Nevertheless, in our case there is a striking difference in the quantities of materials brought to light.
[130] *E.g.* the Royal Cemetery of Ur cut in the *SIS* layers testifies that this was a common practice in southern Mesopotamia.

period, to face the incoming problems through their resilience skills.

As several scholars have pointed out, the past focus on élite contexts and institutional households makes it impossible to reconstruct in depth the social life and changes of ordinary and archaeologically almost invisible people.[131] The description of Abu Tbeirah Area 1 last phases, together with the other aspects analysed in this book, aims at representing a irst step in illing the gap in our knowledge of 3rd mill. BC southern Mesopotamian communities.

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CHAPTER 7

AREA 1: CEMETERY AND OTHER ACTIVITIES

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7.1 Mc-fXIII1-4 [LR][1]

7.1.1 Other Activities [LR]

Several modern activities connected to the recent presence of a temporary encampment were identified in squares Mc-fXIII1-3 (Fig. 7.1). The recent use of this part of the Tell hardened the soil and eased the accumulation of salt, evening out the surface: consequently, the satellite imagery did not show the underlying structures clearly. Lacking the experience and subsequent knowledge of Abu Tbeirah soil, during the first year one of these soil transformations was documented in detail: US 1 (elevation -0.016 m), the first identified "activity", was not, indeed, a real stratum but the result of the passage of a vehicle. The soil was hardened by the passage of the wheels and appeared clearer in colour.[2] Both modern and ancient activities in squares Mc-fXIII1-3 were realized over US 4, a brown silt-clay soil that covered all the area.

In MeXIII1-2 (Fig. 7.1), south of Grave 2, a circular pit US 16-17, with vertical walls and a diameter of 0.8 m, was cut at the elevation of 0.1 m: the excavation reached a depth of -0.7 m but not the bottom of the pit. The pit was filled by fine sand, with very few inclusions. In the same squares three hearts were discovered at the elevation of -0.12 m (US 22 - Figs 7.1 and 3). Their edges were hardened by use and, though the fireplaces were probably in connection with the Cemetery (or at least with the 3rd mill. BC activities),[3] the extremely bad state of preservation of the sampled charcoal did not allow to recover a good amount of organic residue to proceed with AMS ^{14}C dating.

In MdXIII1 (Fig. 7.1) a shallow pit (US 2-3), filled by a hazel-brown, quite soft and silty soil, contained fragments of pottery and part of a grindstone. The pit was quite shallow, cut from the elevation of -0.13 m and reaching the depth of -0.25 m.

Four small pits were recognized in MeXIII3 (Fig. 7.2). US 59-70 was cut at 0.08 m of elevation and reached a depth of -0.22 m. It was filled by an olive brown, silty-sandy and quite soft soil. Fragments of a very well-preserved modern rope and some reeds were discovered in the pit. The filling also includes fragments of mud-bricks belonging to the wall cut by US 70. US 72+73 was a small deep circular pit cut at -0.05 m and ending at the elevation of -0.5 m. It was filled by a light olive quite soft silty soil. US 75+76 was a bigger circular pit cut at the same elevation of the previous one but less deep (elevation of the bottom -0.2 m). It was filled by a light yellowish brown silty soil with sandy lenses.

[1] § 7 is written by L. Romano. We acknowledge the fundamental help of Ali Ghanim Khadem in the excavation of Abu Tbeirah. In the catalogue of the finds of each context the abbreviation "[SC]" indicates that the description was written by Stefano Caruso. The references quoted in the text are reported at the end of § 6. See §§ 12-13 for the detailed analyses and description of the human and faunal remains.

[2] See § 6.1.1 for post-depositional transformation at Abu Tbeirah.

[3] D'Agostino *et al.* 2011: 28.

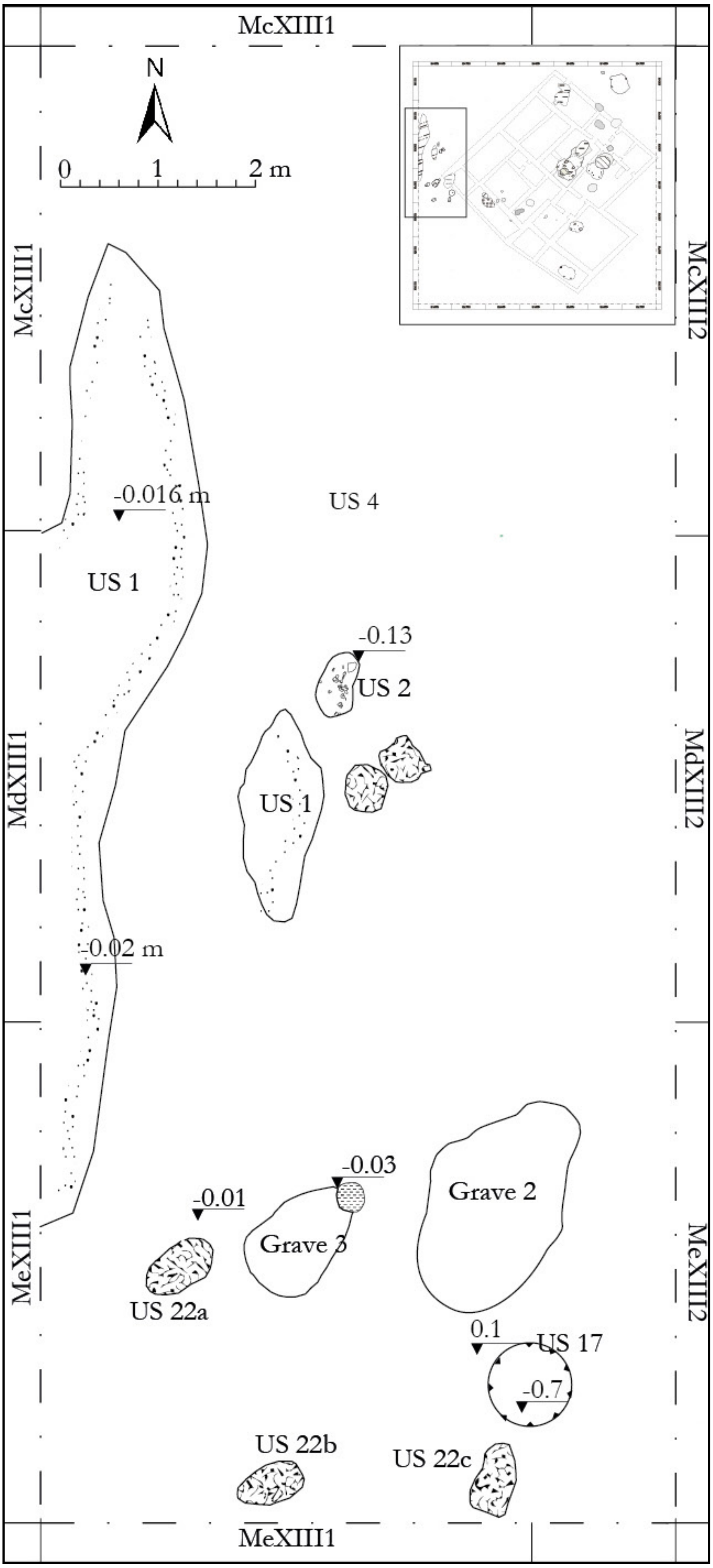


Fig. 7.1 Plan of the activities in Mc-eXIII1+2.

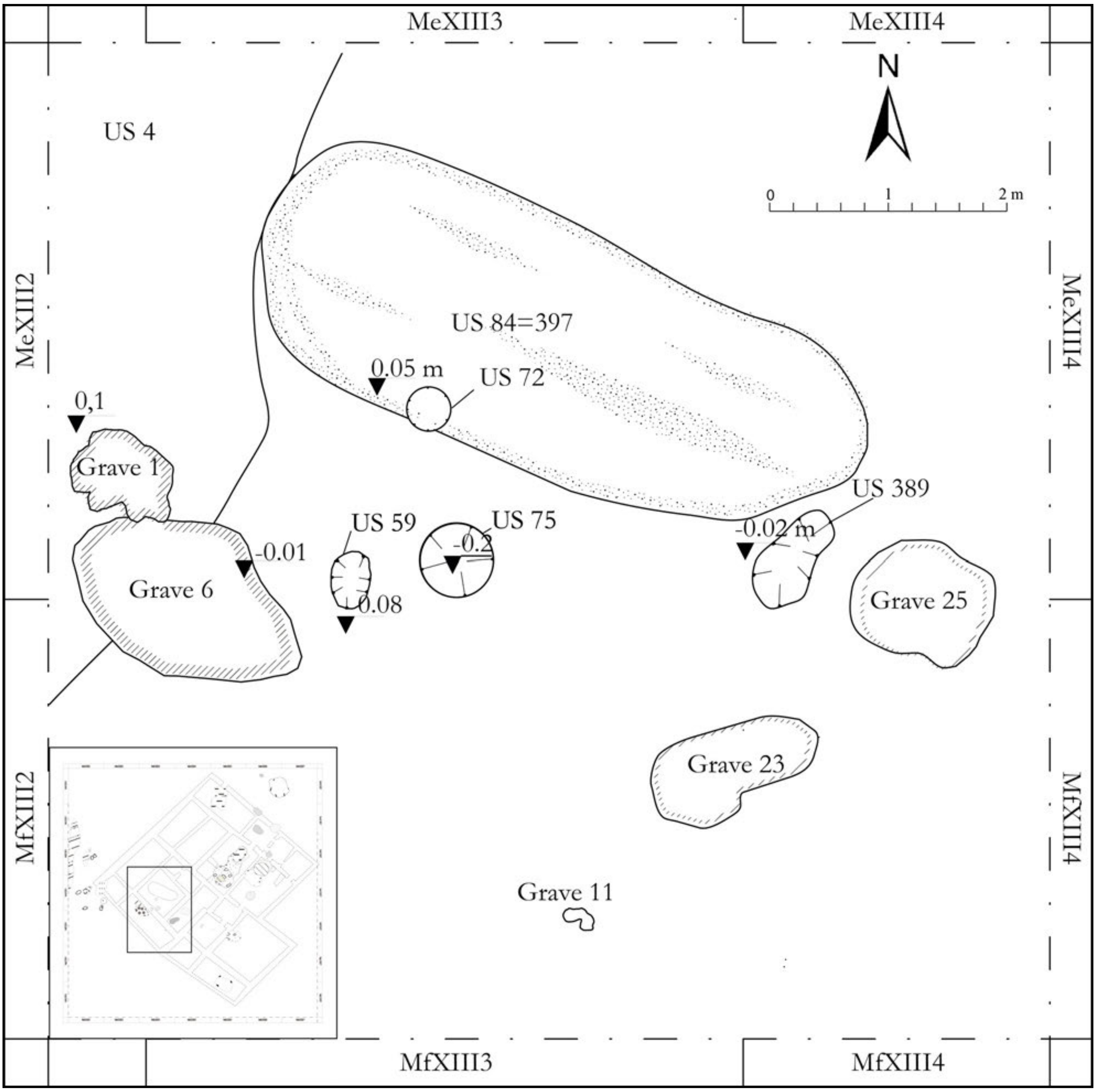


Fig. 7.2 Plan of the activities in Me-fXIII2-4.

US 388-389 was a shallow modern hole, cut at -0.02 m reaching a depth of -0.13 m.

A huge pit (US 84=397; cut US 101=398)[4] cut the filling and the ground surface of Room 2 (US 77=400). The stratigraphic relations were confirmed during the 2015 campaign. The pit contained several different materials and it could be interpreted as possible dump pit.[5]

Fig. 7.3 Hearths (US 22).

[4] The limits were already identified during the 2012 excavation.

[5] At least 19 drinking vessels, 5 medium dimension jars and several fragments of coarse big vat (4 different kinds) were found.

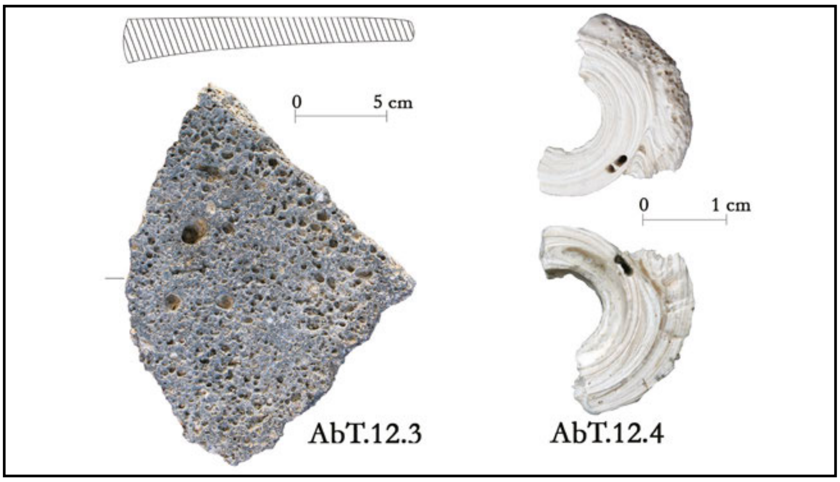


Fig. 7.4 US 2 objects.

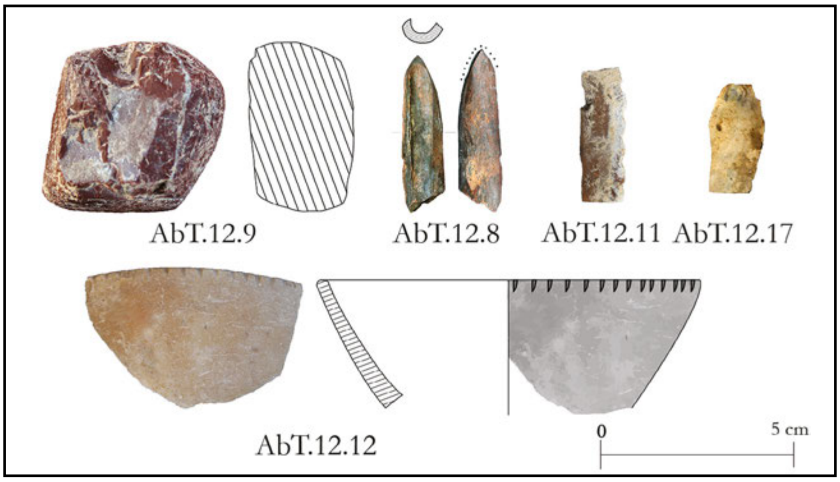


Fig. 7.5 US 4 objects.

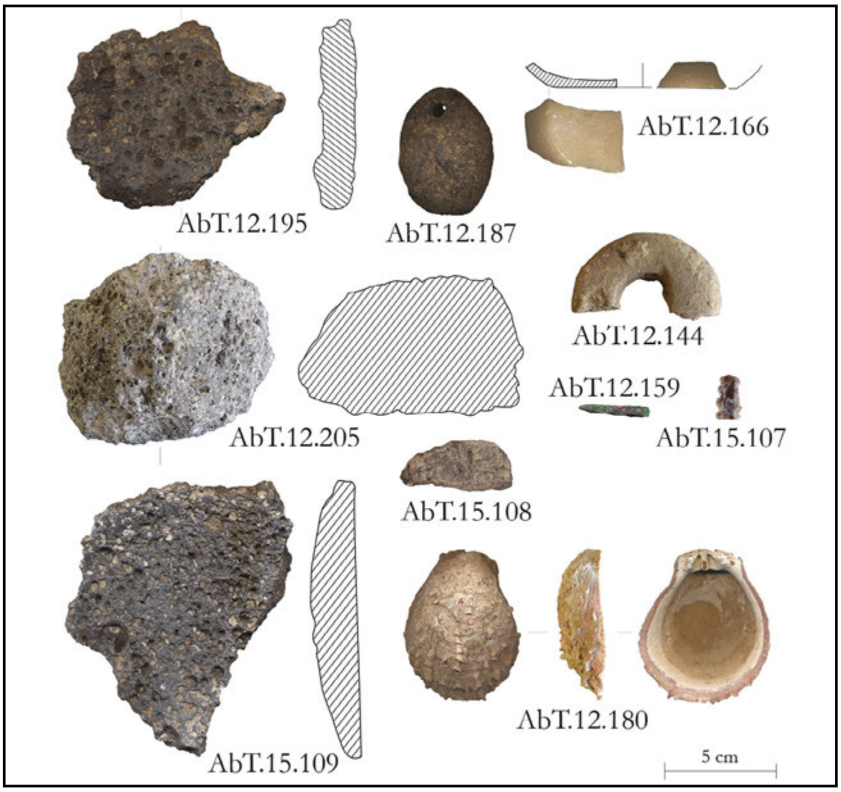


Fig. 7.6 US 84 objects.

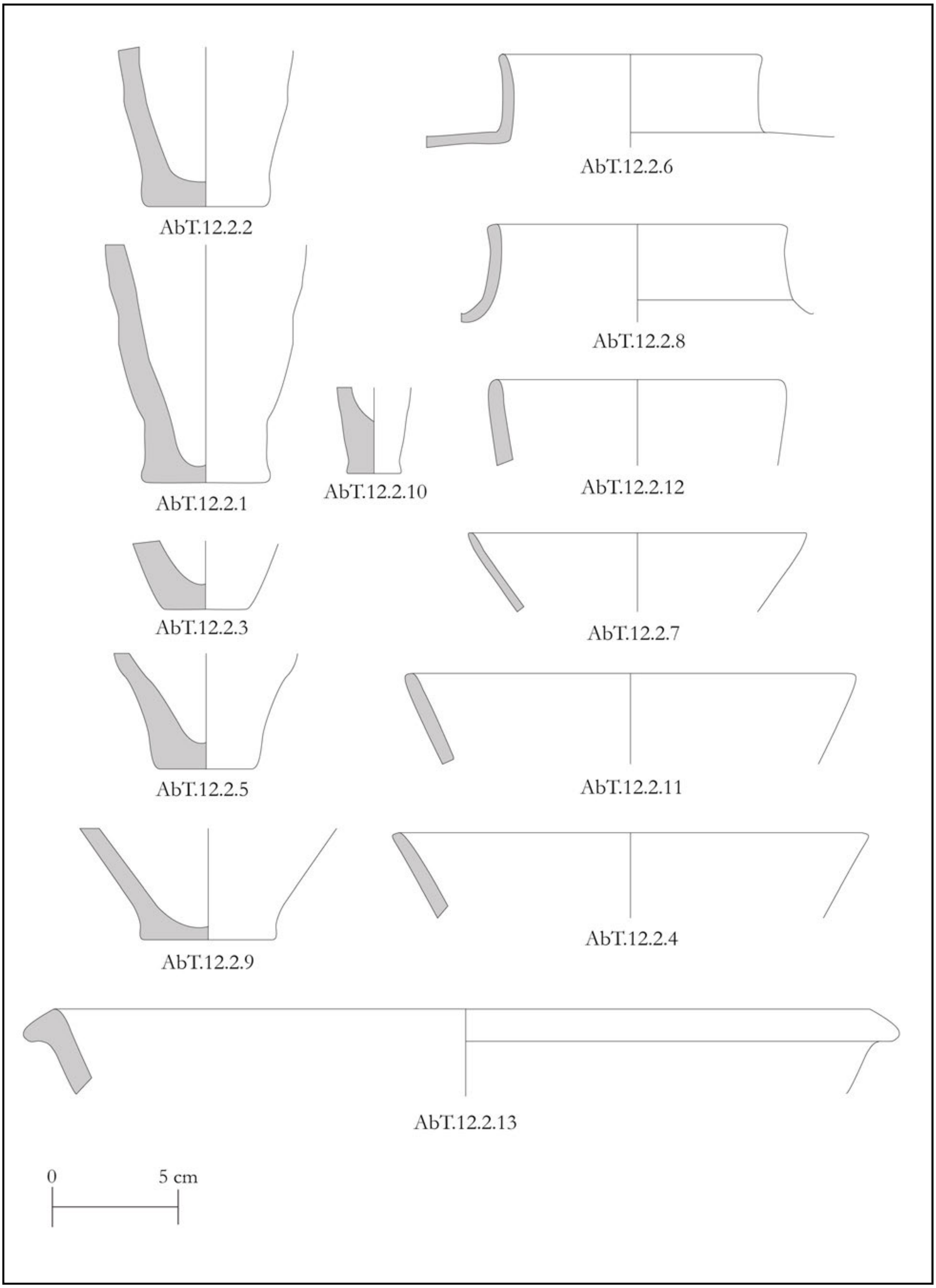


Fig. 7.7 US 2 pottery.

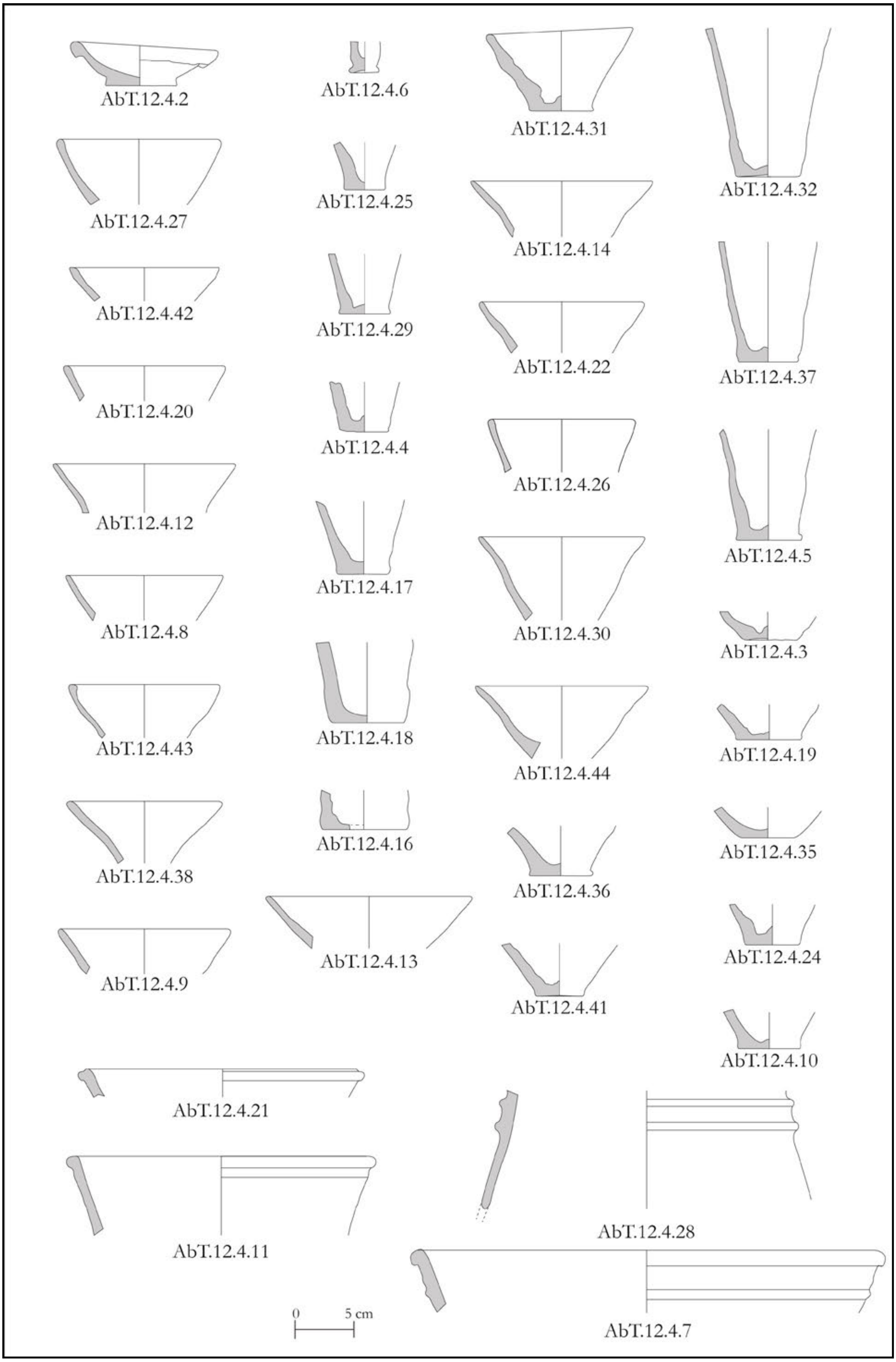


Fig. 7.8 US 4 pottery: open shapes.

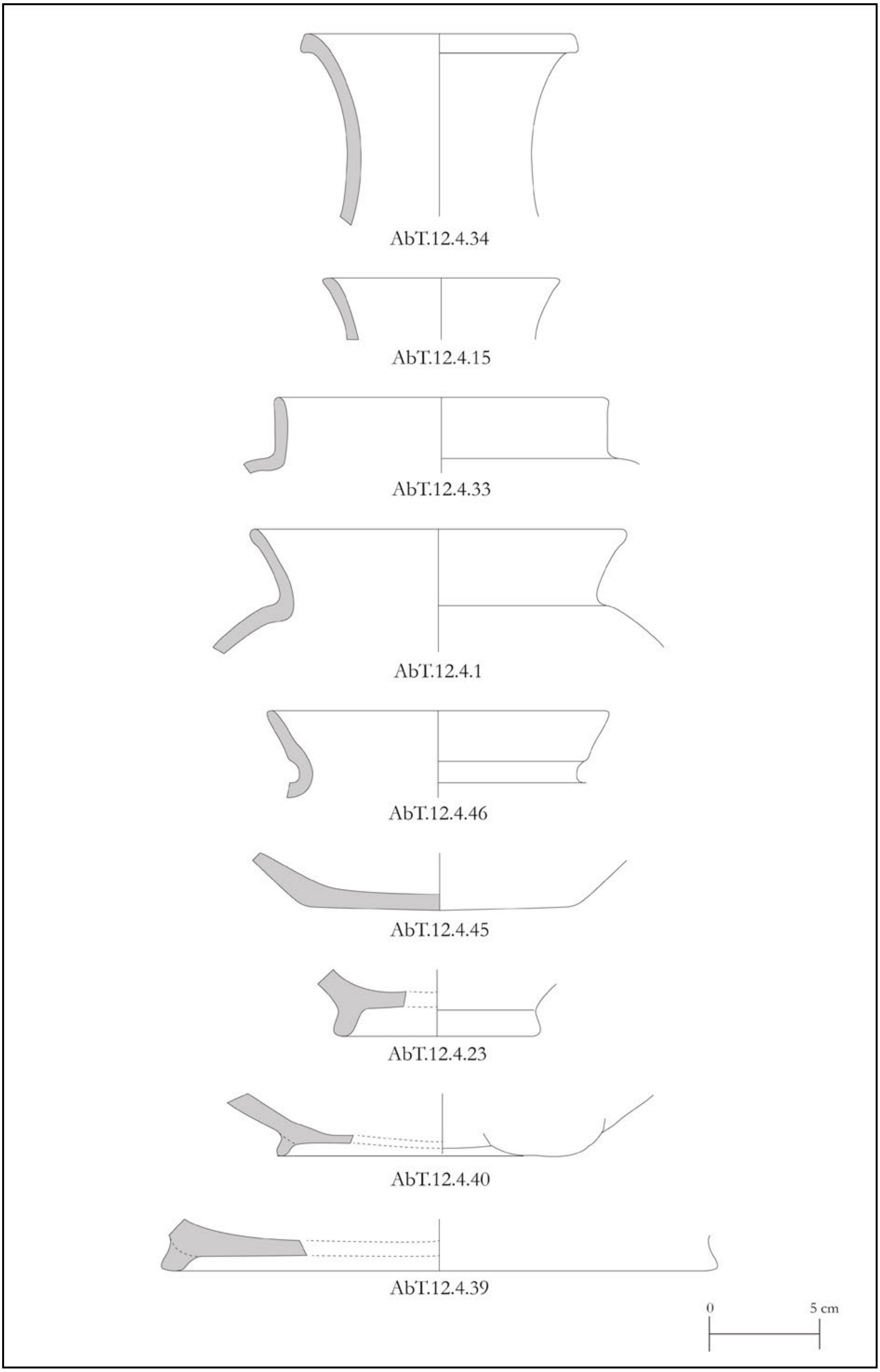


Fig. 7.9 US 4 pottery: closed shapes.

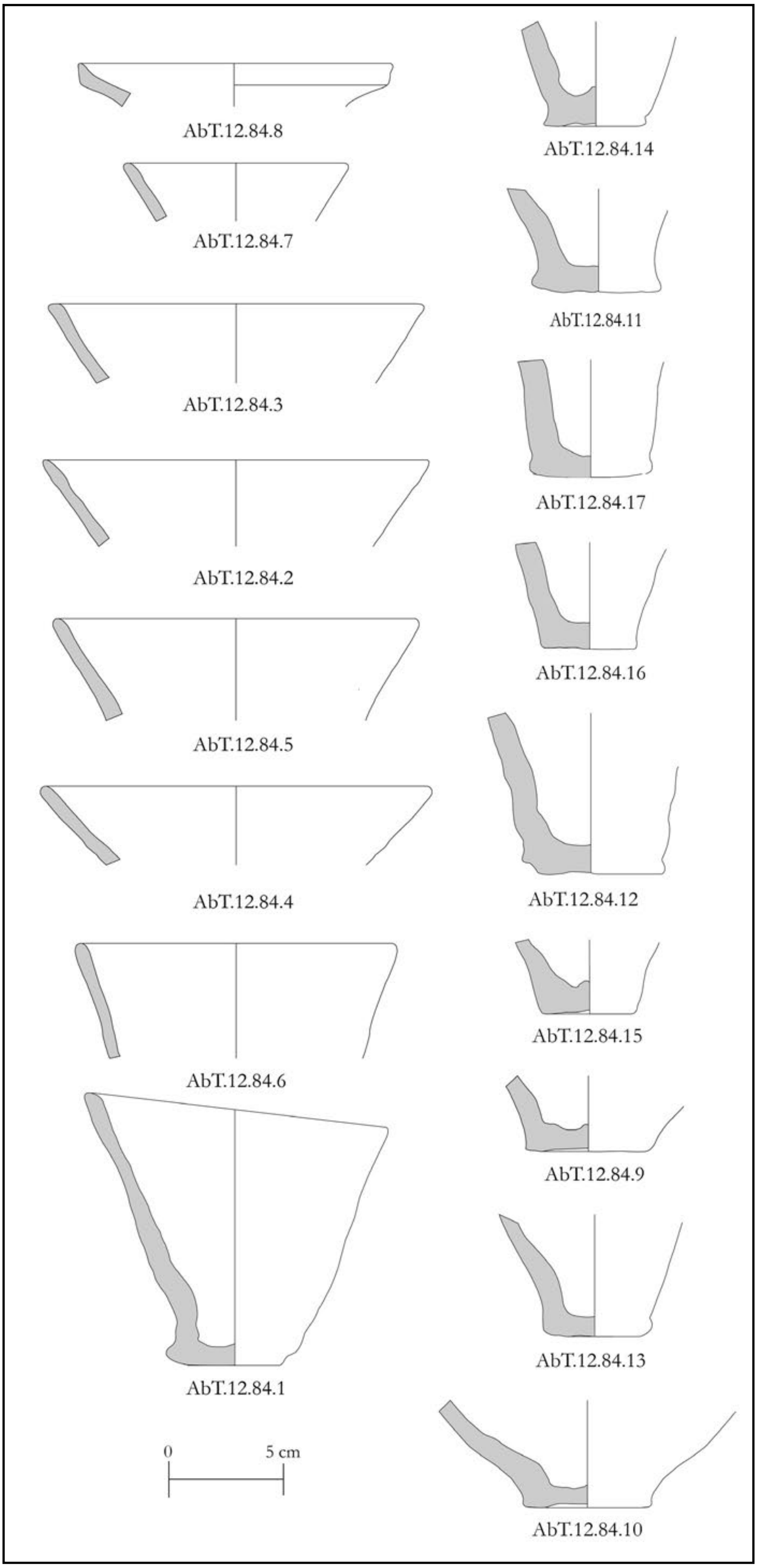


Fig. 7.10 US 84 pottery: open shapes.

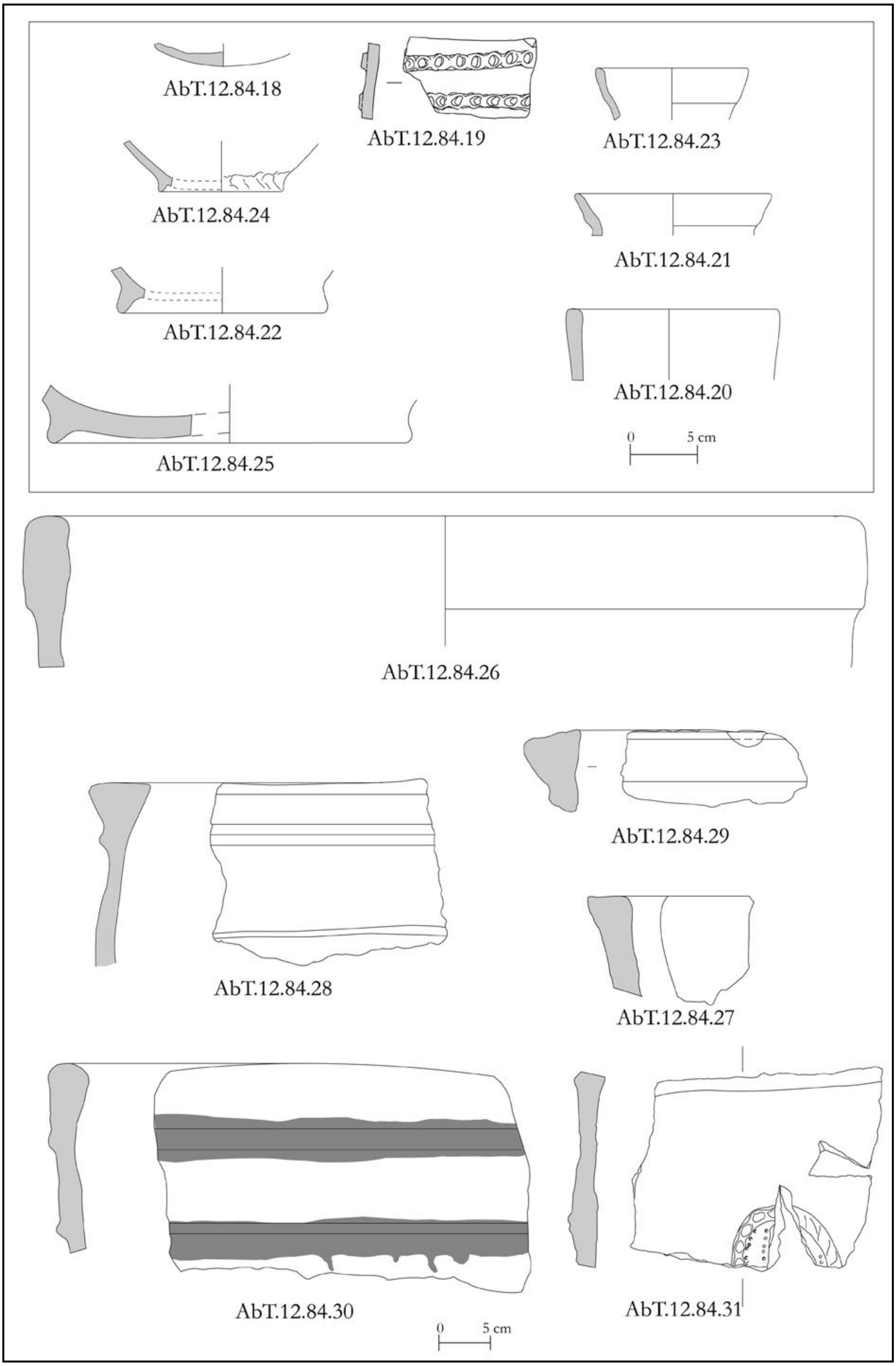


Fig. 7.11 US 84 pottery: closed shapes.

Catalogue of US 2 Finds

Objects

AbT.12.3 - Fig. 7.4
Description: fragment of a basalt grindstone.
Dimensions: 19.5x14.5x2 cm.

AbT.12.4 - Fig. 7.4
Description: broken circular shell ornament with central half preserved hole and two small through holes.
Dimensions: 2.3x1x0.4 cm.

Pottery

AbT.12.2.1 - Fig. 7.7
Dimensions: wall th.: 0.9 cm; base diam.: 5 cm; base th.: 0.5 cm.
Clay: outer and inner colour: 2.5Y 8/4 (pale brown); fabric colour: 2.5YR 5/4 (reddish brown); sand inclusions; medium-low firing temperature.
Description: beaker base.

AbT.12.2.2 - Fig. 7.7
Dimensions: wall th.: 0.8 cm; base diam.: 5 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 2.5Y 7/4 (pale brown); sand inclusions; medium-high firing temperature.
Description: beaker base.

AbT.12.2.3 - Fig. 7.7
Dimensions: wall th.: 1.1 cm; base diam.: 3.5 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium-low firing temperature.
Description: drinking vessel base.

AbT.12.2.4 - Fig. 7.7
Dimensions: rim diam.: 18 cm; rim th.: 0.4 cm; wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 5YR 7/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: drinking vessel plain rim.

AbT.12.2.5 - Fig. 7.7
Dimensions: wall th.: 0.6 cm; base diam.: 4 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 10YR 8/3 (very pale brown); sand inclusions; medium firing temperature.
Description: conical bowl base.

AbT.12.2.6 - Fig. 7.7
Dimensions: rim diam.: 10 cm; rim th.: 0.3 cm; wall th.: 0.4 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/4 (pale brown); sand inclusions; medium firing temperature.
Description: plain rim jar.

AbT.12.2.7 - Fig. 7.7
Dimensions: rim diam.: 13 cm; rim th.: 0.3 cm; wall th.: 0.3 cm.
Clay: outer, inner and fabric colour: 10YR 8/3 (very pale brown); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.12.2.8 - Fig. 7.7
Dimensions: rim diam.: 11 cm; rim th.: 0.5 cm; wall th.: 0.5 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/4 (pale brown); sand inclusions; medium firing temperature.
Description: plain rim jar.

AbT.12.2.9 - Fig. 7.7
Dimensions: wall th.: 0.7 cm; base diam.: 5 cm; base th.: 0.5 cm.
Clay: outer, inner and fabric colour: 2.5YR 5/4 (reddish brown); sand inclusions; medium firing temperature.
Description: conical bowl base.

AbT.12.2.10 - Fig. 7.7
Dimensions: wall th.: 0.4 cm; base diam.: 2.4 cm; base th.: 2.1 cm.
Clay: outer, inner and fabric colour: 2.5Y 5/2 (greyish brown); sand inclusions; medium-high firing temperature.
Description: minaturistic beaker base.

AbT.12.2.11 - Fig. 7.7
Dimensions: rim diam.: 17 cm; rim th.: 0.5 cm; wall th.: 0.5 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 2.5YR 6/4 (light reddish brown); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.2.12 - Fig. 7.7
Dimensions: rim diam.: 11 cm; rim th.: 0.6 cm; wall th.: 0.7 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/2 (pale brown); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.2.13 - Fig. 7.7
Dimensions: rim diam.: 32 cm; rim th.: 1.7 cm; wall th.: 0.8 cm.
Clay: outer, inner and fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium firing temperature.
Description: triangular rim bowl.

Catalogue of US 4 Finds

Objects

AbT.12.8 - Fig. 7.5
Description: broken bone awl.
Dimensions: 4.2x0.3 cm.

AbT.12.9 - Fig. 7.5
Description: fragment of a red-stone cube.
Dimensions: 3x1x3.9 cm.

AbT.12.11 - Fig. 7.5
Description: chert sickle blade.
Dimensions: 1.2x3.2 cm.

AbT.12.12 - Fig. 7.5
Description: fragment of a calcite vessel with small triangular indentations on the rim.
Dimensions: 3.3x0.5x10 cm.

AbT.12.17 - Fig. 7.5
Description: chert blade.
Dimensions: 1.5x3x0.4 cm.

Pottery

AbT.12.4.1 - Fig. 7.9
Dimensions: rim diam.: 16.5 cm; rim th.: 0.5 cm; wall th.: 0.6 cm.
Clay: outer colour: 7.5YR 8/2 (pinkish white); inner and fabric colour: 7.5YR 6/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: plain rim jar.

AbT.12.4.2 - Fig. 7.8
Dimensions: rim diam.: 13.2 cm; rim th.: 1.1 cm; wall th.: 9.4 cm; base diam.: 6.4 cm; base th.: 0.8 cm; h.: 3.5 cm.
Clay: outer colour: 2.5Y 8/4 (pale brown); inner and fabric colour: 2.5Y 5/4 (light olive brown); sand inclusions; medium-high firing temperature.
Description: conical bowl attached to a stand, used as mortar; rotation marks in the centre.

AbT.12.4.3 - Fig. 7.8
Dimensions: wall th.: 0.7 cm; base diam.: 5 cm; base th.: 1.2 cm.
Clay: outer, inner and fabric colour: 10YR 7/3 (very pale brown); sand

inclusions; medium firing temperature.
Description: conical bowl base.

AbT.12.4.4 - Fig. 7.8
Dimensions: wall th.: 1 cm; base diam.: 4 cm; base th.: 1.6 cm.
Clay: outer, inner and fabric colour: 10YR 8/4 (very pale brown); sand inclusions; medium-high firing temperature.
Description: beaker base.

AbT.12.4.5 - Fig. 7.8
Dimensions: wall th.: 0.5 cm; base diam.: 5.7 cm; base th.: 1.4 cm.
Clay: outer, inner and fabric colour: 2.5Y 7/4 (pale brown); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.12.4.6 - Fig. 7.8
Dimensions: wall th.: 0.6 cm; base diam.: 2.5 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 2.5Y 5/2 (greyish brown); sand inclusions; medium-high firing temperature.
Description: unclear miniaturistic base.

AbT.12.4.7 - Fig. 7.8
Dimensions: rim diam.: 41 cm; rim th.: 1.5 cm; wall th.: 1.1 cm.
Clay: outer, inner and fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: triangular rim bowl or stemmed-dish base.

AbT.12.4.8 - Fig. 7.8
Dimensions: rim diam.: 14 cm; rim th.: 0.5 cm; wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 5YR 7/3 (pink); sand inclusions; medium-low firing temperature.
Description: drinking vessel rim.

AbT.12.4.9 - Fig. 7.8
Dimensions: rim diam.: 15 cm; rim th.: 0.5 cm; wall th.: 0.6 cm.
Clay: outer colour: 2.5Y 8/3 (pale brown); inner and fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.4.10 - Fig. 7.8
Dimensions: wall th.: 0.7 cm; base diam.: 5.5 cm; base th.: 0.9 cm.
Clay: outer, inner and fabric colour: 5YR 5/8 (yellowish red); sand inclusions; medium-low firing temperature.
Description: conical bowl base.

AbT.12.4.11 - Fig. 7.8
Dimensions: rim diam.: 26 cm; rim th.: 1.2 cm; wall th.: 0.8 cm.
Clay: outer, inner and fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium-high firing temperature.
Description: triangular rim bowl or stemmed-dish base.

AbT.12.4.12 - Fig. 7.8
Dimensions: rim diam.: 16 cm; rim th.: 0.4 cm; wall th.: 0.5 cm.
Clay: outer, inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium-low firing temperature.
Description: drinking vessel rim.

AbT.12.4.13 - Fig. 7.8
Dimensions: rim diam.: 18 cm; rim th.: 0.6 cm; wall th.: 0.9 cm.
Clay: outer colour: 2.5YR 5/6 (red); inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium-low firing temperature.
Description: drinking vessel rim.

AbT.12.4.14 - Fig. 7.8
Dimensions: rim diam.: 16 cm; rim th.: 0.4 cm; wall th.: 0.7 cm.
Clay: outer, inner and fabric colour: 2.5YR 6/6 (light red); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.4.15 - Fig. 7.9
Dimensions: rim diam.: 10 cm; rim th.: 0.5 cm; wall th.: 0.5 cm.
Clay: outer, inner and fabric colour: 2.5YR 7/8 (light red); sand inclusions; medium-low firing temperature.
Description: plain rim jar.

AbT.12.4.16 - Fig. 7.8
Dimensions: wall th.: 0.9 cm; base diam.: 7.5 cm; base th.: 0.5 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/6 (yellow); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.12.4.17 - Fig. 7.8
Dimensions: wall th.: 0.7 cm; base diam.: 4.5 cm; base th.: 1.2 cm.
Clay: outer, inner and fabric colour: 10YR 7/2 (light grey); sand inclusions; medium-high firing temperature.
Description: beaker base.

AbT.12.4.18 - Fig. 7.8
Dimensions: wall th.: 1.1 cm; base diam.: 6.5 cm; base th.: 0.5 cm.
Clay: outer colour: 10YR 7/6 (yellow); inner and fabric colour: 10YR 6/4 (light yellowish brown); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.12.4.19 - Fig. 7.8
Dimensions: wall th.: 0.7 cm; base diam.: 5.8 cm; base th.: 0.5 cm.
Clay: outer, inner and fabric colour: 5YR 6/8 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: conical bowl base.

AbT.12.4.20 - Fig. 7.8
Dimensions: rim diam.: 14 cm; rim th.: 0.6 cm; wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/3 (pale brown); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.12.4.21 - Fig. 7.8
Dimensions: rim diam.: 24 cm; rim th.: 1.2 cm; wall th.: 0.8 cm.
Clay: outer and inner colour: 5YR 6/4 (light reddish brown); fabric colour: 2.5Y 7/2 (light grey); sand inclusions; medium-low firing temperature.
Description: triangular rim bowl or stemmed-dish base.

AbT.12.4.22 - Fig. 7.8
Dimensions: rim diam.: 14.5 cm; rim th.: 0.5 cm; wall th.: 0.8 cm.
Clay: outer colour: 10YR 7/4 (very pale brown); inner and fabric colour: 10YR 6/3 (pale brown); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.12.4.23 - Fig. 7.9
Dimensions: wall th.: 0.9 cm; base diam.: 8.7 cm; base th.: 0.7 cm.
Clay: outer colour: 2.5Y 8/2 (pale brown); inner and fabric colour: 7.5YR 5/6 (strong brown); sand inclusions; medium-low firing temperature.
Description: ring base.

AbT.12.4.24 - Fig. 7.8
Dimensions: wall th.: 0.5 cm; base diam.: 4.8 cm; base th.: 1.6 cm.
Clay: outer, inner and fabric colour:

7.5YR 6/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: conical bowl base.

AbT.12.4.25 - Fig. 7.8
Dimensions: wall th.: 0.7 cm; base diam.: 3.7 cm; base th.: 0.7 cm.
Clay: outer, inner and fabric colour: 7.5YR 8/4 (pink); sand inclusions; medium-low firing temperature.
Description: beaker base.

AbT.12.4.26 - Fig. 7.8
Dimensions: rim diam.: 13 cm; rim th.: 0.6 cm; wall th.: 0.6 cm.
Clay: outer colour: 10YR 8/3 (very pale brown); inner and fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.4.27 - Fig. 7.8
Dimensions: rim diam.: 14.7 cm; rim th.: 0.7 cm; wall th.: 0.8 cm.
Clay: outer colour: 7.5YR 8/4 (pink); inner and fabric colour: 7.5YR 6/6 (reddish yellow); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.4.28 - Fig. 7.8
Dimensions: wall th.: 0.7 cm.
Clay: outer colour: 10YR 8/2 (very pale brown); inner and fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: part of a stemmed-dish base with two notched ridges.

AbT.12.4.29 - Fig. 7.8
Dimensions: wall th.: 0.4 cm; base diam.: 4.5 cm; base th.: 0.8 cm.
Clay: outer, inner and fabric colour: 5YR 8/3 (pink); sand inclusions; medium-low firing temperature.
Description: beaker base.

AbT.12.4.30 - Fig. 7.8
Dimensions: rim diam.: 14.9 cm; rim th.: 0.5 cm; wall th.: 0.8 cm.
Clay: outer, inner and fabric colour: 5YR 6/3 (light reddish brown); sand inclusions; medium-low firing temperature.
Description: drinking vessel rim.

AbT.12.4.31 - Fig. 7.8
Dimensions: rim diam.: 13 cm; rim th.: 0.7 cm; wall th.: 1.2 cm; base diam.: 5.7 cm; base th.: 1.4 cm; h.: 7.2 cm.
Clay: outer, inner and fabric colour: 10YR 6/3 (pale brown); sand inclusions; medium-high firing temperature.
Description: conical bowl.

AbT.12.4.32 - Fig. 7.8
Dimensions: wall th.: 0.6 cm; base diam.: 5.6 cm; base th.: 0.7 cm.
Clay: outer, inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium-low firing temperature.
Description: beaker base.

AbT.12.4.33 - Fig. 7.9
Dimensions: rim diam.: 15 cm; rim th.: 0.5 cm; wall th.: 0.6 cm.
Clay: outer colour: 10YR 8/2 (very pale brown); inner and fabric colour: 5YR 4/6 (yellowish red); sand inclusions; medium-low firing temperature.
Description: plain rim jar.

AbT.12.4.34 - Fig. 7.9
Dimensions: rim diam.: 12 cm; rim th.: 0.9 cm; wall th.: 0.6 cm.
Clay: outer colour: 7.5YR 8/4 (pink); inner and fabric colour: 7.5YR 7/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: triangular rim jar.

AbT.12.4.35 - Fig. 7.8
Dimensions: wall th.: 0.8 cm; base diam.: 5 cm; base th.: 0.9 cm.
Clay: outer, inner and fabric colour: 10YR 8/4 (very pale brown); sand inclusions; medium firing temperature.
Description: conical bowl base.

AbT.12.4.36 - Fig. 7.8
Dimensions: wall th.: 0.8 cm; base diam.: 5.3 cm; base th.: 1.2 cm.
Clay: outer, inner and fabric colour: 10YR 8/6 (yellow); sand inclusions; medium firing temperature.
Description: conical bowl base.

AbT.12.4.37 - Fig. 7.8
Dimensions: wall th.: 0.5 cm; base diam.: 5.3 cm; base th.: 1.3 cm.
Clay: outer, inner and fabric colour: 5YR 7/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: beaker base.

AbT.12.4.38 - Fig. 7.8
Dimensions: rim diam.: 14 cm; rim th.: 0.7 cm; wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 10YR 8/4 (very pale brown); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.12.4.39 - Fig. 7.9
Dimensions: wall th.: 1 cm; base diam.: 25 cm; base th.: 0.9 cm.
Clay: outer, inner and fabric colour: 10YR 8/4 (very pale brown); sand inclusions; medium firing temperature.
Description: ring base.

AbT.12.4.40 - Fig. 7.9
Dimensions: wall th.: 1 cm; base diam.: 15.2 cm; base th.: 0.5 cm.
Clay: outer colour: 10YR 8/2 (very pale brown); inner and fabric colour: 7.5YR 6/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: jar base with three feet.

AbT.12.4.41 - Fig. 7.8
Dimensions: wall th.: 0.8 cm; base diam.: 4.2 cm; base th.: 1.5 cm.
Clay: outer, inner and fabric colour: 7.5YR 8/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: conical bowl base.

AbT.12.4.42 - Fig. 7.8
Dimensions: rim diam.: 13 cm; rim th.: 0.7 cm; wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 5YR 7/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: drinking vessel rim.

AbT.12.4.43 - Fig. 7.8
Dimensions: rim diam.: 13 cm; rim th.: 0.7 cm; wall th.: 0.4 cm.
Clay: outer, inner and fabric colour: 10YR 6/4 (light yellowish brown); sand inclusions; medium-low firing temperature.
Description: drinking vessel rim.

AbT.12.4.44 - Fig. 7.8
Dimensions: rim diam.: 15.4 cm; rim th.: 0.4 cm; wall th.: 1.6 cm.
Clay: outer, inner and fabric colour: 7.5YR 6/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: drinking vessel rim.

AbT.12.4.45 - Fig. 7.9
Dimensions: wall th.: 0.5 cm; base diam.: 12 cm; base th.: 0.7 cm.
Clay: outer, inner and fabric colour:

10YR 8/4 (very pale brown); sand inclusions; medium firing temperature.
Description: flat base.

AbT.12.4.46 - Fig. 7.9
Dimensions: rim diam.: 15 cm; rim th.: 0.5 cm; wall th.: 0.7 cm.
Clay: outer, inner and fabric colour: 2.5Y 7/4 (pale brown); sand inclusions; medium firing temperature.
Description: band rim jar.

Catalogue of US 84 Finds

Objects

AbT.12.144 - Fig. 7.6
Description: half of a clay loom weight.
Dimensions: 6.67x3.57x2 cm.

AbT.12.159 - Fig. 7.6
Description: fragment of a copper alloy point.
Dimensions: 3.2x0.7x0.67 cm.

AbT.12.166 - Fig. 7.6
Description: base fragment of a miniaturistic limestone vessel.
Dimensions: 5.1x2.9x0.6 cm.

AbT.12.180 - Fig. 7.6
Description: shell.
Dimensions: 5.8x7.1x1.8 cm.

AbT.12.187 - Fig. 7.6
Description: fragment of a bitumen object, probably a loom weight. Pierced on the top.
Dimensions: 4.4x5.6x4.2 cm.

AbT.12.195 - Fig. 7.6
Description: basalt grindstone fragment.
Dimensions: 9.7x8.5x1.8 cm.

AbT.12.205 - Fig. 7.6
Description: basalt grindstone fragment.
Dimensions: 6.7x10x6.3 cm.

Pottery

AbT.12.84.1 - Fig. 7.10
Dimensions: rim diam.: 12.5 cm; rim th.: 0.65 cm; wall th.: 0.85 cm; base diam.: 5 cm; base th.: 0.6 cm; h.: 11.5 cm.
Clay: outer and inner colour (self-slip): 5Y 7/3 (pale yellow); fabric colour: 10YR 6/3 (pale brown); sand inclusions; medium-low firing temperature.
Description: beaker.

AbT.12.84.2 - Fig. 7.10
Dimensions: rim diam.: 16 cm; rim th.: 0.6 cm; wall th.: 0.65 cm.
Clay: outer, inner and fabric colour: 7.5YR 7/4 (pink); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.12.84.3 - Fig. 7.10
Dimensions: rim diam.: 15 cm; rim th.: 0.6 cm; wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 7.5YR 7/4 (pink); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.12.84.4 - Fig. 7.10
Dimensions: rim diam.: 16 cm; rim th.: 0.65 cm; wall th.: 0.7 cm.
Clay: outer, inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.12.84.5 - Fig. 7.10
Dimensions: rim diam.: 15 cm; rim th.: 0.6 cm; wall th.: 0.65 cm; base diam.: 5 cm; base th.: 1.2 cm; h.: 13.1 cm.
Clay: outer, inner and fabric colour: 10YR 7/4 (very pale brown); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.12.84.6 - Fig. 7.10
Dimensions: rim diam.: 13 cm; rim th.: 0.7 cm; wall th.: 0.55 cm.
Clay: outer, inner and fabric colour: 10YR 8/3 (very pale brown); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.84.7 - Fig. 7.10
Dimensions: rim diam.: 9 cm; rim th.: 0.6 cm; wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 10YR 7/4 (very pale brown); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.12.84.8 - Fig. 7.10
Dimensions: rim diam.: 13 cm; rim th.: 0.4 cm; wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 10YR 8/2 (very pale brown); sand inclusions; medium-high firing temperature.
Description: lid?

AbT.12.84.9 - Fig. 7.10
Dimensions: wall th.: 0.8 cm; base diam.: 5.5 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 7.5YR 7/4 (pink); sand inclusions; medium firing temperature.
Description: conical bowl base.

AbT.12.84.10 - Fig. 7.10
Dimensions: wall th.: 0.7 cm; base diam.: 5 cm; base th.: 1.3 cm.
Clay: outer, inner and fabric colour: 10YR 6/2 (light brownish grey); sand inclusions; medium-low firing temperature.
Description: conical bowl base.

AbT.12.84.11 - Fig. 7.10
Dimensions: wall th.: 0.8 cm; base diam.: 5.5 cm; base th.: 1.1 cm.
Clay: outer, inner and fabric colour: 2.5Y 6/3 (light yellowish brown); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.12.84.12 - Fig. 7.10
Dimensions: wall th.: 1.25 cm; base diam.: 5.5 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 2.5Y 7/4 (pale brown); sand inclusions; medium-low firing temperature.
Description: beaker base.

AbT.12.84.13 - Fig. 7.10
Dimensions: wall th.: 0.9 cm; base diam.: 4.5 cm; base th.: 1.2 cm.
Clay: outer, inner and fabric colour: 10YR 8/3 (very pale brown); sand inclusions; medium-high firing temperature.
Description: beaker base.

AbT.12.84.14 - Fig. 7.10
Dimensions: wall th.: 0.95 cm; base diam.: 4.5 cm; base th.: 1.3 cm.
Clay: outer, inner and fabric colour: 5YR 4/6 (yellowish red); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.12.84.15 - Fig. 7.10
Dimensions: wall th.: 0.8 cm; base diam.: 4 cm; base th.: 0.9 cm.
Clay: outer, inner and fabric colour: 7.5YR 7/4 (pink); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.12.84.16 - Fig. 7.10
Dimensions: wall th.: 0.9 cm; base diam.: 4 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/3 (pale brown); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.12.84.17 - Fig. 7.10
Dimensions: wall th.: 1 cm; base diam.: 5 cm; base th.: 1.1 cm.
Clay: outer, inner and fabric colour: 7.5YR 7/4 (pink); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.12.84.18 - Fig. 7.11
Dimensions: base diam.: 10 cm; base th.: 0.6 cm.
Clay: outer, inner and fabric colour: 5YR 7/6 (reddish yellow); sand inclusions; medium-high firing temperature.
Description: rounded base.

AbT.12.84.19 - Fig. 7.11
Dimensions: wall th.: 0.5 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/2 (pale brown); sand inclusions; medium firing temperature.
Description: wall with applied notched ridges.

AbT.12.84.20 - Fig. 7.11
Dimensions: rim diam.: 16 cm; rim th.: 1.9 cm.
Clay: outer, inner and fabric colour: 2.5Y 7/3 (pale brown); sand inclusions; medium firing temperature.
Description: plain rim jar.

AbT.12.84.21 - Fig. 7.11
Dimensions: rim diam.: 14 cm; rim th.: 0.7 cm; wall th.: 0.7 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/2 (pale brown); sand inclusions; medium-high firing temperature.
Description: band rim jar.

AbT.12.84.22 - Fig. 7.11
Dimensions: base diam.: 15 cm; base th.: 0.6 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/2 (pale brown); sand inclusions; medium-high firing temperature.
Description: ring base.

AbT.12.84.23 - Fig. 7.11
Dimensions: rim diam.: 11 cm; rim th.: 0.9 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/2 (pale brown); sand inclusions; medium-high firing temperature.
Description: band rim jar.

AbT.12.84.24 - Fig. 7.11
Dimensions: base diam.: 9 cm; base th.: 0.55 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/3 (pale brown); sand inclusions; medium-high firing temperature.
Description: ring base.

AbT.12.84.25 - Fig. 7.11
Dimensions: base diam.: 13 cm; base th.: 0.7 cm.
Clay: outer, inner and fabric colour: 10YR 8/2 (very pale brown); sand inclusions; medium-high firing temperature.
Description: ring base.

AbT.12.84.26 - Fig. 7.11
Dimensions: rim diam.: 82.6 cm; rim th.: 2.8 cm; wall th.: 1.6 cm.
Clay: outer, inner and fabric colour: 5YR 6/4 (light reddish brown); sand and vegetal inclusions; low firing temperature.
Description: rim of a big jar (inclination not clear).

AbT.12.84.27 - Fig. 7.11
Dimensions: rim diam.: n.d.; rim th.: 2.5 cm.
Clay: outer, inner and fabric colour: 7.5YR 6/4 (light brown); sand and vegetal inclusions; medium-low firing temperature.
Description: rim of a big jar/vat.

AbT.12.84.28 - Fig. 7.11
Dimensions: rim diam.: nd.; rim th.: 5.45 cm; wall th.: 1.6 cm.
Clay: outer and inner colour: 10YR 7/3 (very pale brown); fabric colour: 7.5YR 3/1 (very dark grey); sand and vegetal inclusions; medium-low firing temperature.
Description: 9 fragments of a large vat with a triangular rim and a ridge under it.

AbT.12.84.29 - Fig. 7.11
Dimensions: rim diam.: n.d.; rim th.: 6.4 cm.
Clay: outer, inner and fabric colour: 10YR 7/3 (very pale brown); sand and vegetal inclusions; medium-low firing temperature.
Description: triangular rim of a large vat.

AbT.12.84.30 - Fig. 7.11
Dimensions: rim diam.: n.d.; rim th.: 4 cm.
Clay: outer, inner and fabric colour: 2.5Y 6/3 (light yellowish brown); sand and vegetal inclusions; medium-low firing temperature.
Description: large vat. Bitumen band under the rim between two ridges.

AbT.12.84.31 - Fig. 7.11
Dimensions: rim diam.: n.d.; rim th.: 3.2 cm; wall th.: 1.9 cm.
Clay: outer, inner and fabric colour: 5YR 7/4 (pink); sand and vegetal inclusions; medium-low firing temperature.
Description: large vat wall decorated with a curved notched ridge, enclosing two circular and almost concentric lines of impressed dots.

7.1.2 Grave 1 [LR]

Grave 1 (Figs 7.12-13 and 7.21) was located in the southern corner of MeXIII2, immediately under the surface.[6] The body was inhumed in a shallow pit (US 7), the limits of which were unclear due to the condition of the soil, extremely wet during Winter 2012 (Fig. 7.12).[7]

The filling (US 5) was a hard dark-brown clay soil and covered an equipment (Fig. 7.12) made up by: a conical bowl near the head (AbT.12.5.3), two jars over the lower part of the body (AbT.12.5.1-2), and by a spouted white limestone vessel (AbT.12.5).

The skeleton of a child (US 6) was layed in semi-flexed position, with the head towards west and looking south, the legs bent toward south, the left arm bent and the right one over the hips. Probably the infant was wrapped up with a reed-mat, found mostly over the chest and near the head.

Though apparently in good conditions, the position of the grave immediately under the top soil left the bones in a bad state of preservation (in some cases only the impressions of the bones on the soil were left).

Fig. 7.12 Grave 1 during the excavation: detail of the jar discovered and probably belonging to Grave 6.

Fig. 7.13 Grave 1, skeleton US 6.

[6] See D'Agostino *et al.* 2011: 27. The elevation is of -0.12 m (in D'Agostino *et al.* 2011: Fig. 10 a wrong elevation was reported).

[7] However, we can estimate the dimensions of the grave's cut as ca. 0.70×0.90 cm.

Fig. 7.14 US 5 finds: pottery and objects.

Catalogue of US 5 Finds

Objects

AbT.12.5 - Fig. 7.14
Description: porous limestone spouted vessel.
Dimensions: 15x7.4x21.7 cm.

Pottery

AbT.12.5.1 - Fig. 7.14
Dimensions: wall th.: 0.8 cm; base diam.: 6 cm; base th.: 0.5 cm.
Clay: outer colour (self-slip): 10YR 8/2 (very pale brown); inner and fabric colour: 10YR 7/4 (very pale brown); sand inclusions; medium firing temperature.
Description: convex base jar (rim not preserved).

AbT.12.5.2 - Fig. 7.14
Dimensions: rim diam.: 7 cm; rim th.: 0.4 cm; wall th.: 0.5 cm; base diam.: 5.2 cm; base th.: 2.4 cm; h.: 20 cm.
Clay: outer colour (self-slip): 10YR 8/2 (very pale brown); inner and fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium-low firing temperature.
Description: plain rim jar.

AbT.12.5.3 - Fig. 7.14
Dimensions: rim diam.: 15.6 cm; rim th.: 0.5 cm; wall th.: 0.7 cm; base diam.: 5.4 cm; base th.: 0.8 cm; h.: 6.6 cm.
Clay: outer and inner colour (self-slip): 10YR 8/3 (very pale brown); fabric colour: 10YR 8/3 (very pale brown); sand inclusions; medium-high firing temperature.
Description: conical bowl.

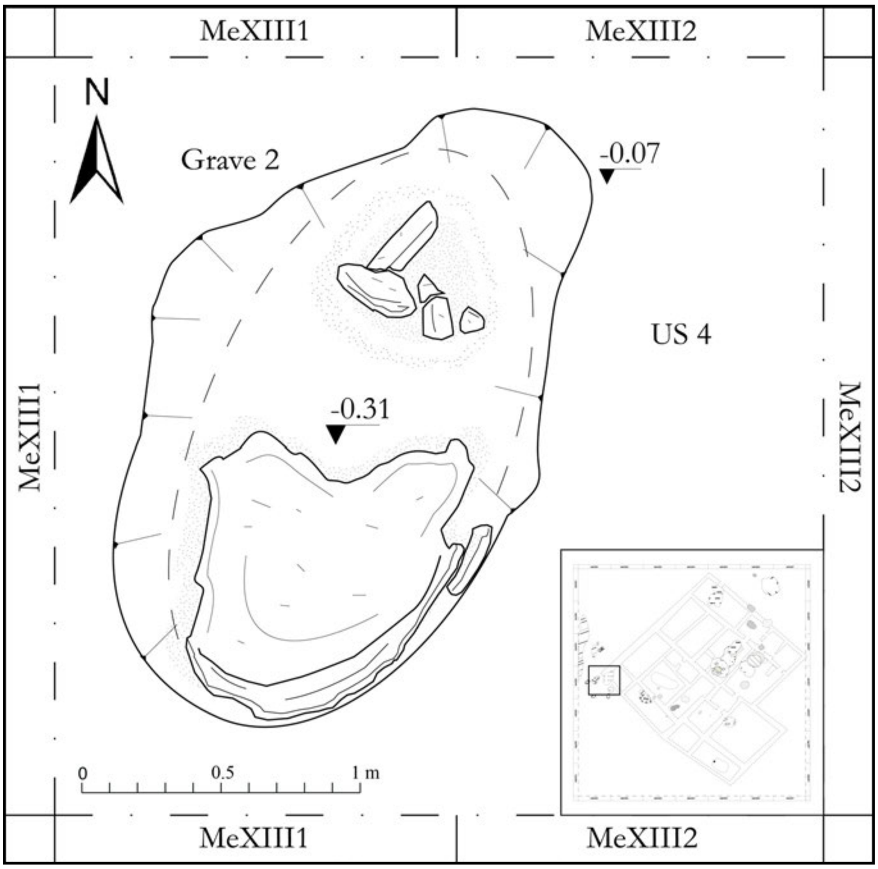


Fig. 7.15 Grave 2 plan.

7.*1.3 Grave 2 [LR]*

Grave 2 (Figs 7.15-16),[8] located in the middle of squares MeXIII1-2 immediatley under the surface (-0.07 m of elevation), was pillaged in antiquity and emptied of both the skeleton and the equipment (US 23; 9; 10; 11). Only part of the pottery sarcophagus was found *in situ*, while other fragments were discarded in the silty and quite compact soil, filling the robber pit.

A lapislazuli bead and an unfinished ornament were found in the backfill, hinting at the original richness of the burial. The coiled sarcophagus (US 10) was realized in coarse pottery and was oval in shape, with a flat base and three applied ridges on the wall.[9]

[8] After the discovery of other coffins in the area, the first interpretation of US 10 was confirmed (see the previous interpretation in D'Agostino *et al.* 2011: 27-28).

[9] The base was preserved for a lenght of 1 m.

Fig. 7.16 Grave 2 coffin.

Catalogue of US 10 Finds

Pottery

AbT.12.10.1 - Fig. 7.16
Dimensions: rim diam.: 42.7 cm; rim th.: 2,7 cm; wall th.: 1.5 cm; base diam.: 30 cm; base th.: 2.1 cm; h.: 40.8 cm.
Clay: outer, inner and fabric colour: 5Y 6/3 (pale olive); sand and vegetal inclusions; medium-high firing temperature.
Description: coiled coffin with flat base and three applied ridges.

Catalogue of US 23 Finds

Objects

AbT.12.14 - Fig. 7.17
Description: lapis lazuli bead.
Dimensions: 0.8x0.5x0.4 cm.

AbT.12.42 - Fig. 7.17
Description: unfinished ornament, greenish stone with dark thin veins (serpentine?).
Dimensions: 1x2 cm.

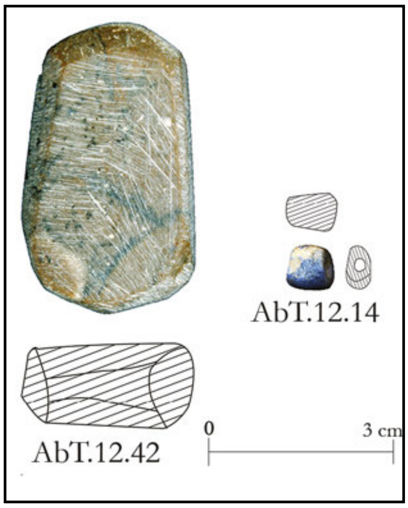


Fig. 7.17 US 23 objects.

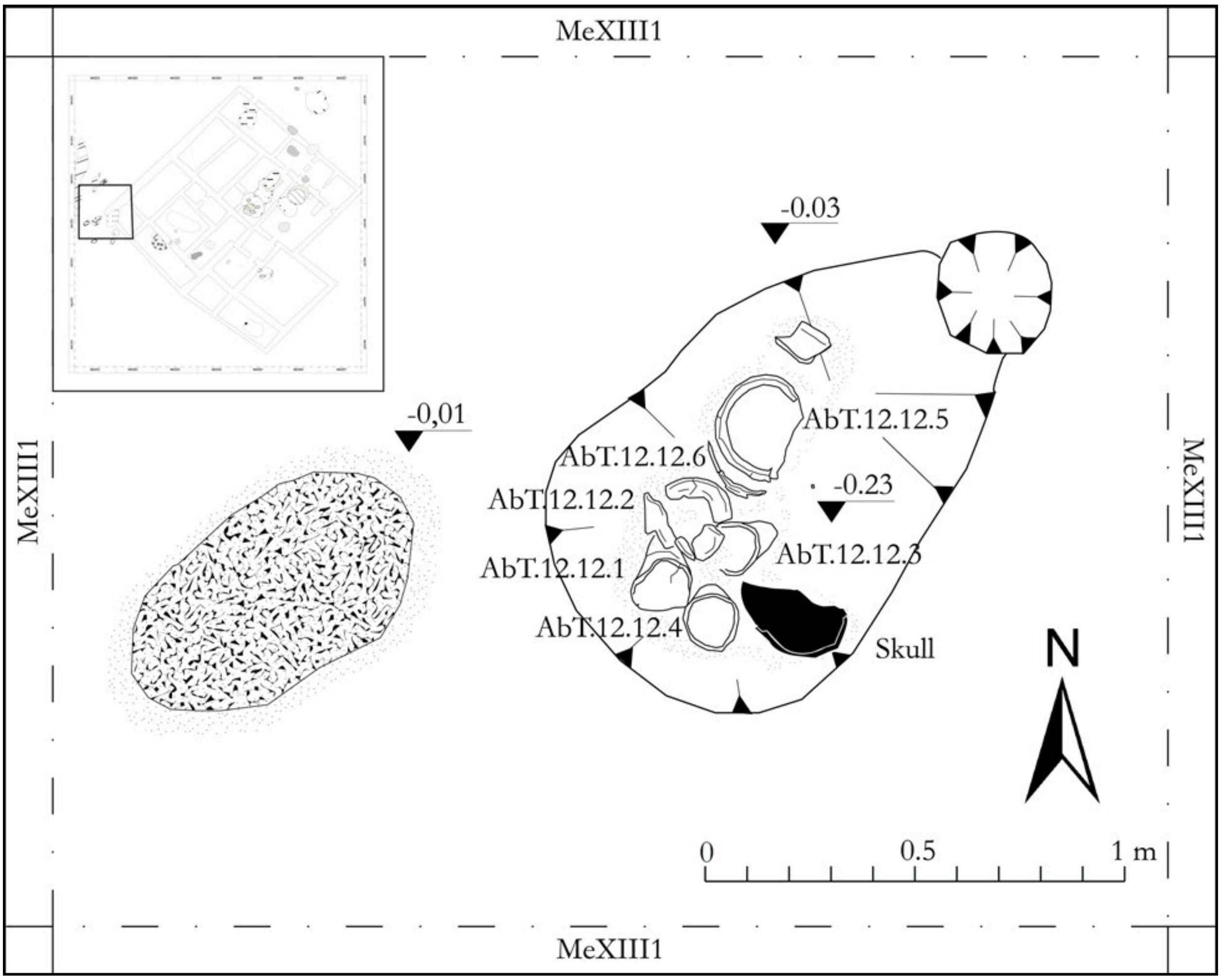


Fig. 7.18 Grave 3 plan.

7.1.4 Grave 3 [LR]

Grave 3 (Figs 7.18-19) was found during the first campaign, immediately under the surface, in square MeXIII1 (elevation of the upper part -0.03 m, bottom -0.23 m). A small hole (US 15), of 30 cm ca. of diameter and 20 cm deep, cut the grave near its north-east limits and was filled by a greyish ashy soil (US 24).

The grave cut (US 11) was oval-shaped, with south-west/north-east orientation, larger on the top and tapering down, with a more marked inclination in the southern part. The filling (US 12) consisted of a quite compact, yellowish-brown clay soil with small charcoals and mud-brick fragments. The pit contained only a portion of the skull and one tooth, clearly in secondary deposition. The equipment consisted of 4 beakers, 1 jar and 2 conical bowls. The drinking vessels were deposed together north-west of the skull, while the jar was located northward, beyond the bowls and beakers.

Fig. 7.19 Grave 3.

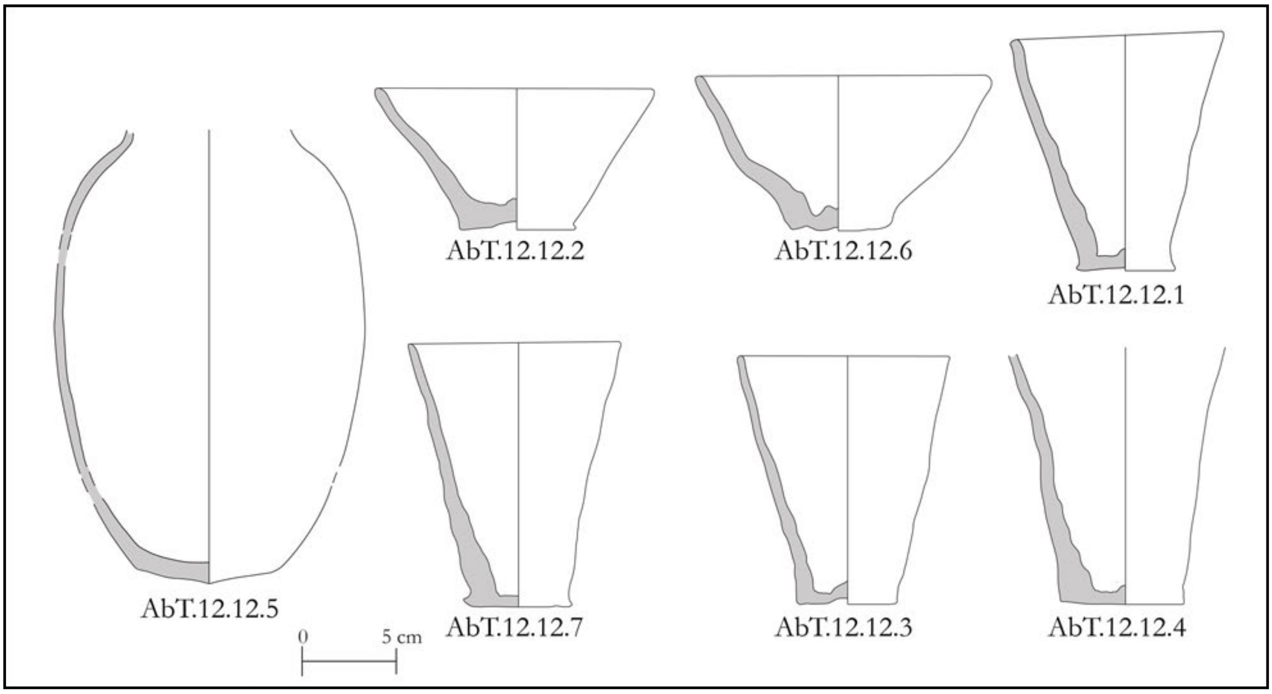


Fig. 7.20 US 12 pottery.

Catalogue of US 12 Finds

Pottery

AbT.12.12.1 - Fig. 7.20
Dimensions: rim diam.: 10.7 cm; rim th.: 0.5 cm; wall th.: 0.9 cm; base diam.: 5.1 cm; base th.: 1 cm; h.: 12.5 cm.
Clay: outer and inner colour: 7.5YR 7/4 (pink); fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium-low firing temperature.
Description: beaker.

AbT.12.12.2 - Fig. 7.20
Dimensions: rim diam.: 14.3 cm; rim th.: 0.5 cm; wall th.: 0.8 cm; base diam.: 5.8 cm; base th.: 1.2 cm; h.: 7.4 cm.
Clay: outer, inner and fabric colour: 5YR 6/3 (light reddish brown); sand inclusions; low firing temperature.
Description: conical bowl.

AbT.12.12.3 - Fig. 7.20
Dimensions: rim diam.: 10.8 cm; rim th.: 0.35 cm; wall th.: 0.7 cm; base diam.: 5 cm; base th.: 1.2 cm; h.: 13 cm.
Clay: outer, inner and fabric colour: 5YR 6/3 (light reddish brown); sand inclusions; medium-low firing temperature.
Description: beaker.

AbT.12.12.4 - Fig. 7.20
Dimensions: wall th.: 0.5 cm; base diam.: 6.3 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 10YR 7/3 (very pale brown); sand inclusions; medium-low firing temperature.
Description: beaker.

AbT.12.12.5 - Fig. 7.20
Dimensions: wall th.: 0.55 cm; base diam.: 7.5 cm; base th.: 1.15 cm.
Clay: outer, inner and fabric colour: 10YR 7/4 (very pale brown); sand inclusions; medium firing temperature.
Description: convex base jar (rim not preserved).

AbT.12.12.6 - Fig. 7.20
Dimensions: rim diam.: 15 cm; rim th.: 0.5 cm; wall th.: 0.9 cm; base diam.: 5 cm; base th.: 1.1 cm; h.: 8.1 cm.
Clay: outer, inner and fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: conical bowl.

AbT.12.12.7 - Fig. 7.20
Dimensions: rim diam.: 11 cm; rim th.: 0.4 cm; wall th.: 0.9 cm; base diam.: 5.2 cm; base th.: 0.6 cm; h.: 13.7 cm.
Clay: outer, inner and fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: beaker.

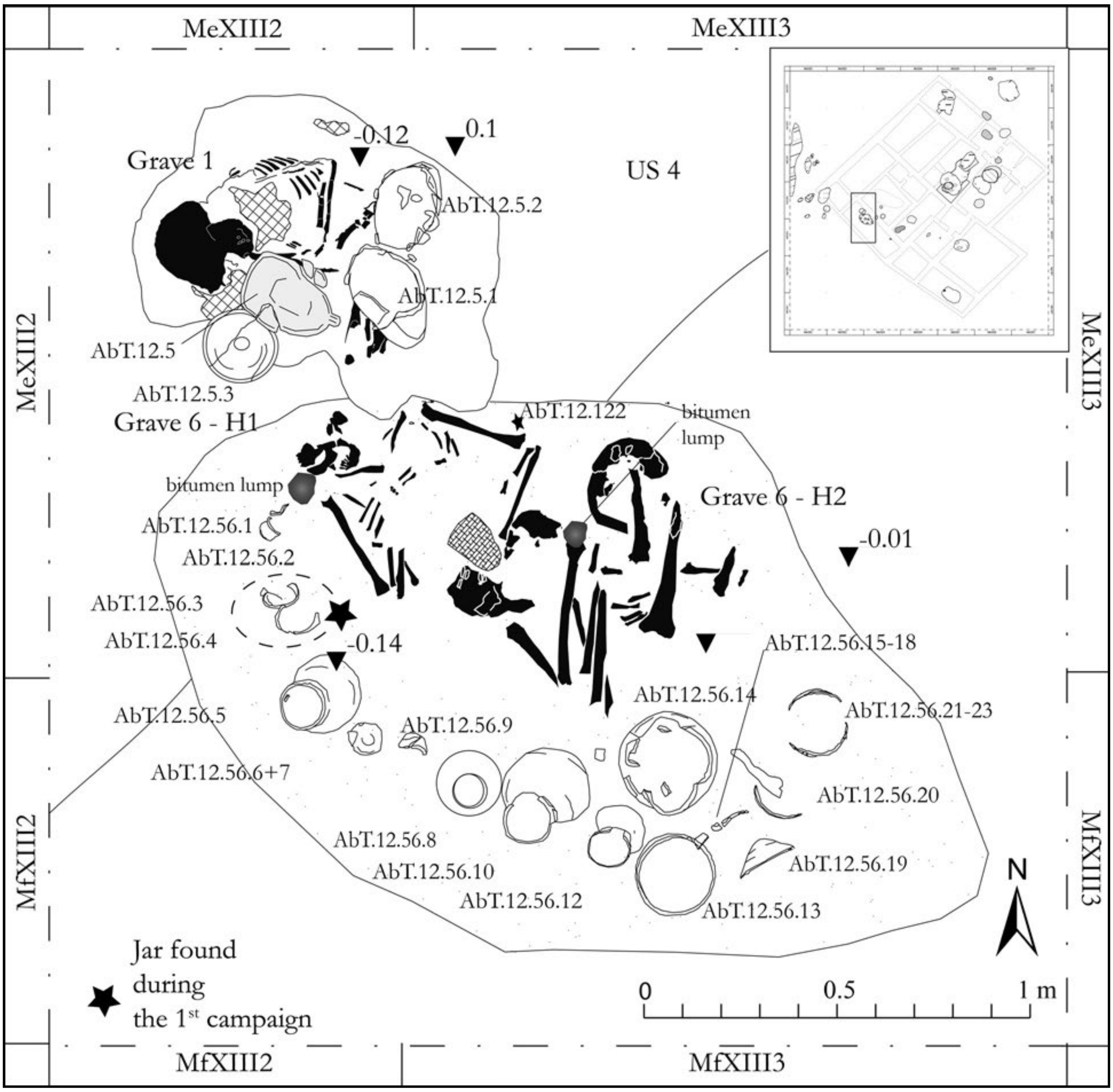


Fig. 7.21 Grave 1 and 6 plan.

7.1.5 Grave 6 [LR]

Grave 6 (Figs 7.21-22), a double inhumation, cut immediately under the surface in Me-fXIII2+3 (at the elevation of -0.01 m ca.), was found during the second campaign.[10] The clay soil inside the grave (US 56) was light yellowish brown and compact, clearly differentiating itself from the underlying strata. Mudbricks and charcoal fragments, bitumen pieces, burnt shells and fishbones were scattered in the soil and inside some of the pottery vessels.[11]

The grave cut (US 57) hosted two bodies, one in primary and the other in secondary deposition. The first one, the body of a woman (US 55), was laying down in a semi-flexed position with the head toward west and looking south, the legs towards south, the arms bent and the hands over the hips holding a vessel made of organic material. On top of the feet of the woman, the bones of male individual (US 66) were clearly re-deposed after the woman's inhumation.[12] The analysis of the two

[10] See D'Agostino *et al.* 2013: 69-72.

[11] AbT.12.56.2, 13, 16, 19.

[12] The bones of both the bodies were in a very bad state of preservation. The excavation of the cluster of bones deposed at the feet of the woman was recovered cutting the

bodies revealed a common skeletal malformation, confirming the strong relationship among the two inhumed bodies (see § 12.2.1.4).

The pottery equipment, partially eroded due to the proximity to the surface, was deposed along the right side of the body, south-west and south of it, apparently in two rows. It included at least 14 drinking vessels, 8 medium/big jars[13] and a miniaturistic vessel.[14] The deposition of the pottery equipment seems to have followed a specific pattern: a conical bowl (AbT.12.56.1) and the miniaturistic jar were placed near the head of the deceased, while all the jars were deposed along the body, in one case with a bowl used as a lid (AbT.12.56.7 and AbT.12.56.6). With the exception of the beaker rim fragment AbT.12.56.9, all the drinking vessels were found south-east of the feet of the woman, some of them were one inside the other.

After the discovery, two of the jars (AbT.12.56.5 and 8) stored in the dig-house, started soaking through their walls an apparently greasy perspiration[15]. This "sweat" was sampled through the use of swabs and then analyzed in laboratory. The FTIR analyses made by S. Nunziante Cesaro revealed at least for one of the two jars the presence of an organic substance: further analyses will attempt to clarify the nature of the vessel content.

The other finds inside US 56 comprised a copper alloy fragment and sickle blade with part of its handle still preserved: none of these finds can surely be attributed to the grave equipment, being probably in secondary deposition. In addition, two pieces of bitumen mixed to vegetal temper was found, one near the head, the other near the left leg.

Fig. 7.22 Grave 6.

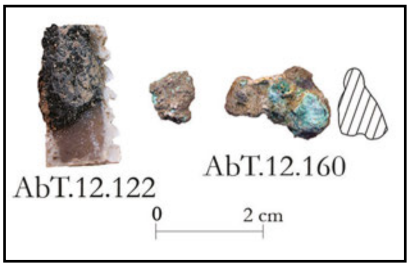


Fig. 7.23 US 56 objects.

portion of soil and then moved to the dig-house for a more carefull excavation in the laboratory.

[13] Probably another jar was part of the equipment. It was found during the 1st campaign and left in situ covered with soil but after the few months between the 1st and the 2nd campaign we found no trace of it. The position of the jar however was recorded in Fig. 7.21.

[14] In the US 56 catalogue a total of 33 pottery shards is presented: it also includes some pottery fragments from the backfill that probably do not belong to the equipment.

[15] Probably the copious rainfalls and humidity that characterized 2012 Winter caused this phenomenon.

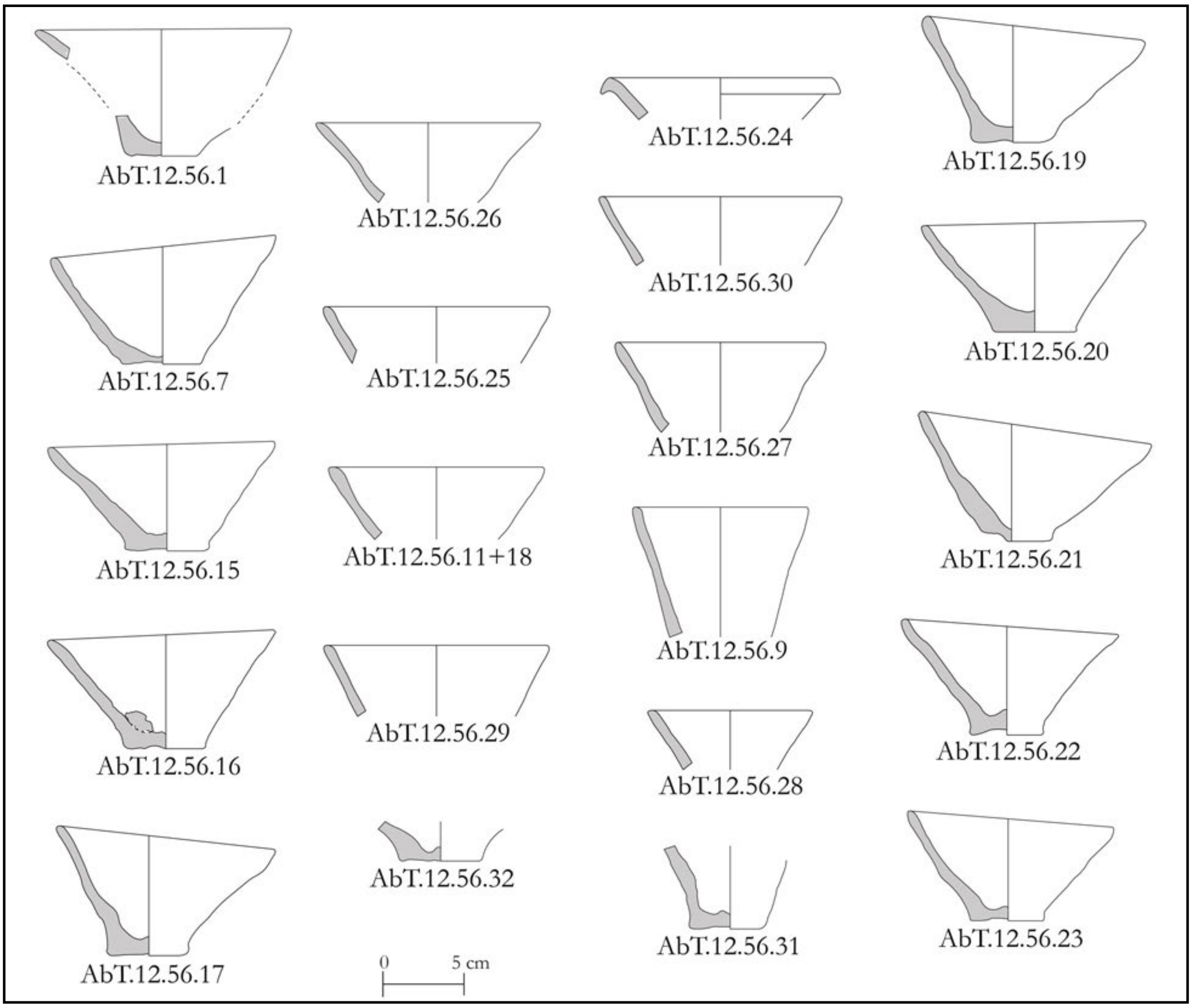


Fig. 7.24 US 56 pottery: open shapes.

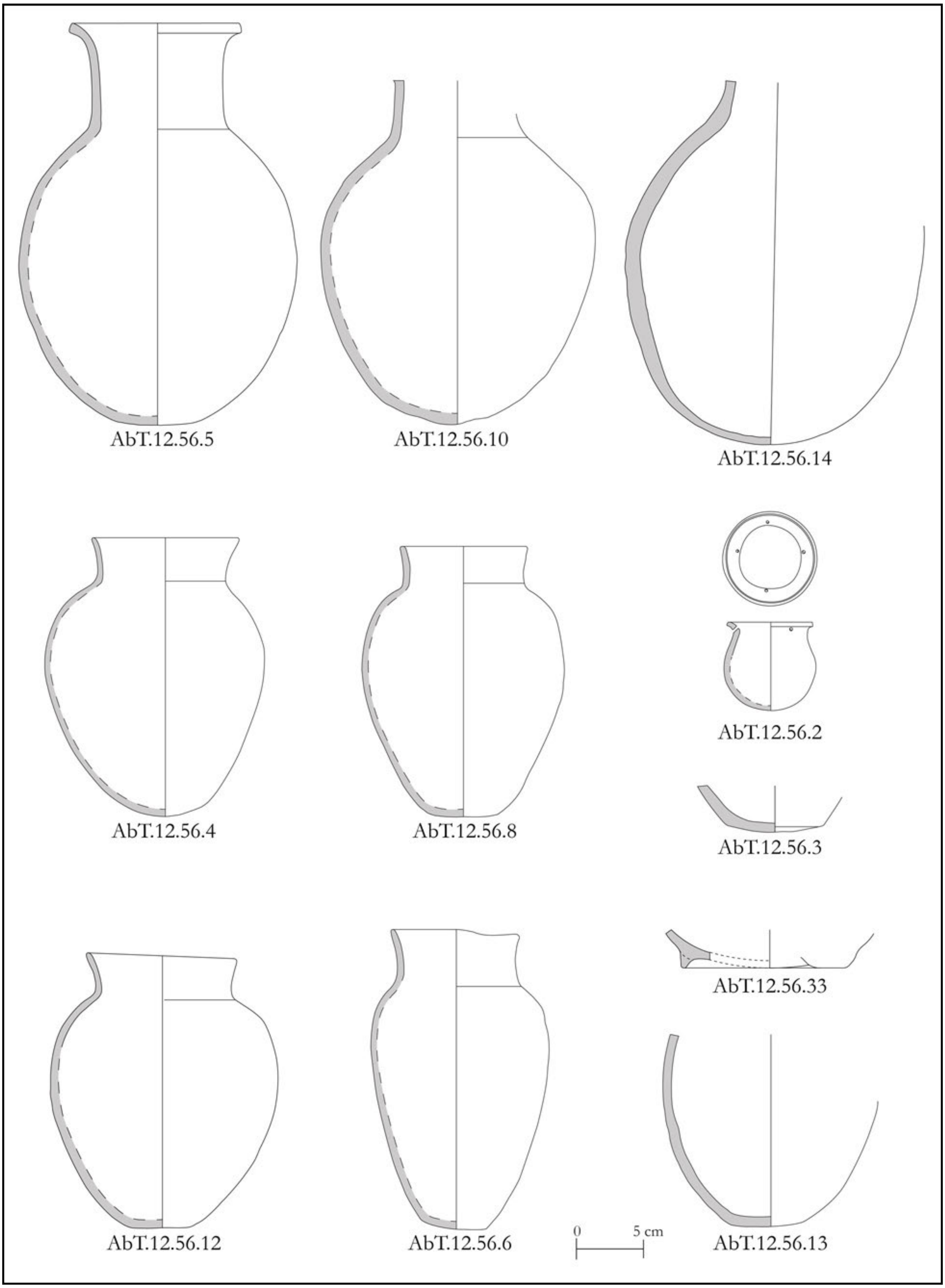


Fig. 7.25 US 56 pottery: closed shapes.

Catalogue of US 56 Finds

Objects

AbT.12.122 - Fig. 7.23
Description: chert sickle element. traces of bitumen used for hafting.
Dimensions: 1.37x2.74x3.8 cm.

AbT.12.160 - Fig. 7.23
Description: copper-alloy object fragment.
Dimensions: 2.03x1.4x1.4 cm.

Pottery

AbT.12.56.1 - Fig. 7.24
Dimensions: rim diam.: 16 cm; rim th.: 0.7 cm; wall th.: 0.9 cm; base diam.: 4.5 cm; base th.: 0.8 cm; h.: 8 cm (reconstructed).
Clay: outer, inner and fabric colour: 7.5YR 5/4 (brown); sand inclusions; low firing temperature.
Description: conical bowl. Found near AbT.12.56.2.

AbT.12.56.2 - Fig. 7.25
Dimensions: rim diam.: 6.5 cm; rim th.: 0.5 cm; wall th.: 0.5 cm; base diam.7 cm; base th.: 0.6 cm; h.: 6.6 cm.
Clay: outer colour: 7.5YR 6/4 (light brown); sand inclusions; medium-high firing temperature.
Description: miniaturistic jar, with a flared out-turned rim, globular body and rounded base. Four holes just below the rim. Found between AbT.12.56.1 and AbT.12.56.3. Fish bones in the filling of the vessel.

AbT.12.56.3 - Fig. 7.25
Dimensions: wall th.: 0.7 cm; base diam.: 7-7.4 cm; base th.: 0.6 cm.
Clay: outer colour: 7.5YR 6/4 (light brown); sand inclusions; medium-low firing temperature.
Description: convex base. Found between AbT.12.56.2 and AbT.12.56.4.

AbT.12.56.4 - Fig. 7.25
Dimensions: rim diam.: 11 cm; rim th.: 0.4 cm; wall th.: 0.5 cm; base diam.: 5.3 cm; base th.: 0.6 cm; h.: 20.6 cm.
Clay: outer and inner colour (slip): 5YR 8/2 (pinkish white); fabric colour: 2.5YR 4/4 (reddish brown); sand inclusions; medium-low firing temperature.
Description: plain rim jar. Found between AbT.12.56.3 and AbT.12.56.5.

AbT.12.56.5 - Fig. 7.25
Dimensions: rim diam.: 12.6 cm; rim th.: 0.8 cm; wall th.: 0.6 cm; base diam.: 10 cm; base th.: 0.7 cm; h.: 29.8 cm.
Clay: outer colour ("reserved-slip like" effect): 2.5Y 8/2 (pale brown); fabric colour: 7.5YR 6/3 (light brown); sand inclusions; medium firing temperature.
Description: triangular rim jar. Found between AbT.12.56.4 and AbT.12.56.6 and AbT.12.56.7.

AbT.12.56.6 - Fig. 7.25
Dimensions: rim diam.: 9 cm; rim th.: 0.4 cm; wall th.: 0.55 cm; base diam.: 5 cm; base th.: 0.6 cm; h.: 22 cm.
Clay: outer colour: 2.5Y 8/2 (pale brown); fabric colour: 2.5YR 6/6 (light red); sand inclusions; medium firing temperature.
Description: plain rim jar. Found under AbT.12.56.7, AbT.12.56.8 and AbT.12.56.9.

AbT.12.56.7 - Fig. 7.24
Dimensions: rim diam.: 14 cm; rim th.: 0.7 cm; wall th.: 0.6 cm; base diam.: 5 cm; base th.: 0.4 cm; h.: 8 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium-low firing temperature.
Description: conical bowl. Found above AbT.12.56.6 and between AbT.12.56.5 and AbT.12.56.8 and AbT.12.56.9.

AbT.12.56.8 - Fig. 7.25
Dimensions: rim diam.: 9.5 cm; rim th.: 0.5 cm; wall th.: 0.5 cm; base diam.: 5.5 cm; h.: 20 cm.
Clay: outer and inner colour: 10YR 8/2 (very pale brown); fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium-high firing temperature.
Description: plain rim jar. Found under AbT.12.56.9 and between AbT.12.56.7, AbT.12.56.8 and AbT.12.56.10.

AbT.12.56.9 - Fig. 7.24
Dimensions: rim diam.: 11 cm; rim th.: 0.6 cm; wall th.: 0.8 cm.
Clay: outer, inner and fabric colour: 10YR 6/4 (light yellowish brown); sand and vegetal inclusions; medium-high firing temperature.
Description: drinking vessel rim. Found above AbT.12.56.8.

AbT.12.56.10 - Fig. 7.25
Dimensions: wall th.: 0.8 cm; base diam.: ca. 10 cm; base th.: 0.8 cm.
Clay: outer colour: 2.5Y 8/2 (pale brown); fabric colour: 2.5YR 6/4 (light reddish brown); sand inclusions; medium-high firing temperature.
Description: jar with rounded shoulders and rounded base. Found near AbT.12.56.11 and between AbT.12.56.12 and AbT.12.56.9. Two rims of a conical bowl were found inside it.

AbT.12.56.11+18 - Fig. 7.24
Dimensions: rim diam.: 13.5 cm; rim th.: 0.75 cm; wall th.: 0.5 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 2.5YR 6/4 (light reddish brown); sand inclusions; medium-low firing temperature.
Description: drinking vessel rim. Found near AbT.12.56.10.

AbT.12.56.12 - Fig. 7.25
Dimensions: rim diam.: 11 cm; rim th.: 0.4 cm; wall th.: 0.5 cm; base diam.: 7 cm; h.: 20 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); medium firing temperature.
Description: plain rim jar. Found between AbT.12.56.10, AbT.12.56.11, AbT.12.56.14 and AbT.12.56.13.

AbT.12.56.13 - Fig. 7.25
Dimensions: walls th.: 0.6 cm; base diam.: 16.7 cm; base th.: 0.8 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: convex base. Found near AbT.12.56.12 and AbT.12.56.14. Fish bones inside it.

AbT.12.56.14 - Fig. 7.25
Dimensions: wall th.: 1.1 cm; base diam.: 11.5 cm; base th.: 0.5 cm.
Clay: outer, inner and fabric colour: 10YR 7/3 (very pale brown); sand inclusions; medium-high firing temperature.
Description: jar with rounded shoulders and rounded base. Found near AbT.12.56.12 and AbT.12.56.13. Conical bowl base and a single fish-bone inside it.

AbT.12.56.15 - Fig. 7.24
Dimensions: rim diam.: 14.3 cm; rim th.: 0.6 cm; wall th.: 0.9 cm; base diam.: 5 cm; base th.: 1 cm; h.: 6.6 cm.
Clay: outer colour and inner colour (self-slip): 2.5Y 8/2 (pale brown); fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium-low firing temperature.
Description: conical bowl. Containing AbT.12.56.16.

AbT.12.56.16 - Fig. 7.24 and 10.20
Dimensions: rim diam.: 14.3 cm; rim th.: 0.65 cm; wall th.: 0.65 cm; base diam.: 5 cm; base th.: 1 cm; h.: 7 cm.
Clay: outer, inner and fabric colour: 2.5YR 6/6 (light red); sand inclusions; medium-low firing temperature.
Description: conical bowl. Found inside AbT.12.56.15. A fish-bone in the clay lumps inside the bowl. A piece of extra clay left inside.

AbT.12.56.17 - Fig. 7.24
Dimensions: rim diam.: 14.4 cm; rim th.: 0.6 cm; wall th.: 0.8 cm; base diam.: 5 cm; base th.: 1 cm; h.: 7.5 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); sand inclusions; medium firing temperature.
Description: conical bowl. Found near AbT.12.56.16, AbT.12.56.18 and AbT.12.56.15.

AbT.12.56.18=AbT.12.56.11

AbT.12.56.19 - Fig. 7.24
Dimensions: rim diam.: 14 cm; rim th.: 0.7 cm; wall th.: 0.8 cm; base diam.: 5 cm; base th.: 1 cm; h.: 8 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); sand inclusions; medium firing temperature.
Description: conical bowl. Found near AbT.12.56.13. A fish bone inside it.

AbT.12.56.20 - Fig. 7.24
Dimensions: rim diam.: 14 cm; rim th.: 0.5 cm; wall th.: 0.8 cm; base diam.: 5 cm; base th.: 1.2 cm; h.: 7 cm.
Clay: outer, inner and fabric colour: 2.5YR 6/6 (light red); sand inclusions; medium-low firing temperature.
Description: conical bowl. Found near AbT.12.56.15-16-17-18.

AbT.12.56.21 - Fig. 7.24
Dimensions: rim diam.: 14 cm; rim th.: 0.65 cm; wall th.: 0.8 cm; base diam.: 5.5 cm; base th.: 0.8 cm; h.: 7.6 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 2.5YR 6/6 (light red); sand inclusions; medium-low firing temperature.
Description: conical bowl. Found under AbT.12.56.22 and with AbT.12.56.23.

AbT.12.56.22 - Fig. 7.24
Dimensions: rim diam.: 13.5 cm; rim th.: 0.7 cm; wall th.: 0.7 cm; base diam.: 4.7 cm; base th.: 1.2 cm; h.: 7.9 cm.
Clay: outer, inner and fabric colour: 2.5YR 5/6 (red); sand inclusions; medium-low firing temperature.
Description: conical bowl. Found inside AbT.12.56.21 and with AbT.12.56.23.

AbT.12.56.23 - Fig. 7.24
Dimensions: rim diam.: 13 cm; rim th.: 0.65 cm; wall th.: 0.7 cm; base diam.: 4.5 cm; base th.: 1 cm; h.: 7 cm.
Clay: outer, inner and fabric colour: 2.5YR 4/4 (reddish brown); sand inclusions; medium-low firing temperature.
Description: conical bowl. Found with AbT.12.56.21 and AbT.12.56.22.

AbT.12.56.24 - Fig. 7.24
Dimensions: rim diam.: 14 cm; rim th.: 1.2 cm; wall th.: 0.7 cm.
Clay: outer, inner and fabric colour: 2.5YR 5/6 (red); sand inclusions; medium-high firing temperature.
Description: triangular rim bowl. Found near the skull.

AbT.12.56.25 - Fig. 7.24
Dimensions: rim diam.: 14 cm; rim th.: 0.6 cm; wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 10YR 6/3 (pale brown); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.12.56.26 - Fig. 7.24
Dimensions: rim diam.: 14 cm; rim th.: 0.6 cm; wall th.: 0.55 cm.
Clay: outer, inner and fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium-low firing temperature.
Description: drinking vessel rim.

AbT.12.56.27 - Fig. 7.24
Dimensions: rim diam.: 13 cm; rim th.: 0.7 cm; wall th.: 0.75 cm.
Clay: outer, inner and fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.12.56.28 - Fig. 7.24
Dimensions: rim diam.: 10 cm; rim th.: 0.6 cm; wall th.: 0.6 cm.
Clay: outer and inner colour: 10YR 8/2 (very pale brown); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.56.29 - Fig. 7.24
Dimensions: rim diam.: 14 cm; rim th.: 0.6 cm; wall th.: 0.65 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/3 (pale brown); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.56.30 - Fig. 7.24
Dimensions: rim diam.: 15 cm; rim th.: 0.5 cm; wall th.: 0.55 cm.
Clay: outer, inner and fabric colour: 7.5YR 7/4 (pink); sand inclusions; medium-low firing temperature.
Description: drinking vessel rim.

AbT.12.56.31 - Fig. 7.24
Dimensions: wall th.: 0.9 cm; base diam.: 5 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium-low firing temperature.
Description: beaker base.

AbT.12.56.32 - Fig. 7.24
Dimensions: wall th.: 1 cm; base diam.: 5 cm; base th.: 0.8 cm.
Clay: outer, inner and fabric colour: 7.5YR 7/4 (pink); sand inclusions; medium-low firing temperature.
Description: conical bowl base.

AbT.12.56.33 - Fig. 7.25
Dimensions: base diam.: 13 cm; base th.: 0.7 cm.
Clay: outer, inner and fabric colour: 10YR 8/4 (very pale brown); sand inclusions; medium-high firing temperature.
Description: ring base.

7.1.6 Grave 11 [LR]

Grave 11 (MfXIII3 - Figs 7.26-27) is a simple pit inhumation of an infant of perinatal age (US 130-131-132).[16] The yellowish brown clay soil that filled the cut (US 130) was rich of pure clay lumps and also contained some pieces of reed-mat.[17] The shallow cut (20 cm deep) was identified at an elevation of -0.09 m, immediately under the surface.

The child (US 131) was deposed in an apparently semi-flexed position with the head towards west and looking south. No grave goods accompanied the body.

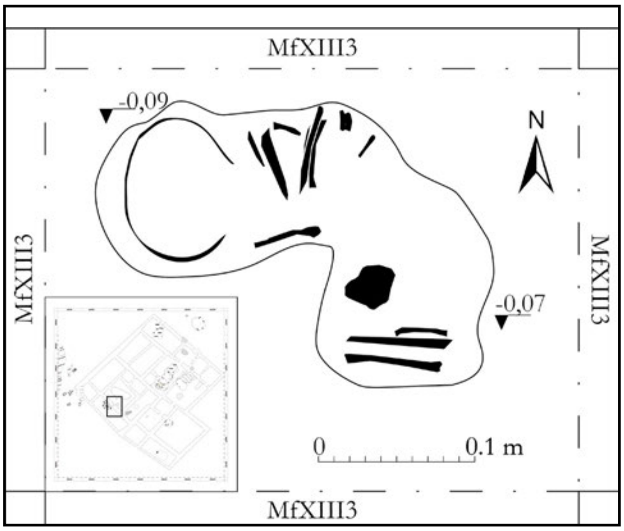


Fig. 7.26 Grave 11 plan.

Fig. 7.27 Grave 11.

[16] See also D'Agostino *et al.* 2015: 210; 2016: 48.
[17] It is not clear if the body was wrapped with a reed-mat.

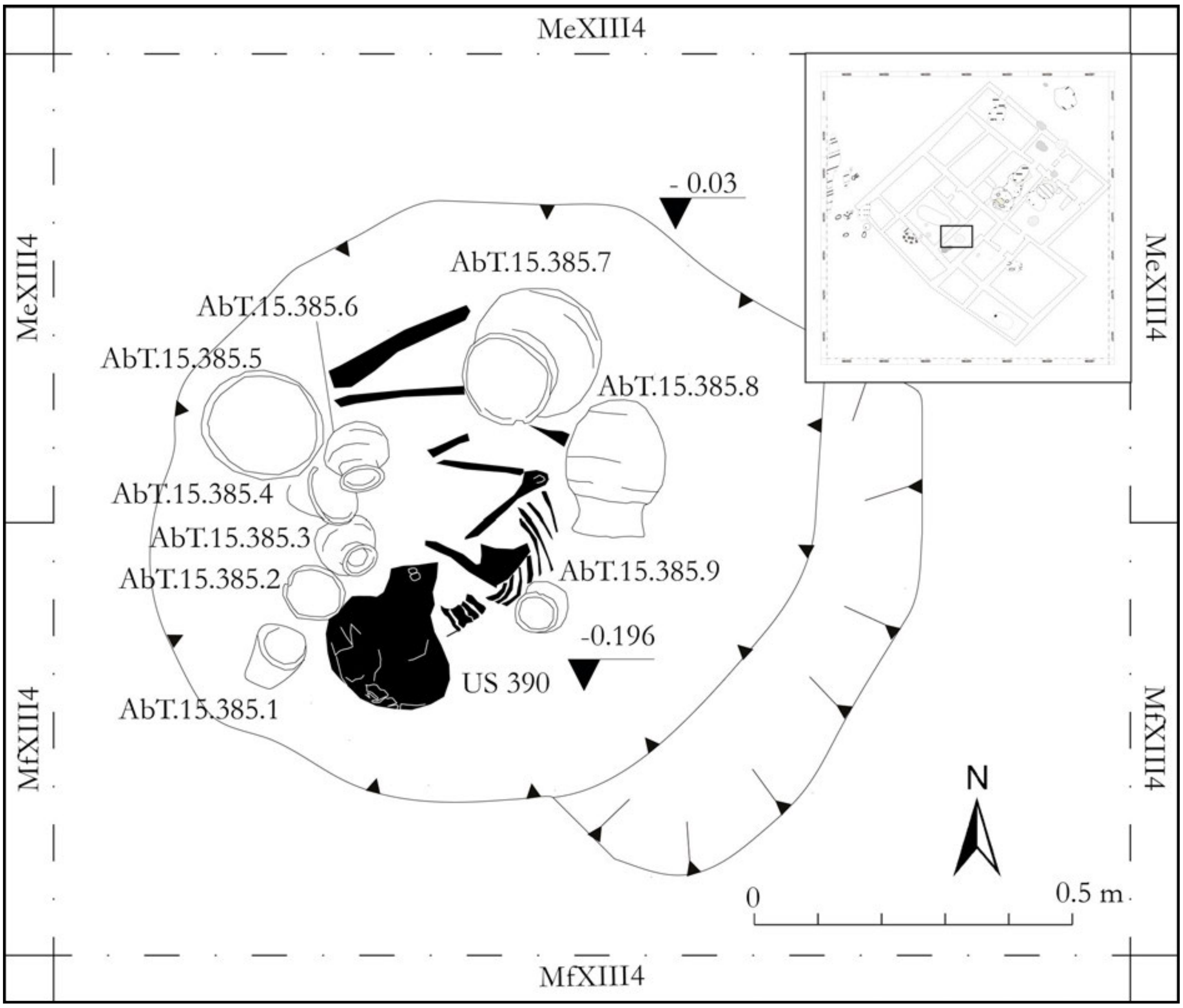


Fig. 7.28 Grave 25 plan (by M. Zingale).

7.1.7 Grave 25 [LR]

The inhumation was located in Me-fXIII4 at the elevation of -0.03 m (Figs 7.28-29). The shallow cut (US 386) was used to host the skeleton of a child (US 390), deposed in semi-flexed position on his left side, with the head toward south, looking north-west.

The right arm was bent on the chest and the left one stretched out along the body. The body was probably wrapped in reed-mat, traces of which were preserved only between the skeleton and the jar AbT.15.385.8.

A quite soft, reddish-brown and silty-clay soil (US 385) covered the equipment, consisting of several pottery vessels, mostly miniaturistic shapes. While the bigger jars were at the feet of the body, the miniaturistic vessels and the conical bowls were all deposed near the head, with the exception of AbT.15.385.9, a miniaturistic jar placed behind the right shoulder.

Fig. 7.29 Grave 25.

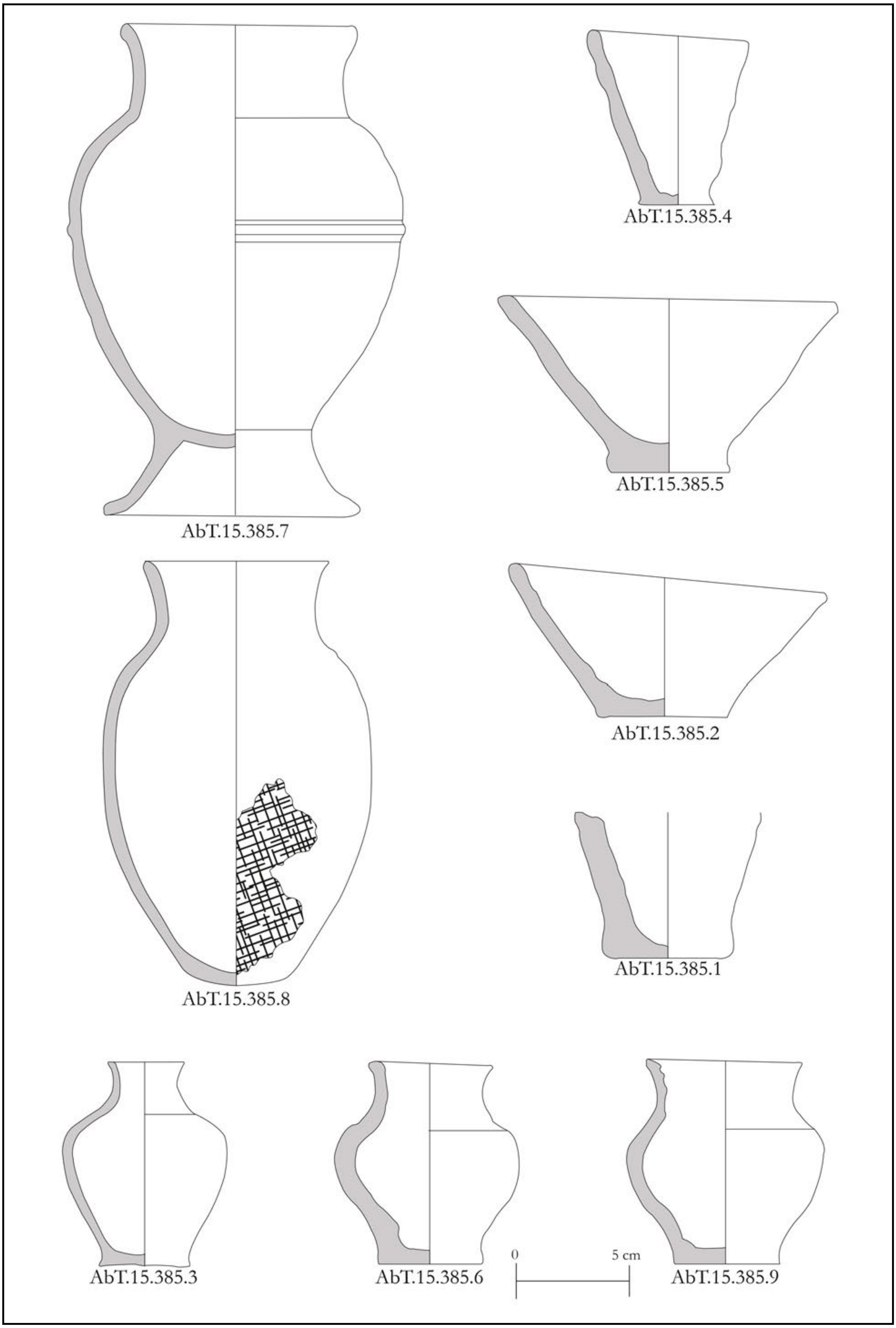


Fig. 7.30 US 385 pottery.

Catalogue of US 385 Finds

Pottery

AbT.15.385.1 - Fig. 7.30
Dimensions: wall th.: 1.1 cm; base diam.: 4.7 cm; base th.: 1 cm.
Clay: outer colour: 10YR 8/4 (very pale brown); inner colour: 10YR 6/3 (pale brown); fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium-low firing temperature.
Description: beaker base.

AbT.15.385.2 - Fig. 7.30
Dimensions: rim diam.: 14.3 cm; rim th.: 0.7 cm; wall th.: 0.7 cm; base diam.: 5.8 cm; base th.: 0.8 cm; h.: 6.8 cm.
Clay: outer, inner and fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium-low firing temperature.
Description: conical bowl.

AbT.15.385.3 - Fig. 7.30
Dimensions: rim diam.: 4 cm; rim th.: 0.3 cm; wall th.: 0.3 cm; base diam.: 3.5 cm; base th.: 0.4 cm; h.: 9.3 cm.
Clay: outer and inner colour: 10YR 8/2 (very pale brown); sand inclusions; medium firing temperature.
Description: miniaturistic jar.

AbT.15.385.4 - Fig. 7.30
Dimensions: rim diam.: 8 cm; rim th.: 0.52 cm; wall th.: 0.6 cm; base diam.: 3.5 cm; base th.: 0.5 cm; h.: 7.5 cm.
Clay: outer and inner colour: 10YR 8/2 (very pale brown); sand inclusions; medium-low firing temperature.
Description: miniaturistic beaker.

AbT.15.385.5 - Fig. 7.30
Dimensions: rim diam.: 14.8 cm; rim th.: 0.7 cm; wall th.: 0.8 cm; base diam.: 5.2 cm; base th.: 1.3 cm; h.: 7.5 cm.
Clay: outer and inner colour: 10YR 7/3 (very pale brown); sand inclusions; medium-low firing temperature.
Description: conical bowl.

AbT.15.385.6 - Fig. 7.30
Dimensions: rim diam.: 5.5 cm; rim th.: 0.4 cm; wall th.: 0.6 cm; base diam.: 4.7 cm; base th.: 0.7 cm; h.: 9 cm.
Clay: outer colour (slipped): 10YR 8/2 (very pale brown); inner colour: 2.5Y 8/4 (pale brown); sand inclusions; medium firing temperature.
Description: miniaturistic jar.

AbT.15.385.7 - Fig. 7.30
Dimensions: rim diam.: 10 cm; rim th.: 0.6 cm; wall th.: 0.8 cm; base diam.: 10 cm; base th.: 0.7 cm; h.: 21.4 cm.
Clay: outer colour: 10YR 8/2 (very pale brown); inner and fabric colour: 2.5YR 5/8 (red); sand inclusions; medium-low firing temperature.
Description: trumpet base jar.

AbT.15.385.8 - Fig. 7.30
Dimensions: rim diam.: 8 cm; rim th.: 0.5cm; wall th.: 0.5 cm; base diam.: 3.5 cm; base th.: 0.7 cm; h.: 18.5 cm.
Clay: outer and inner colour (self-slipped?): 2.5Y 7/3 (pale brown); sand inclusions; medium firing temperature.
Description: plain rim jar with convex base. Traces of reed-mat preserved on the surface.

AbT.15.385.9 - Fig. 7.30
Dimensions: rim diam.: 6.6 cm; rim th.: 0.4 cm; wall th.: 0.7 cm; base diam.: 4.6 cm; base th.: 0.8 cm; h.: 8.9 cm.
Clay: outer and inner colour: 10YR 6/4 (light yellowish brown); sand inclusions; medium firing temperature.
Description: miniaturistic jar.

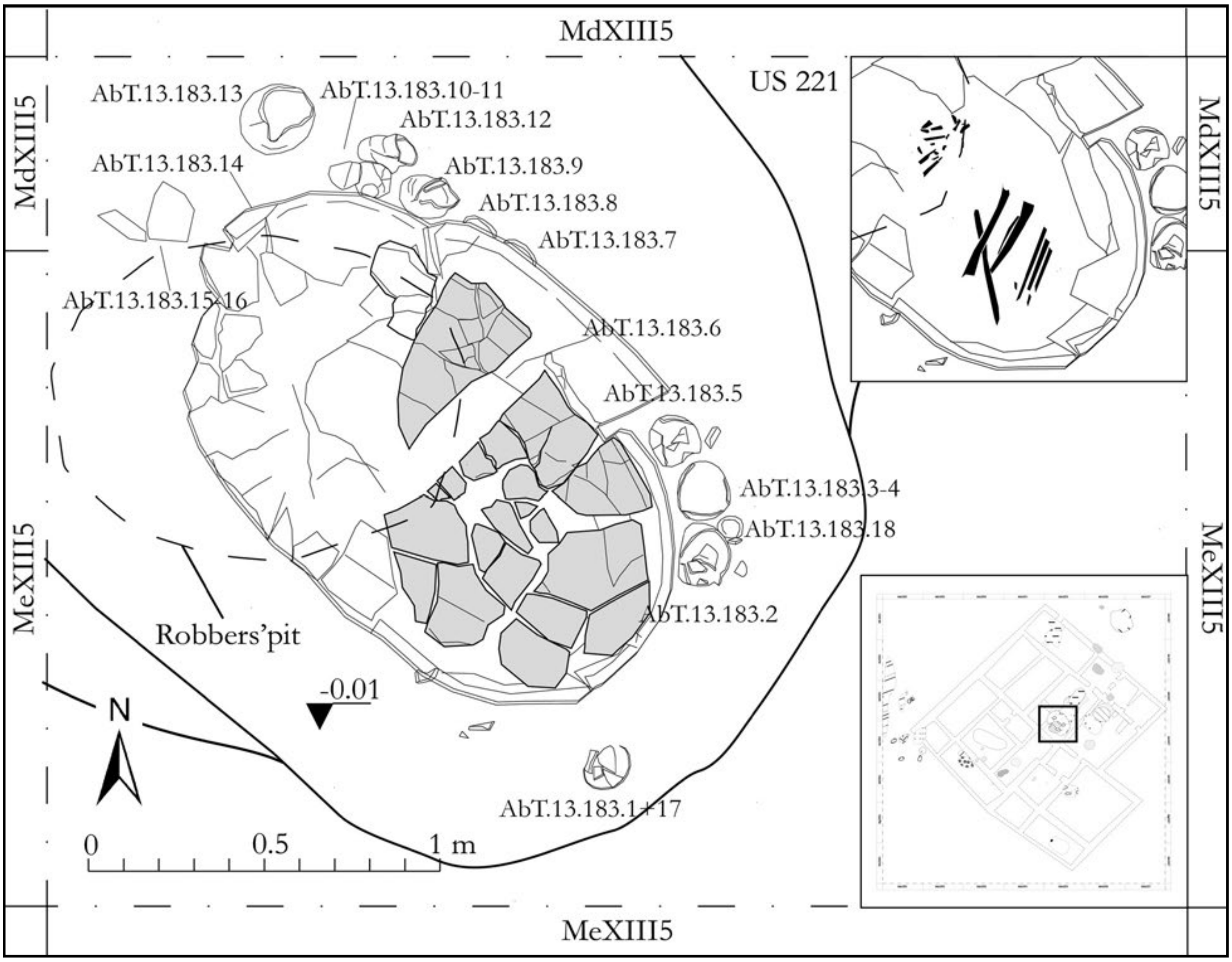


Fig. 7.31 Grave 15 plan.

7.2 MdXIII5+6+MeXIII5 [LR]

7.2.1 Grave 15 [LR]

Grave 15 (Figs 7.31-34),[18] located in squares Md-eXIII5, is an inhumation in a pottery coffin (US 184), robbed and partially destroyed in antiquity, but still preserving part of the lid in place (US 191-192). A shallow heap of dark greyish brown, soft and ashy-sandy soil (US 174; elevation 0.24 m) covered the grave. Inside this heap several pottery fragments were probably in secondary deposition. The coffin was positioned in a shallow cut (US 175; minimum elevation of the bottom -0.01 m) north-west to south-east, partially destroyed by ancient looters on its northwest half, where the lid was missing.[19]

Only the legs of an adult individual (undetermined sex US 190) were preserved, bent on the right side with the feet towards south-east,[20] in extremely bad conditions, probably due to the weight of the lid (US 189).

The pottery equipment was deposed only on the north-east and south-east side of the sarcophagus: it consisted of 8 bowls, 3 beakers and 7 jars.[21] There is apparently no specific pattern in the deposition of the pottery vessels around the coffin. However, it should be noted that all the conical bowls were near the short side of the coffin, while the two beakers were placed long the longer side. Moreover,

[18] See also D'Agostino *et al.* 2015: 211; 2016: 48.
[19] The cut was deeper in its south-eastern part.

[20] It is possible to suppose that the head was located north-west, in correspondence of the looters hole.
[21] The other fragments in the catalogue were in secondary deposition (some of them could also come from the lower dump pit - see § 7.2.3).

Fig. 7.32 Grave 15's coffin (US 184).

Fig. 7.33 Grave 15 skeleton (US 190).

Fig. 7.34 Grave 15 pottery.

the small beaker AbT.13.183.4 was found inside the jar AbT.13.183.3: it is possible that it was used as a sort of lid, as seen in Grave 6, or as a sort of dipper.

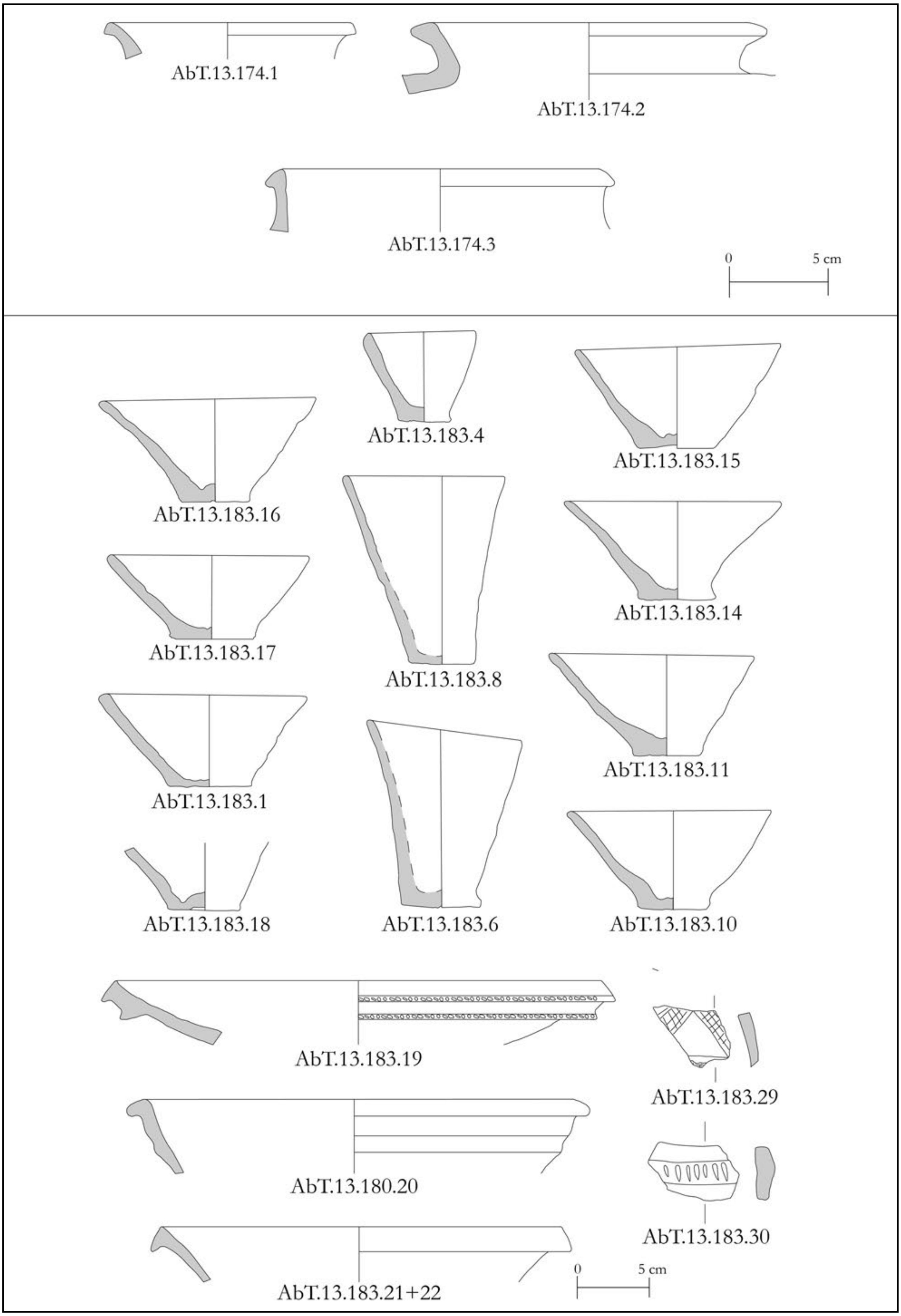


Fig. 7.35 US 174 and US 183 pottery: open shapes.

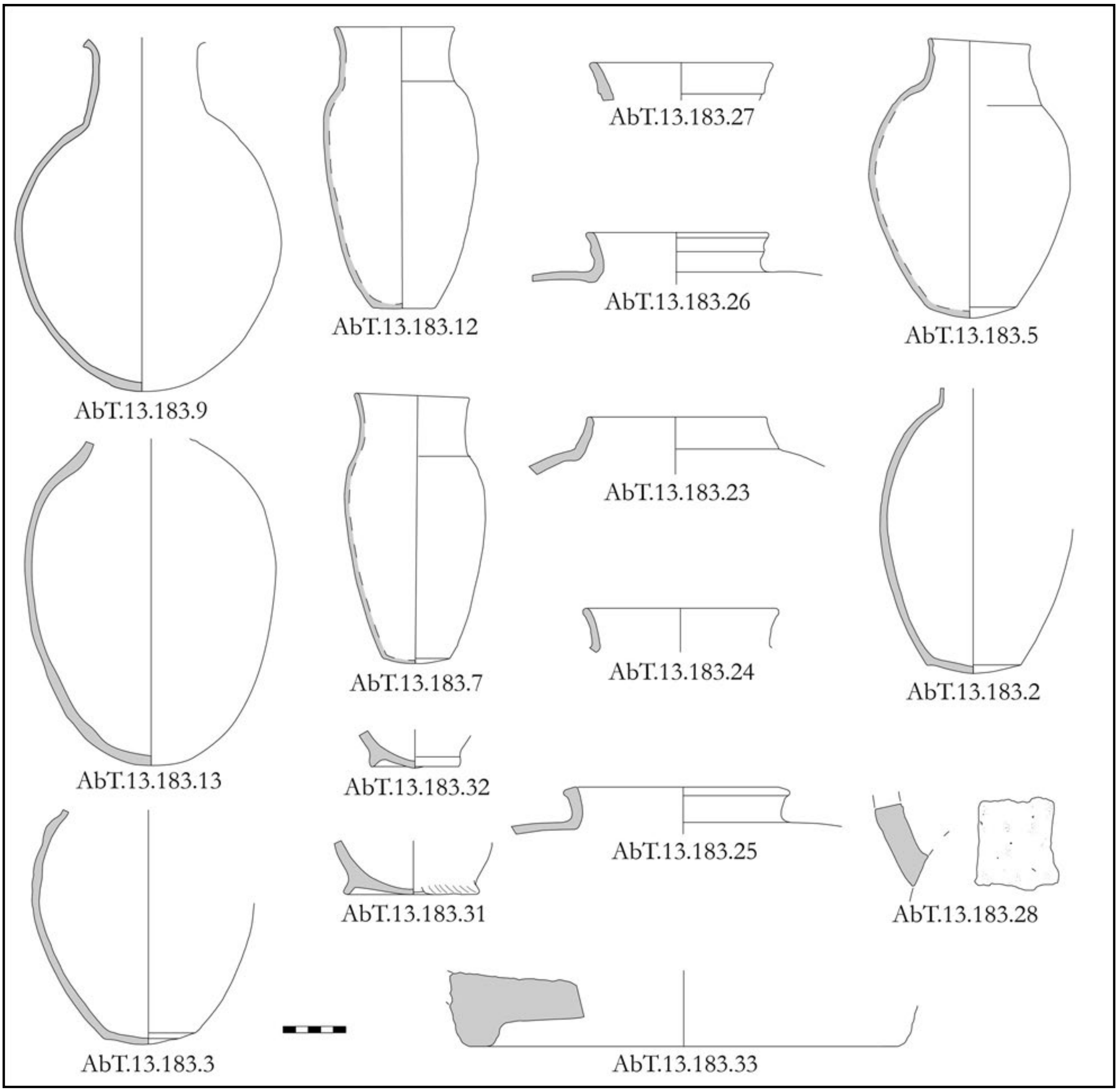


Fig. 7.36 US 183 pottery: closed and other shapes.

Catalogue of US 174 Finds

Pottery

AbT.13.174.1 - Fig. 7.35
Dimensions: rim diam.: 12 cm; rim th.: 0.7 cm; wall th.: 0.65 cm.
Clay: outer and inner colour: 2.5Y 8/3 (pale brown); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-low firing temperature.
Description: triangular rim jar.

AbT.13.174.2 - Fig. 7.35
Dimensions: rim diam.: 16 cm; rim th.: 1.4 cm; wall th.: 0.9 cm.
Clay: outer colour: 5Y 8/2 (pale yellow); inner colour: 2.5Y 8/4 (pale brown); fabric colour: 2.5Y 6/3 (light yellowish brown); sand inclusions; medium firing temperature.
Description: triangular rim jar.

AbT.13.174.3 - Fig. 7.35
Dimensions: rim diam.: 16 cm; rim th.: 1.25 cm; wall th.: 0.75 cm.
Clay: outer and inner colour: 5Y 6/3 (pale olive); fabric colour: 5Y 5/3 (olive); sand inclusions; high firing temperature.
Description: triangular rim jar.

Catalogue of US 183 Finds

Pottery

AbT.13.183.1 - Fig. 7.35
Dimensions: rim diam.: 15 cm; rim th.: 0.7 cm; wall th.: 0.8 cm; base diam.: 5.8 cm; base th.: 0.6 cm; h.: 6.7 cm.
Clay: outer, inner and fabric colour: 2.5YR 4/4 (reddish brown); sand inclusions; low firing temperature.
Description: conical bowl. Found south of the sarcophagus together with AbT.13.183.17.

AbT.13.183.2 - Fig. 7.36
Dimensions: wall th.: 0.5 cm; base diam.: 7 cm; base th.: 0.5 cm.
Clay: outer colour: 5YR 8/2 (pinkish white); inner colour: 5YR 6/4 (light reddish brown); fabric colour: 2.5YR 4/3 (reddish brown); sand inclusions; medium firing temperature.
Description: jar with reversed piriform body, rounded shoulders and convex base. Found south of the sarcofagus, near AbT.13.183.3.

AbT.13.183.3 - Fig. 7.36
Dimensions: wall th.: 0.6 cm; base diam.: 7 cm; base th.: 0.6 cm.
Clay: outer colour: 7.5YR 8/2 (pinkish white); inner colour: 5YR 6/6 (reddish yellow); fabric colour: 2.5YR 4/3 (reddish brown); sand inclusions; medium-low firing temperature.
Description: jar with ovoid body, rounded shoulders and convex base. Found on the south-eastern side of the sarcofagus, near AbT.13.183.2.

AbT.13.183.4 - Fig. 7.35
Dimensions: rim diam.: 7.5 cm; rim th.: 0.6 cm; wall th.: 0.9 cm; base diam.: 3.5 cm; base th.: 1 cm; h.: 6.6 cm.
Clay: outer colour: 7.5YR 4/3 (brown); inner and fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-low firing temperature.
Description: small beaker. Found inside AbT.13.183.3.

AbT.13.183.5 - Fig. 7.36
Dimensions: rim diam.: 10 cm; rim th.: 0.4 cm; wall th.: 0.6 cm; base diam.: 7 cm; base th.: 0.5 cm; h.: 22.6 cm.
Clay: outer colour: 2.5Y 8/2 (pale brown); inner colour: 5YR 6/4 (light reddish brown); fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium-low firing temperature.
Description: plain rim jar. Found on the eastern side of the sarcofagus, near AbT.13.183.3.

AbT.13.183.6 - Fig. 7.35
Dimensions: rim diam.: 11 cm; rim th.: 0.5 cm; wall th.: 1 cm; base diam.: 5.5 cm; base th.: 1.5 cm; h.: 13.3 cm.
Clay: outer colour: 5YR 5/6 (yellowish red); inner colour: 5YR 6/4 (light reddish brown); sand inclusions; medium-low firing temperature.
Description: beaker. Found on the east side of the sarcophagus.

AbT.13.183.7 - Fig. 7.36
Dimensions: rim diam.: 9 cm; rim th.: 0.4 cm; wall th.: 0.5 cm; base diam.: 5.5 cm; base th.: 0.3 cm; h.: 21.4 cm.
Clay: outer colour: 7.5YR 8/2 (pinkish white); inner colour: 5YR 7/6 (reddish yellow); fabric colour: 5YR 4/3 (reddish brown); sand inclusions; medium firing temperature.
Description: plain rim jar. Found on the eastern side of the sarcophagus.

AbT.13.183.8 - Fig. 7.35
Dimensions: rim diam.: 12 cm; rim th.: 0.7 cm; wall th.: 0.8 cm; base diam.: 5 cm; base th.: 0.6 cm; h.: 13.6 cm.
Clay: outer and inner colour: 10YR 6/4 (light yellowish brown); sand inclusions; medium firing temperature.
Description: beaker. Found on the eastern side of the sarcophagus.

AbT.13.183.9 - Fig. 7.36
Dimensions: rim th.: 0.7 cm; wall th.: 0.6 cm; base diam.: 10.5 cm; base th.: 0.5 cm; h.: 28 cm.
Clay: outer colour ("reserved-slip like" effect): 10YR 8/2 (very pale brown); inner colour: 7.5YR 7/3 (pink); fabric colour: 7.5YR 7/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: jar with high neck, rounded shoulders, globular body and rounded base. Found on the north-eastern side of the sarcophagus.

AbT.13.183.10 - Fig. 7.35
Dimensions: rim diam.: 15 cm; rim th.: 0.6 cm; wall th.: 0.7 cm; base diam.: 5 cm; base th.: 0.8 cm; h.: 7.1 cm.
Clay: outer colour: 2.5YR 6/4 (light yellowish brown); inner colour: 5YR 5/4 (reddish brown); fabric colour: 5YR 7/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: conical bowl. Found on the north-eastern side of the sarcophagus, near AbT.13.183.11 and AbT.13.183.12.

AbT.13.183.11 - Fig. 7.35
Dimensions: rim diam.: 14.5 cm; rim th.: 0.6 cm; wall th.: 0.8 cm; base diam.: 5.3 cm; base th.: 1.2 cm; h.: 8.7 cm.
Clay: outer colour: 7.5YR 6/4 (light brown); inner and fabric colour: 10YR 5/4 (yellowish brown); sand inclusions; medium-low firing temperature.
Description: conical bowl. Found on the north-eastern side of the sarcophagus, near AbT.13.183.10 and AbT.13.183.12.

AbT.13.183.12 - Fig. 7.36
Dimensions: rim diam.: 9.6 cm; rim th.: 0.4 cm; wall th.: 0.5 cm; base diam.: 5.2 cm; base th.: 0.4 cm; h.: 22.5 cm.
Clay: outer colour (self-slip): 2.5Y 8/2 (pale brown); inner colour: 5YR 5/4 (reddish brown); sand inclusions; medium-low firing temperature.

Description: plain rim of a jar with slightly convex base. Found on the north-eastern side of the sarcophagus, near AbT.13.183.10 and AbT.13.183.11.

AbT.13.183.13 - Fig. 7.36
Dimensions: wall th.: 0.8 cm; base diam.: 9 cm ca.; base th.: 1 cm.
Clay: outer colour ("reserved-slip like" effect): 2.5Y 7/3 (pale brown); inner colour: 7.5YR 6/4 (light brown); fabric colour: 7.5YR 5/4 (reddish brown); sand inclusions; medium firing temperature.
Description: jar with ovoid body, rounded shoulders and rounded base. Found on the northern side of the sarcophagus, near AbT.13.183.14.

AbT.13.183.14 - Fig. 7.35
Dimensions: rim diam.: 15 cm; rim th.: 0.6 cm; wall th.: 0.8 cm; base diam.: 5.5 cm; base th.: 0.7 cm; h.: 7.5 cm.
Clay: outer colour: 2.5Y 8/2 (pale brown); inner colour: 5YR 7/6 (reddish yellow); fabric colour: 7.5YR 5/6 (strong brown); sand inclusions; medium-low firing temperature.
Description: conical bowl. Found on the northern side of the sarcophagus, near AbT.13.183.13, AbT.13.183.15 and AbT.13.183.16.

AbT.13.183.15 - Fig. 7.35
Dimensions: rim diam.: 14.5 cm; rim th.: 0.6 cm; wall th.: 0.7 cm; base diam.: 5.5 cm; base th.: 0.8 cm; h.: 7 cm.
Clay: outer colour: 5YR 5/4 (reddish brown); inner colour: 7.5YR 8/3 (pink); fabric colour: 7.5YR 4/4 (brown); sand inclusions; low firing temperature.
Description: conical bowl. Found on the northern side of the sarcophagus, near AbT.13.183.13, AbT.13.183.14 and AbT.13.183.16.

AbT.13.183.16 - Fig. 7.35
Dimensions: rim diam.: 15.5 cm; rim th.: 0.7 cm; wall th.: 0.8 cm; base diam.: 5.2 cm; base th.: 1.3 cm; h.: 8 cm.
Clay: outer and fabric colour: 7.5YR 6/6 (reddish yellow); inner colour: 7.5YR 5/6 (strong brown); sand inclusions; medium-high firing temperature.
Description: conical bowl. Found on the northern side of the sarcophagus, near AbT.13.183.15 and AbT.13.183.14.

AbT.13.183.17 - Fig. 7.35
Dimensions: rim diam.: 14.2 cm; rim th.: 0.7 cm; wall th.: 0.8 cm; base diam.: 6 cm; base th.: 1 cm; h.: 6.7 cm.
Clay: outer colour: 2.5Y 8/2 (pale brown); inner colour: 7.5YR 4/6 (strong brown); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-low firing temperature.
Description: conical bowl. Found on the southern side of the sarcophagus with AbT.13.183.1.

AbT.13.183.18 - Fig. 7.35
Dimensions: wall th.: 0.9 cm; base diam.: 5 cm; base th.: 1.5 cm.
Clay: outer, inner and fabric colour: 7.5YR 4/4 (brown); sand inclusions; medium-low firing temperature.
Description: conical bowl base. Found between AbT.13.183.2 and AbT.13.183.3.

AbT.13.183.19 - Fig. 7.35
Dimensions: rim diam.: 34 cm; rim th.: 1.7 cm; wall th.: 1 cm.
Clay: outer and inner colour: 7.5YR 6/4 (light yellowish brown); fabric colour: 7.5YR 5/6 (strong brown); sand inclusions; medium-high firing temperature.
Description: shallow upper bowl of a fruitstand with a wide notched rim with a single wavy groove on the top and a well defined, sharply notched ridge below.

AbT.13.183.20 - Fig. 7.35
Dimensions: rim diam.: 30 cm; rim th.: 1.8 cm; wall th.: 1 cm.
Clay: outer colour (self-slip): 2.5Y 8/2 (pale brown); inner and fabric colour: 7.5YR 5/4 (brown); sand inclusions; medium-low firing temperature.
Description: triangular rim bowl.

AbT.13.183.21+22 - Fig. 7.35
Dimensions: rim diam.: 28 cm; rim th.: 2 cm; wall th.: 0.9 cm.
Clay: outer colour: 7.5YR 8/1 (white); inner colour: 7.5YR 8/3 (pink); fabric colour: 7.5YR 6/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: triangular rim bowl. Probably same vessel of AbT.13.183.22.

AbT.13.183.23 - Fig. 7.36
Dimensions: rim diam.: 14 cm; rim th.: 0.7 cm; wall th.: 0.8 cm.
Clay: outer and inner colour: 5Y 8/2 (pale yellow); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium firing temperature.
Description: plain rim jar.

AbT.13.183.24 - Fig. 7.36
Dimensions: rim diam.: 15.6 cm; rim th.: 0.6 cm; wall th.: 0.6 cm.
Clay: outer and inner colour: 5Y 8/3 (pale yellow); fabric colour: 5Y 7/3 (pale yellow); sand inclusions; medium firing temperature.
Description: plain rim jar.

AbT.13.183.25 - Fig. 7.36
Dimensions: rim diam.: 16 cm; rim th.: 1.4 cm; wall th.: 0.8 cm.
Clay: outer colour: 5Y 7/3 (pale yellow); inner colour: 2.5Y 8/2 (pale brown); fabric colour: 2.5Y 6/3 (light yellowish brown); sand inclusions; medium firing temperature.
Description: triangular rim jar.

AbT.13.183.26 - Fig. 7.36
Dimensions: rim diam.: 14 cm; rim th.: 0.8 cm; wall th.: 0.7 cm.
Clay: outer and inter colour: 2.5Y 8/2 (pale brown); fabric colour: 10YR 6/4 (light yellowish brown); sand inclusions; medium firing temperature.
Description: double-ridged rim jar.

AbT.13.183.27 - Fig. 7.36
Dimensions: rim diam.: 14 cm; rim th.: 0.9 cm.
Clay: outer and inner colour: 2.5Y 8/3 (pale brown); fabric colour: 2.5Y 6/4 (light yellowish brown); sand inclusions; medium firing temperature.
Description: band rim jar.

AbT.13.183.28 - Fig. 7.36
Dimensions: wall th.: 1.9-2.3 cm; width.: 6.5 cm.
Clay: outer and inner colour: 5Y 7/3 (pale yellow); fabric colour: 5YR 4/6 (yellowish red); sand and vegetal inclusions; medium-high firing temperature.
Description: coarse handle.

AbT.13.183.29 - Fig. 7.35
Dimensions: wall th.: 0.7 cm.
Clay: outer, inner and fabric colour: 10YR 7/4 (very pale brown); sand inclusions; medium-high firing temperature.
Description: wall fragment with incised hatched triangles.

AbT.13.183.30 - Fig. 7.35
Dimensions: wall th.: 0.7-1 cm.
Clay: outer and inner colour: 2.5Y 7/3 (pale brown); fabric colour: 10YR 6/4 (light yellowish brown); sand inclusions; medium-low firing temperature.
Description: wall fragment with notched ridge.

AbT.13.183.31 - Fig. 7.36
Dimensions: wall th.: 0.7 cm; base diam.: 11 cm; base th.: 0.7 cm.
Clay: outer colour: 10YR 8/2 (very pale brown); inner colour: 2.5Y 7/4 (pale brown); fabric colour: 7.5YR 6/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: base with two (of three) pinched feet.

AbT.13.183.32 - Fig. 7.36
Dimensions: wall th.: 0.9 cm; base diam.: 7 cm; base th.: 0.7 cm.
Clay: outer colour: 7.5YR 6/4 (light brown); inner colour: 10YR 6/4 (light yellowish brown); fabric colour: 10YR 4/4 (dark yellowish brown); sand inclusions; medium-high firing temperature.
Description: ring base.

AbT.13.183.33 - Fig. 7.36
Dimensions: base diam.: 34 cm; base th.: 2.5 cm.
Clay: outer, inner and fabric colour: 7.5YR 6/6 (reddish yellow); sand and vegetal inclusions; medium firing temperature.
Description: ring base.

Catalogue of US 184 Finds

Pottery

AbT.13.184.1 - Fig. 7.32
Dimensions: rim diam.(min): 90 cm ca.; rim th.: 4 cm; wall th.: 2 cm; base diam.: 70 cm; base th.: 2 cm; h.: 37 cm.
Clay: outer, inner and fabric colour: 10YR 6/4 (light yellowish brown); sand and vegetal inclusions; medium firing temperature.
Description: Scoiled coffin with flat base and two ridges on the wall.

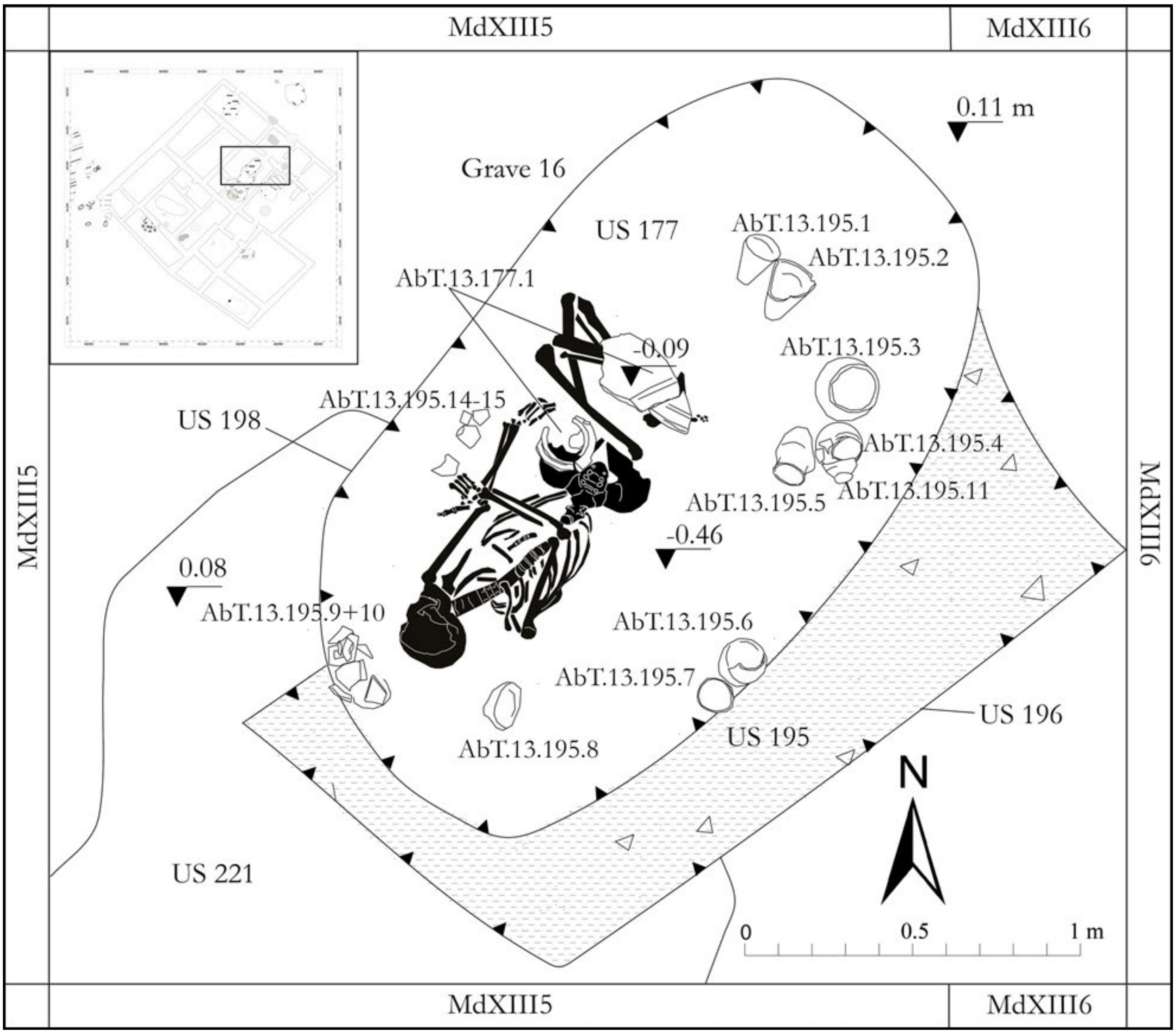


Fig. 7.37 Grave 16 plan.

7.2.2 Grave 16 [LR]

Grave 16 was located in MdXIII5-6 (Figs 7.37-7.41).[22] Immediately under the surface (elevation 0.11 m), the presence in the area of some subsequent activities was visible: a rectangular pit (US 196) was filled by a friable ashy and greyish soil (US 195) and was cut by a second oval pit (US 198), filled by a quite soft, yellowish brown, and silty soil (US 177). A great amount of pottery was collected from US 177, including several fragments of a stemmed-dish (AbT.13.177.1; Fig. 7.40).[23] On the bottom of the cut (elevation -0.46 m) the skeleton (US 197 - Fig. 7.39) was laying in a semi-flexed position, on the left side, with the head toward south-west, looking northward and the right arm flexed over the torax.[24] The legs were bent toward north with the feet placed at north-east. The pottery equipment surrounding the skeleton (elevation -0.41 m) followed the limits of the cut US 198. At the beginning we thought that the rectangular pit US 197 was the original

[22] For the grave see: D'Agostino *et al.* 2015: 212; 2016: 48.

[23] In addition to the chariot model and the pottery fragments in the catalogue, the following pieces were found: at least 25 drinking vessels bases, a fragment of a strainer, 1 upturned rim of a bowl, 1 black(?)-burnished flared rim (see § 10.4.2 and 10.41 *sub* e), rims of at least 5 different bowls, several plain rims of jars, 6 flat bases of jars, 6 convex bases of jars, 3 bases with pinched feet, 6 ring bases. Some pieces of the stemmed-dish AbT.13.177.1 have been found in correspondence of the skeleton lower part but at a higher elevation (-0.09 m).

[24] The right hand was apparently holding something (one of the conical bowls discovered nearby?).

Fig. 7.38 Grave 16 before excavation.

Fig. 7.39 Grave 16.

Fig. 7.40 AbT.13.177.1 during the excavation.

Fig. 7.41 Grave 16 equipment (US 177+195).

cut of the grave[25] and thus we assigned to the equipment and to the pit's backfill the same US number.[26] However it is probable that the original limits of the grave, that seems untouched by later activities,[27] were those of the cut US 198: thus US 195 and US 198 should be interpreted as separated activities, being US 195-196 another dump pit or, possibly, a previous inhumation.[28]

As far as the position of the equipment is concerned, a beaker was located near the head, 3 other conical bowl bases near the right hand and another one behind the head. Northward, near the feet, two beakers were discovered, and at north-east of the body other vessels were deposed in two small clusters: the southernmost was formed by a beaker and a jar, the other by two jars, one covered by a bowl used as a lid, and a trumpet base jar.

Fig. 7.42 US 177 objects.

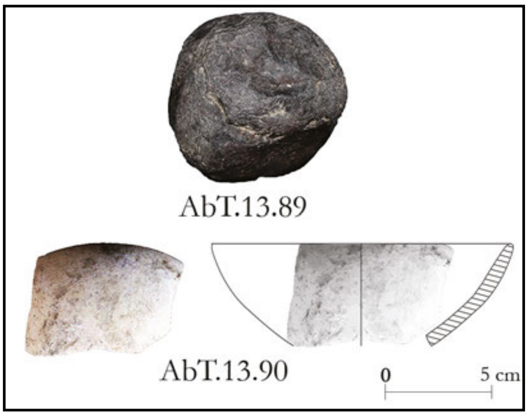


Fig. 7.43 US 195 objects.

[25] D'Agostino *et al.* 2015: 212.

[26] The catalogue numbers from AbT.13.195.1 to 14 are part of the equipment. The others belong to the grayish soil US 195.

[27] The skeleton was in connection and the equipment was apparently entirely preserved. The fragments of the stemmed dish and of the other pottery shapes discovered scattered in the backfill during the excavation of US 177 could be thus in secondary deposition and we cannot attribute this fragments to the activities connected with the deposition. The two finds AbT.13.89 and AbT.13.90 are not connected to the grave equipment.

[28] The discovery of some human remains in the filling (see §§ 13.1.15 and 19) might indicate the presence of a previous burial, destroyed by Grave 16. The decorated stemmed-dish, a typicall ED III grave good, might thus belong to the earlier grave.

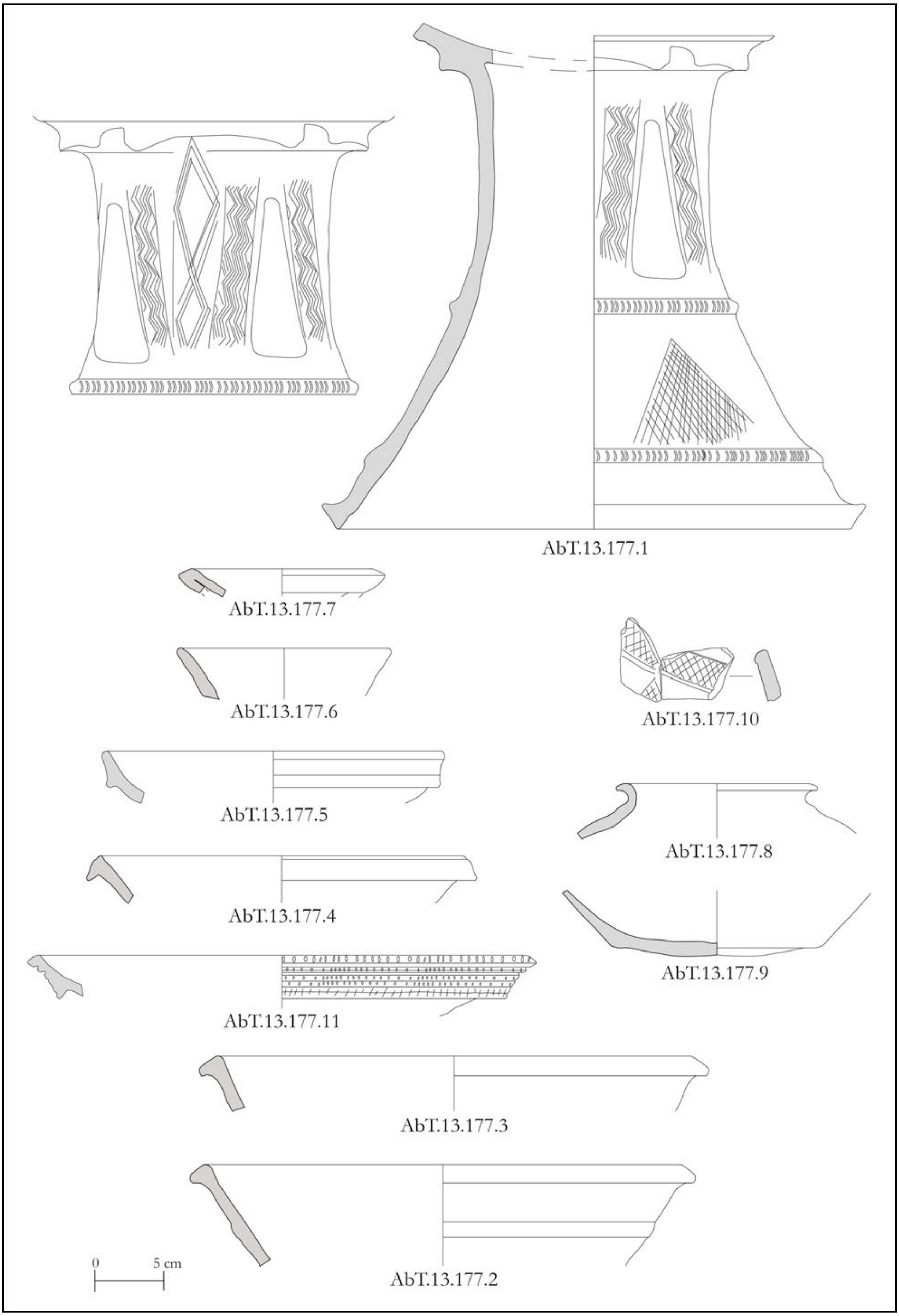


Fig. 7.44 US 177 pottery.

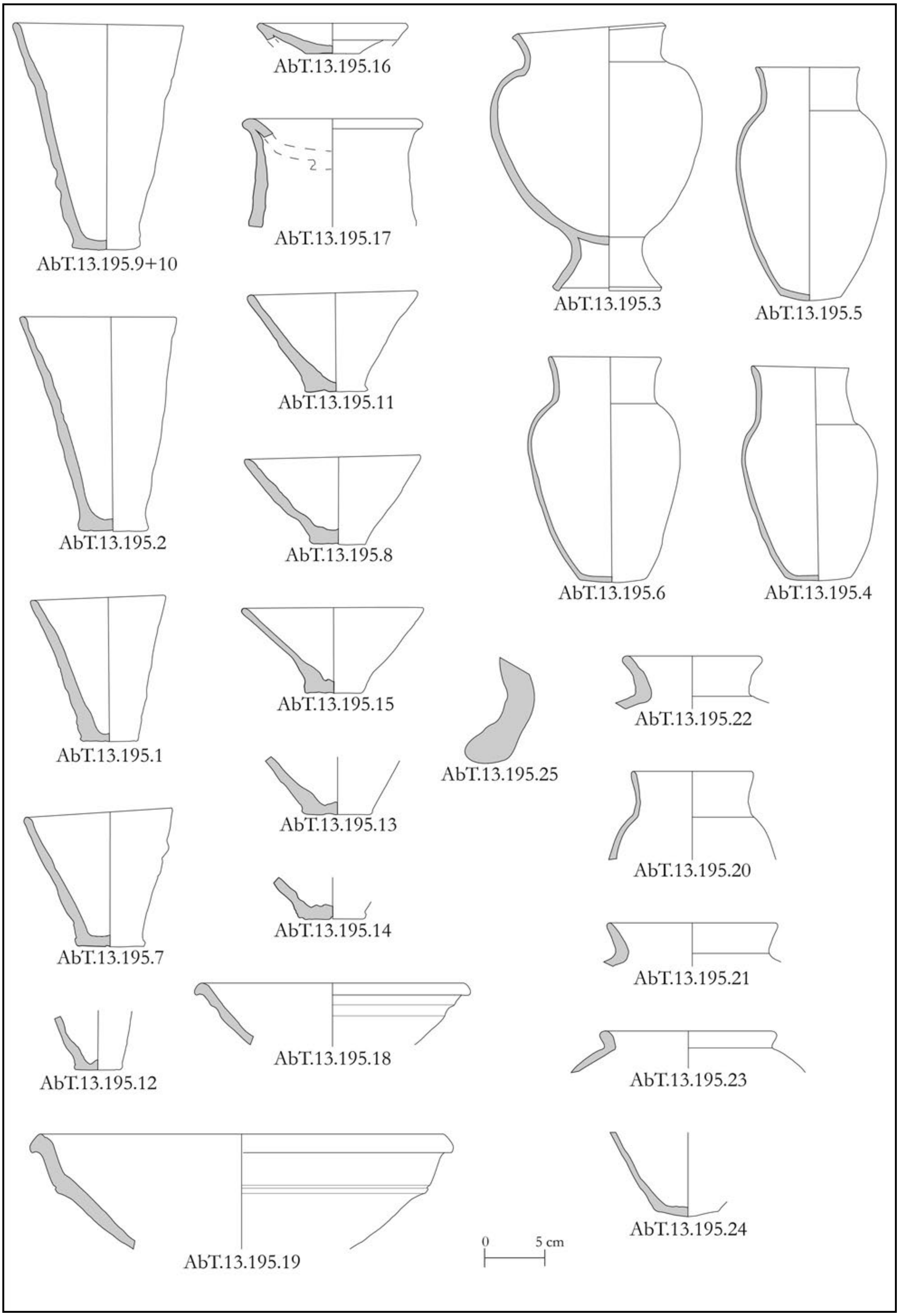


Fig. 7.45 US 195 pottery.

Catalogue of US 177 Finds

Objects

AbT.13.86 - Fig. 7.42
Description: two-wheel chariot model pierced on the bottom and on the vertical part.
Dimensions: 6.4x8.4x7.5 cm.

Pottery

AbT.13.177.1 - Fig. 7.44
Dimensions: wall th.: 0.9 cm; base diam.: 36.8 cm; base th.: 1.8 cm.
Clay: outer colour (self-slip?): 10YR 6/4 (light yellowish brown); inner and fabric colour: 7.5YR 4/4 (brown); sand inclusions; medium-low firing temperature.
Description: stemmed-dish with incised decoration. Three long triangular openings on the stem, flanked by a pair of two oblique lines filled by a herringbone pattern. The intervening space between the openings contains one and half superimposed lozenge, made with a three incisions series, ending in a small triangle with hatched motif. Two applied notched ridges (below the openings and near the base). Between the ridges, six large incised triangles filled with hatched pattern. Found in fragments and restored.

AbT.13.177.2 - Fig. 7.44
Dimensions: rim diam.: 34 cm; rim th.: 1.9 cm; wall th.: 1 cm.
Clay: outer and inner colour: 2.5Y 7/4 (pale brown); fabric colour: 5YR 4/6 (yellowish red); sand inclusions; medium firing temperature.
Description: triangular rim bowl.

AbT.13.177.3 - Fig. 7.44
Dimensions: rim diam.: 34 cm; rim th.: 2.1 cm; wall th.: 1.1 cm.
Clay: outer colour: 2.5Y 7/4 (pale brown); inner colour: 10YR 7/4 (very pale brown); fabric colour: 5YR 4/6 (yellowish red); sand inclusions; medium firing temperature.
Description: triangular rim bowl.

AbT.13.177.4 - Fig. 7.44
Dimensions: rim diam.: 26 cm; rim th.: 2.1 cm; wall th.: 0.9 cm.
Clay: outer colour: 10YR 7/3 (very pale brown); inner and fabric colour: 10YR 6/4 (light yellowish brown); sand inclusions; medium firing temperature.
Description: triangular rim bowl. Groove or depression on the rim.

AbT.13.177.5 - Fig. 7.44
Dimensions: rim diam.: 24 cm; rim th.: 1.6 cm; wall th.: 1 cm.
Clay: outer and inner colour: 7.5YR 6/4 (light brown); fabric colour: 5YR 4/4 (reddish brown); sand inclusions; medium-high firing temperature.
Description: band rim bowl (of a stemmed-dish?).

AbT.13.177.6 - Fig. 7.44
Dimensions: rim diam.: 14.8 cm; rim th.: 0.7 cm; wall th.: 1 cm.
Clay: outer colour and inner (black polished): 10YR 3/1 (very dark grey); fabric colour: 2.5Y 4/1 (dark grey); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.13.177.7 - Fig. 7.44
Dimensions: rim diam.: 13 cm; rim th.: 1.2 cm; wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium-low firing temperature.
Description: misshapen rim of a bowl (attached to a stem?).

AbT.13.177.8 - Fig. 7.44
Dimensions: rim diam.: 13 cm; rim th.: 1.2 cm; wall th.: 1.1 cm.
Clay: outer colour: 10YR 6/4 (light yellowish brown); inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium firing temperature.
Description: triangular rim jar.

AbT.13.177.9 - Fig. 7.44
Dimensions: wall th.: 0.8 cm; base diam.: 13 cm; base th.: 0.8 cm.
Clay: outer, inner and fabric colour: 5Y 7/3 (pale yellow); sand inclusions; medium firing temperature.
Description: convex base.

AbT.13.177.10 - Fig. 7.44
Dimensions: wall th.: 0.8 cm.
Clay: outer and inner colour: 7.5YR 5/6 (strong brown); fabric colour: 7.5YR 4/4 (brown); sand inclusions; medium-low firing temperature.
Description: decorated fragment of a jar shoulder. Register created by two couple of incised lines. The central part of the register is decorated with a hatched pattern.

AbT.13.177.11 - Fig. 7.44
Dimensions: rim diam.: 35 cm; rim th.: 1.1 cm; wall th.: 1.3 cm.
Clay: outer colour: 7.5YR 8/2 (pinkish white); inner colour and fabric colour: 5YR 7/4 (pink); sand inclusions; medium-high firing temperature.
Description: stemmed-dish band rim with an incised grid-like decoration.

Catalogue of US 195 Finds

Objects

AbT.13.89 - Fig. 7.43
Description: stone tool. All faces of the polyedron show light traces of pounding. Several surfaces present polishing signs, but only two were markedly used for polishing activities. [SC]
Dimensions: 7x7.1x7.8 cm.

AbT.13.90 - Fig. 7.43
Description: alabaster bowl fragment.
Dimensions: 0.4x0.6x14 cm.

Pottery

AbT.13.195.1 - Fig. 7.45
Dimensions: rim diam.: 11.3 cm; rim th.: 0.7 cm; wall th.: 1.2 cm; base diam.: 5.2 cm; base th.: 0.8 cm; h.: 12.9 cm.
Clay: outer, inner, fabric colour: 2.5Y 7/4 (pale brown); sand inclusions; medium-high firing temperature.
Description: beaker. Found on the north-eastern side of the skeleton, near AbT.13.195.2.

AbT.13.195.2 - Fig. 7.45
Dimensions: rim diam.: 13.3 cm; rim th.: 0.7 cm; wall th.: 1.3 cm; base diam.: 6.3 cm; base th.: 1 cm; h.: 18 cm.
Clay: outer colour: 2.5Y 8/2 (pale brown); inner colour: 5YR 6/6 (reddish yellow); fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium firing temperature.
Description: beaker. Found on the north-eastern side of the skeleton, near AbT.13.195.1.

AbT.13.195.3 - Fig. 7.45
Dimensions: rim diam.: 13 cm; rim th.: 0.7 cm; wall th.: 1 cm; base diam.: 8.7

cm; base th.: 0.7 cm; h.: 22 cm.
Clay: outer, inner, fabric colour: 5Y 7/3 (pale yellow); sand inclusions; medium-high firing temperature.
Description: trumpet base jar. Found on the eastern side of the skeleton, near AbT.13.195.4, AbT.13.195.5 and AbT.13.195.11.

AbT.13.195.4 - Fig. 7.45
Dimensions: rim diam.: 9 cm; rim th.: 0.5 cm; wall th.: 0.6 cm; base diam.: 5.7 cm; base th.: 0.5 cm; h.: 18. cm.
Clay: outer, inner and fabric colour: 2.5Y 8/3 (pale brown); sand inclusions; medium-high firing temperature.
Description: plain rim jar. Found on the eastern side of the skeleton, near AbT.13.195.3, AbT.13.195.5 and AbT.13.195.11.

AbT.13.195.5 - Fig. 7.45
Dimensions: rim diam.: 9.1 cm; rim th.: 0.5 cm; wall th.: 0.6 cm; base diam.: 5.4 cm; base th.: 0.6 cm; h.: 19.6 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/4 (pale brown); sand inclusions; medium-high firing temperature.
Description: plain jar. Found on the eastern side of the skeleton, near AbT.13.195.3, AbT.13.195.4 and AbT.13.195.11.

AbT.13.195.6 - Fig. 7.45
Dimensions: rim diam.: 9.6 cm; rim th.: 0.45 cm; wall th.: 0.6 cm; base diam.: 5.7 cm; base th.: 0.5 cm; h.: 19 cm.
Clay: outer (self-slip) and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 7.5YR 7/4 (pink); sand inclusions; medium firing temperature.
Description: plain rim jar. Found on the south-eastern side of the skeleton, near AbT.13.195.7. Burning traces?

AbT.13.195.7 - Fig. 7.45
Dimensions: rim diam.: 11 cm; rim th.: 0.7 cm; wall th.: 1.1 cm; base diam.: 5.9 cm; base th.: 0.9 cm; h.: 11.7 cm.
Clay: outer and inner colour: 7.5YR 8/2 (pinkish white); fabric colour: 7.5YR 7/4 (pink); sand inclusions; medium-low firing temperature.
Description: beaker. Found on the south-eastern side of skeleton, near AbT.13.195.6.

AbT.13.195.8 - Fig. 7.45
Dimensions: rim diam.: 14.2 cm; rim th.: 0.8 cm; wall th.: 0.8 cm; base diam.: 4.8 cm; base th.: 1.4 cm; h.: 7.5 cm.
Clay: outer colour: 7.5YR 8/2 (pinkish white); inner and fabric colour: 7.5YR 7/4 (pink); sand inclusions; medium-low firing temperature.
Description: conical bowl. Found on the southern side of the skeleton, near the skull.

AbT.13.195.9+10 - Fig. 7.45
Dimensions: rim diam.: 13.5 cm; rim th.: 0.7 cm; wall th.: 1.2 cm; base diam.: 5.4 cm; base th.: 1.1 cm; h.: 19.5 cm.
Clay: outer and inner colour: 7.5YR 8/2 (pinkish white); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-low firing temperature.
Description: beaker. Found on south-south-western side of the skeleton, near the skull.

AbT.13.195.11 - Fig. 7.45
Dimensions: rim diam.: 13.5 cm; rim th.: 0.7 cm; wall th.: 0.7 cm; base diam.: 5 cm; base th.: 0.7 cm; h.: 8.9 cm.
Clay: outer and inner colour: 7.5YR 8/2 (pinkish white); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-low firing temperature.
Description: conical bowl. Found on the eastern side of the skeleton, near AbT.13.195.3, AbT.13.195.4 and AbT.13.195.5.

AbT.13.195.12 - Fig. 7.45
Dimensions: wall th.: 0.8 cm; base diam.: 1.1 cm; base th.: 4 cm.
Clay: outer, inner and fabric colour: 7.5YR 7/4 (pink); sand inclusions; medium-high firing temperature.
Description: beaker base. Found on the western side of the skeleton, near the right hand together with AbT.13.195.13 and AbT.13.195.14.

AbT.13.195.13 - Fig. 7.45
Dimensions: wall th.: 0.7 cm; base diam.: 5.7 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-low firing temperature.
Description: conical bowl base. Found on the western side of the skeleton, near the right hand together with AbT.13.195.12 and AbT.13.195.14.

AbT.13.195.14 - Fig. 7.45
Dimensions: wall th.: 0.7 cm; base diam.: 5.4 cm; base th.: 1 cm.
Clay: outer colour: 7.5YR 7/3 (pink); inner colour: 7.5YR 8/2 (pinkish white); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-low firing temperature.
Description: conical bowl base. Found on the western side of the skeleton, near the right hand together with AbT.13.195.12 and AbT.13.195.13.

AbT.13.195.15 - Fig. 7.45
Dimensions: rim diam.: 15.4 cm; rim th.: 0.5 cm; wall th.: 0.8 cm; base diam.: 4.8 cm; base th.: 1.2 cm; h.: 7.4 cm.
Clay: outer colour: 7.5YR 6/6 (reddish yellow); inner colour: 2.5Y 7/4 (pale brown); fabric colour: 5YR 4/6 (yellowish red); sand inclusions; medium-low firing temperature.
Description: conical bowl.

AbT.13.195.16 - Fig. 7.45
Dimensions: rim diam.: 12 cm; rim th.: 1.4 cm; wall th.: 0.8 cm; base diam.: 4.6 cm; base th.: 0.6 cm; h.: 2 cm.
Clay: outer and fabric colour: 5YR 5/6 (yellowish red); inner colour: 10YR 8/3 (very pale brown); sand inclusions; medium firing temperature.
Description: conical bowl attached to a stand.

AbT.13.195.17 - Fig. 7.45
Dimensions: rim diam.: 14 cm; rim th.: 1.5 cm; wall th.: 1.1 cm.
Clay: outer, inner and fabric colour: 7.5YR 5/6 (strong brown); sand inclusions; medium-low firing temperature.
Description: conical bowl attached to a stand.

AbT.13.195.18 - Fig. 7.45
Dimensions: rim diam.: 22 cm; rim th.: 1.4 cm; wall th.: 0.9 cm.
Clay: outer and inner colour: 10YR 7/3 (very pale brown); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium firing temperature.
Description: triangular rim bowl.

AbT.13.195.19 - Fig. 7.45
Dimensions: rim diam.: 34 cm ca.; rim th.: 1.7 cm; wall th.: 1.7 cm.
Clay: outer colour: 5YR 7/4 (pale yellow); inner colour: 5Y 5/4 (olive); fabric colour: 2.5Y 7/6 (yellow); sand inclusions; medium-high firing temperature.
Description: triangular rim bowl.

AbT.13.195.20 - Fig. 7.45
Dimensions: rim diam.: 10 cm; rim th.: 0.5 cm; wall th.: 0.5 cm.
Clay: outer and inner colour: 2.5Y 8/3 (pale brown); fabric colour: 10YR 8/4 (very pale brown); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.13.195.21 - Fig. 7.45
Dimensions: rim diam.: 14 cm; rim th.: 0.6 cm; wall th.: 0.6 cm.
Clay: outer and inner colour: 5Y 8/3 (pale yellow); fabric colour: 10YR 6/4 (light yellowish brown); sand inclusions; medium firing temperature.
Description: plain rim jar.

AbT.13.195.22 - Fig. 7.45
Dimensions: rim diam.: 11 cm; rim th.: 0.8 cm; wall th.: 0.9 cm.
Clay: outer and inner colour: 2.5Y 8/3 (pale brown); fabric colour: 7.5YR 6/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: plain rim jar.

AbT.13.195.23 - Fig. 7.45
Dimensions: rim diam.: 14 cm; rim th.: 1 cm; wall th.: 0.8 cm.
Clay: outer and inner colour (slip): 10YR 8/3 (very pale brown); fabric colour: 7.5YR 6/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: plain rim jar.

AbT.13.195.24 - Fig. 7.45
Dimensions: wall th.: 0.8 cm; base diam.: 5.5 cm; base th.: 1.1 cm.
Clay: outer and inner colour: 2.5Y 8/3 (pale brown); fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium-low firing temperature.
Description: convex base.

AbT.13.195.25 - Fig. 7.45
Dimensions: wall th.: 3.8 cm; base th.: 2.3 cm.
Clay: outer and inner colour: 5Y 5/3 (olive); fabric colour: 5Y 5/2 (olive grey); sand and vegetal inclusions; high firing temperature.
Description: ring base fragment.

Fig. 7.46 Upper part of the dump pit witht the cut of Grave 15 visible.

Fig. 7.47 Spouted vessel and ring base found immediately under the bottom of Grave 15 coffin.

7.2.3 Other Activities [LR]

Graves 15 and 16 were cut directly over a huge dump pit (filling US 221=242=255; cut US 241). The pit destroyed almost completely the filling of Room 7 (Figs 6.46-49).[29] The filling of the pit was identified at the elevation of -0.08 m. The silty-clay soil was mainly greenish-gray, with ashy lenses and organic black concretions, full of incrusted pottery fragments, bones, fishbones, shells and lithic objects. The upper part of the stratum was exposed to rainfalls after the 2013 excavations. A huge quantity of vessels were found in the pit, including at least 250 drinking vessels, 80 jars of different dimensions, and a variety of other shapes (braziers, stands, big coarse vats, trays, cylinders etc.). At the elevation of -0.25 m, along the margin of the pit, two burnt mud-bricks were found (US 255), deposed vertically. The soil between the two bricks was rich of organic material and pottery. Initially deemed as a sort of bench, with reeds or wood put over the bricks, US 255 was interpreted as part of the dump pit (US 241) on the basis of the absence of any connected groundsurface or other activity.

The presence of the pit was not immediately recognized. The diffused margins of the cut, the several layers forming the filling, and the later activities (Graves 15 and 16) made it impossible to clearly distinguish the actions or phases of accumulation inside the pit. The highlighted situation, and the various steps in the interpretation of the context will be described. On the bottom of Grave 15 cut, a few centimeters under the coffin base, an almost entire spouted vessel (AbT.14.221.1), a big pierced jar base (AbT.14.221.3),[30] and still articulated equid bones (see § 13.1.15) were found (Fig. 7.47). Initially, these findings were attributed to a sort of offering, made before laying the sarcophagus of Grave 15. The stratum on which they were lying was the backfill of the dump pit (US 221). Consequently, it is not clear if the findings the top of the stratum belonged to the dump pit or to the grave (or to another disturbed context). Though the huge dump pit was identified, its unclear limits were revised several times during the excavation. The diffused margins were probably caused by several and subsequent sloping layers, not singularly identifiable due to the cuts of Grave 15 and 16.[31] For these reasons the pottery from the layers filling Room 7 (US 239-238-176) cannot be considered reliable. At the same time, Grave 16 pottery (see above) cannot be considered reliable, with the exception of the complete vessels surrounding the body and indicated at Fig. 7.37.[32]

[29] In Fig. 7.37 the position of the findings of US 221, 242 and 255 have been reported. They were interpreted as belonging to the dump pit but their location was made available for allowing eventual further interpretations of the context. The relative elevation of each find is reported under the inventory number.

[30] Fish bones were found in the soil contained and in direct connection with both vessels.

[31] The pottery fragments recovered (at least from AbT.14.221.69) should be considered as belonging to the backfill of the pit under the elevation of -0.2 m.

[32] The restored stemmed-dish AbT.13.177.1, for example, were found in pieces at several depts inside US 177 (see § 7.2.2).

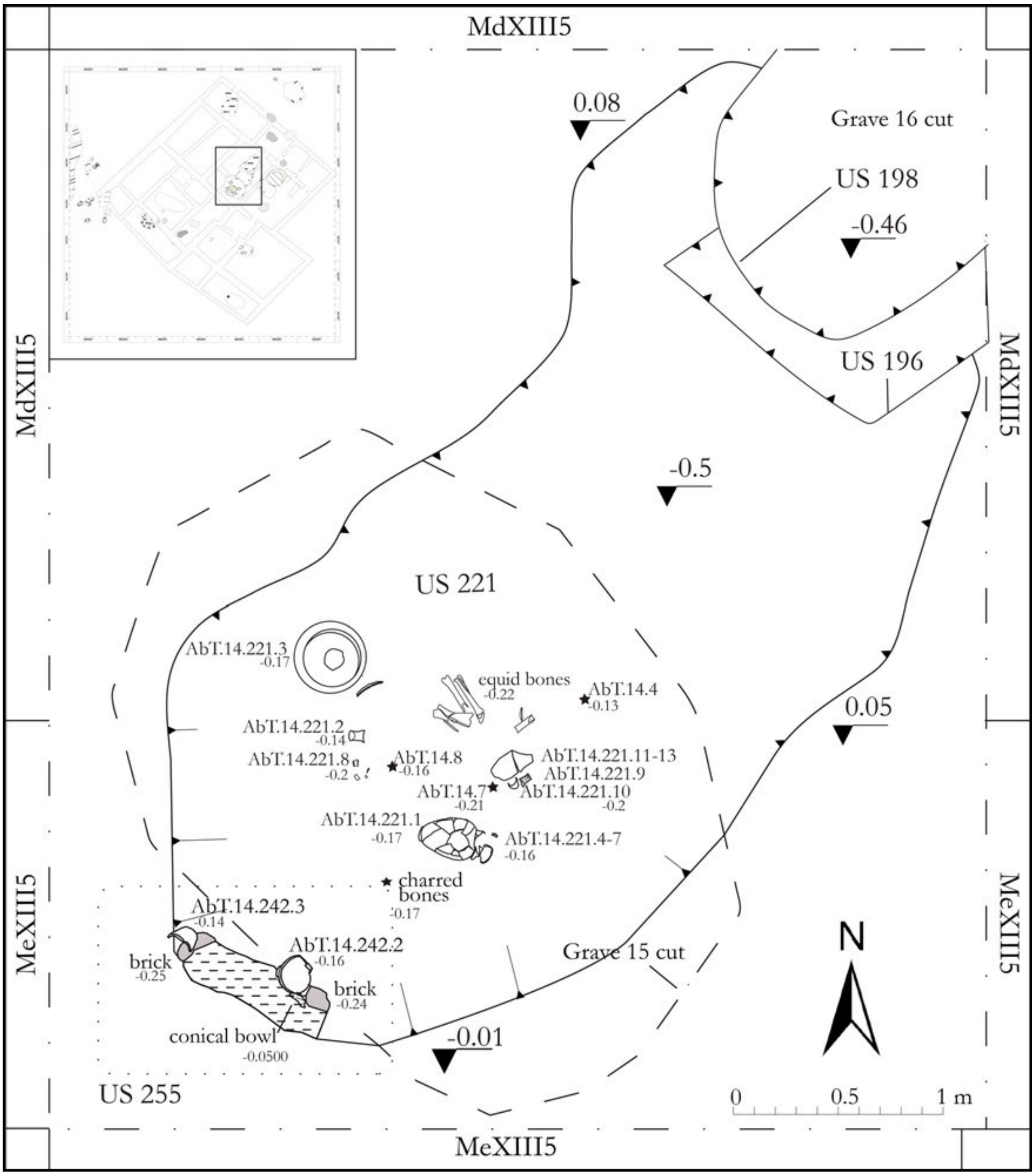


Fig. 7.48 Plan of the other activities in MdXIII5+6+MeXIII5 (dump pit).

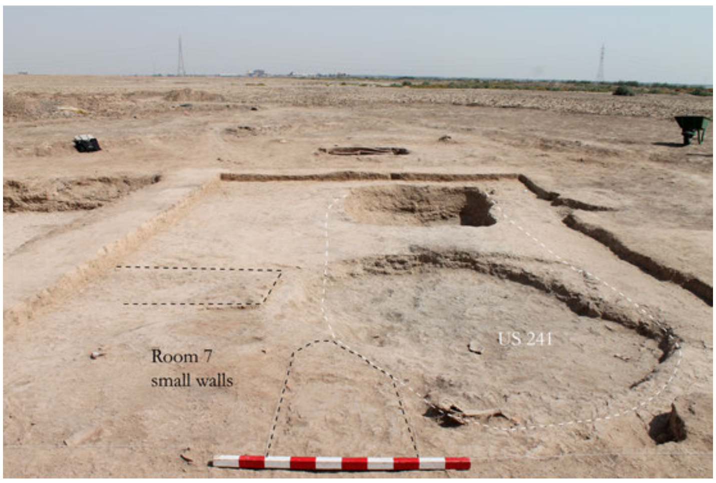


Fig. 7.49 Dump pit and the Graves 15-16 cuts.

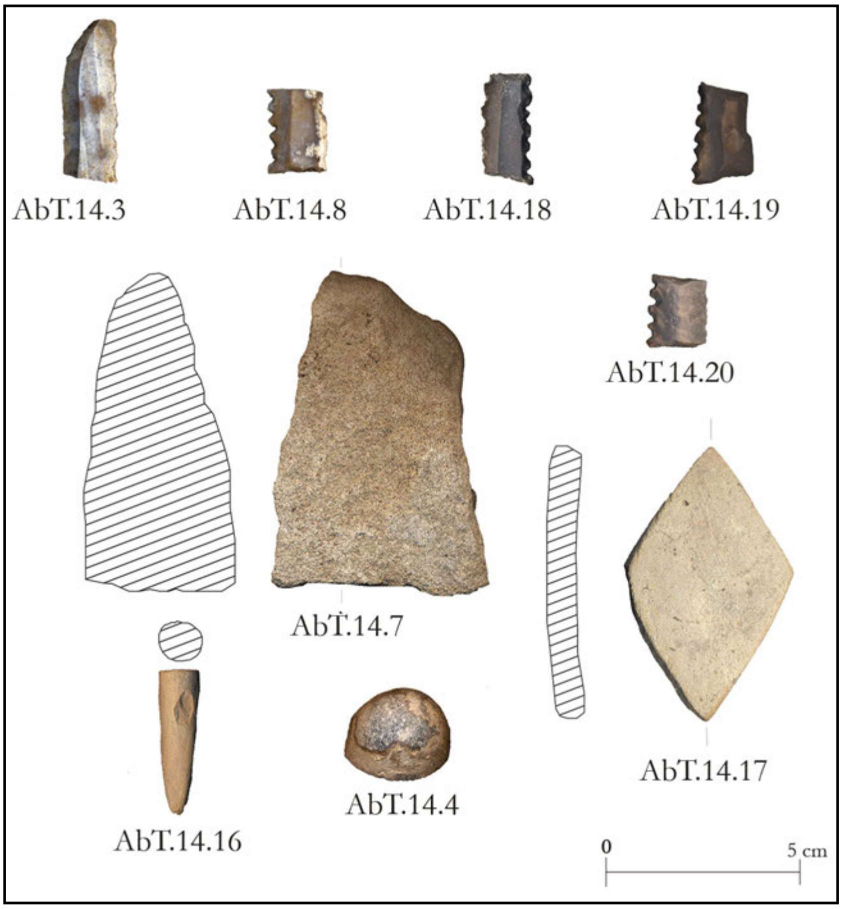


Fig. 7.50 US 221 objects.

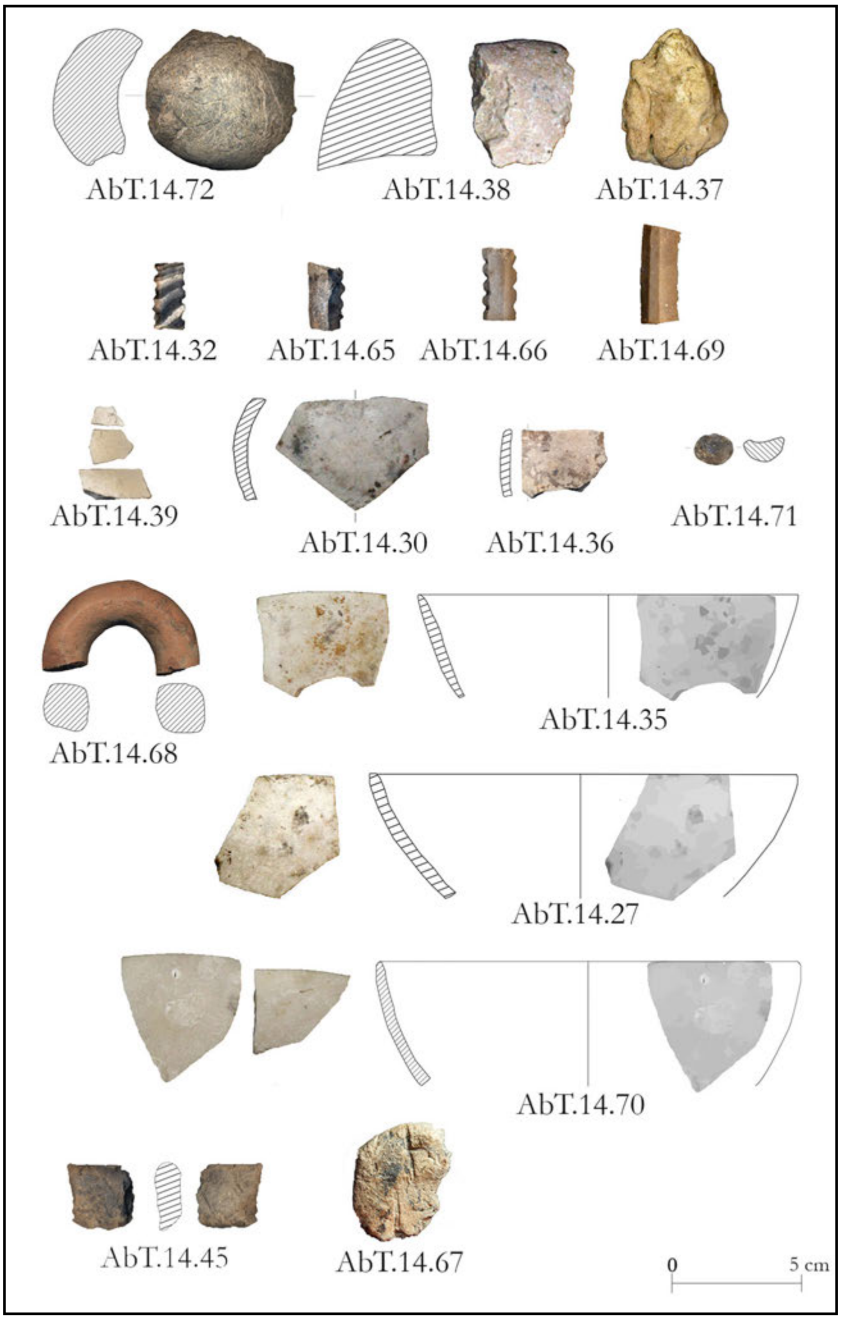


Fig. 7.51 US 242 objects.

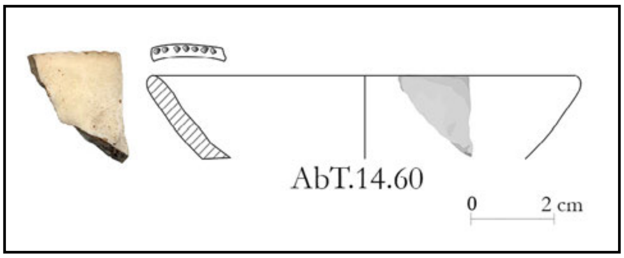


Fig. 7.52 US 255 objects.

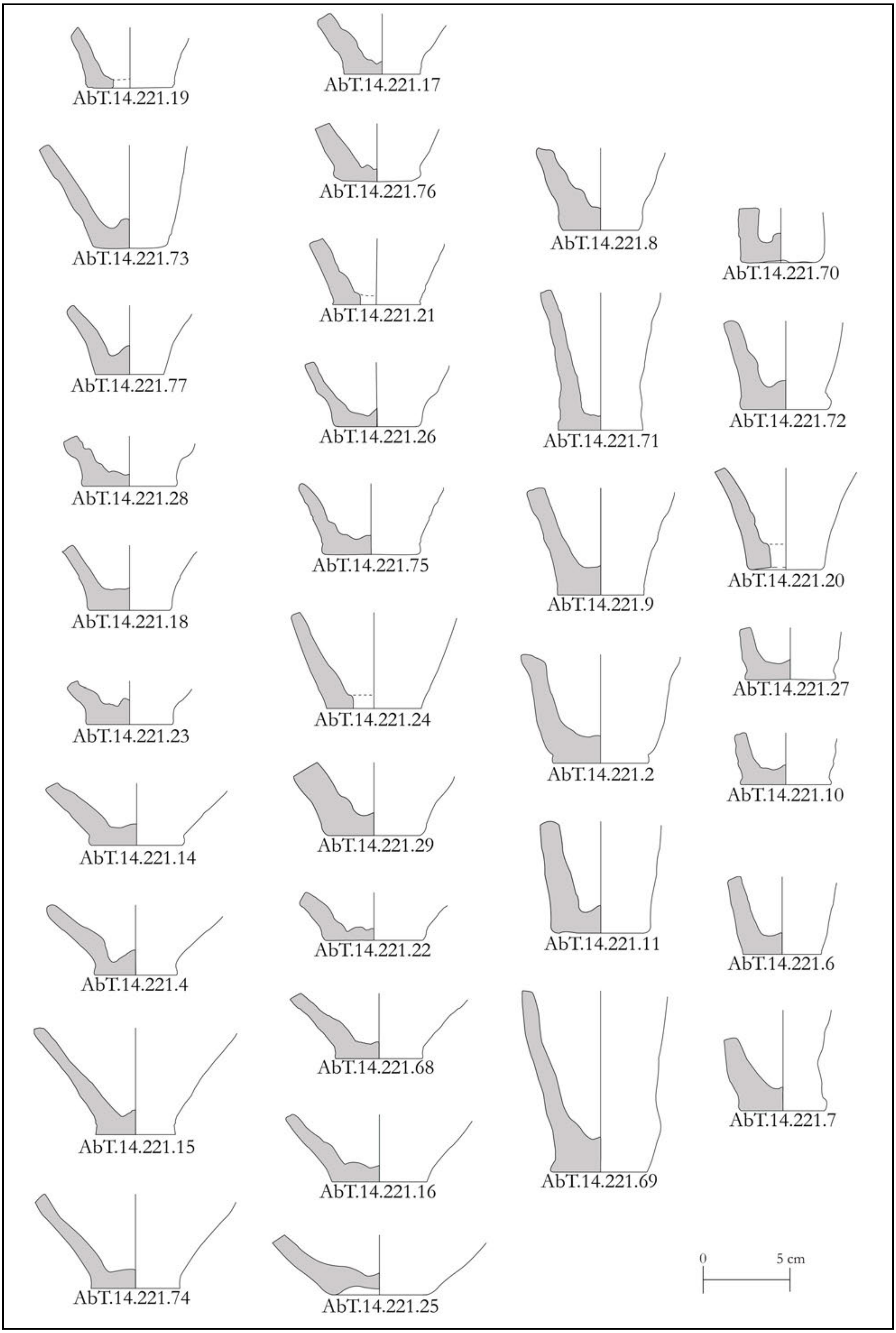


Fig. 7.53 US 221 pottery: open shapes (continues).

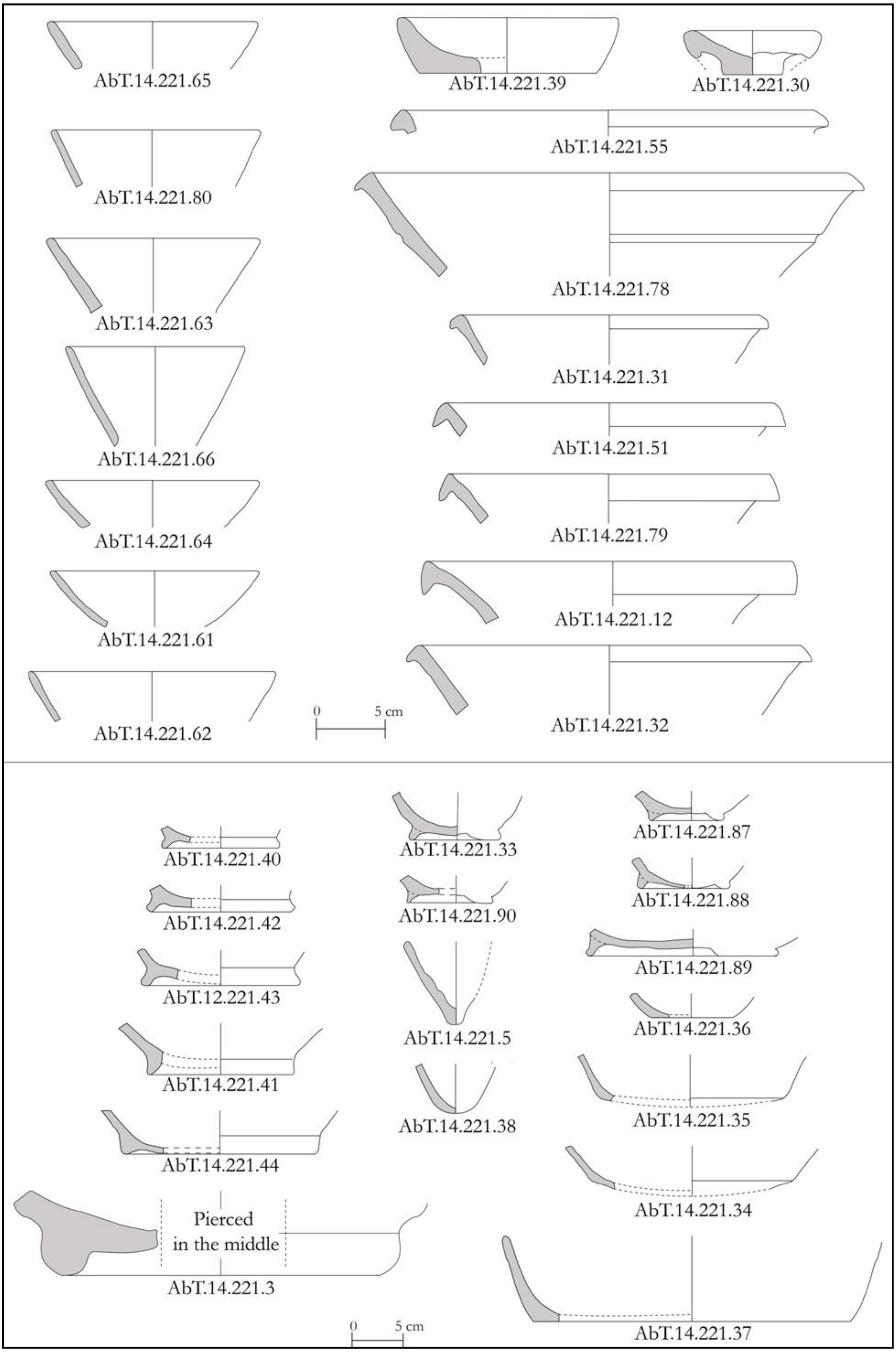


Fig. 7.54 US 221 pottery: open and closed shapes (continues).

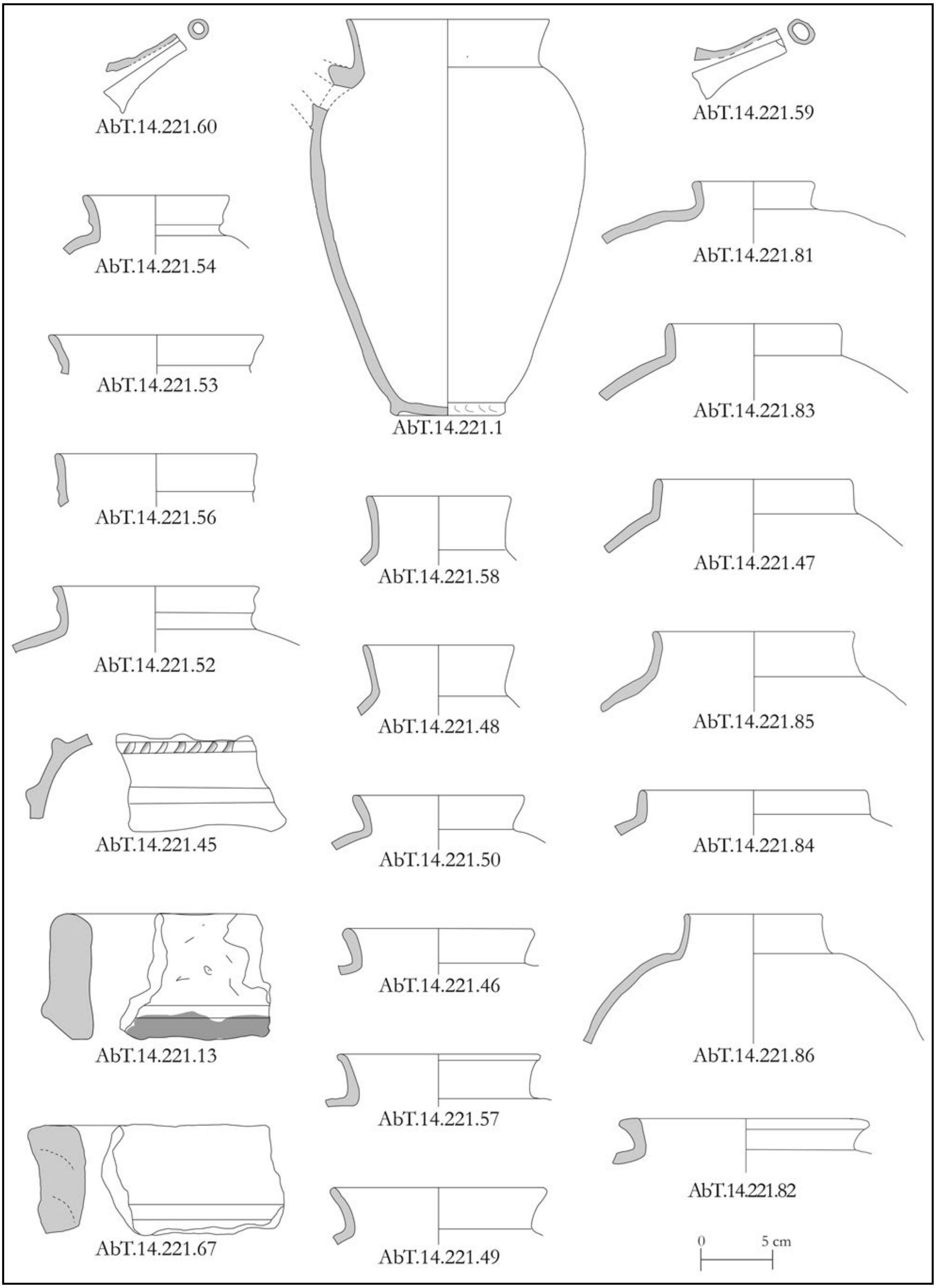


Fig. 7.55 US 221 pottery: closed and other shapes.

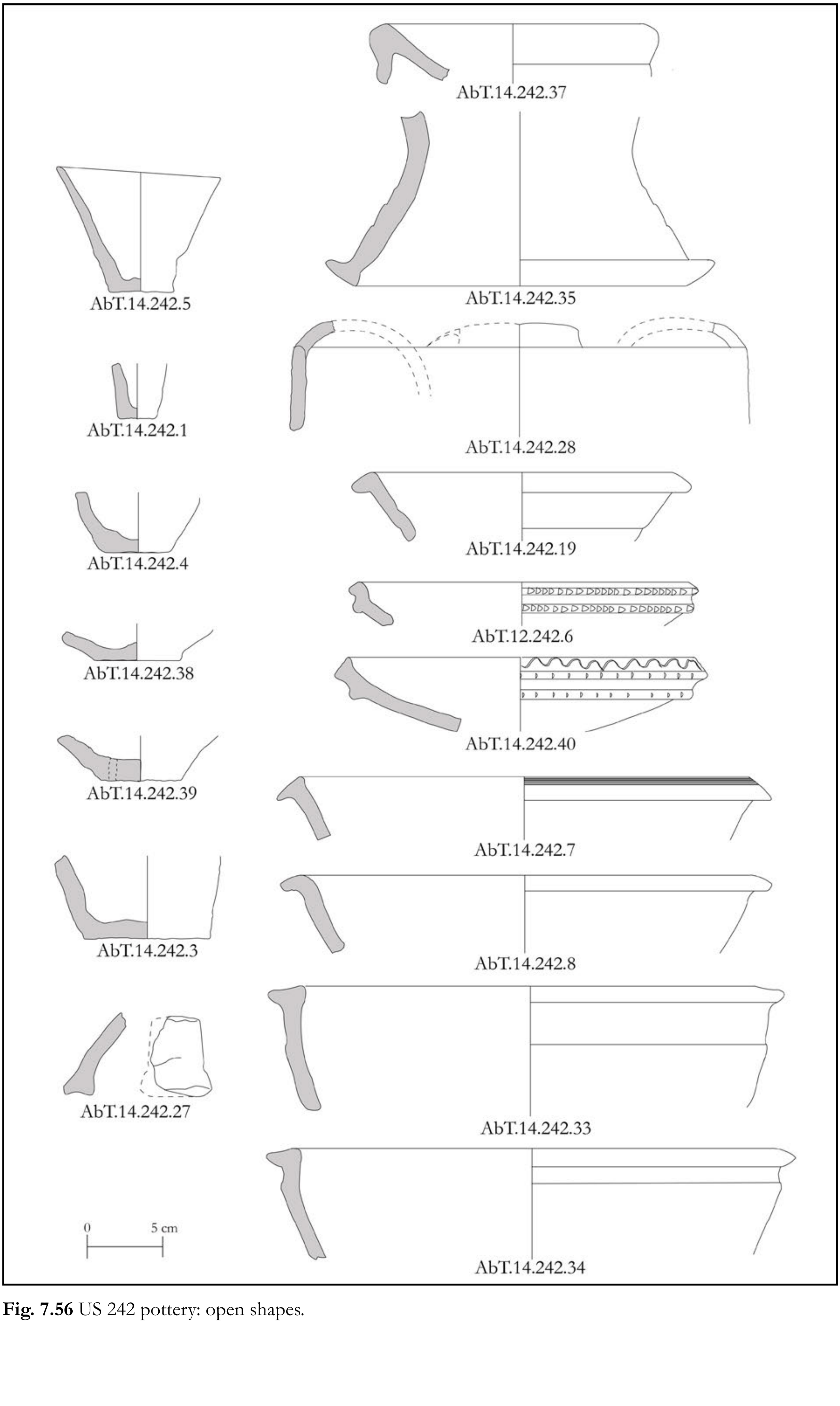


Fig. 7.56 US 242 pottery: open shapes.

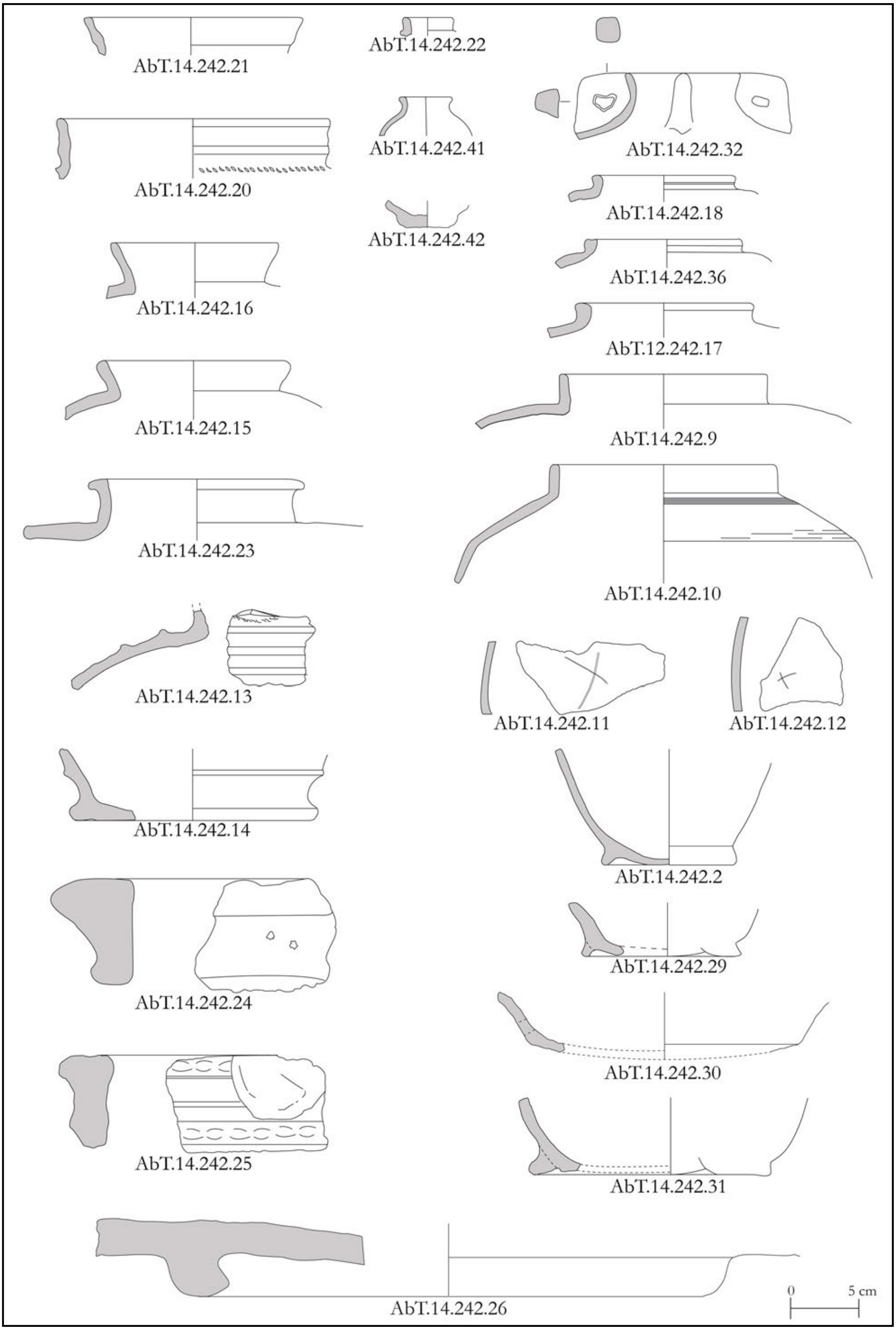


Fig. 7.57 US 242 pottery: closed and other shapes.

Catalogue of US 221 Finds

Objects

AbT.14.3 - Fig. 7.50
Description: chert blade.
Dimensions: 1.4x3.9x0.3 cm.

AbT.14.4 - Fig. 7.50
Description: small fragmented pebble. 1/4 of the original size. [SC]
Dimensions: 2.1x2.8x1.8 cm.

AbT.14.7 - Fig. 7.50
Description: pale greyish sedimentary stone tool (pestle). [SC]
Dimensions: 3.6x7.8x4 cm.

AbT.14.8 - Fig. 7.50
Description: chert sickle element.
Dimensions: 0.4x2.2x0.3 cm.

AbT.14.16 - Fig. 7.50
Description: point of a clay cone.
Dimensions: 3.9x1x1 cm.

AbT.14.17 - Fig. 7.50
Description: reused fragment of a pottery vessel. Use wear on the margins.
Dimensions: 7x4.2x0.8 cm.

AbT.14.18 - Fig. 7.50
Description: chert sickle element.
Dimensions: 1.3x2.5x0.4 cm.

AbT.14.19 - Fig. 7.50
Description: chert sickle element.
Dimensions: 1.6x2.5x0.5 cm.

AbT.14.20 - Fig. 7.50
Description: chert sickle element.
Dimensions: 1.5x1.9x0.4 cm.

Pottery

AbT.14.221.1 - Fig. 7.55
Dimensions: rim diam.: 14 cm; rim th.: 0.5 cm; wall th.: 0.5 cm; base diam.: 7.7 cm; base th.: 0.7 cm; h.: 28 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 5YR 7/4 (pink); sand inclusions; medium-high firing temperature.
Description: spouted jar.

AbT.14.221.2 - Fig. 7.53
Dimensions: wall th.: 2.4 base diam.: 33.5 cm; base th.: 1.6 cm.
Clay: outer, inner colour and fabric colour: 5YR 7/6 (reddish yellow); sand inclusions; medium-high firing temperature.
Description: beaker base.

AbT.14.221.3 - Fig. 7.54
Dimensions: wall th.: 2.5 cm; base diam.: 32 cm; base th.: 4 cm.
Clay: outer colour: 5YR 7/3 (pink); inner and fabric colour: 5YR 6/4 (light reddish brown); sand and vegetal inclusions; medium-high firing temperature.
Description: base of a big jar with a hole in the middle.

AbT.14.221.4 - Fig. 7.53
Dimensions: wall th.: 0.7 cm; base diam.: 4.6 cm; base th.: 1.5 cm.
Clay: outer and inner colour: 10YR 8/3 (very pale brown); fabric colour: 2.5YR 6/6 (light red); sand inclusions; medium-high firing temperature.
Description: conical bowl base.

AbT.14.221.5 - Fig. 7.54
Dimensions: wall th.: 0.7 cm; base th.: 1.4 cm.
Clay: outer colour: 10YR 8/2 (very pale brown); inner colour and fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium firing temperature.
Description: pointed base.

AbT.14.221.6 - Fig. 7.53
Dimensions: wall th.: 0.9 cm; base diam.: 4.5 cm; base th.: 1.1 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/2 (pale brown); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.14.221.7 - Fig. 7.53
Dimensions: wall th.: 0.9 cm; base diam.: 4.8 cm; base th.: 1.5 cm.
Clay: outer, inner, fabric colour: 5YR 7/4 (pink); sand inclusions; medium-low firing temperature.
Description: beaker base.

AbT.14.221.8 - Fig. 7.53
Dimensions: wall th.: 0.9 cm; base diam.: 4.5 cm; base th.: 1.3 cm.
Clay: outer, inner, fabric colour: 5YR 7/4 (pink); sand inclusions; medium-low firing temperature.
Description: beaker base.

AbT.14.221.9 - Fig. 7.53
Dimensions: wall th.: 1.1 cm; base diam.: 5 cm; base th.: 1.7 cm.
Clay: outer and fabric colour: 2.5YR 7/6 (light red); inner colour: 5YR 7/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: beaker base.

AbT.14.221.10 - Fig. 7.53
Dimensions: wall th.: 0.9 cm; base diam.: 5 cm; base th.: 1.2 cm.
Clay: outer, inner and fabric colour: 5YR 7/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: beaker base.

AbT.14.221.11 - Fig. 7.53
Dimensions: wall th.: 1.2 cm; base diam.: 5.5 cm; base th.: 1.6 cm.
Clay: outer, inner and fabric colour: 5Y 8/2 (pale yellow); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.14.221.12 - Fig. 7.54
Dimensions: rim diam.: 27 cm; rim th.: 1.2 cm; wall th.: 0.9 cm.
Clay: outer and inner colour: 10YR 8/2 (very pale brown); fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: triangular rim bowl.

AbT.14.221.13 - Fig. 7.55
Dimensions: rim th.: 2.9 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 7.5YR 6/6 (reddish yellow); sand and vegetal inclusions; medium firing temperature.
Description: rim of a vat with a ridge and a horizontal bitumen band on the wall.

AbT.14.221.14 - Fig. 7.53
Dimensions: wall th.: 0.8 cm; base diam.: 5.1 cm; base th.: 1.5 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 5YR 7/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: conical bowl base.

AbT.14.221.15 - Fig. 7.53
Dimensions: rim th.: 1.3 cm; wall th.: 1.7 cm; base diam.: 4.5 cm.
Clay: outer, inner and fabric colour: 7.5YR 7/4 (pink); sand inclusions; medium-low firing temperature.
Description: conical bowl base.

AbT.14.221.16 - Fig. 7.53
Dimensions: wall th.: 0.9 cm; base diam.: 5.5 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 7.5YR 7/6 (reddish yellow); sand inclusions; low firing temperature.
Description: conical bowl base.

AbT.14.221.17 - Fig. 7.53
Dimensions: wall th.: 1 cm; base diam.: 4.3 cm; base th.: 0.7 cm.
Clay: outer, inner and fabric colour: 7.5YR 7/6 (reddish yellow); sand inclusions; low firing temperature.
Description: conical bowl base.

AbT.14.221.18 - Fig. 7.53
Dimensions: wall th.: 0.7 cm; base diam.: 4.6 cm; base th.: 1.3 cm.
Clay: outer, inner and fabric colour: 7.5YR 7/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: conical bowl base.

AbT.14.221.19 - Fig. 7.53
Dimensions: wall th.: 0.7 cm; base diam.: 5 cm; base th.: 0.4 cm.
Clay: outer, inner and fabric colour: 7.5YR 7/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: conical bowl base.

AbT.14.221.20 - Fig. 7.53
Dimensions: wall th.: 0.7 cm; base diam.: 4 cm; base th.: 1.3 cm.
Clay: outer, inner and fabric colour: 7.5YR 7/6 (reddish yellow); sand inclusions; low firing temperature.
Description: beaker base.

AbT.14.221.21 - Fig. 7.53
Dimensions: wall th.: 0.9 cm; base diam.: 5 cm; base th.: 0.6 cm.
Clay: outer, inner and fabric colour: 7.5YR 7/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: conical bowl base.

AbT.14.221.22 - Fig. 7.53
Dimensions: wall th.: 0.9 cm; base diam.: 5.6 cm; base th.: 0.7 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/2 (pale brown); sand inclusions; medium firing temperature.
Description: conical bowl base.

AbT.14.221.23 - Fig. 7.53
Dimensions: wall th.: 0.9 cm; base diam.: 5 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/2 (pale brown); sand inclusions; medium firing temperature.
Description: conical bowl base.

AbT.14.221.24 - Fig. 7.53
Dimensions: wall th.: 0.8 cm; base diam.: 5.5 cm; base th.: 0.9 cm.
Clay: outer, inner and fabric colour: 7.5YR 6/6 (reddish yellow); sand inclusions; medium-high firing temperature.
Description: conical bowl base.

AbT.14.221.25 - Fig. 7.53
Dimensions: wall th.: 0.9 cm; base diam.: 5.5 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/3 (pale brown); sand inclusions; medium-high firing temperature.
Description: conical bowl base.

AbT.14.221.26 - Fig. 7.53
Dimensions: wall th.: 0.6 cm; base diam.: 5 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 7.5YR 7/6 (reddish yellow); sand inclusions; low firing temperature.
Description: conical bowl base.

AbT.14.221.27 - Fig. 7.53
Dimensions: wall th.: 0.7 cm; base diam.: 5.2 cm; base th.: 1.2 cm.
Clay: outer, inner and fabric colour: 7.5YR 7/6 (reddish yellow); sand inclusions; low firing temperature.
Description: beaker base.

AbT.14.221.28 - Fig. 7.53
Dimensions: wall th.: 0.9 cm; base diam.: 5.3 cm; base th.: 0.7 cm.
Clay:: outer, inner and fabric colour: 7.5YR 7/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: conical bowl base.

AbT.14.221.29 - Fig. 7.53
Dimensions: wall th.: 1.8 cm; base diam.: 5.3 cm; base th.: 1.3 cm.
Clay: outer, inner and fabric colour: 7.5YR 7/6 (reddish yellow); sand inclusions; low firing temperature.
Description: conical bowl base.

AbT.14.221.30 - Fig. 7.54
Dimensions: rim diam.: 9 cm; rim th.: 1.3 cm; wall th.: 1 cm; base diam.: 4 cm; base th.: 1 cm; h.: 3.3 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/3 (pale brown); sand inclusions; medium firing temperature.
Description: conical bowl attached to a stand.

AbT.14.221.31 - Fig. 7.54
Dimensions: rim diam.: 22 cm; rim th.: 1.2 cm; wall th.: 0.7 cm.
Clay: outer and inner colour: 10YR 8/2 (very pale brown); fabric colour: 2.5YR 6/4 (light reddish brown); sand inclusions; medium-high firing temperature.
Description: triangular rim bowl.

AbT.14.221.32 - Fig. 7.54
Dimensions: rim diam.: 28 cm; rim th.: 1 cm; wall th.: 1.1 cm.
Clay: outer and inner colour: 10YR 8/2 (very pale brown); fabric colour: 2.5YR 6/6 (light red); sand inclusions; medium firing temperature.
Description: triangular rim bowl.

AbT.14.221.33 - Fig. 7.54
Dimensions: wall th.: 0.8 cm; base diam.: 9 cm; base th.: 0.9 cm.
Clay: outer colour: 10YR 8/2 (very pale brown); inner and fabric colour: 7.5YR 7/4 (pink); sand inclusions; medium-high firing temperature.
Description: convex base with one foot preserved.

AbT.14.221.34 - Fig. 7.54
Dimensions: wall th.: 0.6 cm; base diam.: 19 cm; base th.: 0.6 cm.
Clay: outer colour: 10YR 8/2 (very pale brown); inner colour: 7.5YR 7/6 (reddish yellow); fabric colour: 2.5YR 5/6 (red); sand inclusions; medium-low firing temperature.
Description: convex base.

AbT.14.221.35 - Fig. 7.54
Dimensions: wall th.: 0.5 cm; base diam.: 18 cm; base th.: 0.6 cm.
Clay: outer, inner and fabric colour: 5YR 7/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: convex base.

AbT.14.221.36 - Fig. 7.52
Dimensions: wall th.: 0.7 cm; base diam.: 8 cm; base th.: 0.4 cm.
Clay: outer, inner and fabric colour: 5YR 7/6 (reddish yellow); sand inclusions;

medium-high firing temperature.
Description: flat base.

AbT.14.221.37 - Fig. 7.54
Dimensions: wall th.: 0.7 cm; base diam.: 30 cm; base th.: 0.9 cm.
Clay: outer, inner and fabric colour: 5Y 8/3 (pale yellow); sand and vegetal inclusions; high firing temperature.
Description: flat base (jar or tray?).

AbT.14.221.38 - Fig. 7.54
Dimensions: wall th.: 0.6 cm; base diam.: 5 cm; base th.: 0.5 cm.
Clay: outer and inner colour (slip): 2.5Y 8/2 (pale brown); fabric colour: 5YR 7/4 (pink); sand inclusions; medium-low firing temperature.
Description: rounded base.

AbT.14.221.39 - Fig. 7.54
Dimensions: wall th.: 1.2 cm; base diam.: 13 cm; base th.: 1.2 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 5YR 6/4 (light reddish brown); sand and vegetal inclusions; high firing temperature.
Description: tray.

AbT.14.221.40 - Fig. 7.54
Dimensions: wall th.: 0.6 cm; base diam.: 11 cm; base th.: 0.8 cm.
Clay: outer, inner and fabric colour: 7.5YR 6/6 (reddish yellow); sand inclusions; low firing temperature.
Description: ring base.

AbT.14.221.41 - Fig. 7.54
Dimensions: wall th.: 0.9 cm; base diam.: 13.5 cm; base th.: 0.8 cm.
Clay: outer and inner colour: 7.5YR 7/6 (reddish yellow); fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium-low firing temperature.
Description: ring base.

AbT.14.221.42 - Fig. 7.54
Dimensions: base diam.: 14 cm; base th.: 1.1 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 5YR 7/4 (pink); sand inclusions; medium firing temperature.
Description: ring base.

AbT.14.221.43 - Fig. 7.54
Dimensions: wall th.: 0.8 cm; base diam.: 15 cm; base th.: 1.3 cm.
Clay: outer, inner and fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium firing temperature.
Description: ring base.

AbT.14.221.44 - Fig. 7.54
Dimensions: wall th.: 0.9 cm; base diam.: 18 cm; base th.: 0.5 cm.
Clay: outer and inner colour: 7.5YR 8/3 (pink); fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: ring base.

AbT.14.221.45 - Fig. 7.55
Dimensions: wall th.: 0.8 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/2 (pale brown); sand inclusions; medium-high firing temperature.
Description: wall fragment decorated with two applied ridges (the lower one notched).

AbT.14.221.46 - Fig. 7.55
Dimensions: rim diam.: 14 cm; rim th.: 0.8 cm; wall th.: 0.7 cm.
Clay: outer colour: 10YR 8/2 (very pale brown); inner and fabric colour: 7.5YR 7/6 (reddish yellow); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.14.221.47 - Fig. 7.55
Dimensions: rim diam.: 14 cm; rim th.: 0.7 cm; wall th.: 0.8 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 10YR 6/4 (light yellowish brown); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.14.221.48 - Fig. 7.55
Dimensions: rim diam.: 10.5 cm; rim th.: 0.5 cm; wall th.: 0.6 cm.
Clay: outer and inner colour: 2.5Y 8/3 (pale brown); fabric colour: 7.5YR 6/6 (reddish yellow); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.14.221.49 - Fig. 7.55
Dimensions: rim diam.: 15 cm; rim th.: 0.7 cm; wall th.: 0.7 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/3 (pale brown); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.14.221.50 - Fig. 7.55
Dimensions: rim diam.: 12 cm; rim th.: 0.7 cm; wall th.: 0.6 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.14.221.51 - Fig. 7.54
Dimensions: rim diam.: 26 cm; rim th.: 2.1 cm; wall th.: 0.9 cm.
Clay: outer, inner and fabric colour: 7.5YR 7/4 (pink); sand inclusions; medium-low firing temperature.
Description: triangular rim bowl.

AbT.14.221.52 - Fig. 7.55
Dimensions: rim diam.: 14 cm; rim th.: 0.7 cm; wall th.: 0.7 cm.
Clay: outer ("reserved slip like" effect) and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium-high firing temperature.
Description: double-ridged rim jar.

AbT.14.221.53 - Fig. 7.55
Dimensions: rim diam.: 15 cm; rim th.: 0.6 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brow); fabric colour: 5YR 5/4 (reddish brown); sand and vegetal inclusions; medium-high firing temperature.
Description: band rim jar.

AbT.14.221.54 - Fig. 7.55
Dimensions: rim diam.: 15 cm; rim th.: 0.6 cm; wall th.: 0.7 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-high firing temperature.
Description: band rim jar.

AbT.14.221.55 - Fig. 7.54
Dimensions: rim diam.: n.d.; rim th.: 1.8 cm.
Clay: outer and inner colour: 7.5YR 8/2 (pinkish white); fabric colour: 7.5YR 5/6 (strong brown); sand inclusions; medium-low temperature.
Description: triangular rim bowl.

AbT.14.221.56 - Fig. 7.55
Dimensions: rim diam.: 14 cm; rim th.: 0.6 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium firing temperature.
Description: band rim jar.

AbT.14.221.57 - Fig. 7.55
Dimensions: rim diam.: 15 cm; rim th.: 0.6 cm; wall th.: 0.5 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 2.5Y 7/2 (light grey); sand inclusions; high firing temperature.
Description: plain rim jar.

AbT.14.221.58 - Fig. 7.55
Dimensions: rim diam.: 10 cm; rim th.: 0.5 cm; wall th.: 0.6 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 10YR 7/6 (yellow); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.14.221.59 - Fig. 7.55
Dimensions: wall th.: 1 cm.
Clay: outer and inner colour: 10YR 7/3 (very pale brown); fabric colour: 10YR 6/4 (light yellowish brown); sand inclusions; medium-high firing temperature.
Description: spout.

AbT.14.221.60 - Fig. 7.55
Dimensions: wall th.: 0.8 cm.
Clay: outer colour: 5Y 8/2 (pale yellow); inner and fabric colour: 2.5Y 7/3 (pale brown); sand inclusions; medium-high firing temperature.
Description: spout.

AbT.14.221.61 - Fig. 7.54
Dimensions: rim diam.: 15.5 cm; rim th.: 0.6 cm; wall th.: 0.7 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 10YR 7/6 (yellow); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.14.221.62 - Fig. 7.54
Dimensions: rim diam.: 18 cm; rim th.: 0.6 cm; wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; low firing temperature.
Description: drinking vessel rim.

AbT.14.221.63 - Fig. 7.54
Dimensions: rim diam.: 15 cm; rim th.: 0.7 cm; wall th.: 1 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/2 (pale brown); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.14.221.64 - Fig. 7.54
Dimensions: rim diam.: 16 cm; rim th.: 0.6 cm; wall th.: 0.7 cm.
Clay: outer, inner and fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.14.221.65 - Fig. 7.54
Dimensions: rim diam.: 15 cm; rim th.: 0.6 cm; wall th.: 0.7 cm.
Clay: outer, inner and fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.14.221.66 - Fig. 7.54
Dimensions: rim diam.: 13 cm; rim th.: 0.5 cm; wall th.: 0.6 cm.
Clay: outer and inner colour: 10YR 8/3 (very pale brown); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.14.221.67 - Fig. 7.55
Dimensions: rim diam.: n.d. cm; rim th.: 3.7 cm; wall th.: 2.2 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/2 (pale brown); sand and vegetal inclusions; high firing temperature.
Description: vat/big jar rim.

AbT.14.221.68 - Fig. 7.53
Dimensions: wall th.: 0.7 cm; base diam.: 5 cm; base th.: 0.8 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 10YR 7/6 (yellow); sand inclusions; medium-high firing temperature.
Description: conical bowl base.

AbT.14.221.69 - Fig. 7.53
Dimensions: wall th.: 0.8 cm; base diam.: 5.4 cm; base th.: 1.9 cm.
Clay: outer and inner colour: 5YR 7/6 (reddish yellow); fabric colour: 2.5YR 5/6 (red); sand inclusions; medium-low firing temperature.
Description: beaker base.

AbT.14.221.70 - Fig. 7.53
Dimensions: wall th.: 1.2 cm; base diam.: 5 cm; base th.: 0.8 cm.
Clay: outer and inner colour: 2.5Y 8/4 (pale brown); fabric colour: 10YR 7/6 (yellow); sand inclusions; medium-high firing temperature.
Description: beaker base.

AbT.14.221.71 - Fig. 7.53
Dimensions: wall th.: 0.6 cm; base diam.: 5 cm; base th.: 1.3 cm.
Clay: outer, inner and fabric colour: 5Y 7/3 (pale yellow); sand inclusions; high firing temperature.
Description: beaker base.

AbT.14.221.72 - Fig. 7.53
Dimensions: wall th.: 1.2 cm; base diam.: 4.7 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 10YR 7/3 (very pale brown); sand inclusions; medium-high firing temperature.
Description: beaker base.

AbT.14.221.73 - Fig. 7.53
Dimensions: wall th.: 0.8 cm; base diam.: 4.2 cm; base th.: 1.7 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 10YR 7/3 (very pale brown); sand inclusions; medium-high firing temperature.
Description: beaker (?) base.

AbT.14.221.74 - Fig. 7.53
Dimensions: wall th.: 0.9 cm; base diam.: 5 cm; base th.: 1 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium firing temperature.
Description: conical bowl base.

AbT.14.221.75 - Fig. 7.53
Dimensions: wall th.: 1 cm; base diam.: 5.5 cm; base th.: 0.8 cm.
Clay: outer, inner and fabric colour: 5YR 7/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: conical bowl base.

AbT.14.221.76 - Fig. 7.53
Dimensions: wall th.: 1 cm; base diam.: 5 cm; base th.: 0.8 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/2 (pale brown); sand inclusions; medium-high firing temperature.
Description: conical bowl base.

AbT.14.221.77 - Fig. 7.53
Dimensions: wall th.: 0.7 cm; base diam.: 4 cm; base th.: 1.5 cm.
Clay: outer, inner and fabric colour:

5YR 6/4 (light reddish brown); sand inclusions; low firing temperature.
Description: conical bowl base.

AbT.14.221.78 - Fig. 7.54
Dimensions: rim diam.: 35 cm; rim th.: 2 cm; wall th.: 1.1 cm.
Clay: outer and inner colour (self-slip): 10YR 8/2 (very pale brown); fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium firing temperature.
Description: triangular rim bowl.

AbT.14.221.79 - Fig. 7.54
Dimensions: rim diam.: 24 cm; rim th.: 2 cm; wall th.: 1 cm.
Clay: outer and inner colour: 5YR 7/6 (reddish yellow); fabric colour: 2.5YR 5/6 (red); sand inclusions; medium-low firing temperature.
Description: triangular rim bowl.

AbT.14.221.80 - Fig. 7.54
Dimensions: rim diam.: 15 cm; rim th.: 0.5 cm; wall th.: 0.5 cm.
Clay: outer and inner colour: 10YR 8/2 (very pale brown); fabric colour: 5YR 7/6 (reddish yellow); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.14.221.81 - Fig. 7.55
Dimensions: rim diam.: 9 cm; rim th.: 0.7 cm; wall th.: 0.9 cm.
Clay: outer colour: 2.5Y 8/2 (pale brown); inner and fabric colour: 5YR 7/4 (pink); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.14.221.82 - Fig. 7.55
Dimensions: rim diam.: 15 cm; rim th.: 1.2 cm; wall th.: 0.8 cm.
Clay: outer, inner and fabric colour: 5Y 8/2 (pale yellow); sand inclusions; medium-high firing temperature.
Description: triangular rim jar.

AbT.14.221.83 - Fig. 7.55
Dimensions: rim diam.: 12 cm; rim th.: 0.6 cm; wall th.: 0.7 cm.
Clay: outer, inner and fabric colour: 5Y 7/2 (light grey); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.14.221.84 - Fig. 7.55
Dimensions: rim diam.: 16 cm; rim th.: 0.8 cm; wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 5Y 8/2 (pale yellow); sand inclusions; high firing temperature.
Description: plain rim jar.

AbT.14.221.85 - Fig. 7.55
Dimensions: rim diam.: 14 cm; rim th.: 0.5 cm; wall th.: 0.8 cm.
Clay: outer, inner and fabric colour: 5Y 8/2 (pale yellow); sand inclusions; high firing temperature.
Description: plain rim jar.

AbT.14.221.86 - Fig. 7.55
Dimensions: rim diam.: 10 cm; rim th.: 0.5 cm; wall th.: 0.7 cm.
Clay: outer and inner colour (self-slip): 2.5Y 8/3 (pale brown); fabric colour: 2.5Y 8/3 (pale brown); sand inclusions; high firing temperature.
Description: plain rim jar.

AbT.14.221.87 - Fig. 7.54
Dimensions: base diam.: 8 cm; base th.: 0.6 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: round base with one foot preserved.

AbT.14.221.88 - Fig. 7.54
Dimensions: wall th.: 0.9 cm; base diam.: 10 cm; base th.: 0.5 cm.
Clay: outer and inner colour: 10YR 7/3 (very pale brown); fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium-high firing temperature.
Description: convex base jar with two feet preserved.

AbT.14.221.89 - Fig. 7.54
Dimensions: base diam.: 21 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 10YR 8/2 (very pale brown); sand and vegetal inclusions; medium-high firing temperature.
Description: convex base with one foot preserved.

AbT.14.221.90 - Fig. 7.54
Dimensions: wall th.: 0.7 cm; base diam.: 10.5 cm; base th.: 0.5 cm.
Clay: outer and inner colour: 2.5Y 7/2 (light grey); fabric colour: 7.5YR 4/6 (strong brown); sand inclusions; high firing temperature.
Description: convex base jar with two feet preserved.

Catalogue of US 242 Finds

Objects

AbT.14.27 - Fig. 7.51
Description: alabastrine limestone vessel fragment found inside AbT.14.242.2.
Dimensions: 3x4.5x0.5 cm.

AbT.14.30 - Fig. 7.51
Description: alabastrine limestone vessel fragment.
Dimensions: 6x4.4x0.5 cm.

AbT.14.32 - Fig. 7.51
Description: chert sickle element.
Dimensions: 3x1x0.5 cm.

AbT.14.35 - Fig. 7.51
Description: alabastrine limestone vessel rim fragment.
Dimensions: 5x4.2x0.4 cm.

AbT.14.36 - Fig. 7.51
Description: stone vessel rim fragment.
Dimensions: 3.2x2.5x0.3 cm.

AbT.14.37 - Fig. 7.51
Description: poorly preserved clay figurine.
Dimensions: 5.5x4x2.2 cm.

AbT.14.38 - Fig. 7.51
Description: stone hammerstone/ pestle fragment.
Dimensions: 4.4x4x3 cm.

AbT.14.39 - Fig. 7.51
Description: 3 fragments of an alabastrine limestone vessel.
Dimensions: 3x1.3x0.3 cm; 1.6x1.2x0.3 cm; 1.3x0.7x0.3 cm.

AbT.14.45 - Fig. 7.51
Description: fragment (left part broken) of a clay tablet. Inscription not preserved.
Dimensions: 2.3x2.6x1.5 cm.

AbT.14.65 - Fig. 7.51
Description: chert sickle element.
Dimensions: 2.6x1.3x0.4 cm.

AbT.14.66 - Fig. 7.51
Description: chert sickle element.
Dimensions: 2.8x1.2x0.3 cm.

AbT.14.67 - Fig. 7.51
Description: fragment of a clay tablet.

Inscription not preserved.
Dimensions: 4.4x3.3x0.8 cm.

AbT.14.68 - Fig. 7.51
Description: half loom weight.
Dimensions: 6.2x1.9x1.9 cm.

AbT.14.69 - Fig. 7.51
Description: chert blade.
Dimensions: 3.5x1.4x0.3 cm.

AbT.14.70 - Fig. 7.51
Description: 2 fragments of an alabastrine limestone vessel with plain rim.
Dimensions: 4.9x3.1x0.4 cm; 4.2x2.2x0.4 cm.

AbT.14.71 - Fig. 7.51
Description: stone bead (rock crystal?).
Dimensions: 1.4x1.1x0.5 cm.

AbT.14.72 - Fig. 7.51
Description: greyish hammerstone.
Dimensions: 6.4x5.1x2.5 cm.

Pottery

AbT.14.242.1 - Fig. 7.56
Dimensions: wall th.: 0.8 cm; base diam.: 2.5 cm; base th.: 0.8 cm.
Clay: outer and inner colour: 10YR 8/3 (very pale brown); fabric colour: 7.5YR 5/6 (strong brown); sand inclusions; medium-high firing temperature.
Description: miniaturistic beaker base.

AbT.14.242.2 - Fig. 7.57
Dimensions: wall th.: 0.6 cm; base diam.: 9.5 cm; base th.: 0.6 cm.
Clay: outer and inner colour: 10YR 8/3 (very pale brown); fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium-high firing temperature.
Description: ring base.

AbT.14.242.3 - Fig. 7.56
Dimensions: wall th.: 0.9 cm; base diam.: 8.5 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 2.5YR 6/8 (light red); sand inclusions; medium-low firing temperature.
Description: big string cut base (jar or drinking vessel?).

AbT.14.242.4 - Fig. 7.56
Dimensions: wall th.: 0.8 cm; base diam.: 4.5 cm; base th.: 0.8 cm.
Clay: outer, inner and fabric colour: 2.5YR 6/6 (light red); sand inclusions; medium-low firing temperature.
Description: conical bowl base.

AbT.14.242.5 - Fig. 7.56
Dimensions: rim diam.: 10 cm; rim th.: 0.5 cm; wall th.: 0.6 cm; base diam.: 4.5 cm; base th.: 1 cm; h.: 8 cm.
Clay: outer, inner and fabric colour: 10YR 8/2 (very pale brown); sand inclusions; medium-high firing temperature.
Description: beaker.

AbT.14.242.6 - Fig. 7.56
Dimensions: rim diam.: 22 cm; rim th.: 1.2 cm.
Clay: outer and inner colour: 7.5YR 7/3 (pink); fabric colour: 2.5YR 5/4 (reddish brown); sand inclusions; medium-low firing temperature.
Description: stemmed-dish bowl with notched decoration.

AbT.14.242.7 - Fig. 7.56
Dimensions: rim diam.: 30 cm; rim th.: 2.2 cm; wall th.: 0.9 cm.
Clay: outer and inner colour: 7.5YR 7/6 (reddish yellow); fabric colour: 2.5YR 5/6 (red); sand inclusions; medium-high firing temperature.
Description: triangular rim bowl with light combed decoration (or heavy technological traces?) on the upper part of the rim.

AbT.14.242.8 - Fig. 7.56
Dimensions: rim diam.: 30 cm; rim th.: 2.2 cm; wall th.: 1.1 cm.
Clay: outer and inner colour: 10YR 8/3 (very pale brown); fabric colour: 2.5YR 6/8 (light red); sand inclusions; medium firing temperature.
Description: triangular rim bowl.

AbT.14.242.9 - Fig. 7.57
Dimensions: rim diam.: 15 cm; rim th.: 0.6 cm; wall th.: 0.7 cm.
Clay: outer, inner and fabric colour: 10YR 8/3 (very pale brown); sand inclusions; high firing temperature.
Description: plain rim jar.

AbT.14.242.10 - Fig. 7.57
Dimensions: rim diam.: 16.5 cm; rim th.: 0.7 cm; wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 5Y 8/2 (pale yellow); sand inclusions; medium-high firing temperature.
Description: plain rim jar decorated with three incised and parallel lines under the neck.

AbT.14.242.11 - Fig. 7.57
Dimensions: wall th.: 0.5 cm.
Clay: outer colour: 7.5YR 8/2 (pinkish white); inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium-high firing temperature.
Description: wall fragment with potter's mark (cross).

AbT.14.242.12 - Fig. 7.57
Dimensions: wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 5YR 4/6 (yellowish red); sand inclusions; medium-high firing temperature.
Description: wall fragment with potter's mark (cross).

AbT.14.242.13 - Fig. 7.57
Dimensions: wall th.: 0.85 cm.
Clay: outer colour (self-slip): 2.5Y 7/2 (light grey); inner colour: 7.5YR 8/3 (pink); fabric colour: 2.5YR 6/6 (light red); sand inclusions; medium-high firing temperature.
Description: fragment of a jar with several ridges (same of AbT.14.242.14). Oblique incisions at the join between the neck and the shoulder.

AbT.14.242.14 - Fig. 7.57
Dimensions: wall th.: 0.8 cm; base diam.: 18 cm; base th.: 0.5 cm.
Clay: outer colour (self-slip): 7.5YR 8/3 (pink); inner colour: 7.5YR 8/3 (pink); fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium-high firing temperature.
Description: jar base with a ridge over it (same of AbT.14.242.13).

AbT.14.242.15 - Fig. 7.57
Dimensions: rim diam.: 13.5 cm; rim th.: 0.9 cm; wall th.: 0.8 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/3 (pale brown); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.14.242.16 - Fig. 7.57
Dimensions: rim diam.: 12.5 cm; rim th.: 0.7 cm; wall th.: 0.8 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/3 (pale brown); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.14.242.17 - Fig. 7.57
Dimensions: rim diam.: 12.5 cm; rim th.: 1.2 cm; wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 7.5YR 7/3 (pink); sand inclusions; medium-low firing temperature.
Description: plain rim jar.

AbT.14.242.18 - Fig. 7.57
Dimensions: rim diam.: 10 cm; rim th.: 0.7 cm; wall th.: 0.7 cm.
Clay: outer and inner colour: 7.5YR 7/2 (pinkish grey); fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: plain rim jar.

AbT.14.242.19 - Fig. 7.56
Dimensions: rim diam.: 20 cm; rim th.: 1.9 cm; wall th.: 1 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/2 (pale brown); sand inclusions; medium-high firing temperature.
Description: triangular rim bowl.

AbT.14.242.20 - Fig. 7.57
Dimensions: rim diam.: 20 cm; rim th.: 0.8 cm.
Clay: outer, inner and fabric colour: 7.5YR 8/3 (pink); sand inclusions; medium firing temperature.
Description: band rim jar with small incisions at the base of the neck.

AbT.14.242.21 - Fig. 7.57
Dimensions: rim diam.: 16 cm; rim th.: 0.6 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/2 (pale brown); sand inclusions; medium-high firing temperature.
Description: band rim jar.

AbT.14.242.22 - Fig. 7.57
Dimensions: rim diam.: 3.5 cm; rim th.: 0.6 cm.
Clay: outer, inner and fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: plain rim of a miniaturistic jar.

AbT.14.242.23 - Fig. 7.57
Dimensions: rim diam.: 13 cm; rim th.: 1.7 cm; wall th.: 1 cm.
Clay: outer, inner and fabric colour: 5Y 6/3 (pale olive); sand inclusions; high firing temperature.
Description: triangular rim jar.

AbT.14.242.24 - Fig. 7.57
Dimensions: rim diam.: n.d. cm; rim th.: 6.2 cm.
Clay: outer, inner and fabric colour: 5YR 6/4 (light reddish brown); sand and vegetal inclusions; medium firing temperature.
Description: double ridged rim of a big vat. Same vessel of AbT.14.242.25 where the notches on the ridge are more visible.

AbT.14.242.25 - Fig. 7.57
Dimensions: rim diam.: n.d. cm; rim th.: 4.3 cm.
Clay: outer (self-slip), inner and fabric colour: 10YR 7/3 (very pale brown); sand and vegetal inclusions; medium-high firing temperature.
Description: double ridged rim of a big vat with very damaged notched ridges. Same vessel of AbT.14.242.24 (notches on the ridge not clearly visible).

AbT.14.242.26 - Fig. 7.57
Dimensions: base diam.: 41 cm ca.; base th.: 2.4 cm.
Clay: outer, inner and fabric colour: 7.5YR 7/4 (pink); sand and vegetal inclusions; medium-high firing temperature.
Description: ring base.

AbT.14.242.27 - Fig. 7.56
Dimensions: wall th.: 1.3 cm.
Clay: outer and inner colour: 10YR 8/2 (very pale brown); fabric colour: 7.5YR 5/4 (brown); sand and vegetal inclusions; medium firing temperature.
Description: fragment of one "arm" of a "brazier".

AbT.14.242.28 - Fig. 7.56
Dimensions: rim diam.: 30 cm(?); rim th.: 0.8 cm.
Clay: outer and inner colour: 10YR 8/2 (very pale brown); fabric colour: 5YR 6/4 (light reddish brown); sand and vegetal inclusions; medium firing temperature.
Description: rim and the attachment of one "arm" of a "brazier".

AbT.14.242.29 - Fig. 7.57
Dimensions: base diam.: 12 cm; base th.: 0.7 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/2 (pale brown); sand inclusions; medium-high firing temperature.
Description: convex base jar with one foot.

AbT.14.242.30 - Fig. 7.57
Dimensions: wall th.: 0.7 cm; base diam.: 20 cm; base th.: 0.7 cm.
Clay: outer and inner colour: 10YR 8/3 (very pale brown); fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium firing temperature.
Description: convex base with a small hole immediately over it.

AbT.14.242.31 - Fig. 7.57
Dimensions: wall th.: 1 cm; base diam.: 19 cm; base th.: 0.8 cm.
Clay: outer, inner and fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium-high firing temperature.
Description: convex base jar with one foot preserved.

AbT.14.242.32 - Fig. 7.57
Dimensions: rim diam.: 8 cm; rim th.: 0.5 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 7.5YR 7/4 (pink); sand inclusions; medium firing temperature.
Description: plain rim jar with vertical handle attached to the rim.

AbT.14.242.33 - Fig. 7.56
Dimensions: rim diam.: 31 cm; rim th.: 2.2 cm; wall th.: 1 cm.
Clay: outer colour: 5YR 7/6 (reddish yellow); inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium firing temperature.
Description: rim of a big bowl or base of a stemmed-dish.

AbT.14.242.34 - Fig. 7.56
Dimensions: rim diam.: 22 cm; rim th.: 2.3 cm; wall th.: 1 cm;
Clay: outer, inner and fabric colour: 7.5YR 6/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: triangular rim bowl.

AbT.14.242.35 - Fig. 7.56
Dimensions: wall th.: 1.2 cm; base diam.: 20 cm; base th.: 2.4 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/2 (pale brown); sand inclusions; medium-high firing temperature.
Description: stand.

AbT.14.242.36 - Fig. 7.57
Dimensions: rim diam.: 11 cm; rim th.: 1 cm; wall th.: 0.8 cm.
Clay: outer colour: 2.5Y 8/2 (pale brown); inner colour and fabric colour: 7.5YR 7/4 (pink); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.14.242.37 - Fig. 7.56
Dimensions: rim diam.: 17 cm; rim th.: 2 cm; wall th.: 0.8 cm.
Clay: outer, inner and fabric colour: 5Y 8/3 (pale yellow); sand and vegetal inclusions; medium-high firing temperature.
Description: conical bowl attached to a stand (AbT.14.242.35?).

AbT.14.242.38 - Fig. 7.56
Dimensions: wall th.: 0.8 cm; base diam.: 6 cm; base th.: 1 cm.
Clay: outer colour: 2.5Y 8/3 (pale brown); inner and fabric colour: 7.5YR 7/4 (pink); sand inclusions; medium firing temperature.
Description: conical bowl base.

AbT.14.242.39 - Fig. 7.56
Dimensions: wall th.: 0.9 cm; base diam.: 5.7 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 5Y 8/3 (pale yellow); sand inclusions; medium-high firing temperature.
Description: conical bowl base, pierced in the middle before firing (funnel).

AbT.14.242.40 - Fig. 7.56
Dimensions: rim diam.: 23 cm; rim th.: 1.4 cm; wall th.: 1 cm.
Clay: outer, inner and fabric colour: 7.5YR 7/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: stemmed-dish bowl. Notched rim and weavy incision on the upper part.

AbT.14.242.41 - Fig. 7.57
Dimensions: rim diam.: 4 cm; rim th.: 0.5 cm; wall th.: 0.5 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/2 (pale brown); sand inclusions; medium-high firing temperature.
Description: plain rim of a miniaturistic jar (slightly flattened). Same vessel of AbT.14.242.42.

AbT.14.242.42 - Fig. 7.57
Dimensions: wall th.: 0.4 cm; base diam.: 4 cm; base th.: 0.8 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/2 (pale brown); sand inclusions; medium-high firing temperature.
Description: disk base of a miniaturistic jar. Same vessel of AbT.14.242.41.

Catalogue of US 255 Finds

Objects

AbT.14.60 - Fig. 7.52
Description: alabastrine limestone vessel fragment with indentation on the rim.
Dimensions: 3.2x2.2x0.4 cm.

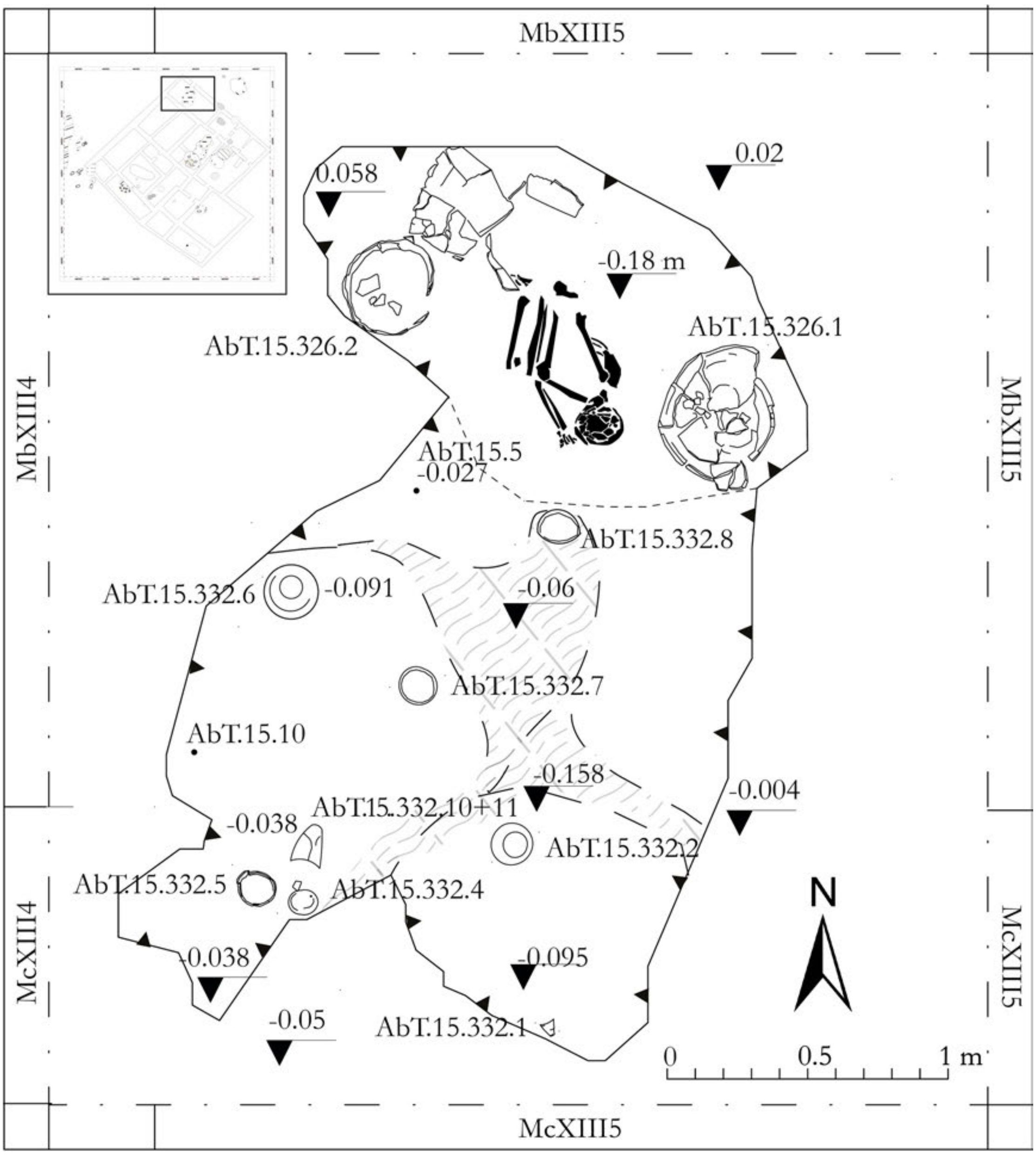


Fig. 7.58 Grave 22 plan (by V. Porzi).

7.3 Mb-cXIII5 [LR]

7.3.1 Grave 22 [LR]

The grave (Figs 7.58-60), located in square Mb-cXIII5, cut the complex situation of Rooms 14-15 (see § 8.14). The cut (US 328) was identified at the elevation of 0.02 m, reaching a depth of -0.18 m, and was irregular in shape. The grave was damaged by a gully passing over this part of Area 1:[33] the grave's limits highlighted during the excavation are the combination of the original cut and the erosion caused by rain. The pottery equipment (Fig. 7.61) was indeed scattered irregularly toward south, sinking in the area in which the soil was more friable.[34] Due to the unclear situation, two different US numbers were assigned to the backfill: US 326 to the southern part of the grave's filling; US 332 to the soil covering the equipment near

[33] See Fig. 6.4.

[34] It seems that who dug the grave tried to avoid the harder areas constituted by the walls of the underlying building and by the reed structure that was found inside Room 14-15. It should be also considered the possibility of a misinterpretation of the context and that US 326 belonged to the activities inside Room 14-15 (see § 8.14).

the skeleton (US 327 - Fig. 6.60). The filling, in both cases, was constituted by a brown clay soil (slightly lighter for US 332), quite hard and rich of fragments of the hardened clay that surrounded the firing structure of Room 14-15 (§ 8.14).

The skeleton was deposed in fetal position on its left side, with the head toward south and looking west. The left hand was near the face while the legs were bent with the feet toward north (found under AbT.15.326.2). It was apparently wrapped with reed-mat: several fragments were found over and around the bones. The skull was crushed *in situ*. The right arm was placed near the ribs, while radio and ulna flexed on the hips. The body laid between a huge jar flattened on the bottom of the grave's cut and a big bowl.

If we consider the preserved height of the jar (40 cm) some questions should be raised: if the jar was originally in a standing position, as it seems from its base, the cut should be at least 40 cm high, or the jar (and the skull) was immediately broken by the weight of the soil during the filling of the grave. Whatever the right interpretation, it is undeniable that the soil erosion, at least in this part of the area, was considerable and surely cancelled several evidences of occupation of the site.

Fig. 7.59 Grave 22.

Fig. 7.60 Grave 22. Skeleton US 327.

Fig. 7.61 Grave 22 pottery equipment (US 326-332).

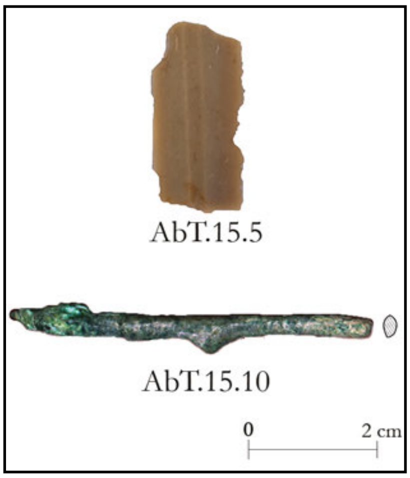


Fig. 7.62 US 332 objects.

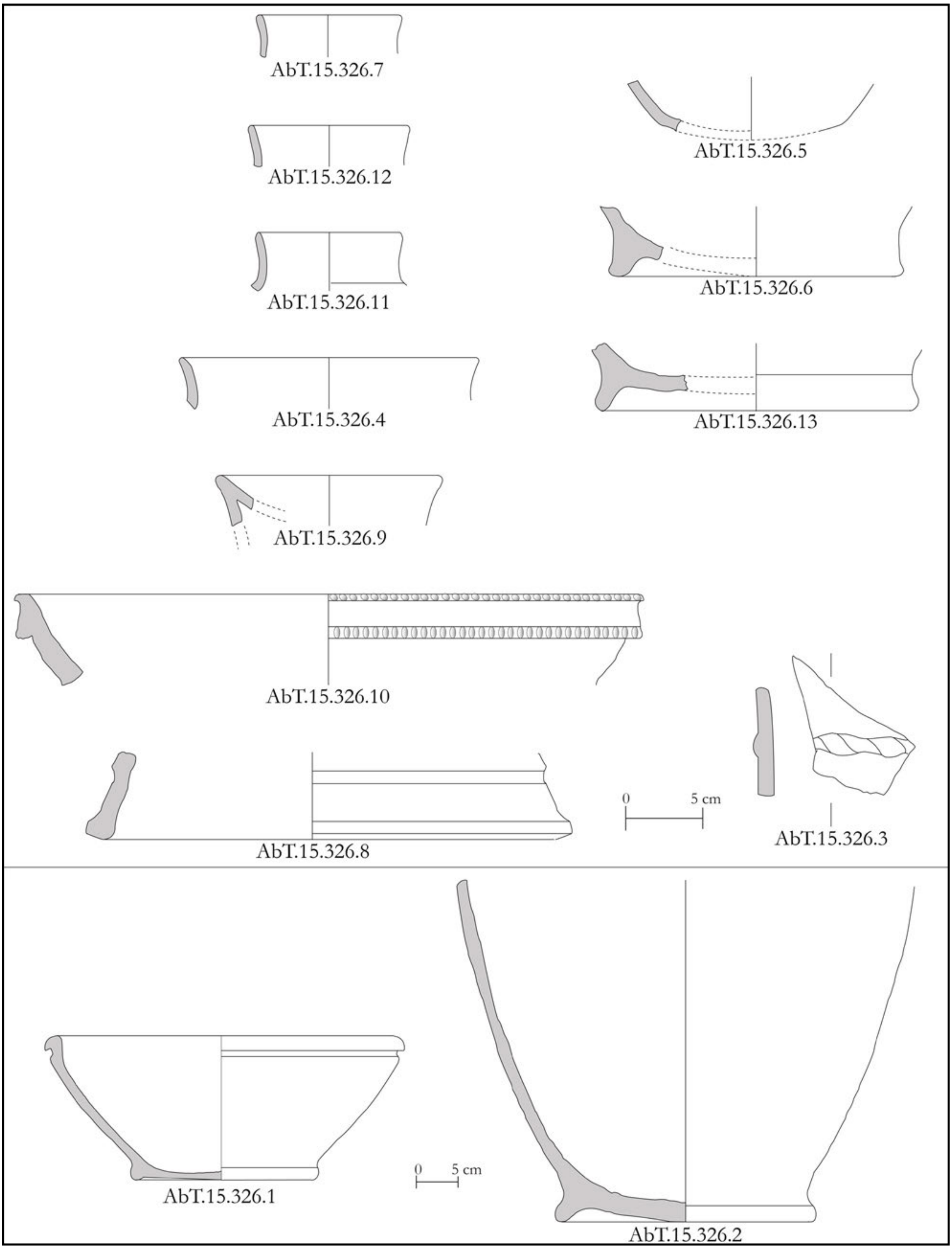


Fig. 7.63 US 326 pottery.

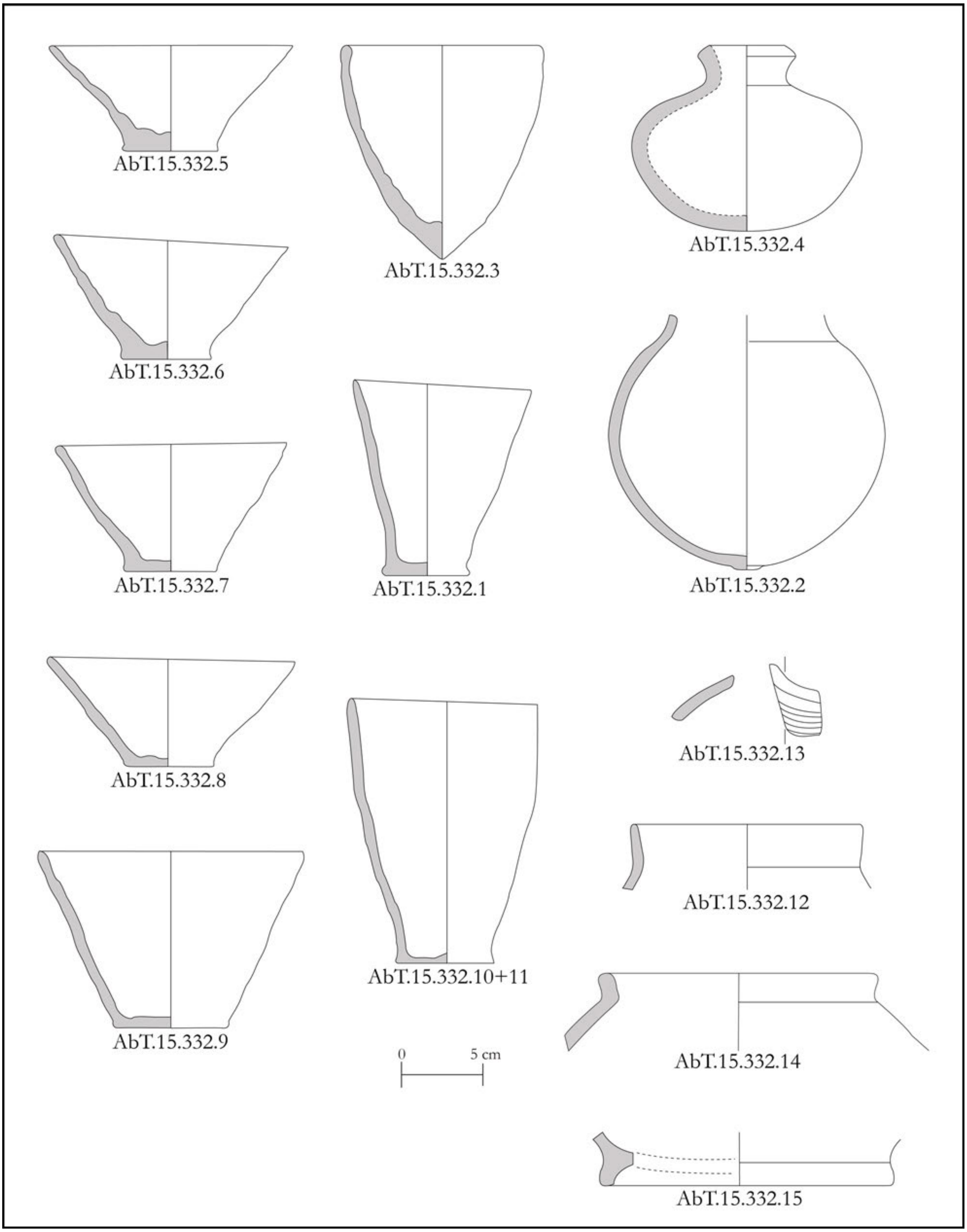


Fig. 7.64 US 332 pottery.

Catalogue of US 326 Finds

Pottery

AbT.15.326.1 - Fig. 7.63
Dimensions: rim diam.: 39 cm; rim th.: 2 cm; wall th.: 1 cm; base diam.: 20 cm; base th.: 1 cm; h.: 16.5 cm.
Clay: outer, inner and fabric colour: 2.5Y 7/3 (pale brown); sand inclusions; medium-high firing temperature.
Description: triangular rim bowl with ring base. A groove under the rim.

AbT.15.326.2 - Fig. 7.63
Dimensions: wall th.: 1.5 cm; base diam.: 29 cm; base th.: 2.3 cm.
Clay: outer, inner and fabric colour: 2.5Y 7/3 (pale brown); sand inclusions; medium-high firing temperature.
Description: big coiled ring base jar.

AbT.15.326.3 - Fig. 7.63
Dimensions: wall th.: 0.7 cm.
Clay: outer, inner and fabric colour: 5Y 8/3 (pale yellow); sand inclusions; medium-high firing temperature.
Description: stemmed-dish wall fragment with a notched ridge.

AbT.15.326.4 - Fig. 7.63
Dimensions: rim diam.: 20 cm; rim th.: 0.6 cm; wall th.: 0.6 cm.
Clay: outer and inner colour: 10YR 8/3 (very pale brown); fabric colour: 7.5YR 7/4 (pink); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.15.326.5 - Fig. 7.63
Dimensions: base diam.: 8 cm; base th.: 1 cm.
Clay: outer and inner colour: 10YR 5/1 (grey); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-high firing temperature.
Description: convex base.

AbT.15.326.6 - Fig. 7.63
Dimensions: wall th.: 0.9 cm; base diam.: 22 cm; base th.: 0.9 cm.
Clay: outer colour: 2.5Y 6/3 (light yellowish brown); inner colour: 7.5YR 4/4 (brown); fabric colour: 7.5YR 6/4 (light brown); sand and vegetal inclusions; medium-low firing temperature.
Description: ring base jar with bitumen traces.

AbT.15.326.7 - Fig. 7.63
Dimensions: rim diam.: 10 cm; rim th.: 0.5 cm; wall th.: 0.4 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 7.5YR 7/4 (pink); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.15.326.8 - Fig. 7.63
Dimensions: wall th.: 1.1 cm; base diam.: 32 cm; base th.: 2.2 cm.
Clay: outer and inner colour: 7.5YR 8/4 (pink); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-low firing temperature.
Description: stemmed-dish base with a ridge on the wall.

AbT.15.326.9 - Fig. 7.63
Dimensions: rim diam.: 14 cm; rim th.: 1.3 cm; wall th.: 0.9 cm.
Clay: outer colour: 7.5YR 8/4 (pink); inner and fabric colour: 5YR 7/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: conical bowl attached to a stand.

AbT.15.326.10 - Fig. 7.63
Dimensions: rim diam.: 10 cm; rim th.: 1.1 cm; wall th.: 1.5 cm.
Clay: outer and inner colour: 10YR 7/3 (very pale brown); fabric colour: 10YR 5/3 (brown); sand inclusions; medium-high firing temperature.
Description: stemmed-dish with double ridged rim and notched decoration.

AbT.15.326.11 - Fig. 7.63
Dimensions: rim diam.: 9 cm; rim th.: 0.6 cm; wall th.: 0.6 cm.
Clay: outer colour: 10YR 7/3 (very pale brown); inner colour: 5Y 8/3 (pale yellow); fabric colour: 2.5Y 8/3 (pale brown); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.15.326.12 - Fig. 7.63
Dimensions: rim diam.: 10 cm; rim th.: 0.5 cm; wall th.: 0.4 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/2 (pale brown); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.15.326.13 - Fig. 7.63
Dimensions: wall th.: 1.1 cm; base diam.: 20 cm; base th.: 1.5 cm.
Clay: outer colour: 10YR 8/3 (very pale brown); inner and fabric colour: 7.5YR 7/4 (pink); sand and vegetal inclusions; medium-low firing temperature.
Description: ring base.

Catalogue of US 332 Finds

Objects

AbT.15.5 - Fig. 7.62
Description: chert blade.
Dimensions: 1.5x3x0.4 cm.

AbT.15.10 - Fig. 7.62
Description: copper alloy point.
Dimensions: 0.6x5.7x0.5 cm.

Pottery

AbT.15.332.1 - Fig. 7.64
Dimensions: rim diam.: 11.5 cm; rim th.: 0.5 cm; wall th.: 0.7 cm; base diam.: 4.5 cm; base th.: 1.5 cm; h.: 11 cm.
Clay: outer and inner colour: 5Y 8/4 (pale yellow); sand inclusions; medium-high firing temperature.
Description: beaker.

AbT.15.332.2 - Fig. 7.64
Dimensions: wall th.: 0.7 cm; base diam.: 1.5 cm; base th.: 0.9 cm.
Clay: outer and fabric colour: 7.5YR 7/4 (pink); sand inclusions; medium-low firing temperature.
Description: jar with globular body and small disk base.

AbT.15.332.3 - Fig. 7.64
Dimensions: rim diam.: 11 cm; rim th.: 0.7 cm; wall th.: 0.7 cm; base diam.: 5.3 cm; base th.: 1.5 cm; h.: 13.5 cm.
Clay: outer colour: 7.5YR 7/4 (pink); inner colour: 10YR 6/3 (pale brown); fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium-low firing temperature.
Description: pointed beaker.

AbT.15.332.4 - Fig. 7.64
Dimensions: rim diam.: 3.4 cm; rim th.: 1 cm; wall th.: 0.8 cm; base diam.: 8.6 ca. cm; h.: 11.9 cm.
Clay: outer colour: 5YR 7/4 (pink); sand inclusions; medium-low firing temperature.
Description: small bottle with triangular rim. Bitumen traces around the rim and the neck.

AbT.15.332.5 - Fig. 7.64
Dimensions: rim diam.: 14.5 cm; rim th.: 0.7 cm; wall th.: 0.8 cm; base diam.: 5.5 cm; base th.: 1.5 cm; h.: 7 cm.
Clay: outer and inner colour: 5YR 6/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: conical bowl.

AbT.15.332.6 - Fig. 7.64
Dimensions: rim diam.: 15 cm; rim th.: 0.8 cm; wall th.: 0.8 cm; base diam.: 6 cm; base th.: 1.4 cm; h.: 7.2 cm.
Clay: outer and inner colour: 2.5Y 7/3 (pale brown); sand inclusions; medium firing temperature.
Description: conical bowl with bitumen inside.

AbT.15.332.7 - Fig. 7.64
Dimensions: rim diam.: 14 cm; rim th.: 0.6 cm; wall th.: 0.8 cm; base diam.: 5 cm; base th.: 1 cm; h.: 8 cm.
Clay: outer and inner colour: 2.5Y 7/3 (pale brown); sand inclusions; medium firing temperature.
Description: conical bowl with burning traces.

AbT.15.332.8 - Fig. 7.64
Dimensions: rim diam.: 15.2 cm; rim th.: 0.7 cm; wall th.: 0.8 cm; base diam.: 4.5 cm; base th.: 0.8 cm; h.: 6.5 cm.
Clay: outer and inner colour: 7.5YR 7/4 (pink); sand inclusions; medium-low firing temperature.
Description: conical bowl.

AbT.15.332.9 - Fig. 7.64
Dimensions: rim diam.: 12.5 cm; rim th.: 0.7 cm; wall th.: 0.7 cm; base diam.: 7 cm; base th.: 1 cm; h.: 10.6 cm.
Clay: outer, inner and fabric colour: 2.5Y 7/3 (pale brown); sand inclusions; medium firing temperature.
Description: conical bowl.

AbT.15.332.10+11 - Fig. 7.64
Dimensions: rim diam.: 11.6 cm; rim th.: 0.5 cm; wall th.: 0.5 cm; base diam.: 5.4 cm; base th.: 1 cm; h.: 16 cm.
Clay: outer and inner colour: 2.5Y 8/3 (pale brown); sand inclusions; medium-high firing temperature.
Description: beaker.

AbT.15.332.12 - Fig. 7.64
Dimensions: rim diam.: 14 cm; rim th.: 0.5 cm; wall th.: 0.6 cm.
Clay: outer and inner colour: 2.5Y 8/4 (pale brown); fabric colour: 5Y 7/1 (light grey); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.15.332.13 - Fig. 7.64
Dimensions: wall th.: 0.6 cm.
Clay: outer ("reserved slip like" effect) and inner colour: 5Y 8/3 (pale yellow); fabric colour: 5Y 7/2 (light grey); sand inclusions; medium-high firing temperature.
Description: jar shoulder fragment with combed incisions.

AbT.15.332.14 - Fig. 7.64
Dimensions: rim diam.: 13 cm; rim th.: 1.2 cm; wall th.: 0.7 cm.
Clay: outer and inner colour: 7.5YR 6/4 (light brown); fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: plain rim jar.

AbT.15.332.15 - Fig. 7.64
Dimensions: wall th.: 0.7 cm; base diam.: 15 cm; base th.: 1 cm.
Clay: outer colour: 2.5Y 8/2 (pale brown); inner and fabric colour: 7.5YR 7/4 (pink); sand inclusions; medium firing temperature.
Description: ring base.

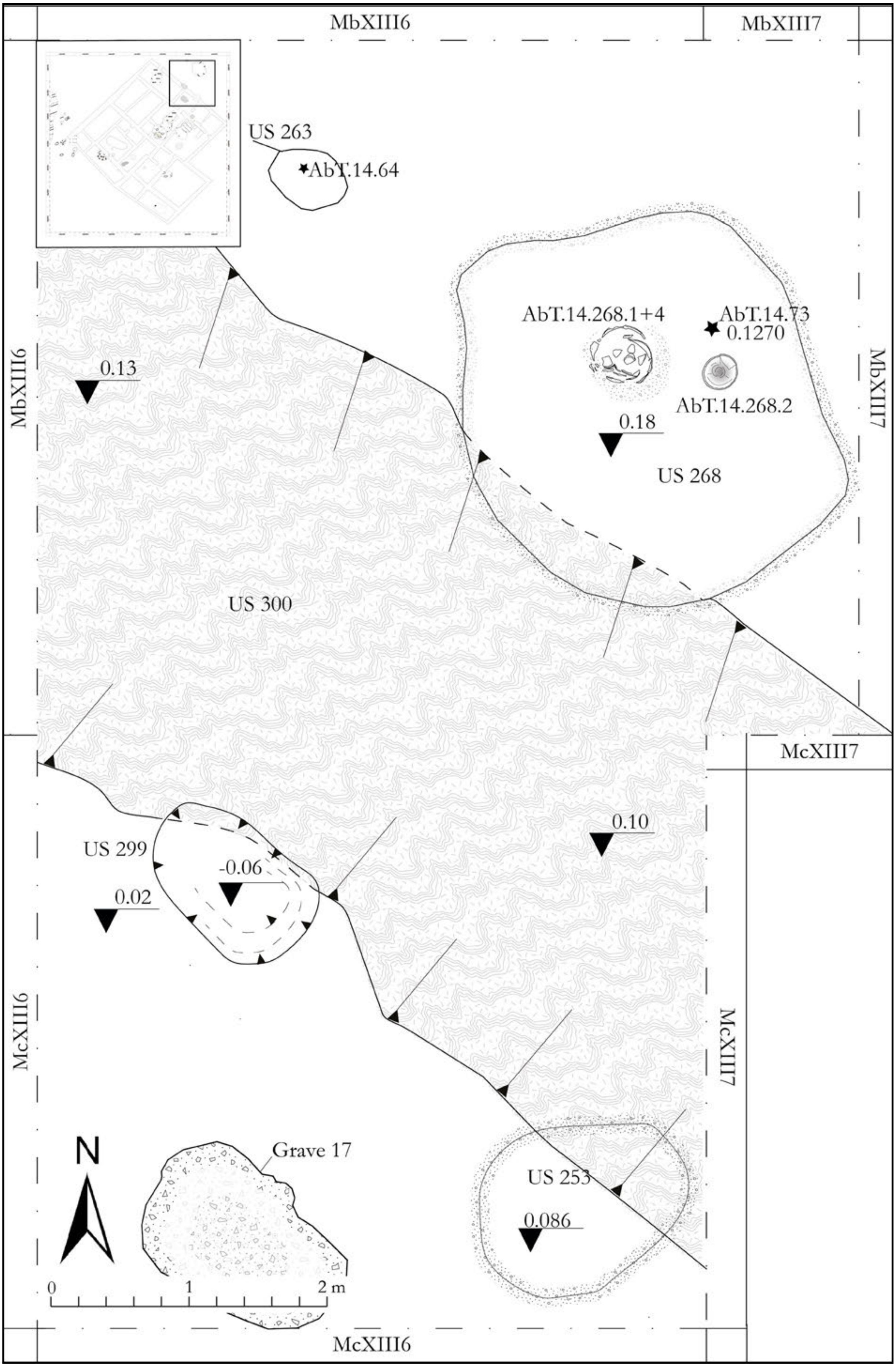


Fig. 7.65 Plan of the activities in Mb-dXIII6-7.

7.4 Mb-dXIII6-7 [LR]

7.4.1 Other Activities [LR]

A rainfall gully was clearly visible in this area (Fig. 7.65 and 6.4) and the excavation revealed a seasonal accumulation stratum formed by alternating lens of greyish and yellowish soil (US 300; elevation 0.13 m).[35] The rain was probably eased to flow here because of the presence of a street/corridor separating the underlying Building A from the huge building with stores (?) visible to the north-east.[36]

North of US 300 other two different activities were recognized during the surface clearance. The first one is a small pit (US 263; cut 264) identified at the elevation of 0.2 m and reaching a depth of 0.05 m. The pit was filled by a quite hard yellowish brown silty-clay soil with few pottery fragments, mostly belonging to drinking vessels.[37]

A soil heap (US 268) located between MbXIII6 and MbXIII7 was partially eroded, hardened by the flowing of water and by the accumulation of salt crystals. The hard, pale-brown clay soil was rich with pottery fragments, that were contained mainly inside the ring base jar AbT.14.268.1 (Fig. 7.66-67). The jar was probably reused, a clear evidence of the fact that pottery was not disposable: the ring base, indeed, was broken and repaired adding in the middle a disk of re-shaped coarse pottery. The presence of a stemmed-dish base, found upside-down and reveted with a vegetal twine apparently glued with bitumen (Fig. 7.68), is also noteworthy.[38]

South of US 300, in the north-western part of McXIII6, the seasonal accumulation layers covered a pit (US 298; cut 299), the upper edge of which was identified at the elevation of 0.02 m and reached a depth of -0.06 m. The soil filling the pit consisted in a quite hard dark yellowish-brown clay soil with few pottery fragments, mainly of drinking vessels and of some jars. In the south-west part of McXIII6, US 300 covered a soil heap, US 253, found at the elevation of 0.086 m. The heap, consisting of a quite hard, brown and silty-clay soil, was originally believed to be connected to a grave with sarcophagus due to the presence of some fragments of coarse pottery scattered on its surface.

Fig. 7.66 US 268 pottery.

Fig. 7.67 US 268 pottery: detail of the ring base repaired with a reshaped pottery disk.

Fig. 7.68 Vegetal twine found inside AbT.14.268.2.

[35] If not necessary we avoid to assign a separate US number to the erosion and to its backfill, like in this case. US 300 should be considered as indicating both the negative US and its filling. US 300 was not completely excavated.

[36] The presence of the mud-bricks and, thus, the harder consistence of the clay of the building material (if compared to Abu Tbeirah soil) allowed the flowing of rainfall water: the same situation was highlighted in the Harbor (Area 5) where the rainfall water was canalized in correspondance of the entrances from the city to the Harbor complex (see D'Agostino - Romano 2018).

[37] Only 7 jar fragments were recovered.

[38] Comparison in Schwartz - Hollander 2000: 86 Fig. 3 from Acınebi Tepe (interpreted as a basket impression - bitumen used for waterproofing).

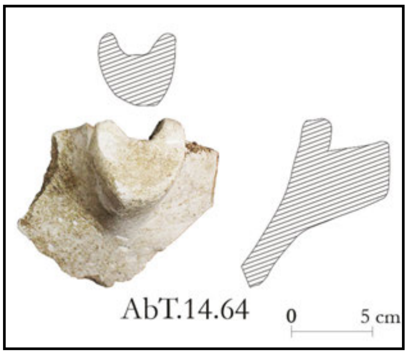


Fig. 7.69 US 263 objects.

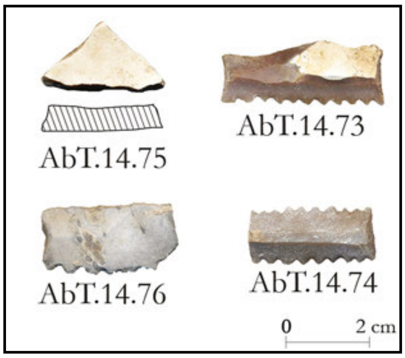


Fig. 7.70 US 268 objects.

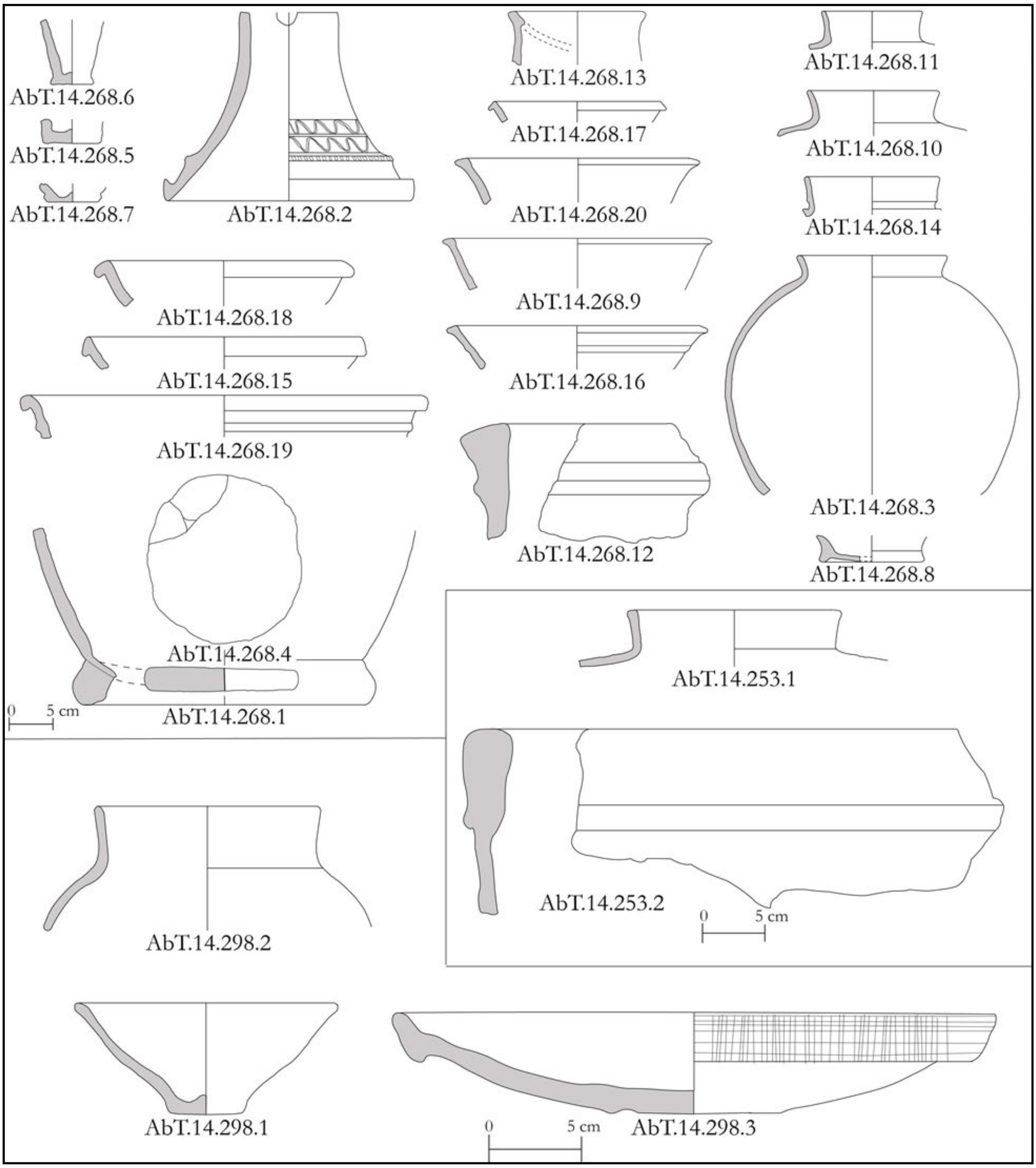


Fig. 7.71 US 253, US 268 and US 298 pottery.

Catalogue of US 253 Finds

Pottery

AbT.14.253.1 - Fig. 7.71
Dimensions: rim diam.: 16 cm; rim th.: 0.7 cm; wall th.: 1.1 cm.
Clay: outer and inner colour (slipped): 2.5Y 8/3 (pale brown); fabric colour: 5YR 7/4 (pink); sand inclusions; medium firing temperature.
Description: plain rim jar.

AbT.14.253.2 - Fig. 7.71
Dimensions: rim diam.: n.d.; rim th.: 3.9 cm; wall th.: 1.3 cm.
Clay: outer, inner and fabric colour: 5Y 7/2 (light grey); sand and vegetal inclusions; high firing temperature.
Description: rim and part of the wall of a vat.

Catalogue of US 263 Finds

Objects

AbT.14.64 - Fig. 7.69
Description: limestone spouted vessel.
Dimensions: 8.3x13.2x5.9 cm.

Catalogue of US 268 Finds

Objects

AbT.14.73 - Fig. 7.70
Description: chert sickle element.
Dimensions: 3.9x1.9x0.4 cm.

AbT.14.74 - Fig. 7.70
Description: chert sickle element.
Dimensions: 3x1.3x0.3 cm.

AbT.14.75 - Fig. 7.70
Description: limestone vessel fragment.
Dimensions: 3.1x1x0.5 cm.

AbT.14.76 - Fig. 7.70
Description: chert sickle element.
Dimensions: 3.4x2.8x0.3 cm.

Pottery

AbT.14.268.1 - Fig. 7.71
Dimensions: wall th.: 1 cm; base diam.: 32 cm; base th.: 2.3 cm.
Clay: outer, inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium firing temperature.
Description: ring base jar. The base was repaired with a disk made of a very coarse wall reshaped in the form of a disk (AbT.14.268.4).

AbT.14.268.2 - Fig. 7.71
Dimensions: wall th.: 1.2 cm; base diam.: 25 cm; base th.: 1.7 cm.
Clay: outer, inner and fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: stemmed-dish base. The bottom of two rounded openings is preserved near the upper fracture of the base. Notched ridge immediately over the beginning of the base and weavy incisions over the ridge.

AbT.14.268.3 - Fig. 7.71
Dimensions: rim diam.: 15 cm; rim th.: 0.7 cm; wall th.: 0.8 cm.
Clay: outer, inner and fabric colour: 10YR 7/3 (very pale brown); sand inclusions; medium firing temperature.
Description: plain rim jar with globular body.

AbT.14.268.4 - Fig. 7.71
Dimensions: base diam.: 17.5 cm; base th.: 2.8 cm.
Clay: outer colour: 5Y 7/3 (pale yellow); inner colour: 2.5Y 6/4 (light yellowish brown); fabric colour: 5Y 6/3 (pale olive); sand and vegetal inclusions; high firing temperature.
Description: very coarse pottery disk, obtained reshaping a wall of a vat and reused with AbT.14.268.1.

AbT.14.268.5 - Fig. 7.71
Dimensions: wall th.: 1.3 cm; base diam.: 5.9 cm; base th.: 1.2 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/3 (pale brown); sand inclusions; medium-high firing temperature.
Description: drinking vessel base.

AbT.14.268.6 - Fig. 7.71
Dimensions: wall th.: 0.7 cm; base diam.: 4.5 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 2.5YR 5/4 (reddish brown); sand inclusions; medium-low firing temperature.
Description: beaker base.

AbT.14.268.7 - Fig. 7.71
Dimensions: base diam.: 6 cm; base th.: 0.5 cm.
Clay: outer, inner and fabric colour: 5YR 7/4 (pink); sand inclusions; medium-low firing temperature.
Description: conical bowl base.

AbT.14.268.8 - Fig. 7.71
Dimensions: base diam.: 11 cm; base th.: 0.5 cm.
Clay: outer, inner and fabric colour: 5YR 6/4 (5YR 6/4); sand inclusions; medium-low firing temperature.
Description: ring base.

AbT.14.268.9 - Fig. 7.71
Dimensions: rim diam.: 26 cm; rim th.: 1.4 cm; wall th.: 0.8 cm.
Clay: outer, inner and fabric colour: 5YR 7/4 (pink); sand inclusions; medium-low firing temperature.
Description: triangular rim bowl.

AbT.14.268.10 - Fig. 7.71
Dimensions: rim diam.: 13 cm; rim th.: 0.6 cm; wall th.: 0.6 cm.
Clay: outer colour: 2.5Y 8/2 (pale brown); inner colour: 7.5YR 6/4 (light brown); fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium firing temperature.
Description: plain rim jar.

AbT.14.268.11 - Fig. 7.71
Dimensions: rim diam.: 10 cm; rim th.: 0.5 cm; wall th.: 0.6 cm.
Clay: outer colour: 2.5Y 8/2 (pale brown); inner colour: 10YR 7/3 (very pale brown); fabric colour: 7.5YR 7/3 (pink); sand inclusions; medium firing temperature.
Description: plain rim jar.

AbT.14.268.12 - Fig. 7.71
Dimensions: rim diam.: n.d.; rim th.: 5.6 cm; wall th.: 2.2 cm.
Clay: outer, inner and fabric colour: 5Y 8/4 (pale yellow); sand and vegetal inclusions; high firing temperature.
Description: double-ridged rim of a vat.

AbT.14.268.13 - Fig. 7.71
Dimensions: rim diam.: 13 cm; rim th.: 1.2 cm; wall th.: 0.9 cm.
Clay: outer colour: 10YR 8/3 (very pale brown); inner colour: 7.5YR 7/4 (pink); fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: conical bowl attached to a stand.

AbT.14.268.14 - Fig. 7.71
Dimensions: rim diam.: 13.5 cm; rim th.: 0.6 cm; wall th.: 0.8 cm.
Clay: outer, inner and fabric colour: 5Y 7/3 (pale yellow); sand inclusions; medium-high firing temperature.
Description: band rim jar.

AbT.14.268.15 - Fig. 7.71
Dimensions: wall th.: 0.9 cm; base diam.: 28 cm; base th.: 0.9 cm.
Clay: outer, inner and fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium firing temperature.
Description: triangular rim bowl.

AbT.14.268.16 - Fig. 7.71
Dimensions: rim diam.: 25 cm; rim th.: 1.1 cm; wall th.: 0.8 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/2 (pale brown); sand inclusions; medium firing temperature.
Description: triangular rim bowl. Applied ridge on the wall.

AbT.14.268.17 - Fig. 7.71
Dimensions: rim diam.: 17 cm; rim th.: 1.2 cm; wall th.: 0.7 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/2 (pale brown); sand inclusions; medium-high firing temperature.
Description: triangular rim bowl.

AbT.14.268.18 - Fig. 7.71
Dimensions: wall th.: 1.2 cm; base diam.: 24 cm; base th.: 2 cm.
Clay: outer, inner and fabric colour: 10YR 8/3 (very pale brown); sand inclusions; medium firing temperature.
Description: triangular rim bowl.

AbT.14.268.19 - Fig. 7.71
Dimensions: rim diam.: 34 cm; rim th.: 1.9 cm; wall th.: 1.2 cm.
Clay: outer, inner and fabric colour: 10YR 8/2 (very pale brown); sand inclusions; medium-high firing temperature.
Description: triangular rim bowl.

AbT.14.268.20 - Fig. 7.71
Dimensions: rim diam.: 23 cm; rim th.: 1.3 cm; wall th.: 1 cm.
Clay: outer, inner and fabric colour: 7.5YR 8/2 (pinkish white); sand inclusions; medium-high firing temperature.
Description: triangular rim bowl.

Catalogue of US 298 Finds

Pottery

AbT.14.298.1 - Fig. 7.71
Dimensions: rim diam.: 14 cm; rim th.: 0.7 cm; wall th.: 0.9 cm; base diam.: 5 cm; base th.: 0.7 cm; h.: 6.7 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/2 (pale brown); sand inclusions; medium-high firing temperature.
Description: conical bowl.

AbT.14.298.2 - Fig. 7.71
Dimensions: rim diam.: 12 cm; rim th.: 0.5 cm; wall th.: 0.5 cm.
Clay: outer, inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium-low firing temperature.
Description: plain rim jar.

AbT.14.298.3 - Fig. 7.71
Dimensions: rim diam.: 31 cm; rim th.: 1.2 cm; wall th.: 1.2 cm; base diam.: 5.9 cm; base th.: 1.3 cm; h.: 5.5 cm.
Clay: outer and inner colour (self-slip): 2.5Y 8/3 (pale brown); fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium firing temperature.
Description: stemmed-dish bowl (probably reused once detached from the stem). Incised grid-like decoration on the rim.

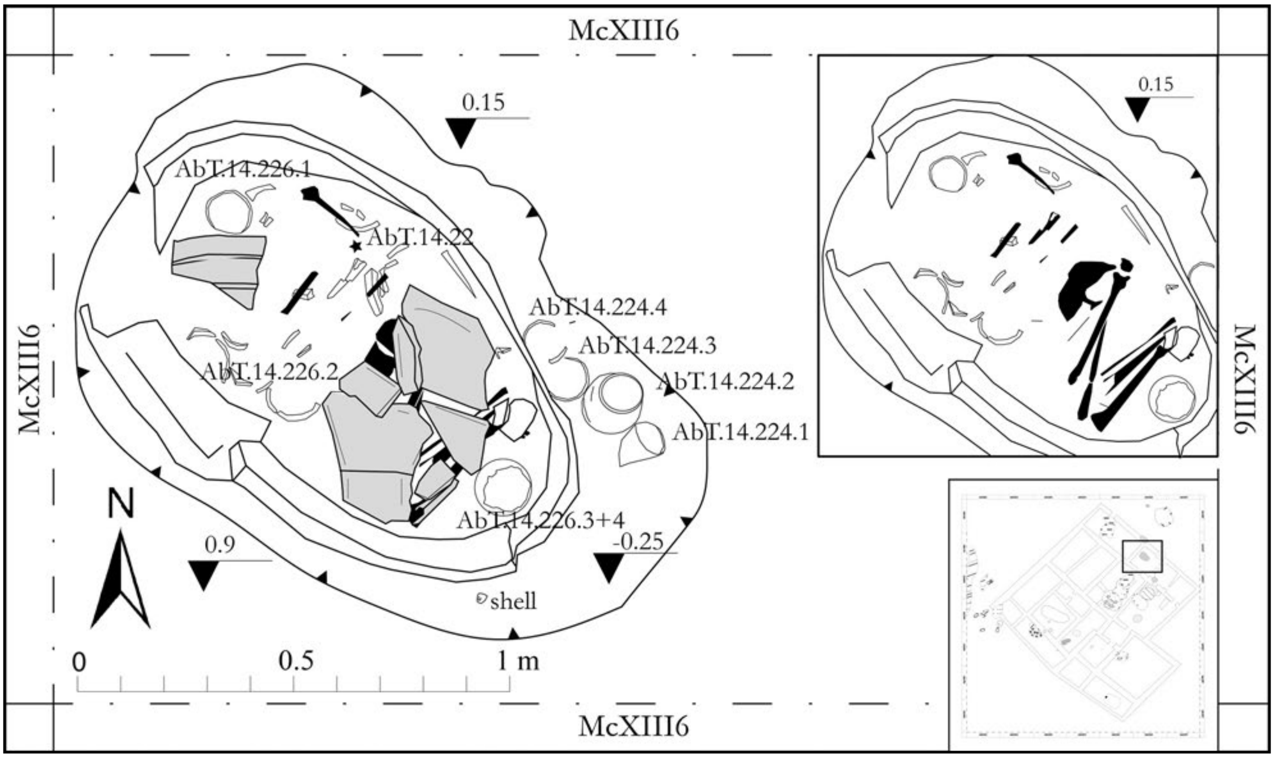


Fig. 7.72 Grave 17 plan (realized by C. Rielli).

7.4.2 Grave 17 [LR]

In McXIII6, at the elevation of 0.15 m, another sarcophagus was discovered, already looted in antiquity (cut US 231, filling US 226 - Figs 7.72-75). The cut of the grave destroyed the stratigraphy of Room 8 (see § 8.8) reaching the elevation of -0.25 m at its bottom. The evidence suggests that the ancient looters opened the grave digging directly inside it, in correspondence of the sarcophagus' limits. No other cut was visible than the one made to host the coffin. The sarcophagus US 225 was realized in a reddish-yellow coarse pottery, with an out-turned and flattened rim, three ridges on the wall and a oval ring base. The coffin broke down during or after firing, the fracture was then fixed with bitumen (see Fig. 7.74). The weight of the soil and the looting left the coffin in fragments. The compact, pale brown, and silty soil filling the robber's hole (US 226) was rich in pottery fragments and covered part of the pottery equipment (same US).[39] However, some of the vessels inside the coffin were preserved: a jar with a conical bowl used as lid near the feet; a conical bowl near the right hip, but moved from its original position; a small beaker found in correspondence of the skull. The skeleton (US 237- Fig. 7.73) was badly preserved only in its lower part. The body was apparently oriented north-west/south-east. The hips, found crushed one over the other, were in a very bad state of preservation. Few other bones were scattered inside US 226. The quite hard, pale brown silty soil (US 224) between the coffin and the cut of the grave (US 230) covered 3 beakers and one jar (AbT.14.226.1-4), located east of the coffin. Fragments of two different limestone vessels were found in US 224 and US 226.

[39] In addition to the pottery in the catalogue the following pieces have been found: 2 drinking vessel bases; 1 rounded rim jar fragment; 1 band rim jar fragment.

Fig. 7.73 Grave 17 coffin (US 225).

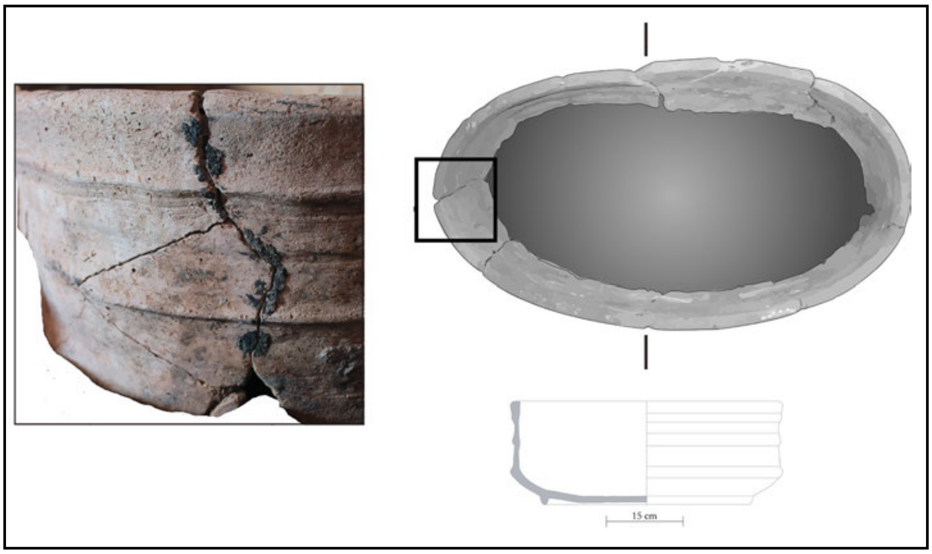


Fig. 7.74 Grave 17 coffin (US 225): drawing and detail of the bitumen repairing.

Fig. 7.75 Grave 17 coffin and equipment.

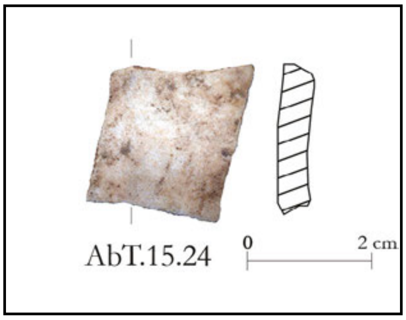


Fig. 7.76 US 224 objects.

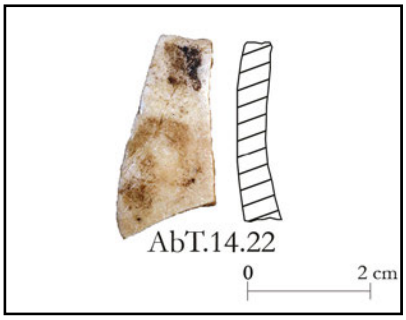


Fig. 7.77 US 226 objects.

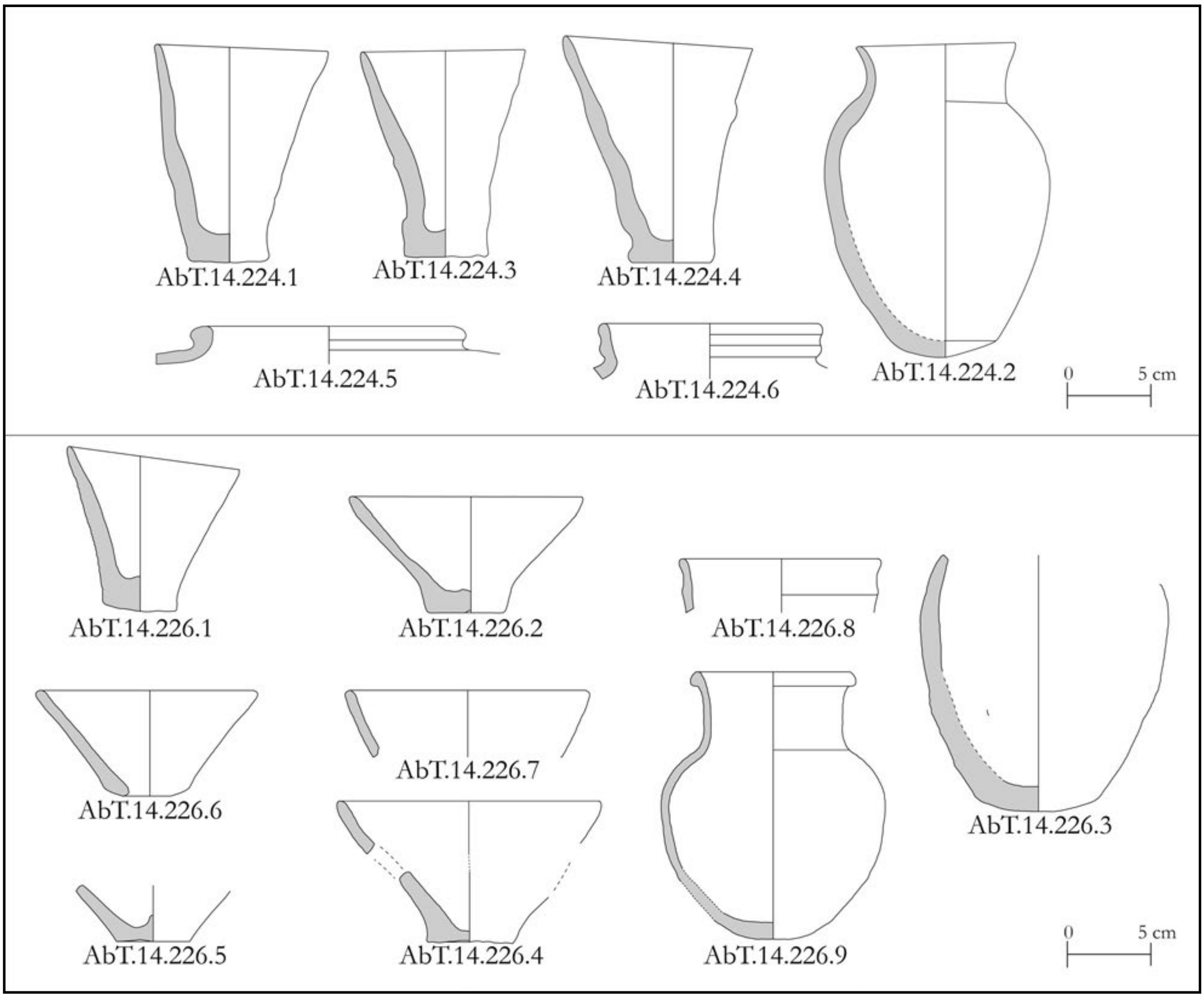


Fig. 7.78 US 224 and US 226 pottery.

Catalogue of US 224 Finds

Objects

AbT.14.24 - Fig. 7.76
Description: fragment of a limestone vessel; found near AbT.14.224.3.
Dimensions: 2.3x2.4x0.4 cm.

Pottery

AbT.14.224.1 - Fig. 7.78
Dimensions: rim diam.: 11.3 cm; rim th.: 0.5 cm; wall th.: 1.2 cm; base diam.: 1.5 cm; base th.: 5.4 cm; h.: 13.9 cm.
Clay: outer, inner and fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; low firing temperature.
Description: beaker.

AbT.14.224.2 - Fig. 7.78
Dimensions: rim diam.: 10 cm; rim th.: 0.6 cm; wall th.: 1.2 cm; base diam.: 6.5 cm; base th.: 1 cm; h.: 20.5 cm.
Clay: outer, inner and fabric colour: 5YR 7/4 (pink); sand inclusions; medium-low firing temperature.
Description: plain rim jar with convex base.

AbT.14.224.3 - Fig. 7.78
Dimensions: rim diam.: 10.9 cm; rim th.: 0.7 cm; wall th.: 1 cm; base diam.: 5.5 cm; base th.: 1 cm; h.: 13 cm.
Clay: outer, inner and fabric colour: 5YR 7/4 (pink); sand inclusions; low firing temperature.
Description: beaker.

AbT.14.224.4 - Fig. 7.78
Dimensions: rim diam.: 10.7 cm; rim th.: 0.8 cm; wall th.: 0.7 cm; base diam.: 5 cm; base th.: 1.5 cm; h.: 13.5 cm.
Clay: outer, inner and fabric colour: 5YR 7/4 (pink); sand inclusions; low firing temperature.
Description: beaker.

AbT.14.224.5 - Fig. 7.78
Dimensions: rim diam.: 16 cm; rim th.: 1.2 cm; wall th.: 0.8 cm.
Clay: outer, inner and fabric colour: 10YR 8/4 (very pale brown); sand inclusions; medium-high firing temperature.
Description: plain rim jar (almost triangular rim).

AbT.14.224.6 - Fig. 7.78
Dimensions: rim diam.: 13 cm; rim th.: 0.6 cm; wall th.: 0.7 cm.
Clay: outer and inner colour: 10YR 8/4 (very pale brown); fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium-high firing temperature.
Description: double-ridged rim jar.

Catalogue of US 225 Finds

Pottery

AbT.14.225.1
Dimensions: rim diam. (min): 53 cm; rim th.: 2.3 cm; wall th.: 1.5 cm; base diam.: 40 cm; base th.: 1.2 cm; h.: 23 cm ca.
Clay: outer, inner and fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium firing temperature.
Description:coiled coffin with two ridges on the wall and ring base.

Catalogue of US 226 Finds

Objects

AbT.14.22 - Fig. 7.77
Description: limestone vessel fragment.
Dimensions: 3.4x1.5x0.5 cm.

Pottery

AbT.14.226.1 - Fig. 7.78
Dimensions: rim diam.: 11.3 cm; rim th.: 0.6 cm; wall th.: 1 cm; base diam.: 4.5 cm; base th.: 1 cm; h.: 10.6 cm.
Clay: outer and inner colour: 10YR 8/3 (very pale brown); sand inclusions; medium-high firing temperature.
Description: small beaker.

AbT.14.226.2 - Fig. 7.78
Dimensions: rim diam.: 15.5 cm; rim th.: 0.7 cm; wall th.: 0.8 cm; base diam.: 5.1 cm; base th.: 0.6 cm; h.: 7.3 cm.
Clay: outer, inner and fabric colour: 2.5YR 7/6 (light red); sand inclusions; low firing temperature.
Description: conical bowl.

AbT.14.226.3 - Fig. 7.78
Dimensions: wall th.: 1.1 cm; base diam.: 7.5 cm; base th.: 0.8 cm.
Clay: outer colour (self-slip): 2.5YR 8/3 (pink); inner and fabric colour: 2.5YR 5/6 (red); sand inclusions; medium-high firing temperature.
Description: convex base jar. The conical bowl AbT.14.226.4 wasfound inside it (lid?).

AbT.14.226.4 - Fig. 7.78
Dimensions: rim diam.: 16 cm; rim th.: 0.8 cm; wall th.: 1.1 cm; base diam.: 5.2 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 2.5YR 6/6 (light red); sand inclusions; medium-high firing temperature.
Description: conical bowl found inside AbT.14.226.3 (lid?).

AbT.14.226.5 - Fig. 7.78
Dimensions: wall th.: 1 cm; base diam.: 4.9 cm; base th.: 0.7 cm.
Clay: outer, inner and fabric colour: 7.5YR 7/4 (pink); sand inclusions; medium firing temperature.
Description: conical bowl base.

AbT.14.226.6 - Fig. 7.78
Dimensions: rim diam.: 13 cm; rim th.: 0.7 cm; wall th.: 0.9 cm.
Clay: outer, inner and fabric colour: 2.5YR 6/6 (light red); sand inclusions; medium-high firing temperature.
Description: conical bowl.

AbT.14.226.7 - Fig. 7.78
Dimensions: rim diam.: 14.5 cm; rim th.: 0.6 cm; wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 2.5YR 6/6 (light red); sand inclusions; low firing temperature.
Description: conical bowl rim.

AbT.14.226.8
Dimensions: rim diam.: 12 cm; rim th.: 0.7 cm.
Clay: outer and inner colour: 7.5YR 8/3 (pink); fabric colour: 2.5YR 7/8 (light red); sand inclusions; low firing temperature.
Description: band rim jar.

AbT.14.226.9
Dimensions: rim diam.: 10 cm; rim th.: 0.7 cm; wall th.: 0.4 cm; base diam.: 5.2 cm; base th.: 0.8 cm; h.: 16 cm ca.
Clay: outer and inner colour: 5YR 8/4 (pink); fabric colour: 2.5YR 5/6 (red); sand inclusions; medium firing temperature.
Description: triangular rim jar.

7.4.3 MdXIII7 [LR[

In square MdXIII7, in correspondance of the northern angle of Room 13, a pit (US 335) was located (see plan at Fig. 8.66), the backfill of which (US 336) was characterized by an olive yellow clay soil, with abundant salt crystals and several bone and pottery fragments. The two fragmentary conical bowl found in the pit were strongly weathered and clearly in secondary context.[40]

Catalogue of US 336 Finds

Pottery

AbT.15.336.1 - Fig. 7.79
Dimensions: rim diam.: 11 cm; rim th.: 0.5 cm; wall th.: 0.6 cm; base diam.: 4.6 cm; base th.: 1 cm; h.: 4.2 cm.
Clay: outer colour: 5YR 5/4 (reddish brown); inner colour: 7.5YR 7/4 (pink); fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium-low firing temperature.
Description: conical bowl.

AbT.15.336.2 - Fig. 7.79
Dimensions: rim diam.: 13 cm; rim th.: 0.6 cm; wall th.: 0.8 cm; base diam.: 5 cm; base th.: 1.3 cm; h.: 8.2 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium firing temperature.
Description: conical bowl.

Fig. 7.79 US 336 Pottery.

[40] In addition to the two conical bowls, fragments of at least two different jars were collected.

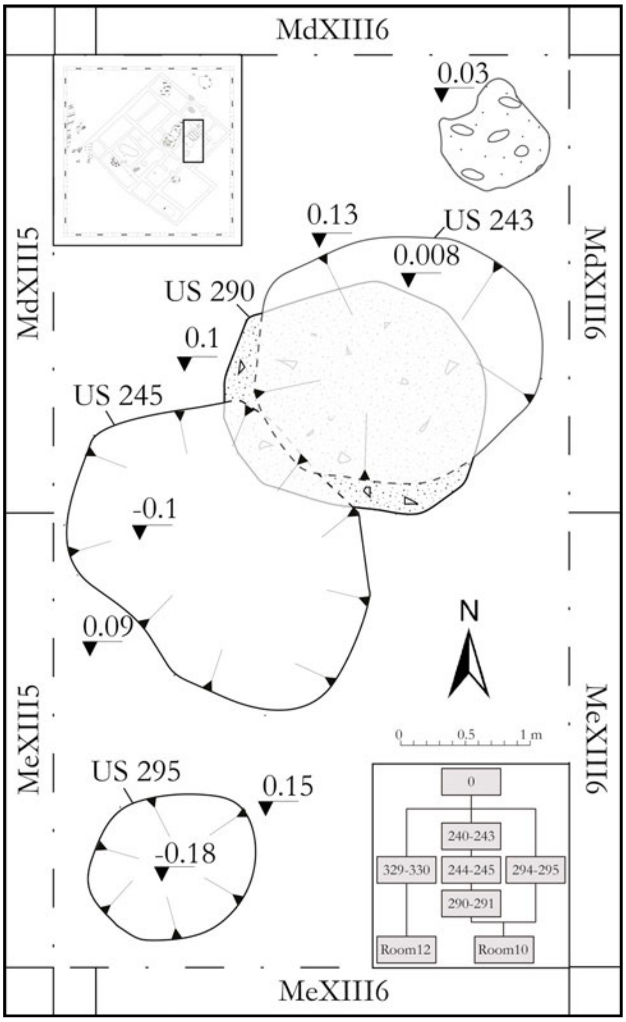


Fig. 7.80 Plan of the activities in MdXIII6+MeXIII5+6.

Fig. 7.81 Bitumen ingot inside US 295.

Fig. 7.82 Spherical bitumen object found inside US 295.

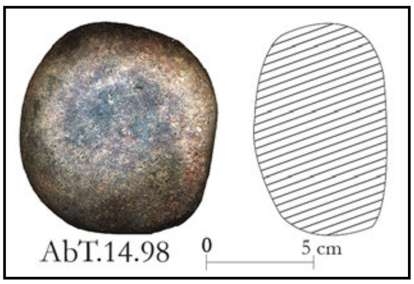


Fig. 7.83 US 294 objects.

7.5 MdXIII6+MeXIII5+6 [LR]

7.5.1 Other Activities [LR]

In squares MdXIII6+MeXIII5+6 (Fig. 7.80), immediately over Building A Room 10, several pits were identified under the surface, probably connected to the dumping activities that damaged also Room 7.

A group of three pits partially cut the dividing wall between Room 10 and 7, near the northern part of the former. The latest of these activities was a shallow cut (US 243; from 0.13 m to 0.008 m), filled by US 240, consisting of a greyish brown ashy soil. The US contained fragments of a big coiled jar. Most of the other fragments belonged to drinking vessels and jars of medium dimensions. This pit cut the north-east part of the second one: US 244 (cut US 245) was identified at the elevation of 0.09 m, reaching the depth of -0.1 m. The pit was filled by a quite soft, organic and greyish soil, full of pottery fragments (mainly drinking vessels and medium jar walls). US 245 cut the third pit (US 290; cut 291) and found at the elevation of 0.1 m, reaching a depth of -0.24 m. The backfill, a light yellowish-brown clay soil, contained several pieces of an overfired jar and fragments of drinking vessels (at least 5).

In the area corresponding to the south-western part of Room 10, immediately under the surface, a forth pit was located. The cut (US 295) was identified at the elevation of 0.15 m and reached a depth of -0.18 m. US 294, the quite hard, light yellowish brown, and silty soil filling the pit, contained few fragments of pottery, mosts from drinking vessels. A bitumen "ingot" in fragments was found together with a spherical one (Figs 6.81-82).

In the western corner of Room 12, another shallow pit (US 329; cut 330) cut the underlying strata from the elevation of 0.03 m until a depth of -0.04 m. The pit was filled by a compact, pale yellow clay soil, rich in mud-brick fragments and containing only one complete conical bowl.

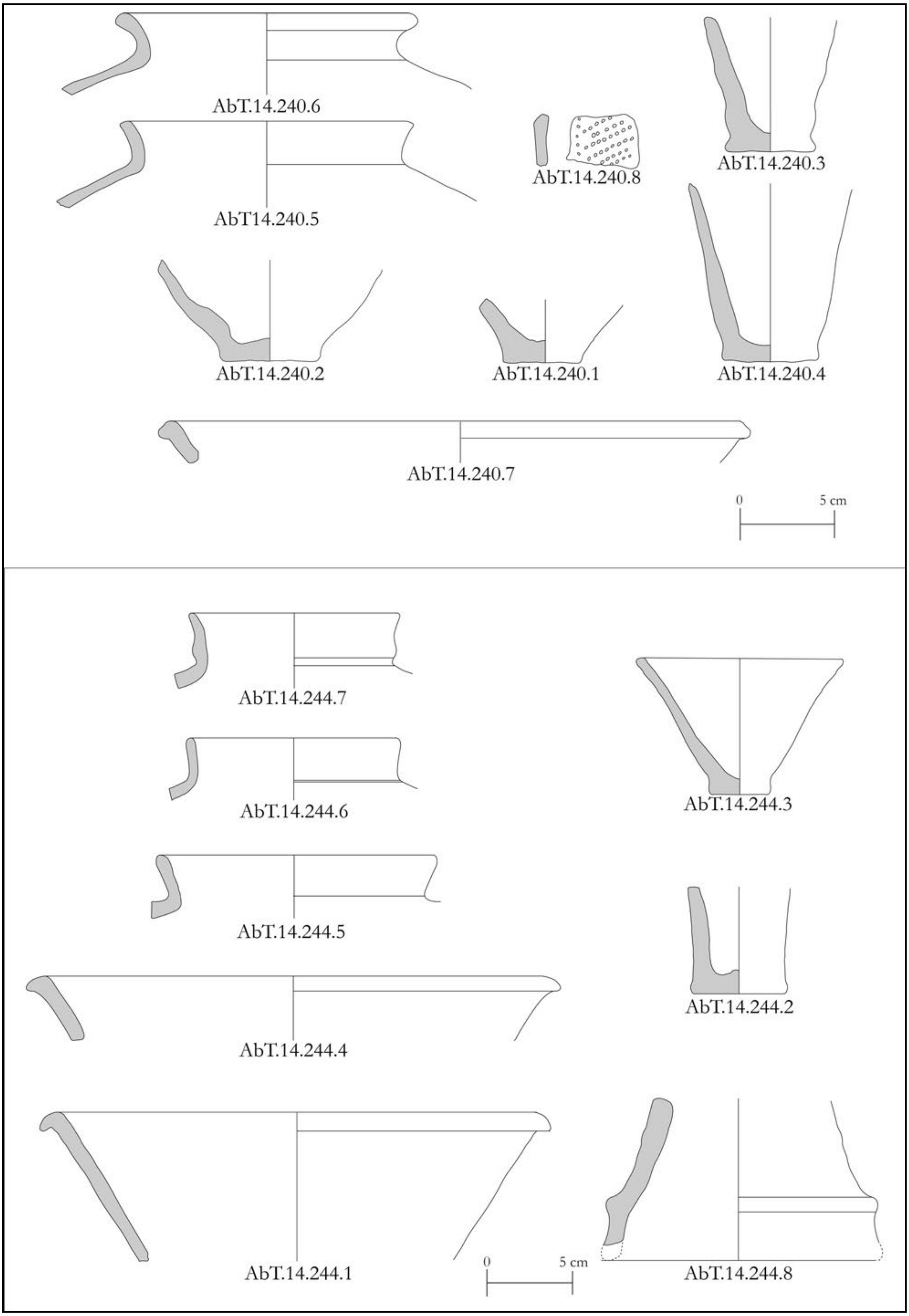


Fig. 7.84 US 240 and US 244 pottery.

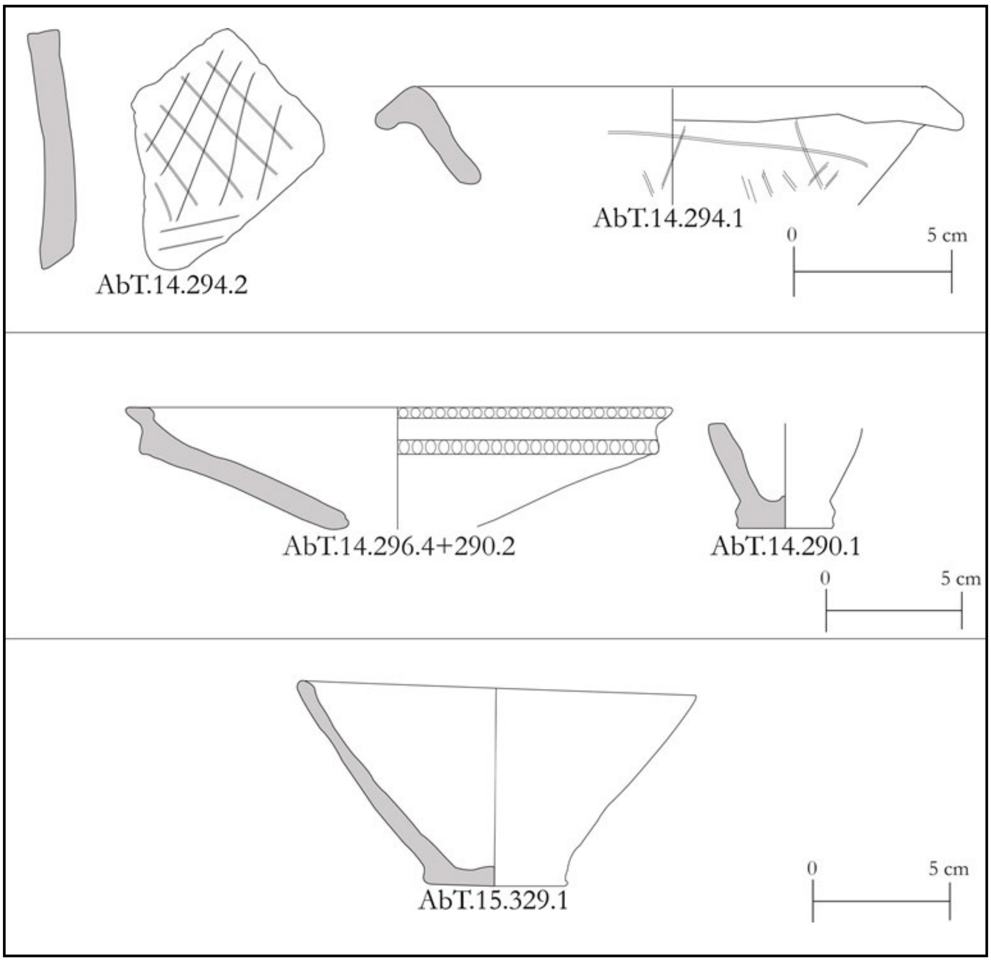


Fig. 7.85 US 290, US 294 and US 329 pottery.

Catalogue of US 240 Finds

Pottery

AbT.14.240.1 - Fig. 7.84
Dimensions: wall th.: 0.9 cm; base diam.: 5 cm; base th.: 0.8 cm.
Clay: outer, inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium-low firing temperature.
Description: conical bowl base.

AbT.14.240.2 - Fig. 7.84
Dimensions: wall th.: 0.7 cm; base diam.: 4.5 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium-low firing temperature.
Description: conical bowl base.

AbT.14.240.3 - Fig. 7.84
Dimensions: wall th.: 0.8 cm; base diam.: 5.5 cm; base th.: 1.1 cm.
Clay: outer and inner colour: 10YR 7/4 (very pale brown); fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium-low firing temperature.
Description: beaker base.

AbT.14.240.4 - Fig. 7.84
Dimensions: wall th.: 0.6 cm; base diam.: 5.3 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: beaker base.

AbT.14.240.5 - Fig. 7.84
Dimensions: rim diam.: 14 cm; rim th.: 0.7 cm; wall th.: 0.7 cm.
Clay: outer, inner and fabric colour: 2.5Y 7/4 (pale brown); sand inclusions; medium firing temperature.
Description: plain rim jar.

AbT.14.240.6 - Fig. 7.84
Dimensions: rim diam.: 14 cm; rim th.: 0.9 cm; wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/3 (pale brown); sand inclusions; medium firing temperature.
Description: plain rim jar.

AbT.14.240.7 - Fig. 7.84
Dimensions: rim diam.: 34 cm; rim th.: 1.2 cm; wall th.: 0.8 cm.
Clay: outer and inner colour: 10YR 7/3 (very pale brown); fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium-low firing temperature.
Description: triangular rim bowl.

AbT.14.240.8 - Fig. 7.84
Dimensions: wall th.: 0.7 cm.
Clay: outer, inner and fabric colour: 10YR 6/2 (light brownish grey); sand inclusions; medium-high firing temperature.
Description: wall fragment with small circular impressions.

Catalogue of US 244 Finds

Pottery

AbT.14.244.1 - Fig. 7.84
Dimensions: rim diam.: 28 cm; rim th.: 1.5 cm; wall th.: 0.9 cm.
Clay: outer and inner colour: 2.5Y 8/3 (pale brown); fabric colour: 2.5YR 5/4 (reddish brown); sand inclusions; medium-low firing temperature.
Description: triangular rim bowl.

AbT.14.244.2 - Fig. 7.84
Dimensions: wall th.: 1 cm; base diam.: 5 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium-high firing temperature.
Description: beaker base.

AbT.14.244.3 - Fig. 7.84
Dimensions: rim diam.: 17 cm; rim th.: 0.6 cm; wall th.: 0.6 cm; base diam.: 3.5 cm; base th.: 0.8 cm; h.: 8 cm.
Clay: outer colour: 7.5YR 8/2 (pinkish white); inner colour: 5YR 6/4 (light reddish brown); fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium-high firing temperature.
Description: conical bowl.

AbT.14.244.4 - Fig. 7.84
Dimensions: rim diam.: 31 cm; rim th.: 1.5 cm; wall th.: 1 cm.
Clay: outer, inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium firing temperature.
Description: triangular rim bowl.

AbT.14.244.5 - Fig. 7.84
Dimensions: rim diam.: 16 cm; rim th.: 0.9 cm; wall th.: 0.9 cm.
Clay: outer and inner colour: 10YR 8/3 (very pale brown); fabric colour: 5YR 4/4 (reddish brown); sand inclusions; medium firing temperature.
Description: plain rim jar.

AbT.14.244.6 - Fig. 7.84
Dimensions: rim diam.: 12 cm; rim th.: 0.6 cm; wall th.: 0.7 cm.
Clay: outer and inner colour: 7.5YR 8/3 (pink); fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium-low firing temperature.
Description: plain rim jar (incised line between the neck and the shoulder).

AbT.14.244.7 - Fig. 7.84
Dimensions: rim diam.: 12 cm; rim th.: 0.6 cm; wall th.: 1 cm.
Clay: outer, inner and fabric colour: 5Y 8/2 (pale yellow); sand inclusions; high firing temperature.
Description: band rim jar.

AbT.14.244.8 - Fig. 7.84
Dimensions: wall th.: 1.4 cm; base diam.: 16 cm; base th.: 1 cm.
Clay: outer and inner colour: 7.5YR 6/4 (light brown); fabric colour: 7.5YR 5/4 (brown); sand inclusions; medium-high firing temperature.
Description: stemmed-dish base.

Catalogue of US 290 Finds

Pottery

AbT.14.290.1 - Fig. 7.85
Dimensions: wall th.: 0.7 cm; base diam.: 3.5 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium-low firing temperature.
Description: beaker base.

AbT.14.290.2 (+296.4) - Fig. 7.85
Dimensions: rim diam.: 20 cm; rim th.: 0.9 cm; wall th.: 0.9 cm.
Clay: outer, inner and fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: stemmed-dish bowl. Oblique notches of 0.4 cm on the two ridges of the rim. A second piece was found in one of the lower strata, inside Building A Room 10.
Note: in § 10 the fragment was considered together with the decorated pieces coming from Building A.

Catalogue of US 294 Finds

Objects

AbT.14.98 - Fig. 7.83
Description: reddish stone tool. Burnt?
Dimensions: 9.7x6.1x10 cm.

Pottery

AbT.14.294.1 - Fig. 7.85
Dimensions: rim diam.: 16 cm; rim th.: 1.9 cm; wall th.: 0.7 cm.
Clay: outer, inner and fabric colour: 5YR 7/8 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: triangular rim bowl (poorly shaped version). Incision under the rim (one parallel to the rim and other oblique lines).

AbT.14.294.2 - Fig. 7.85
Dimensions: wall th.: 0.9 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium-high firing temperature.
Description: wall fragment of a stem decorated with hatched incisions and excissions.

Catalogue of US 329 Finds

Pottery

AbT.15.329.1 - Fig. 7.85
Dimensions: rim diam.: 15 cm; rim th.: 0.7 cm; wall th.: 1.2 cm; base diam.: 4.7 cm; base th.: 1.3 cm; h.: 6.5 cm.
Clay: outer and inner colour: 10YR 8/2 (verypale brown); sand inclusions; medium-low firing temperature.
Description: conical bowl.

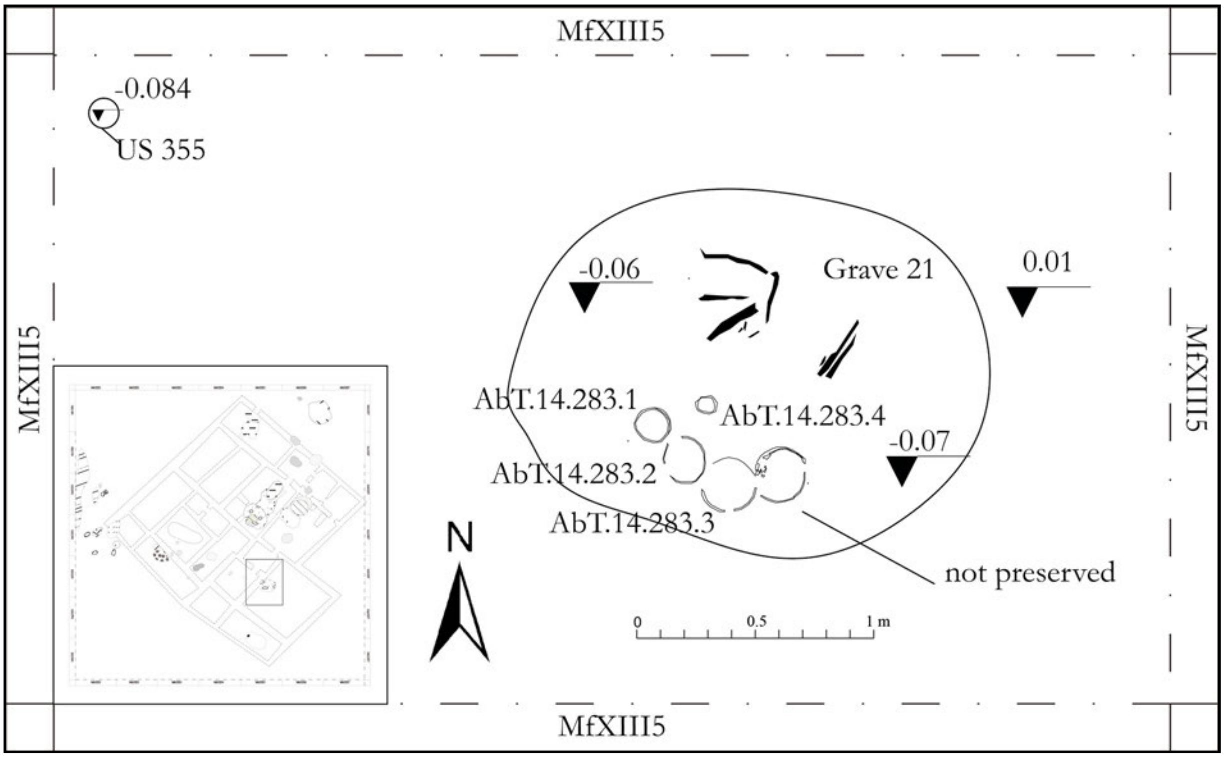


Fig. 7.86 Grave 21 plan.

7.6 MfXIII3-5 [LR]

7.6.1 Other Activities [LR]

In this area a posthole (US 354; cut US 355) and a pit with two conical bowls on the bottom were found (see § 8.15).

7.6.2 Grave 21 [LR]

In MfXIII5 Grave 21 (Figs 7.86-87) was discovered immediately under the surface, mostly eroded. Thus, the cut (US 285)[41] was not clearly evident and the skeleton (US 284) badly damaged by salinization.

Fig. 7.87 Grave 21 before the damages.

The silty soil that filled the grave (US 283) was light olive brown in colour. Four jars were deposed along the southern limit of the grave, each with only the base preserved; a conical bowl was between the jars and the body, probably near the original position of the hands. Unfortunately, the vessels were destroyed, probably by Bedouins, on the 23rd of October 2014 after we left the site: only three bases of jars were recovered in the spot together with a conical bowl base, all recorded in the catalogue. The body laid apparently in semiflexed position with the head plausibly located north-west and the feet toward south-east, the legs bent toward south. Also, the arms were apparently bent.

[41] The cut was bigger in the upper part and tapering down, reaching a maximum dept of -0.07 m. One of the walls of Building A was cut by the grave.

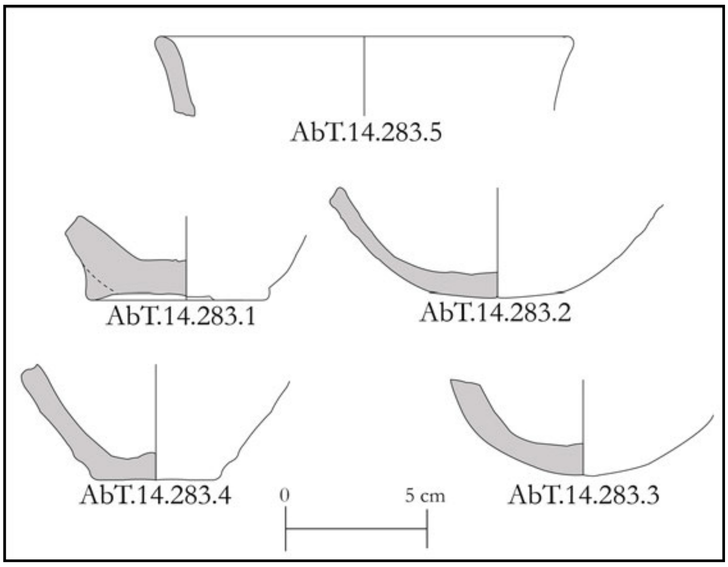


Fig. 7.88 US 283 pottery.

Catalogue of US 283 Finds

Pottery

AbT.14.283.1 - Fig. 7.88
Dimensions: base diam.: 8.5 cm; base th.: 1 cm.
Clay: outer and inner colour (self-slip): 2.5Y 8/2 (pale brown); fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium-low firing temperature.
Description: jar base with three feet.

AbT.14.283.2 - Fig. 7.88
Dimensions: wall th.: 0.7 cm; base diam.: 7 cm; base th.: 0.7 cm.
Clay: outer, inner and fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium-low firing temperature.
Description: slightly convex base.

AbT.14.283.3 - Fig. 7.88
Dimensions: wall th.: 1 cm; base diam.: 4.5 cm.
Clay: outer colour (self-slip): 2.5Y 8/2 (pale brown); inner and fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium firing temperature.
Description: convex base.

AbT.14.283.4 - Fig. 7.88
Dimensions: wall th.: 0.9 cm; base diam.: 5 cm; base th.: 0.9 cm.
Clay: outer colour: 5YR 5/6 (yellowish red); inner and fabric colour: 7.5YR 4/4 (brown); sand inclusions; medium-low firing temperature.
Description: conical bowl base.

AbT.14.283.5 - Fig. 7.87
Dimensions: rim diam.: 14 cm; rim th.: 0.7 cm; wall th.: 0.7 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/3 (pale brown); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

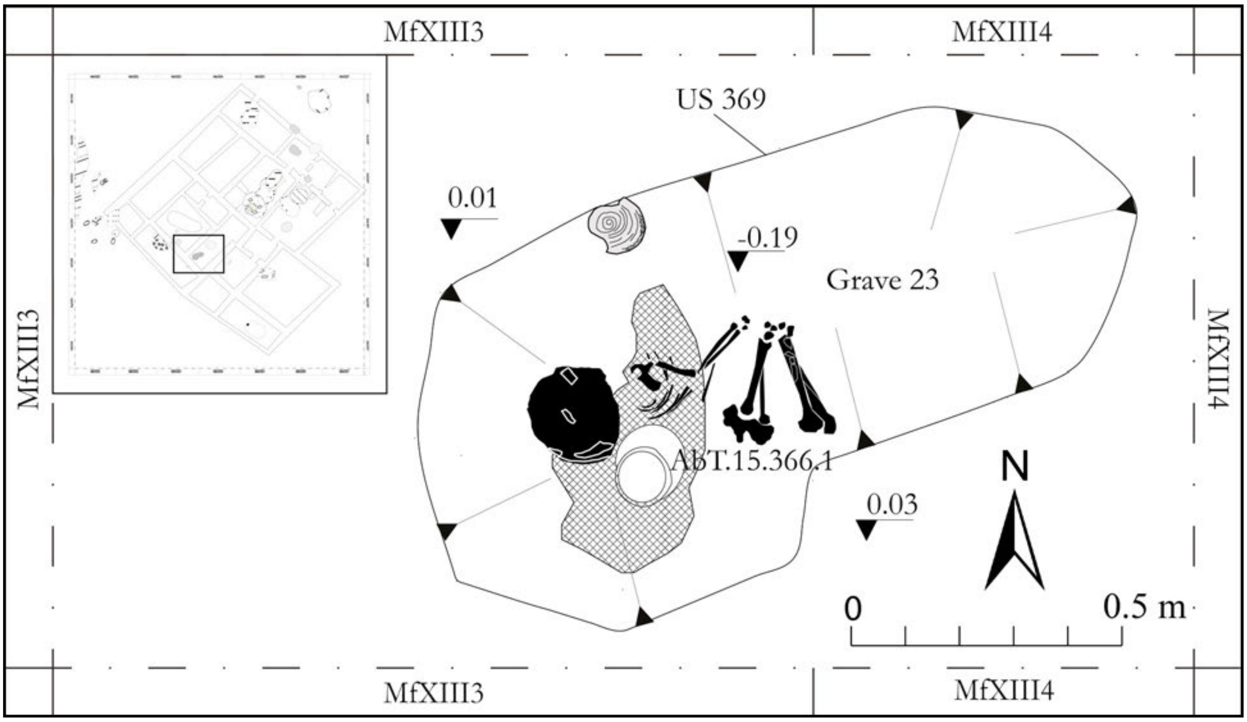


Fig. 7.89 Grave 23 plan.

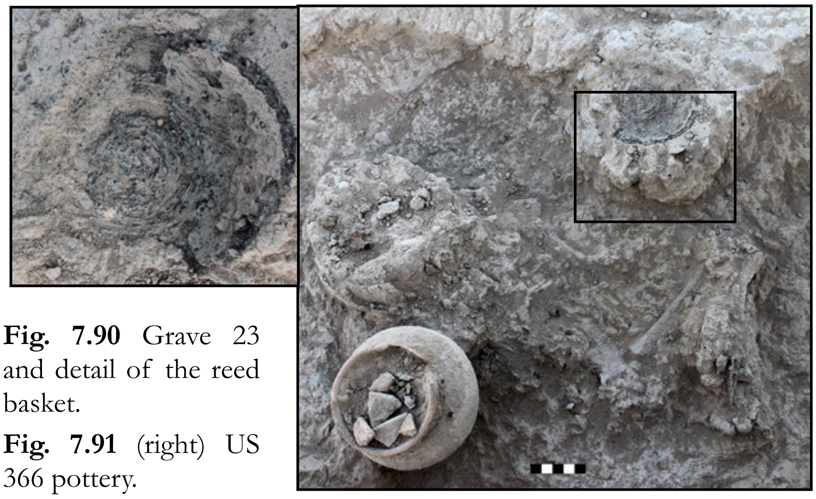
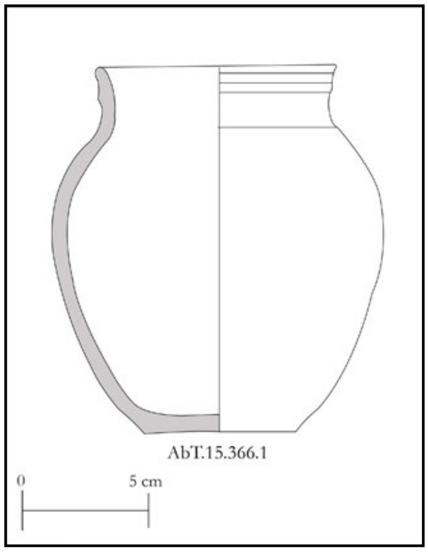


Fig. 7.90 Grave 23 and detail of the reed basket.

Fig. 7.91 (right) US 366 pottery.



7.6.3 Grave 23 [LR]

Grave 23 (Figs 7.89-90) was located in square MfXIII3-4. It was a simple inhumation of a child (US 367), wrapped in a reed-mat (US 368). The soil was soft and brown in colour (US 366; cut US 369) and covered the body and the simple equipment, consisting of a jar and a small circular reed basket (Fig. 7.90). The maximum dept reached by the grave is -0.19 m. The body was placed in foetal position on his left side, with the head toward west and looking north, the legs bent.

Catalogue of US 366 Finds

Pottery

AbT.15.366.1 - Fig. 7.91
Dimensions: rim diam.: 9 cm; rim th.: 0.7 cm; wall th.: 0.7 cm; base diam.: 6 cm; base th.: 0.9 cm; h.: 15 cm.
Clay: outer and inner colour: 7.5YR 7/4 (pink); fabric colour: 2.5YR 5/4 (reddish brown); sand inclusions; medium-low firing temperature.
Description: small double-ridged rim jar.

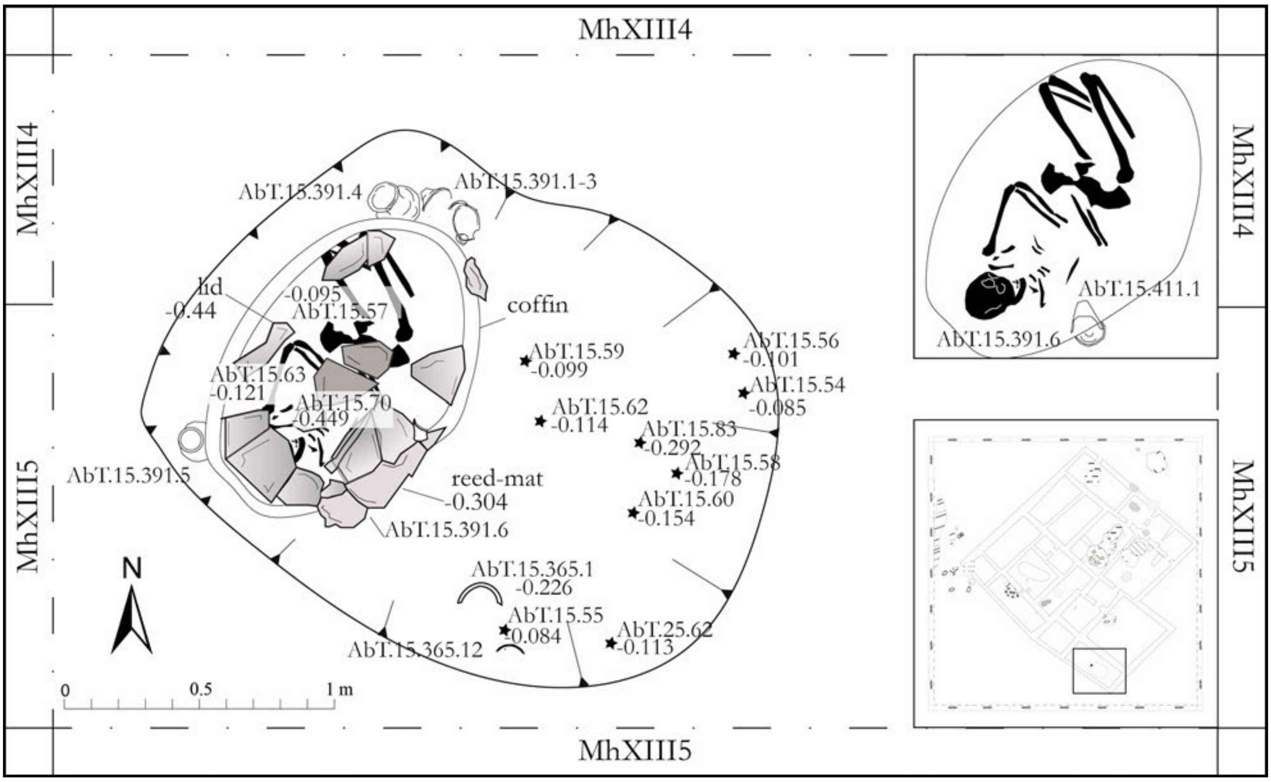


Fig. 7.92 Grave 24 plan.

7.7 MG-HXIII5-4 [LR]

7.7.1 GRAVE 24 [LR]

A big cut (US 373) was realized at 0.1 m of elevation in Mg-hXIII5-4 in order to host the sarcophagus (US 371) of Grave 24 (Figs 7.92-94). The cut was deeper toward north-west, reaching a maximum depth of -0.6 m ca. The backfill of the cut (US 365), was a very friable dark yellowish brown silty-clay soil, containing bitumen objects, lots of pottery shards and many stone tools and chert blades.[42] The lid of the coffin (US 375), found at -0.44 m of elevation, was in fragments.[43] The soil immediately over the lid's fragments (US 372) contained a sort of shell handle (?) covered by a copper alloy lamina: it is not clear if the object was originally part of the equipment of the grave.[44]

Under the lid reed-mat traces covered both the inner and the outer side of the coffin. It might be that the reed-mat was used to lift the lid and laid it over the coffin.

The skeleton (US 374), laying in a semi-flexed position, was poorly preserved: the bones were crushed (vertebrae, hips, all the left arm) by the collapsed lid and the skull showed a hole in the centre. The body was deposed with the head toward south-west looking west, the legs were bent toward north leaning against the western wall of the sarcophagus. The arms were flexed with the hands on the hips. Traces of reed-mat were also found above the skeleton. The coiled sarcophagus was realized in coarse pottery, with a ring base, three ridges on the external wall and an out-turned triangular rim. Around it, the pottery equipment (US 391 - Fig. 7.95) was placed: two jars and a conical bowl were deposed near the north-east edge of the coffin; another jar on the south-west side and a conical bowl along the south side. After the removal of the coffin, a beaker was discovered under it (US 411).

[42] The grave cut Room 23, in which a bitumen workshop plenty of lithic tools was discovered (see § 9): it is thus probable that the huge number of stone tools in the filling were due to the reuse of the soil, first removed and then used to fill the cut. Apart from the pottery in the catalogue, other 15 bases of drinking vessels were found.

[43] Due probably to the weight of the soil.

[44] In this case we should hypothesize a looting activity that however did not leave traces: the skeleton, though in bad condition, was still in its primary position, with the bones in connection.

Fig. 7.93 Grave 24 with the lid (US 375) still *in situ*.

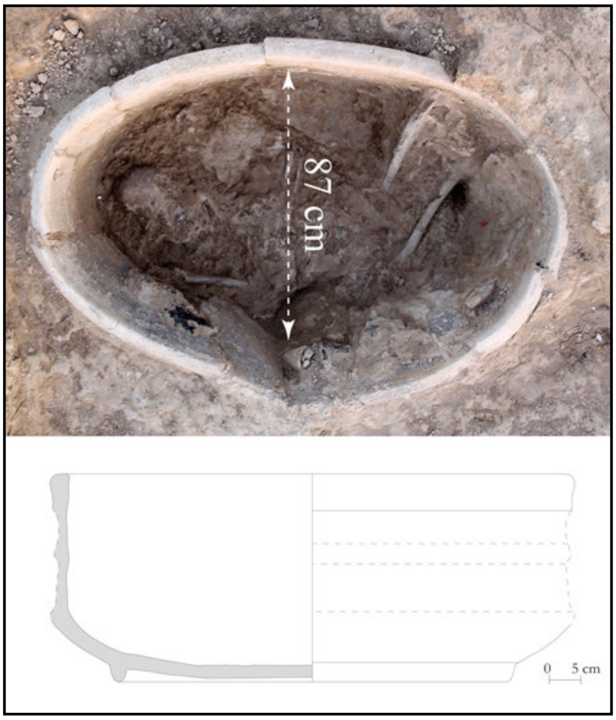


Fig. 7.94 Grave 24 skeleton (US 374) and coffin (US 371).

Fig. 7.95 Grave 24 pottery equipment (US 391).

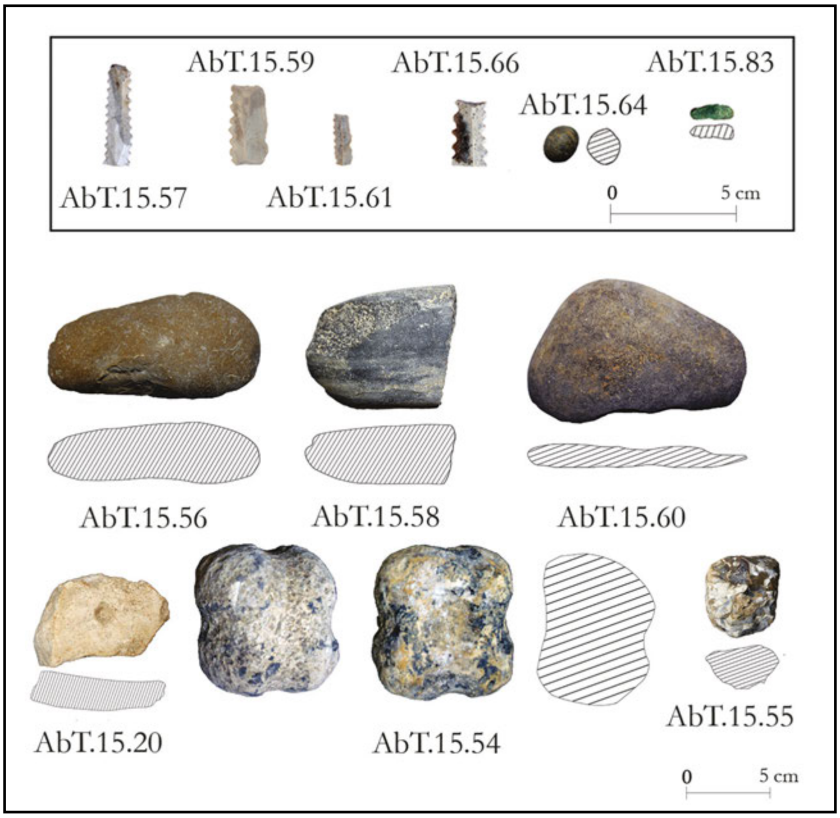


Fig. 7.96 US 365 objects.

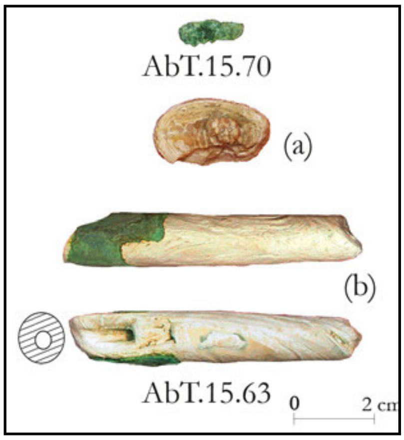


Fig. 7.97 US 372 objects.

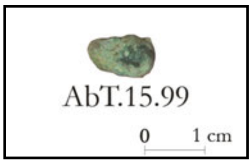


Fig. 7.98 US 391 objects.

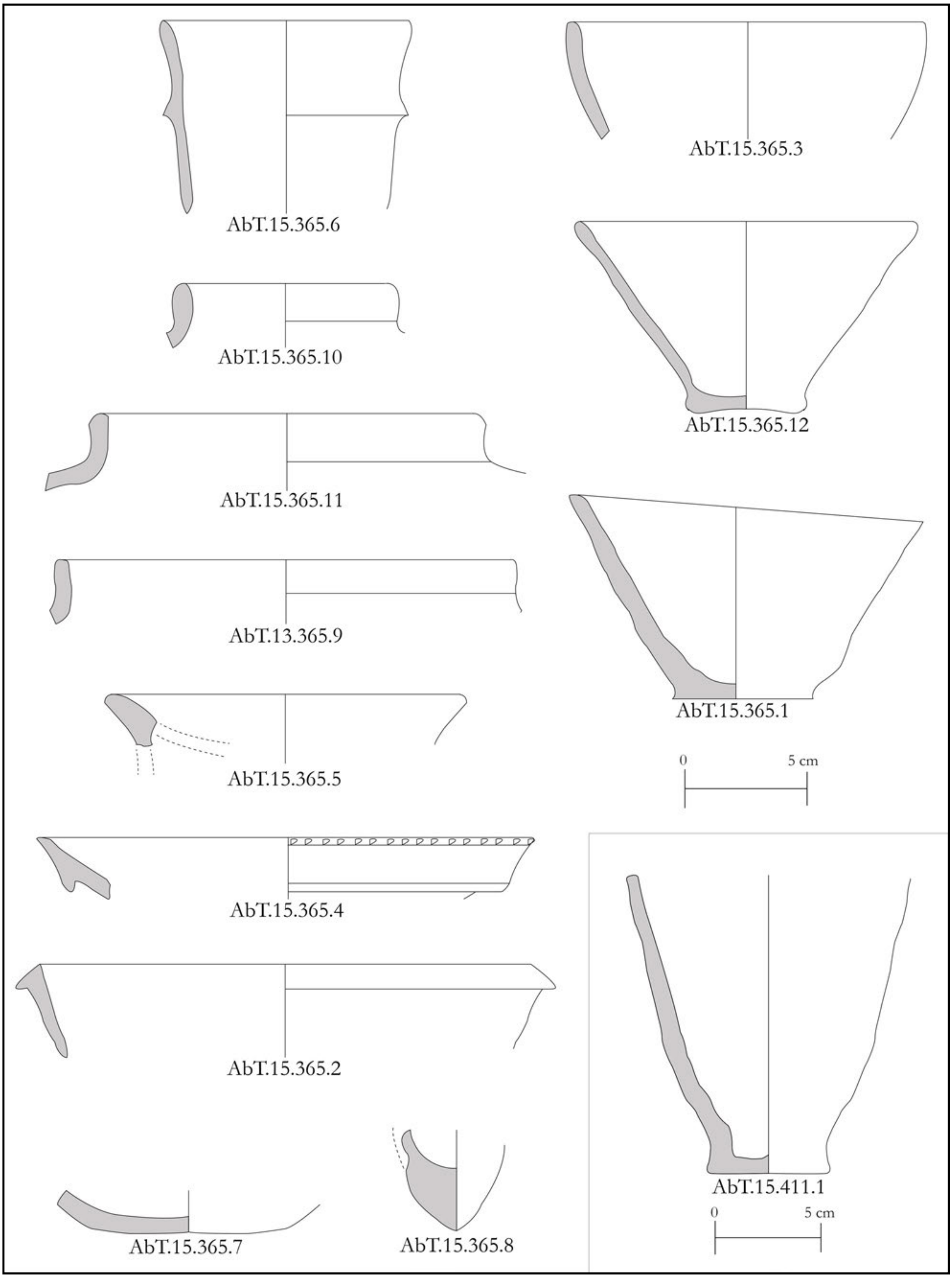


Fig. 7.99 US 365 and US 411 pottery.

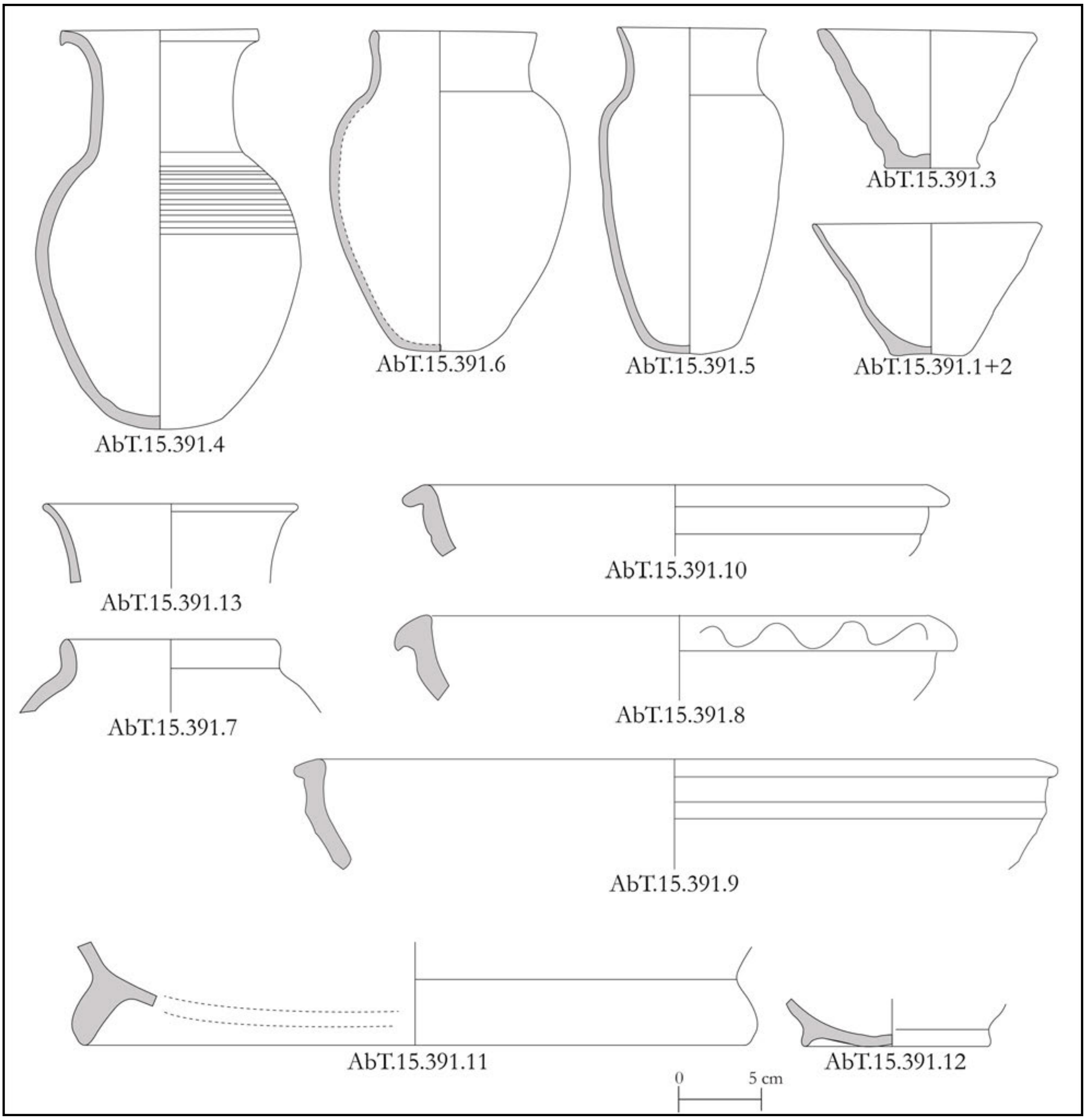


Fig. 7.100 US 391 pottery.

Catalogue of US 365 Finds

Objects

AbT.15.20 - Fig. 7.96
Description: reused limestone vessel (drilled). [SC]
Dimensions: 5.1x7.9x8.2x2 cm.

AbT.15.54 - Fig. 7.96
Description: limestone mace-head. The grooves were made in order to fit the ropes that held the macehead to a haft. The grooves were created by pecking the surface, however traces of the actual ropes or hide used to haft the macehead are not recognizable autoptically. Bitumen traces are visible on all the surface but in small quantities. The base of the artifact presents different chromatic shades, maybe due to the action of fire. A shallow depression is visible on the base of the object which was probably used to set the haft (whatever the haft's raw material was). This last trace was created by pecking. The base of the object is flattened. [SC]
Dimensions: 6.9x5.4x8.1 cm; weight 694 gr.

AbT.15.55 - Fig. 7.96
Description: chert weight(?). Heavy patina. As others it has two flatter faces (due to contact?) The other faces show no traces of flaking. [SC]
Dimensions: 4.9x4.5x3.9 cm; weight 104 gr.

AbT.15.56 - Fig. 7.96
Description: fractured big dimension multifuncional stonetool. The fracture could be intentional. The outer surface of the stone has a few flake negatives and several striations, but it is hard to be sure if the traces are intentional or not. The right hand cutting edge shows small traces of use. The fractured half shows traces of abrasion (striations) and surface levelling. [SC]
Dimensions: 5.9x12x2.9 cm; weight 268 gr.

AbT.15.57 - Fig. 7.96
Description: chert sickle element.
Dimensions: 1.1x4.1x0.4 cm.

AbT.15.58 - Fig. 7.96
Description: fragment of a stone pestle-multifuncional tool. Functional areas show a general levelling due to use, abrasion and possibly polishing with more or less localized and precise use, light pounding traces. [SC]
Dimensions: 7x9x3.8 cm; weight 391 gr.

AbT.15.59 - Fig. 7.96
Description: sickle element.
Dimensions: 1.6x3.3x0.4 cm.

AbT.15.60 - Fig. 7.96
Description: fragment of a multifuncional stone tool. Functional areas show many perpendicular striations, pounding traces, big and small negative flakes possibly due to use, and some light rounding. [SC]
Dimensions: 8x12.x2.5 cm; weight 353 gr.

AbT.15.61 - Fig. 7.96
Description: chert sickle element.
Dimensions: 1.2x2.1x0.2 cm.

AbT.15.64 - Fig. 7.96
Description: small river pebble. [SC]
Dimensions: 1.2x1.6x1.2 cm; weight 3 gr.

AbT.15.66 - Fig. 7.96
Description: chert sickle element.
Dimensions: 1.2x2.2x0.2 cm.

AbT.15.83 - Fig. 7.96
Description: copper alloy fragment.
Dimensions: 2 cm ca.

Pottery

AbT.15.365.1 - Fig. 7.99
Dimensions: rim diam.: 14 cm; rim th.: 0.6 cm; wall th.: 0.7 cm; base diam.: 6 cm; base th.: 0.8 cm; h.: 8 cm.
Clay: outer and inner colour: 10YR 7/4 (very pale brown); sand inclusions; medium firing temperature.
Description: conical bowl.

AbT.15.365.2 - Fig. 7.99
Dimensions: rim diam.: 20 cm; rim th.: 1.1 cm; wall th.: 0.6 cm.
Clay: outer and inner colour: 2.5YR 6/6 (light red); fabric colour: 2.5YR 4/4 (reddish brown); sand inclusions; medium-low firing temperature.
Description: triangular rim bowl.

AbT.15.365.3 - Fig. 7.99
Dimensions: rim diam.: 14 cm; rim th.: 0.6 cm; wall th.: 0.4 cm.
Clay: outer, inner and fabric colour: 2.5YR 7/3 (light reddish brown); sand inclusions; medium-low firing temperature.
Description: conical bowl rim.

AbT.15.365.4 - Fig. 7.99
Dimensions: rim diam.: 20 cm ca.; rim th.: 1 cm; wall th.: 0.7 cm.
Clay: outer, inner and fabric colour: 2.5YR 7/3 (light reddish brown); sand inclusions; medium-low firing temperature.
Description: band rim of a stemmed-dish bowl with notches on the upper part.

AbT.15.365.5 - Fig. 7.99
Dimensions: rim diam.: 14 cm; rim th.: 1 cm; wall th.: 1 cm.
Clay: outer, inner and fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium-low firing temperature.
Description: conical bowl attached to a stand.

AbT.15.365.6 - Fig. 7.99
Dimensions: rim diam.: 10 cm; rim th.: 0.4 cm; wall th.: 0.5 cm.
Clay: outer and inner colour: 2.5YR 6/4 (light reddish brown); fabric colour: 2.5YR 4/4 (reddish brown); sand inclusions; medium-high firing temperature.
Description: band rim jar.

AbT.15.365.7 - Fig. 7.99
Dimensions: rim diam.: 8 cm; rim th.: 0.7 cm; wall th.: 0.8 cm.
Clay: outer colour: 10YR 7/3 (very pale brown); inner and fabric colour: 7.5YR 5/4 (brown); sand inclusions; medium-high firing temperature.
Description: flat base of a jar.

AbT.15.365.8 - Fig. 7.99
Dimensions: base diam.: 3 cm; base th.: 2.5 cm.
Clay: outer and inner colour: 5YR 6/6 (reddish yellow); fabric colour: 5YR 7/4 (pink); sand inclusions; medium-low firing temperature.
Description: pointed base.

AbT.15.365.9 - Fig. 7.99
Dimensions: rim diam.: 18 cm; rim th.: 0.6 cm; wall th.: 0.8 cm.
Clay: outer, inner and fabric colour:

2.5Y 7/4 (pale brown); sand inclusions; medium firing temperature.
Description: plain rim jar.

AbT.15.365.10 - Fig. 7.99
Dimensions: rim diam.: 8 cm; rim th.: 0.7 cm; wall th.: 0.8 cm.
Clay: outer colour: 10YR 6/4 (light yellowish brown); inner colour: 10YR 7/4 (very pale brown); fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.15.365.11 - Fig. 7.99
Dimensions: rim diam.: 15 cm; rim th.: 0.9 cm; wall th.: 0.7 cm.
Clay: outer colour: 2.5YR 7/2 (pale red); inner colour: 10YR 7/3 (very pale brown); fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium-low firing temperature.
Description: plain rim jar.

AbT.15.365.12 - Fig. 7.99
Dimensions: rim diam.: 14.3 cm; rim th.: 0.7 cm; wall th.: 0.7 cm; base diam.: 4.5 cm; base th.: 0.8 cm; h.: 7.5 cm.
Clay: outer, inner and fabric colour: 5YR 7/3 (pink); sand inclusions; medium-low firing temperature.
Description: conical bowl.

Catalogue of US 371 Finds

Pottery

AbT.15.371.1 - Fig. 7.94
Dimensions: rim diam.: 87 cm; rim th.: 3 cm; wall th.: 1.3 cm; base diam.: 65 cm; base th.: 2.4 cm; h.: 34 cm.
Clay: outer, inner and fabric colour: 10YR 7/3 (very pale brown); sand and vegetal inclusions; medium firing temperature.
Description: coiled coffin with two ridges on the wall and ring base.

Catalogue of US 372 Finds

Objects

AbT.15.63 a-b - Fig. 7.97
Description: shell objects: (a) operculum and (b) columella covered with a copper-alloy lamina. Handle?
Dimensions: (a) 1.6x2.8x1.1cm; (b) 1.3x6.7x1.2 cm.

AbT.15.70 - Fig. 7.97
Description: copper alloy fragment.
Dimensions: 0.6x1.6x0.2 cm.

Catalogue of US 391 Finds

Objects

AbT.15.99 - Fig. 7.98
Description: copper alloy fragment.
Dimensions: 0.7x1.1x0.5 cm.

Pottery

AbT.15.391.1+2 - Fig. 7.100
Dimensions: rim diam.: 14.5 cm; rim th.: 0.8 cm; wall th.: 0.8 cm; base diam.: 4.5 cm; base th.: 0.8 cm; h.: 8 cm.
Clay: outer colour: 2.5YR 5/6 (red); inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; low firing temperature.
Description: conical bowl.

AbT.15.391.3 - Fig. 7.100
Dimensions: rim diam.: 14 cm; rim th.: 0.6 cm; wall th.: 0.9 cm; base diam.: 5.6 cm; base th.: 0.8 cm; h.: 8.2 cm.
Clay: outer, inner and fabric colour: 5YR 7/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: conical bowl.

AbT.15.391.4 - Fig. 7.100
Dimensions: rim diam.: 12 cm; rim th.: 0.7 cm; wall th.: 1 cm; base diam.: 7.9 cm; base th.: 0.8 cm; h.: 24.6 cm.
Clay: outer and inner colour: 10YR 7/3 (very pale brown); sand inclusions; medium firing temperature.
Description: triangular rim jar with combed-like decoration/grooves on the shoulders.

AbT.15.391.5 - Fig. 7.100
Dimensions: rim diam.: 9 cm; rim th.: 0.3 cm; wall th.: 0.5 cm; base diam.: 5.4 cm; base th.: 0.5 cm; h.: 19.5 cm.
Clay: outer and inner colour: 7.5YR 8/2 (pinkish white); sand inclusions; medium firing temperature.
Description: plain rim jar.

AbT.15.391.6 - Fig. 7.100
Dimensions: rim diam.: 10 cm; rim th.: 0.4 cm; wall th.: 0.5 cm; base diam.: 5.5 cm; h.: 20 cm.
Clay: outer and inner colour: 7.5YR 8/2 (pinkish white); sand inclusions; medium-low firing temperature.
Description: plain rim jar.

AbT.15.391.7 - Fig. 7.100
Dimensions: rim diam.: 12.6 cm; rim th.: 0.7 cm; wall th.: 0.8 cm.
Clay: outer, inner and fabric colour: 2.5Y 6/4 (light yellowish brown); sand inclusions; medium firing temperature.
Description: plain rim jar.

AbT.15.391.8 - Fig. 7.100
Dimensions: rim diam.: 30 cm; rim th.: 2.3 cm; wall th.: 1.3 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/2 (pale brown); sand inclusions; medium-high firing temperature.
Description: triangular rim bowl with weavy incisions.

AbT.15.391.9 - Fig. 7.100
Dimensions: rim diam.: 40 cm; rim th.: 2.3 cm; wall th.: 1 cm.
Clay: outer colour: 2.5YR 6/4 (light reddish brown); inner and fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-low firing temperature.
Description: triangular rim bowl.

AbT.15.391.10 - Fig. 7.100
Dimensions: rim diam.: 30 cm; rim th.: 1.5 cm; wall th.: 0.9 cm.
Clay: outer, inner and fabric colour: 10YR 7/3 (very pale brown); sand inclusions; medium firing temperature.
Description: triangular rim bowl with a groove on the wall.

AbT.15.391.11 - Fig. 7.100
Dimensions: base diam.: 40 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 10YR 8/2 (very pale brown); sand and vegetal inclusions; medium firing temperature.
Description: ring base.

AbT.15.391.12 - Fig. 7.100
Dimensions: rim diam.: 11 cm; rim th.: 0.6 cm; wall th.: 0.5 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/2 (pale brown); sand inclusions; medium-high firing temperature.
Description: ring base.

AbT.15.391.13 - Fig. 7.100
Dimensions: rim diam.: 15 cm; rim th.: 0.8 cm; wall th.: 0.6 cm.
Clay: outer and inner colour: 10YR 7/3 (very pale brown); fabric colour: 5YR 7/4 (pink); sand inclusions; medium-low firing temperature.
Description: plain rim jar.

Catalogue of US 411 Finds

Pottery

AbT.15.411.1 - Fig. 7.99
Dimensions: wall th.: 1 cm; base diam.: 5.5 cm; base th.: 1.2 cm; h.: 14.2 cm.
Clay: outer, inner and fabric colour: 5Y 6/3 (pale olive); sand inclusions; medium-high firing temperature.
Description: beaker base.

CHAPTER 8

BUILDING A - PHASE 1

CHAPTER 8
BUILDING A - PHASE 1

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8.1 Room 1 [LR][1]

The first phase of occupation in Room 1 was characterized by a beaten earth floor (US 49) and a circular fireplace (US 48; -0.12 m).

The Room was filled by a stratum (US 53) of compact clay soil with small pieces of reed-mat and traces of ashes in the area near the fireplace.[2]

On the pavement several objects connected with food preparation were found: two grindstones (AbT.12.116-117) and a multi-functional stone tool (AbT.12.112). Moreover, along the north-eastern wall a big dish was found *in situ* (AbT.12.53.17), laying upside-down with several fish-bones under it (see Figs 8.1-2 and Fig. 13.9).[3] The pottery found on the floor includes a beaker (AbT.12.53.16) along the south-east wall, near the stone tool.

The pavement was cut by a pit (US 62-63; elevation of the edge of the cut -0.17 m; elevation of the bottom of the pit -0.3 m), filled by a sandy-clay soil and fragments of mud-bricks, containing one almost entire burnt mud-brick and a grindstone.[4]

Fig. 8.1 Room 1 as seen from north-east.

[1] § 8 is written by L. Romano. We acknowledge the fundamental help of Taher al Hosseini in the excavation of Abu Tbeirah. In the catalogue of the finds of each context the abbreviation "[SC]" indicates that the description was written by Stefano Caruso. The references quoted in the text are reported at the end of § 6. See §§ 12-13 for the detailed analyses and description of the human and faunal remains.

[2] The filling contained several pottery fragments mostly belonging to drinking vessels (at least 7 beakers and 6 conical bowls), the bases of a ring and a convex jars, a wall fragment with an impressed ridge and coarse pottery fragments of the same big vessel (vat?). In most of the cases the fragments were mixed to the soil, hence it was difficult to ascertain if they were in primary or secondary deposition. The findings on the pavement were highlighted on the plan (Fig. 8.2).

[3] In the earlier phase of the same room another fireplace was found surrounded by some post-holes: these post-holes could be related to a sort of wooden structure similar to those in the marshes used for cooking fish (D'Agostino *et al.* 2013: 75-76).

[4] D'Agostino *et al.* 2013: 79-80.

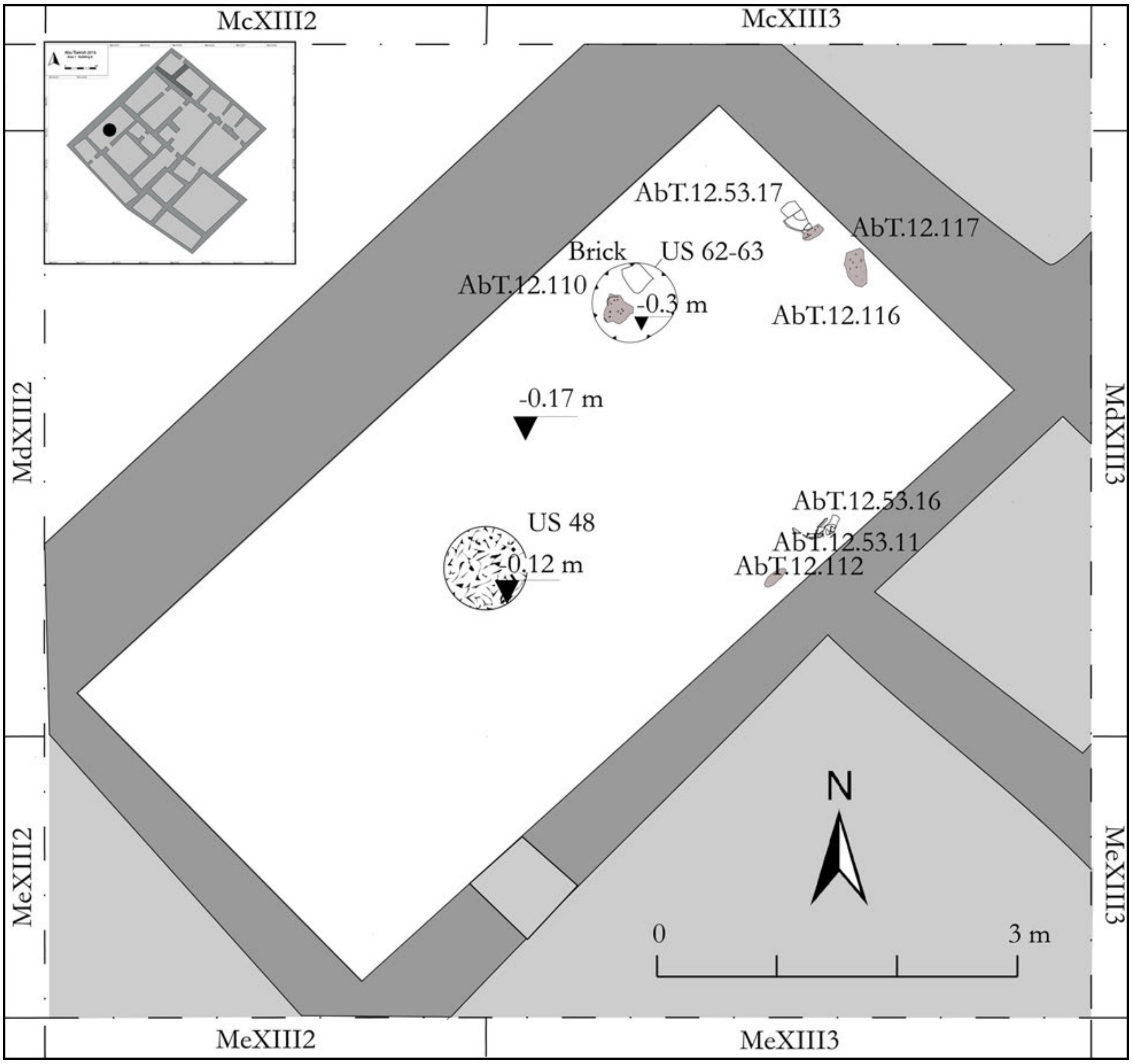


Fig. 8.2 Room 1 plan.

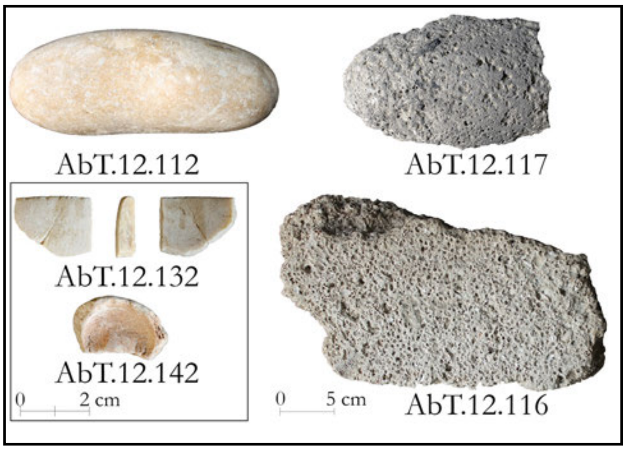


Fig. 8.3 US 53 objects.

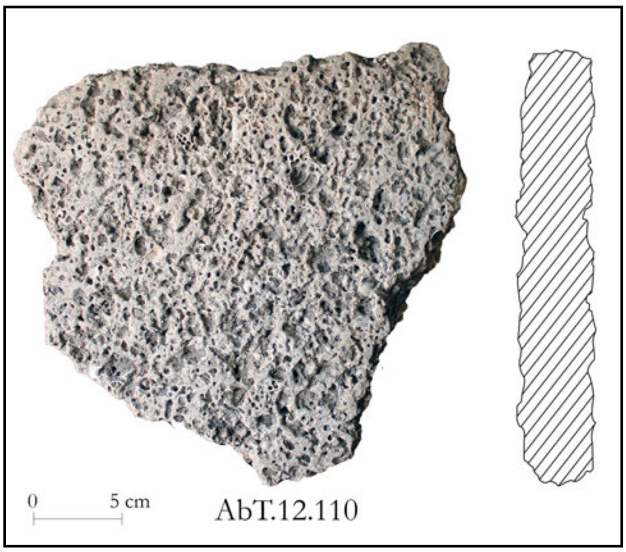


Fig. 8.4 US 63 objects.

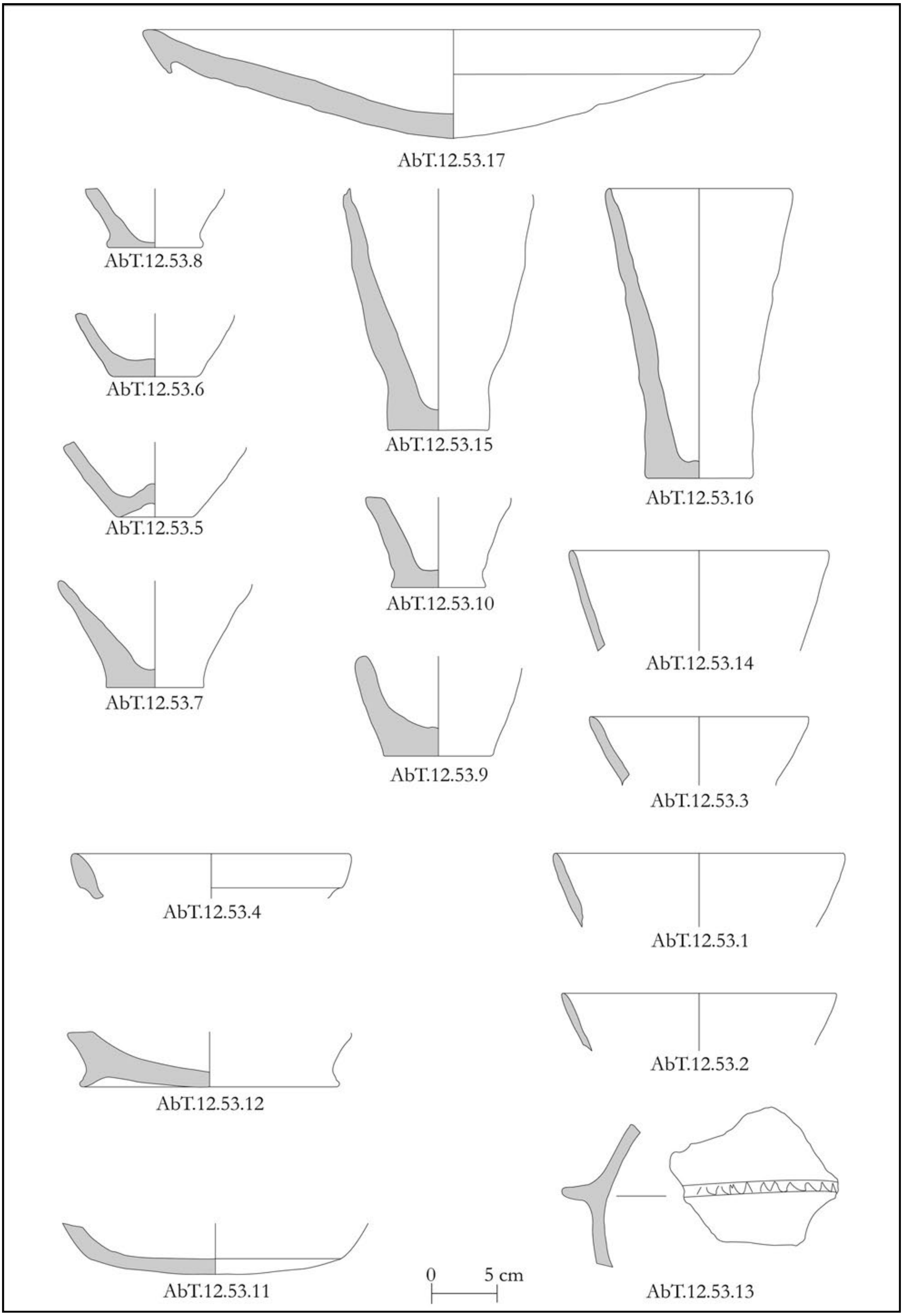


Fig. 8.5 US 53 pottery.

Catalogue of US 53 Finds

Objects

AbT.12.112 - Fig. 8.3
Description: hammer-stone with traces of use both on a lateral side and on the bottom surface. One of the sides is shaped by use. Traces of bitumen. [SC]
Dimensions: 1.5x22x8 cm.

AbT.12.116 - Fig. 8.3
Description: fragment of a grindstone.
Dimensions: 15.5x32x7 cm.

AbT.12.117 - Fig. 8.3
Description: half basalt grindstone.
Dimensions: 7.5x12.1x3.8 cm.

AbT.12.132 - Fig. 8.3
Description: fragment of a white marble stone vessel with indented decoration on the rim.
Dimensions: 1.7x2.2x0.4 cm.

AbT.12.142 - Fig. 8.3
Description: fragment of a pure clay object (no impression preserved).
Dimensions: 2.6x1.77x0.73 cm.

Catalogue of US 63 Finds

Objects

AbT.12.110 - Fig. 8.4
Description: grindstone fragment.
Dimensions: 25.5x25x3.8 cm.

Pottery

AbT.12.53.1 - Fig. 8.5
Dimensions: rim diam.: 16.6 cm; rim th.: 0.6 cm; wall th.: 0.8 cm.
Clay: outer, inner and fabric colour: 7.5YR 6/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: drinking vessel rim.

AbT.12.53.2 - Fig. 8.5
Dimensions: rim th.: 0.6 cm; rim diam.: 15.6 cm; wall th.: 0.6 cm.
Clay: outer and inner colour: 2.5Y 7/3 (pale brown); fabric colour: 7.5YR 5/4 (brown); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.53.3 - Fig. 8.5
Dimensions: rim diam.: 12.6 cm; rim th.: 0.7 cm; wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 2.5Y 7/3 (pale brown); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.12.53.4 - Fig. 8.5
Dimensions: rim diam.: 17 cm; rim th.: 1 cm.
Clay: outer, inner and fabric colour: 2.5Y 7/3 (pale brown); sand inclusions; medium-high firing temperature.
Description: triangular rim jar.

AbT.12.53.5 - Fig. 8.5
Dimensions: wall th.: 0.7 cm; base diam.: 4.5 cm; base th.: 1.1 cm.
Clay: outer, inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium-low firing temperature.
Description: conical bowl base.

AbT.12.53.6 - Fig. 8.5
Dimensions: wall th.: 0.8 cm; base diam.: 5 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium-low firing temperature.
Description: conical bowl base.

AbT.12.53.7 - Fig. 8.5
Dimensions: wall th.: 0.8 cm; base diam.: 5.5 cm; base th.: 0.8 cm.

Clay: outer, inner and fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium-low firing temperature.
Description: conical bowl base.

AbT.12.53.8 - Fig. 8.5
Dimensions: wall th.: 0.75 cm; base diam.: 5 cm; base th.: 0.5 cm.
Clay: outer, inner and fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium-high firing temperature.
Description: conical bowl base.

AbT.12.53.9 - Fig. 8.5
Dimensions: wall th.: 1.3 cm; base diam.: 6.5 cm.
Clay: outer colour: 10YR 6/3 (pale brown); inner and fabric colour: 5YR 4/4 (reddish brown); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.12.53.10 - Fig. 8.5
Dimensions: wall th.: 1 cm; base diam.: 5.5 cm; base th.: 0.3 cm.
Clay: outer, inner and fabric colour: 7.5YR 4/4 (brown); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.12.53.11 - Fig. 8.5
Dimensions: wall th.: 1 cm; base diam.: 14.6 cm; base th.: 0.8 cm.
Clay: outer colour: 2.5Y 7/3 (pale brown); inner and fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-high firing temperature.
Description: convex base.

AbT.12.53.12 - Fig. 8.5
Dimensions: base diam.: 14.6 cm; base th.: 1 cm.
Clay: outer colour: 2.5Y 7/3 (pale brown); inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium-high firing temperature.
Description: ring base.

AbT.12.53.13 - Fig. 8.5
Dimensions: wall th.: 0.85 cm.
Clay: outer, inner and fabric colour: 5Y 7/3 (pale yellow); sand inclusions; medium firing temperature.
Description: wall with notched ridge.

AbT.12.53.14 - Fig. 8.5
Dimensions: rim diam.: 14.1 cm; rim th.: 0.4 cm; wall th.: 0.6 cm.
Clay: outer and inner colour: 10YR 8/2 (very pale brown); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.53.15 - Fig. 8.5
Dimensions: wall th.: 0.85 cm; base diam.: 6 cm; base th.: 1.2 cm.
Clay: outer, inner and fabric colour: 5YR 4/4 (reddish brown); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.12.53.16 - Fig. 8.5
Dimensions: rim diam.: 11 cm; rim th.: 0.5 cm; wall th.: 0.75 cm; base diam.: 6 cm; base th.: 1 cm; h.: 16 cm.
Clay: outer, inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium firing temperature.
Description: beaker.

AbT.12.53.17 - Fig. 8.5
Dimensions: rim diam.: 35.4 cm; rim th.: 2; wall th.: 1.35 cm; base diam.: 16.2 cm; base th.: 1.4 cm.
Clay: outer and inner colour: 7.5YR 8/2 (pinkish white); fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium-high firing temperature.
Description: shallow plate with triangular rim and convex base. Fish bones found under it.

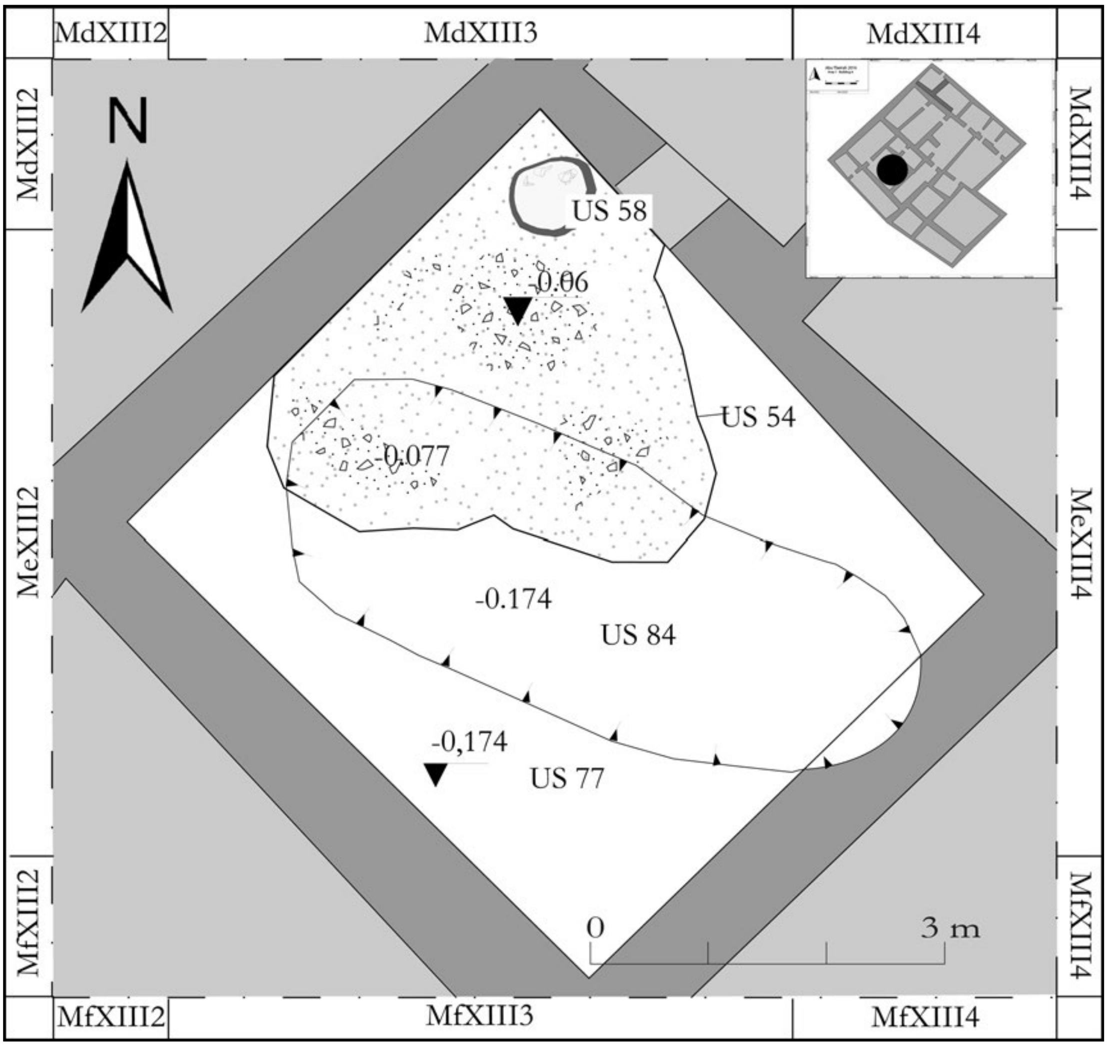


Fig. 8.6 Room 2 plan.

8.2 Room 2 [LR]

Room 2 last phase of occupation (Fig. 8.6) was partially excavated during the 2nd excavation campaign and completed in 2015. On the basis of the satellite imagery it was interpreted as a big courtyard[5] but the 2015 excavations revealed an open space, though of significantly reduced dimensions. However, thanks to 2015 excavations the stratigraphy of the Room was verified and better defined. The Room was filled by an accumulation stratum (US 52) cut by several modern activities. This stratum covered the evidences of use of the Room: a tannur (US 58; Figs 8.7-8) was located in the north corner and surrounded by a heap of soil mixed with a big quantity of ashes and elements connected to the use of the fire installation (US 54). The tannur was built partially by excavating the soil of the Room (or it was reused by digging deeper, the bottom, and repaired/rebuilt several times),[6] using pottery fragments (mainly walls of jars) to reinforce the external walls. Four beakers (US 51) were found inside the tannur. Near the fire installation a sort of little passage along the north-east wall was closed with some mud-bricks of a lighter colour during this phase of occupation of the building.

The ground surface and the filling of Room 2 (US 77=400) were cut by a later pit (US 84=397; US 101=398).

[5] See D'Agostino *et al.* 2013: 76. Apparently the satellite imagery showed here a big open space (white area compared to the darker traces left by the presence of the mud-brick structures): later activities on the area (probably an encampment) evened and compacted the surface easing the salt accumulation.

[6] See for comparison Crafword 1981: 108-109.

Fig. 8.7 US 54 and the tannur US 58 before excavation.

Fig. 8.8 Tannur photographed in the Iraqi Marshes during 2013.

Fig. 8.9 US 52 objects.

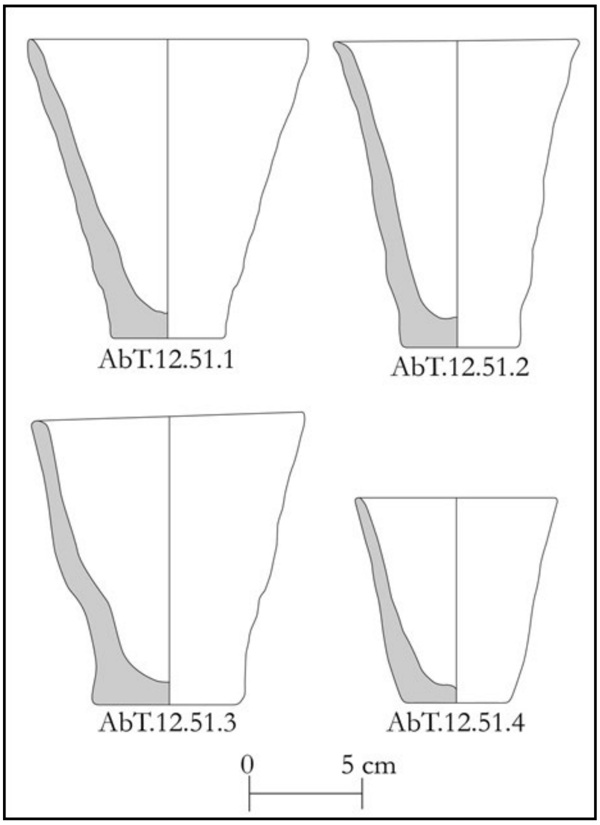


Fig. 8.11 US 51 pottery.

Fig. 8.10 US 54 objects.

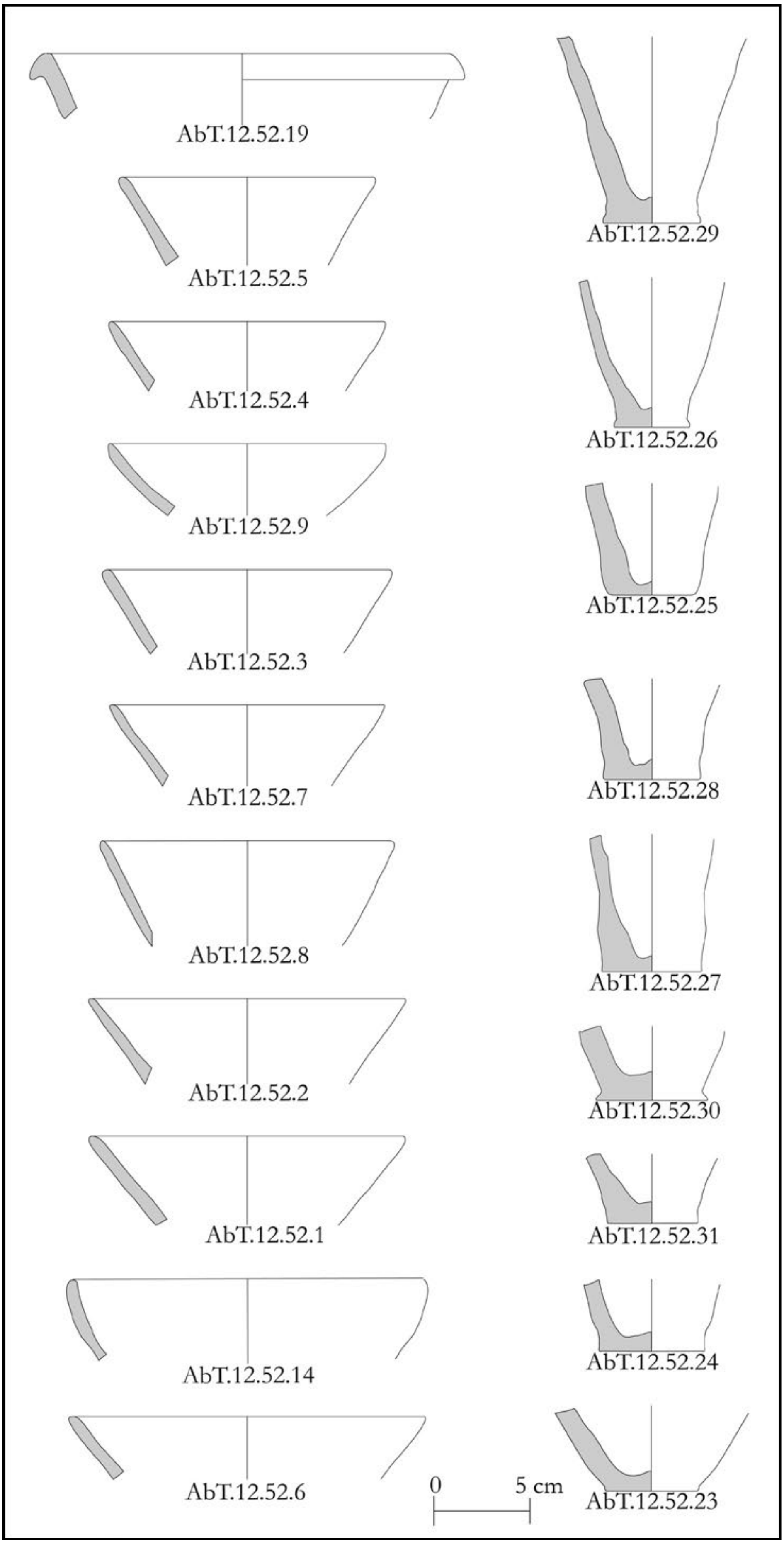


Fig. 8.12 US 52 pottery: open shapes.

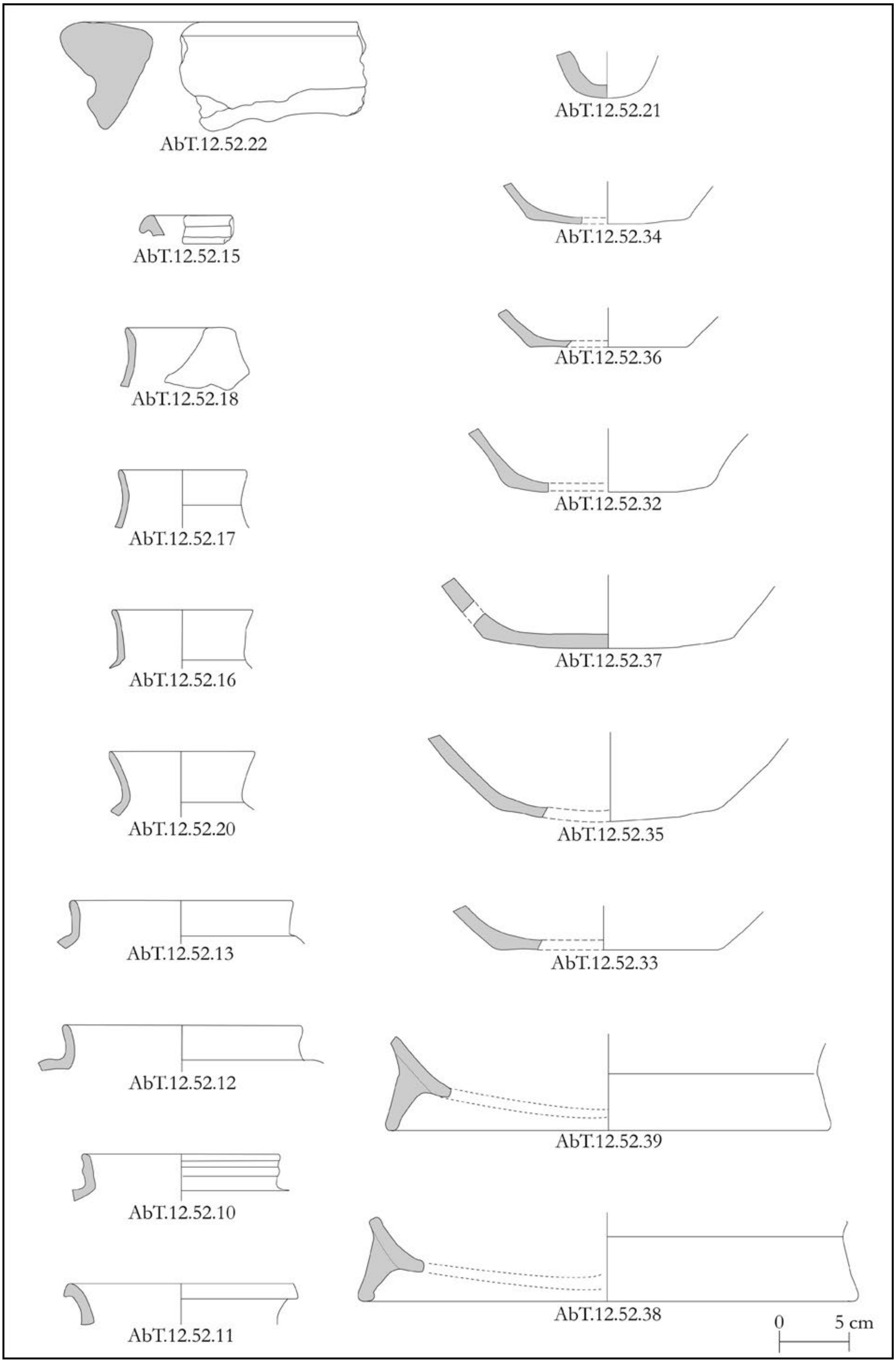


Fig. 8.13 US 52 pottery: closed shapes.

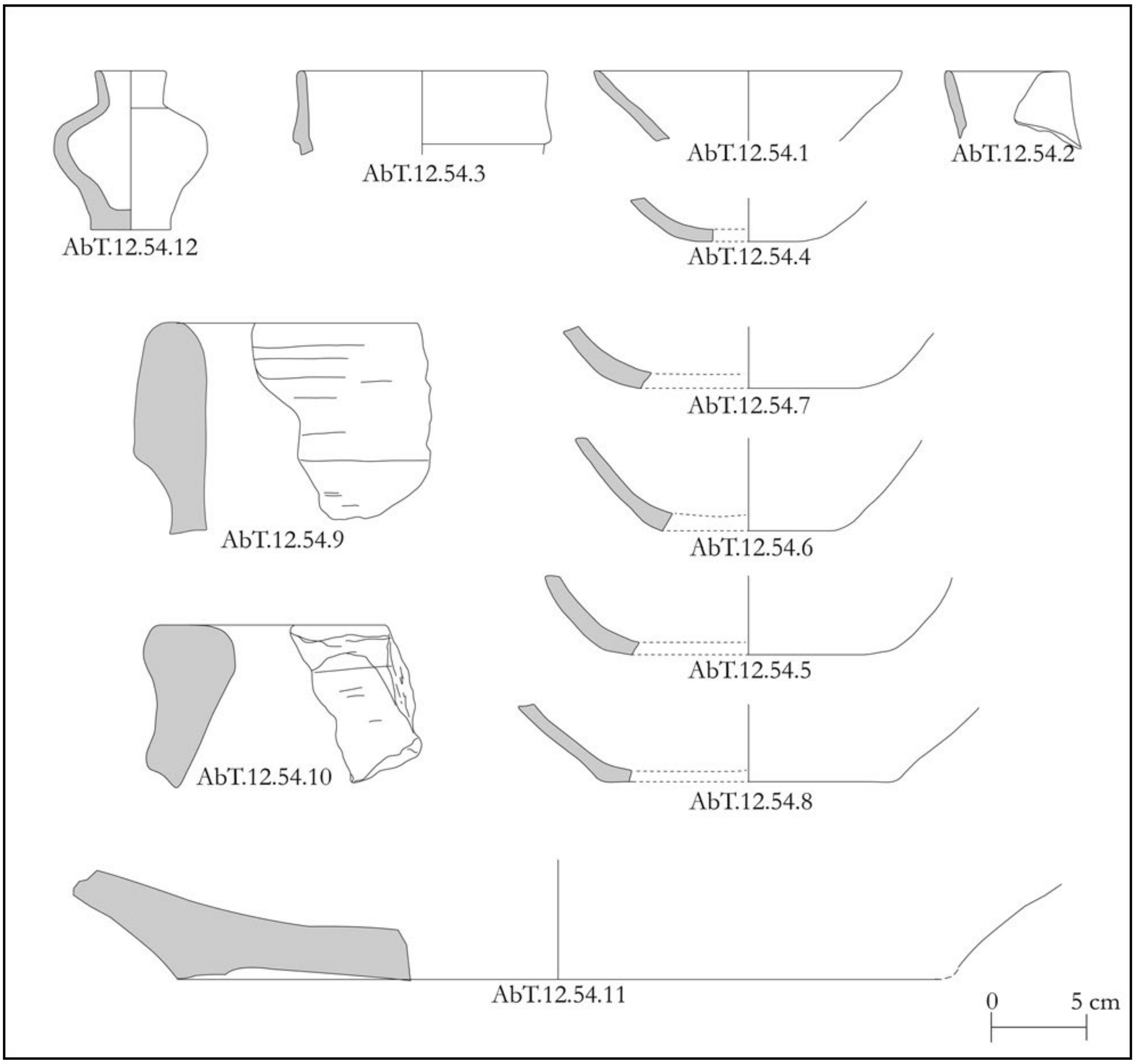


Fig. 8.14 US 54 pottery.

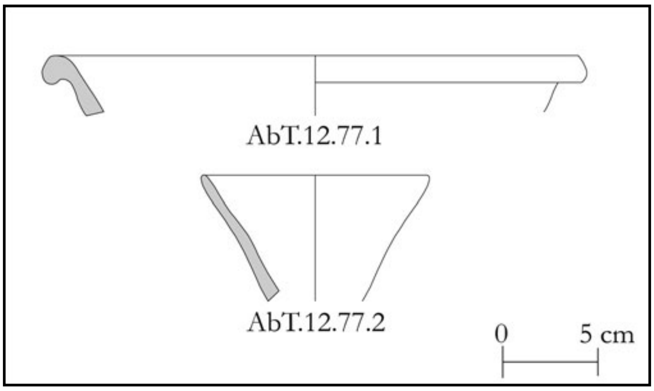


Fig. 8.15 US 77 pottery.

Catalogue of US 51 Finds

Pottery

AbT.12.51.1 - Fig. 8.11
Dimensions: rim diam.: 12.2 cm; rim th.: 0.6 cm; wall th.: 0.8 cm; base diam.: 5 cm; base th.: 1.2 cm; h.: 13.1 cm.
Clay: outer, inner and fabric colour: 10YR 8/3 (very pale brown); sand inclusions; medium-high firing temperature.
Description: beaker.

AbT.12.51.2 - Fig. 8.11
Dimensions: rim diam.: 10.6 cm; rim th.: 0.65 cm; wall th.: 0.75 cm; base diam.: 5.2 cm; base th.: 1.3 cm; h.: 13.5 cm.
Clay: outer, inner and fabric colour: 2.5Y 5/2 (greyish brown); sand inclusions; medium-high firing temperature.
Description: beaker.

AbT.12.51.3 - Fig. 8.11
Dimensions: rim diam.: 11.8 cm; rim th.: 0.8 cm; wall th.: 1.1 cm; base diam.: 6.2 cm; base th.: 1 cm; h.: 12.7 cm.
Clay: outer, inner and fabric colour: 2.5YR 4/4 (reddish brown); sand inclusions; high firing temperature.
Description: beaker.

AbT.12.51.4 - Fig. 8.11
Dimensions: rim diam.: 9 cm; rim th.: 0.35 cm; wall th.: 0.4 cm; base diam.: 4 cm; base th.: 0.6 cm; h.: 9 cm.
Clay: outer, inner and fabric colour: 5YR 5/3 (reddish brown); sand inclusions; medium firing temperature.
Description: beaker.

Catalogue of US 52 Finds

Objects

AbT.12.135 - Fig. 8.9
Description: chert blade.
Dimensions: 1.6x7.9x1.4 cm.

AbT.12.136 - Fig. 8.9
Description: red stone tool (hammer-stone?).
Dimensions: 10.5x4.5x19 cm

AbT.12.143 - Fig. 8.9
Description: chert sickle element.
Dimensions: 1.4x3.7x0.3 cm.

Pottery

AbT.12.52.1 - Fig. 8.12
Dimensions: rim diam.: 16 cm; rim th.: 0.7 cm; wall th.: 0.75 cm.
Clay: outer, inner and fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.12.52.2 - Fig. 8.12
Dimensions: rim diam.: 16 cm; rim th.: 0.7 cm; wall th.: 0.8 cm.
Clay: outer colour: 10YR 8/3 (very pale brown); inner and fabric colour: 2.5YR 5/6 (red); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.12.52.3 - Fig. 8.12
Dimensions: rim diam.: 14.5 cm; rim th.: 0.8 cm; wall th.: 0.8 cm.
Clay: outer colour: 7.5YR 8/3 (pink); inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.12.52.4 - Fig. 8.12
Dimensions: rim diam.: 15 cm; rim th.: 0.6 cm; wall th.: 0.7 cm.
Clay: outer colour: 2.5Y 8/2 (pale brown); inner and fabric colour: 2.5YR 5/6 (red); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.12.52.5 - Fig. 8.12
Dimensions: rim diam.: 13 cm; rim th.: 0.7 cm; wall th.: 0.8 cm.
Clay: outer colour: 10YR 8/2 (very pale brown); inner and fabric colour: 2.5YR 5/6 (red); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.12.52.6 - Fig. 8.12
Dimensions: rim diam.: 18 cm; rim th.: 0.7 cm; wall th.: 0.7 cm.
Clay: outer colour: 10YR 8/2 (very pale brown); inner and fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.12.52.7 - Fig. 8.12
Dimensions: rim diam.: 14 cm; rim th.: 0.6 cm; wall th.: 0.7 cm.
Clay: outer and inner colour: 10YR 8/2 (very pale brown); fabric colour: 2.5YR 5/6 (red); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.12.52.8 - Fig. 8.12
Dimensions: rim diam.: 15 cm; rim th.: 0.7 cm; wall th.: 0.6 cm.
Clay: outer colour: 10YR 8/2 (very pale brown); inner and fabric colour: 2.5YR 5/6 (red); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.12.52.9 - Fig. 8.12
Dimensions: rim diam.: 14 cm; rim th.: 0.7 cm; wall th.: 0.6 cm.
Clay: outer colour: 10YR 8/2 (very pale brown); inner and fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.52.10 - Fig. 8.13
Dimensions: rim diam.: 14 cm; rim th.: 0.6 cm; wall th.: 0.7 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 10YR 5/4 (yellowish brown); sand inclusions; medium-high firing temperature.
Description: double-ridged rim jar.

AbT.12.52.11 - Fig. 8.13
Dimensions: rim diam.: 16 cm; rim th.: 1.4 cm; wall th.: 0.7 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/3 (pale brown); sand inclusions; medium-high firing temperature.
Description: triangular rim jar.

AbT.12.52.12 - Fig. 8.13
Dimensions: rim diam.: 17 cm; rim th.: 0.7 cm; wall th.: 0.8 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.12.52.13 - Fig. 8.13
Dimensions: rim diam.: 16 cm; rim th.: 0.7 cm; wall th.: 0.7 cm.
Clay: outer colour: 2.5Y 8/2 (pale brown); inner and fabric colour: 5YR 5/4 (reddish brown); sand and vegetal inclusions; medium firing temperature.
Description: plain rim jar.

AbT.12.52.14 - Fig. 8.12
Dimensions: rim diam.: 18 cm; rim th.: 0.6 cm; wall th.: 0.5 cm.

Clay: outer colour: 7.5YR 8/3 (pink); inner and fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.12.52.15 - Fig. 8.13
Dimensions: rim diam.: n.d.; rim th.: 1.8 cm; wall th.: 0.8 cm.
Clay: outer and inner colour: 5YR 8/2 (pinkish white); fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium firing temperature.
Description: triangular rim of a jar.

AbT.12.52.16 - Fig. 8.13
Dimensions: rim diam.: 10 cm; rim th.: 0.5 cm; wall th.: 0.6 cm.
Clay: outer and inner colour: 5YR 8/2 (pinkish white); fabric colour: 2.5YR 6/6 (light red); sand inclusions; medium firing temperature.
Description: plain rim jar.

AbT.12.52.17 - Fig. 8.13
Dimensions: rim diam.: 9 cm; rim th.: 0.5 cm.
Clay: outer, inner and fabric colour: 2.5YR 4/6 (red); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.12.52.18 - Fig. 8.13
Dimensions: rim diam.: n.d.; rim th.: 0.6 cm.
Clay: outer colour: 10YR 8/2 (very pale brown); inner and fabric colour: 2.5YR 5/4 (reddish brown); sand inclusions; medium firing temperature.
Description: plain rim jar.

AbT.12.52.19 - Fig. 8.12
Dimensions: rim diam.: 21 cm; rim th.: 1.6 cm; wall th.: 1 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium-high firing temperature.
Description: triangular rim bowl.

AbT.12.52.20 - Fig. 8.13
Dimensions: rim diam.: 10 cm; rim th.: 0.5 cm; wall th.: 0.7 cm.
Clay: outer, inner and fabric colour: 5Y 6/3 (pale olive); sand inclusions; medium firing temperature.
Description: plain rim jar.

AbT.12.52.21 - Fig. 8.13
Dimensions: wall th.: 0.6 cm; base diam.: 5.4 cm; base th.: 0.6 cm.
Clay: outer colour: 2.5Y 8/3 (pale brown); inner and fabric colour: 7.5YR 8/4 (pink); sand inclusions; medium firing temperature.
Description: rounded base of a small jar.

AbT.12.52.22 - Fig. 8.13
Dimensions: rim diam.: 52 cm; rim th.: 6.2 cm; wall th.: 2,2 cm.
Clay: outer, inner and fabric colour: 5Y 8/3 (pale yellow); sand and vegetal inclusions; low firing temperature.
Description: triangular rim vat.

AbT.12.52.23 - Fig. 8.12
Dimensions: base diam.: 4.5 cm; base th.: 0.9 cm.
Clay: outer, inner and fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium-low firing temperature.
Description: conical bowl base.

AbT.12.52.24 - Fig. 8.12
Dimensions: wall th.: 0.6 cm; base diam.: 5.5 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium firing temperature.
Description: drinking vessel base.

AbT.12.52.25 - Fig. 8.12
Dimensions: base diam.: 4.4 cm; base th.: 0.7 cm.
Clay: outer, inner and fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.12.52.26 - Fig. 8.12
Dimensions: wall th.: 0.4 cm; base diam.: 4 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 10YR 8/3 (very pale brown); sand inclusions; medium-low firing temperature.
Description: beaker base.

AbT.12.52.27 - Fig. 8.12
Dimensions: wall th.: 0.6 cm; base diam.: 5 cm; base th.: 0.9 cm.
Clay: outer, inner and fabric colour: 7.5YR 4/4 (brown); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.12.52.28 - Fig. 8.12
Dimensions: rim diam.: 12.2 cm; rim th.: 0.6 cm; wall th.: 0.8 cm; base diam.: 5 cm; base th.: 1.2 cm; h.: 13.1 cm.
Clay: outer colour: 2.5Y 8/2 (pale brown); inner and fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.12.52.29 - Fig. 8.12
Dimensions: wall th.: 0.6 cm; base diam.: 5 cm; base th.: 1.3 cm.
Clay: outer colour: 2.5Y 8/2 (pale brown); inner and fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.12.52.30 - Fig. 8.12
Dimensions: wall th.: 1.4 cm; base diam.: 5.5 cm; base th.: 1.2 cm.
Clay: outer, inner and fabric colour: 5YR 4/3 (reddish brown); sand inclusions; medium-low firing temperature.
Description: drinking vessel base.

AbT.12.52.31 - Fig. 8.12
Dimensions: wall th.: 0.8 cm; base diam.: 4.5 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 5YR 4/33 (reddish brown); sand inclusions; medium-low firing temperature.
Description: drinking vessel base.

AbT.12.52.32 - Fig. 8.13
Dimensions: rim th.: 0.6 cm; wall th.: 0.6 cm; base diam.: 15 cm; base th.: 0.8 cm.
Clay: outer colour: 10YR 8/2 (very pale brown); inner and fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium-high firing temperature.
Description: flat base.

AbT.12.52.33 - Fig. 8.13
Dimensions: wall th.: 0.8 cm; base diam.: 16 cm; base th.: 0.9 cm.
Clay: outer, inner and fabric colour: 5Y 7/3 (pale yellow); sand inclusions; medium firing temperature.
Description: flat base.

AbT.12.52.34 - Fig. 8.13
Dimensions: wall th.: 0.5 cm; base diam.: 11.5 cm; base th.: 0.6 cm.
Clay: outer, inner and fabric colour: 2.5YR 4/4 (reddish brown); sand inclusions; medium firing temperature.
Description: flat base.

AbT.12.52.35 - Fig. 8.13
Dimensions: wall th.: 0.8 cm; base diam.: 17 cm; base th.: 0.8 cm.
Clay: outer, inner and fabric colour: 10YR 8/3 (very pale brown); sand inclusions; medium firing temperature.
Description: convex base.

AbT.12.52.36 - Fig. 8.13
Dimensions: wall th.: 0.7 cm; base diam.: 11 cm; base th.: 0.7 cm.
Clay: outer, inner and fabric colour: 10YR 7/3 (very pale brown); sand and vegetal inclusions; medium firing temperature.
Description: flat base.

AbT.12.52.37 - Fig. 8.13
Dimensions: wall th.: 0.8 cm; base diam.: 18 cm; base th.: 1 cm.
Clay: outer colour: 2.5Y 8/3 (pale brown); inner and fabric colour: 5YR 5/4 (reddish brown); sand and vegetal inclusions; medium firing temperature.
Description: slightly convex base with a hole near the base (1.1 cm diam.).

AbT.12.52.38 - Fig. 8.13
Dimensions: wall th.: 0.6 cm; base diam.: 35.6 cm; base th.: 0.9 cm.
Clay: outer, inner and fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium firing temperature.
Description: ring base.

AbT.12.52.39 - Fig. 8.13
Dimensions: wall th.: 0.8 cm; base diam.: 32 cm; base th.: 0.9 cm.
Clay: outer, inner and fabric colour: 10YR 6/4 (light yellowish brown); sand inclusions; medium firing temperature.
Description: ring base.

Catalogue of US 54 Finds

Objects

AbT.12.137 - Fig. 8.10
Description: copper alloy point.
Dimensions: 1.1x0.6 cm.

AbT.12.138 - Fig. 8.10
Description: unidentified burnt clay object. It has the shape of a "V", like the legs of an animal figurine. However, both the dimensions and the absence of fracture seems to deny this interpretation.
Dimensions: 1.24x1.21x0.4 cm.

AbT.12.139 - Fig. 8.10
Description: little grey stone pebble.
Dimensions: 1.x1x.0.9 cm; weight 1 gr.

Pottery

AbT.12.54.1 - Fig. 8.14
Dimensions: rim diam.: 16 cm; rim th.: 0.7 cm; wall th.: 0.7 cm.
Clay: outer and inner colour: 10YR 8/3 (very pale brown); fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.54.2 - Fig. 8.14
Dimensions: rim diam.: n.d.; rim th.: 0.6 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/3 (pale brown); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.12.54.3 - Fig. 8.14
Dimensions: rim diam.: 13 cm; rim th.: 0.6 cm.
Clay: outer colour: 2.5Y 8/3 (pale brown); inner and fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-high firing temperature.
Description: band rim jar.

AbT.12.54.4 - Fig. 8.14
Dimensions: wall th.: 0.6 cm; base diam.: 8 cm; base th.: 0.7 cm.
Clay: outer, inner and fabric colour: 7.5YR 5/4 (brown); sand inclusions; medium-high firing temperature.
Description: flat base.

AbT.12.54.5 - Fig. 8.14
Dimensions: wall th.: 0.7 cm; base diam.: 15.8 cm; base th.: 0.9 cm.
Clay: outer, inner colour: 5Y 7/3 (pale yellow); inner and fabric colour: 5Y 6/4 (pale olive); sand inclusions; medium firing temperature.
Description: flat base.

AbT.12.54.6 - Fig. 8.14
Dimensions: wall th.: 0.5 cm; base diam.: 11 cm; base th.: 0.9 cm.
Clay: outer colour: 5Y 7/3 (pale yellow); fabric colour: 5Y 6/3 (pale olive); sand inclusions; medium-high firing temperature.
Description: flat base.

AbT.12.54.7 - Fig. 8.14
Dimensions: wall th.: 0.8 cm; base diam.: 15 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 7.5YR 4/4 (brown); sand inclusions; medium firing temperature.
Description: flat base.

AbT.12.54.8 - Fig. 8.14
Dimensions: wall th.: 0.7 cm; base diam.: 15 cm; base th.: 0.5 cm.
Clay: outer, inner and fabric colour: 7.5YR 6/3 (light brown); sand inclusions; medium firing temperature.
Description: flat base.

AbT.12.54.9 - Fig. 8.14
Dimensions: rim diam.: 56 cm; rim th.: 3.5 cm; wall th.: 1.9 cm.
Clay: outer, inner and fabric colour: 10YR 8/3 (very pale brown); sand and vegetal inclusions; medium firing temperature.
Description: band rim of a vat/jar.

AbT.12.54.10 - Fig. 8.14
Dimensions: rim diam.: n.d.; rim th.: 4.8 cm; wall th.: 2.8 cm.
Clay: outer, inner and fabric colour: 5Y 5/3 (olive); sand and vegetal inclusions; medium-low firing temperature.
Description: triangular rim vat.

AbT.12.54.11 - Fig. 8.14
Dimensions: wall th.: 1.75 cm; base diam.: 40 cm; base th.: 1.9 cm.
Clay: outer, inner and fabric colour: 5Y 5/3 (olive); sand and vegetal inclusions; medium firing temperature.
Description: almost flat base covered with bitumen.

AbT.12.54.12 - Fig. 8.14
Dimensions: rim diam.: 4 cm; rim th.: 0.5 cm; wall th.: 0.5 cm; base diam.: 4 cm; base th.: 0.8 cm; h.: 8.4 cm.
Clay: outer, inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium firing temperature.
Description: miniaturistic plain rim jar.

Catalogue of US 77 Finds

Pottery

AbT.12.77.1 - Fig. 8.15
Dimensions: rim diam.: 28 cm; rim th.: 1.7 cm; wall th.: 0.9 cm.

Clay: outer, inner and fabric colour: 5YR 4/4 (reddish brown); sand inclusions; medium firing temperature.
Description: out-turned rim bowl.

AbT.12.77.2 - Fig. 8.15
Dimensions: rim diam.: 12 cm; rim th.: 0.6 cm; wall th.: 0.8 cm.
Clay: outer, inner and fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

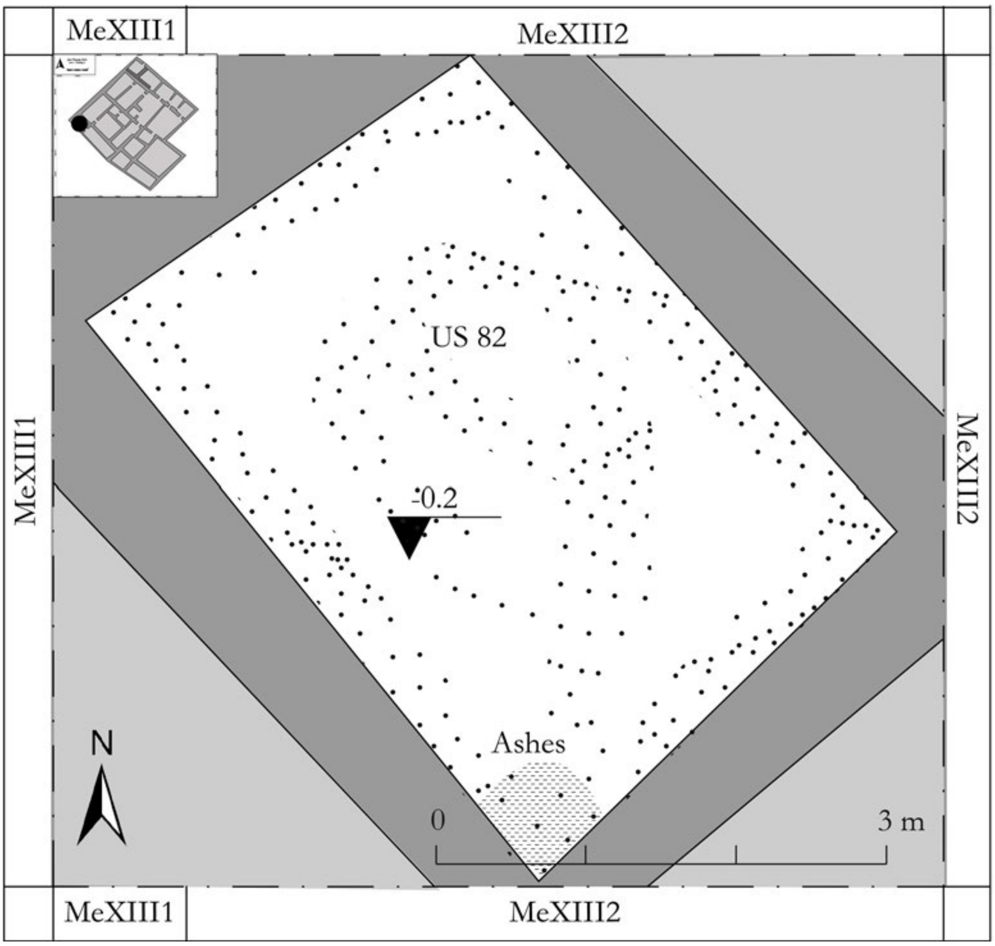


Fig. 8.16 Room 3 plan.

8.3 Room 3 [LR]

It was impossible to identify a clear distinction between the filling and a ground-surface in Room 3 (Fig. 8.16). On the basis of the elevation (-0.19) US 82 is the only one that can be attributed to the phase of the Building. This US, an horizontal light yellowish brown silty-clay stratum with some ashy lens in the southern corner was however almost completely empty.

Fig. 8.17 US 82 objects.

Catalogue of US 82 Finds

Objects

AbT.12.157 - Fig. 8.17
Description: grey stone pebble.
Dimensions: 4.5x3x0.8 cm; weight 15 gr.

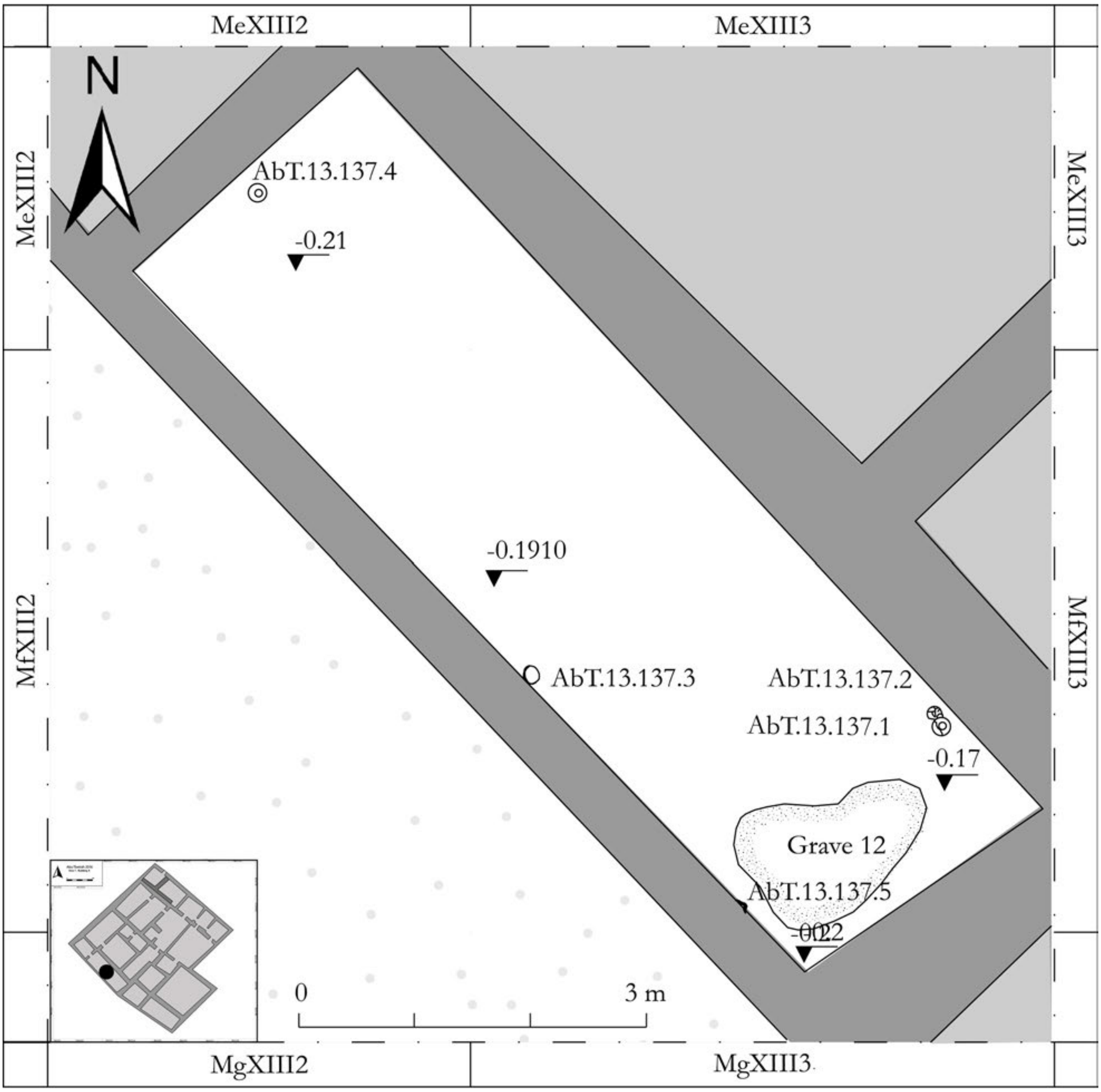


Fig. 8.18 Room 4 plan.

8.4 Room 4 [LR]

The excavation of Room 4 (Fig. 8.18) was hampered by the not clear distinction among the identified strata. The filling of the Room, cut by Graves 1, 6 and 11,[7] consisted in a clay stratum (US 126) with collapsed mud-brick fragments, probably pertaining to the structure. In the filling a piece of a bitumen ingot covered by reed-mat was found, sloping down in the soil. The pottery fragments discovered in the filling mostly belong, as usual, to drinking vessels, though fragments of jars were also recovered. No pavement was clearly identified but the ground-surface (US 202) was hypothesized *a posteriori* at the elevation of -0.2 m, in correspondence with some "foundation bowls" discovered in the Room. The conical bowls were placed along the north-west (AbT.13.137.4), south-west (AbT.13.137.3 and AbT.13.137.5) and north-east walls (AbT.13.137.1 and AbT.13.137.2). The presence of the conical bowls in the middle of the north-west wall might suggest that there was no door here (while there is a passage towards Room 3 in the earlier phase of the Building). Under the pavement a grave (Grave 12, skeleton US 145, equipment US 144, cut US 149) of a female adult of 20-30 years of age was discovered (Figs 8.19-

[7] See §§ 7.1.2, 5-6.

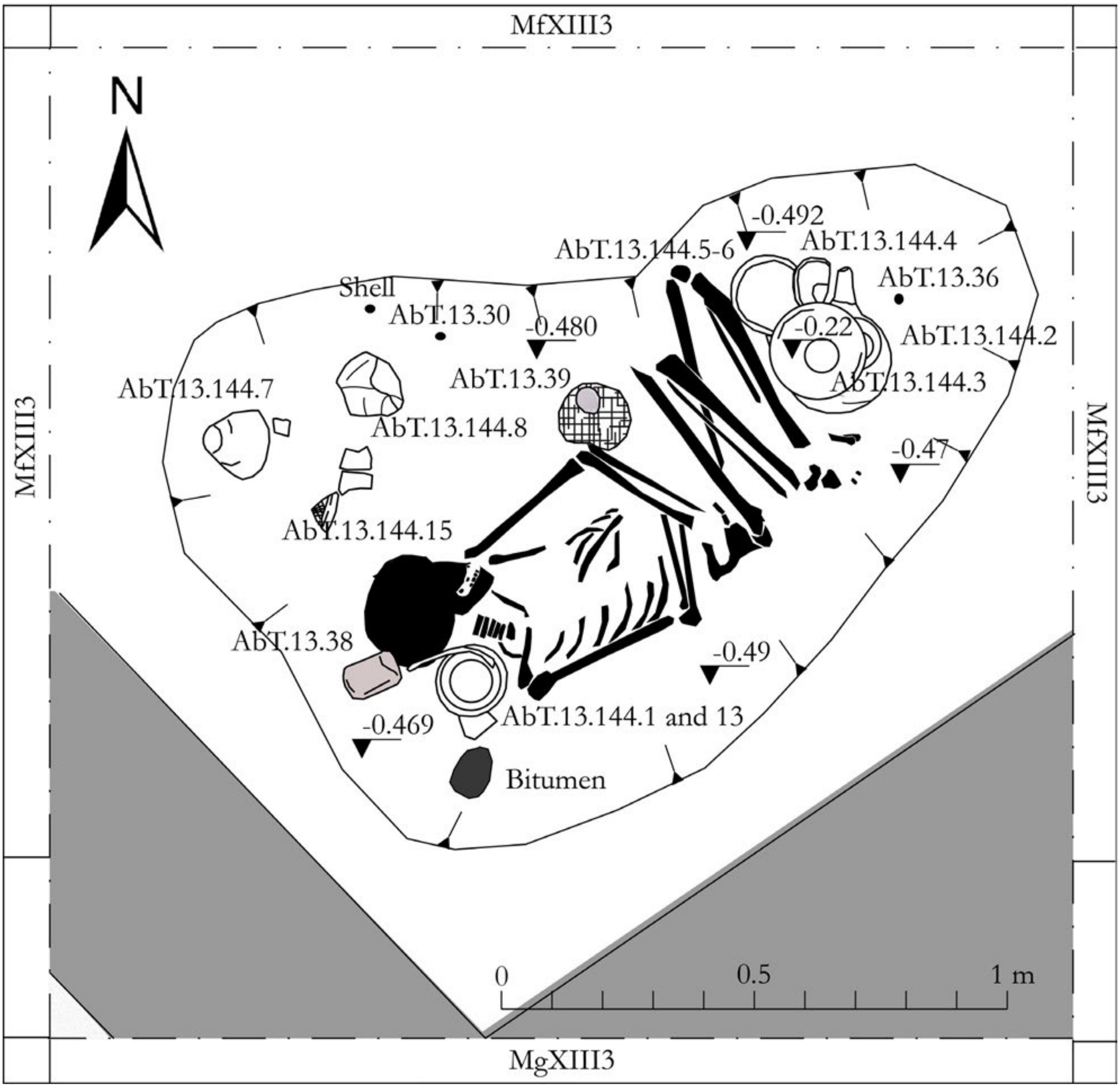


Fig. 8.19 Room 4. Grave 12 plan.

20). The woman was in a semi-flexed position, with the head towards west and looking north, the legs bent, and the arms crossed on the pelvis. The equipment was made up of several stone pestles, a fragment of an alabaster vessel and a bivalve shell with cosmetic paste found inside a small reed basket near the left side of the woman. A copper alloy ring was discovered on the pelvis during the laboratory excavation.

The pottery assemblage deposed near the body consisted of 3 beakers, 8 conical bowls, fragments of a stemmed-dish, a small jar with a globular body, and a spouted jar.[8] The grave was cut immediately under the pavement at the elevation of -0.29 m and reached the depth of -0.49 m ca.

[8] D'Agostino *et al.* 2015: 214. The other finds collected in the backfill but probably in secondary deposition.

Fig. 8.20 Room 4. Grave 12.

Fig. 8.21 US 126 objects.

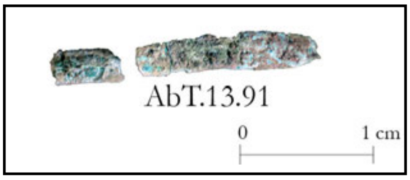


Fig. 8.22 US 145 objects.

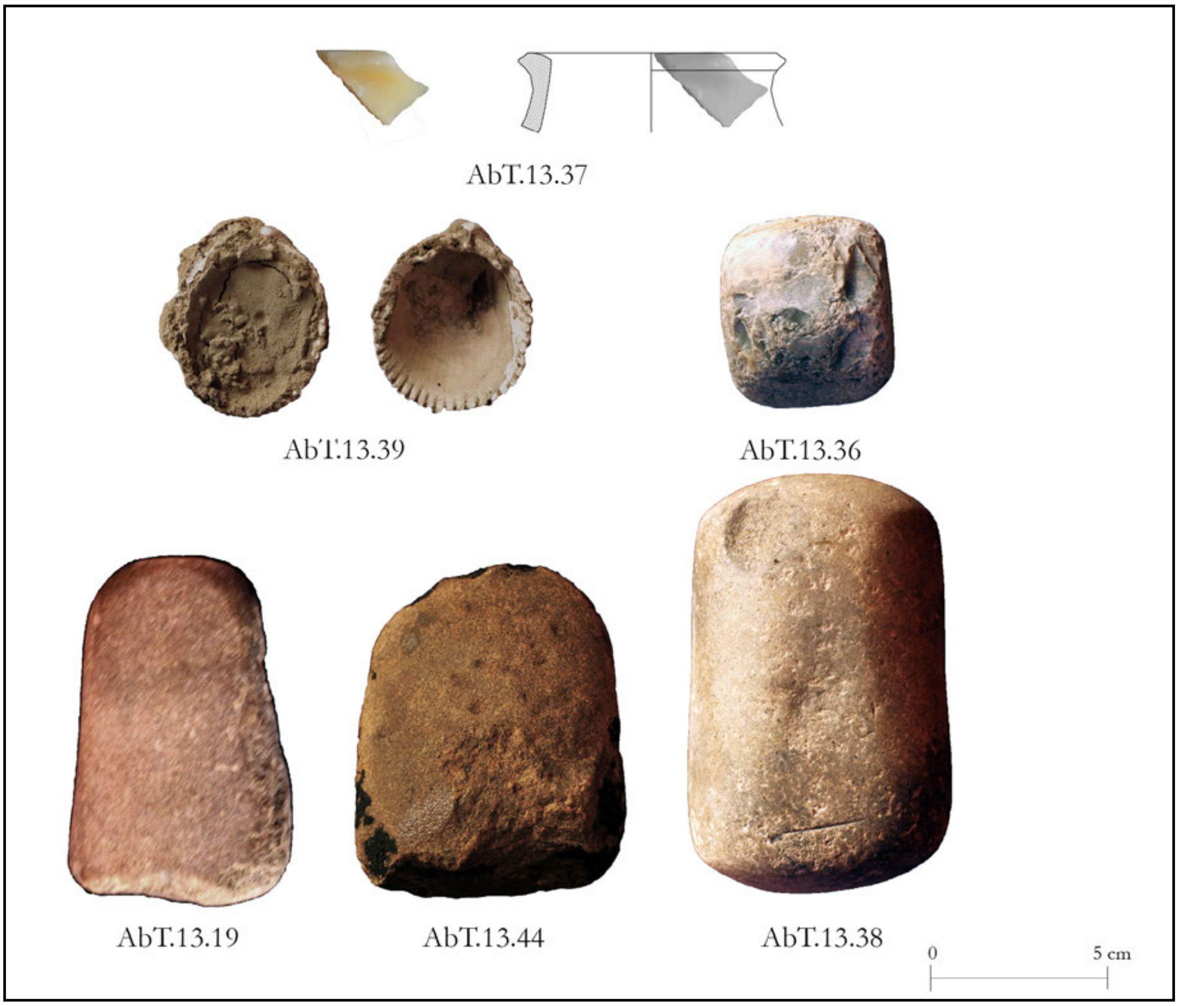


Fig. 8.23 US 144 objects.

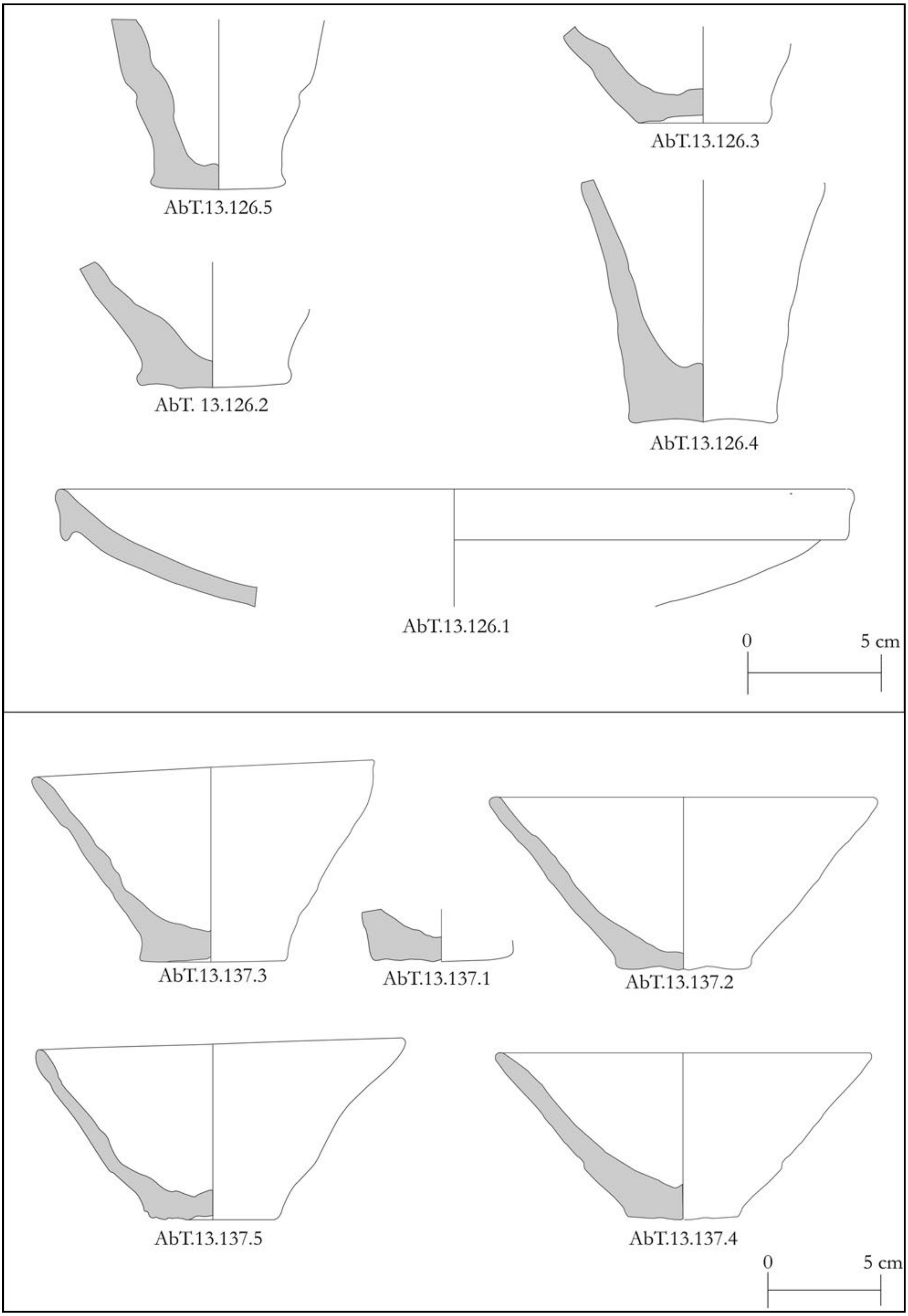


Fig. 8.24 US 126 and 137 pottery.

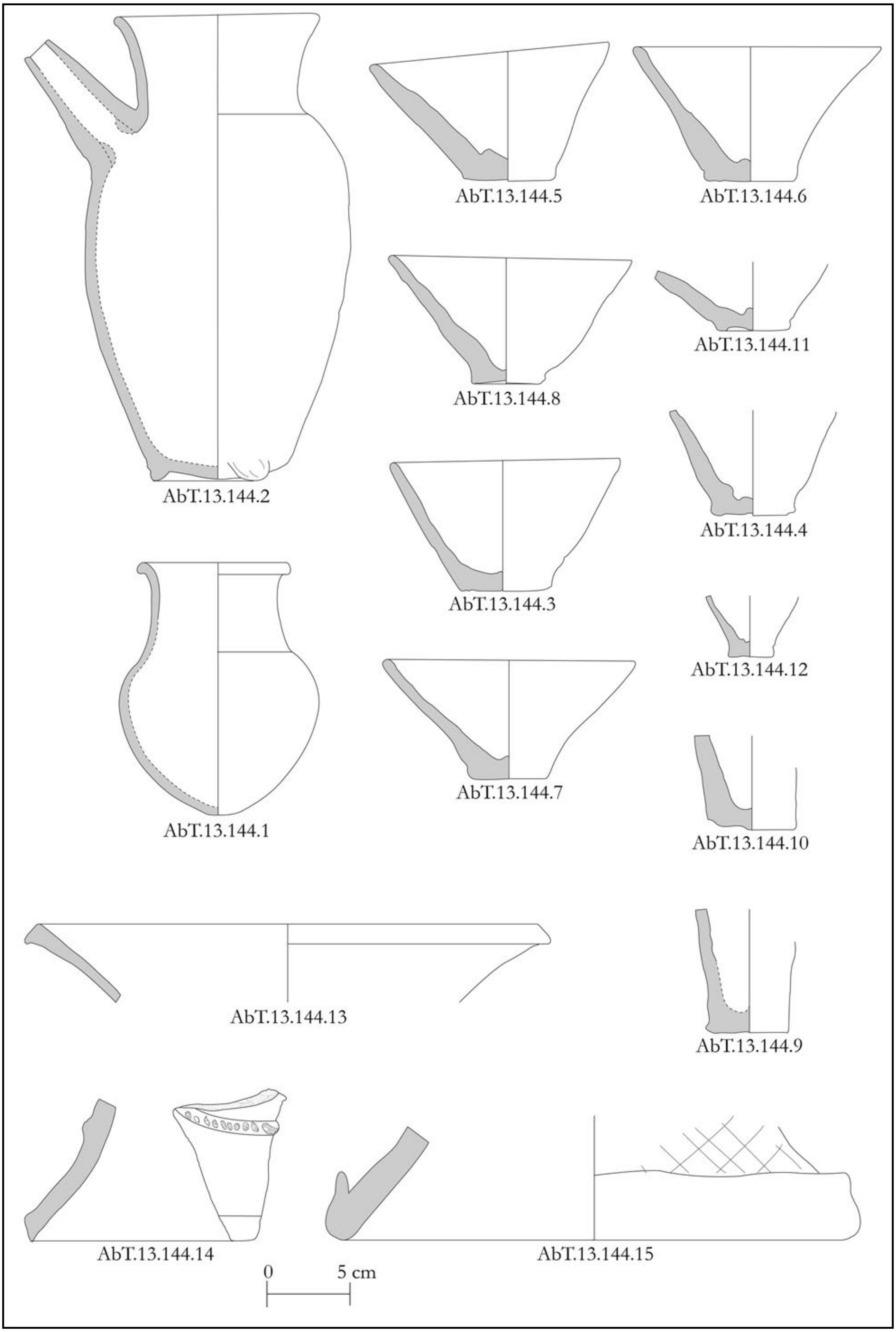


Fig. 8.25 US 144 pottery.

Catalogue of US 126 Finds

Objects

AbT.13.12 - Fig. 8.21
Description: black stone smoothing tool. Long and thin polisher. One of the tips shows heavy signs of use-wear and striations. [SC]
Dimensions: 8x1.9 cm.

AbT.13.13 - Fig. 8.21
Description: chert blade.
Dimensions: 7.6 x0.55 cm.

AbT.13.8 - Fig. 8.21
Description: white stone pestle. Both ends of the tool have pounding traces. Half of the tool is heavily eroded, one part of the tool shows a scaly fracture, whereas the other is smooth and shows little or no traces (some of the pounding traces are partially cancelled). The tool was possibly reused after the fracture and has some bitumen residues on one principal functional area. [SC]
Dimensions: 5.6x7.7x4.65 cm.

AbT.13.9 - Fig. 8.21
Description: chert blade.
Dimensions: 1.75x8.1x0.55 cm.

Pottery

AbT.13.126.1 - Fig. 8.24
Dimensions: rim diam.: 29 cm; rim th.: 1.5 cm; wall th.: 1.6 cm.
Clay: outer and inner colour: 10YR 7/3 (very pale brown); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-high firing temperature.
Description: triangular rim bowl.

AbT.13.126.2 - Fig. 8.22
Dimensions: wall th.: 0.8 cm; base diam.: 5.6 cm; base th.: 1.3 cm.
Clay: outer colour: 10YR 8/3 (very pale brown); inner and fabric colour: 7.5YR 6/4 (light brown) sand inclusions; medium-low firing temperature.
Description: conical bowl base.

AbT.13.126.3 - Fig. 8.24
Dimensions: wall th.: 0.8 cm; base diam.: 5 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 7.5YR 5/4 (brown); sand and small vegetal inclusions; medium-low firing temperature.
Description: conical bowl base.

AbT.13.126.4 - Fig. 8.24
Dimensions: base diam.: 5.5 cm; base th.: 1.3 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/2 (pale brown); inner and fabric colour: 7.5YR 5/4 (brown); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.13.126.5 - Fig. 8.24
Dimensions: wall th.: 1.2 cm; base diam.: 5.4 cm; base th.: 0.9 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium-low firing temperature.
Description: beaker base.

Catalogue of US 137 Finds

Pottery

AbT.13.137.1 - Fig. 8.24
Dimensions: rim diam.: 16 cm; rim th.: 0.7 cm; wall th.: 0.9 cm; base diam.: 5.8 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 10YR 6/4 (light yellowish brown); sand inclusions; medium-low firing temperature.
Description: conical bowl found upside-down near AbT.13.137.2. Only the base was drawn due to the extremely fragmentary state.

AbT.13.137.2 - Fig. 8.24
Dimensions: rim diam.: 14 cm; rim th.: 0.6 cm; wall th.: 0.6 cm; base diam.: 7 cm ca.; base th.: 0.8 cm; h.: 7.1 cm.
Clay: outer, inner and fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-high firing temperature.
Description: conical bowl found inclined on one side, near AbT.13.137.1.

AbT.13.137.3 - Fig. 8.24
Dimensions: rim diam.: 14 cm; rim th.: 0.7 cm; wall th.: 0.9 cm; base diam.: 6 cm; base th.: 1.2 cm; h.: 8.4 cm.
Clay: outer, inner and fabric colour: 7.5YR 6/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: conical bowl. Found along the south-west wall of Room 4.

AbT.13.137.4 - Fig. 8.24
Dimensions: rim diam.: 14.5 cm ca.; rim th.: 0.6 cm; wall th.: 0.6-1.3 cm; base diam.: 4.8-5 cm; base th.: 1.5 cm; h.: 7.4 cm.
Clay: outer, inner and fabric colour: 7.5YR 6/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: conical bowl. Found along the north-west wall of Room 4.

AbT.13.137.5 - Fig. 8.24
Dimensions: rim diam.: 15 cm; rim th.: 0.6 cm; wall th.: 0.9 cm; base diam.: 5.5; base th.: 1.1 cm; h.: 7.6 cm.
Clay: outer, inner and fabric colour: 7.5YR 8/3 (pink); sand inclusions; medium-low firing temperature.
Description: conical bowl found along the south-west wall of Room 4.

Catalogue of US 144 (Grave 12) Finds

Objects

AbT.13.19 - Fig. 8.23
Description: stone pestle with traces of intentional flaking, as if the tool was in a remodelling phase; light but concentrated pounding traces, probably expedient use; one long side of the tool has a flattened area, probably due to expedient use as polisher. [SC]
Dimensions: 5.5x8.3 cm.

AbT.13.36 - Fig. 8.23
Description: chert cube. All faces were worked to resemble a cube, however the patina makes analysis of flaking difficult. No functional traces were observed: maybe one side was slightly polished, or seems so due to contact. [SC]
Dimensions: 4.6x4.6x4 cm; weight 99 gr.

AbT.13.37 - Fig. 8.23
Description: alabaster vessel rim.
Dimensions: 7.4x0.9x0.3 cm.

AbT.13.38 - Fig. 8.23
Description: multifunctional stone tool. The main functional areas of the pestle present different trace typologies: pounding and heavy rounding, probably due to handling. The lateral sides of the pestle have

different traces too: two sides show traces of pounding, one expedient, whereas the other has traces of continuous pounding. One thin band, darker in colour, was probably used as expedient polisher, having a shiny/glossy appearance. Another larger band was probably used for polishing activity but with less intensity. [SC]
Dimensions: 10x6.2 cm.

AbT.13.39 - Fig. 8.23
Description: shell with cosmetic paste.
Dimensions: 4.5x5x4 cm.

AbT.13.44 - Fig. 8.23
Description: hammer-stone of which all sides were used for percussion actions. The ample surfaces were also used but as expedient tools, also for percussion or pounding actions. One ample surface was probably used as an abrader. Many bitumen residues present on all sides. [SC]
Dimensions: 6.6x8.3x3.5 cm.

Pottery

AbT.13.144.1 - Fig. 8.25
Dimensions: rim diam.: 9 cm ca.; rim th.: 0.7 cm; wall th.: 0.7 cm; base th.: 0.4 cm ca.; h.: 15.3 cm.
Clay: outer colour (self-slip): 2.5Y 9/2 (very pale yellow); inner and fabric colour: 10YR 7/4 (very pale brown); sand inclusions; medium firing temperature.
Description: small triangular rim jar with high neck, rounded shoulders, globular body and rounded/slightly pointed base.

AbT.13.144.2 - Fig. 8.25
Dimensions: rim diam.: 10.7 cm; rim th.: 0.6 cm; wall th.: 0.7 cm; base diam.: 8 cm; h.: 28.8 cm.
Clay: outer, inner and fabric colour: 5Y 7/3 (pale yellow); sand inclusions; medium firing temperature.
Description: spouted jar with flared and plain rim, rounded shoulders, ovoid body and three pinched feet. The jar's mouth was closed with the conical bowl AbT.13.144.3.

AbT.13.144.3 - Fig. 8.25
Dimensions: rim diam.: 14 cm; rim th.: 0.6 cm; wall th.: 0.9 cm; base diam.: 5.3 cm; base th.: 1.2 cm; h.: 7.3 cm.
Clay: outer colour: 10YR 6/4 (light yellowish brown); inner colour: 7.5YR 6/4 (light brown); fabric colour: 7.5YR 5/6 (strong brown); sand inclusions; medium-high firing temperature.
Description: conical bowl and string-cut base. Found on the mouth of the spouted jar AbT.13.144.2.

AbT.13.144.4 - Fig. 8.25
Dimensions: wall th.: 0.9 cm; base diam.: 5.1 cm; base th.: 0.9 cm.
Clay: outer, inner and fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: conical bowl base. Found on the top of AbT.13.144.4 (partially on the jar shoulders).

AbT.13.144.5 - Fig. 8.25
Dimensions: rim diam.: 16 cm; rim th.: 0.6 cm; wall th.: 0.9 cm; base diam.: 5.7 cm; base th.: 1.2 cm; h.: 7.3 cm.
Clay: outer and inner colour: 10YR 8/3 (very pale brown); fabric colour: 7.5YR 7/4 (pink); sand inclusions; medium-high firing temperature.
Description: conical bowl.

AbT.13.144.6 - Fig. 8.25
Dimensions: rim diam.: 14 cm; rim th.: 0.6 cm; wall th.: 0.7 cm; base diam.: 5 cm; base th.: 5.5 cm; h.: 8.2 cm.
Clay: outer colour: 10YR 7/4 (very pale brown); inner colour: 7.5YR 8.5/2 (pinkish white); fabric colour: 7.5YR 4/4 (brown); sand inclusions; medium-low firing temperature.
Description: conical bowl.

AbT.13.144.7 - Fig. 8.25
Dimensions: rim diam.: 14 cm; rim th.: 0.6 cm; wall th.: 0.7 cm; base diam.: 4.5 cm; base th.: 1.2 cm; h.: 6.6 cm.
Clay: outer colour: 5YR 5/4 (reddish brown); inner: 10YR 7/3 (very pale brown); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-low firing temperature.
Description: conical bowl.

AbT.13.144.8 - Fig. 8.25
Dimensions: rim diam.: 15 cm; rim th.: 0.6 cm; wall th.: 0.5 cm; base diam.: 4 cm; base th.: 0.5 cm; h.: 8.2 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 7.5YR 7/4 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: conical bowl.

AbT.13.144.9 - Fig. 8.25
Dimensions: wall th.: 0.7 cm; base diam.: 5.2 cm; base th.: 1.6 cm.
Clay: outer, inner and fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium-low firing temperature.
Description: beaker base.

AbT.13.144.10 - Fig. 8.25
Dimensions: wall th.: 0.9 cm; base diam.: 5.5 cm; base th.: 1.3 cm.
Clay: outer and inner colour: 5YR 4/6 (yellowish red); fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium-high firing temperature.
Description: beaker base. Found over the left arm of the body.

AbT.13.144.11 - Fig. 8.25
Dimensions: wall th.: 0.7 cm; base diam.: 5.3 cm; base th.: 1.6 cm.
Clay: outer and inner: 5YR 6/4 (light reddish brown); fabric colour: 5YR 6/4 (yellowish red); sand inclusions; medium-low firing temperature.
Description: conical bowl base.

AbT.13.144.12 - Fig. 8.25
Dimensions: wall th.: 0.4 cm; base diam.: 2.5 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 7.5YR 7/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: base of a small conical bowl.

AbT.13.144.13 - Fig. 8.24
Dimensions: rim diam.: 30 cm; rim th.: 0.9 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-high firing temperature.
Description: triangular rim bowl.

AbT.13.144.14 - Fig. 8.24
Dimensions: rim diam.: n.d.; rim th.: 1.4 cm; wall th.: 1.1 cm.
Clay: outer and inner colour: 10YR 6/4 (light yellowish brown); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium firing temperature.
Description: stemmed-dish base with notched ridge.

AbT.13.144.15 - Fig. 8.24
Dimensions: rim diam.: 30 cm; rim th.: 1.6 cm; wall th.: 0.9 cm.

Clay: outer and inner: 5YR 6/6 (reddish yellow); fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium firing temperature.
Description: stemmed-dish base fragment with incised hatched decoration.

Catalogue of US 145 (Grave 12) Finds

Objects

AbT.13.91 - Fig. 8.22
Description: copper alloy ring found on the pelvis of the skeleton.
Dimensions: 0.2x0.1x3 cm.

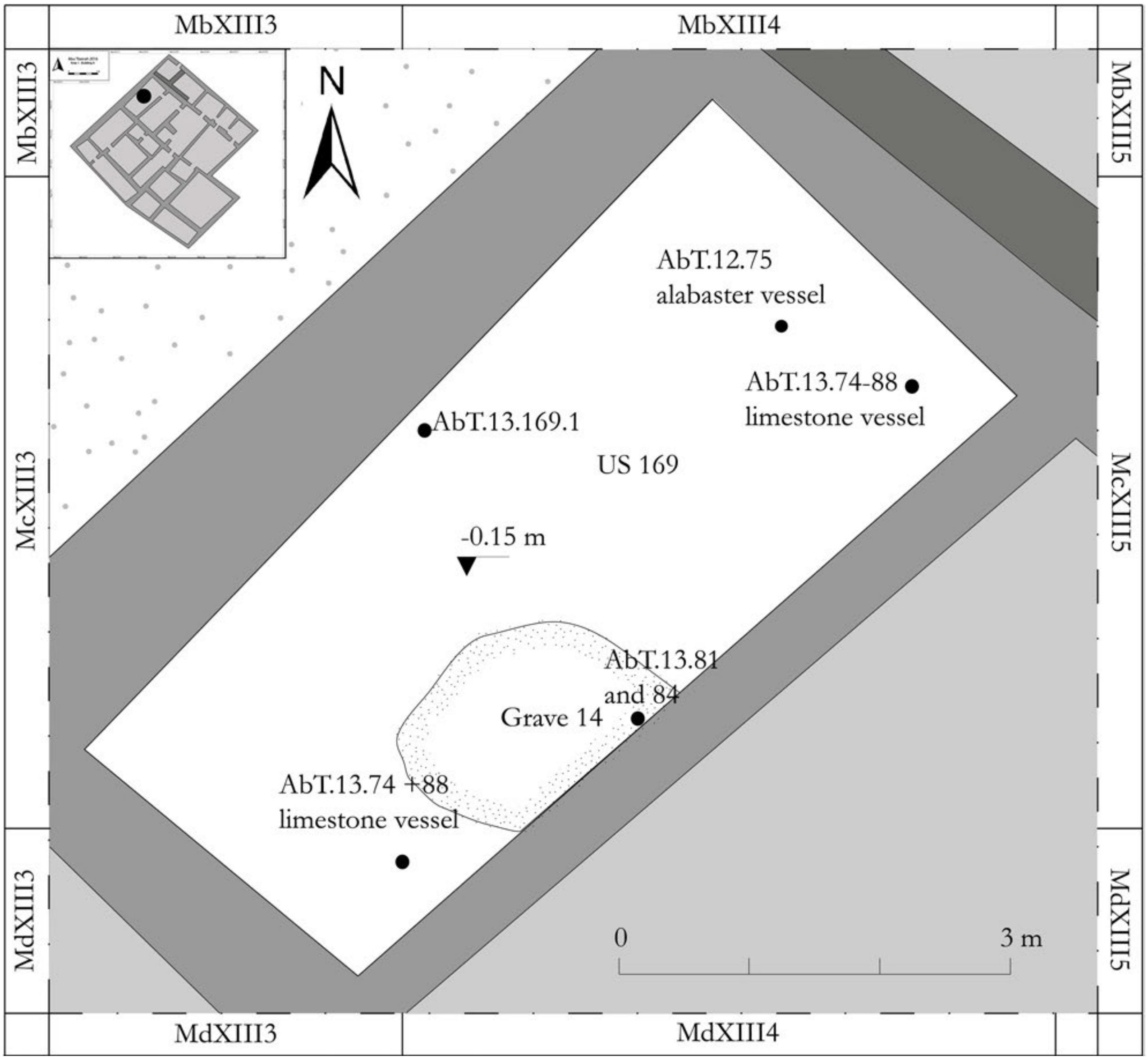


Fig. 8.26 Room 5 plan.

8.5 ROOM 5 [LR]

Room 5 (Fig. 8.28) was probably exposed for a long period to water erosion, as a consequence of the passage over this part of the Building of a rainfall gully (Fig. 6.4). The filling of the Room (US 169) consisted of a horizontal seasonal deposit composed by several thin lenses of grey and yellowish soil. The effects of the long exposure to the atmospheric agents on the material *in situ* over the pavement are evident from the discovery of a limestone vessel broken in two halves displaced in different parts of the Room.[9] An alabaster vessel and some fragments of copper-alloy objects were also recovered. Half of a backed plano-convex brick, two sickle elements and a fragment of rock-crystal were also found in the filling. Regarding the pottery, several fragments of drinking vessels were collected (at least 6 beakers and 5 conical bowls) together with fragments of jars, though not clearly belonging to complete vessels. There was no evident distinction between the stratum filling the Room and the ground surface (US 188), that was reconstructed at the elevation of -0.15 m, after the top of Grave 14 cut was identified.[10]

[9] D'Agostino - Romano 2015: 215-216.

[10] On the contrary, the pavement of the earlier phase of Room 5 was clearly identified: see Cereda - Romano 2018.

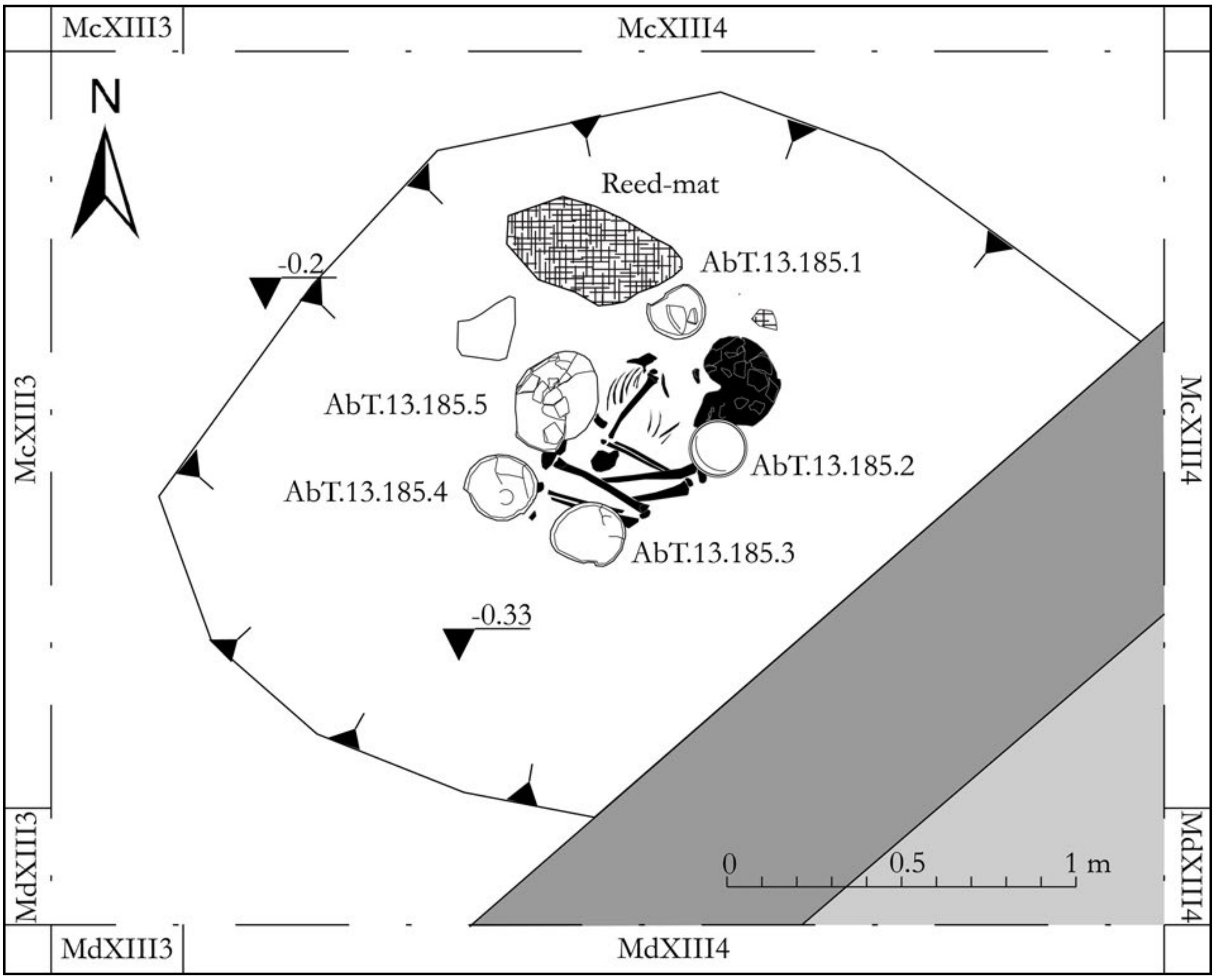


Fig. 8.27 Room 5. Grave 14 plan.

Grave 14 was the inhumation of a child of ca. 6 years (Figs 8.26-28). The body was in foetal position, laying on his left side, with the head towards north-east and looking south. A stratum of pure and compact clay (US 185) sealed the grave. The equipment consisted of a jar, two beakers and two conical bowls, while remains of a reed-mat were preserved near the body (US 186). The cut of the grave reached the depth of 0.3 m ca. (US 187).

Fig. 8.28 Room 5. Grave 14.

Fig. 8.29 Room 5. Grave 14. Pottery equipment.

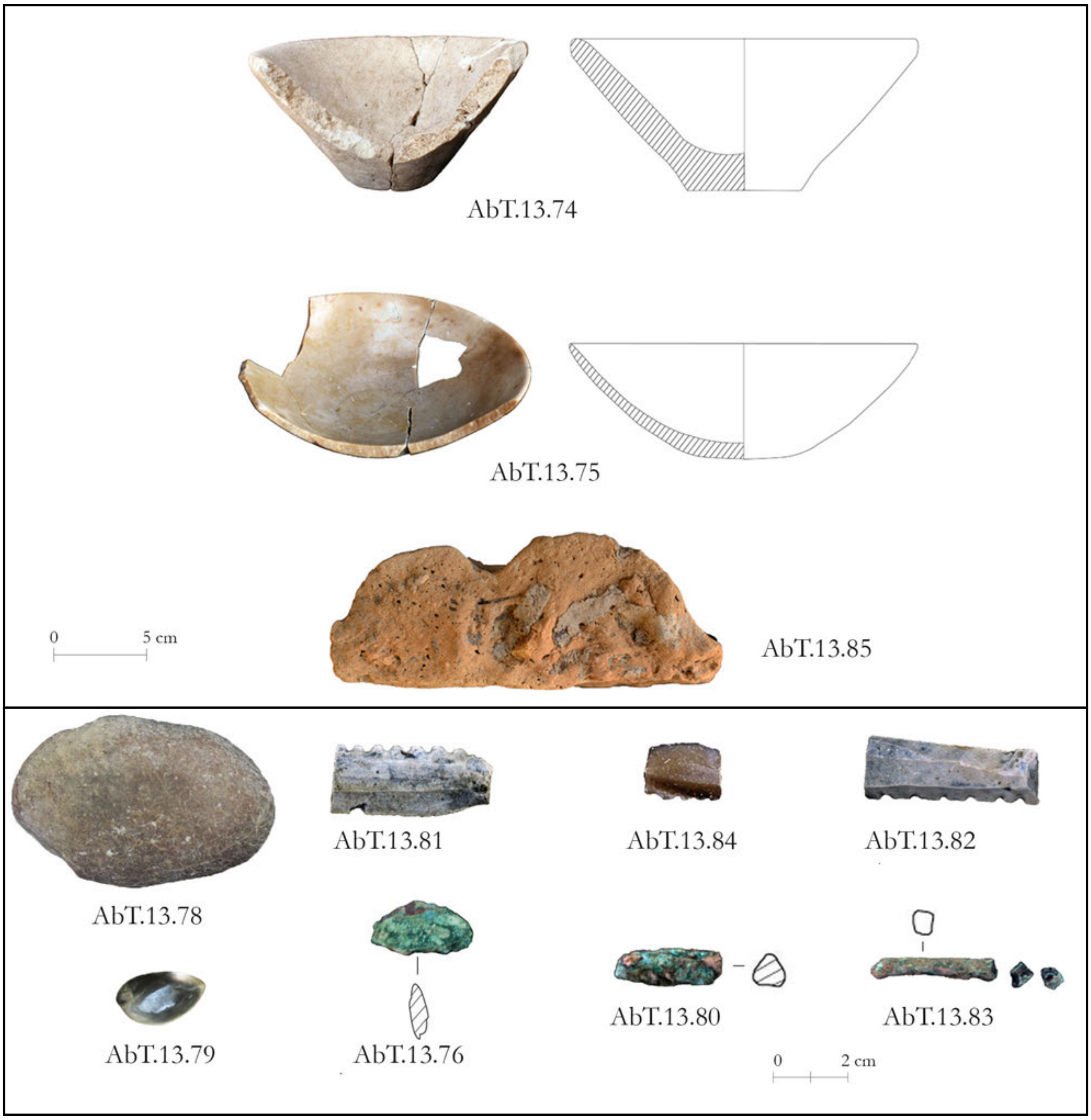


Fig. 8.30 US 169 objects.

Fig. 8.31 US 188 objects.

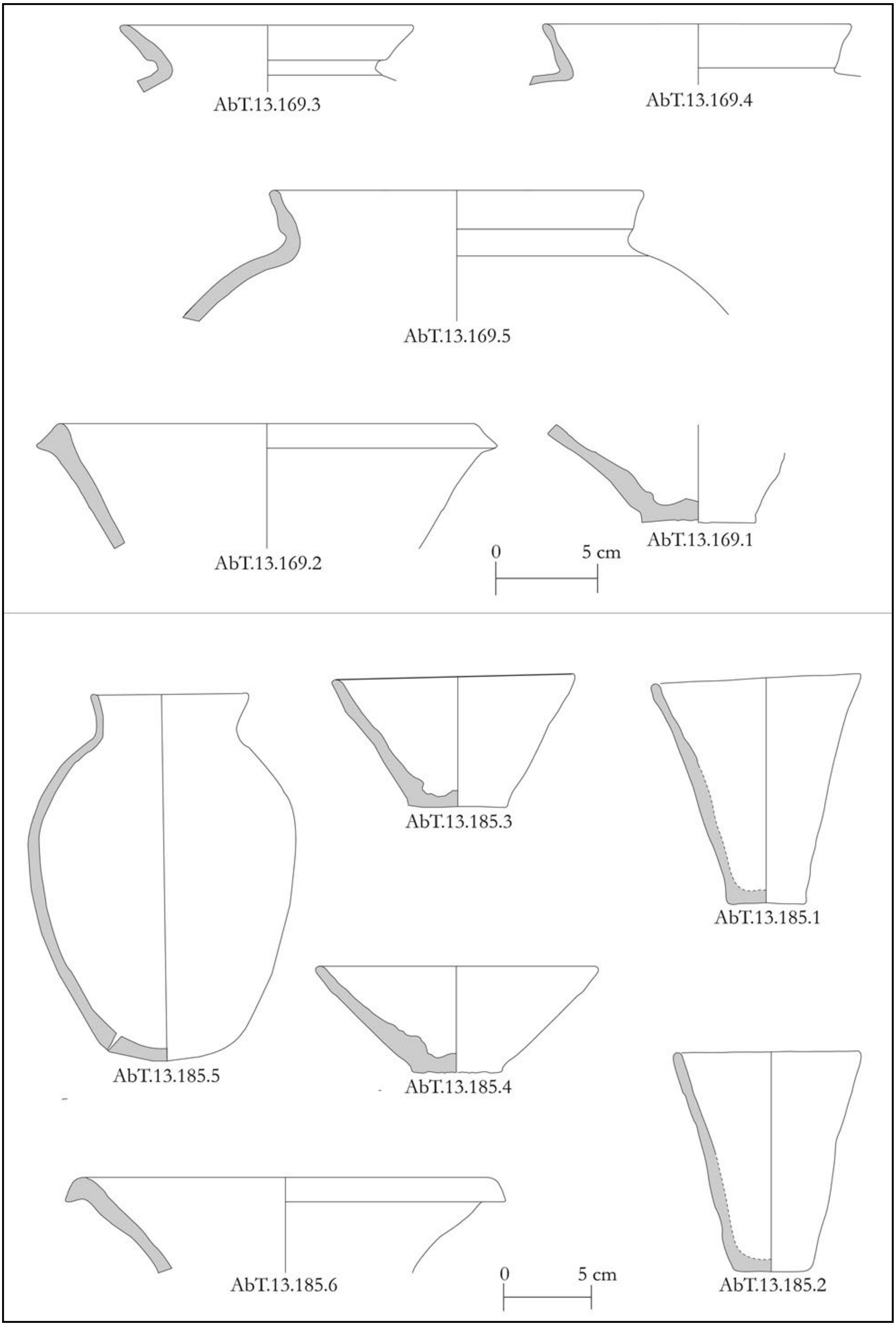


Fig. 8.32 US 169 and US 185 pottery.

Catalogue of the US 169 Finds

Objects

AbT.13.74 - Fig. 8.30
Description: limestone bowl.
Dimensions: 17x6.5x9.1 cm.

AbT.13.75 - Fig. 8.30
Description: alabaster bowl.
Dimensions: 18x6x6 cm.

AbT.13.76 - Fig. 8.30
Description: copper alloy fragment.
Dimensions: 1.3x2.4x0.5 cm.

AbT.13.78 - Fig. 8.30
Description: stone pebble.
Dimensions: 4x6.3x2 cm.

AbT.13.79 - Fig. 8.30
Description: rock crystal fragment.
Dimensions: 1.3x2.3x1 cm.

AbT.13.80 - Fig. 8.30
Description: copper alloy fragment.
Dimensions: 0.8x2.6x0.6 cm.

AbT.13.81 - Fig. 8.30
Description: chert blade with one side retouched and haft element on the other.
Dimensions: 1.2x3.8x0.3 cm.

AbT.13.82 - Fig. 8.30
Description: chert sickle element.
Dimensions: 1.5x4.1x0.4 cm.

AbT.13.83 - Fig. 8.30
Description: copper alloy object.
Dimensions: 0.5x3.6x0.5 cm.

AbT.13.84 - Fig. 8.30
Description: chert sickle element.
Dimensions: 1.4x1.9x0.4 cm.

AbT.13.85 - Fig. 8.30
Description: half planoconvex brick.
Dimensions: 10.6x16x6 cm.

Pottery

AbT.13.169.1 - Fig. 8.32
Dimensions: wall th.: 0.6 cm; base diam.: 5.5 cm; base th.: 1.3 cm.
Clay: outer and inner colour: 2.5Y 7/4 (pale brown); fabric colour: 7.5YR 5/6 (strong brown); sand inclusions; medium-low firing temperature.
Description: conical bowl base.

AbT.13.169.2 - Fig. 8.32
Dimensions: rim diam.: 20 cm; rim th.: 1.7 cm; wall th.: 0.8 cm.
Clay: outer colour (self-slip): 10YR 8/3 (very pale brown); inner colour (self-slip): 2.5Y 8/3 (pale brown); fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium firing temperature.
Description: triangular rim bowl.

AbT.13.169.3 - Fig. 8.32
Dimensions: rim diam.: 14 cm; rim th.: 1.1 cm; wall th.: 0.8 cm.
Clay: outer and inner (self-slip) colour: 5Y 8/2 (pale yellow); fabric colour: 7.5YR 6/3 (light brown); sand inclusions; medium firing temperature.
Description: band rim jar.

AbT.13.169.4 - Fig. 8.32
Dimensions: rim diam.: 15 cm; rim th.: 0.6 cm; wall th.: 0.7 cm.
Clay: outer colour (slipped): 5Y 8/2 (pale yellow); inner colour (slipped): 2.5Y 8/3 (pale brown); fabric colour: 5YR 5/6 (yellowish brown); sand inclusions; medium firing temperature.
Description: band rim jar.

AbT.13.169.5 - Fig. 8.32
Dimensions: rim diam.: 18 cm; rim th.: 0.6 cm; wall th.: 1 cm.
Clay: outer colour (self-slip): 10YR 8/3 (pale brown); inner and fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium firing temperature.
Description: double-ridged rim jar.

Catalogue of US 185 (Grave 14) Finds

Pottery

AbT.13.185.1 - Fig. 8.32
Dimensions: rim diam.: 11 cm; rim th.: 0.6 cm; wall th.: 0.5 cm; base diam.: 5 cm; base th.: 0.7 cm; h.: 13.6 cm.
Clay: outer, inner and fabric colour: 10YR 5/4 (yellowish brown); sand inclusions; medium firing temperature.
Description: beaker found behind the head of the skeleton.

AbT.13.185.2 - Fig. 8.32
Dimensions: rim diam.: 10.9 cm; rim th.: 0.6 cm; wall th.: 0.6 cm; base diam.: 4.4 cm; base th.: 0.7 cm; h.: 12.4 cm.
Clay: outer colour: 10YR 8/2 (very pale brown); inner colour: 7.5YR 7/4 (pink); fabric colour: 5YR 4/3 (reddish brown); sand inclusions; medium-low firing temperature.
Description: beaker found in front of the skull.

AbT.13.185.3 - Fig. 8.32
Dimensions: rim diam.: 15 cm; rim th.: 0.5 cm; wall th.: 0.5 cm; base diam.: 5.4 cm; base th.: 0.9 cm; h.: 7.3 cm.
Clay: outer colour: 10YR 6/4 (light yellowish brown); inner colour: 7.5YR 6/6 (reddish yellow); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-low firing temperature.
Description: conical bowl found on the south side of the skeleton, over the leg.

AbT.13.185.4 - Fig. 8.32
Dimensions: rim diam.: 16 cm; rim th.: 0.6 cm; wall th.: 1 cm; base diam.: 5.1 cm; base th.: 1 cm; h.: 6.2 cm.
Clay: outer colour: 2.5Y 8/3 (pale brown); inner and fabric colour: 7.5YR 4/6 (strong brown); sand inclusions; medium-low firing temperature.
Description: conical bowl found on the west side of the skeleton, near the right foot.

AbT.13.185.5 - Fig. 8.32
Dimensions: rim diam.: 9 cm ca.; rim th.: 0.5 cm; wall th.: 0.5 cm; base diam.: 7 cm ca.; base th.: 0.7 cm; h.: 21.2 cm.
Clay: outer, inner and fabric colour: 10YR 8/3 (very pale brown); sand inclusions; medium-high firing temperature.
Description: jar with plain rim, rounded shoulder, ovoid body and convex base. Found near the hip.

AbT.13.185.6 - Fig. 8.32
Dimensions: rim diam.: 23 cm (inner); rim th.: 1.4 cm; wall th.: 0.8 cm.
Clay: outer colour: 5Y 8/3 (pale yellow); inner colour: 10YR 7/4 (very pale brown); fabric colour: 10YR 5/4 (yellowish brown); sand inclusions; medium firing temperature.
Description: triangular rim bowl.

Catalogue of US 185 (Grave 14) Finds

Objects

AbT.13.87 - Fig. 8.31
Description: granite cube. Very regular surfaces with very little traces. Of the 6 surfaces 4 are very regular and rounded, whereas the other two are a little more irregular, the four rounded surfaces must have been either abraded or used to abrade some other surface. Very difficult to differentiate between technological and functional traces due to the nature of the raw material. It seems more plausible that this artifact was worked and not used. [SC]
Dimensions: 3.8x3.8x3.8 cm; weight 63 g.

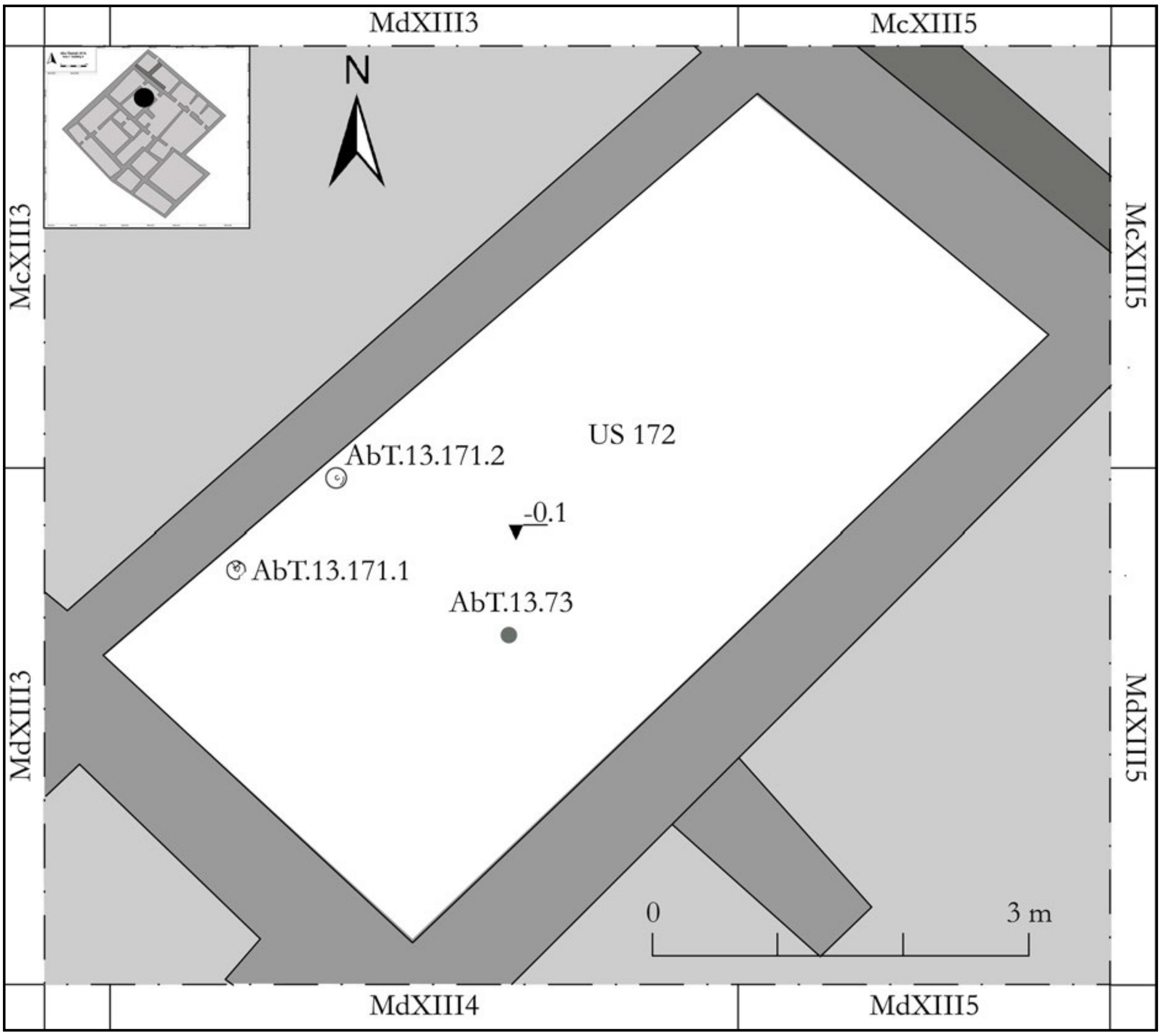


Fig. 8.33 Room 6 plan.

8.6 Room 6 [LR]

The Room (Fig. 8.33) was filled by a quite soft yellowish brown stratum (US 170), full of mud-brick fragments probably pertaining to the structure. The presence of a housing area (US 172) was reconstructed at the elevation of -0.1 m on the base of the presence of the so-called "foundation bowls" (US 171) and of a pestle. The pottery fragments discovered inside US 170 belonged to several drinking vessels (mainly rims; AbT.13.170.2-3) and to one triangular rim bowl (AbT.13.170.1). The other shapes discovered are: three convex bases of jars, one plain and two double-ridged rims of jars and two spouts. Several fragments of at least one big coarse vessel (a vat?) with flat base were collected.

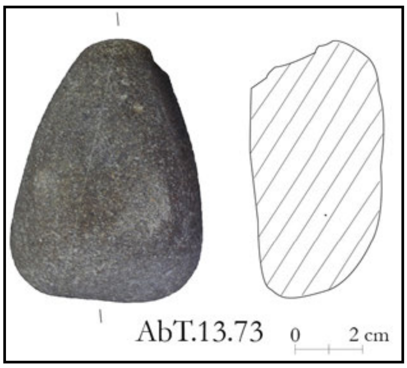


Fig. 8.34 US 172 objects.

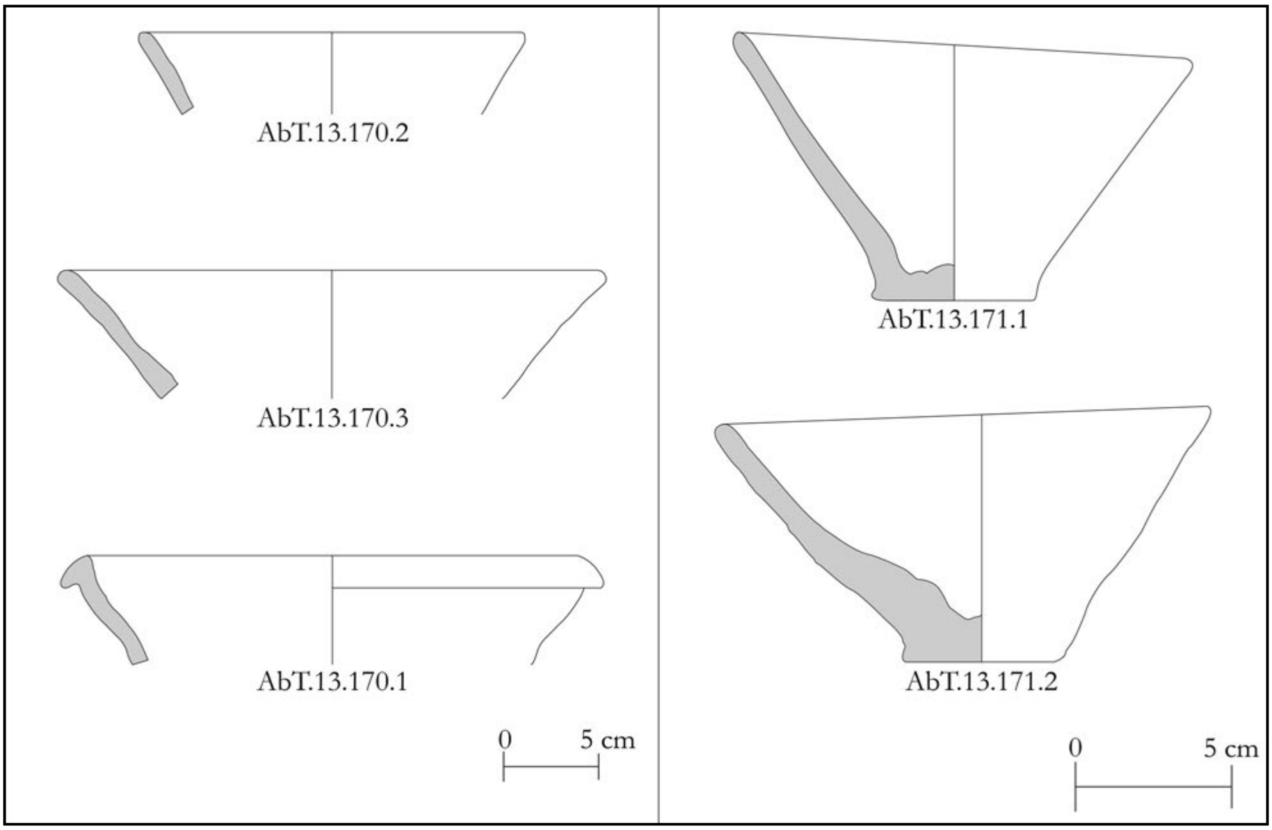


Fig. 8.35 US 170 and US 171 pottery.

Catalogue of US 170 Finds

Pottery

AbT.13.170.1 - Fig. 8.35
Dimensions: rim diam.: 26 cm; rim th.: 2.25 cm; wall th.: 1.3 cm.
Clay: outer colour (self-slip): 7.5YR 8/2 (pinkish white); inner colour (self-slip): 10YR 8/2 (very pale brown); fabric colour: 5YR 7/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: triangular rim bowl.

AbT.13.170.2 - Fig. 8.35
Dimensions: rim diam.: 20 cm (inner); rim th.: 0.9 cm; wall th.: 0.8 cm.
Clay: outer fabric colour (self-slip): 2.5Y 8.5/2 (pale yellow); inner colour (slipped): 2.5Y 8.5/2 (pale yellow); fabric colour: 5YR 7/4 (pink); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.13.170.3 - Fig. 8.35
Dimensions: rim diam.: 28 cm ca.; rim th.: 1 cm; wall th.: 0.8 cm.
Clay: outer and inner fabric colour: 2.5Y 8/3 (pale brown); fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium firing temperature.
Description: drinking vessel rim. Traces of bitumen on the inner and outer surfaces.

Catalogue of US 171 Finds

Pottery

AbT.13.171.1 - Fig. 8.35
Dimensions: rim diam.: 14.7 cm; rim th.: 0.6 cm; wall th.: 0.6 cm; base th.: 0.5 cm; base diam.: 5.2 cm; h.: 8.6 cm.
Clay: outer colour: 7.5YR 7/3 (pink); inner colour: 2.5Y 8/3 (light reddish brown); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-low firing temperature.
Description: conical bowl found along the north-west wall.

AbT.13.171.2 - Fig. 8.35
Dimensions: rim diam.: 15.5 cm; rim th.: 0.6 cm; wall th.: 0.7 cm; base th.: 1.5 cm; base diam.: 5.9 cm; h.: 8.1 cm.
Clay: outer colour: 2.5Y 8/2 (pale brown); inner colour: 5YR 6/4 (pale brown); fabric colour: 2.5Y 7/4 (pale brown); sand inclusions; medium firing temperature.
Description: conical bowl found along the north-west wall.

Catalogue of US 172 Finds

Objects

AbT.13.73 - Fig. 8.34
Description: stone pestle which was used uniquely for pestle-like activities. Maybe the flatter inferior surface was implemented for polishing activities. The only prolonged functional area (pestle functional area) presents traces of light pounding from a continuous utilization. [SC]
Dimensions: 5.4x7.45x3.7 cm.

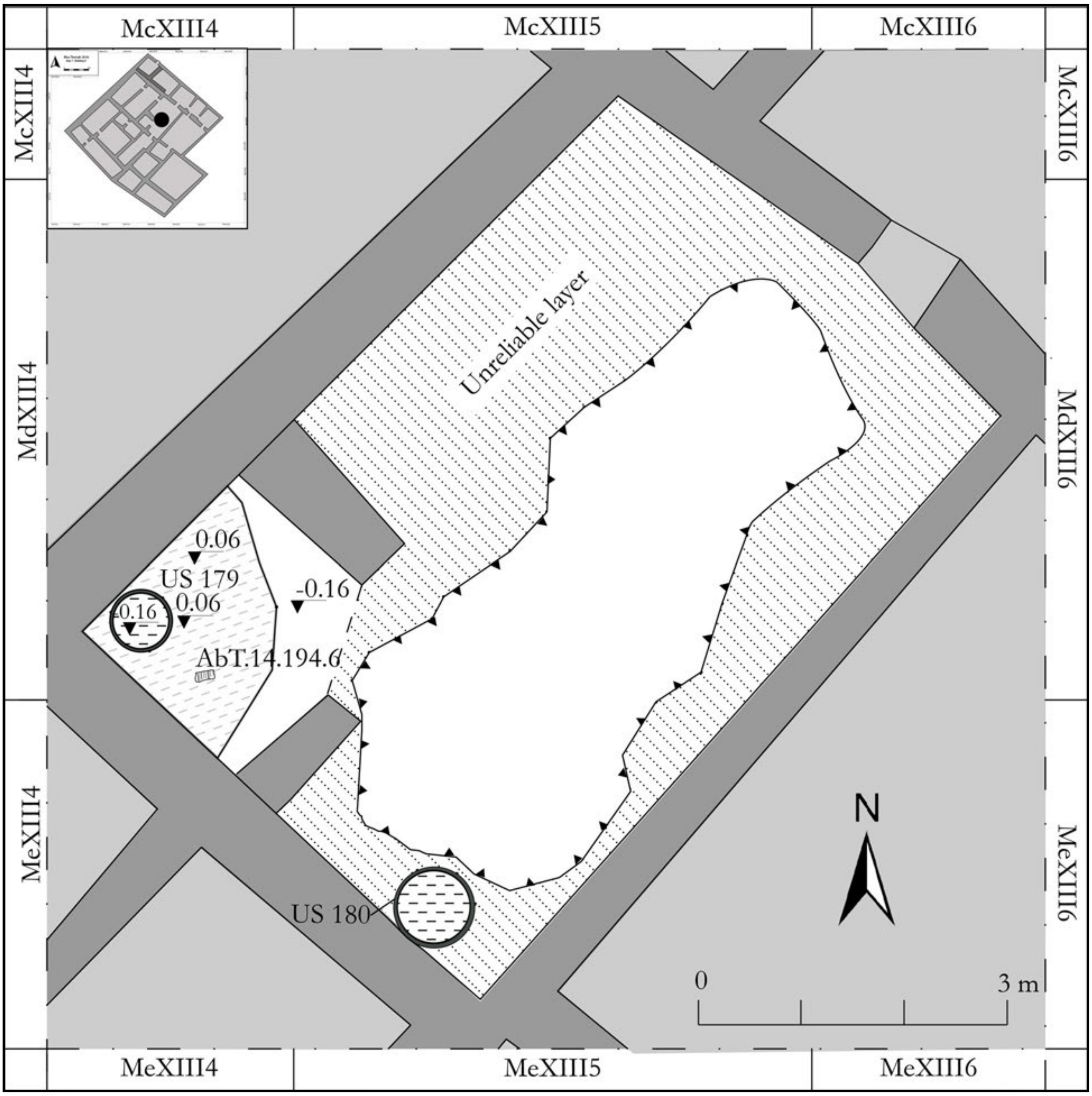


Fig. 8.36 Room 7.

8.7 Room 7 [LR]

Room 7 (Figs 7.36-37) was strongly damaged by later activities: the Room was cut by a huge dumping pit (US 242), this, in turn, was cut by Grave 15 and Grave 16. The cut was not clearly visible due to the nature of the soil and to post-depositional modifications (see § 6.1.1). A reliable stratigraphy was detected only in the west corner of the Room where two small walls protected a tannur (US 178; filling US 179 - Fig. 8.37) belonging to the first phase of the Building. While the tannur was preserved for an elevation of 0.4 m, its base was at the elevation of -0.16 m. The tannur was built over pavement US 249 and surrounded by a stratum of ashy soil (US 194) with some pottery discarded inside it, mainly drinking vessels fragments, a cylinder and at least three different jars. The traces of a second tannur (US 180; filling US 181)were identified in the west corner of the Room during 2013 campaign, immediately under the surface, at the elevation of 0.1 m. It is, thus, not clear if this tannur was connected to later activities or to a later eroded phase of the Building. However, the position along the south-east wall seems to point towards a use in connection with the Room.

Fig. 8.37 Tannur US 178 in the north-western corner of Room 7.

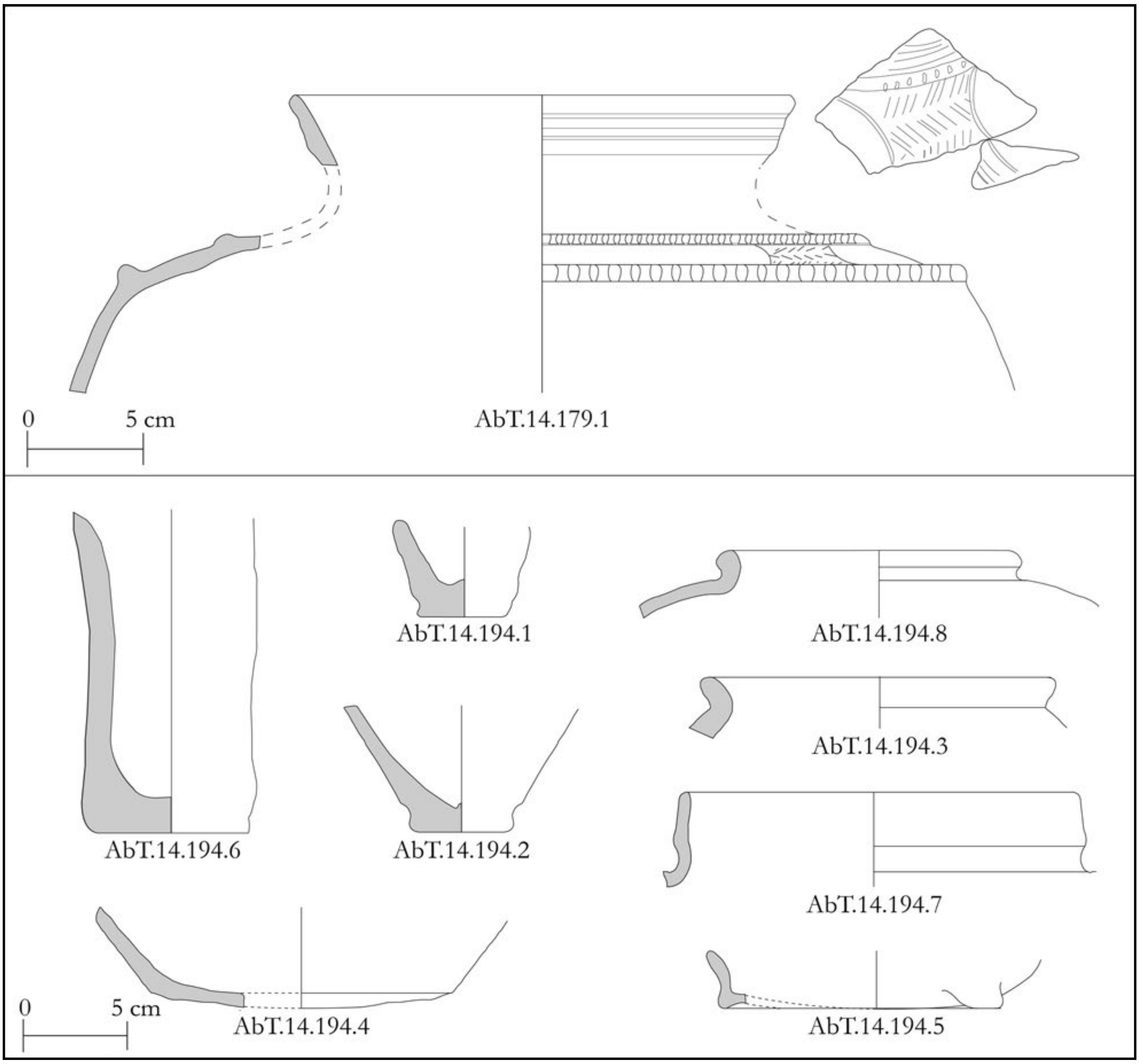


Fig. 8.38 US 179 and US 194 pottery.

Catalogue of US 179 Finds

Pottery

AbT.14.179.1 - Fig. 8.38
Dimensions: rim diam.: 26 cm; rim th.: 0.8 cm; wall th.: 0.8 cm.
Clay: outer and inner colour (slip): 2.5Y 8/4 (pale brown); fabric colour: 2.5YR 6/6 (light red); sand inclusions; medium firing temperature.
Description: band rim jar. Two notched ridges are used to frame the shoulder, that is decorated with two incised curves enclosing a herringbone pattern.

Catalogue of US 194 Finds

Pottery

AbT.14.194.1 - Fig. 8.38
Dimensions: wall th.: 1 cm; base diam.: 4.5 cm; base th.: 1.5 cm.
Clay: outer, inner and fabric colour: 5YR 7/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.14.194.2 - Fig. 8.38
Dimensions: wall th.: 0.6 cm; base diam.: 4.9 cm; base th.: 1.5 cm.
Clay: outer, inner and fabric colour: 7.5YR 8/3 (pink); sand inclusions; medium firing temperature.
Description: conical bowl base.

AbT.14.194.3 - Fig. 8.38
Dimensions: rim diam.: 16 cm; rim th.: 2.1 cm; wall th.: 1.1 cm.
Clay: outer, inner and fabric colour: 5YR 8/4 (pink); sand inclusions; medium-low firing temperature.
Description: plain rim jar.

AbT.14.194.4 - Fig. 8.38
Dimensions: wall th.: 0.7 cm; base diam.: 14 cm; base th.: 0.7 cm.
Clay: outer, inner and fabric colour: 5Y 8/2 (pale yellow); sand inclusions; high firing temperature.
Description: convex base.

AbT.14.194.5 - Fig. 8.38
Dimensions: wall th.: 0.6 cm; base diam.: 12 cm; base th.: 0.8 cm.
Clay: outer and inner colour (slip?): 5Y 8/2 (pale yellow); fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; high firing temperature.
Description: convex base with three feet.

AbT.14.194.6 - Fig. 8.38
Dimensions: wall th.: 1.2 cm; base diam.: 8 cm; base th.: 1.2 cm.
Clay: outer and inner and fabric colour: 7.5YR 7/4 (pink); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium firing temperature.
Description: cylinder base.

AbT.14.194.7 - Fig. 8.38
Dimensions: rim diam.: 14 cm; rim th.: 0.6 cm; wall th.: 0.7 cm.
Clay: outer, inner and fabric colour: 2.5YR 6/8 (light red); sand inclusions; medium firing temperature.
Description: band rim jar.

AbT.14.194.8 - Fig. 8.38
Dimensions: rim diam.: 13 cm; rim th.: 1 cm; wall th.: 0.7 cm.
Clay: outer colour: 2.5Y 8/3 (pale brown); inner and fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium-high firing temperature.
Description: plain rim jar with bitumen traces.

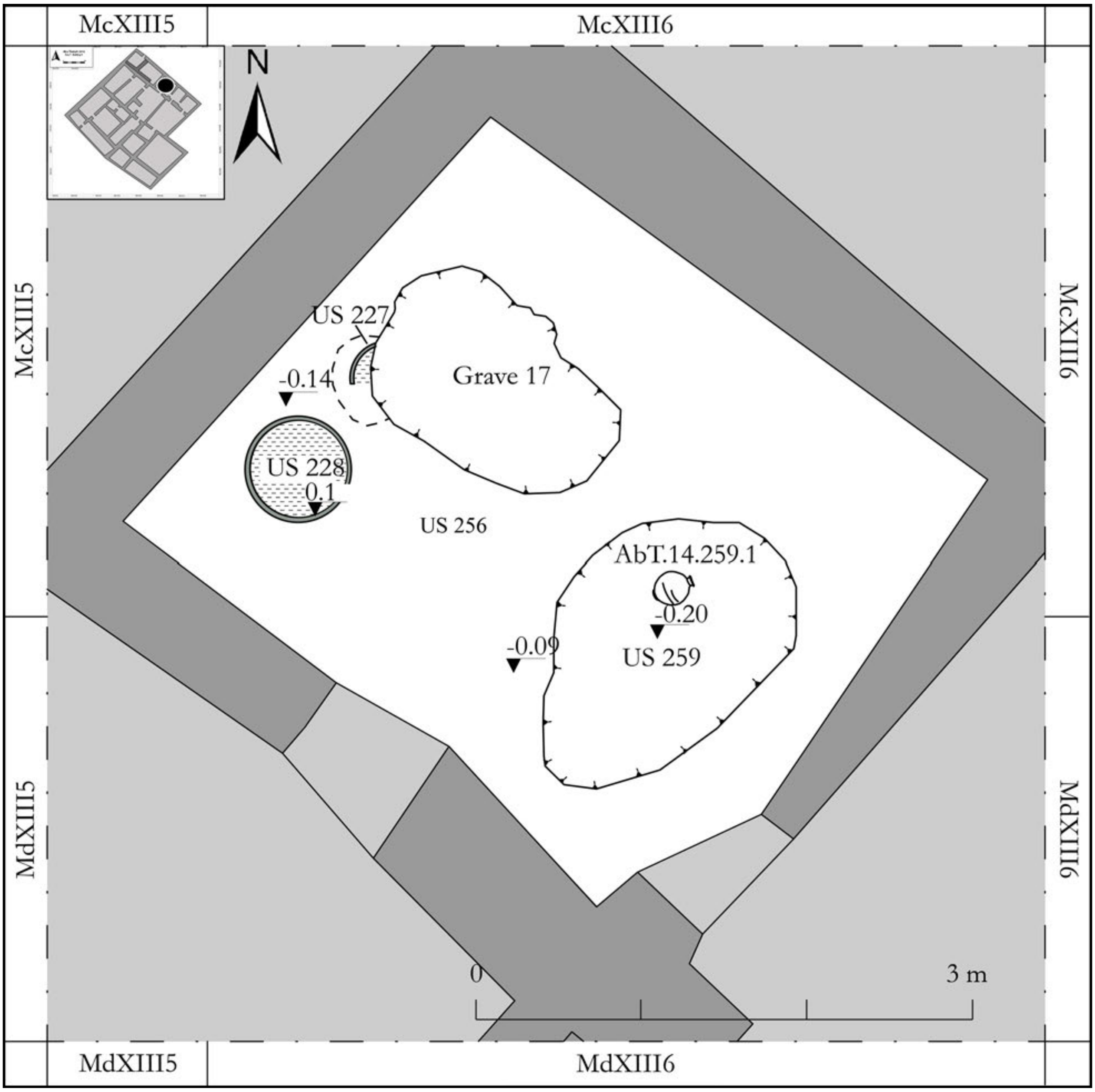


Fig. 8.39 Room 8 plan.

8.8 Room 8 [LR]

Room 8 filling (US 254 - Fig. 8.39) was cut by Grave 17. Probably this later activity caused a higher water infiltration inside the stratum that, thus, was characterized by several areas hardened by salt. Two tannur were located inside the Room: tannur US 228 (filling US 229; partially dug into the ground surface) and tannur US 227 (filling US 236),[11] the last one mostly destroyed by Grave 17.[12] The tannur were preserved up to 0.1 m of elevation, while their bases had an elevation of -0.13 m. The housing surface (US 256), clearly visible near the north-east wall, had the same elevation of the bases of the two tannur. In the stratum over the ground surface ca. 80 bases of drinking vessels were found, together with several

[11] During the excavation the realization of a cut to host the tannur's base was hypothesized. This hypothesis was based on the presence of strong salt incrustations around the firing structure. However, the salt incrustation could be due to water infiltration, accentuated by the later activities, in the area of contact between the soil and the tannur's wall. US 258 is the backfill of the cut made to host the tannur.

[12] Fragments of the tannur were also in the filling between the sarcophagus US 225 and the cut.

jar fragments. A piece of bitumen (AbT.14.47), mixed to chaff, and a stone tool (AbT.14.55) were also recovered. Under the pavement, a cut of a shallow almost oval pit (US 260) filled by US 259 was identified, pertaining to the use of the Room (Fig. 8.40). The edge of the cut was covered by a series of small mud-brick fragments. On the bottom of the pit a complete jar (AbT.14.259.1), with bitumen traces on one side was discovered. In addition, other pottery fragments recovered inside US 259 were clearly exposed to fire.[13]

Fig. 8.40 Room 8. US 260 with AbT.14.259.1 on the bottom of the cut.

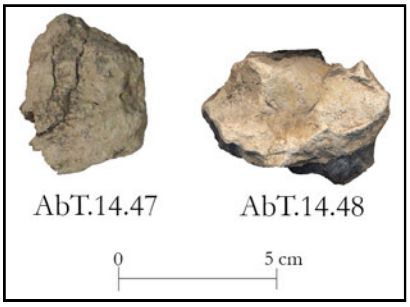


Fig. 8.41 US 254 objects.

Fig. 8.42 US 256 objects.

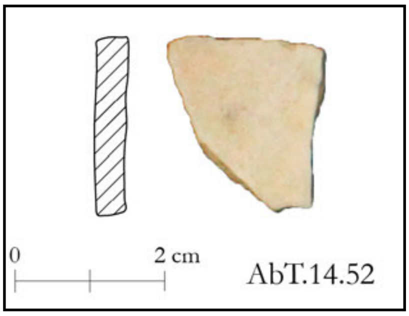


Fig. 8.43 US 259 objects.

[13] In the earlier phase of the Room a rectangular firing structure were found, almost at the same elevation of the jar. Thus, it is also plausible that US 259 pottery (in particular the complete jar on the bottom of the pit) originally belonged to the earlier phase.

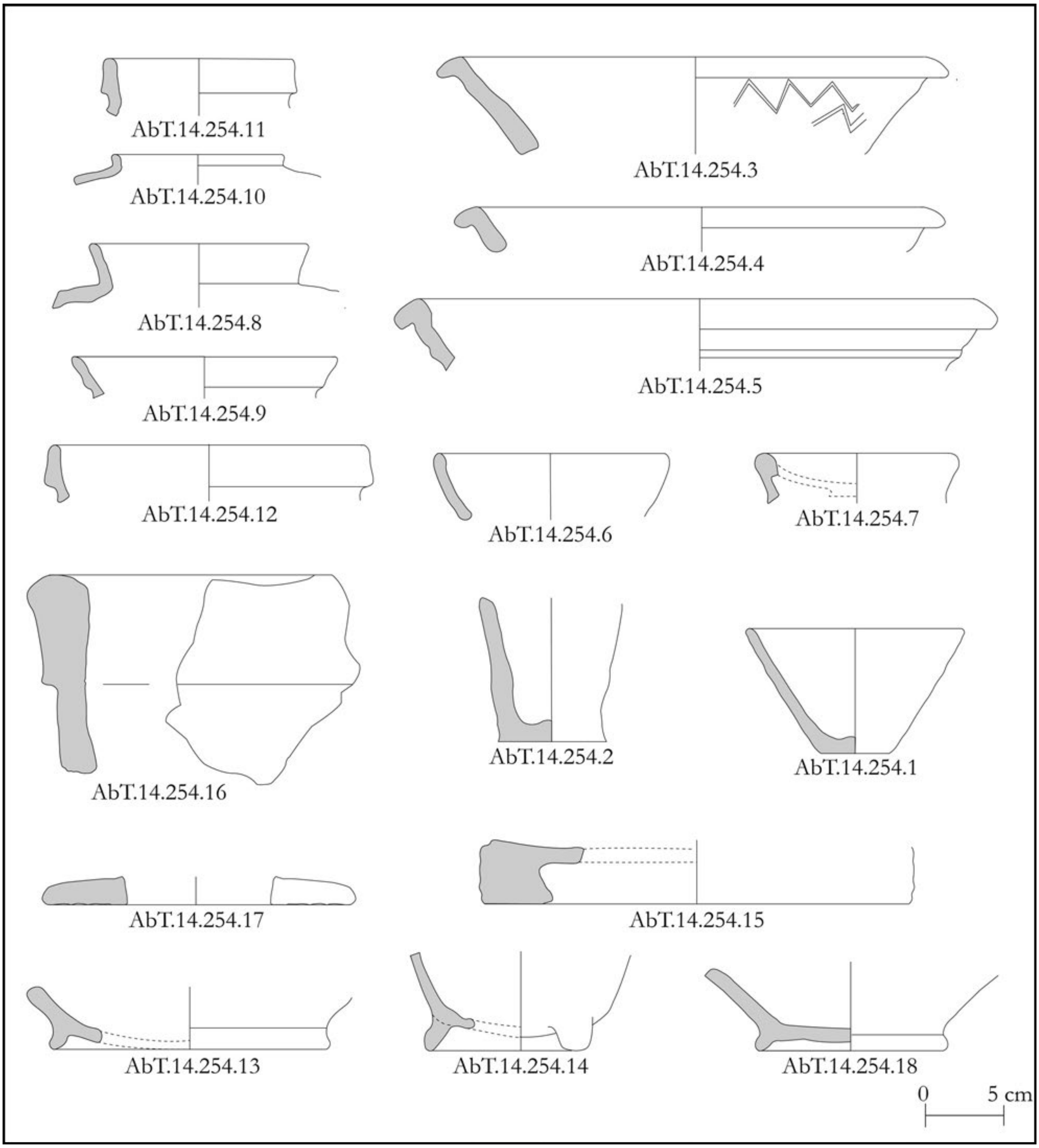


Fig. 8.44 US 254 pottery.

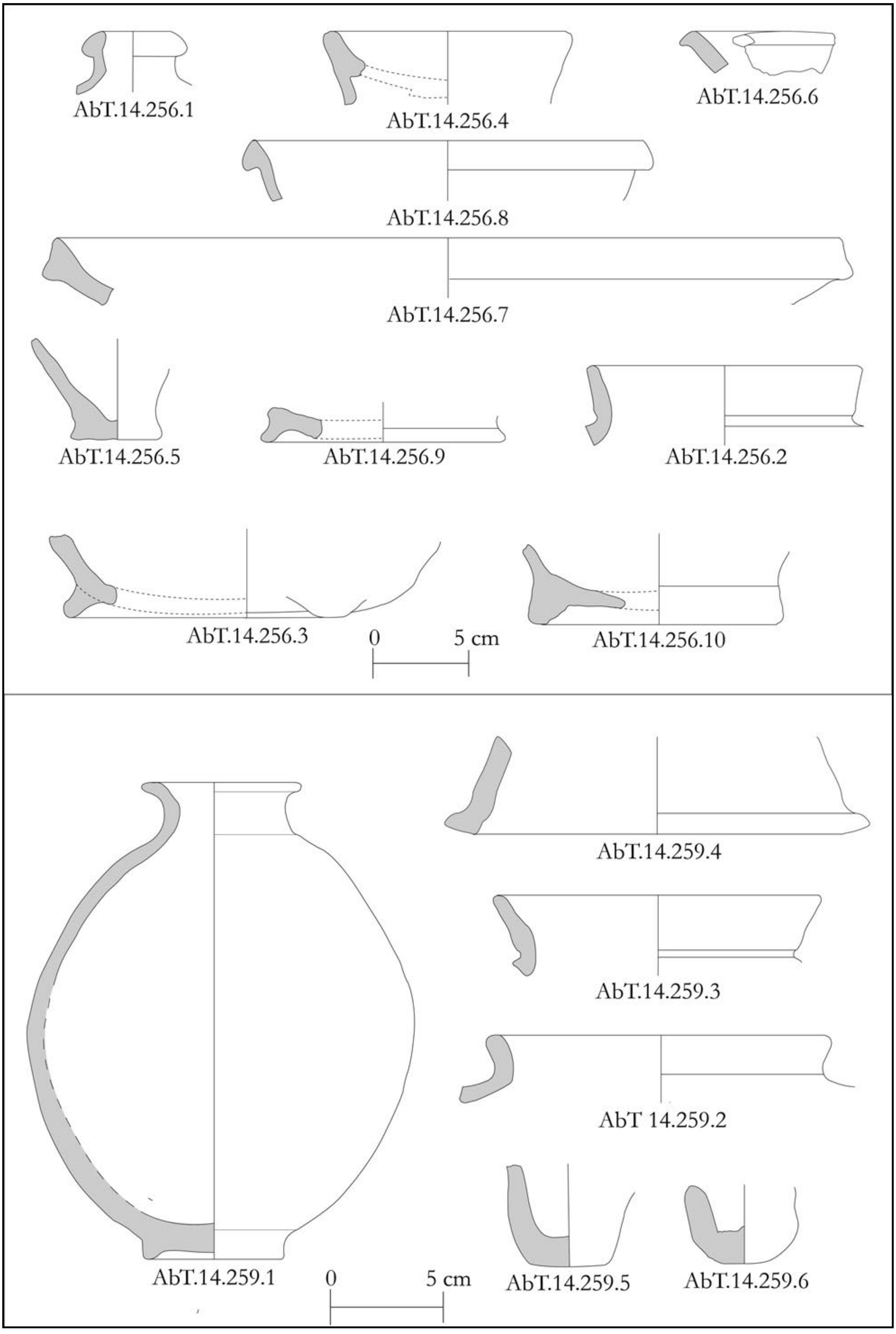


Fig. 8.45 US 256 and US 259 pottery.

Catalogue of US 254 Finds

Objects

AbT.14.47 - Fig. 8.41
Description: fragment of a bitumen object.
Dimensions: 7x4.2x2.4 cm.

AbT.14.48 - Fig. 8.41
Description: chert fragment.
Dimensions: 6.2x4.3x3.1 cm.

Pottery

AbT.14.254.1 - Fig. 8.44
Dimensions: rim diam.: 15 cm; rim th.: 0.7cm; wall th.: 0.7 cm; base diam.: 5 cm; base th.: 0.8 cm; h.: 9.1 cm.
Clay: outer, inner and fabric colour: 5YR 6/8 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: conical bowl.

AbT.14.254.2 - Fig. 8.44
Dimensions: wall th.: 0.8 cm; base diam.: 6.5 cm; base th.: 1.5 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 5YR 7/6 (reddish yellow); sand inclusions; medium temperature.
Description: beaker base.

AbT.14.254.3 - Fig. 8.44
Dimensions: rim diam.: 30 cm; rim th.: 1.6 cm; wall th.: 1.1 cm.
Clay: outer and inner colour (self-slip): 2.5Y 8/3 (pale brown); fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium-high firing temperature.
Description: triangular rim bowl. The inner and outer surface is very eroded, however zigzag incisions are still visible.

AbT.14.254.4 - Fig. 8.44
Dimensions: rim diam.: 23 cm; rim th.: 2 cm; wall th.: 1.2 cm.
Clay: outer and inner colour: 5YR 8/4 (pink); fabric colour: 2.5YR 5/8 (red); sand inclusions; medium firing temperature.
Description: triangular rim bowl.

AbT.14.254.5 - Fig. 8.44
Dimensions: rim diam.: 26 cm; rim th.: 2 cm; wall th.: 0.9 cm.
Clay: outer and inner colour: 10YR 8/2 (very pale brown); fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium-high firing temperature.
Description: triangular rim bowl with a ridge on the wall.

AbT.14.254.6 - Fig. 8.44
Dimensions: rim diam.: 9 cm; rim th.: 0.9 cm; wall th.: 0.8 cm.
Clay: outer and inner colour: 10YR 8/3 (very pale brown); fabric colour: 7.5YR 6/4 (pink); sand inclusions; low firing temperature.
Description: very small bowl with slightly in-turned rim.

AbT.14.254.7 - Fig. 8.44
Dimensions: rim diam.: 14 cm; rim th.: 1.5 cm; wall th.: 0.7 cm.
Clay: outer, inner and fabric colour: 7.5YR 6/4 (light brown); sand inclusions; low firing temperature.
Description: conical bowl attached to a stand.

AbT.14.254.8 - Fig. 8.44
Dimensions: rim diam.: 14 cm; rim th.: 0.6 cm; wall th.: 0.8 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 2.5YR 6/8 (light red); sand inclusions; high firing temperature.
Description: plain rim jar.

AbT.14.254.9 - Fig. 8.44
Dimensions: rim diam.: 15 cm; rim th.: 0.8 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/2 (pale brown); sand inclusions; high firing temperature.
Description: band rim jar.

AbT.14.254.10 - Fig. 8.44
Dimensions: rim diam.: 9 cm; rim th.: 0.9 cm; wall th.: 0.6 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 5YR 7/4 (pink); sand inclusions; high firing temperature.
Description: plain rim jar.

AbT.14.254.11 - Fig. 8.44
Dimensions: rim diam.: 10 cm; rim th.: 0.9 cm; wall th.: 0.8 cm.
Clay: outer, inner and fabric colour: 2.5Y 7/3 (pale brown); sand inclusions; medium-high firing temperature.
Description: band rim jar.

AbT.14.254.12 - Fig. 8.44
Dimensions: rim diam.: 20(?) cm; rim th.: 0.8 cm; wall th.: 0.8 cm.
Clay: outer, inner and fabric colour: 5YR 6/8 (reddish yellow); sand inclusions; low firing temperature.
Description: band rim jar.

AbT.14.254.13 - Fig. 8.44
Dimensions: wall th.: 1.2 cm; base diam.: 17.5 cm; base th.: 1 cm.
Clay: outer colour: 2.5Y 8/3 (pale brown); inner colour: 7.5YR 8/3 (pink); fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium-high firing temperature.
Description: ring base.

AbT.14.254.14 - Fig. 8.44
Dimensions: wall th.: 0.9 cm; base diam.: 11 cm; base th.: 0.6 cm.
Clay: outer and inner colour: 7.5YR 7/6 (reddish yellow); fabric colour: 7.5YR 5/4 (brown); sand inclusions; medium firing temperature.
Description: convex base with one foot preserved.

AbT.14.254.15 - Fig. 8.44
Dimensions: base diam.: 26 cm; base th.: 4.4 cm.
Clay: outer and inner colour: 7.5YR 7/6 (reddish yellow); fabric colour: 7.5YR 6/4 (light brown); sand and vegetal inclusions; medium-high firing temperature.
Description: ring base.

AbT.14.254.16 - Fig. 8.44
Dimensions: rim diam.: n.d.; rim th.: 4.2 cm; wall th.: 2.2 cm.
Clay: outer and inner colour: 7.5YR 6/4 (light brown); fabric colour: 5YR 5/3 (reddish brown); sand and vegetal inclusions; medium firing temperature.
Description: band rim of a vat/coarse jar.

AbT.14.254.17 - Fig. 8.44
Dimensions: rim th.: 1.2 cm; wall th.: 2 cm.
Clay: outer and inner colour: 2.5Y 3/1 (very dark grey); fabric colour: 2.5Y 8/1 (white); sand and vegetal inclusions; high firing temperature.
Description: disk covered with bitumen and organic substances. Unclear function (lid?).

AbT.14.254.18 - Fig. 8.44
Dimensions: wall th.: 1 cm; base diam.: 15 cm; base th.: 0.5 cm.
Clay: outer colour: 10YR 8/2 (very pale brown); inner colour: 10YR 8/3 (very pale brown); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-high firing temperature.
Description: ring base.

Catalogue of US 256 Finds

Objects

AbT.14.55 - Fig. 8.42
Description: fragment of a greyish stone pestle.
Dimensions: 3x2.9x1.7 cm.

Pottery

AbT.14.256.1 - Fig. 8.45
Dimensions: rim diam.: 4.9 cm; rim th.: 1.1 cm; wall th.: 0.6 cm.
Clay: outer and fabric colour: 2.5YR 7/8 (light red); inner colour: 7.5YR 7/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: triangular rim miniaturistic jar/spout?.

AbT.14.256.2 - Fig. 8.45
Dimensions: rim diam.: 14 cm; rim th.: 0.6 cm.
Clay: outer colour: 2.5Y 8/2 (pale brown); inner colour: 2.5YR 7/8 (light red); fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium-high firing temperature.
Description: band rim jar.

AbT.14.256.3 - Fig. 8.45
Dimensions: wall th.: 1.1 cm; base diam.: 16(?) cm; base th.: 1.3 cm.
Clay: outer and inner colour: 5YR 6/4 (light reddish brown); fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium firing temperature.
Description: convex base with three feet.

AbT.14.256.4 - Fig. 8.45
Dimensions: rim diam.: 12 cm; rim th.: 1.4 cm; wall th.: 0.8 cm.
Clay: outer and inner colour: 10YR 8/2 (very pale brown); fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: conical bowl attached to a stand.

AbT.14.256.5 - Fig. 8.45
Dimensions: wall th.: 0.5 cm; base diam.: 5 cm; base th.: 0.8 cm.
Clay: outer, inner and fabric colour: 5YR 7/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.14.256.6 - Fig. 8.45
Dimensions: rim th.: 1.4 cm.
Clay: outer and inner colour: 10YR 8/2 (very pale brown); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-high firing temperature.
Description: triangular bowl.

AbT.14.256.7 - Fig. 8.45
Dimensions: rim diam.: 40 cm; rim th.: 2.1 cm; wall th.: 1 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/2 (pale brown); sand inclusions; medium-high firing temperature.
Description: triangular rim bowl.

AbT.14.256.8 - Fig. 8.45
Dimensions: rim diam.: 15 cm; rim th.: 1.6 cm; wall th.: 0.6 cm.
Clay: outer colour: 2.5Y 8/2 (pale brown); inner and fabric colour: 7.5YR 7/4 (pink); sand inclusions; medium firing temperature.
Description: triangular rim bowl.

AbT.14.256.9 - Fig. 8.45
Dimensions: wall th.: 0.7 cm; base diam.: 13 cm; base th.: 1.1 cm.
Clay: outer, inner and fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: ring base.

AbT.14.256.10 - Fig. 8.45
Dimensions: wall th.: 0.7 cm; base diam.: 13 cm; base th.: 0.5 cm.
Clay: outer, inner and fabric colour: 10YR 8/3 (very pale brown); sand and vegetal inclusions; medium firing temperature.
Description: ring base.

Catalogue of US 259 Finds

Objects

AbT.14.52 - Fig. 8.43
Description: limestone vessel.
Dimensions: 3x2.2x0.5 cm

Pottery

AbT.14.259.1 - Fig. 8.45
Dimensions: rim diam.: 5.7 cm; rim th.: 1.2 cm; wall th.: 0.5 cm; base diam.: 6.2 cm; base th.: 1 cm; h.: 22.1 cm.
Clay: outer colour: 5YR 5/4 (reddish brown); sand inclusions; low firing temperature.
Description: jar with out-turned rim and ring base.

AbT.14.259.2 - Fig. 8.45
Dimensions: rim diam.: 16 cm; rim th.: 0.9 cm; wall th.: 0.7 cm.
Clay: outer, inner and fabric colour: 2.5YR 5/6 (red); sand inclusions; low firing temperature.
Description: plain rim jar.

AbT.14.259.3 - Fig. 8.45
Dimensions: rim diam.: 13 cm; rim th.: 0.7 cm.
Clay: outer and inner colour: 2.5Y 8/3 (pale brown); fabric colour: 2.5YR 6/6 (light red); sand inclusions; medium-high firing temperature.
Description: band rim jar.

AbT.14.259.4 - Fig. 8.45
Dimensions: rim diam.: 23 cm; rim th.: 1.7 cm; wall th.: 1 cm.
Clay: outer and inner colour: 2.5Y 8/3 (pale brown); fabric colour: 2.5YR 5/6 (red); sand inclusions; medium-high firing temperature.
Description: stemmed-dish base.

AbT.14.259.5 - Fig. 8.45
Dimensions: base diam.: 2.5 cm; base th.: 1.3 cm.
Clay: outer, inner and fabric colour: 5YR 5/4 (reddish brown); sand inclusions; low firing temperature.
Description: almost pointed base.

AbT.14.259.6 - Fig. 8.45
Dimensions: base th.: 1 cm.
Clay: outer, inner and fabric colour: 7.5YR 5/4 (brown); sand inclusions; medium-high firing temperature.
Description: pointed base.

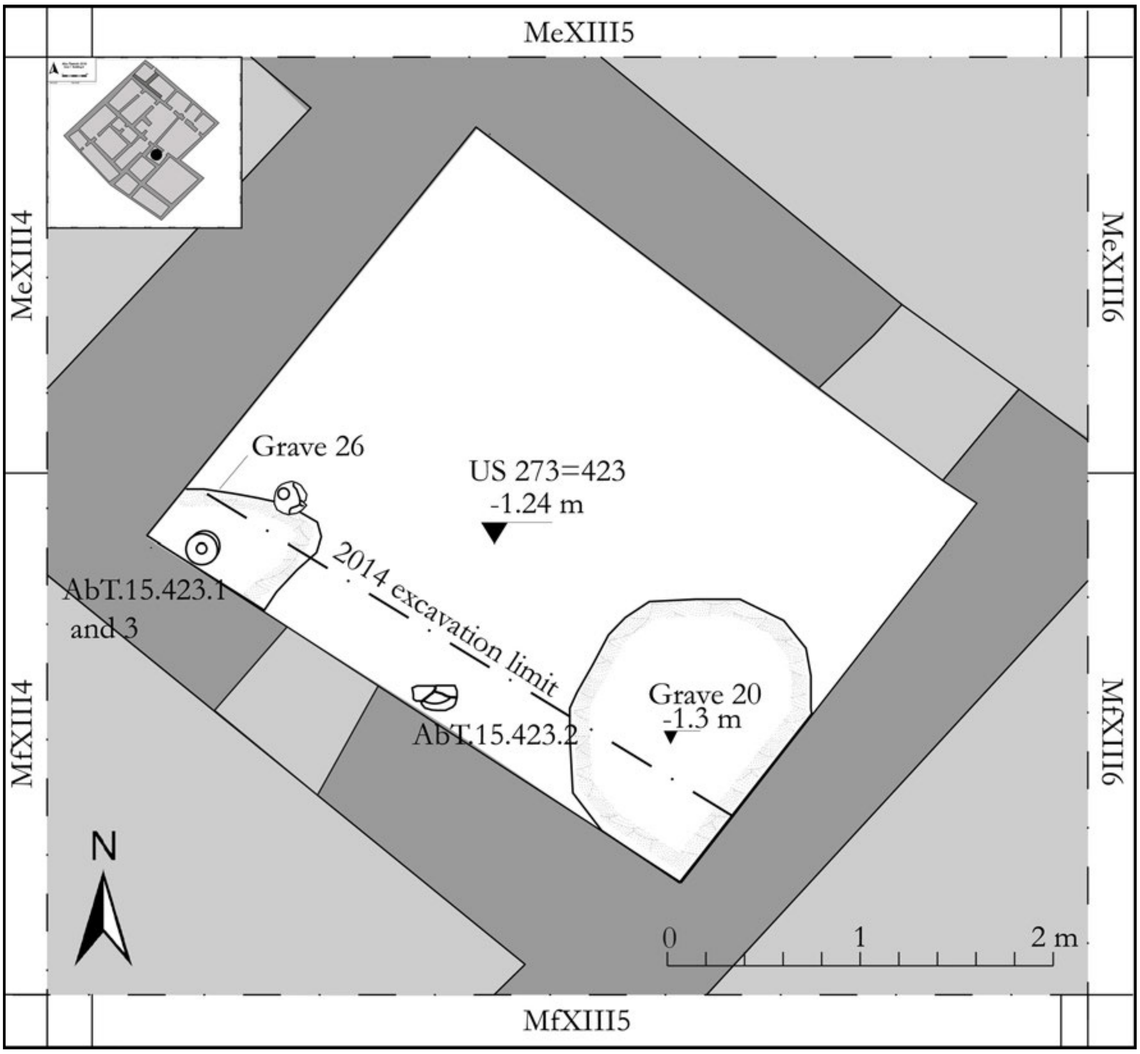


Fig. 8.46 Room 9.

8.9 Room 9 [LR]

Room 9 (Fig. 8.46) was excavated during 2014, but in 2015 it was necessary to reconsider the south-east limits of the space: the south-east mud-brick wall had, indeed, collapsed inside the Room, leading to a wrong interpretation of the dimensions of the space. Moreover, the distinction among the strata in this area was made more complex by the later activities that almost obliterated the Room in the satellite imagery (see Fig. 6.4). The Room was filled by a clay stratum full of mud-brick fragments (US 270=422), containing mostly drinking vessels sherds. Some objects, probably pertaining to the use of the Room, were found in the stratum (such as the stone tool AbT.14.80). The housing surface (US 273=423) was identified at the elevation of -0.2 m during 2014 thanks to the presence of a reversed conical bowl near the western corner (US 274). Unfortunately, the conical bowl was looted by some Bedouin whose encampment was near the Tell.[14] However, during the 2015 excavations a set of two conical bowls was found near the same corner at the elevation of -0.1 m.[15] A rounded shoulder of a jar was found on the ground-surface at the same elevation. A grave of an infant was under the pavement (Grave 20; US 275-276-277; Figs 8.47 and 49) was found, the bottom of which was at an elevation of -0.3 m. The body, in poor conditions, was apparently deposed on his right side with the head toward south-east, looking

[14] The day after the discovery of the bowl, the area was completely destroyed and all the pottery scattered around the excavation. Near the limits of the area several prints of a man's naked foot were visible. Unfortunately, also the skeleton and the equipment of Grave 20 was destroied. Only the base of the conical bowl was recovered with another fragment (AbT.14.274.2), the provenance of which is not clear.

[15] The two conical bowls were assigned to US 423.

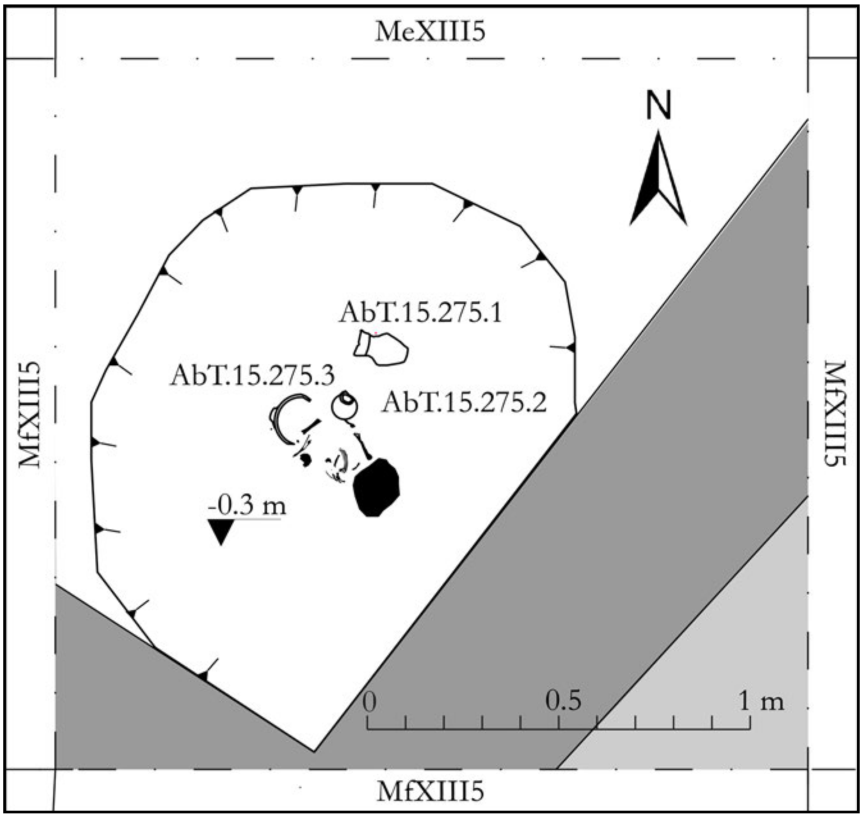


Fig. 8.47 Room 9. Grave 20 plan.

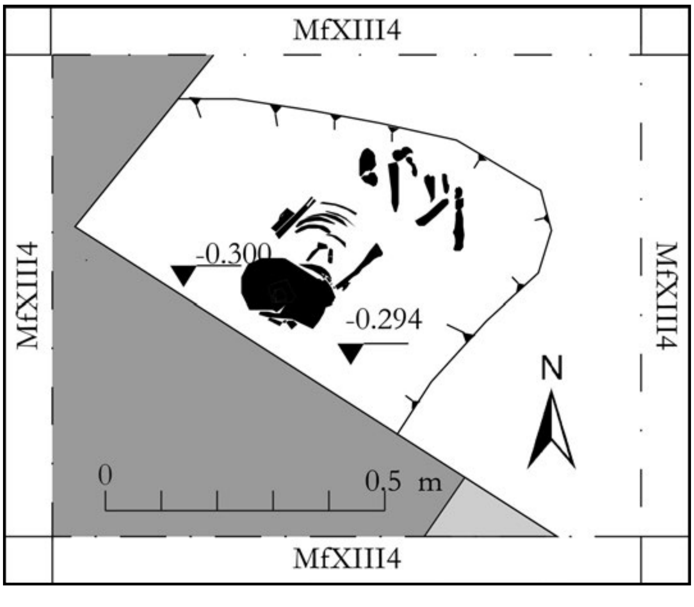


Fig. 8.48 Room 9. Grave 26 plan.

north-east, and the legs bent. The equipment (US 275) consisted of two miniaturistic jars and a conical bowl.

In the western corner there was a second infant grave (Grave 26, US 426-428-427; Figs 8.49 and 51).[16] The body was placed in a semi-flexed position, with the head towards south-west and looking east, the legs bent.

[16] The conical bowl was immediately over Grave 26, but it seemed not to be part of the funerary equipment.

Fig. 8.49 Room 9. Grave 20 from south-east.

Fig. 8.50 Room 9. Grave 26 from north-west.

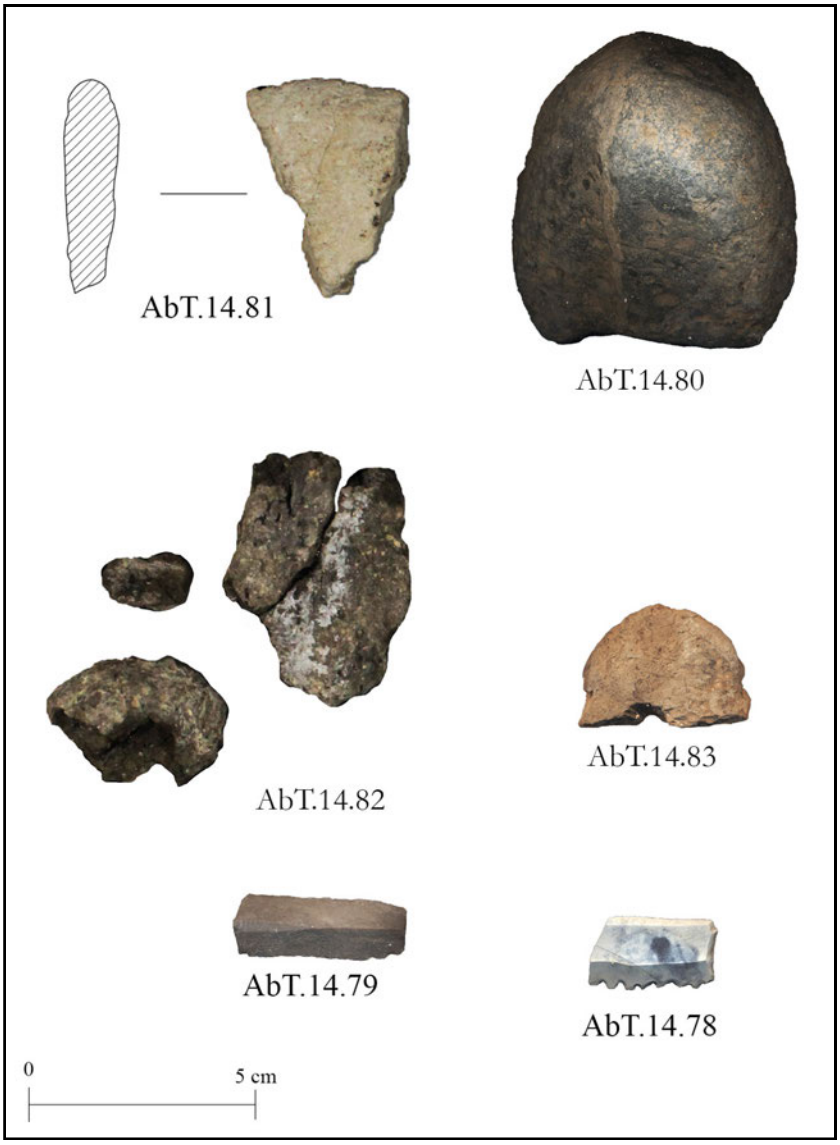


Fig. 8.51 US 270 objects.

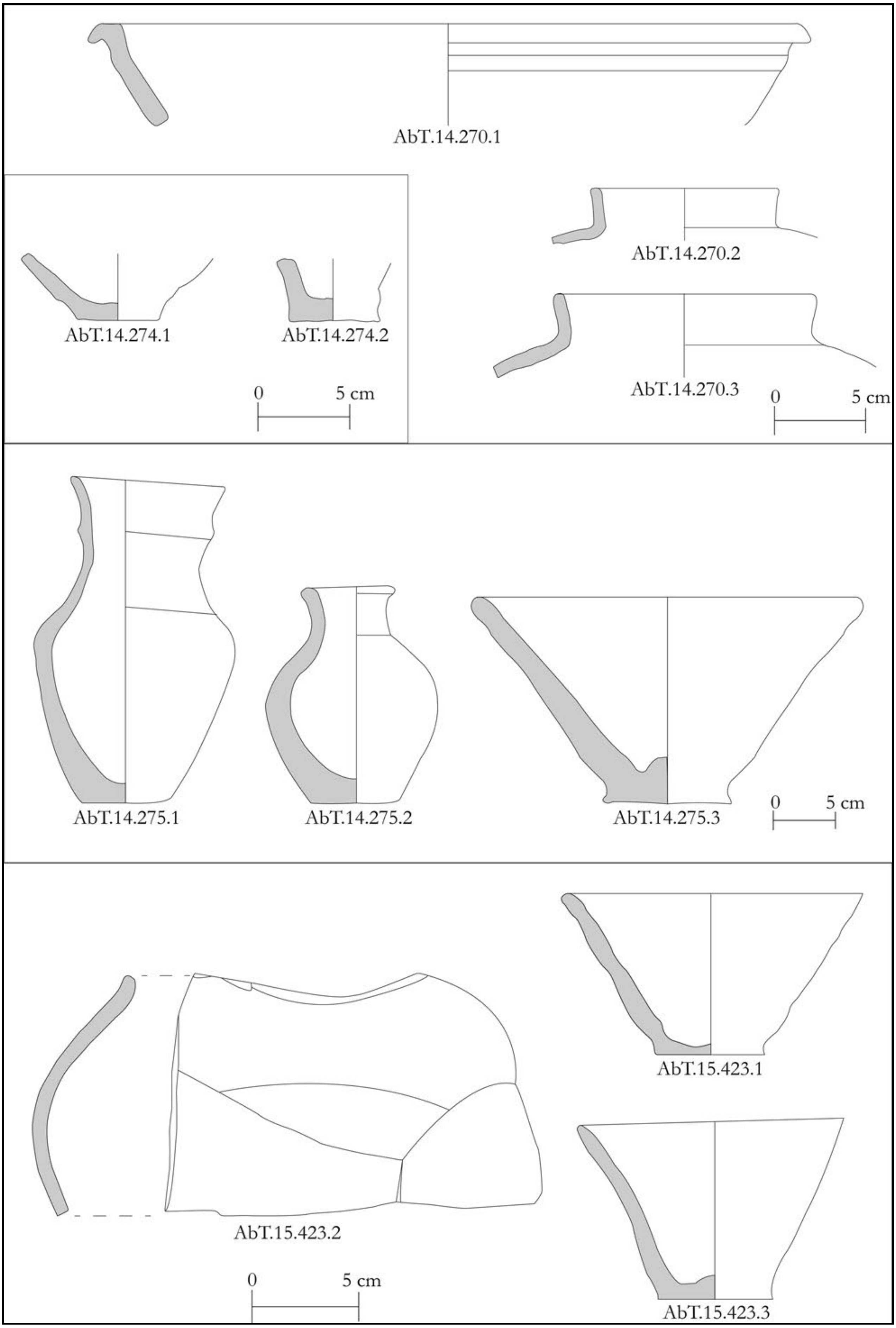


Fig. 8.52 US 270, US 274, US 275 and US 423 pottery.

Catalogue of US 270=422 Finds

Objects

AbT.14.78 - Fig. 8.51
Description: chert sickle element.
Dimensions: 2.9x1.7x0.3 cm.

AbT.14.79 - Fig. 8.51
Description: chert blade.
Dimensions: 3.7x1.3x0.3 cm.

AbT.14.80 - Fig. 8.51
Description: fragment of a basalt pestle.
Dimensions: 7.4x7.3x3.2 cm.

AbT.14.81 - Fig. 8.51
Description: rim fragment of a limestone vessel.
Dimensions: 3.1x4.5x1.1 cm.

AbT.14.82 - Fig. 8.51
Description: fragments of at least one bitumen object.
Dimensions: 3.7x4.9x2.1 cm.

AbT.14.83 - Fig. 8.51
Description: half of a clay object pierced in the middle.
Dimensions: 3.9x2.5x0.5 cm.

Pottery

AbT.14.270.1 - Fig. 8.52
Dimensions: rim diam.: 34 cm; rim th.: 2 cm; wall th.: 1.1 cm.
Clay: outer and inner colour: 2.5Y 8/3 (pale brown); fabric colour: 5Y 6/6 (olive yellow); sand inclusions; medium firing temperature.
Description: triangular rim bowl.

AbT.14.270.2 - Fig. 8.52
Dimensions: rim diam.: 10 cm; rim th.: 0.7 cm; wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 5Y 7/3 (pale yellow); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.14.270.3 - Fig. 8.52
Dimensions: rim diam.: 14 cm; rim th.: 0.6 cm; wall th.: 0.7 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/3 (pale brown); sand inclusions; high firing temperature.
Description: plain rim jar.

Catalogue of US 273=423 Finds

Pottery

AbT.15.423.1 - Fig. 8.52
Dimensions: rim diam.: 14.5 cm; rim th.: 0.6 cm; wall th.: 0.6 cm; base diam.: 5 cm; base th.: 0.7 cm; h.: 7.5 cm.
Clay: outer and inner colour: 10YR 6/4 (light yellowish brown); fabric colour: 10YR 6/6 (brownish yellow); sand inclusions; medium-low firing temperature.
Description: conical bowl.

AbT.15.423.2 - Fig. 8.52
Dimensions: wall th.: 0.7 cm.
Clay: outer and inner colour: 10YR 7/2 (light grey); fabric colour: 10YR 6/3 (pale brown); sand inclusions; medium-high firing temperature.
Description: jar shoulder.

AbT.15.423.3 - Fig. 8.52
Dimensions: rim diam.: 15 cm; rim th.: 0.6 cm; wall th.: 0.7 cm; base diam.: 5.2 cm; base th.: 0.8 cm; h.: 7 cm.
Clay: outer, inner and fabric colour: 7.5YR 7/4 (pink); sand inclusions; medium-low firing temperature.
Description: conical bowl.

Catalogue of US 274 Finds

Pottery

AbT.14.274.1 - Fig. 8.52
Dimensions: wall th.: 0.9 cm; base diam.: 4.9 cm; base th.: 1.9 cm.
Clay: outer colour: 2.5Y 8/3 (pale brown); inner and fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium firing temperature.
Description: conical bowl base.

AbT.14.274.2 - Fig. 8.52
Dimensions: wall th.: 1 cm; base diam.: 5.5 cm; base th.: 1 cm.
Clay: outer and inner: 2.5Y 8/2 (pale brown); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-low firing temperature.
Description: beaker base.

Catalogue of US 275 Finds

Pottery

AbT.14.275.1 - Fig. 8.52
Dimensions: rim diam.: 6 cm; rim th.: 0.5 cm; wall th.: 0.4 cm; base diam.: 3.7 cm; h.: 13 cm.
Clay: outer, inner and fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: miniaturistic jar with band rim, rounded shoulder and string-cut base.

AbT.14.275.2 - Fig. 8.52
Dimensions: rim diam.: 4.4 cm; rim th.: 0.6 cm; wall th.: 0.5 cm; base diam.: 4.3 cm; h.: 9 cm.
Clay: outer, inner and fabric colour: 5Y 8/2 (pale yellow); sand inclusions; medium-high firing temperature.
Description: miniaturistic jar with beveled rim, string cut base and a small hole on the base repaired before firing with clay.

AbT.14.275.3 - Fig. 8.52
Dimensions: rim diam.: 14 cm; rim th.: 0.7 cm; base diam.: 5.5 cm; base th.: 2 cm; h.: 8.4 cm.
Clay: outer, inner and fabric colour: 5YR 7/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: conical bowl.

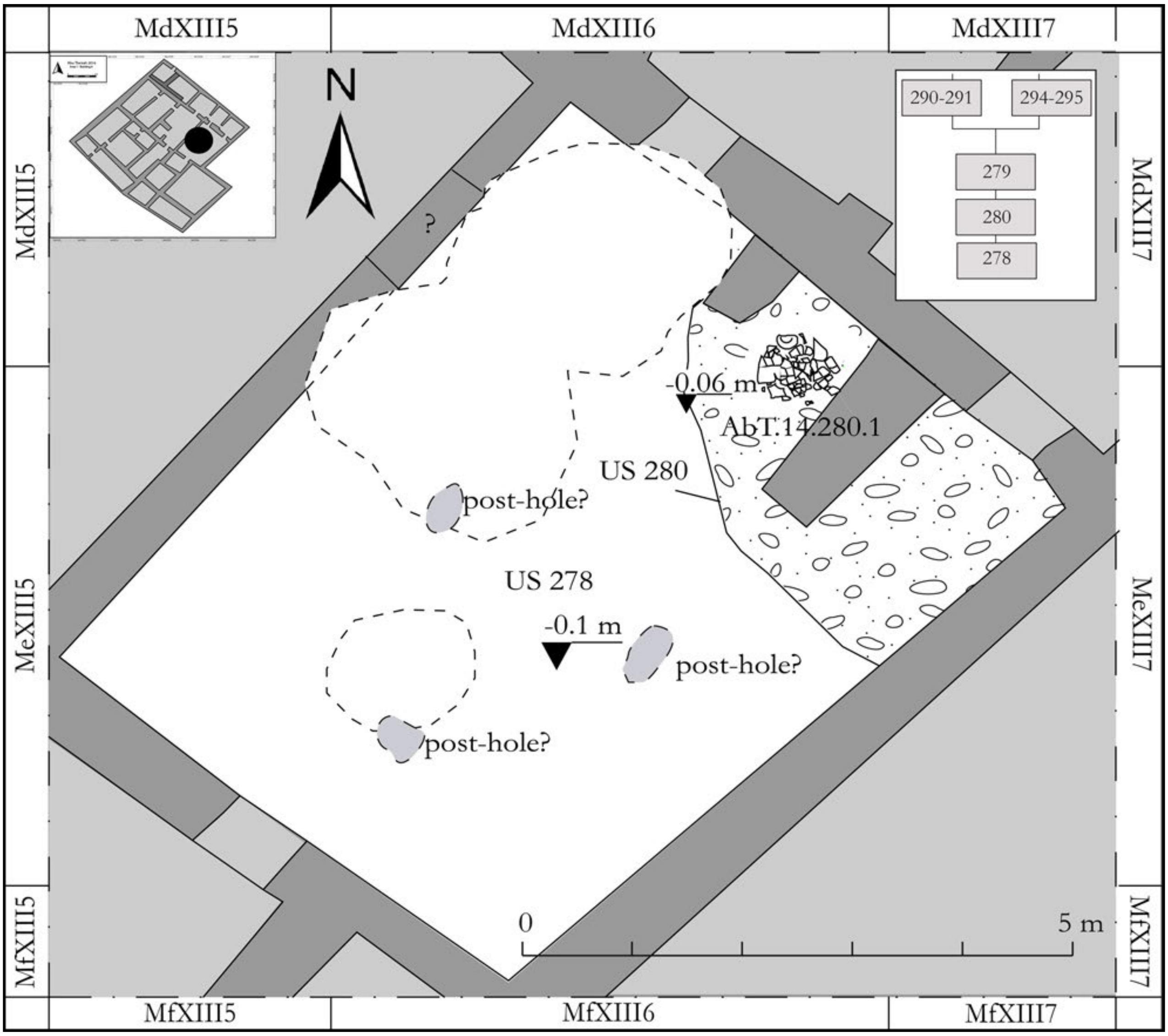


Fig. 8.53 Room 10 plan.

8.10 Room 10 [LR]

The stratigraphy inside the Room was disturbed by several later activities (Figs 8.53-54). The filling of the Room, a silty clay soil full of ashes (US 279), was cut by a series of pits, probably connected to the dumping/discharge activities carried out here in the later phases (see § 7.2.3). Only along the north-east wall, under a layer made of collapsed mud-bricks (US 280), fragments of a big jar were found *in situ* on the ground surface (US 278; elevation -0.1 m). The jar was placed between two small parallel mud structures at an higher elevation than the pavement.[17]

At the beginning three post-holes were identified and are reported in the plan. Unfortunately after a rainy day their traces were no more visible. No other evidence of occupation was detected during the excavations.

[17] The two small clay structures were badly eroded (no mud-brick was identified) and preserved for an high of few centimeters. There was no clear sign of the use of mud-bricks in the construction of this installation (pisé?).

Fig. 8.54 Room 10 from south-west.

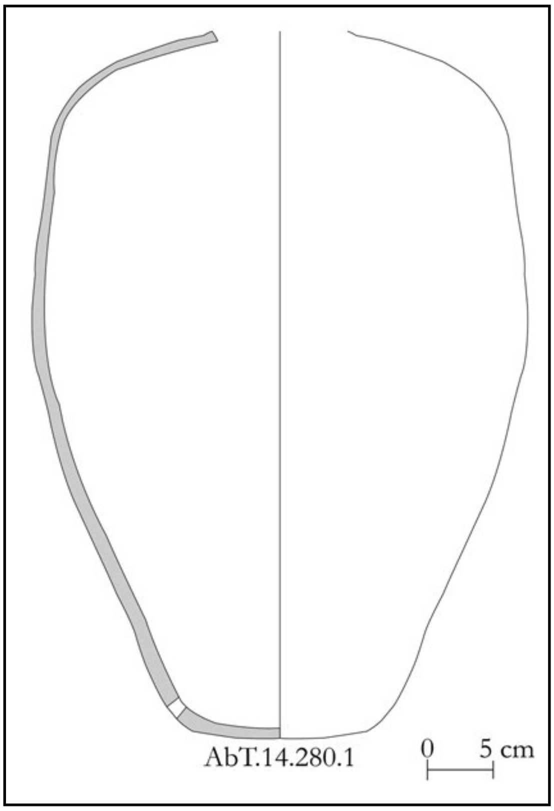


Fig. 8.55 US 280 pottery.

Catalogue of US 280 Finds

Pottery

AbT.14.280.1 - Fig. 8.55
Dimensions: base diam.: 14.5 cm; base th.: 0.8 cm; h.: 57 cm.
Clay: outer colour: 10YR 8/2 (very pale brown); inner colour: 5YR 6/4 (light reddish brown); fabric colour: 5YR 7/8 (reddish yellow); sand inclusions; medium firing temperature.
Description: big coiled jar with convex base and a hole near the base.

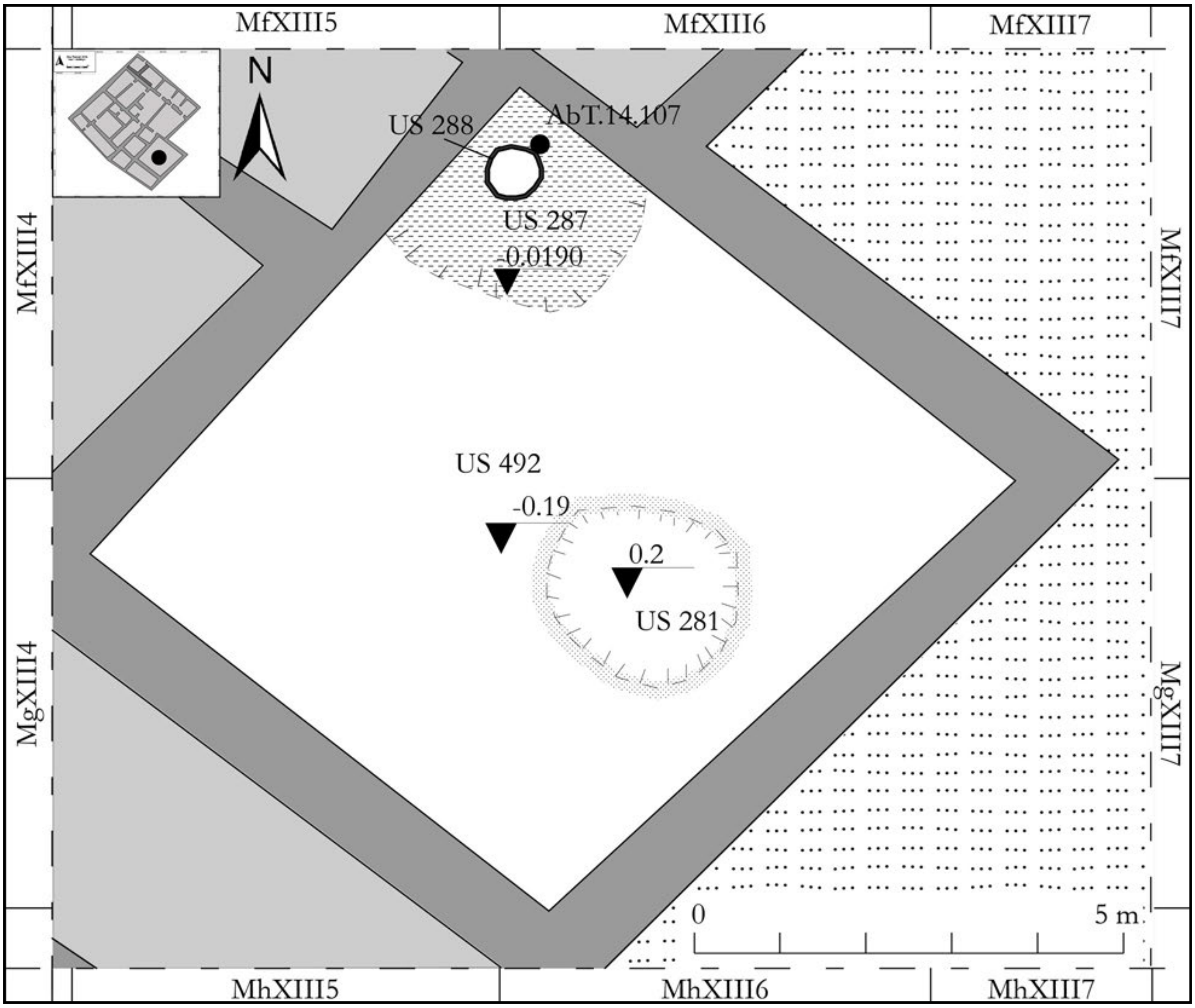


Fig. 8.56 Room 11 plan.

8.11 Room 11 [LR]

Room 11 (Fig. 8.56) is a big open space located in the south-east part of the building. The first stratum filling the Room is US 297=382: it followed the inclination of the area from north-east to south-west and was formed during the abandonment by the seasonal accumulation of a series of lenses of yellowish and greyish colour. It contained mostly drinking vessel fragments and some jar fragments with bitumen traces. The US covered a tannur located in the northern angle of the Room (US 288; filling US 289) and a heap of ashy soil (US 287). The pottery visible near the tannur (originally comprising also a small jar) was damaged during the same act of vandalism, suffered by the contexts inside Room 9 (see above). Only few pottery fragments (7 ca.) were recovered, most of them drinking vessels. The supposed pavement (US 492) was reconstructed at the elevation of -0.19 m, the same of the tannur base. In the south-east part of the Room a heap of sandy-clay dark soil (US 281) with lots of pottery fragments (mainly drinking vessels) was found.

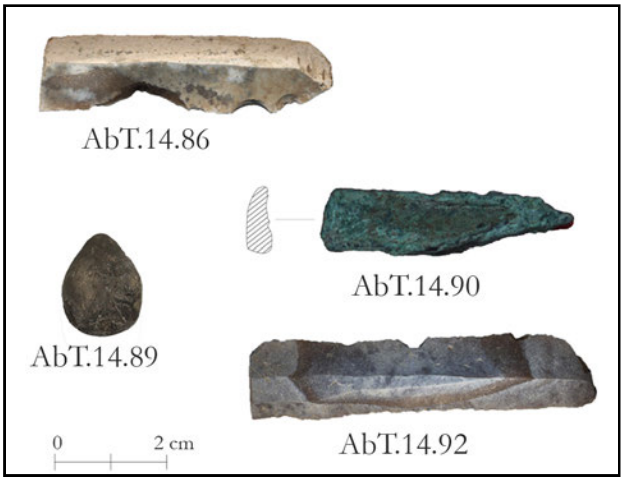


Fig. 8.57 US 281 objects.

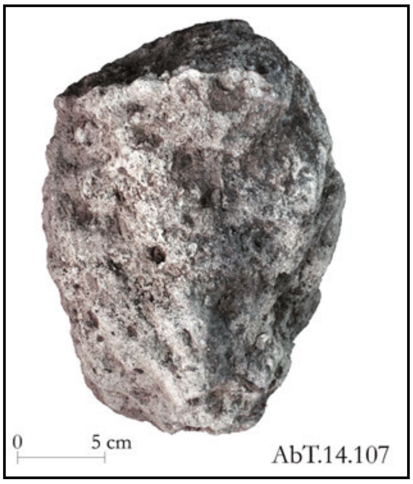


Fig. 8.58 US 287 objects.

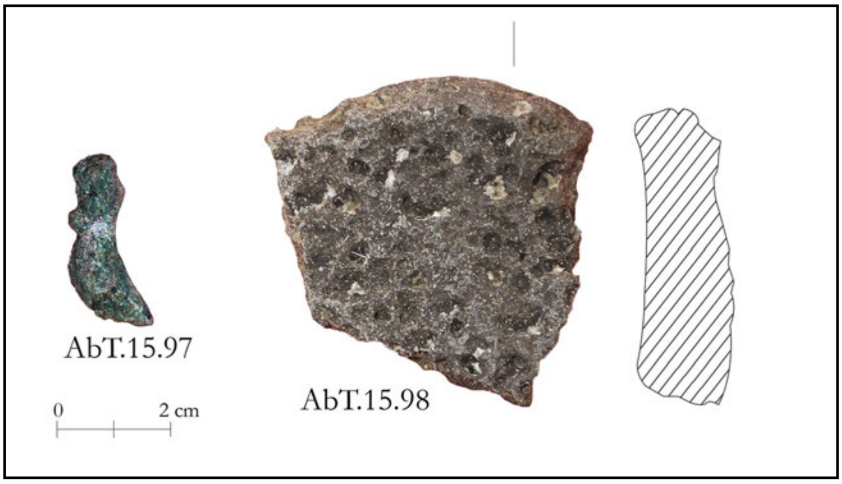


Fig. 8.59 US 382 objects.

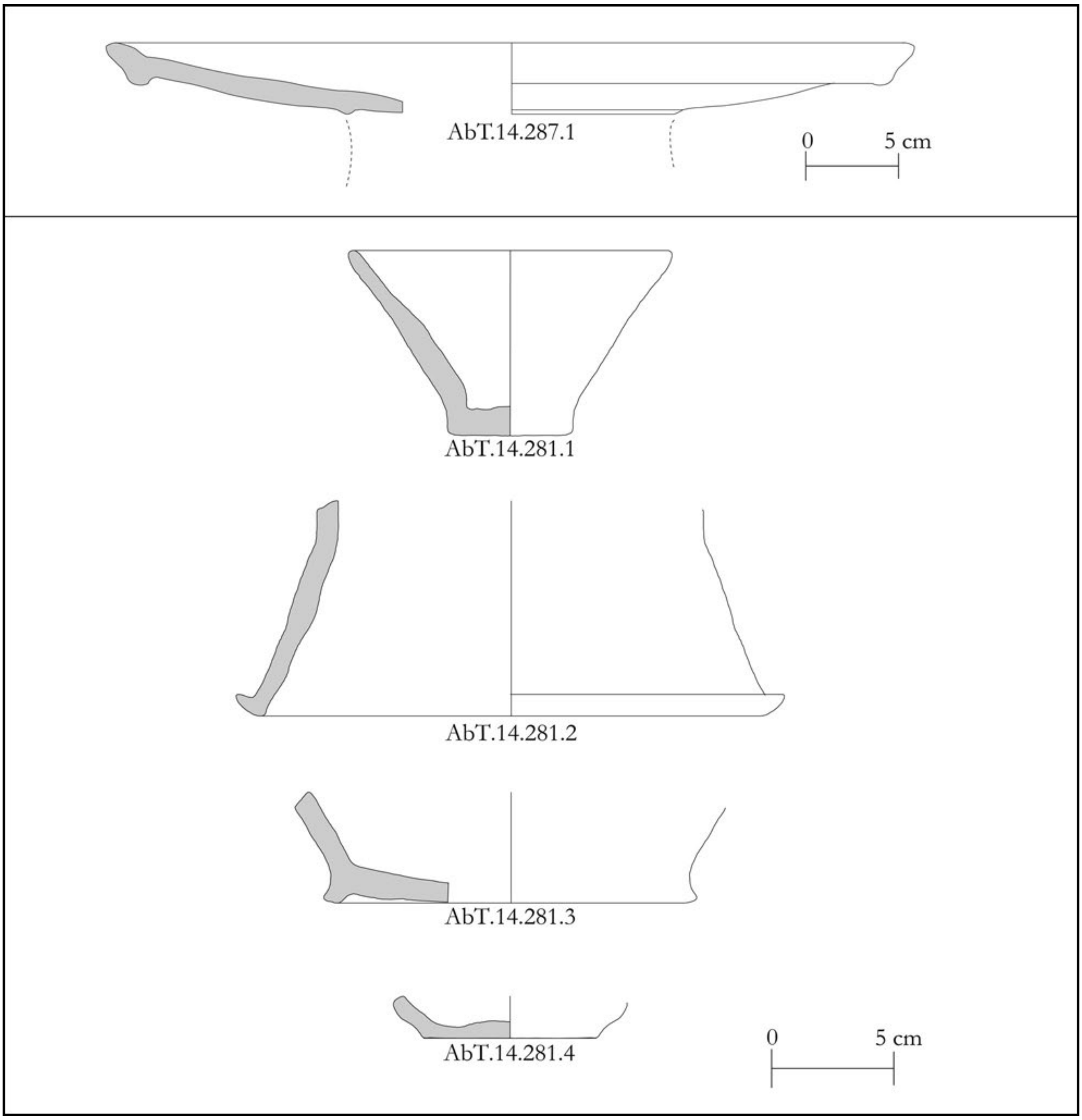


Fig. 8.60 US 281 and US 287 pottery.

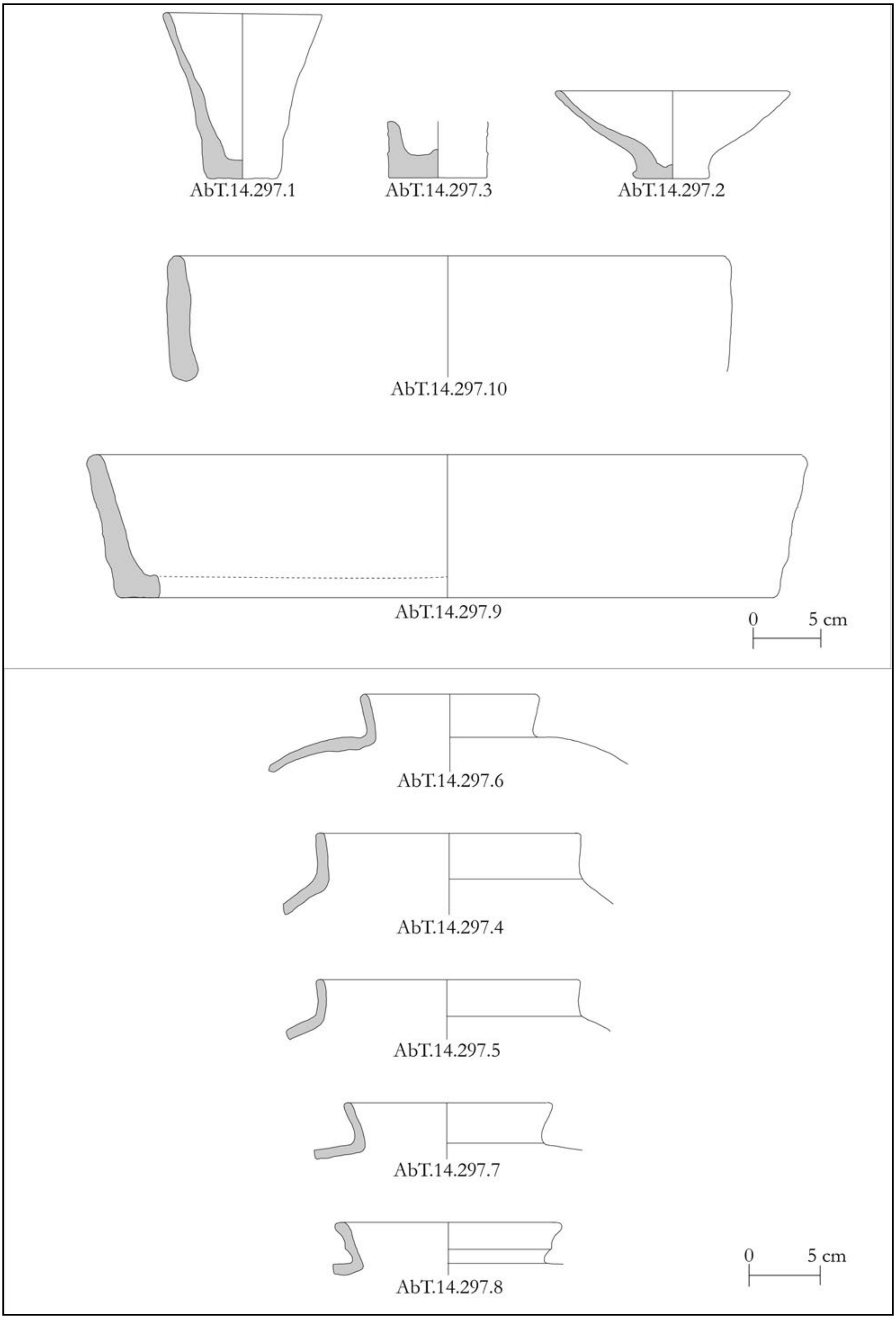


Fig. **8.61** US 297 pottery.

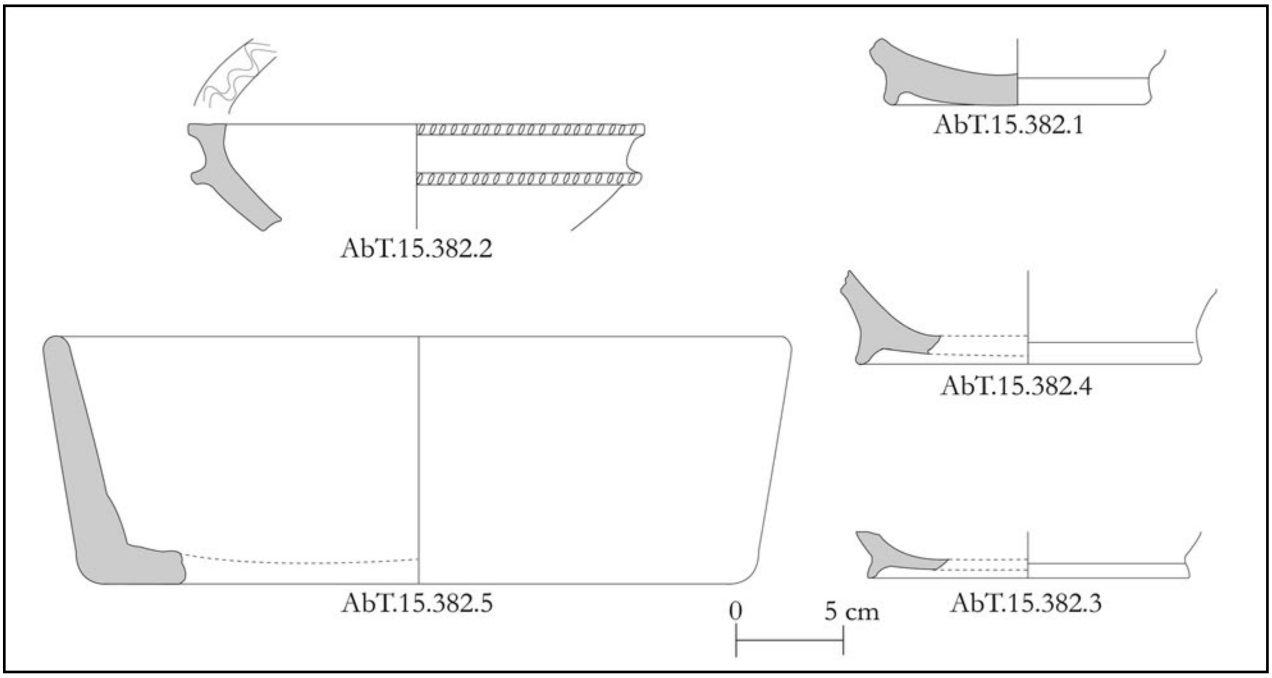


Fig. 8.62 US 297 pottery.

Catalogue of US 281 Finds

Objects

AbT.14.86 - Fig. 8.57
Description: chert blade.
Dimensions: 5.3x1.4x0.3 cm.

AbT.14.89 - Fig. 8.57
Description: small pear-shaped clay object.
Dimensions: 1.8x1.5x1.2 cm.

AbT.14.90 - Fig. 8.57
Description: copper alloy point.
Dimensions: 1.1x0.5x4.5 cm.

AbT.14.92 - Fig. 8.57
Description: chert blade.
Dimensions: 6.5x1.4x0.3 cm

Pottery

AbT.14.281.1 - Fig. 8.60
Dimensions: rim diam.: 15 cm; rim th.: 0.6 cm; wall th.: 0.7 cm; base diam.: 4 cm; base th.: 1 cm; h.: 3.4 cm.
Clay: outer and inner colour (slip): 2.5YR 8/3 (pink); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-low firing temperature.
Description: conical bowl.

AbT.14.281.2 - Fig. 8.60
Dimensions: wall th.: 0.9 cm; base diam.: 22 cm; base th.: 1.2 cm.
Clay: outer (slip?) and inner colour (self-slip?): 2.5Y 8/2 (pale brown); fabric colour: 2.5YR 6/6 (light red); sand inclusions; medium firing temperature.
Description: stemmed-dish base.

AbT.14.281.3 - Fig. 8.60
Dimensions: wall th.: 0.9 cm; base diam.: 14 cm; base th.: 1 cm.
Clay: outer colour: 2.5Y 8/3 (pale brown); inner and fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium firing temperature.
Description: ring base.

AbT.14.281.4 - Fig. 8.60
Dimensions: wall th.: 0.6 cm; base diam.: 6.5 cm; base th.: 0.7 cm.
Clay: outer, inner and fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium firing temperature.
Description: string-cut base jar.

Catalogue of US 287 Finds

Objects

AbT.14.107 - Fig. 8.60
Description: porous stone. One of the fragments seems to form a sort of flat base. Found near the north tannur, between it and the north-west wall.
Dimensions: 23x10x20 cm.

Pottery

AbT.14.287.1 - Fig. 8.60
Dimensions: rim diam.: 38 cm; rim th.: 1 cm; wall th.: 1.2 cm.
Clay: outer, inner and fabric colour: 5YR 7/4 (pink); sand inclusions; medium firing temperature.
Description: shallow plate (base partially preserved).

Catalogue of US 297 Finds

Pottery

AbT.14.297.1 - Fig. 8.61
Dimensions: rim diam.: 12.5 cm; rim th.: 0.7 cm; wall th.: 0.9 cm; base diam.: 5.2 cm; base th.: 1.5 cm; h.: 12 cm.
Clay: outer, inner and fabric colour: 2.5YR 6/6 (light red); sand inclusions; medium firing temperature.
Description: beaker.

AbT.14.297.2 - Fig. 8.61
Dimensions: rim diam.: 11.5 cm; rim th.: 0.6 cm; wall th.: 0.6 cm; base diam.: 5.5 cm; base th.: 0.8 cm; h.: 7.7 cm.
Clay: outer and inner colour: 7.5YR 8/2 (pinkish white); fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium firing temperature.
Description: conical bowl.

AbT.14.297.3 - Fig. 8.61
Dimensions: wall th.: 1 cm; base diam.: 6.5 cm; base th.: 1.8 cm.
Clay: outer colour: 10YR 8/3 (very pale brown); inner and fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium-low firing temperature.
Description: cylinder base.

AbT.14.297.4 - Fig. 8.61
Dimensions: rim diam.: 25 cm; rim th.: 0.8 cm; wall th.: 0.9 cm.
Clay: outer, inner and fabric colour: 10YR 4/1 (dark grey); sand inclusions; medium firing temperature.
Description: plain rim jar.

AbT.14.297.5 - Fig. 8.61
Dimensions: rim diam.: 18 cm; rim th.: 0.7 cm; wall th.: 0.6 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.14.297.6 - Fig. 8.61
Dimensions: rim diam.: 10 cm; rim th.: 0.7 cm; wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 2.5Y 7/2 (light grey); sand inclusions; high firing temperature.
Description: plain rim jar with rounded shoulder.

AbT.14.297.7 - Fig. 8.61
Dimensions: rim diam.: 14 cm; rim th.: 0.6 cm; wall th.: 0.7 cm.
Clay: outer colour: 10YR 8/2 (very pale brown); inner and fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium firing temperature.
Description: plain rim jar.

AbT.14.297.8 - Fig. 8.61
Dimensions: rim diam.: 14 cm; rim th.: 0.9 cm; wall th.: 0.6 cm.
Clay: outer and inner colour: 7.5YR 8/3 (pink); fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: double-ridged rim jar.

AbT.14.297.9 - Fig. 8.61
Dimensions: rim diam.: 52 (?) cm; rim th.: 1.8 cm; wall th.: 1.6 cm; base diam.: 50 cm; base th.: 1.7 cm; h.: 10.4 cm.
Clay: outer, inner and fabric colour: 10YR 8/3 (very pale brown); sand and vegetal inclusions; high firing temperature.
Description: tray (probably same of AbT.14.297.10).

AbT.14.297.10 - Fig. 8.61
Dimensions: rim diam.: 40 cm; rim th.: 1.4 cm; wall th.: 2 cm.
Clay: outer and fabric colour: 5Y 8/2 (pale yellow); inner colour: 2.5Y 8/2 (pale brown); sand and vegetal inclusions; high firing temperature.
Description: tray (probably same of AbT.14.297.9).

Catalogue of US 382 Finds

Objects

AbT.15.97 - Fig. 8.59
Description: copper alloy fragment.
Dimensions: 1x3.2x0.7 cm.

AbT.15.98 - Fig. 8.59
Description: grindstone fragment.
Dimensions: 5.2x1.3x5.5 cm.

Pottery

AbT.15.382.1 - Fig. 8.62
Dimensions: base diam.: 12.6 cm; base th.: 1.5 cm.
Clay: outer colour: 7.5YR 6/3 (light brown); inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium-low firing temperature.
Description: ring base.

AbT.15.382.2 - Fig. 8.62
Dimensions: rim diam.: 18 cm; rim th.: 2.1 cm; wall th.: 1.3 cm.
Clay: outer and inner colour: 2.5Y 7/3 (pale brown); fabric colour: 5YR 6/3 (light reddish brown); sand inclusions; medium firing temperature.
Description: stemmed-dish bowl rim with notched decoration and wavy incisions on the top.

AbT.15.382.3 - Fig. 8.62
Dimensions: base diam.: 15 cm; base th.: 0.7 cm.
Clay: outer and inner colour: 10YR 7/2 (light grey); fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium firing temperature.
Description: ring base.

AbT.15.382.4 - Fig. 8.62
Dimensions: base diam.: 16 cm; base th.: 1 cm.
Clay: outer and inner colour: 5YR 5/4 (reddish brown); fabric colour: 7.5YR 6/3 (light brown); sand inclusions; medium-low firing temperature.
Description: ring base.

AbT.15.382.5 - Fig. 8.62
Dimensions: rim diam.: 16 cm; rim th.: 1.5 cm; wall th.: 1.5 cm; base diam.: 30 cm; base th.: 1.2 cm; h.: 11.5 cm.
Clay: outer colour: 2.5Y 6/3 (light yellowish brown); inner and fabric colour: 5Y 6/3 (pale olive); sand inclusions; medium firing temperature.
Description: tray.

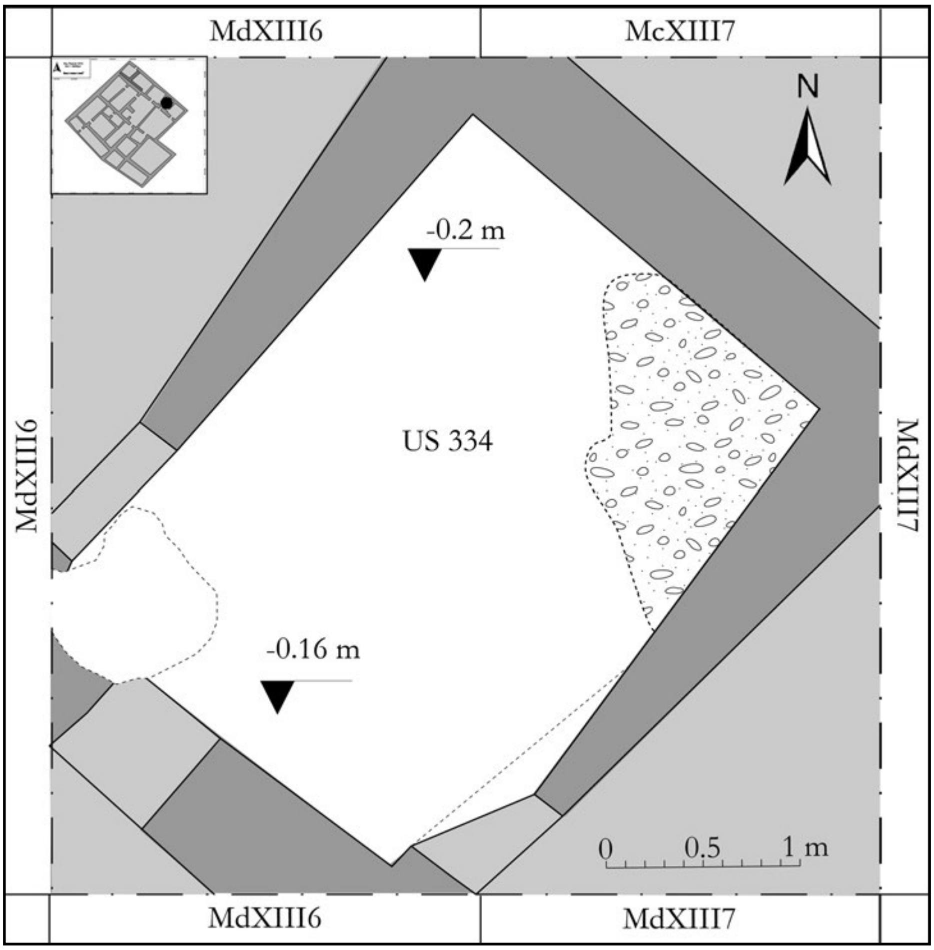


Fig. 8.63 Room 12 plan.

8.12 Room 12 [LR]

Room 12 (Fig. 8.63) was filled by a quite compact pale brown lumpy silty-clay soil (US 331) with mud-brick fragments inside. A mud-brick wall collapse was identified in the north-east angle of the Room. The lower section of the layer was softer. In the south-western part the stratum and the walls were cut by a shallow pit (US 330; see § 7.5.1). The housing surface (US 334) was sampled for heavy residue analysis.

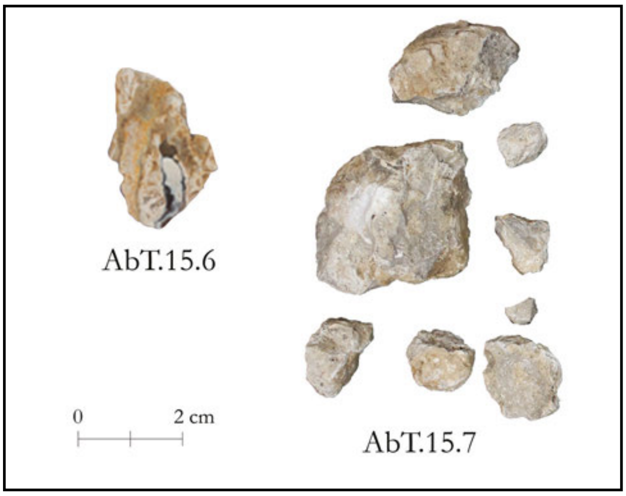


Fig. 8.64 US 331 objects.

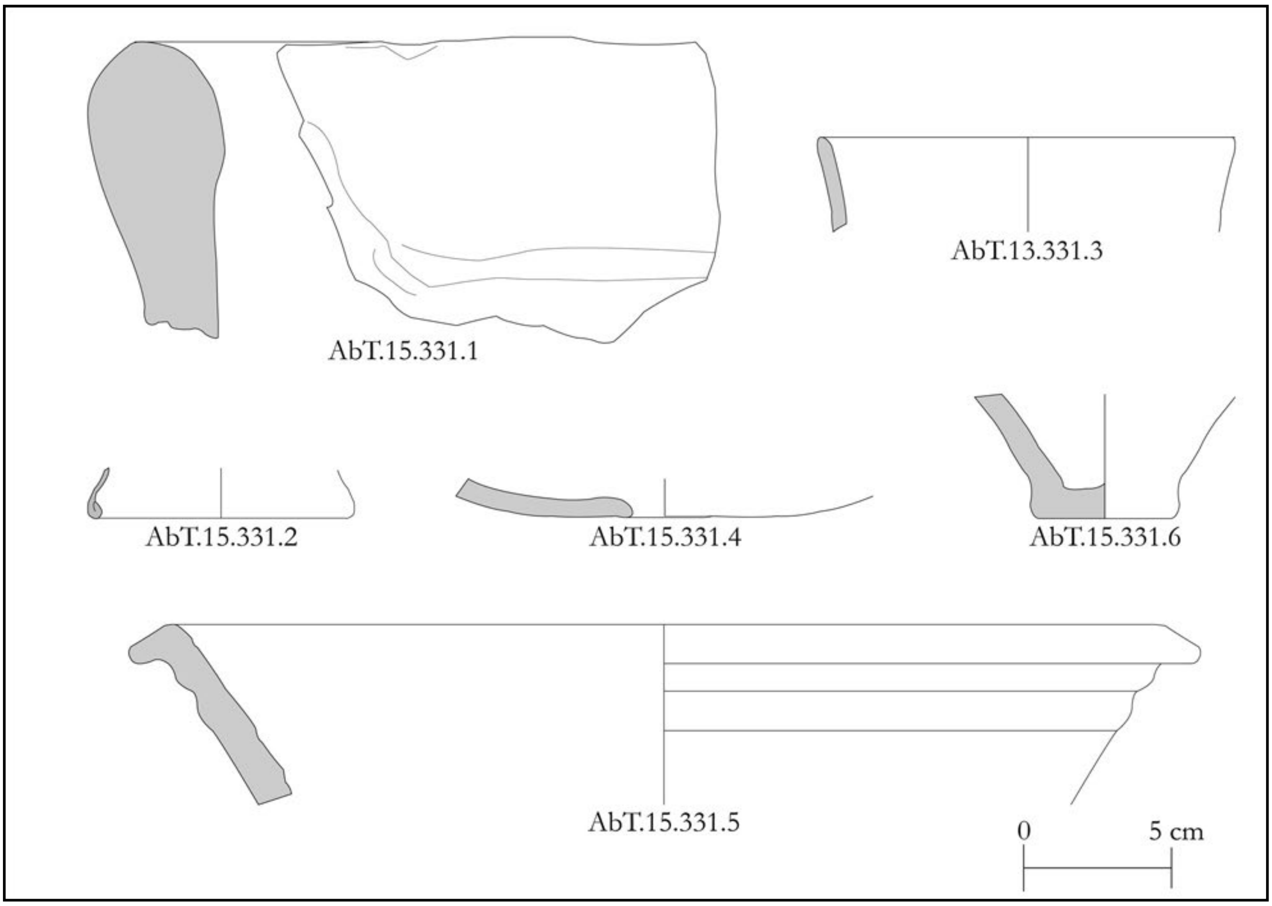


Fig. 8.65 US 331 pottery.

Catalogue of US 331 Finds

Objects

AbT.15.6 - Fig. 8.64
Description: chert flake.
Dimensions: 2.3x3.7x0.7 cm.

AbT.15.7 - Fig. 8.64
Description: various chert fragments.
Dimensions: 2.8x2.9x2.7x2 cm.

Pottery

AbT.15.331.1 - Fig. 8.65
Dimensions: rim diam.: n.d. cm; rim th.: 4.5 cm; wall th.: 1.6 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 5YR 6/6 (reddish yellow); vegetal and sand inclusions; low firing temperature.
Description: band rim of a vat, covered by bitumen (both outside and inside).

AbT.15.331.2 - Fig. 8.65
Dimensions: rim diam.: 8 cm; rim th.: 0.6 cm; wall th.: 0.2 cm.
Clay: outer and inner colour: 2.5Y 7/3 (pale brown); fabric colour: 2.5Y 2.5/1 (black); sand inclusions; medium-high firing temperature.
Description: folded rim of a lid (?).

AbT.15.331.3 - Fig. 8.65
Dimensions: rim diam.: 13.5 cm; rim th.: 0.6 cm; wall th.: 0.6 cm.
Clay: outer and inner colour: 5Y 8/3 (pale yellow); fabric colour: 10YR 6/4 (light yellowish brown); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.15.331.4 - Fig. 8.65
Dimensions: rim diam.: 7 cm; rim th.: 0.7 cm; wall th.: 0.7 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/2 (pale brown); sand inclusions; medium-high firing temperature.
Description: hole of a strainer (?).

AbT.15.331.5 - Fig. 8.65
Dimensions: base diam.: 32 cm; base th.: 1.2 cm.
Clay: outer, inner and fabric colour: 2.5YR 5/4 (reddish brown); sand inclusions; medium-high firing temperature.
Description: triangular rim bowl.

AbT.15.331.6 - Fig. 8.65
Dimensions: wall th.: 0.6 cm; base diam.: 4.5 cm; base th.: 0.8 cm.
Clay: outer and inner colour: 2.5Y 7/3 (pale brown); fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium-high firing temperature.
Description: conical bowl base.

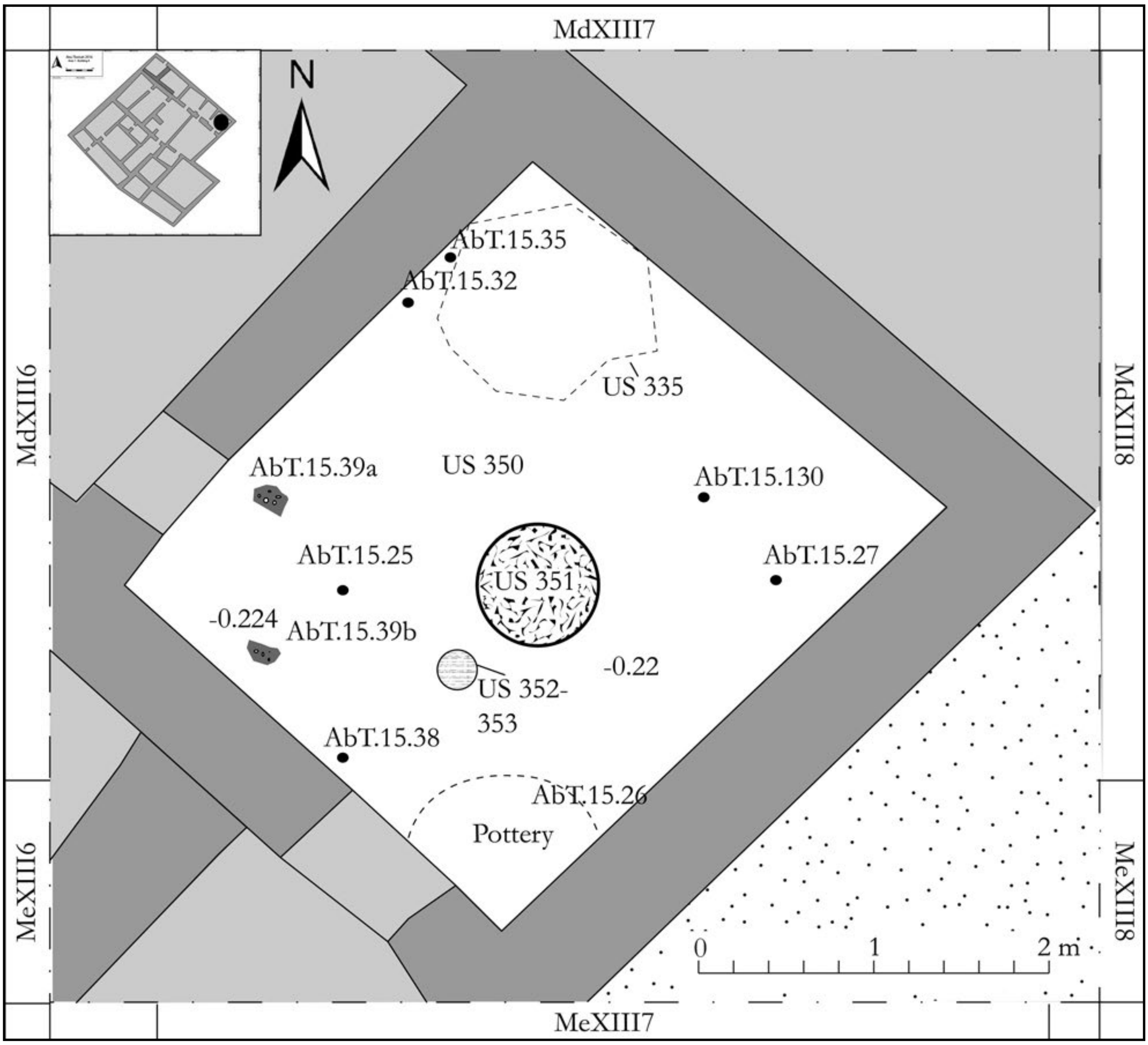


Fig. 8.66 Room 13 plan.

8.13 Room 13 [LR]

Room 13 was filled by US 337=345,[18] a silty clay stratum hardened by salt. A concentration of pottery was found in the southern corner of the Room.[19] US 337=345 was cut by pit US 335 (see § 7.4.2). The ground surface (US 350) was sampled for heavy residue analysis. The Room was characterized by the presence of a fireplace (US 351) and a big post-hole (US 352-353). The finds include several chert blades, two stone vessel fragments and two pieces of chariot models.

[18] A second layer was distinguished on the basis of the consistence (probably the difference was due to post-depositional agents).

[19] Also in this case mostly drinking vessels, jars, and some fragments of big coarse container were collected. The location of the pottery in this part of the Room seems to be due to the flowing of water toward the door.

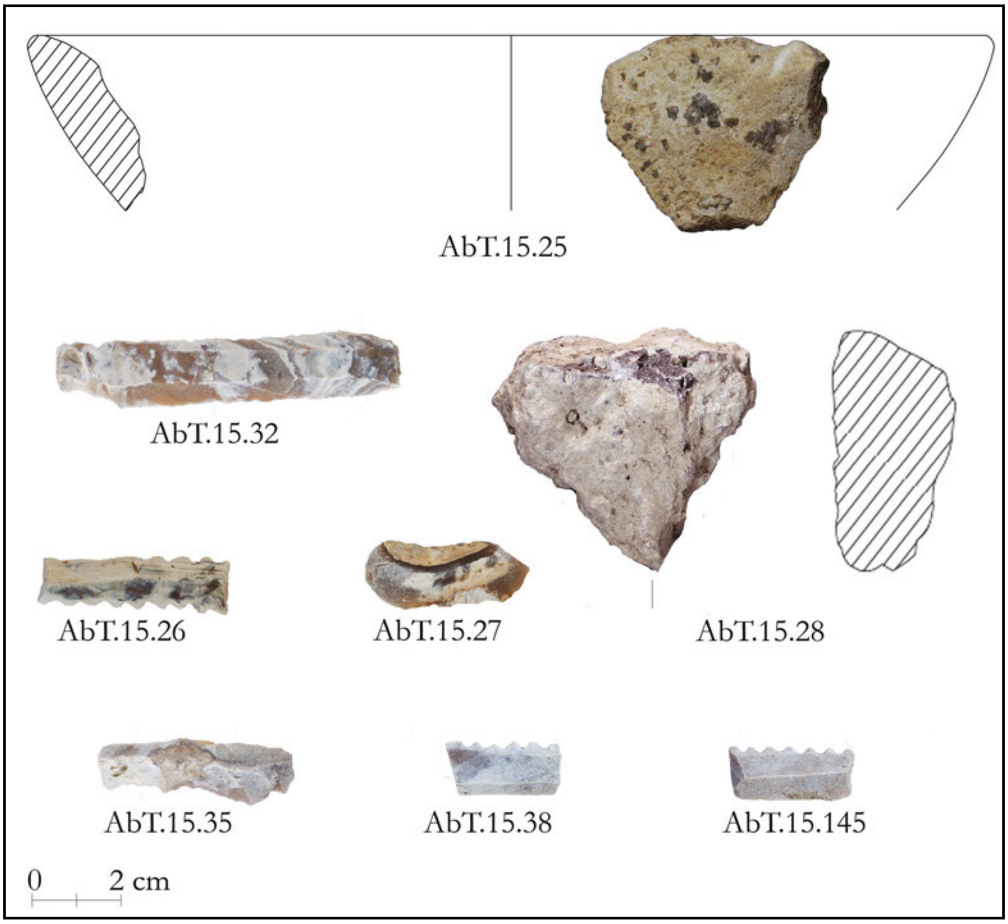


Fig. 8.67 US 337 objects.

Fig. 8.68 US 345 objects.

Fig. 8.69 US 350 objects.

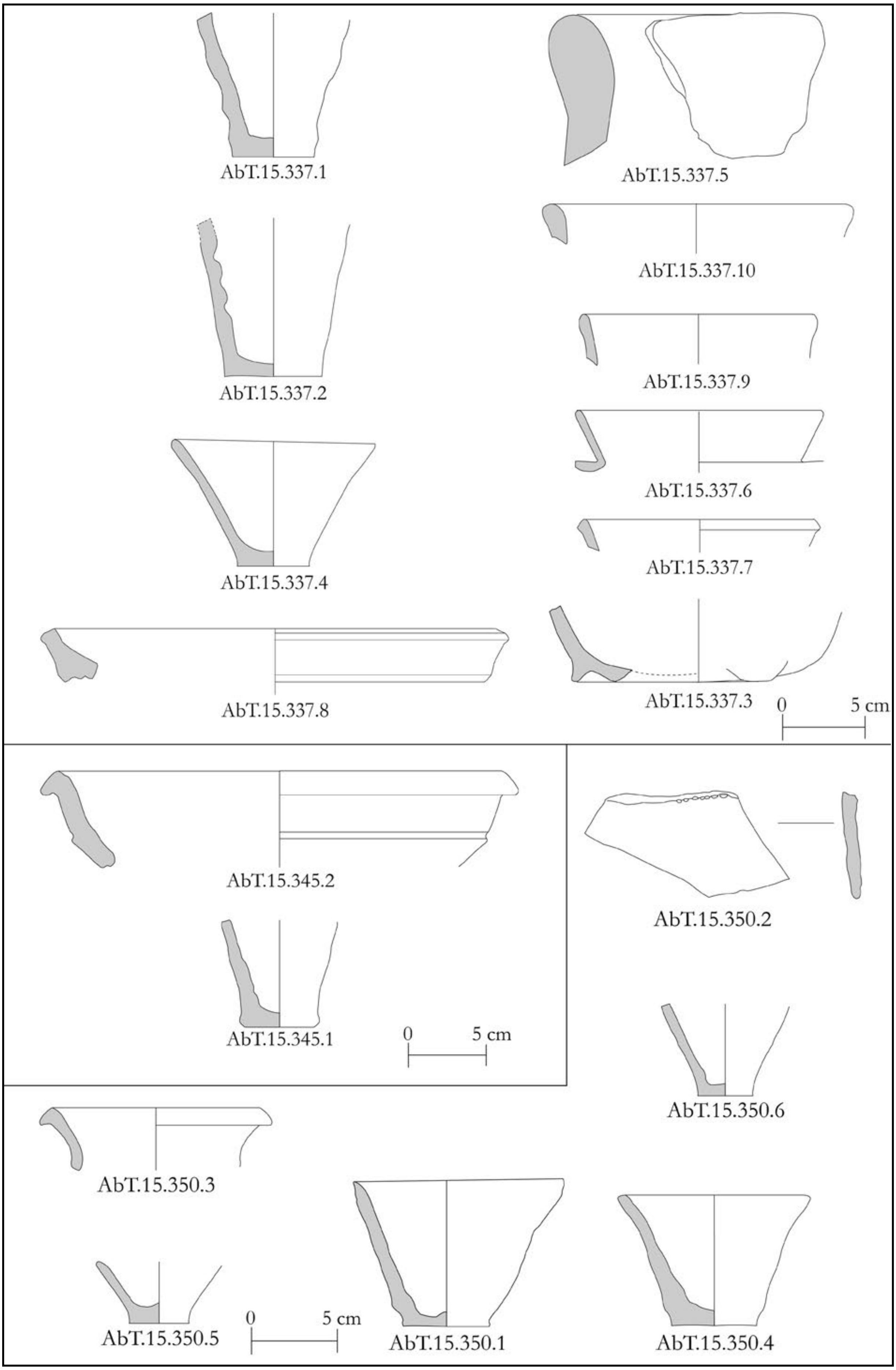


Fig. 8.70 US 337, US 345 and US 350 pottery.

Catalogue of US 337 Finds

Objects

AbT.15.145 - Fig. 8.67
Description: chert sickle element.
Dimensions: 1.3x2.9x0.5 cm.

AbT.15.25 - Fig. 8.67
Description: limestone vessel fragment with rim. Some abrasions and striations are visible on both the inside and the outside, possibly technological but could also be due to the nature of the raw material which is very brittle. [SC]
Dimensions: 5.2x4.5x1.4 cm.

AbT.15.26 - Fig. 8.67
Description: chert sickle element.
Dimensions: 1.3x4.5x0.4 cm.

AbT.15.27 - Fig. 8.67
Description: chert blade.
Dimensions: 1.4x3.6x0.4 cm.

AbT.15.28 - Fig. 8.67
Description: grindstone fragment.
Dimensions: 5.6x4.6x5.4x2.6 cm.

AbT.15.32 - Fig. 8.67
Description: chert blade.
Dimensions: 1.5x8x0.3 cm

AbT.15.35 - Fig. 8.67
Description: chert blade.
Dimensions: 1.1x4.4x0.6 cm.

AbT.15.38 - Fig. 8.67
Description: chert sickle element.
Dimensions: 1.3x2.7x0.2 cm

Pottery

AbT.15.337.1 - Fig. 8.70
Dimensions: wall th.: 0.6 cm; base diam.: 5 cm; base th.: 1.7 cm.
Clay: outer, inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.15.337.2 - Fig. 8.70
Dimensions: wall th.: 1 cm; base diam.: 5.7 cm; base th.: 2 cm.
Clay: outer, inner and fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.15.337.3 - Fig. 8.70
Dimensions: wall th.: 0.7 cm; base diam.: 15 cm; base th.: 0.8 cm.
Clay: outer colour: 10YR 8/3 (very pale brown); inner and fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium-high firing temperature.
Description: convex base with three feet.

AbT.15.337.4 - Fig. 8.70
Dimensions: rim diam.: 15.5 cm; rim th.: 0.7 cm; wall th.: 0.7 cm; base diam.: 5 cm; base th.: 0.8 cm; h.: 7.5 cm.
Clay: outer and inner colour: 5YR 6/6 (reddish yellow); fabric colour: 10YR 6/4 (light yellowish brown); sand inclusions; medium-low firing temperature.
Description: conical bowl.

AbT.15.337.5 - Fig. 8.70
Dimensions: rim diam.: n.d.; rim th.: 3.9 cm; wall th.: 2.6 cm.
Clay: outer, inner and fabric colour: 10YR 6/3 (pale brown); sand and vegetal inclusions; medium firing temperature.
Description: vat rim.

AbT.15.337.6 - Fig. 8.70
Dimensions: rim diam.: 15 cm; rim th.: 0.6 cm; wall th.: 0.7 cm.
Clay: outer and inner colour: 2.5Y 6/2 (light greyish brown); fabric colour: 10YR 6/6 (brownish yellow); sand inclusions; medium firing temperature.
Description: plain rim jar.

AbT.15.337.7 - Fig. 8.70
Dimensions: rim diam.: 14 cm; rim th.: 0.8 cm; wall th.: 0.6 cm.
Clay: outer and inner colour: 10YR 8/3 (very pale brown); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium firing temperature.
Description: almost plain rim jar.

AbT.15.337.8 - Fig. 8.70
Dimensions: rim diam.: 27 cm; rim th.: 1.2 cm; wall th.: 1.3 cm.
Clay: outer colour: 10YR 7/3 (very pale brown); inner and fabric colour: 7.5YR 7/4 (pink); sand inclusions; medium firing temperature.
Description: shallow bowl.

AbT.15.337.9 - Fig. 8.70
Dimensions: rim diam.: 14 cm; rim th.: 0.9 cm; wall th.: 0.9 cm.
Clay: outer colour: 2.5Y 8/3 (pale brown); inner and fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium firing temperature.
Description: plain rim jar.

AbT.15.337.10 - Fig. 8.70
Dimensions: rim diam.: 18 cm; rim th.: 1.2 cm.
Clay: outer, inner and fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium-low firing temperature.
Description: plain rim jar.

Catalogue of US 345 Finds

Objects

AbT.15.39 - Fig. 8.68
Description: grindstone (two pieces).
Dimensions: 14x3.5x20 cm.

AbT.15.65 - Fig. 8.68
Description: chert sickle element.
Dimensions: 1.5x4x0.3 cm.

Pottery

AbT.15.345.1 - Fig. 8.70
Dimensions: wall th.: 0.8 cm; base diam.: 4.5 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; low firing temperature.
Description: beaker base.

AbT.15.345.2 - Fig. 8.70
Dimensions: rim diam.: 30 cm; rim th.: 2 cm; wall th.: 1.5 cm.
Clay: outer, inner and fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium firing temperature.
Description: triangular rim bowl.

Catalogue of US 350 Finds

Objects

AbT.15.130 - Fig. 8.69
Description: fragment of a pottery chariot model. Embedded in the pavement (found during flotation for HRA).
Dimensions: 7x9x4.5 cm.

AbT.15.65 - Fig. 8.69
Description: small river pebble. Possibly used as small polisher considering that one face is very flattened whereas the others are natural. [SC]
Dimensions: 1.6x2.7x1.4 cm; weight 8 gr.

AbT.15.67 - Fig. 8.69
Description: chert blade.
Dimensions: 11x2.2x0.4 cm.

AbT.15.68 - Fig. 8.69
Description: chert blade.
Dimensions: 1.2x3.4x0.4 cm.

AbT.15.69 - Fig. 8.69
Description: clay chariot fragment.
Dimensions: 4.9x5.2x6.1x3.7 cm.

Pottery

AbT.15.350.1 - Fig. 8.70
Dimensions: rim. diam.: 12.2 cm; rim th.: 0.5 cm; wall th.: 0.7 cm; base diam.: 4.9 cm; base th.: 0.8 cm.
Clay: outer and inner colour: 2.5YR 6/6 (light red); fabric colour: 5YR 5/6 (yellowish red); sand inclusions; low firing temperature.
Description: conical bowl.

AbT.15.350.2 - Fig. 8.70
Dimensions: wall th.: 0.7 cm.
Clay: outer colour: 2.5Y 8/2 (pale brown); inner colour and fabric colour: 2.5Y 7/2 (light grey); sand inclusions; medium-high firing temperature.
Description: wall fragment decorated with seven almost oval incisions.

AbT.15.350.3 - Fig. 8.70
Dimensions: rim diam.: 12 cm; rim th.: 1 cm; wall th.: 0.7 cm.
Clay: outer, inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium-low firing temperature.
Description: triangular rim jar.

AbT.15.350.4 - Fig. 8.70
Dimensions: rim diam.: 11 cm; rim th.: 0.6 cm; wall th.: 0.9 cm; base diam.: 4.9 cm; base th.: 0.9 cm; h.: 7.5 cm.
Clay: outer, inner and fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: conical bowl.

AbT.15.350.5 - Fig. 8.70
Dimensions: base diam.: 3.5 cm; base th.: 1.2 cm.
Clay: outer, inner and fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: conical bowl base.

AbT.15.350.6 - Fig. 8.70
Dimensions: wall th.: 0.6 cm; base diam.: 3.2 cm; base th.: 0.7 cm.
Clay: outer and inner colour: 10YR 7/4 (very pale brown); fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: beaker base.

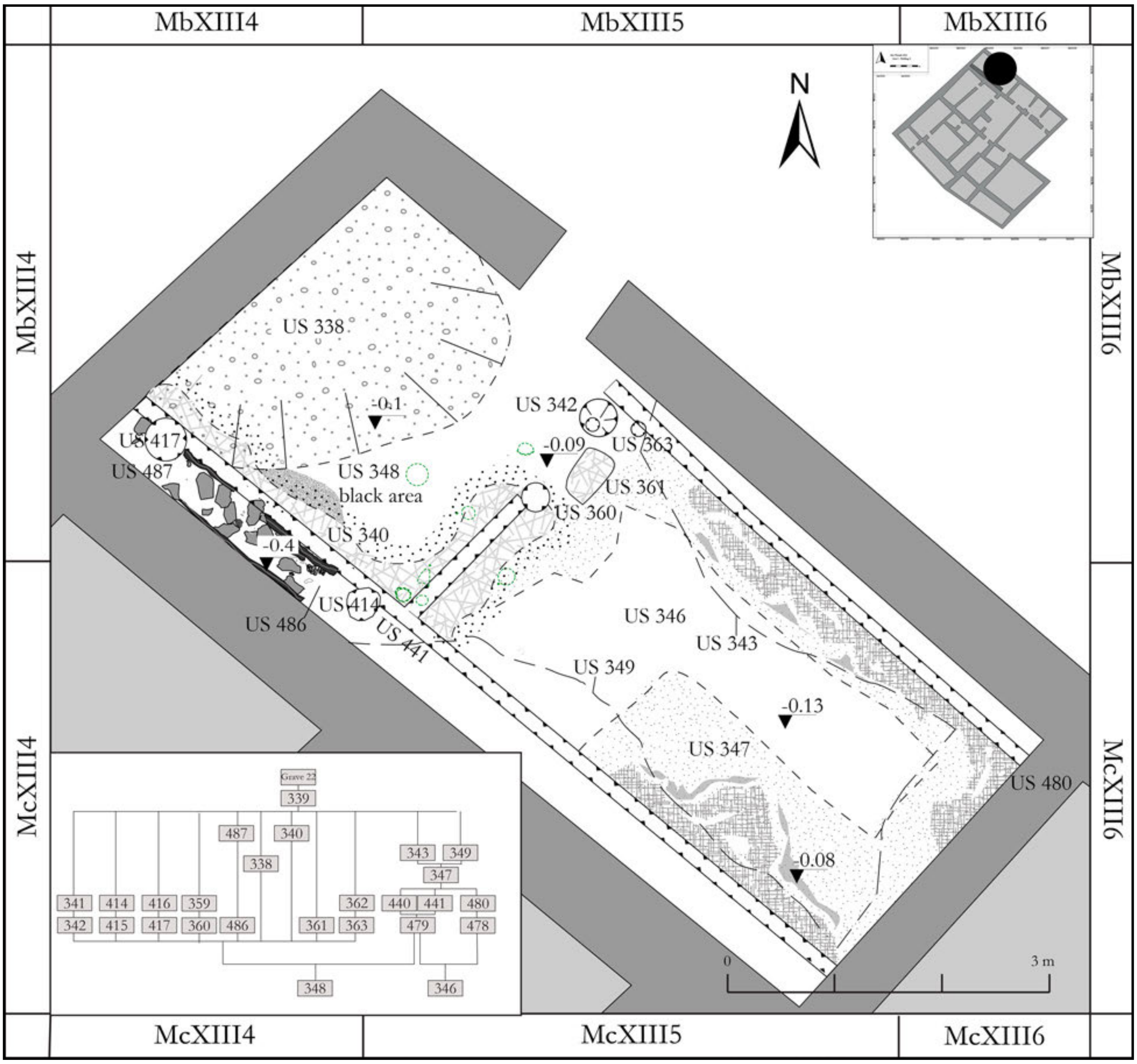


Fig. 8.71 Room 14-15 plan.

8.14 Room 14-15 [LR]

The situation of these two rooms (Fig. 8.71) was particularly interesting: the researches and analysis on the materials here recovered are still ongoing and thus a sketched picture of the Room will be presented, while an extensive study will be published in the near future. A movable reed structure divided the space in two parts and thus we decided to assign two different room numbers, though the context should be considered as a whole.

The strong erosion in this part of the building and the later activities on the spot (see Grave 22 at § 7.3.1), left very little preserved of the last phase of the Building.

However, Room 14-15 was probably destroyed by fire and not gradually abandoned, thus leaving on the floor clearer evidences of occupation than in other spaces of the Building.

As stated previously, Grave 22 was excavated in a clay-silty layer composed mainly by the collapse of the mud and reed structure US 339, hardened by fire[20] and extended apparently until the south-east limits of Room 15. After having excavated few centimetres, the subdivisions of the two spaces and the strata pertaining to the destruction of the Room

[20] Fragments of mud with reed impressions were found mainly scattered on the north-western section of the Room.

were identified.[21] The structure was realized with reed panels sustained by four posts and partially set in the ground-surface inside a long and narrow foundation pit (cut US 479, with an elevation of -0.25 of the bottom; filling US 440+441). The reed panels and posts were probably partially covered (at least at their base) with clay: a huge quantity of clay lumps hardened by fire and with reed impressions were dispersed both inside US 339 and along the foundation pits (US 479). This kind of structure should be considered similar to those still attested in the Marshland, with posts made by reed bundles.[22] The reed panels were linked to a sort of long firing structure (Fig. 8.72), probably vaulted, located along the south-west wall, partially dug in the pavement and with the cut (US 486; bottom at -0.4 m ca) revetted by the same kind of clay used for the realization of tannurs. Lots of collapsed and burnt mud-bricks, mixed to few pottery fragments and bones, were found in the filling of the structure (US 487).[23] The structure had an opening in the middle in correspondence of the darker area on the floor. It is unfortunately not clear if this kind of oven was cut in the pavement (US 348) during the occupation of the last phase of the Building or was a structure in use also in the earlier occupational phase of the space. Though the presence of similar cooking activities is attested also in the earlier phase of the space, the association of the firing structure with reed panels was a characteristic of phase 1 (no internal subdivision of the space was identified in the earlier phase 2).

The reed structure had an opening near the north-east wall, supported by the post holes US 341-342 and US 359-360. In front of the opening a rectangular concentration of burnt reeds was found (US 361) and interpreted as a door. A fourth post-hole US 362-363, probably related to the door mechanism, was found near US 359-360: these two holes had a different conformation than the others, being formed by a larger cut on the top and a smaller and deeper circular depression on the bottom.

Fig. 8.72 Room 14. Detail of the oven from north-west.

The occupation and use of the Room was characterized by the accumulation of clay and ashy soil (US 338), generated by the use of the pit-oven, sloping from the north-western wall toward the centre of the space. The US contained lots of animal bones and discarded pottery fragments (mainly drinking vessels), some of them showing burning traces.[24]

Room 15 showed several collapse layers under US 339. US 343 and 349, mainly constituted of mud-brick fragments, covered US 347.[25] This stratum, located along the Room limits, was composed by burned reeds and areas reddened and hardened by fire. The pavement (US 346; elevation -0.13)

[21] US 340 indicates the fragments of the reed impressions spread near the original position of the structure and US 487 refers to the collapse of the fire installation.

[22] At least US 417 and US 360.

[23] US 487 was extensively documented with photo-documentation, 3D rendering and CAD representation before being excavated to under its base. All fire hardened mud-bricks, oven walls, bones, pottery fragments and one stone were individually collected.

[24] 38 bases of conical bowls, 5 of beakers and 7 undetermined. Due to the extremely loose soil of US 338 we over-excavated the stratum, probably including in this way also some of the pottery fragments of the ashy soil filling Room 14-15.

[25] Some human bones (a perinatal individual) were found, probably pertaining to a not identified later intrusive grave.

was cut by the prosecution of US 479 (filling 440-441) and on the opposite side by US 478 (filling US 480).

The context discovered inside the two rooms and in particular the presence of the firing structure might lead to reconsider the pottery equipment belonging to Grave 22. (US 332). As said in § 7.3.1, the disposition of this part of the equipment, scattered south of the body, is due to post-depositional changes (flowing of the rainfall water etc.). Moreover, the position of the vessels along the reed-panels (in green at Fig. 8.71), the presence of a conical bowl AbT.15.332.6 and of a bottle AbT.15.332.4 with bitumen, rises some doubts about the stratigraphic attribution of these vessels. However, the absence of burning traces, the cut clearly visible at the moment of the excavation of the grave, as well as the vessel positions over the remains of the collapse of the Room seem to confirm the attribution. However, the attribution of US 332 and its pottery to the later grave avoids the eventual contamination of the lower strata with later materials.

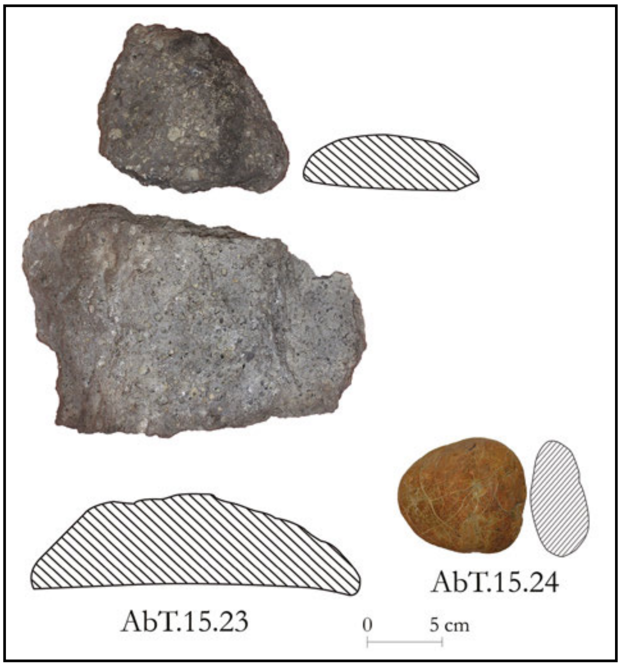


Fig. 8.73 US 339 objects.

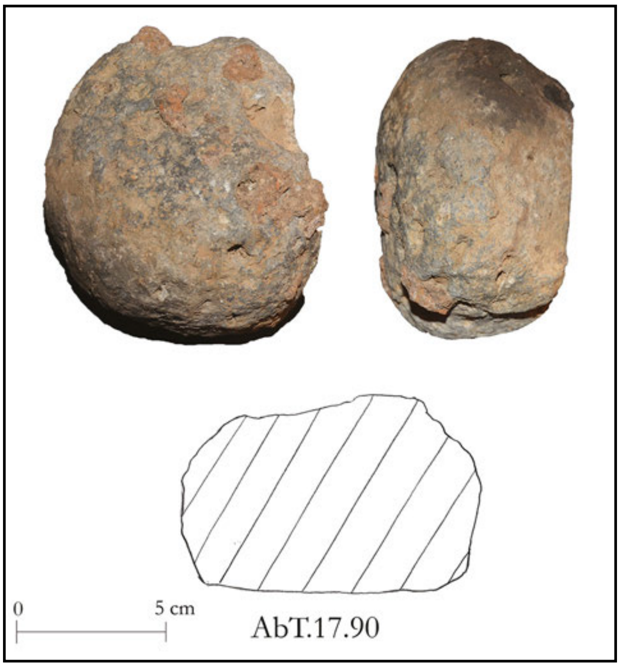


Fig. 8.74 US 487 objects.

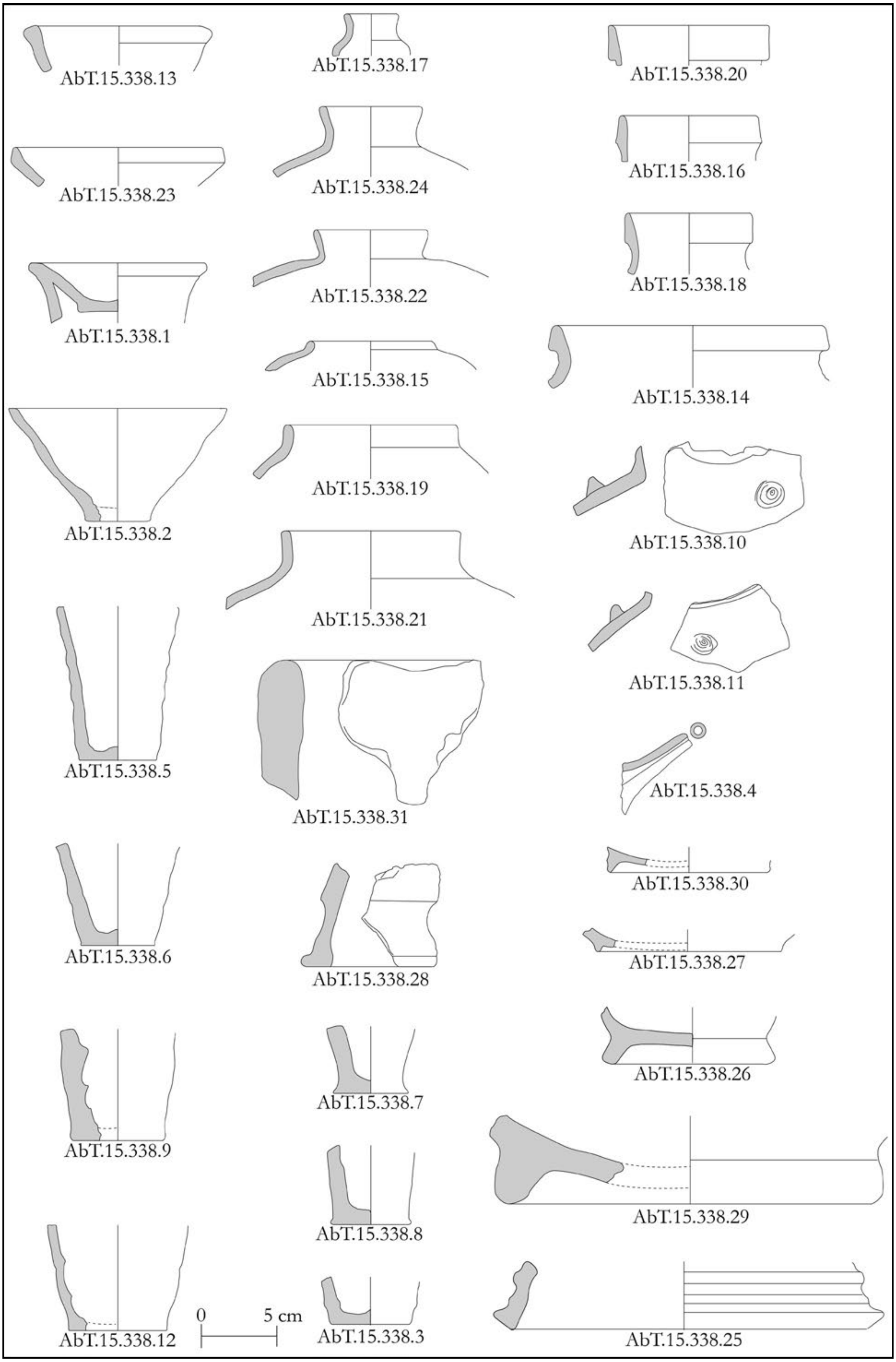


Fig. 8.75 US 338 pottery.

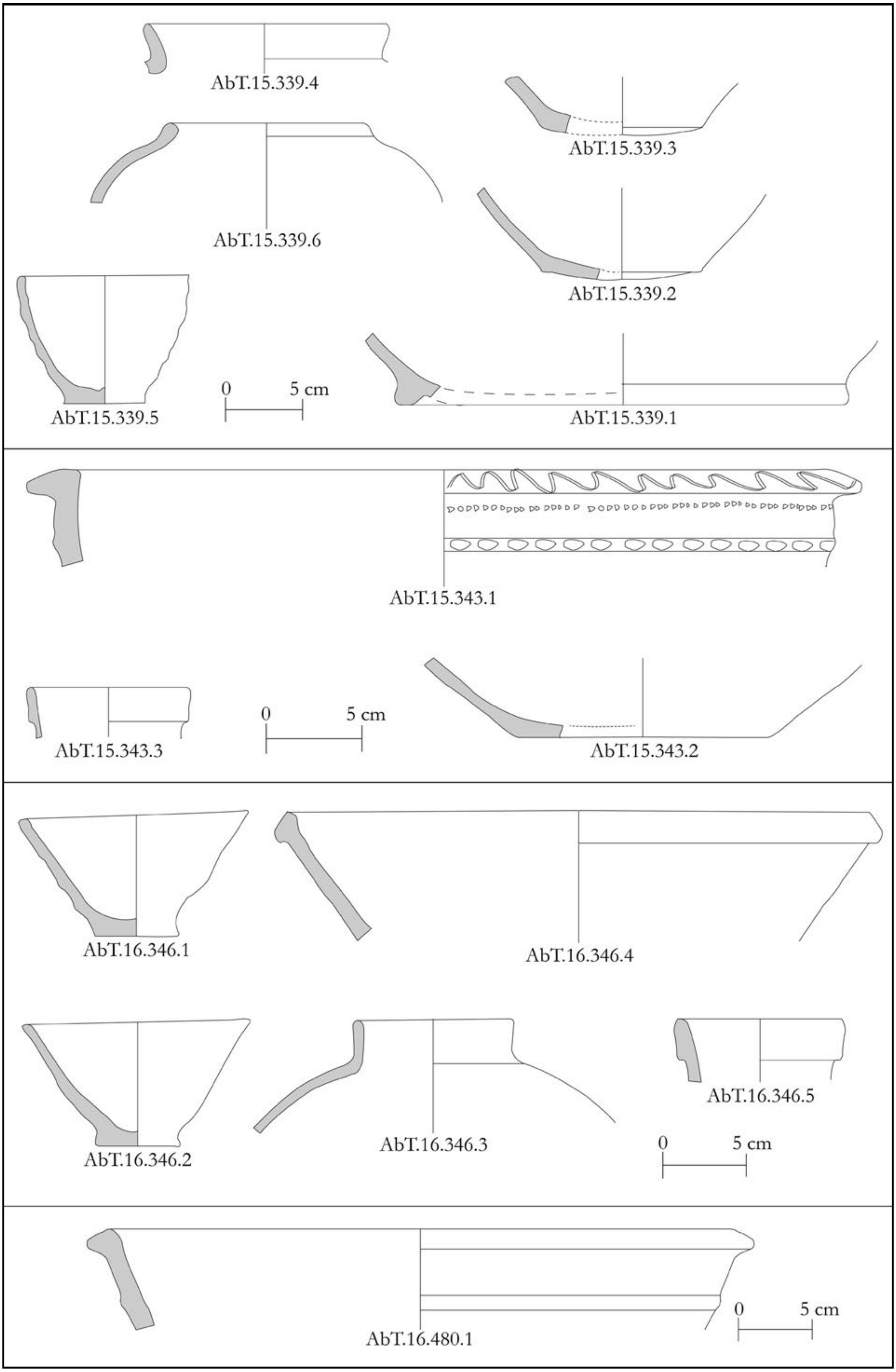


Fig. 8.76 US 339, US 343, US 346 and US 480 pottery.

Catalogue of US 338 Finds

Pottery

AbT.15.338.1 - Fig. 8.75
Dimensions: rim diam.: 12 cm; rim th.: 0.9 cm; wall th.: 0.7 cm; base diam.: 4 cm; base th.: 0.9 cm; h. 3 cm.
Clay: outer colour: 10YR 8/3 (very pale brown); inner and fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: conical bowl attached to a stand.

AbT.15.338.2 - Fig. 8.75
Dimensions: rim diam.: 15 cm; rim th.: 0.7 cm; wall th.: 0.7 cm; base diam.: 4.5 cm; base th.: 1.4 cm; h.: 7.5 cm.
Clay: outer colour: 5YR 7/6 (reddish yellow); inner colour: 10YR 8/3 (very pale brown); fabric colour: 7.5YR 6/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: conical bowl.

AbT.15.338.3 - Fig. 8.75
Dimensions: wall th.: 0.9 cm; base diam.: 5.3 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; low firing temperature.
Description: beaker base.

AbT.15.338.4 - Fig. 8.75
Dimensions: rim diam.: 1 cm; rim th.: 0.5 cm; wall th.: 0.8 cm.
Clay: outer colour: 10YR 8/3 (very pale brown); inner and fabric colour: 7.5YR 7/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: spout.

AbT.15.338.5 - Fig. 8.75
Dimensions: wall th.: 0.7 cm; base diam.: 5 cm; base th.: 1.5 cm.
Clay: outer, inner and fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; low firing temperature.
Description: beaker base.

AbT.15.338.6 - Fig. 8.75
Dimensions: wall th.: 0.8 cm; base diam.: 5 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/2 (pale brown); sand inclusions; medium-high firing temperature.
Description: beaker base.

AbT.15.338.7 - Fig. 8.75
Dimensions: wall th.: 1 cm; base diam.: 5 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium-low firing temperature.
Description: beaker base.

AbT.15.338.8 - Fig. 8.75
Dimensions: wall th.: 0.8 cm; base diam.: 4.9 cm; base th.: 0.8 cm.
Clay: outer colour: 2.5Y 8/3 (pale brown); inner and fabric colour: 2.5Y 7/4 (pale brown); sand inclusions; medium-low firing temperature.
Description: beaker base.

AbT.15.338.9 - Fig. 8.75
Dimensions: base diam.: 9 cm; base th.: 1.2 cm.
Clay: outer colour: 10YR 8/3 (very pale brown); inner and fabric colour: 10YR 8/4 (very pale brown); sand inclusions; medium-low firing temperature.
Description: cylinder base.

AbT.15.338.10 - Fig. 8.75
Dimensions: wall th.: 1 cm.
Clay: outer colour (very eroded slip?): 7.5YR 8/3 (pink); inner and fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium firing temperature.
Description: jar wall with a knob.

AbT.15.338.11 - Fig. 8.75
Dimensions: wall th.: 1 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/3 (pale brown); sand inclusions; medium firing temperature.
Description: jar wall with a knob.

AbT.15.338.12 - Fig. 8.73
Dimensions: base diam.: 3.5 cm; base th.: 0.8 cm.
Clay: outer and inner colour: 10YR 8/3 (very pale brown); fabric colour: 7.5YR 7/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: cylinder/slowly wheel-Thrown beaker base.

AbT.15.338.13 - Fig. 8.75
Dimensions: rim diam.: 11 cm; rim th.: 1.3 cm; wall th.: 0.7 cm.
Clay: outer and inner colour: 2.5Y 8/3 (pale brown); fabric colour: 10YR 7/4 (very pale brown); sand inclusions; medium firing temperature.
Description: triangular rim (lid?).

AbT.15.338.14 - Fig. 8.75
Dimensions: rim diam.: 22 cm; rim th.: 1.7 cm; wall th.: 1.1 cm.
Clay: outer and inner colour: 10YR 7/4 (very pale brown); fabric colour: 7.5YR 7/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: triangular rim jar.

AbT.15.338.15 - Fig. 8.75
Dimensions: rim diam.: 10 cm; rim th.: 0.7 cm; wall th.: 0.8 cm.
Clay: outer and inner colour (self-slip): 10YR 7/6 (yellow); fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: plain rim jar.

AbT.15.338.16 - Fig. 8.75
Dimensions: rim diam.: 10 cm; rim th.: 0.8 cm; wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 2.5Y 7/3 (pale brown); sand inclusions; medium firing temperature.
Description: band rim jar.

AbT.15.338.17 - Fig. 8.75
Dimensions: rim diam.: 6 cm; rim th.: 0.6 cm; wall th.: 0.7 cm.
Clay: outer, inner and fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: miniaturistic plain rim jar.

AbT.15.338.18 - Fig. 8.75
Dimensions: rim diam.: 10 cm; rim th.: 0.7 cm; wall th.: 0.7 cm.
Clay: outer and inner colour: 5Y 8/3 (pale yellow); fabric colour: 5Y 7/2 (light grey); sand inclusions; medium-high firing temperature.
Description: band rim jar.

AbT.15.338.19 - Fig. 8.75
Dimensions: rim diam.: 14 cm; rim th.: 0.8 cm; wall th.: 0.8 cm.
Clay: outer and inner colour: 7.5YR 7/4 (pink); fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium-low firing temperature.
Description: plain rim jar.

AbT.15.338.20 - Fig. 8.75
Dimensions: rim diam.: 13 cm; rim th.: 0.8 cm; wall th.: 0.6 cm.
Clay: outer colour: 10YR 8/3 (very pale brown); inner colour: 7.5YR 6/6 (reddish yellow); fabric colour: 5YR

5/4 (reddish brown); sand inclusions; medium firing temperature.
Description: band rim jar.

AbT.15.338.21 - Fig. 8.75
Dimensions: rim diam.: 14 cm; rim th.: 0.9 cm; wall th.: 9 cm.
Clay: outer colour: 10YR 7/4 (very pale brown); inner colour: 5YR 6/6 (reddish yellow); fabric colour: 10YR 6/4 (light yellowish brown); sand inclusions; medium-low firing temperature.
Description: plain rim jar.

AbT.15.338.22 - Fig. 8.75
Dimensions: rim diam.: 9 cm; rim th.: 0.6 cm; wall th.: 0.8 cm.
Clay: outer and inner colour: 2.5Y 8/3 (pale brown); fabric colour: 10YR 7/4 (very pale brown); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.15.338.23 - Fig. 8.75
Dimensions: rim diam.: 14 cm; rim th.: 0.8 cm; wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: lid(?).

AbT.15.338.24 - Fig. 8.75
Dimensions: rim diam.: 7 cm; rim th.: 0.7 cm; wall th.: 0.7 cm.
Clay: outer and inner colour: 2.5Y 8/3 (pale brown); fabric colour: 10YR 7/4 (very pale brown); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.15.338.25 - Fig. 8.75
Dimensions: rim diam.: 24 cm; rim th.: 2 cm; wall th.: 1.2 cm.
Clay: outer and inner colour: 2.5Y 8/3 (pale brown); fabric colour: 7.5YR 7/6 (reddish yellow); sand inclusions; medium-high firing temperature.
Description: stemmed-dish base.

AbT.15.338.26 - Fig. 8.75
Dimensions: wall th.: 1 cm; base diam.: 13 cm; base th.: 1.5 cm.
Clay: outer and inner colour: 2.5Y 8/3 (pale brown); fabric colour: 7.5YR 6/3 (light brown); sand inclusions; medium firing temperature.
Description: ring base.

AbT.15.338.27 - Fig. 8.75
Dimensions: wall th.: 1 cm; base diam.: 16 cm; base th.: 1 cm.
Clay: outer and inner colour: 2.5Y 8/3 (pale brown); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-low firing temperature.
Description: ring base.

AbT.15.338.28 - Fig. 8.75
Dimensions: wall th.: 1.2 cm; base th.: 2 cm.
Clay: outer, inner and fabric colour: 5YR 6/4 (reddish brown); sand inclusions; medium-low firing temperature.
Description: stemmed-dish base.

AbT.15.338.29 - Fig. 8.75
Dimensions: wall th.: 2.1 cm; base th.: 3.7 cm; base diam.: 30(?) cm.
Clay: outer, inner and fabric colour: 7.5YR 7/3 (pink); sand and vegetal inclusions; low firing temperature.
Description: ring base.

AbT.15.338.30 - Fig. 8.75
Dimensions: base diam.: 14 cm; base th.: 0.9 cm.
Clay: outer colour: 10YR 8/3 (very pale brown); inner and fabric colour: 5YR 7/4 (pink); sand inclusions; medium-low firing temperature.
Description: ring base.

AbT.15.338.31 - Fig. 8.75
Dimensions: rim diam.: n.d. cm; rim th.: 3 cm; wall th.: 3.7 cm; base diam.: 5 cm; base th.: 1.2 cm; h.: 13.1 cm.
Clay: outer, inner and fabric colour: 2.5Y 7/2 (light grey); sand and vegetal inclusions; medium-high firing temperature.
Description: a big jar/vat plain rim.

Catalogue of US 339 finds

Objects

AbT.15.23 - Fig. 8.73
Description: grindstone fragment (2 pieces).
Dimensions: 16x22x6.5 cm (larger fragment); 15x12x5.5 cm.

AbT.15.24 - Fig. 8.74
Description: unknown raw material. Burnt pestle. Unlike others, it shows very clear pounding traces, on the main functional area, but very little other functions were carried out with it. Only one surface shows a slight levelling, maybe due to use as polisher, but the quality of the raw material makes interpretation difficult. [SC]
Dimensions: 8.5x7.5x5.3 cm.

Pottery

AbT.15.339.1 - Fig. 8.76
Dimensions: walls th.: 0.8 cm; base diam.: 28 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/3 (pale brown); sand and vegetal inclusions; medium firing temperature.
Description: ring base.

AbT.15.339.2 - Fig. 8.76
Dimensions: base diam.: 10 cm; base th.: 0.8 cm.
Clay: outer, inner colour and fabric colour: 2.5Y 8/3 (pale brown); sand inclusions; medium-high firing temperature.
Description: convex base.

AbT.15.339.3 - Fig. 8.76
Dimensions: walls th.: 0.8 cm; base diam.: 11 cm; base th.: 1.1 cm.
Clay: outer and inner colour: 2.5Y 8/3 (pale brown); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium firing temperature.
Description: convex base.

AbT.15.339.4 - Fig. 8.76
Dimensions: rim diam.: 15 cm; rim th.: 0.9 cm; walls th.: 0.9 cm.
Clay: outer and inner colour: 10YR 8/2 (very pale brown); fabric colour: 2.5Y 7/3 (pale brown); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.15.339.5 - Fig. 8.76
Dimensions: rim diam.: 8 cm; rim th.: 0.5 cm; walls th.: 0.5 cm; base diam.: 4 cm; base th.: 1.3 cm; h.: 8.2 cm.
Clay: outer and inner colour: 7.5YR 6/4 (light brown); fabric colour: 7.5YR 5/4 (brown); sand inclusions; medium firing temperature.
Description: beaker with bitumen traces inside.

AbT.15.339.6 - Fig. 8.76
Dimensions: rim diam.: 12 cm; rim th.: 1.1 cm; walls th.: 1.2 cm.

Clay: outer, inner and fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium firing temperature.
Description: plain rim jar.

Catalogue of US 343 finds

Pottery

AbT.15.343.1 - Fig. 8.76
Dimensions: rim diam.: 39 cm; rim th.: 2.1 cm; walls th.: 1.5 cm.
Clay: outer colour and inner colour: 10YR 8/2 (very pale brown); fabric colour: 7.5YR 7/3 (pink); sand inclusions; medium firing temperature.
Description: triangular rim bowl with a notched ridge, a line of small excisions and wavy incisions on the top.

AbT.15.343.2 - Fig. 8.76
Dimensions: walls th.: 0.6 cm; base diam.: 13 cm; base th.: 0.6 cm.
Clay: outer colour: 10YR 8/2 (very pale brown); inner colour: 10YR 7/3 (very pale brown); fabric colour: 7.5YR 7/3 (pink); sand inclusions; medium firing temperature.
Description: flat base.

AbT.15.343.3 - Fig. 8.76
Dimensions: rim diam.: 8 cm; rim th.: 0.4 cm; walls th.: 0.4 cm.
Clay: outer colour: 10YR 7/3 (very pale brown); inner and fabric colour: 5YR 6/4 (light reddish brown): 5YR 6/4 (light reddish brown); sand inclusions; medium-low firing temperature.
Description: band rim jar.

Catalogue of US 346 finds

Pottery

AbT.16.346.1 - Fig. 8.76
Dimensions: rim diam.: 13.9 cm; rim th.: 0.7 cm; walls th.: 0.7 cm; base diam.: 5 cm; base th.: 1 cm; h.: 7.3 cm.
Clay: outer colour: 10YR 8/4 (very pale brown); inner colour: 5YR 6/6 (reddish yellow); fabric colour: 5YR 4/4 (reddish brown); sand inclusions; medium-low firing temperature.
Description: conical bowl.

AbT.16.346.2 - Fig. 8.76
Dimensions: rim diam.: 14 cm; rim th.: 0.6 cm; walls th.: 0.6 cm; base diam.: 5 cm; base th.: 0.7 cm; h.: 7.5 cm.
Clay: outer and inner colour: 2.5Y 7/3 (pale brown); fabric colour: 2.5Y 6/2 (greyish brown); sand inclusions; medium-high firing temperature.
Description: conical bowl.

AbT.16.346.3 - Fig. 8.76
Dimensions: rim diam.: 9.5 cm; rim th.: 0.6 cm; walls th.: 0.5 cm.
Clay: outer and inner colour: 10YR 8/3 (very pale brown); fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium firing temperature.
Description: plain rim jar.

AbT.16.346.4 - Fig. 8.76
Dimensions: rim diam.: 36 cm; rim th.: 1.5 cm; walls th.: 1 cm.
Clay: outer, inner and fabric colour: 10YR 8/2 (very pale brown); sand inclusions; medium-high firing temperature.
Description: triangular rim bowl.

AbT.16.346.5 - Fig. 8.76
Dimensions: rim diam.: 10 cm; rim th.: 0.8 cm; walls th.: 1 cm.
Clay: outer, inner and fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium firing temperature.
Description: band rim jar.

Catalogue of US 480 finds

Pottery

AbT.16.480.1 - Fig. 8.76
Dimensions: walls th.: 2.2 cm; base diam.: 42 cm; base th.: 1.3 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/3 (pale brown); sand inclusions; medium-high firing temperature.
Description: triangular rim bowl.

Catalogue of US 487 finds

Objects

AbT.17.90 - Fig. 8.74
Description: stone tool fragment.
Dimensions: 9.6x6.7x10.4 cm; weight 921 gr.

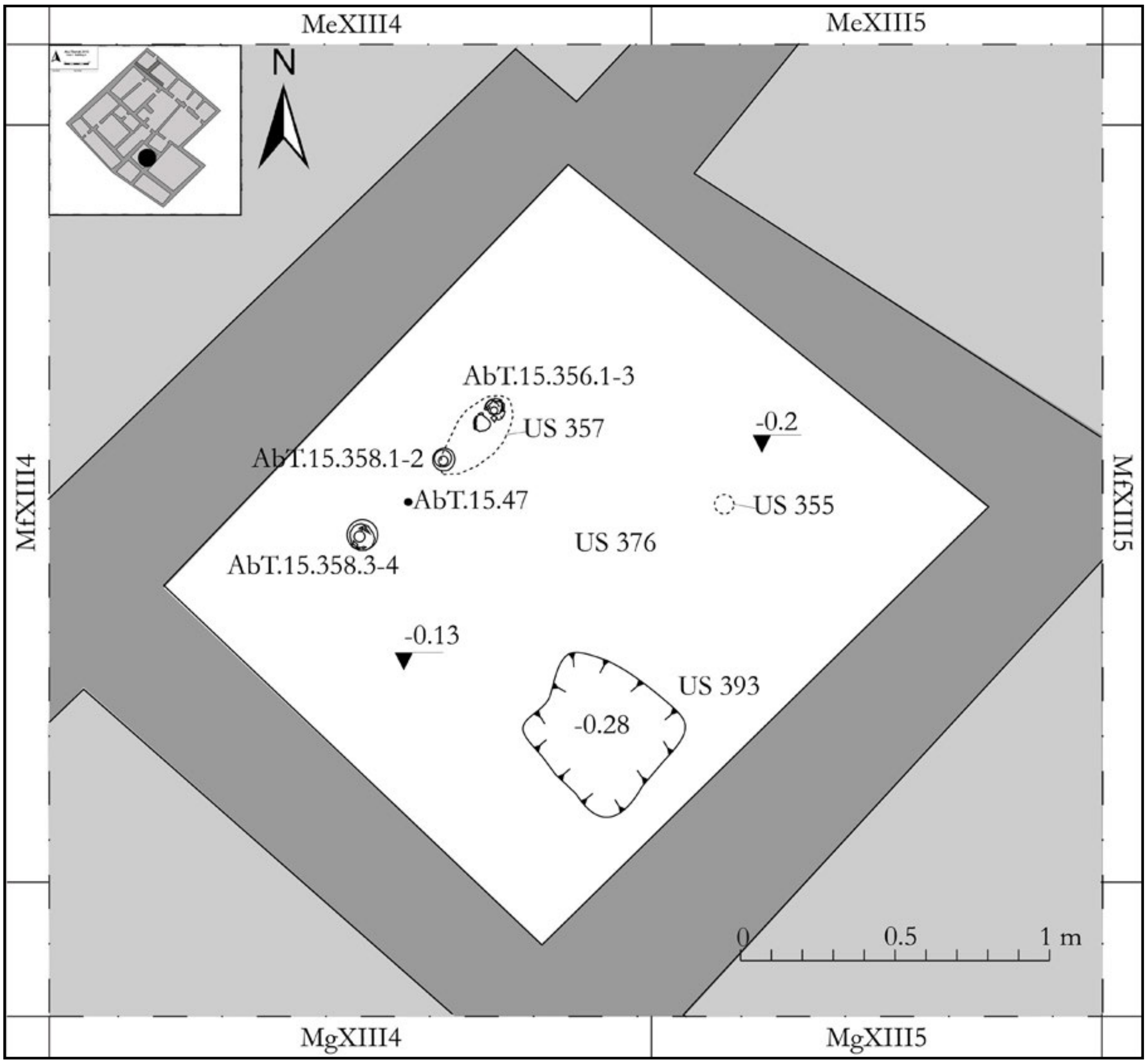


Fig. 8.77 Room 16.

8.15 ROOM 16 [LR]

The Room (Fig 8.77) was filled by US 358[26] and cut by a post-hole (US 354-355) and by a later oval pit (US 356-357) that contained at its very bottom three conical bowls (elevation -0.08 m).[27] After the excavation of US 358 other 2 conical bowls were discovered on the same line (US 364; elevation -0.08 m).[28] It is thus not clear if the pit US 357 reached the level of the two bowls[29] or if this is the evidence of a later phase of the Building completely eroded in the other parts of the Building. US 376 was distinguished on the base of the presence over it of the conical bowls: though not clearly identified, US 376 should correspond to the housing surface (elevation -0.13).[30] The pit US 392-393, cutting US 376, contained several fragments of pottery mostly belonging to drinking vessels.

[26] The US contained mostly drinking vessels.

[27] The 3 conical bowls were considered as belonging to Building A - phase 1.

[28] The 4 conical bowls (two of them belonging to US 364) were wrongly assigned to US 358. The numbering was not changed in order to not create further mistakes in the documentation.

[29] Towards this hypothesis points the fact that pit US 357 only partially cut the northern bowls of US 364.

[30] The pavement cut by several pits was not reliable and thus not sampled for heavy residue analysis. The pottery found on and inside it wconsisted mainly of drinking vessels and to some jars. Some shards showed bitumen and burning traces.

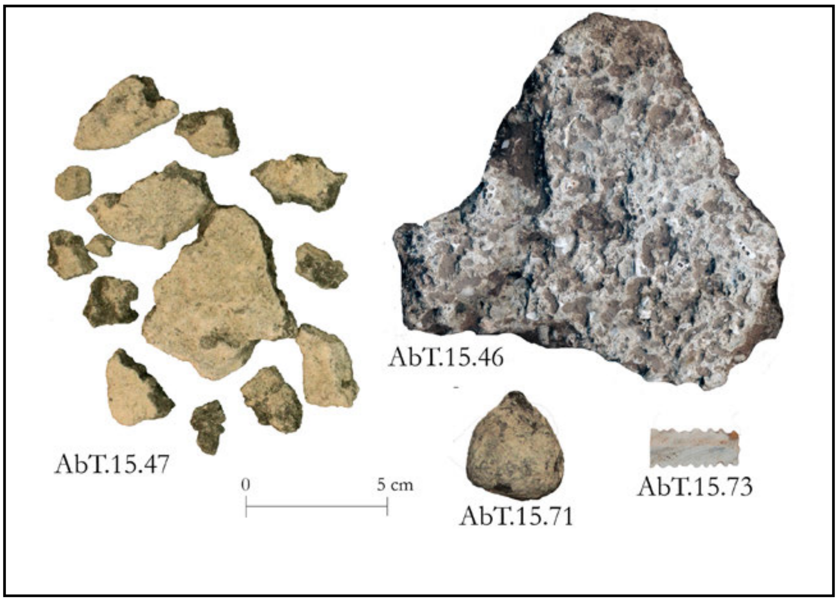


Fig. 8.78 US 358 objects.

Fig. 8.79 US 376 objects.

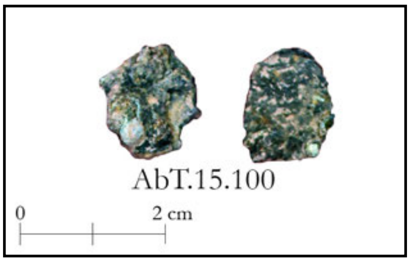


Fig. 8.80 US 392 objects.

Catalogue of US 356 Finds

Pottery

AbT.15.356.1 - Fig. 8.81
Dimensions: rim diam.: 15 cm; rim th.: 0.6 cm; wall th.: 0.9 cm; base diam.: 4 cm; base th.: 0.9 cm; h.: 8 cm.
Clay: outer and inner colour: 10YR 8/3 (very pale brown); fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium firing temperature.
Description: conical bowl.

AbT.15.356.2 - Fig. 8.81
Dimensions: rim diam.: 15 cm; rim th.: 0.6 cm; wall th.: 0.6 cm; base diam.: 4.5 cm; base th.: 1 cm; h.: 6.6 cm.
Clay: outer, inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium-low firing temperature.
Description: conical bowl.

AbT.15.356.3 - Fig. 8.81
Dimensions: rim diam.: 15 cm; rim th.: 0.7 cm; wall th.: 0.8 cm; base diam.: 4.5 cm; base th.: 1 cm; h.: 6.7 cm.
Clay: outer and inner colour: 7.5YR 7/4 (pink); fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium firing temperature.
Description: conical bowl.

Catalogue of US 358 Finds

Objects

AbT.15.46 - Fig. 8.78
Description: grindstone (2 pieces).
Dimensions: 15.6x5.3x11.6.

AbT.15.47 - Fig. 8.78
Description: various bitumen fragments.
Dimensions: 4.6x5.4x5x2.2 cm (biggest fragment).

AbT.15.71 - Fig. 8.78
Description: bitumen pear-shaped object.
Dimensions: 3.2x3.3x3.2 cm.

AbT.15.73 - Fig. 8.78
Description: chert sickle element.
Dimensions: 0.4x3.2x0.5 cm.

Pottery

AbT.15.358.1 - Fig. 8.81
Dimensions: rim diam.: 19 cm; rim th.: 0.4 cm; wall th.: 0.8 cm; base diam.: 5 cm; base th.: 1.3 cm.
Clay: outer, inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium firing temperature.
Description: conical bowl.

AbT.15.358.2 - Fig. 8.81
Dimensions: rim diam.: 16 cm; rim th.: 0.4 cm; wall th.: 0.6 cm; base diam.: 5.5 cm; base th.: 1.2 cm.
Clay: outer, inner and fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium firing temperature.
Description: conical bowl.

AbT.15.358.3 - Fig. 8.81
Dimensions: rim diam.: 12 cm; rim th.: 0.7 cm; wall th.: 0.7 cm; base diam.: 5.5 cm; base th.: 0.7 cm; h.: 7.5 cm.
Clay: outer, inner and fabric colour: 10YR 7/4 (very pale brown); sand inclusions; medium-low firing temperature.
Description: conical bowl.

AbT.15.358.4 - Fig. 8.81
Dimensions: rim diam.: 15 cm; rim th.: 0.5 cm; wall th.: 0.6 cm; base diam.: 5 cm; base th.: 1.3 cm; h.: 7.3 cm.
Clay: outer, inner and fabric colour: 10YR 8/3 (very pale brown); sand inclusions; medium-high firing temperature.
Description: conical bowl.

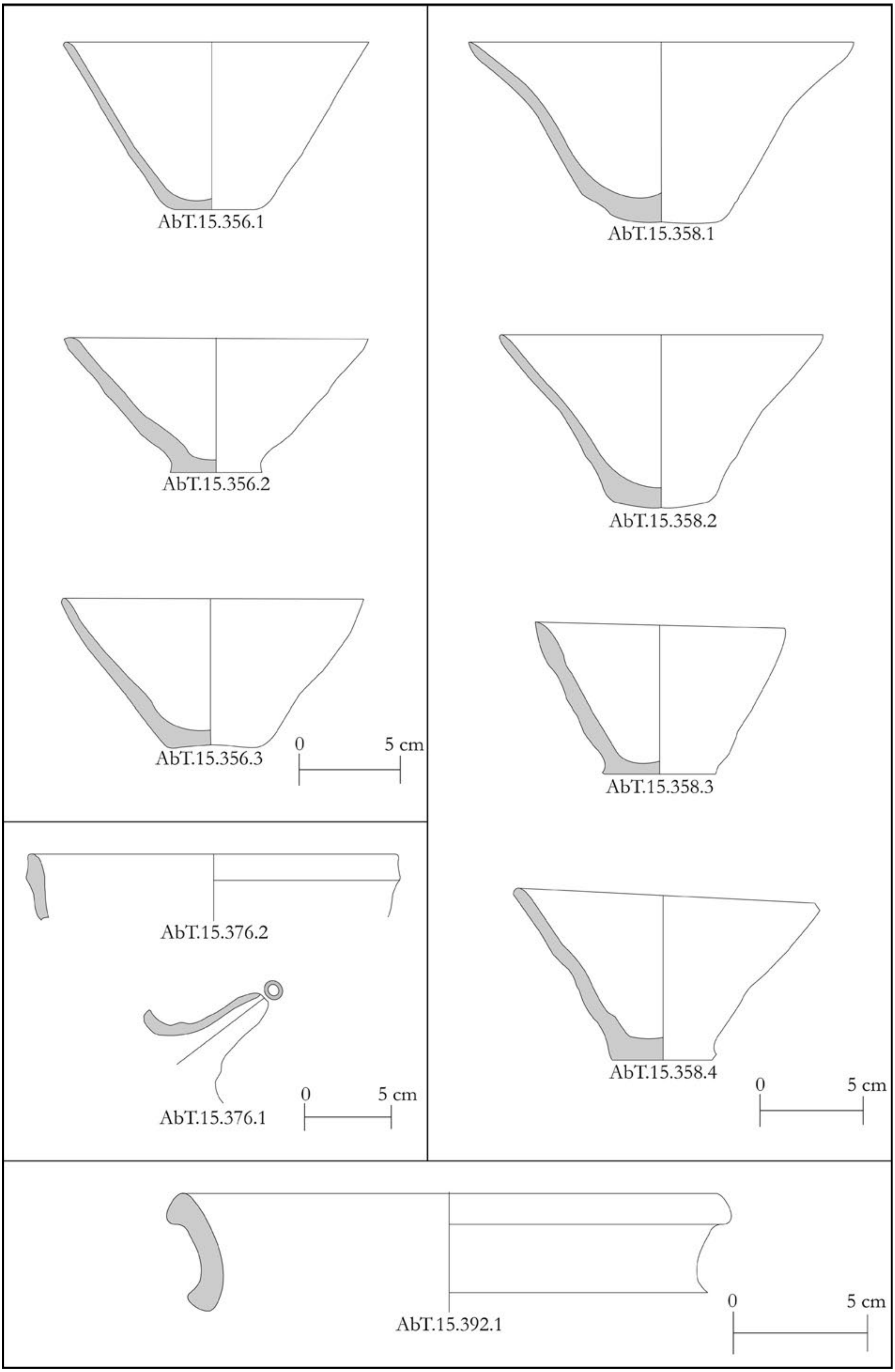


Fig. 8.81 US 356, US 358, US 376 and US 392 pottery.

Catalogue of US 376 Finds

Objects

AbT.15.74 - Fig. 8.79
Description: chert sickle element.
Dimensions: 1.3x2.2x0.2 cm.

Pottery

AbT.15.376.1 - Fig. 8.81
Dimensions: wall th.: 0.6 cm.
Clay: outer colour: 10YR 6/3 (pale brown); inner colour: 7.5YR 6/3 (light brown); fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium-high firing temperature.
Description: spout.

AbT.15.376.2 - Fig. 8.81
Dimensions: rim diam.: 21 cm; rim th.: 1.1 cm.
Clay: outer and inner colour: 2.5Y 7/4 (pale brown); fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium firing temperature.
Description: band rim jar.

Catalogue of US 392 Finds

Objects

AbT.15.100 - Fig. 8.80
Description: copper alloy fragment.
Dimensions: 1.5x1.7x0.7 cm.

Pottery

AbT.15.392.1 - Fig. 8.81
Dimensions: rim diam.: 20 cm; rim th.: 1.5 cm; wall th.: 1.1 cm.
Clay: outer and inner colour: 2.5Y 6/3 (light yellowish brown); fabric colour: 2.5Y 7/3 (pale brown); sand inclusions; medium-high firing temperature.
Description: triangular rim jar.

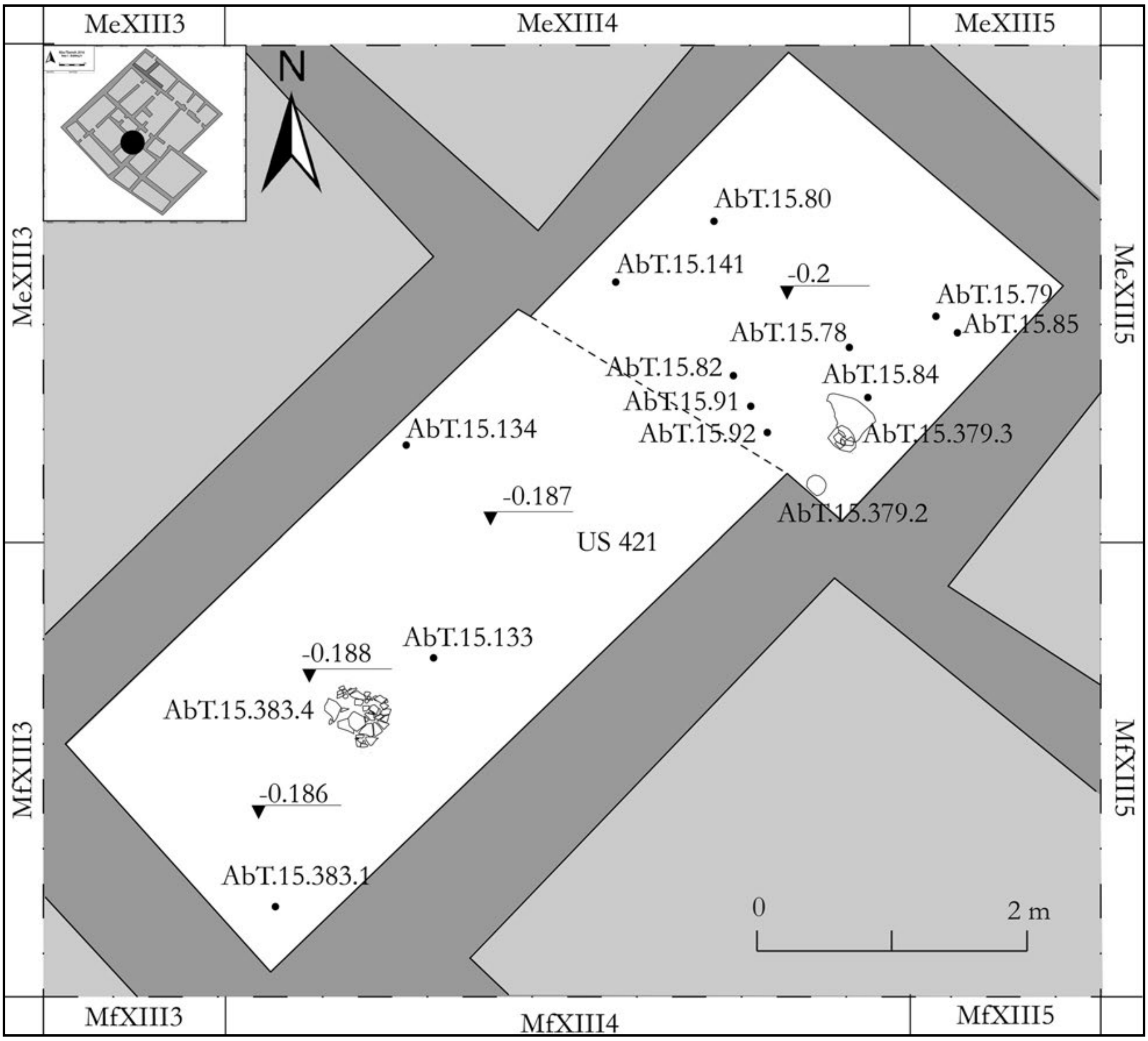


Fig. 8.82 Room 17+19+21 plan.

8.16 Room 17+19+21 [LR]

The Room (Fig. 8.82) was initially excavated in three separated parts, because of an erroneous interpretation of the surface based on satellite imagery. The situation in this area, much like the surrounding rooms, was initially misinterpreted due to later activities carried out on the spot that uniformed the surface: indeed, also this room was not visible from the satellite imagery. The plan of the Room is characterized by the enlargement of the space in its northern part, forming in this way a small "L", with the south-eastern wall slightly bent in a small corner. The Room was filled by a clay horizontal stratum (US 379=383). On the pavement, in the northern section of the Room, a grindstone (AbT.15.84) and a big bowl (AbT.15.379.3) were found,[31] while a conical bowl was near the wall off-set. In the southern part there were several fragments of a rounded shoulder jar with "reserved-slip like effect" (AbT.15.383.4). The pavement (US 421) was sampled for heavy residue analysis (only in the northern part where it was identified).

[31] The US contained also some drinking vessels and several fragments of at least two different jars.

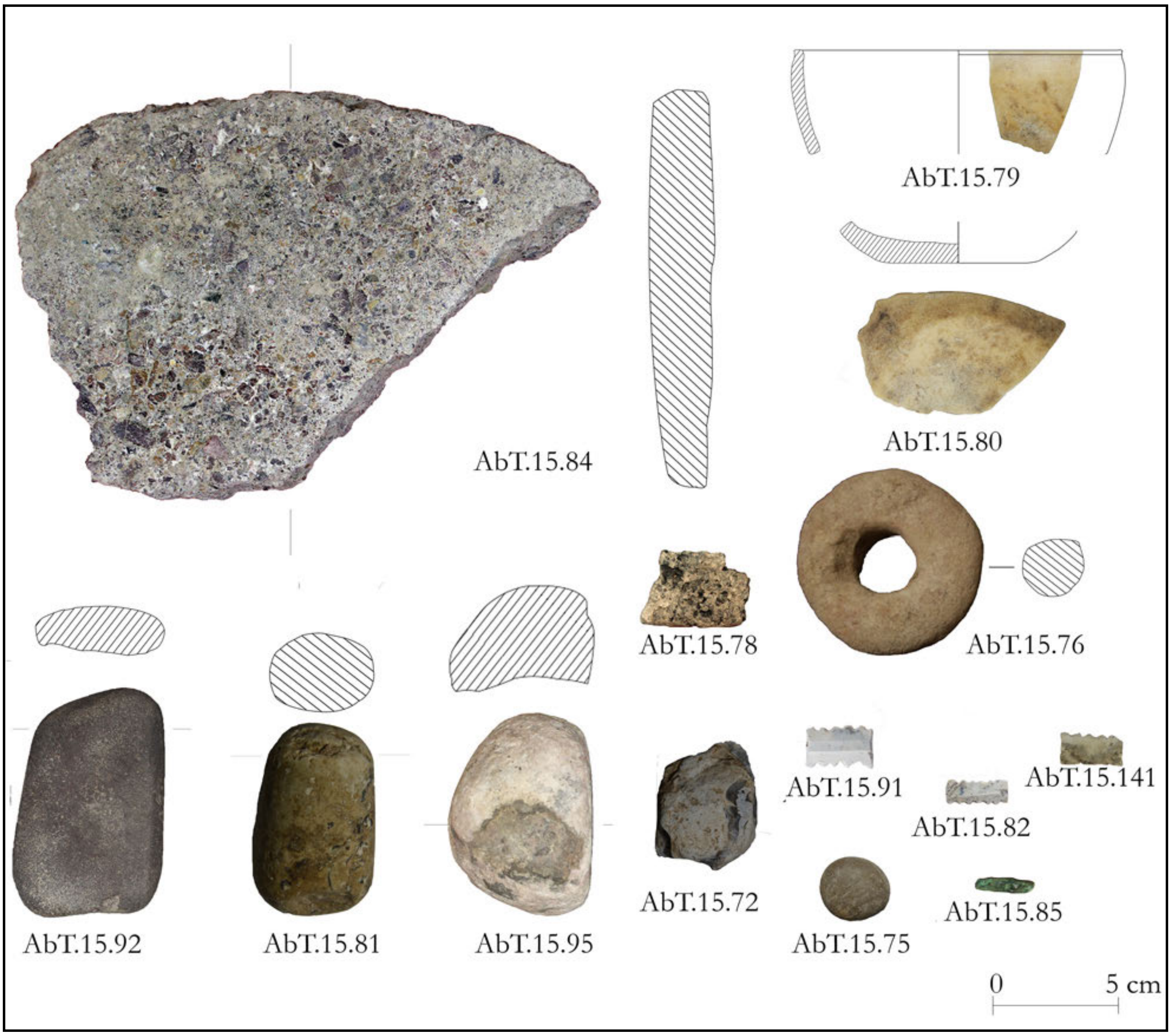


Fig. 8.83 US 379 objects.

Fig. 8.84 US 383 objects.

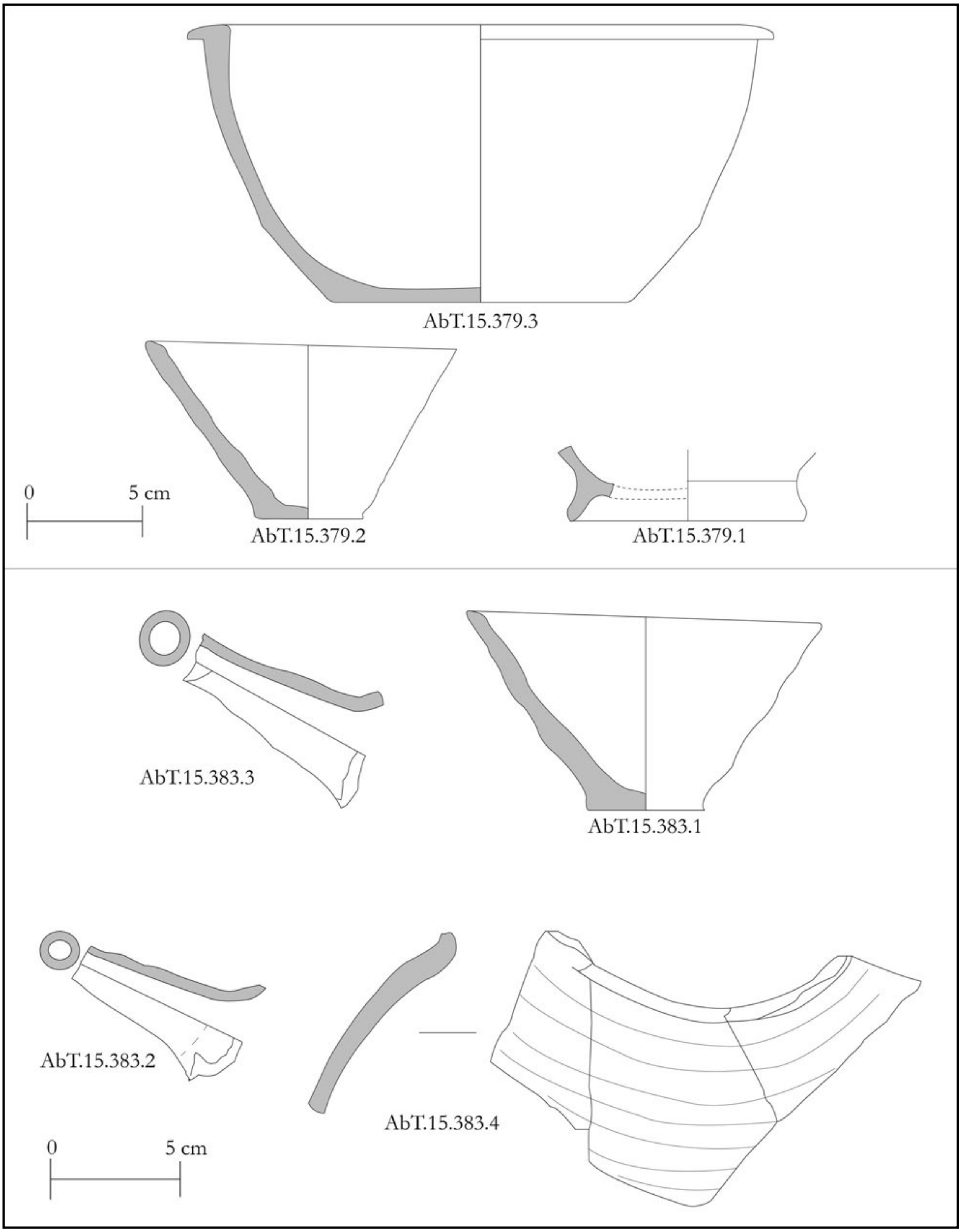


Fig. 8.85 US 379 and US 383 pottery.

Catalogue of US 379 Finds

Objects

AbT.15.72 - Fig. 8.83
Description: chert cube fragment.
Dimensions: 4x5.2x3.4 cm; weight 103 gr.

AbT.15.75 - Fig. 8.83
Description: small river pebble. Small striations on both surfaces, but hard to tell if technological. [SC]
Dimensions: 2.6x2.8x0.9 cm; weight 11 gr ca.

AbT.15.76 - Fig. 8.83
Description: pottery loom weight; circular form.

Dimensions: 2.6 cm (internal diameter); 6.4x1.9x2.6x6.5 cm.

AbT.15.78 - Fig. 8.83
Description: bitumen object fragment.
Dimensions: 2.7x3.6x4.1x1.5 cm.

AbT.15.79 - Fig. 8.83
Description: rim of an alabastrine limestone bowl with a small inflexion under the rim. The outer and inner surface of the fragment have sub-parallel, vertical and horizontal striations. The rim presents a very polished surface. [SC]
Dimensions: 3x4.3x4.1x0.1x13 cm.

AbT.15.80 - Fig. 8.83
Description: base of alabastrine limestone vessel. The underside of the base shows heavy rounding due to contact. The fragmented sides show thinning of the wall and the fragmented sections show light rounding on certain fractions. The outer part of the wall and the inner part of the base has light striations. [SC]
Dimensions: 8x1.7x4.6x0.6x6 cm.

AbT.15.81 - Fig. 8.83
Description: small stone pestle. The lateral surfaces show traces of slight rounding and/or polishing. The two endings were used for pounding activities. [SC]
Dimensions: 4.1x7x3.9 cm.

AbT.15.82 - Fig. 8.83
Description: chert sickle element.
Dimensions: 1x2.5x0.3 cm.

AbT.15.84 - Fig. 8.83
Description: fragmentary grindstone.
Dimensions: 15x3x20.5 cm

AbT.15.85 - Fig. 8.83
Description: copper alloy fragment.
Dimensions: 2.6x0.6x0.6 cm.

AbT.15.91 - Fig. 8.83
Description: chert sickle element.
Dimensions: 1.6x0.4x2.7 cm.

AbT.15.92 - Fig. 8.83
Description: multifunctional stone tool with unusual shape. Possibly used for expedient polishing and pounding. Slightly fractured, with a strange shape and unknown function. Traces of pounding are visible in the corners. Long side and one angle probably used for polishing. [SC]
Dimensions: 5.8x2x9.5 cm; weight 255 gr.

AbT.15.95 - Fig. 8.83
Description: hammer-stone.. The whole fragment seems heavily burnt. Several areas of the stone tool were used for different activities: polishing or general levelling actions. One small lateral area of the object presents heavy traces of bitumen processing. However, the fire probably altered the traces. [SC]
Dimensions: 7.3x5x3.7 cm; weight 267 gr.

AbT.15.141 - Fig. 8.83
Description: chert sickle element.
Dimensions: 1.2x2.4x0.4 cm.

Pottery

AbT.15.379.1 - Fig. 8.85
Dimensions: base diam.: 10 cm; base th.: 0.8 cm.
Clay: outer colour: 2.5YR 6/3 (light reddish brown); inner colour: 10YR 5/4 (yellowish brown); fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium-low firing temperature.
Description: ring base.

AbT.15.379.2 - Fig. 8.85
Dimensions: rim diam.: 14.2 cm; rim th.: 0.7 cm; wall th.: 0.7 cm; base diam.: 4.5 cm; base th.: 0.8 cm; h.: 7.5 cm.
Clay: outer colour: 10YR 7/3 (very pale brown); inner colour: 5YR 5/4 (reddish brown); fabric colour: 5YR 4/6 (yellowish red); sand inclusions; medium-low firing temperature.
Description: conical bowl.

AbT.15.379.3 - Fig. 8.85
Dimensions: rim diam.: 24.5 cm; rim th.: 1.6 cm; wall th.: 1.1 cm; base diam.: 13 cm; base th.: 0.8 cm; h.: 12 cm.
Clay: outer, inner and fabric colour: 10YR 7/3 (very pale brown); sand inclusions; medium firing temperature.
Description: triangular rim bowl.

Catalogue of US 383 Finds

Objects

AbT.15.131 - Fig. 8.84
Description: copper alloy double pointed object.
Dimensions: 1.1x5.1x0.7 cm.

AbT.15.132 - Fig. 8.84
Description: pebble.
Dimensions: 1.3x3.1x1.2 cm; weight 6 gr.

AbT.15.133 - Fig. 8.84
Description: chert flake.
Dimensions: 3.1x3x0.6 cm.

AbT.15.134 - Fig. 8.84
Description: basalt flake.
Dimensions: 2.2-2.5x3.7-1.8x0.6 cm.

AbT.15.136 - Fig. 8.84
Description: chert flake.
Dimensions: 1.5x1.9x0.6 cm.

Pottery

AbT.15.383.1 - Fig. 8.85
Dimensions: rim diam.: 14 cm; rim th.: 0.6 cm; wall th.: 0.7 cm; base diam.: 4.5 cm; base th.: 0.9 cm; h.: 7.4 cm.
Clay: outer, inner and fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium firing temperature.
Description: conical bowl.

AbT.15.383.2 - Fig. 8.85
Dimensions: wall th.: 0.4 cm.
Clay: outer and inner colour: 5Y 8/2 (pale yellow); fabric colour: 2.5Y 7/3 (pale brown); sand inclusions; medium-high firing temperature.
Description: spout.

AbT.15.383.3 - Fig. 8.85
Dimensions: wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 5Y 8/2 (pale yellow); sand inclusions; medium-high firing temperature.
Description: spout.

AbT.15.383.4 - Fig. 8.85
Dimensions: wall th.: 1 cm.
Clay: outer, inner and fabric colour: 7.5YR 5/3 (brown); sand inclusions; medium-high firing temperature.
Description: rounded shoulder of a jar with "reserved slip like effect".

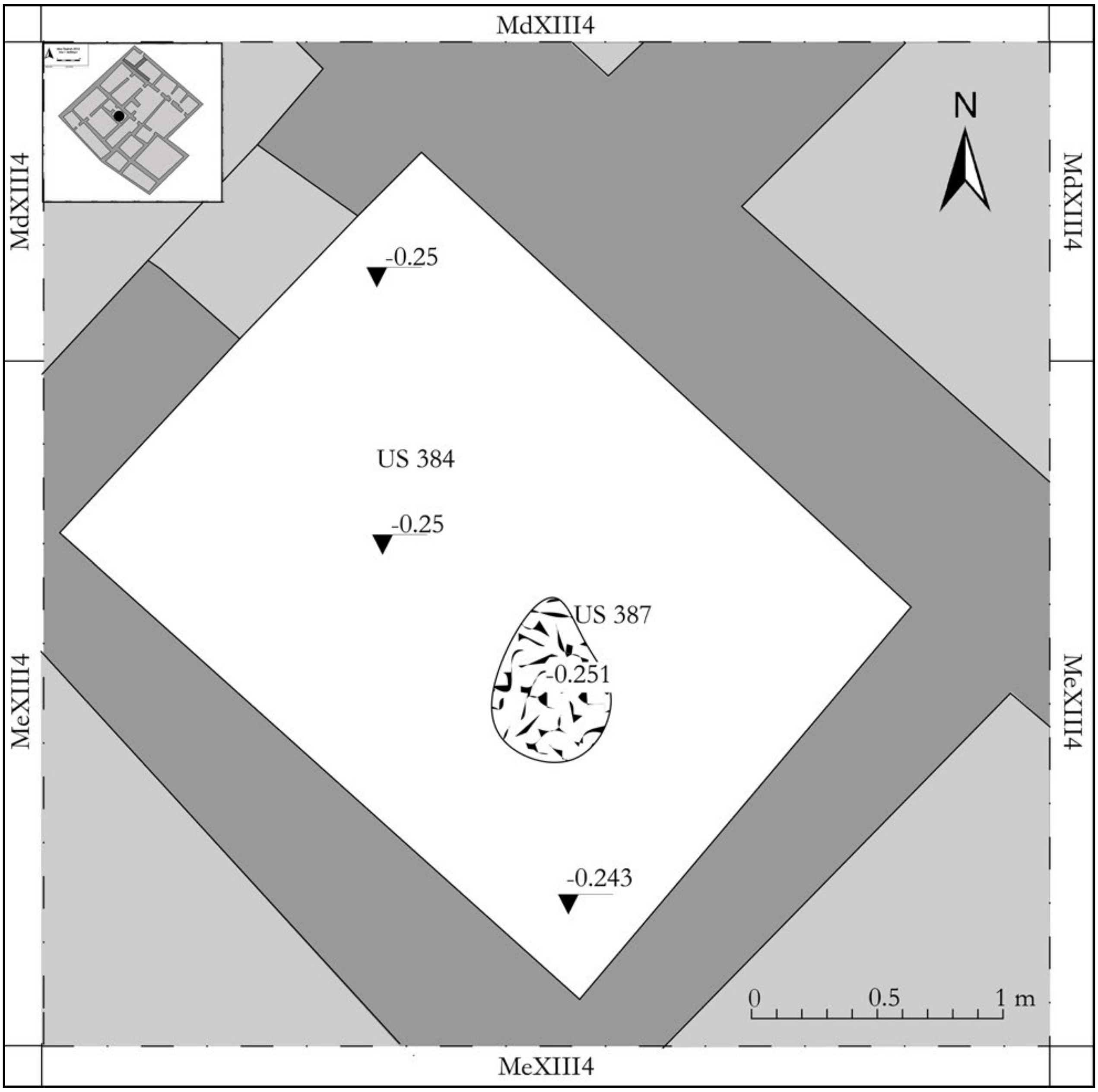


Fig. 8.86 Room 18.

8.17 Room 18 [LR]

The silty clay filling of the Room (US 381; Fig. 8.86) was characterized by the presence of several mud-brick fragments and pottery shards.[32]

The ground-surface (US 384), sampled for heavy residue analysis, hosted a fireplace (US 387), located in the south-eastern part of the Room.

[32] Few pottery shards were found in the stratum, including at least two drinking vessels, a fragment of a big vat and several walls of pottery with bitumen traces (some of them showing burning traces).

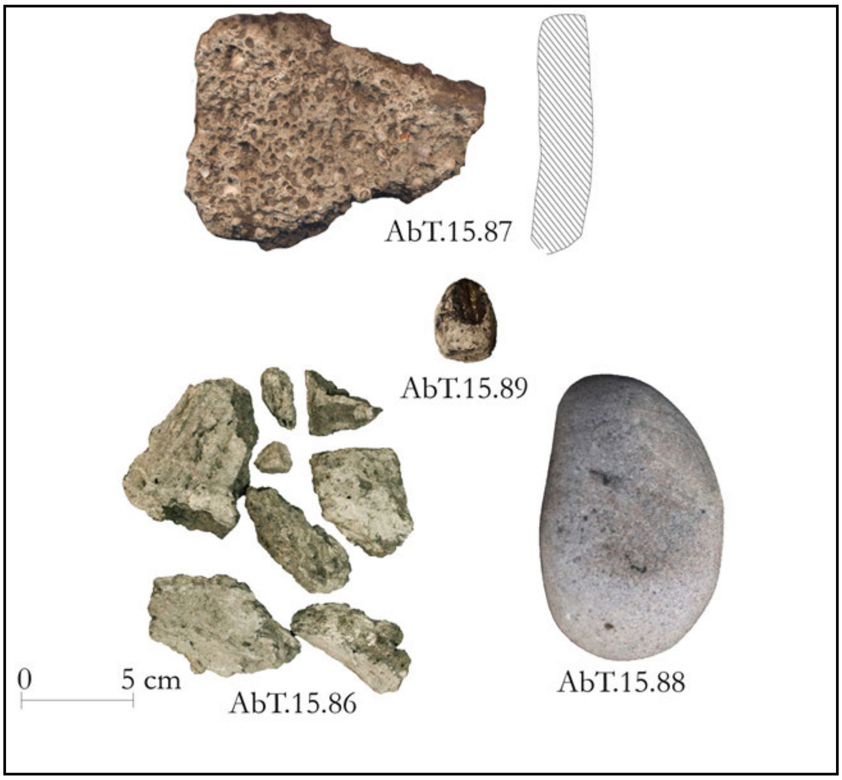


Fig. 8.87 US 381 objects.

Fig. 8.88 US 384 objects.

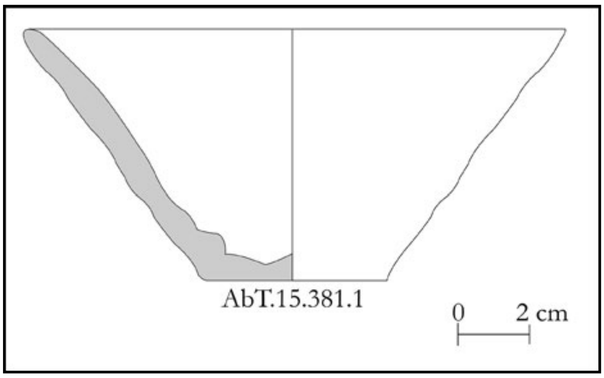


Fig. 8.89 US 381 pottery.

Catalogue of US 381 Finds

Objects

AbT.15.86 - Fig. 8.87
Description: bitumen fragment.
Dimensions: 5x6.7x6.8x2.1 cm.

AbT.15.87 - Fig. 8.87
Description: grindstone.
Dimensions: 0.3x3.4x16.1 cm.

AbT.15.88 - Fig. 8.87
Description: stone tool. Microscopically no traces were observable, neither at high or low magnifications. Macroscopically some polishing and light pounding traces are evident. One functional surface, characterized by a darker colour (on the side of the tool) seems to have been used for polishing activities. [SC]
Dimensions: 7.4x5.8x11.6 cm; weight 710 gr.

AbT.15.89 - Fig. 8.87
Description: bitumen "pear-shaped" object.
Dimensions: 2.6x2.4x3.3x2.3 cm.

Pottery

AbT.15.381.1 - Fig. 8.89
Dimensions: rim diam.: 15 cm; rim th.: 0.6 cm; wall th.: 0.6 cm; base diam.: 5 cm; base th.: 1.2 cm; h.: 7 cm.
Clay: outer colour: 10YR 6/3 (pale brown); inner colour: 2.5YR 5/6 (red); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-low firing temperature.
Description: conical bowl.

Catalogue of US 384 Finds

Objects

AbT.15.96 - Fig. 8.88
Description: grindstone.
Dimensions: 10.5x5.1x13 cm.

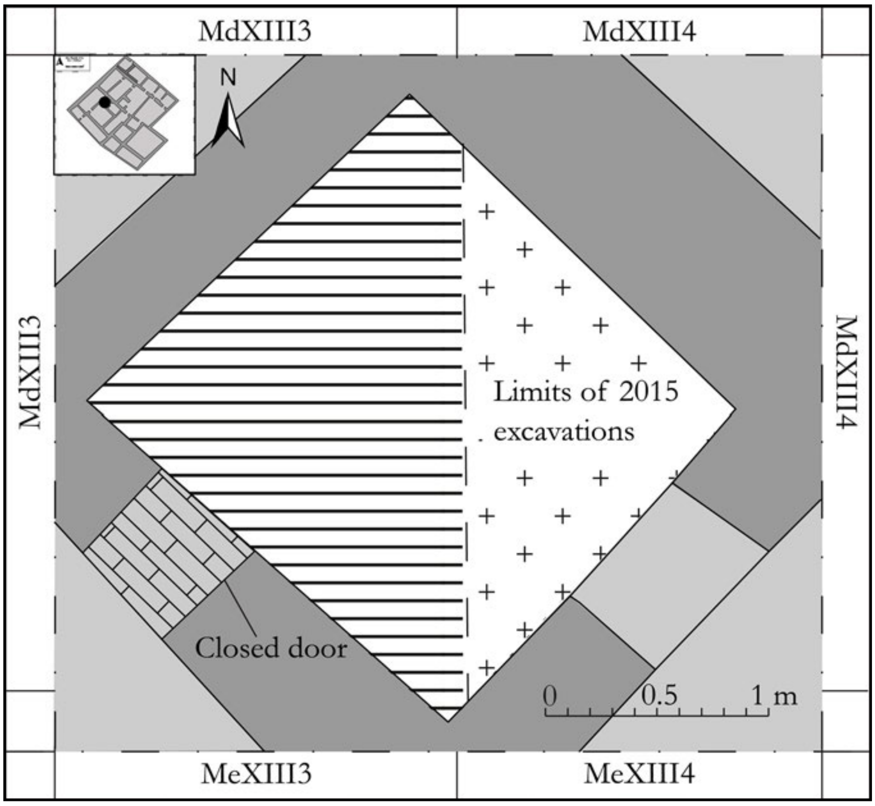


Fig. 8.90 Room 20 plan.

8.18 Room 20 [LR]

The Room (Fig. 8.90) was a small space unfortunately completely destroyed by the strong seasonal rainfall of the last years. Indeed, one of the wall near the section of the 2012 excavations collapsed with most of the filling during the following years. US 420 was assigned to what remained of the filling.

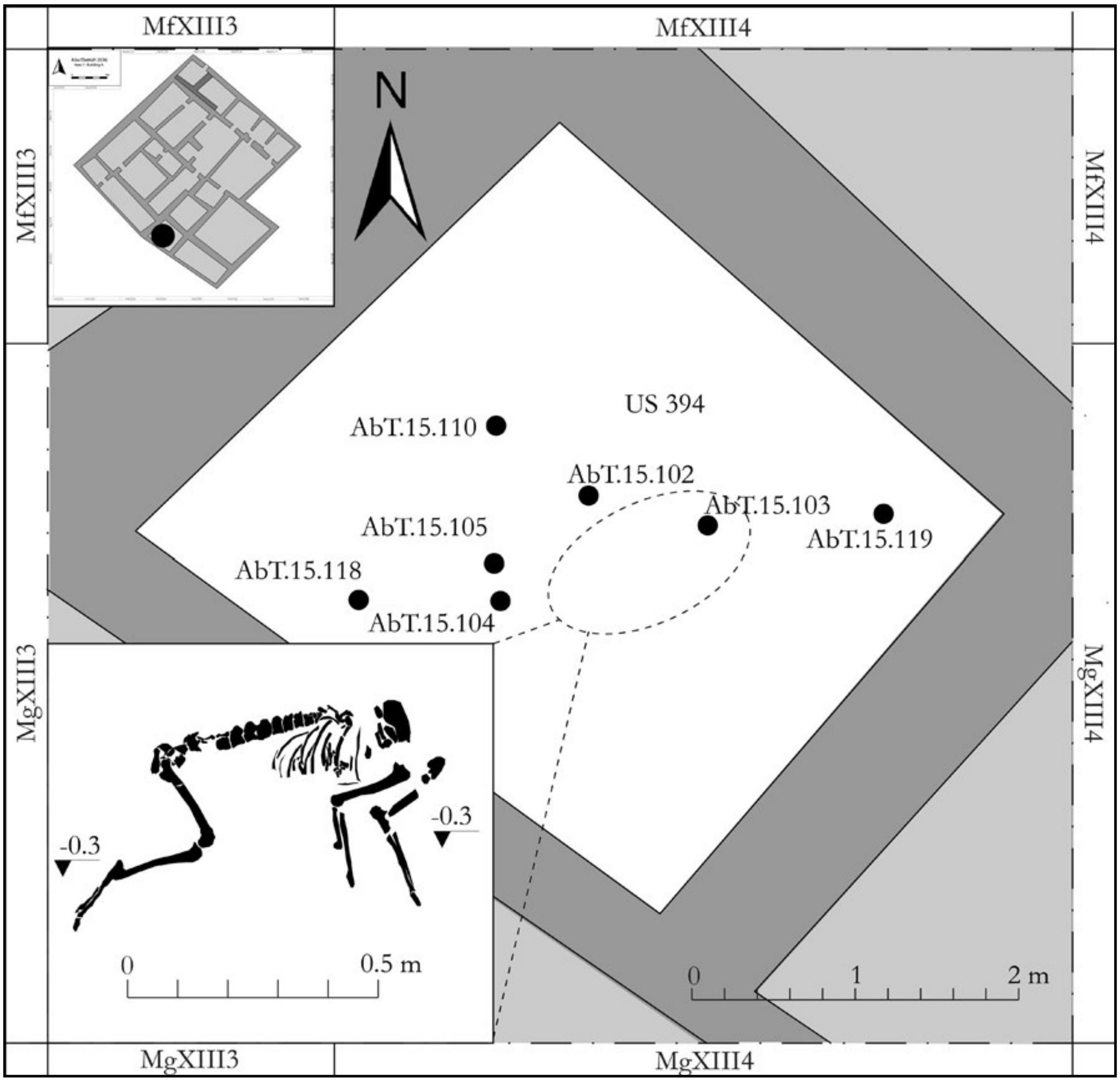


Fig. 8.91 Room 22 plan.

8.19 Room 22 [LR]

US 394 was the horizontal, quite hard, clay filling of Room 22 (from -0.08 to -0.3 m ca.).[33] No pavement was identified. The pottery found in the stratum comprised, as usual, mostly drinking vessels.[34] A dog skeleton with the head missing (US 405) was discovered under this stratum, at the elevation of -0.3 m (Figs 8.91-92). The skeleton was oriented south-west/north-east. No sign of the presence of a pit excavated in order to host the dog was clearly identified.[35] The stratum on which the dog was laying was called US 406.

Fig. 8.92 Room 22. Dog skeleton (US 405).

[33] The objects in the plan were found at different elevations, all among -0.17 and -0.2 m with the exception of AbT.15.119 found at the elevation of -0.3 m.

[34] A total of 5 bases of conical bowls; 13 small fragments of plain rim jars; one base of jar with one foot preserved; a fragment of a conical bowl attached to a stand, one ring base of a vat; 1 triangular rim of a big bowl.

[35] Traces of what could be interpreted as a cut were identified towards north-east, but it was not possible to clearly delineate the supposed cut. In addition, it should be mentioned that the clay covering the dog was the same of that identified as US 406.

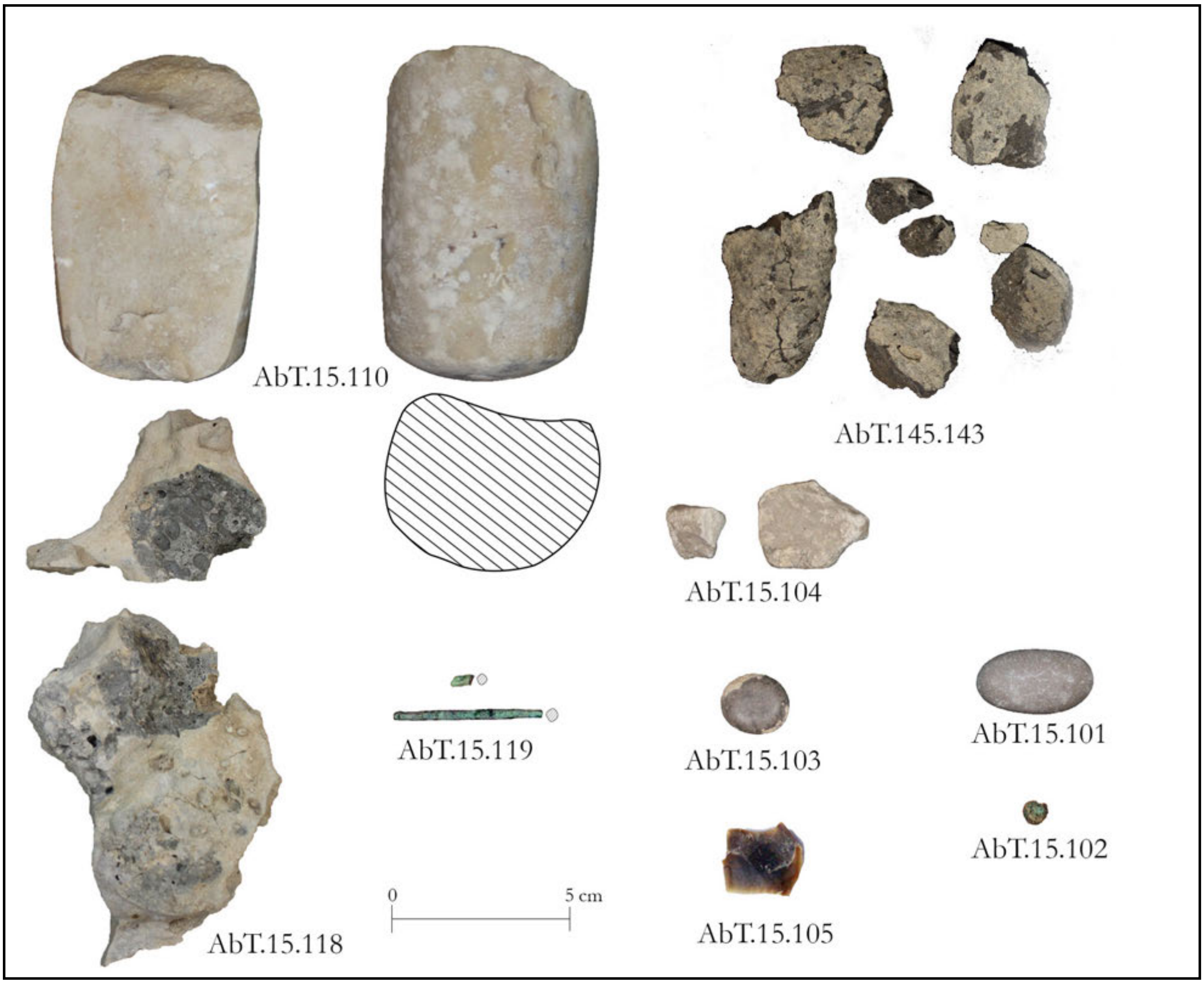


Fig. 8.93 US 394 objects.

Catalogue of US 394 Finds

Objects

AbT.15.101 - Fig. 8.93
Description: stone pebble.
Dimensions: 1.8x3x1.3 cm; weight 11 gr.

AbT.15.102 - Fig. 8.93
Description: copper alloy fragment.
Dimensions: 0.5x0.5x0.4 cm

AbT.15.103 - Fig. 8.93
Description: stone pebble.
Dimensions: 1.5x1.7x0.9 cm; weight 5 gr.

AbT.15.104 - Fig. 8.93
Description: stone vessel fragment. Very damaged: no traces visible. [SC]
Dimensions: 2.5x2.9x1 cm.

AbT.15.105 - Fig. 8.93
Description: chert bladelet.
Dimensions: 2.1x2.4x1 cm.

AbT.15.110 - Fig. 8.93
Description: half preserved hard stone pestle with many traces. The fractured side of the stone pestle presents a recycling use as abrader. The pestle functional area was used for pounding and has bitumen residue in the topographic lows. The sides of the object present widespread striations and a surface which seems to have been used for polishing since it is consumed and flattened. The main fracture seems to have been created by a direct blow, probably due to use. [SC]
Dimensions: 5.7x8.4x4.2 cm; weight 302 gr.

AbT.15.118 - Fig. 8.93
Description: vitrified clay (waste).
Dimensions: 6.5x12.2x4.4 cm.

AbT.15.119 - Fig. 8.93
Description: copper alloy fragments.
Dimensions: 0.3x4.1-0.6x0.3 cm.

AbT.15.143 - Fig. 8.93
Description: bitumen object.
Dimensions: 3.3x5x2.1 cm; weight 20 gr.

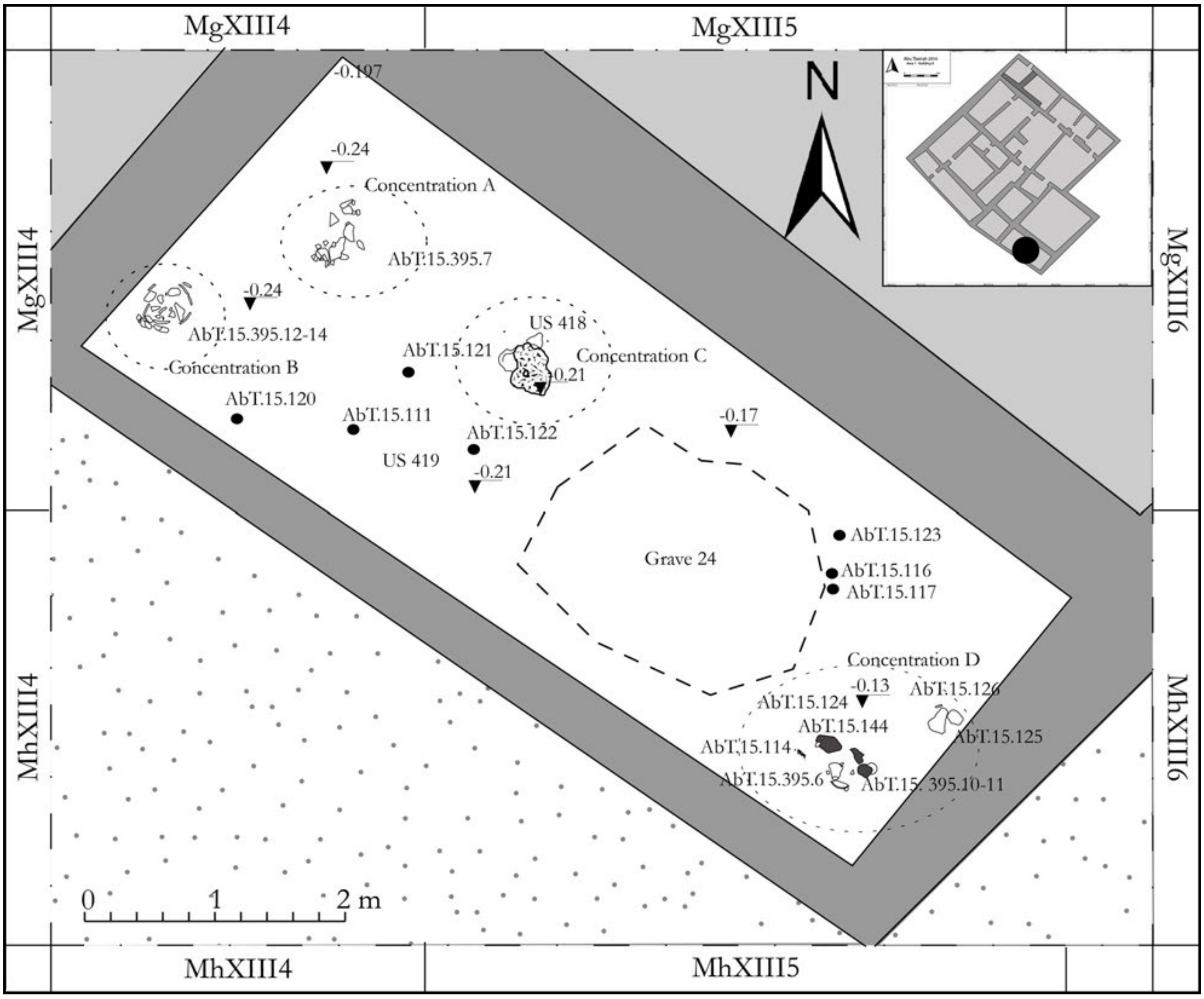


Fig. 8.94 Room 23 plan.

8.20 Room 23 [LR]

The Room (Fig. 8.94-95), cut by Grave 24, was filled by US 395, a yellowish brown clay soil, rich in salt crystals. The context was particularly interesting due to the exceptional amount of stone tools and other objects found *in situ* on the pavement (US 419). Four concentrations of pottery and other findings on the floor were named from A to D.[36] Concentration A (Fig. 8.96-97) was a plain rim jar with flat base, found upside down on the pavement. Concentration B (Fig. 8.98) contained a band-rim jar and at least another closed shape.[37] The pavement (-0.2 m ca. of elevation),[38] sampled for heavy residue analysis and described in depth in § 9,[39] was characterized by the presence of a fireplace US 418 (Fig. 8.99) used for bitumen melting operations. A third group of findings was recoverd in the southern part of the Room (Concentration D - Figs 9.100-101).

[36] The pottery and of the objects were found in some cases partially inserted into the pavement. For example, the sickle blade AbT.15.114 was sloping into the pavement US 419 (see also §§ 13-14). The catalogue indicates where the objects and the pottery was found..

[37] The other pottery fragments recovered mostly belonged to jars, some of them with burning and bitumen traces.

[38] The pavement slopes from north-west to south-east.

[39] Though the pavement was cut by Grave 24, the importance of the findings led us to perform this analysis in order to have a better understanding of the spatial distribution of the activities in the Room.

Fig. 8.95 Room 23.

Fig. 8.96 Room 23. Concentration A.

Fig. 8.97 AbT.15.395.7.

Fig. 8.98 Room 23. Concentration B.

Fig. 8.99 Room 23. Concentration C (US 418).

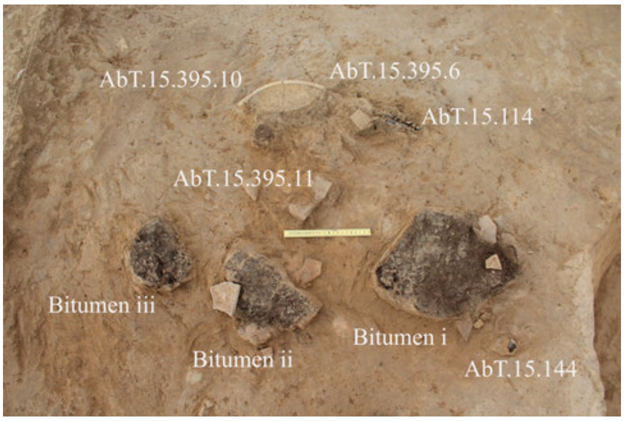


Fig. 8.100 Room 23. Concentration D.

Fig. 8.101 Room 23. Concentration D. AbT.15.114.

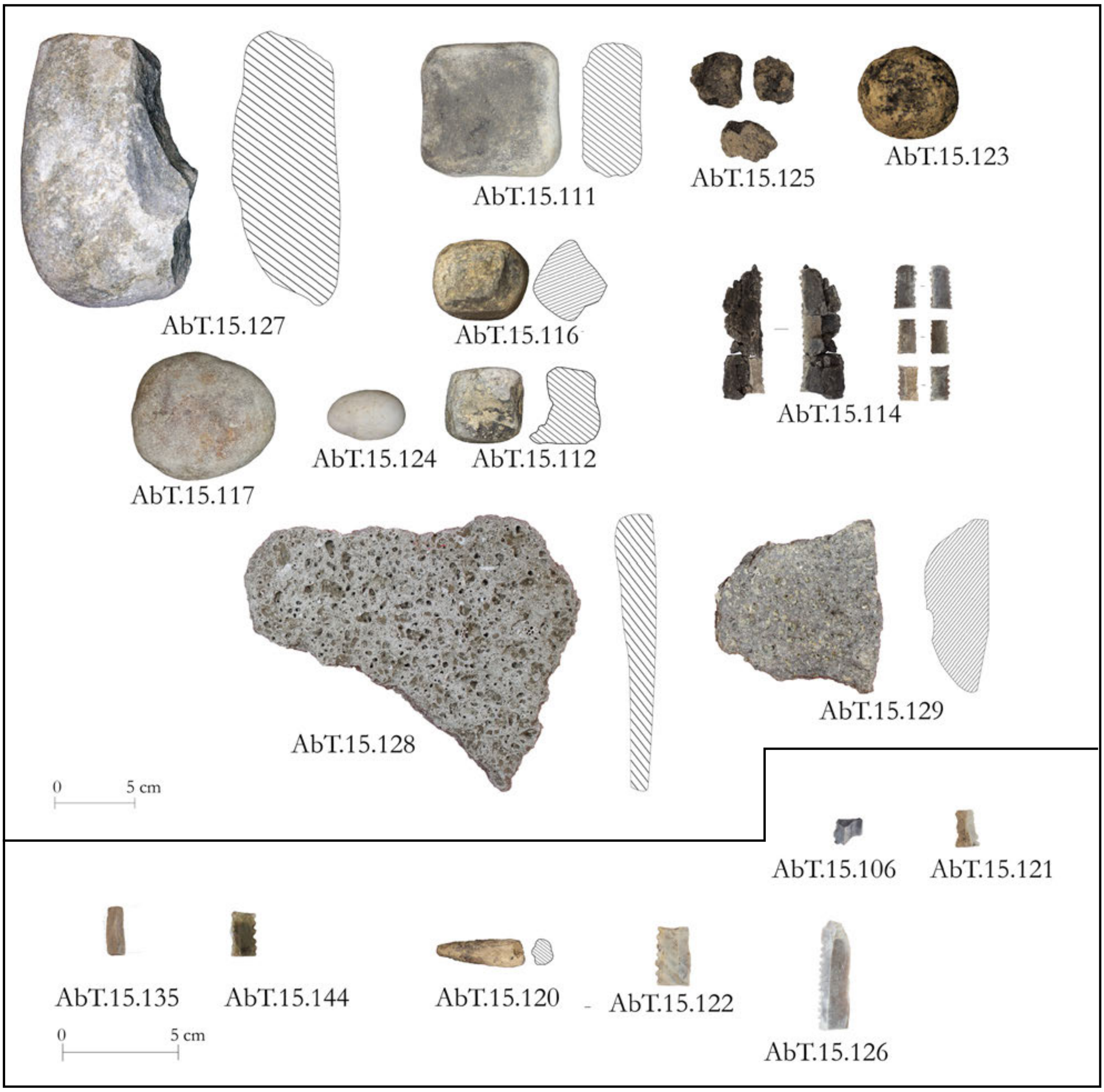


Fig. 8.102 US 395 objects.

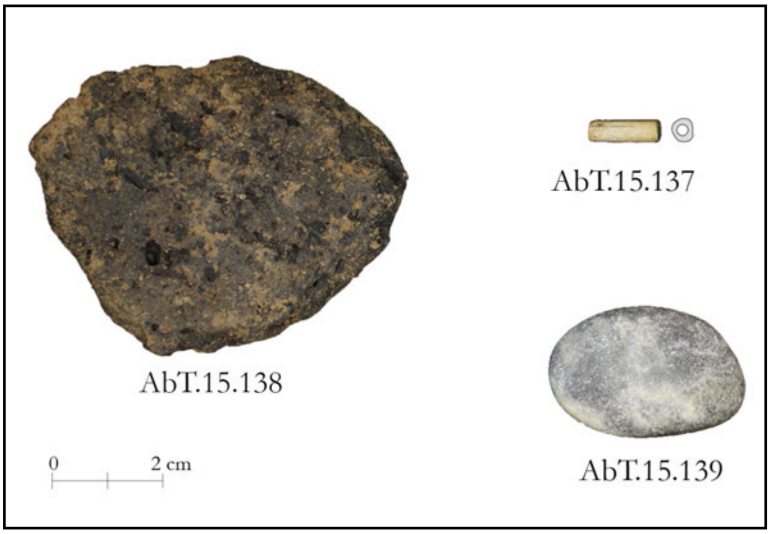


Fig. 8.103 US 419 objects.

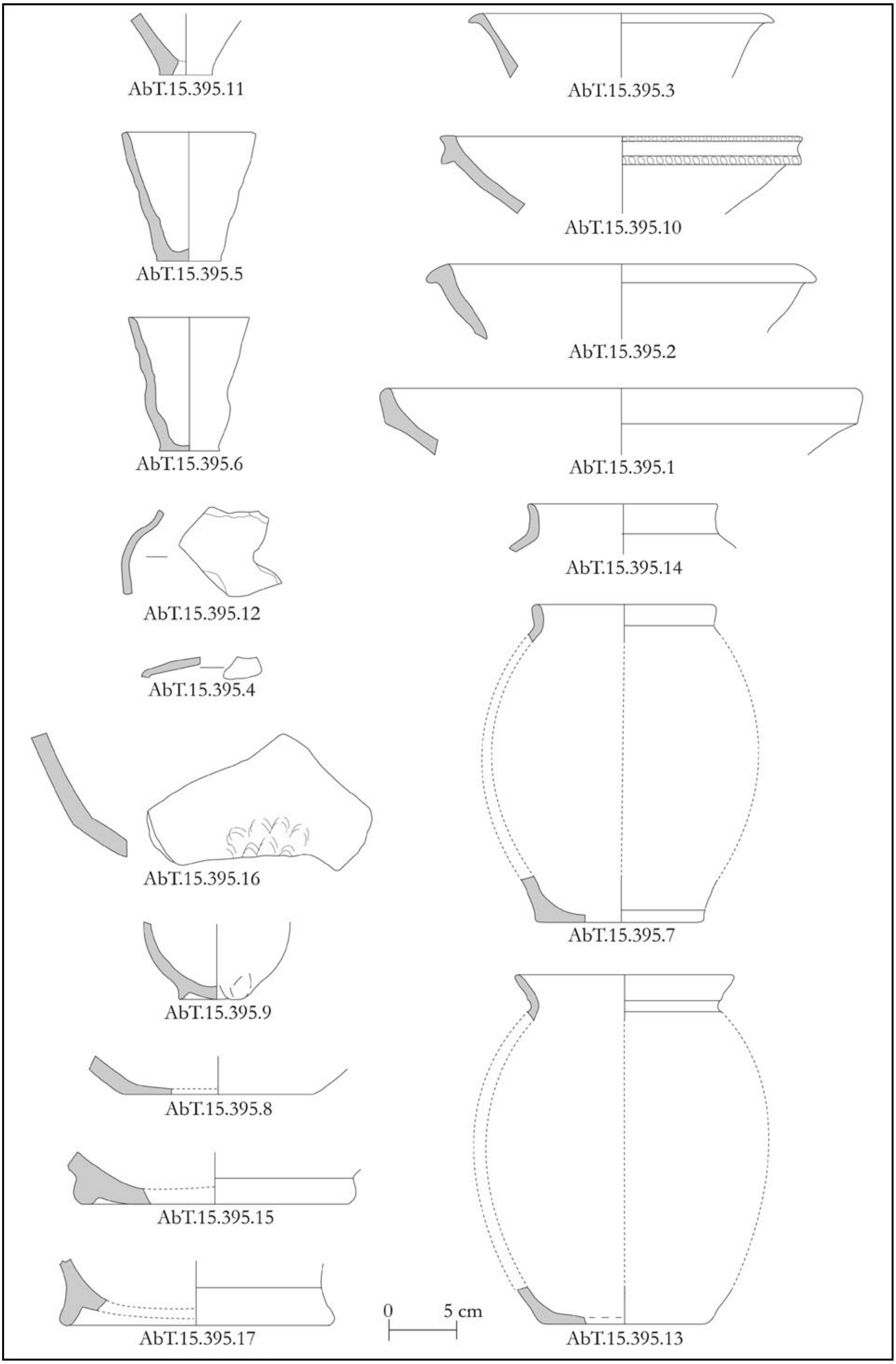


Fig. 8.104 US 395 pottery.

Catalogue of US 395 Finds

Objects

AbT.15.106 - Fig. 8.102
Description: chert blade fragment.
Dimensions: 1.4x1.3x0.4 cm.

AbT.15.111 - Fig. 8.102
Description: squared stone tool with one side covered by bitumen. [SC]
Dimensions: 8.1x8.1x4 cm; weight 550 gr.

AbT.15.112 - Fig. 8.102
Description: chert cube fragment. Very ruined and fractured. The patina covers most of the artifact but is less evident in the topographic lows. At high magnification microscopic flaking of the raw material is visible. [SC]
Dimensions: 4.6x5x3.9 cm.

AbT.15.114 - Fig. 8.102 and 14.10
Description: sickle with three chert elements.
Dimensions: (see §§ 14 and 15).

AbT.15.116 - Fig. 8.102
Description: stone cube. No functional traces. [SC]
Dimensions: 4.7x5.8x5.1 cm.

AbT.15.117 - Fig. 8.102
Description: slightly burnt hammer-stone with traces due to pounding on the lateral sides of the entire object. [SC]
Dimensions: 7.6x8.2x4.7 cm.

AbT.15.120 - Fig. 8.102
Description: clay object fragment (leg of an animal figurine?).
Dimensions: 1.2x3.8 cm.

AbT.15.121 - Fig. 8.102
Description: chert bladelet with denticulate retouch on its right side.
Dimensions: 1.1x1.7x0.2 cm.

AbT.15.122 - Fig. 8.102
Description: chert sickle element.
Dimensions: 1.6x2.7x0.4 cm.

AbT.15.123 - Fig. 8.102
Description: bitumen object.
Dimensions: 5.5x5.8x4.4 cm.

AbT.15.124 - Fig. 8.102
Description: stone pebble.
Dimensions: 3x4.6x2.7 cm.

AbT.15.125 - Fig. 8.102
Description: bitumen object fragments.
Dimensions: 2.7x3.9x2.4 cm.

AbT.15.126 - Fig. 8.102
Description: chert blade with denticulate retouch.
Dimensions: 1.6x5.3x0.3 cm.

AbT.15.127 - Fig. 8.102
Description: fragment of a stone tool. No technological or functional traces visible. [SC]
Dimensions: 17x19.5x2.2 cm.

AbT.15.128 - Fig. 8.102
Description: grindstone.
Dimensions: 9.5x16 cm.

AbT.15.129 - Fig. 8.102
Description: grindstone.
Dimensions: 10.2x10x3.9 cm.

AbT.15.135 - Fig. 8.102
Description: chert bladelet.
Dimensions: 0.9x2.2x0.2 cm.

AbT.15.144 - Fig. 8.102
Description: chert sickle element.
Dimensions: 1.1x1.9x0.3 cm.

Pottery

AbT.15.395.1 - Fig. 8.104
Dimensions: rim diam.: 35(?) cm; rim th.: 1.1 cm; wall th.: 1.2 cm.
Clay: outer and fabric colour: 5YR 5/3 (reddish brown); inner colour: 5YR 5/2 (reddish grey); sand inclusions; medium-low firing temperature.
Description: stemmed-dish upper bowl.

AbT.15.395.2 - Fig. 8.104
Dimensions: rim diam.: 26 cm; rim th.: 2 cm; wall th.: 1 cm.
Clay: outer and fabric colour: 10YR 7/2 (light grey); inner colour: 7.5YR 5/3 (brown); sand inclusions; medium-low firing temperature.
Description: triangular rim bowl.

AbT.15.395.3 - Fig. 8.104
Dimensions: rim diam.: 21 cm; rim th.: 1.3 cm; wall th.: 0.8 cm.
Clay: outer colour: 5Y 7/3 (pale yellow); inner and fabric colour: 5Y 6/3 (pale olive); sand inclusions; medium-high firing temperature.
Description: triangular rim bowl.

AbT.15.395.4 - Fig. 8.104
Dimensions: wall th.: 0.8 cm.
Clay: outer and inner colour: 10YR 7/3 (very pale brown); fabric colour: 10YR 5/2 (greyish brown); sand inclusions; medium-high firing temperature.
Description: shoulder fragment.

AbT.15.395.5 - Fig. 8.104
Dimensions: rim diam.: 10.2 cm; rim th.: 0.5 cm; wall th.: 0.7 cm; base diam.: 4.5 cm; base th.: 0.8 cm; h.: 10 cm.
Clay: outer colour: 2.5Y 7/2 (light grey); inner and fabric colour: 2.5Y 7/4 (pale brown); sand inclusions; medium-high firing temperature.
Description: beaker.

AbT.15.395.6 - Fig. 8.104
Dimensions: rim diam.: 9 cm; rim th.: 0.5 cm; wall th.: 0.6 cm; base diam.: 4.5 cm; base th.: 0.7 cm; h.: 10 cm.
Clay: outer, inner and fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium-low firing temperature.
Description: beaker.

AbT.15.395.7 - Fig. 8.97 and 104
Dimensions: rim diam.: 13 cm; rim th.: 0.6 cm; wall th.: 0.8 cm; base diam.: 12 cm; base th.: 0.9 cm.
Clay: outer colour: 10YR 6/3 (pale brown); inner and fabric colour: 10YR 4/3 (brown); sand inclusions; medium firing temperature.
Description: fragmentary jar with plain rim and flat base (concentration A).

AbT.15.395.8 - Fig. 8.104
Dimensions: base diam.: 14 cm; base th.: 0.4 cm.
Clay: outer, inner and fabric colour: 5YR 5/3 (reddish brown); sand inclusions; medium-high firing temperature.
Description: flat base of a jar (concentration D, under bitumen I).

AbT.15.395.9 - Fig. 8.104
Dimensions: rim diam.: 12.2 cm; rim th.: 0.6 cm; wall th.: 0.8 cm; base diam.: 5.5 cm; base th.: 1.1 cm; h.: 13.1 cm.
Clay: outer, inner and fabric colour: 7.5YR 6/3 (light brown); sand

inclusions; medium-high firing temperature.
Description: small jar base with three pinched feet (concentration D, under bitumen I).

AbT.15.395.10 - Fig. 8.104
Dimensions: rim diam.: 25 cm; rim th.: 1.1 cm.
Clay: outer, inner and fabric colour: 2.5Y 7/3 (pale brown); sand inclusions; medium-high firing temperature.
Description: stemmed-dish bowl (concentration D).

AbT.15.395.11 - Fig. 8.104
Dimensions: base diam.: 4 cm; base th.: 1 cm.
Clay: outer colour: 5YR 7/4 (pink); fabric colour: 5YR 5/3 (reddish brown); sand inclusions; medium firing temperature.
Description: conical bowl (concentration D).

AbT.15.395.12 - Fig. 8.104
Dimensions: wall th.: 0.6 cm.
Clay: outer colour: 10YR 6/4 (light yellowish brown); inner and fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: rounded shoulder of a small jar (concentration B).

AbT.15.395.13 - Fig. 8.104
Dimensions: rim diam.: 16 cm; rim th.: 0.7 cm; base diam.: 12 cm; base th.: 0.9 cm; h.: 12 cm.
Clay: outer, inner and fabric colour: 2.5Y 7/3 (pale brown); sand inclusions; medium-high firing temperature.
Description: band rim jar with flat base.

AbT.15.395.14 - Fig. 8.104
Dimensions: rim diam.: 14 cm; rim th.: 0.7 cm.
Clay: outer, inner and fabric colour: 2.5Y 7/2 (light grey); sand inclusions; medium-high firing temperature.
Description: plain rim jar (concentration B).

AbT.15.395.15 - Fig. 8.104
Dimensions: base diam.: 20 cm; base th.: 1.4 cm.
Clay: outer, inner and fabric colour: 7.5YR 4/6 (strong brown); sand inclusions; medium-low firing temperature.
Description: ring base.

AbT.15.395.16 - Fig. 8.104
Dimensions: base th.: 1.1 cm.
Clay: outer, inner and fabric colour: 2.5YR 6/3 (light reddish brown); sand inclusions; medium-high firing temperature.
Description: convex base with finger prints visible.

AbT.15.395.17 - Fig. 8.104
Dimensions: base diam.: 18 cm; base th.: 0.7 cm.
Clay: outer colour: 2.5Y 7/3 (pale brown); inner and fabric colour: 7.5YR 7/4 (pink); sand inclusions; medium firing temperature.
Description: ring base.

Catalogue of US 419 Finds

Objects

AbT.15.137 - Fig. 8.103
Description: bone bead.
Dimensions: 0.2x1.1x0.3 cm.

AbT.15.138 - Fig. 8.103
Description: bitumen object.
Dimensions: 5x6.4x2.2 cm.

AbT.15.139 - Fig. 8.103
Description: stone pebble. No traces of use visble. [SC]
Dimensions: 2.4x3.4x0.9 cm; weight 12 gr.

8.21 Building A North-Western Outside [LR]

The area immediately north-west of Room 1 was among the contexts excavated during the first season. The excavation in this area continued in 2013 and partially in 2017 (see Room 14-15). The area (Fig. 8.105) had a clear inclination from north-east to south-west as demonstrated by the accumulation of the characteristic seasonal greyish and yellowish strata visible also in the section (Fig. 6.10). These strata (US 21=29) were very soft and characterized by a silty and ashy matrix, with rare pottery shards. The drainage of the rainfall water was surely a problem for the inhabitants of Building A, as demonstrated by the drain pipe US 128 in square McXIII1, filled by US 127, surrounded by a pale brown mud-brick ring and hosted in a deep vertical cut US 199=135. One of the seasonal strata (US 200) was in connection with the top of the drain-pipe (ground-surface). An installation with a small circular mud structure (US 141) was located at north-west, near the perimeter wall of Building A, and was used to support a big jar decorated with wavy incised lines (US 143). In the jar filling (US 147) some pottery fragments were found. A pit (US 146-148) was located east of the jar installation and a tannur (US 139, filling 138) was discovered south of the installation, always along the perimetral wall and in correspondence of the dividing wall between Room 1 and Room 5. Under the ground surface US 200[40] there was a huge and complex system of three inhumations (Figs 8.105-106). This context was characterized by a series of different activities, that will be described here. In correspondence of the graves surface, there were two shallow soil heaps with a concentration of pottery and shells, called US 38 and US 134 (-0.1 m of elevation). The first heap was connected with two small burned areas (US 44) found in the middle of it. These heaps followed the line of the grave complex.[41] At least 6 drinking vessels, 1 cylinder with and a upper bowl (?), two stems (or big bowls) and 3 jars come from US 38. US 152 contained at least 47 drinking vessels, 15 jars and some bowls. Moreover, this heap was characterized by a significant dispersion of bivalve shells (see § 13.2.22). Under US 134, two pits were identified. The first pit US 36 was filled by a clay soil US 32 rich in mud-brick fragments.[42] This pit, beginning at -0.25 m of elevation, reaching a depth of -0.58 m, cut the second one US 46. The second pit was identified at -0.3 m of elevation and reached a depth of -0.43 m; it was filled by US 45, a dark yellowish brown sandy and friable soil.

Due to the extremely difficult condition of the soil, with areas strongly cemented by salt, it was not possible to identify all the limits of the cuts. The limits and the walls of the main cut of the grave were reinforced with a mud-bricks cover in its lower part (US 47; Fig. 8.107).[43]

On the bottom of the grave cut, over the mud-bricks (US 47), three bodies were discovered. While the south-western inhumation (Grave 4) was excavated during 2012, the second and the third ones (Grave 5 and 13) were completed in 2013.[44] The presence of a single cut (US 39=162=165) seems to point towards a contemporary inhumation of the three bodies and equipments (respectively, Grave 4 body US 43[45] and equipment US 37; Grave 5 body US 168 and equipment US 44-152; Grave 13 body US 164 and equipment 163).[46]

The body of Grave 4 (US 43; Fig. 8.108) was found in foetal position, the head looking south-west. Part of the skull vault apparently crushed by the weight of the soil deposed above. The body was placed over mud-brick fragments.

On the contrary, the skeleton of Grave 5 (US 168; Fig. 8.109) was in very poor conditions: the body, oriented south-west/north-east, had a strongly squashed skull, the mandible dislocated and overturned; the ribs were not in their original

[40] Some pottery was found in connection with this US and can be related both to the use of the tannur or be connected to the shallow soil heaps US 38 and 134 (see below).

[41] Some of the pottery fragments found on US 200 could also be related to this heap and be affected by post-depositional dislocation.

[42] Fragments of a jar with bitumen traces inside were collected in the backfill.

[43] The cut, approximately rectangular but with rounded edges, was ca. 9 m long in the north-east/south-west direction. It was ca. 3 m wide, with almost vertical walls.

[44] D'Agostino *et al.* 2011: 29-30.

[45] Erroneously animal bones coming from Grave 4 and 5 were collected together.

[46] The soil covering the equipments has no US number because itis considered unreliable due to the difficulties in distinguishing it from the other activities..

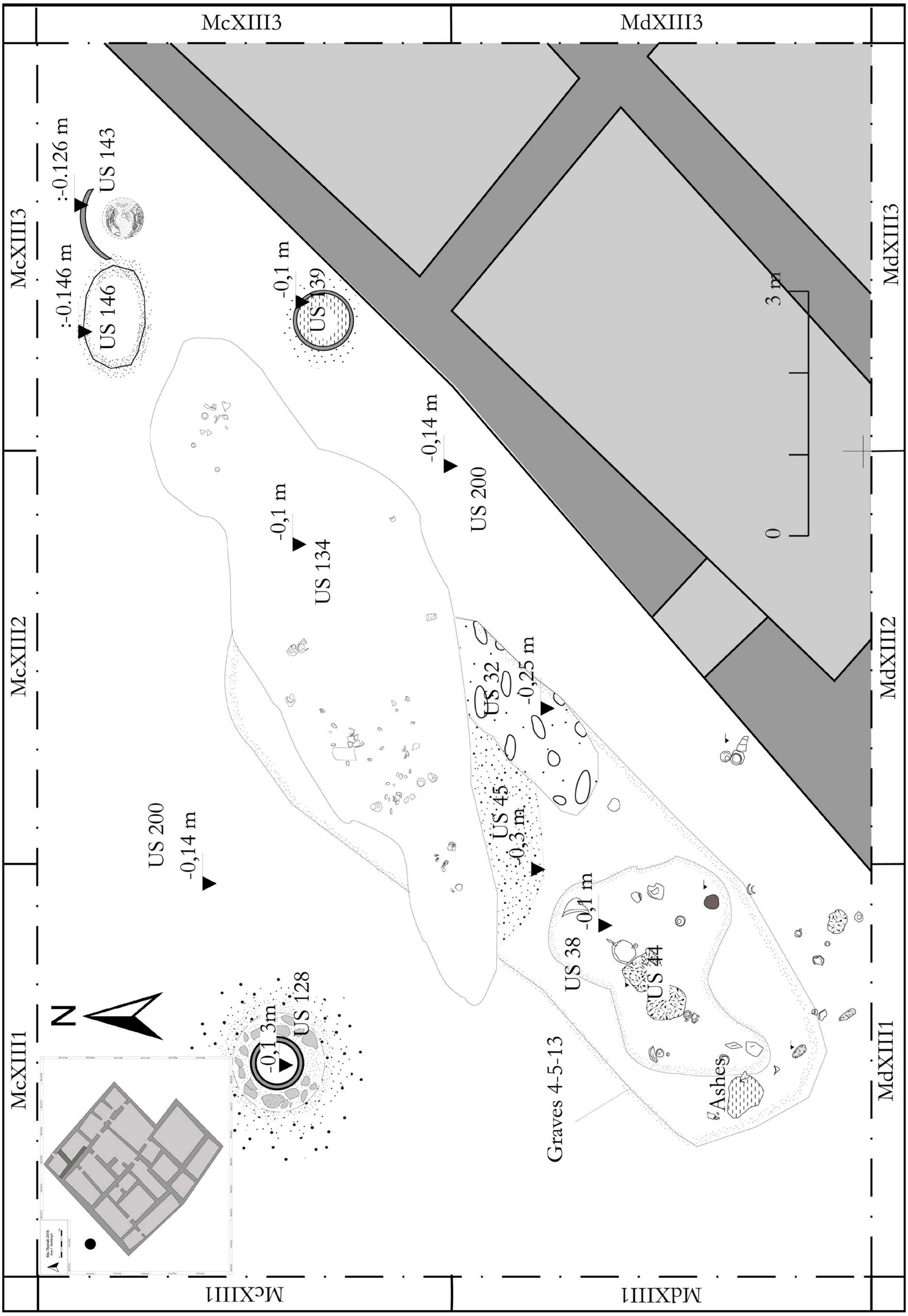


Fig. 8.105 Building A north-western outside plan.

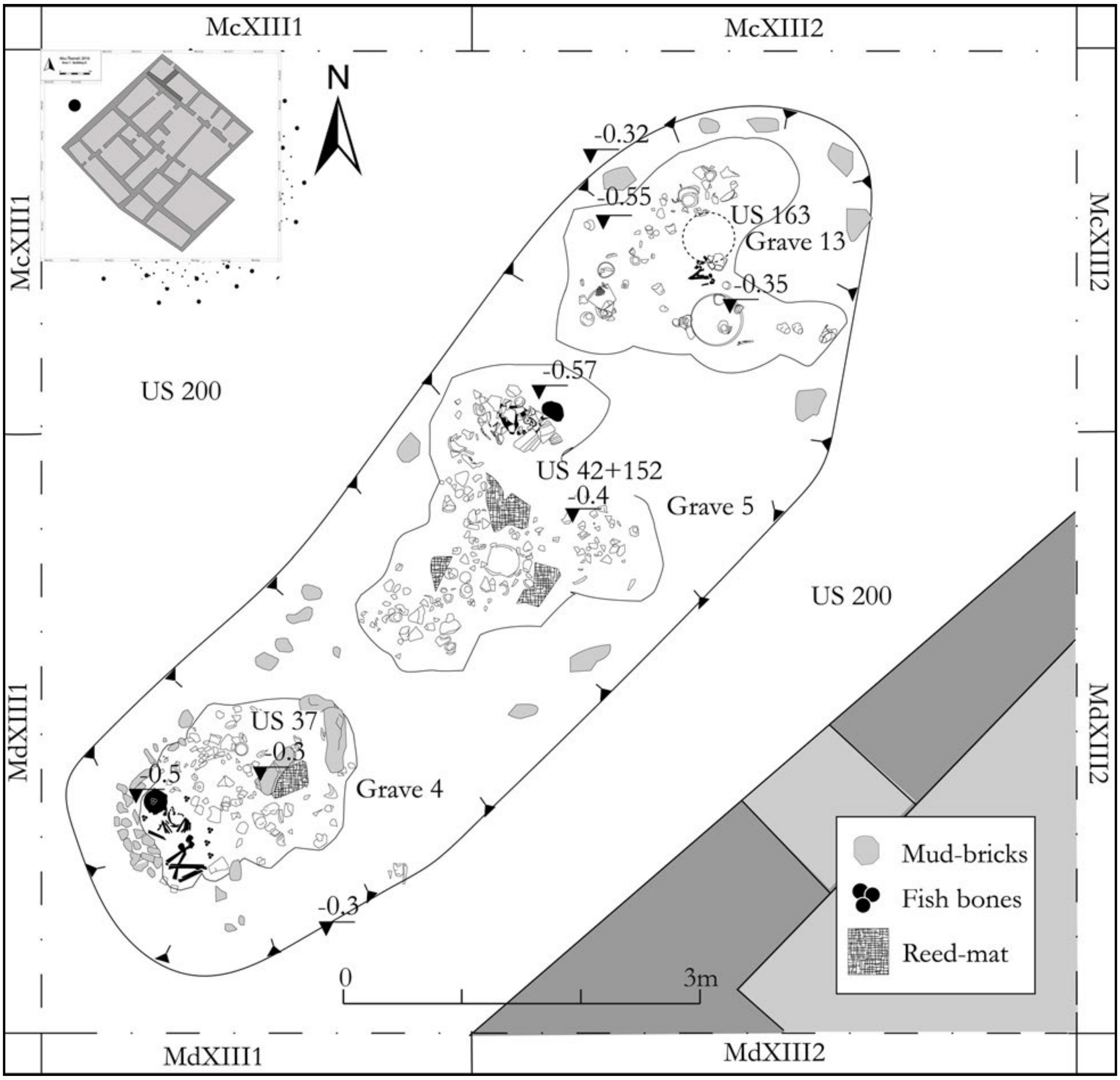


Fig. 8.106 Graves 4+5+13 plan.

position, the hips were opened outwards and the legs were not in connection.

In the north-eastern part of the grave, at the elevation of -0.54 m, the inhumation called Grave 13 was found with its equipment (US 163+166; Fig. 8.110). Only the lower part of the body was preserved. It was not possible to identify any sign of the presence of a cut or of any action following the inhumation: it is thus not clear if the lower part of the body was deposed there directly (so Grave 13 should be considered as secondary inhumation), though it is more probable that the upper part was removed later.[47]

The intention of realizing a deposition in the same grave is confirmed by the cut limits, by the mud-brick fragments that revet them and also by the similar elevation of the inhumed bodies and equipments. These three inhumations are characterized by the presence of the peculiar remains of funerary banquet(s) (several broken jars and drinking vessels, together with fish bones and other animal bones), a ritual practice different from those attested in the building and in the later Cemetery in the area. The three pottery concentrations will be described here together with the other findings.

[47] The absence of pottery north-west of the body and the conical bowl partially preserved seems to point towards this hypothesis and to the presence of a cut not identified during the excavation.

Fig. 8.107 Graves 4 and 5 during 2012 excavation.

Fig. 8.108 Grave 4.

Grave 4 cluster (US 37; Fig. 8.111) was placed near the skeleton of a young individual whose age has been estimated around 7-8 years. The skeleton and the pottery equipment were covered by reed-mat, the traces of which were found all over the surface. Some mud-bricks were placed over the mat aiming both at avoiding any dispersion of the furniture and, apparently, at separating the cluster from that of Grave 5. Grave 4 had at least 56 drinking vessels, 7 medium jars, 1 coarse big vessel, 1 cylinder and 1 big bowl, as well as several remains of animal and fish bones, possibly traces of a funerary banquet and of offerings. One of the drinking vessels, a beaker, found entirely preserved, was placed near the feet of the deceased (Area H).[48] The north-eastern part of the cluster, maintained in place by the mud-bricks, contained the highest number of drinking vessels fragments and of jars.

Grave 5 pottery concentration (US 42+152; Fig. 8.112) was covered by a reed-mat in its central part. It was considerably richer if compared to the previous one, being formed by at least 127 drinking vessels, 2 trays, 1 big bowl, 1 stemmed-dish, 17 jars of small and medium dimensions, 4 big dimension jars/containers.[49] Two lapis-lazuli beads from Grave 5, were recovered one in the sieved soil and the other *in situ*, close to the northern section of 2012 excavation.[50] As far as the distribution of the vessel fragments inside the grave is concerned (Fig. 8.112),[51] most of the drinking vessels were located in the south-west part of the concentration (areas B and D) with a dispersion towards east (area C). Over the skeleton (area A) there were also several coarse pottery walls with applied ridges, the outer surface of which was covered by bitumen. In general, it seems that most of the jars were discarded in the areas A, B and C.

Grave 13 pottery was collected differently, due to the apparently circular deposition pattern (see Fig. 8.113). The concentration contained at least 91 drinking vessels, most of them in the area around the body (K - Fig. 8.113), 14 jars, 2 cylindrical vases and 6 big bowls and stemmed-dishes. In addition to these vessels, near the body, there was a big bitumen painted jar in fragments (AbT.13.163.28) with 11 drinking vessels inside. A carnelian fragment and a copper-alloy one were found together with a fragmentary clay chariot wheel. Fig. 8.113 shows the distribution of the vessels inside the cluster of Grave 13. Most of the pottery, mainly drinking vessels and jars fragments, was collected in area K, with the exception of few drinking vessels located east of jar AbT.13.163.29. The entire conical bowl AbT.13.163.22 was located east of the pelvis.

[48] Two chert blades, two carnelian fragments, a grindstone, a circular bitumen object and a fragment of a big shell were in Grave 4 cluster.

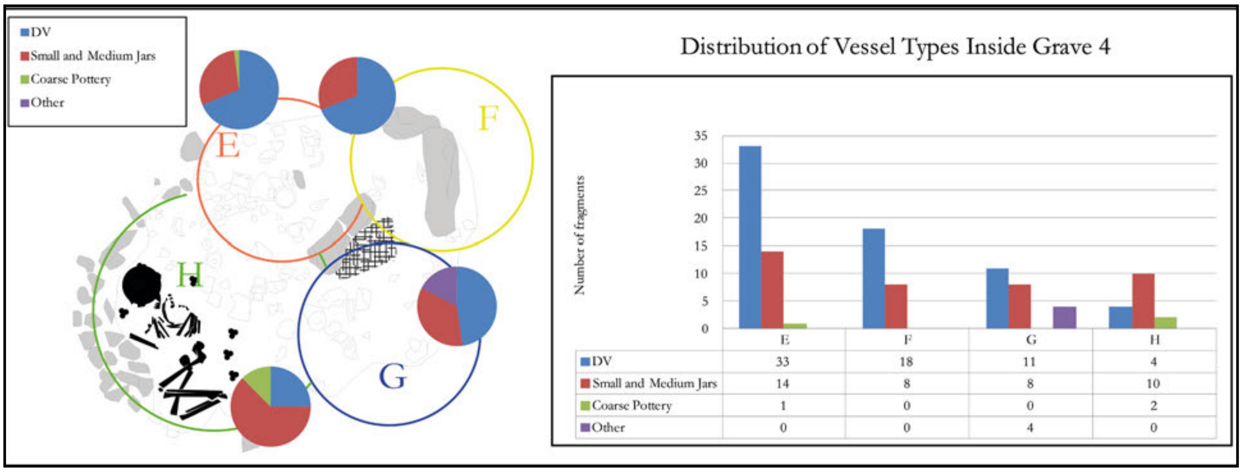
[49] The pottery in the catalogue is only a part of that recovered. The total amount of entire shapes has been calculated considering only the bases preserved, thus the total number should be considered as the minimum of entire shapes in the Grave. As far as the stemmed dishes and big bowls are concerned, it is often difficult to distinguish between the two shapes (see § 10).

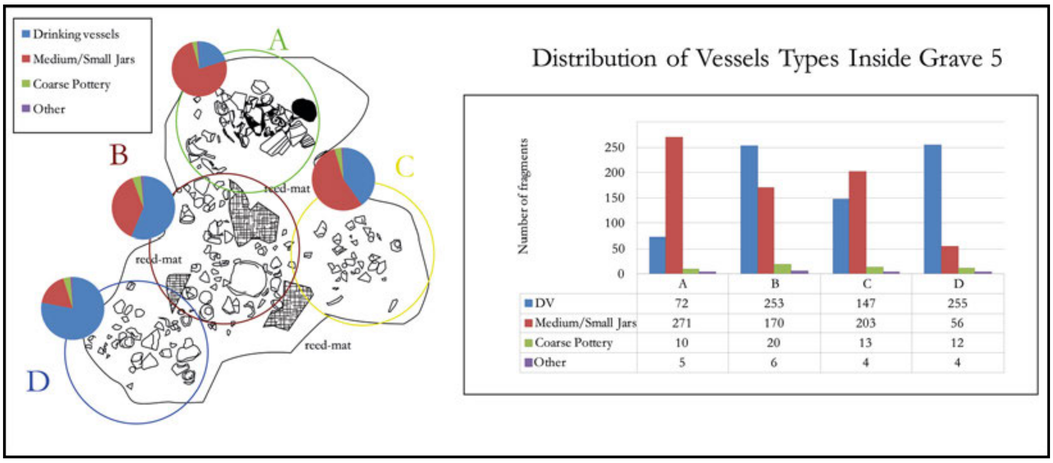
[50] A carnelian fragment, a chert flake and a white pebble were found in Grave 5 cluster.

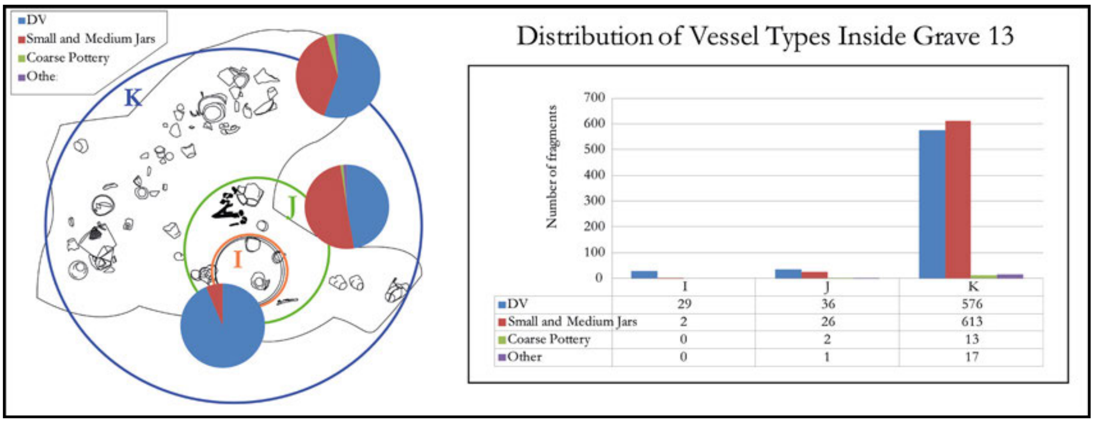
[51] All the fragments recovered were considered. The empty space in the grave (Fig. 8.105) is due to the partial collapse of the section in that point during 2012 winter rain-falls.

Fig. 8.109 Grave 5.

Fig. 8.110 Grave 13.







Figs 8.111-113 Grave 4+5+13. Distribution of pottery fragments.

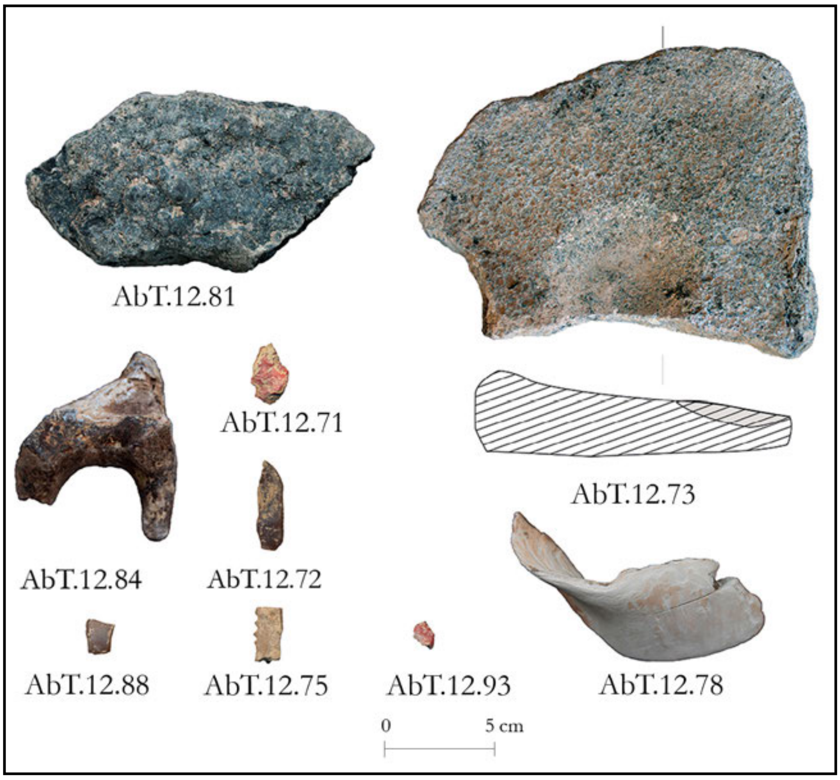


Fig. 8.114 US 37 objects.

Fig. 8.115 US 32 objects.

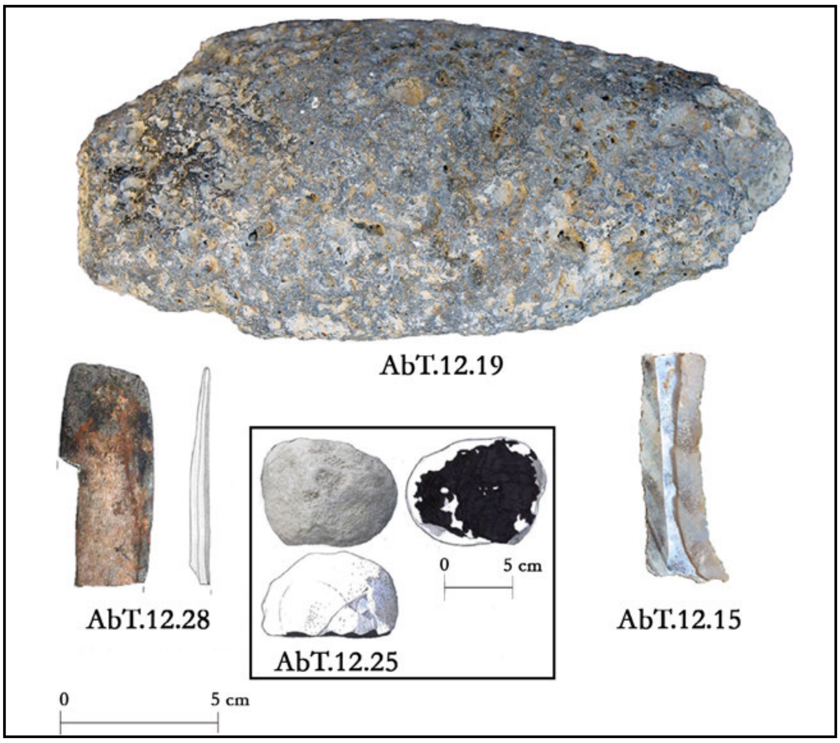


Fig. 8.116 US 38 objects.

Fig. 8.117 US 42 objects.

Fig. 8.118 US 134 objects.

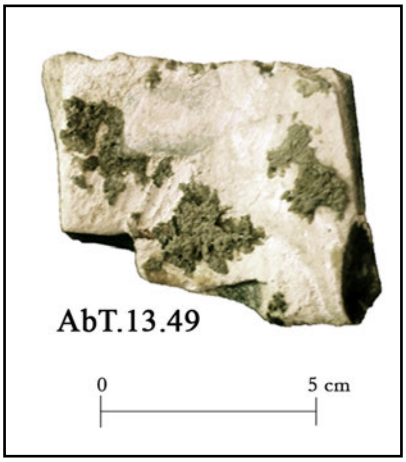


Fig. 8.119 US 152 objects.

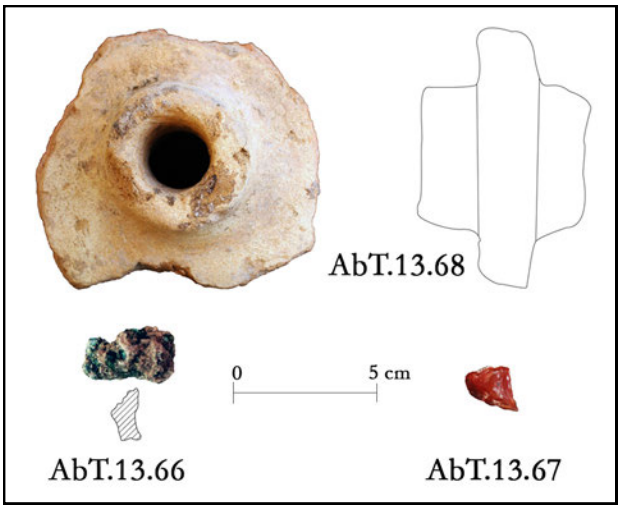


Fig. 8.120 US 163 objects.

Fig. 8.121 US 166 objects.

Fig. 8.122 US 167 objects.

Fig. 8.123 US 200 objects.

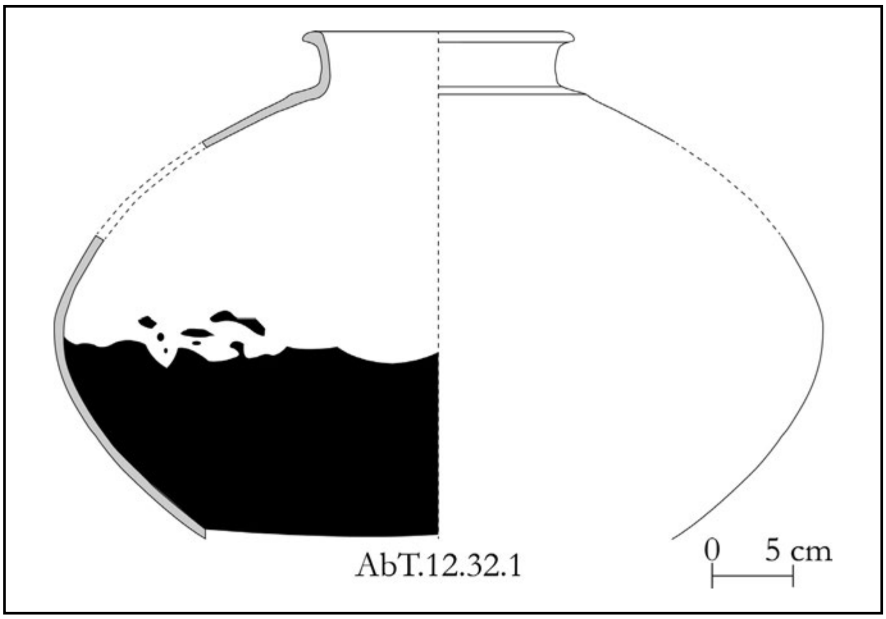


Fig. 8.124 US 32 pottery.

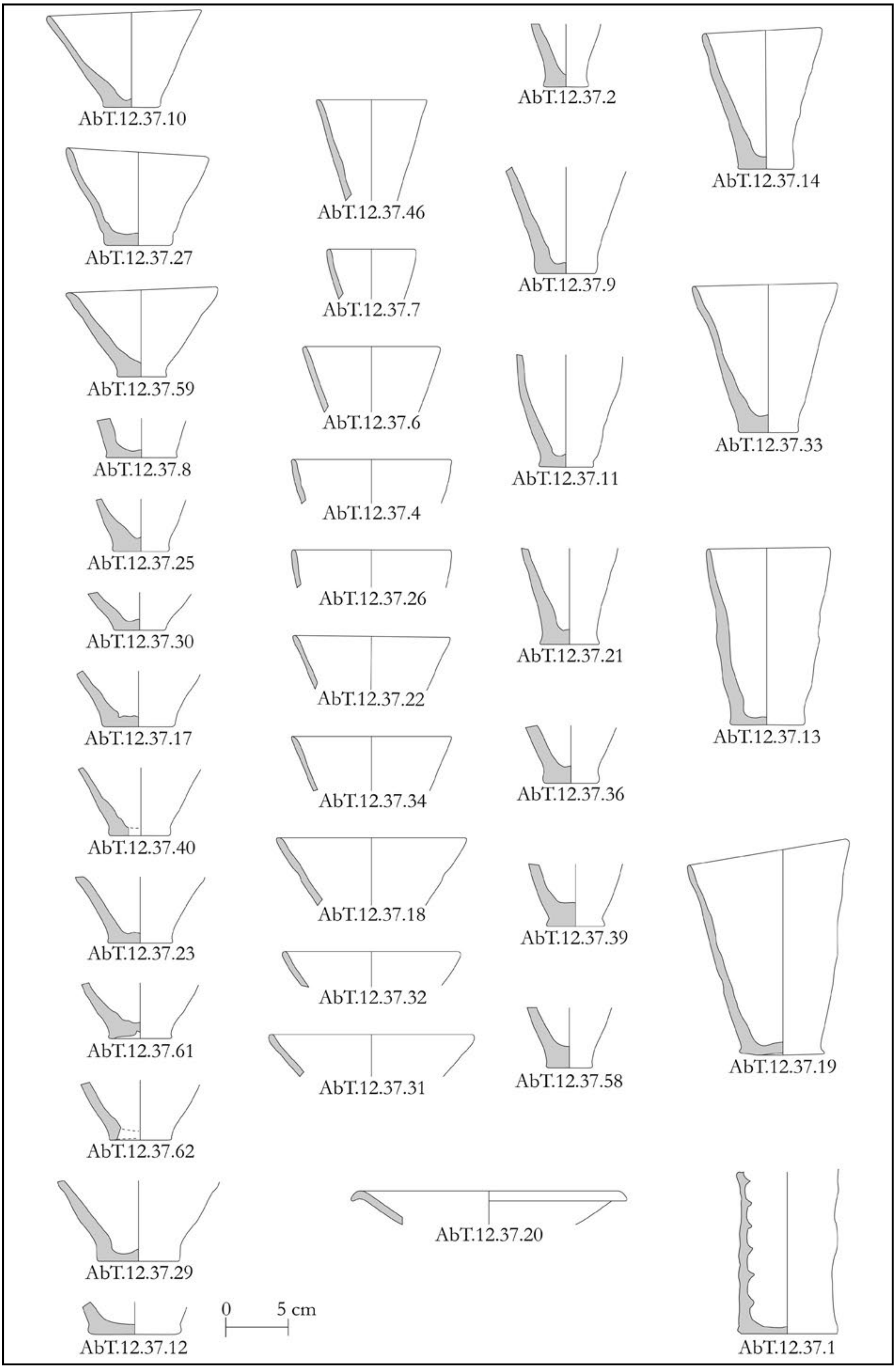


Fig. 8.125 US 37 pottery: open shapes.

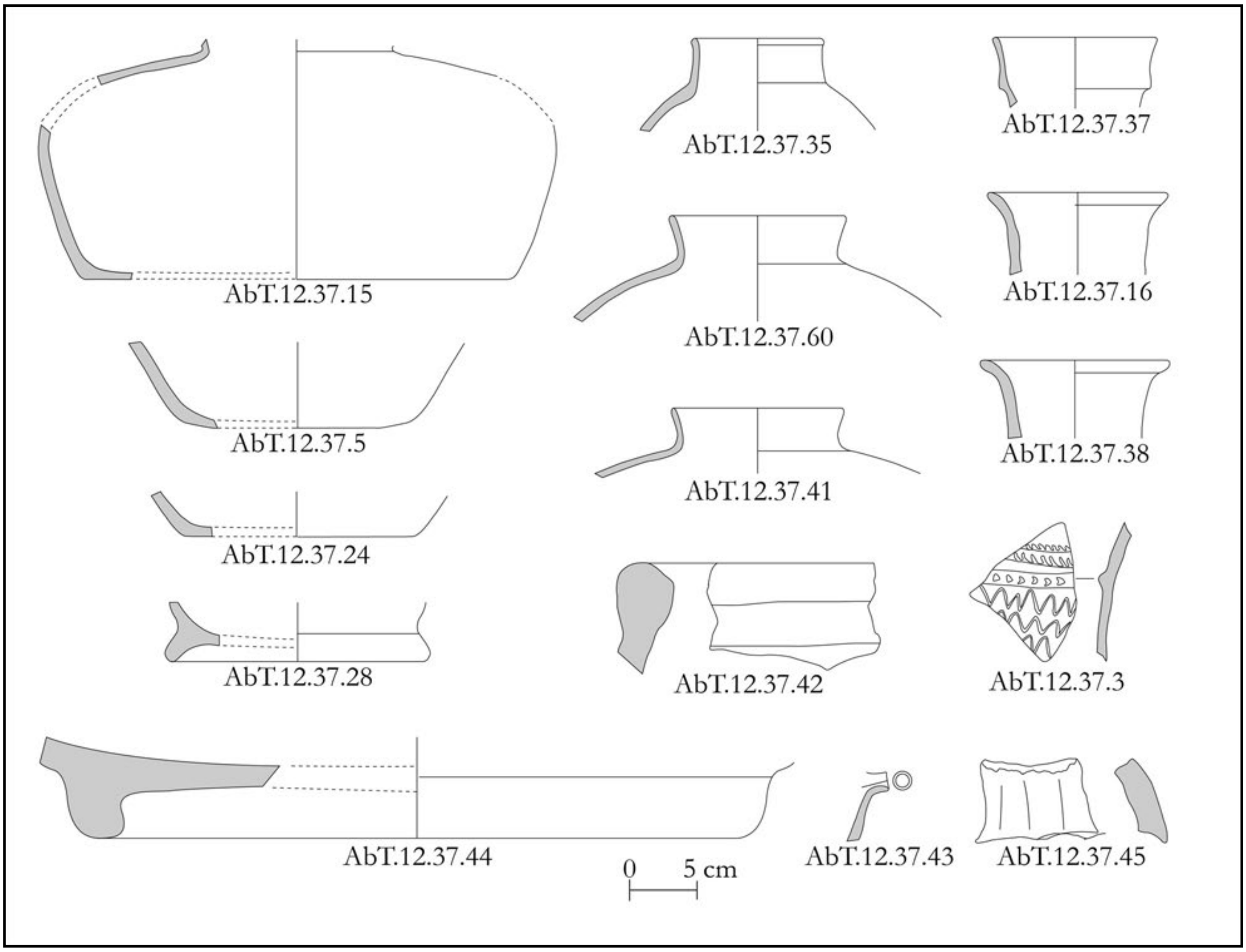


Fig. 8.126 US 37 pottery: closed and other shapes.

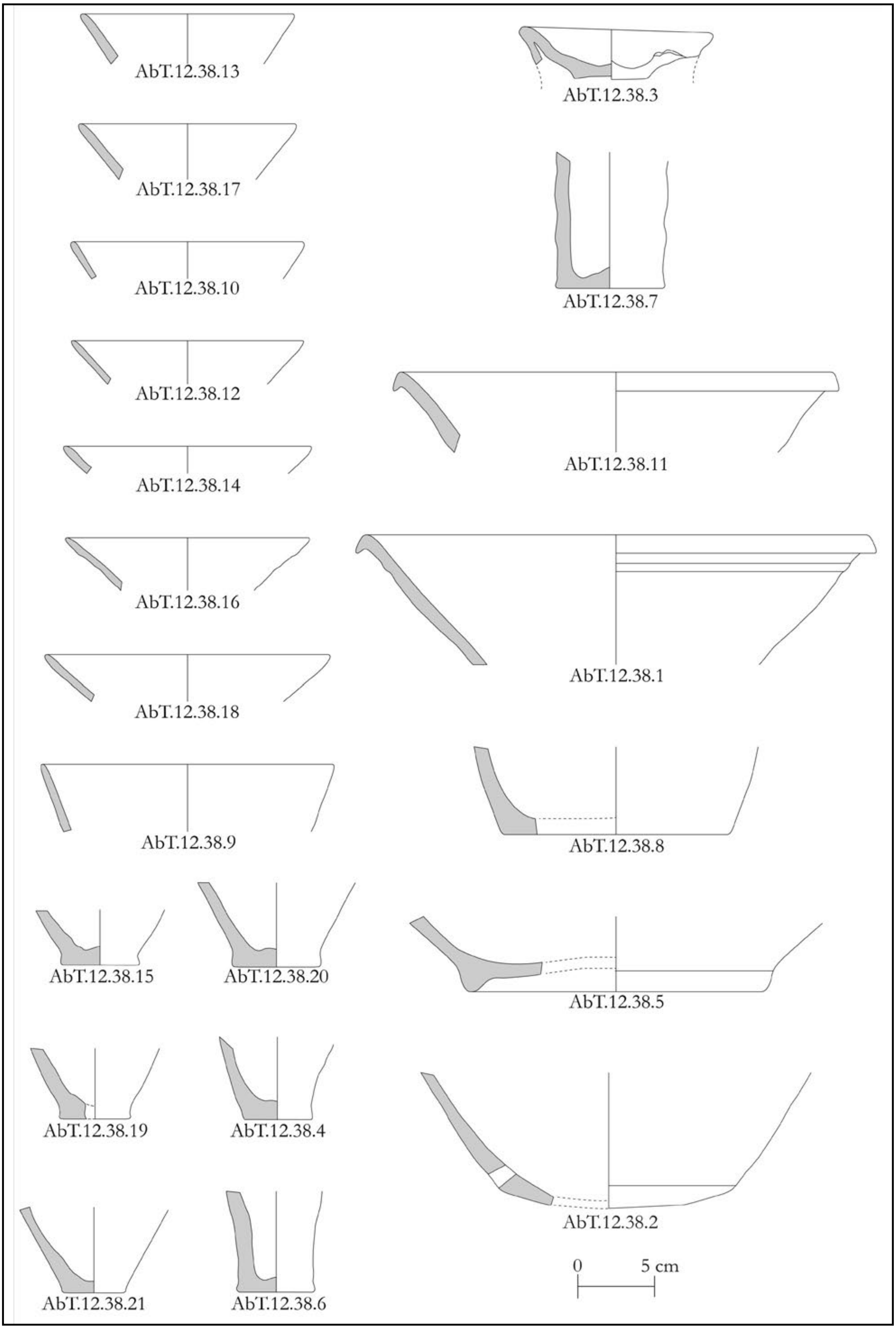


Fig. 8.127 US 38 pottery.

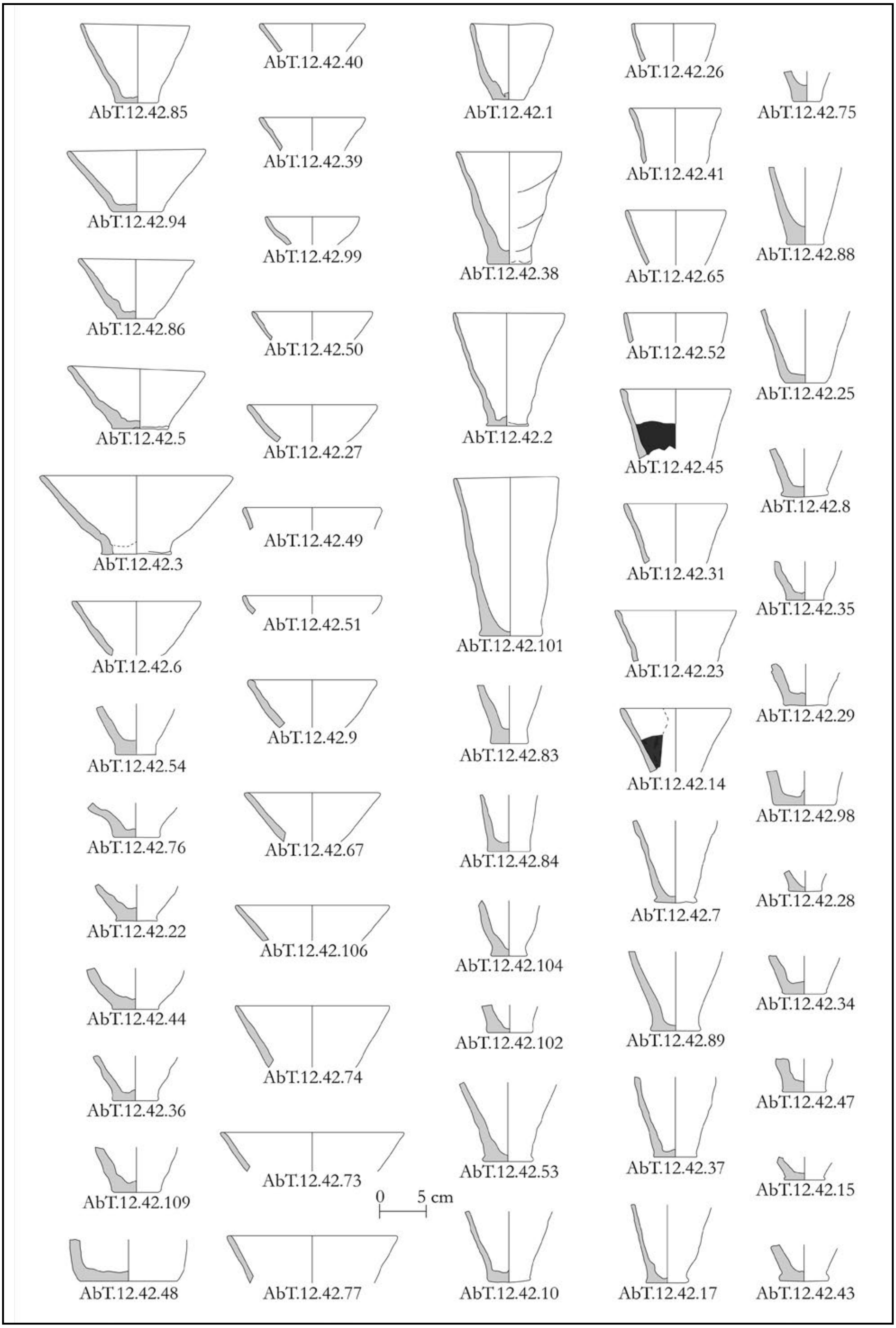


Fig. 8.128 US 42 pottery.

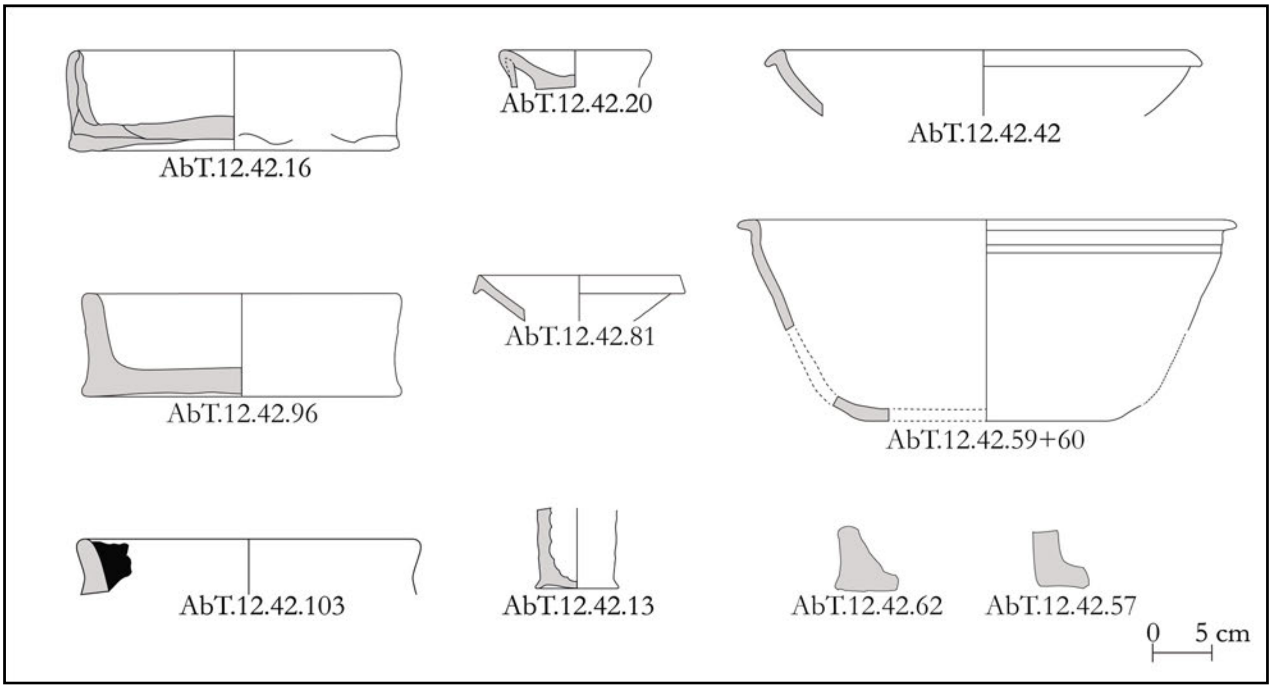


Fig. 8.129 US 42 pottery: open shapes (2).

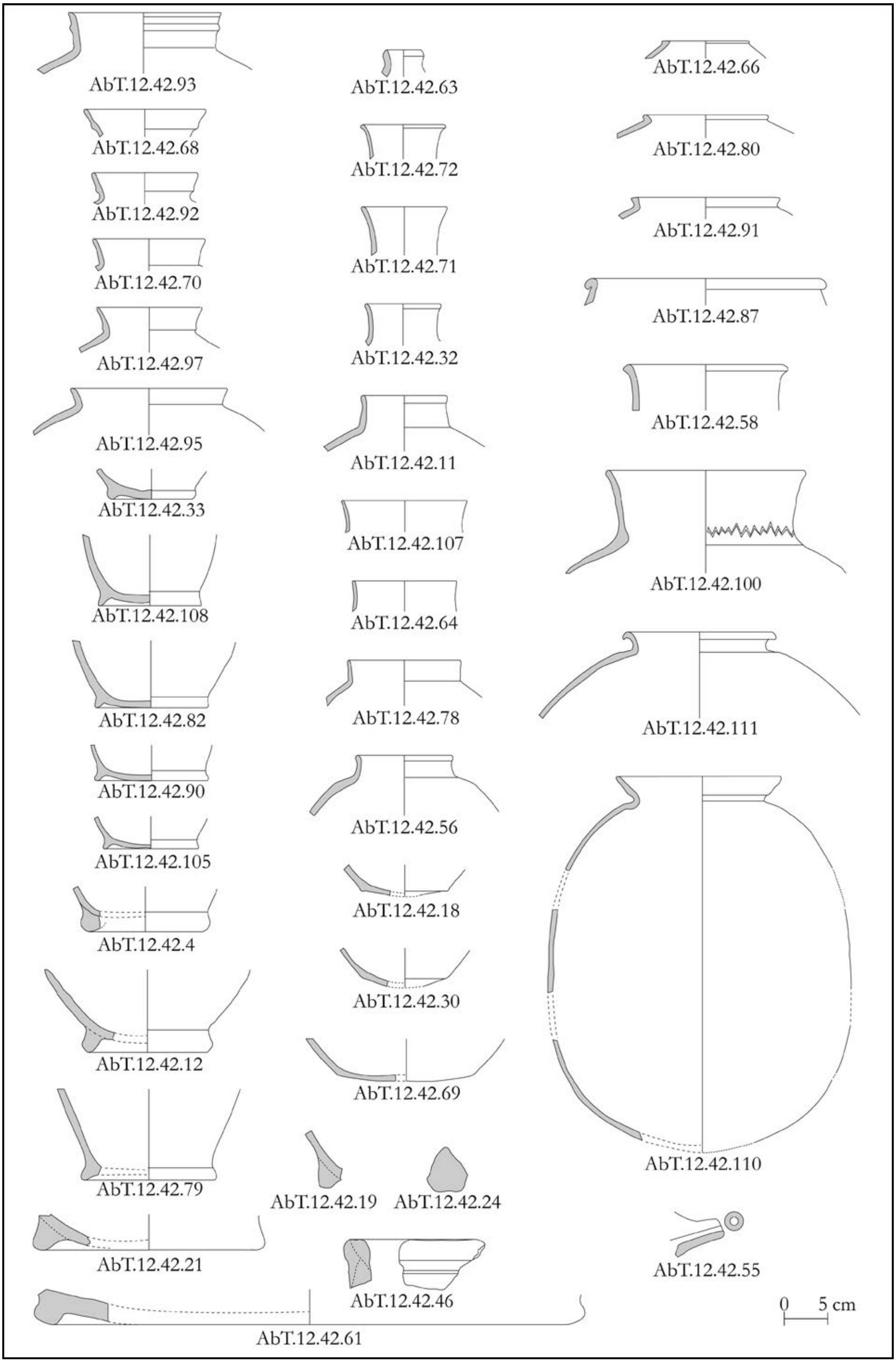


Fig. 8.130 US 42 pottery: closed shapes.

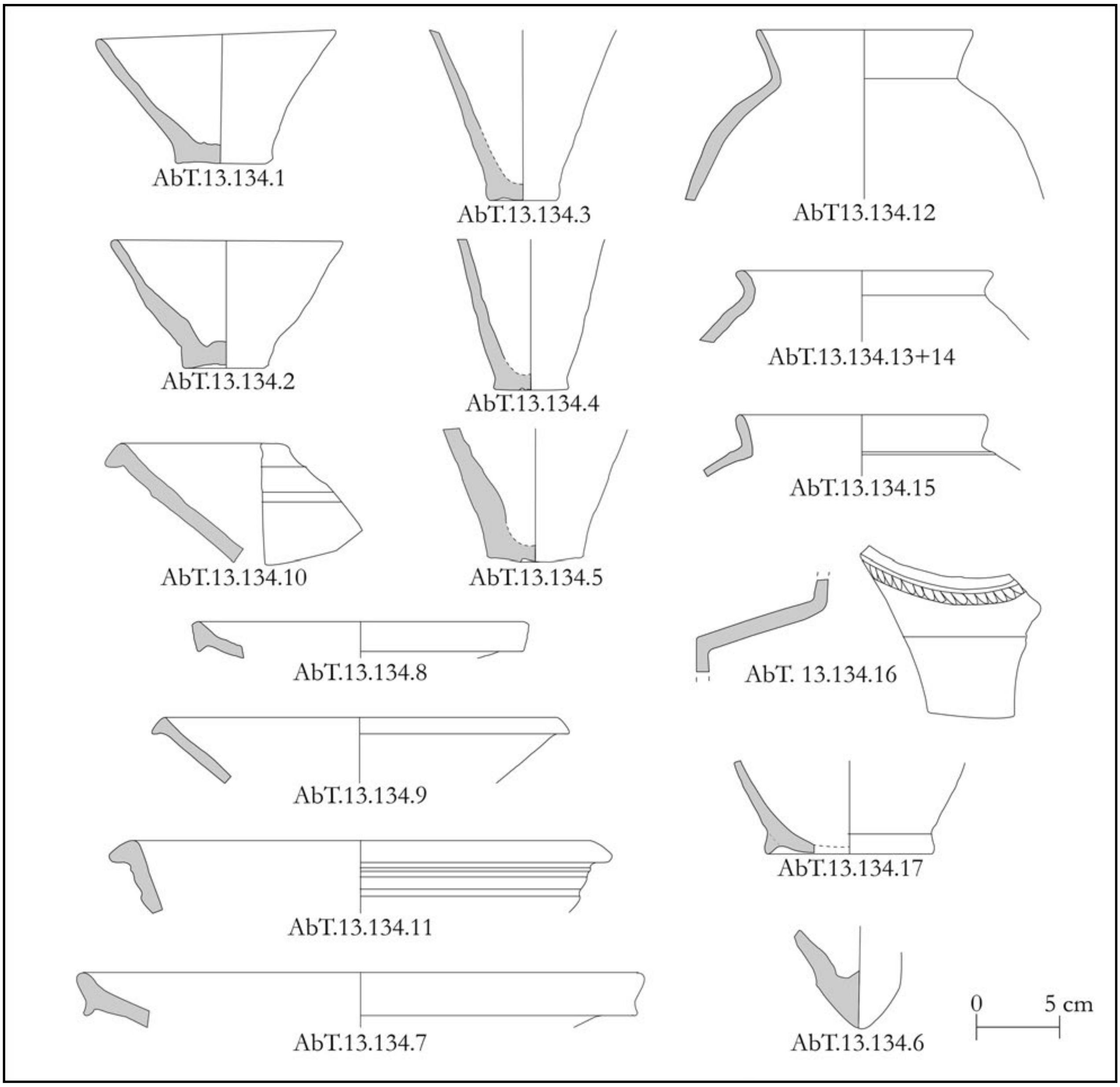


Fig. 8.131 US 134 pottery.

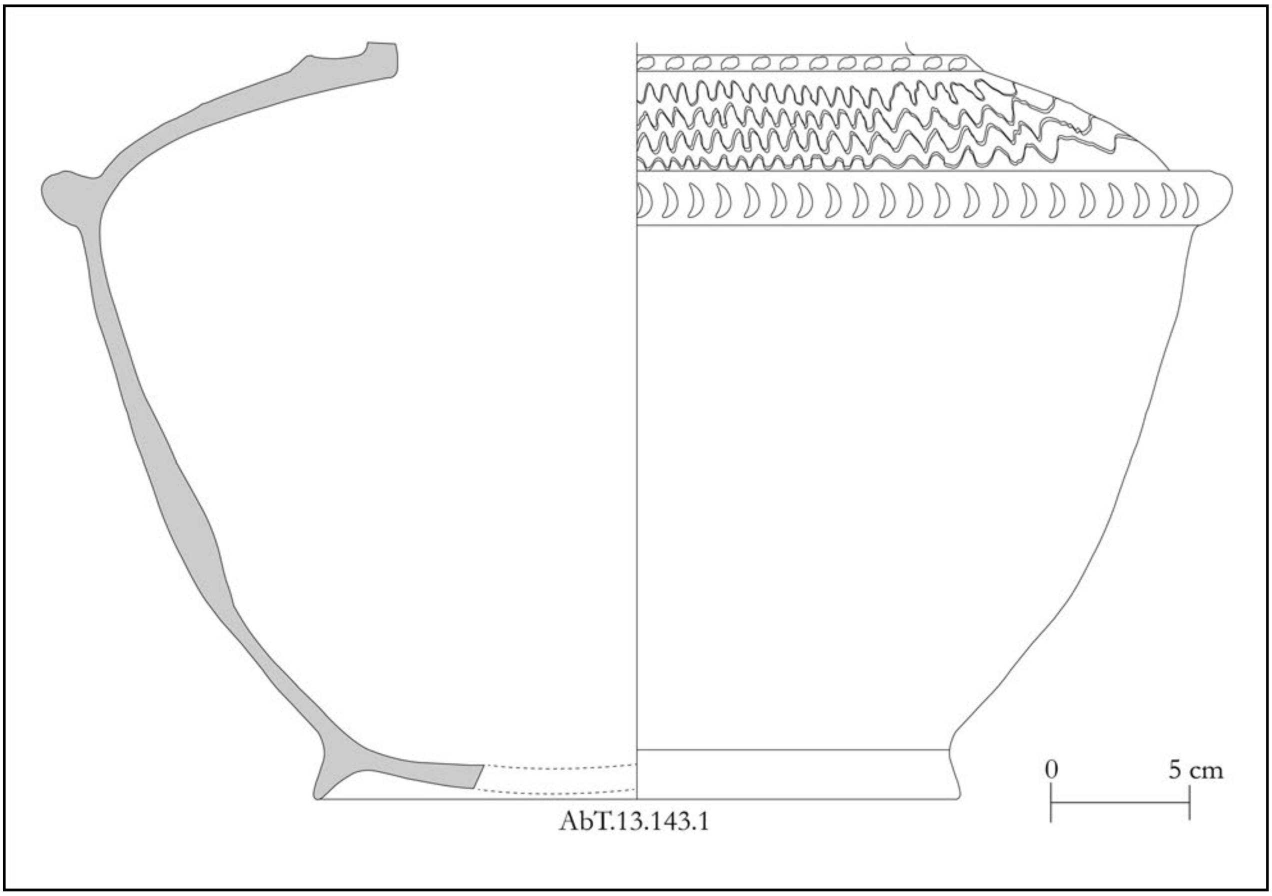


Fig. 8.132 US 143 pottery.

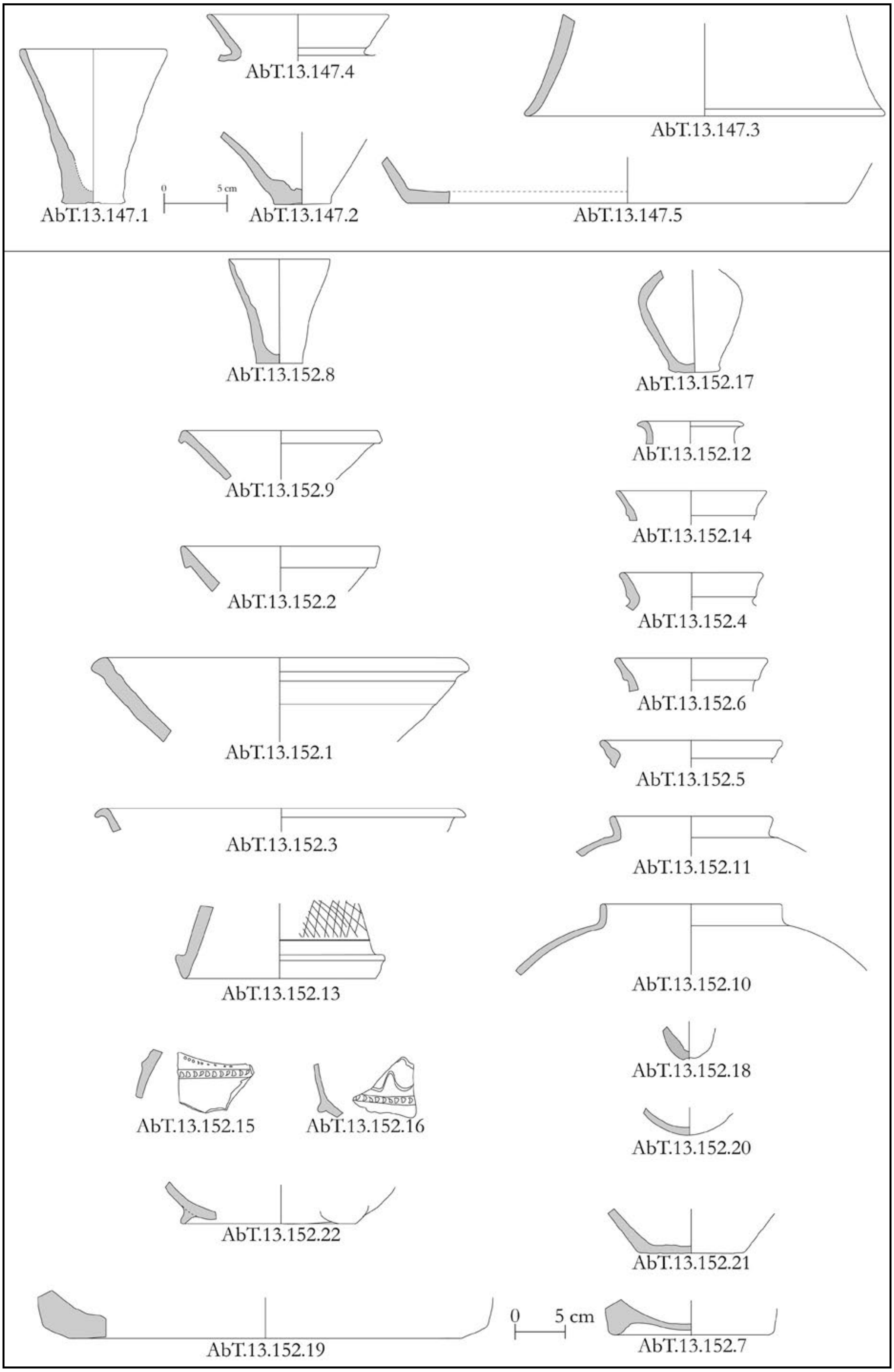


Fig. 8.133 US 147 and US 152 pottery.

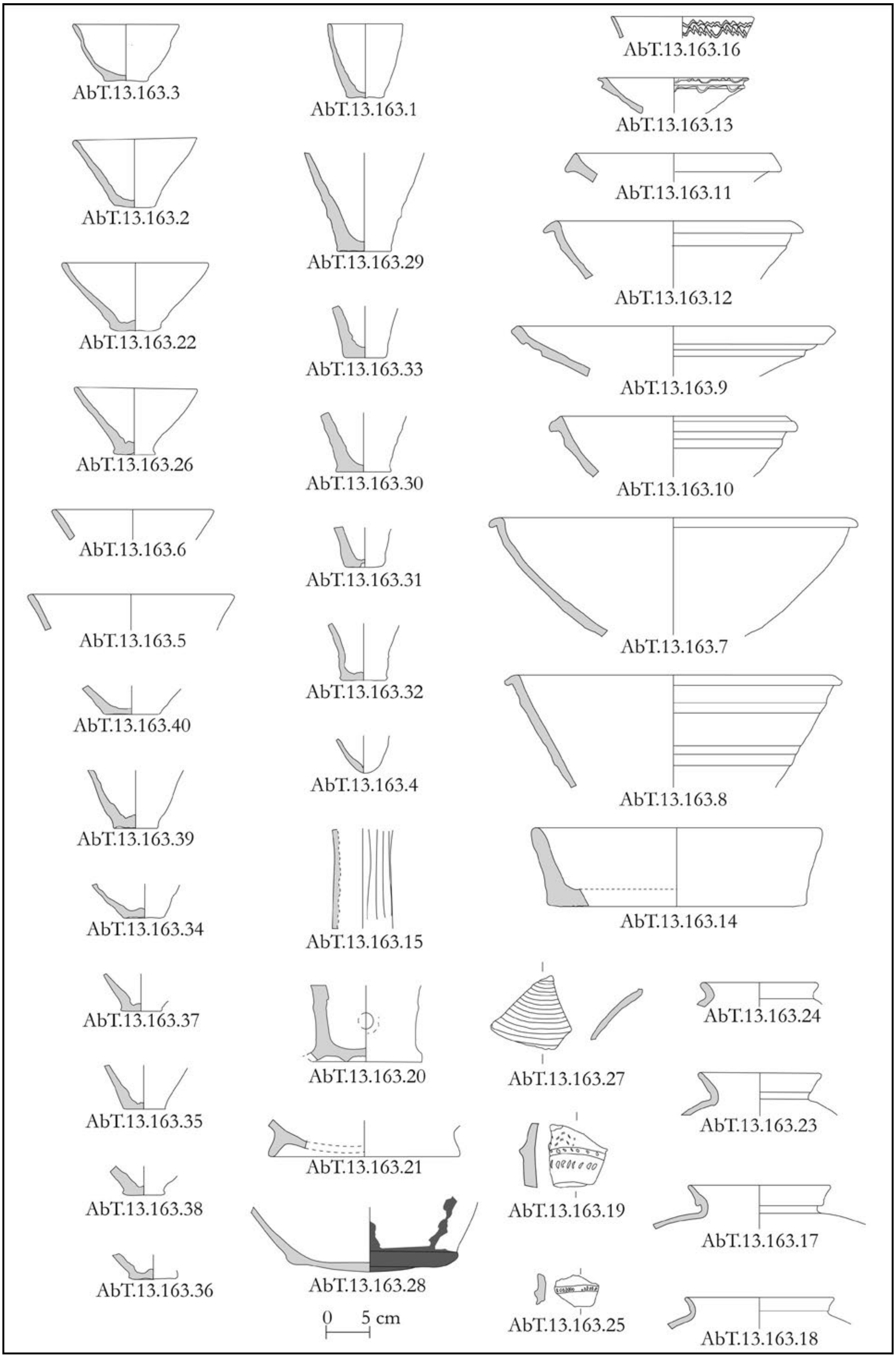


Fig. 8.134 US 163 pottery.

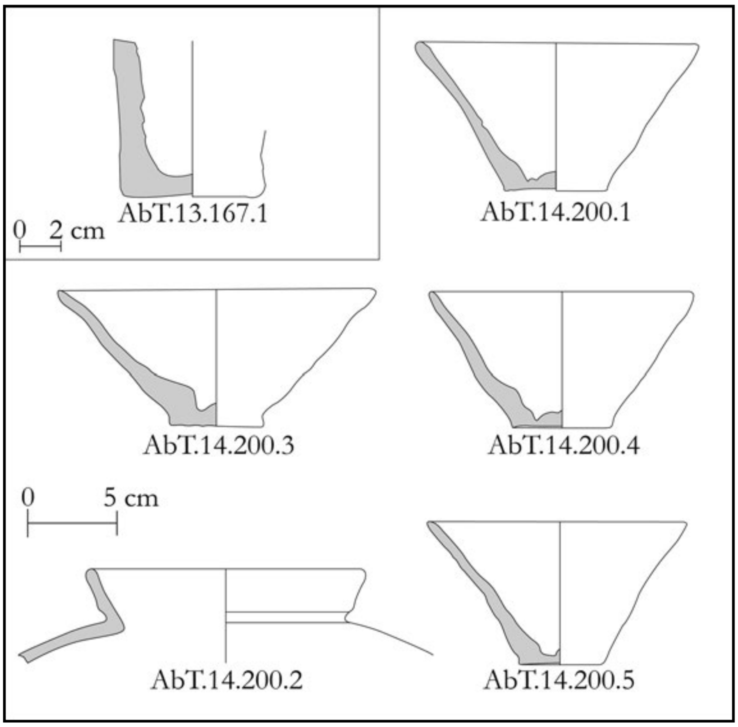


Fig. 8.135 US 167 and US 200 pottery.

Catalogue of US 32 Finds

Objects

AbT.12.92 - Fig. 8.115
Description: carnelian fragment.
Dimensions: 1x0.8x0.6 cm.

Pottery

AbT.12.32.1 - Fig. 8.130
Dimensions: rim diam.: 15 cm; rim th.: 1.3 cm; wall th.: 0.5 cm.
Clay: outer, inner, fabric colour: 2.5Y 7/3 (pale brown); sand inclusions; medium firing temperature.
Description: triangular rim jar.

Catalogue of US 37 Finds[52]

Objects

AbT.12.71 - Fig. 8.114
Description: carnelian fragment.
Dimensions: 2x1 cm.

AbT.12.72 - Fig. 8.114
Description: chert blade.
Dimensions: 4x1 cm.

AbT.12.73 - Fig. 8.114
Description: grindstone with bitumen traces. [SC]
Dimensions: 18x15x3 cm.

AbT.12.75 - Fig. 8.114
Description: chert sickle element.
Dimensions: 2x1 cm.

AbT.12.78 - Fig. 8.114
Description: shell fragment.
Dimensions: 6x2 cm.

AbT.12.81 - Fig. 8.114
Description: bitumen object fragment.
Dimensions:10 ca.x5x1 cm.

AbT.12.84 - Fig. 8.114
Description: animal clay figurine fragment.
Dimensions: 3x3x4 cm.

[52] The numeration of US 37 pottery is not complete because some of the pottery fragments originally attributed to this US were moved to US 38.

AbT.12.88 - Fig. 8.114
Description: chert blade.
Dimensions: 1x1 cm.

AbT.12.93 - Fig. 8.114
Description: carnelian fragment.
Dimensions: 0.8x0.3x0.3 cm.

Pottery

AbT.12.37.1 - Fig. 8.125
Dimensions: wall th.: 1 cm; base diam.: 8 cm; base th.: 0.6 cm.
Clay: outer, inner and fabric colour: not registered; sand inclusions; medium-low firing temperature.
Description: cylinder.

AbT.12.37.2 - Fig. 8.125
Dimensions: base diam.: 3.7 cm; base th.: 1 cm.
Clay: outer and inner colour: 5YR 7/6 (reddish yellow); fabric colour: 2.5YR 5/6 (red); sand inclusions; medium-high firing temperature.
Description: beaker base.

AbT.12.37.3 - Fig. 8.126
Dimensions: wall th.: 1 cm.
Clay: outer, inner and fabric colour: 5Y 6/3 (pale olive); sand inclusions; high firing temperature.
Description: wall fragment with 3 lines of incised decorations followed by a notched ridge and two lines of oblique incisions.

AbT.12.37.4 - Fig. 8.125
Dimensions: rim diam.: 13.4 cm; rim th.: 0.4 cm; wall th.: 0.5 cm.
Clay: outer, inner and fabric colour: 2.5Y 7/4 (pale yellow); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.37.5 - Fig. 8.26
Dimensions: wall th.: 1 cm; base diam.: 18.6 cm; base th.: 0.7 cm.
Clay: outer and inner colour: 7.5YR 5/4 (brown); fabric colour: 10YR 5/6 (yellowish brown); sand inclusions; medium-high firing temperature.
Description: flat base.

AbT.12.37.6 - Fig. 8.125
Dimensions: rim diam.: 11 cm; rim th.: 0.4 cm; wall th.: 0.5 cm.
Clay: outer and inner colour: 10YR 7/6 (yellow); fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.37.7 - Fig. 8.125
Dimensions: rim diam.: 7.6 cm; rim th.: 0.4 cm; wall th.: 0.5 cm.
Clay: outer, inner and fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.37.8 - Fig. 8.125
Dimensions: wall th.: 1 cm; base diam.: 6 cm; base th.: 0.6 cm.
Clay: outer, inner and fabric colour: 10YR 7/6 (yellow); sand inclusions; medium-high firing temperature.
Description: conical bowl base.

AbT.12.37.9 - Fig. 8.125
Dimensions: wall th.: 0.8 cm; base diam.: 4.8 cm; base th.: 0.9 cm.
Clay: outer, inner and fabric colour: 10YR 6/4 (light yellowish brown); sand inclusions; medium-high firing temperature.
Description: beaker base.

AbT.12.37.10 - Fig. 8.125
Dimensions: rim diam.: 12.8 cm; rim th.: 0.5 cm; wall th.: 0.8 cm; base diam.: 4.5 cm; base th.: 0.7 cm; h.: 8.1 cm.
Clay: outer, inner and fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: conical bowl.

AbT.12.37.11 - Fig. 8.125
Dimensions: wall th.: 0.6 cm; base diam.: 4.5 cm; base th.: 1 cm.
Clay: outer, inner, fabric colour: 5YR 4/6 (yellowish red); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.12.37.12 - Fig. 8.125
Dimensions: wall th.: 0.9 cm; base diam.: 7 cm; base th.: 0.8 cm.
Clay: outer, inner, fabric colour: 5YR 4/6 (yellowish red); sand inclusions; medium firing temperature.
Description: conical bowl base.

AbT.12.37.13 - Fig. 8.125
Dimensions: rim diam.: 10 cm; rim th.: 0.4 cm; wall th.: 1 cm; base diam.: 6 cm; base th.: 0.7 cm; h.: 14.7 cm.
Clay: outer and inner colour: 2.5YR 4/6 (red); fabric colour: 5YR 7/8 (reddish

yellow); sand inclusions; medium-high firing temperature.
Description: beaker.

AbT.12.37.14 - Fig. 8.125
Dimensions: rim diam.: 9.9 cm; rim th.: 0.5 cm; wall th.: 0.9 cm; base diam.: 4.5 cm; base th.: 1 cm; h.: 11.7 cm.
Clay: outer, inner and fabric colour: 2.5Y 6/3 (light yellowish brown); sand inclusions; high firing temperature.
Description: beaker.

AbT.12.37.15 - Fig. 8.126
Dimensions: wall th.: 0.8 cm; base diam.: 32.5 cm; base th.: 0.5 cm.
Clay: outer and inner colour: 5YR 6/6 (reddish yellow); fabric colour: 2.5YR 5/6 (red); sand inclusions; medium firing temperature.
Description: base and wall of a squat jar (reconstructed graphically).

AbT.12.37.16 - Fig. 8.126
Dimensions: rim diam.: 13 cm; rim th.: 0.6 cm; wall th.: 0.8 cm.
Clay: outer, inner and fabric colour: 5YR 4/4 (reddish brown); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.12.37.17 - Fig. 8.125
Dimensions: wall th.: 0.6 cm; base diam.: 5.8 cm; base th.: 0.8 cm.
Clay: outer colour: 10YR 6/4 (brown yellow); inner colour: 2.5Y 6/4 (light yellowish brown); fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium-high firing temperature.
Description: conical bowl base.

AbT.12.37.18 - Fig. 8.125
Dimensions: rim diam.: 16 cm; rim th.: 0.8 cm; wall th.: 0.5 cm.
Clay: outer colour: 10YR 6/6 (brownish yellow); inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.12.37.19 - Fig. 8.125
Dimensions: rim diam.: 13.4 cm; rim th.: 0.5 cm; wall th.: 0.8 cm; base diam.: 6.8 cm; base th.: 0.8 cm; h.: 17.9 cm.
Clay: outer colour: 10YR 6/6 (brownish yellow); inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium-high firing temperature.
Description: beaker.

AbT.12.37.20 - Fig. 8.125
Dimensions: rim diam.: 21.4 cm; rim th.: 1.9 cm; wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 2.5Y 7/4 (pale yellow); sand inclusions; medium-high firing temperature.
Description: triangular rim bowl.

AbT.12.37.21 - Fig. 8.125
Dimensions: wall th.: 0.9 cm; base diam.: 4.5 cm; base th.: 1.2 cm.
Clay: outer, inner and fabric colour: 2.5YR 5/6 (red); sand inclusions; medium-low firing temperature.
Description: beaker base.

AbT.12.37.22 - Fig. 8.125
Dimensions: rim diam.: 10.8 cm; rim th.: 0.5 cm; wall th.: 0.4 cm.
Clay: outer, inner and fabric colour: 10YR 5/6 (yellowish brown); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.37.23 - Fig. 8.125
Dimensions: wall th.: 0.8 cm; base diam.: 5.2 cm; base th.: 0.8 cm.
Clay: outer, inner and fabric colour: 10YR 8/6 (yellow); sand inclusions; medium-high firing temperature.
Description: conical bowl base.

AbT.12.37.24 - Fig. 8.126
Dimensions: wall th.: 0.8 cm; base diam.: 17 cm; base th.: 0.7 cm.
Clay: outer, inner and fabric colour: 10YR 8/6 (yellow); sand inclusions; medium-high firing temperature.
Description: flat base jar.

AbT.12.37.25 - Fig. 8.125
Dimensions: wall th.: 0.5 cm; base diam.: 4.5 cm; base th.: 1.2 cm.
Clay: outer, inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium-high firing temperature.
Description: beaker base.

AbT.12.37.26 - Fig. 8.125
Dimensions: rim diam.: 13 cm; rim th.: 0.3 cm; wall th.: 0.4 cm.
Clay: outer, inner and fabric colour: 2.5Y 7/4 (pale yellow); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.37.27 - Fig. 8.125
Dimensions: rim diam.: 11.8 cm; rim th.: 0.5 cm; wall th.: 0.5 cm; base diam.: 5.5 cm; base th.: 1 cm; h.: 8.1 cm.
Clay: outer and inner colour: 10YR 7/4 (very pale brown); fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium-high firing temperature.
Description: conical bowl.

AbT.12.37.28 - Fig. 8.126
Dimensions: wall th.: 0.7 cm; base diam.: 19 cm; base th.: 0.8 cm.
Clay: outer colour: 10YR 6/4 (light yellowish brown); inner and fabric colour: 5YR 6/8 (reddish yellow); sand inclusions; medium-high firing temperature.
Description: ring base.

AbT.12.37.29 - Fig. 8.125
Dimensions: wall th.: 1 cm; base diam.: 7 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 2.5YR 5/6 (red); sand inclusions; medium-high firing temperature.
Description: conical bowl base.

AbT.12.37.30 - Fig. 8.125
Dimensions: wall th.: 0.7 cm; base diam.: 4.2 cm; base th.: 0.9 cm.
Clay: outer, inner and fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium-high firing temperature.
Description: conical bowl base.

AbT.12.37.31 - Fig. 8.125
Dimensions: rim diam.: 16.6 cm; rim th.: 0.6 cm; wall th.: 0.5 cm.
Clay: outer, inner and fabric colour: 2.5Y 7/6 (yellow); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.37.32 - Fig. 8.125
Dimensions: rim diam.: 14.4 cm; rim th.: 0.5 cm; wall th.: 0.5 cm.
Clay: outer, inner and fabric colour: 5YR 7/6 (reddish yellow); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.37.33 - Fig. 8.125
Dimensions: rim diam.: 11.9 cm; rim th.: 0.4 cm; wall th.: 0.9 cm; base diam.: 4.6 cm; base th.: 1.5 cm; h.: 12.4 cm.
Clay: outer, inner and fabric colour: 2.5YR 5/8 (red); sand inclusions; low firing temperature.
Description: beaker.

AbT.12.37.34 - Fig. 8.125
Dimensions: rim diam.: 13.2 cm; rim th. 0.4; wall th.: 0.3 cm.
Clay: outer, inner and fabric colour: 7.5YR 6/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: drinking vessel rim.

AbT.12.37.35 - Fig. 8.126
Dimensions: rim diam.: 9.4 cm; rim th.: 0.5 cm; wall th.: 0.1 cm.
Clay: outer, inner and fabric colour: 5Y 7/3 (pale yellow); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.12.37.36 - Fig. 8.125
Dimensions: wall th.: 1 cm; base diam.: 4.5 cm; base th.: 1.4 cm.
Clay: outer, inner and fabric colour: 5YR 4/6 (yellowish red); sand inclusions; medium-high firing temperature.
Description: beaker base.

AbT.12.37.37 - Fig. 8.126
Dimensions: rim diam.: 12 cm; rim th.: 0.4 cm; wall th.: 0.4 cm.
Clay: outer, inner and fabric colour: 10YR 6/4 (light yellowish brown); sand inclusions; medium-high firing temperature.
Description: band rim jar.

AbT.12.37.38 - Fig. 8.126
Dimensions: rim diam.: 13.6 cm; rim th.: 0.8 cm; wall th.: 0.9 cm.
Clay: outer, inner and fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: plain rim jar.

AbT.12.37.39 - Fig. 8.125
Dimensions: wall th.: 0.9 cm; base diam.: 4.5 cm; base th.: 1.9 cm.
Clay: outer, inner and fabric colour: 2.5YR 6/8 (red); sand inclusions; low firing temperature.
Description: beaker base.

AbT.12.37.40 - Fig. 8.125
Dimensions: wall th.: 0.5 cm; base diam.: 5 cm; base th.: 0.6 cm.
Clay: outer, inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium firing temperature.
Description: conical bowl base.

AbT.12.37.41 - Fig. 8.126
Dimensions: rim diam.: 12.6 cm; rim th.: 0.4 cm; wall th.: 0.4 cm.
Clay: outer, inner and fabric colour: 2.5Y 6/3 (light yellowish brown); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.12.37.42 - Fig. 8.126
Dimensions: rim th.: 4 cm; wall th.: 2.4 cm.
Clay: outer, inner and fabric colour: 2.5Y 7/4 (pale yellow); sand and vegetal inclusions; medium-high firing temperature.
Description: thick oval rim vat/jar.

AbT.12.37.43 - Fig. 8.126
Dimensions: spout diam.: 1.4 cm; wall th.: 0.5 cm.
Clay: outer, inner and fabric colour: 2.5YR 6/8 (light red); sand inclusions; medium-low firing temperature.
Description: spout.

AbT.12.37.44 - Fig. 8.126
Dimensions: wall th.: 2.1 cm; base diam.: 48 cm; base th.: 1.6 cm.
Clay: outer and inner colour: 5YR 5/6 (yellowish red); fabric colour: 5YR 2.5/1 (black); sand inclusions; medium-high firing temperature.
Description: ring base.

AbT.12.37.45 - Fig. 8.126
Dimensions: wall th.: 2 cm.
Clay: outer, inner and fabric colour: 5Y 7/3 (pale yellow); sand and vegetal inclusions; high firing temperature.
Description: handle.

AbT.12.37.46 - Fig. 8.125
Dimensions: rim diam.: 9 cm; rim th.: 0.4 cm, wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 2.5YR 4/6 (red); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.37.58 - Fig. 8.125
Dimensions: wall th.: 0.8 cm; base diam.: 4 cm; base th.: 1.8 cm.
Clay: outer, inner and fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium-high firing temperature.
Description: beaker base.

AbT.12.37.59 - Fig. 8.125
Dimensions: rim diam.: 12.6 cm; rim th.: 0.5 cm; wall th.: 0.9 cm; base diam.: 4 cm; base th.: 1.2 cm; h.: 7.5 cm.
Clay: outer, inner and fabric colour: 2.5Y 7/3 (pale yellow); sand inclusions; medium-high firing temperature.
Description: conical bowl.

AbT.12.37.60 - Fig. 8.126
Dimensions: rim diam.: 13 cm; rim th.: 0.6 cm; wall th.: 0.7 cm.
Clay: outer and inner colour: 2.5Y 8/3 (pale brown); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.12.37.61 - Fig. 8.125
Dimensions: rim th.: 0.7 cm; wall th.: 0.9 cm; base diam.: 5 cm.
Clay: outer, inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium-high firing temperature.
Description: conical bowl base.

AbT.12.37.62 - Fig. 8.125
Dimensions: wall th.: 0.7 cm; base diam.: 5 cm; base th.: 0.8.
Clay: outer, inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium-high firing temperature.
Description: conical bowl base.

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Objects

AbT.12.15 - Fig. 8.116
Description: chert blade.
Dimensions: 1.6x4.5x0.2 cm.

AbT.12.19 - Fig. 8.116
Description: basalt grindstone.
Dimensions: 21x11 cm.

AbT.12.25 - Fig. 8.116
Description: stone pestle. Lower face with bitumen traces.
Dimensions: 8x11.5x5.5 cm.

AbT.12.28 - Fig. 8.116
Description: bone spatula.
Dimensions: 2.9x6.5x0.4 cm.

Pottery

AbT.12.38.1 - Fig. 8.127
Dimensions: wall th.: 0.8 cm; base diam.: 32.8 cm; base th.: 1.4 cm.
Clay: outer colour: 2.5Y 8/4 (pale yellow); inner colour: 10.5YR 7/4 (pink); fabric colour: 5YR 4/3 (reddish brown); sand inclusions; medium-high firing temperature.
Description: triangular rim bowl.

AbT.12.38.2 - Fig. 8.127
Dimensions: rim diam.: 15.4 cm; rim th.: 0.7 cm; wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 10YR 5/4 (yellowish brown); sand inclusions; medium-high firing temperature.
Description: convex base, with a hole at the beginning of the wall.

AbT.12.38.3 - Fig. 8.127
Dimensions: rim diam.: 12.2 cm; rim th.: 0.8 cm; wall th.: 0.7 cm; base diam.: 4.6 cm; base th.: 0.7 cm; h.: 3.5 cm.
Clay: outer and inner colour: 10YR 8/4 (very pale brown); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-high firing temperature.
Description: conical bowl attached to a stand.

AbT.12.38.4 - Fig. 8.127
Dimensions: wall th.: 0.7 cm; base diam.: 4.5 cm; base th.: 1.2 cm.
Clay: outer, inner and fabric colour: 10YR 7/6 (yellow); sand inclusions; medium-high firing temperature.
Description: beaker base.

AbT.12.38.5 - Fig. 8.127
Dimensions: wall th.: 0.9 cm; base diam.: 19 cm; base th.: 0.8 cm.
Clay: outer and inner colour: 2.5YR 6/6 (light red); fabric colour: 2.5YR 4/2 (weak red); sand inclusions; medium firing temperature.
Description: ring base.

AbT.12.38.6 - Fig. 8.127
Dimensions: wall th.: 1 cm; base diam.: 5 cm; base th.: 1 cm.
Clay: outer and inner colour: 2.5YR 5/6 (red); fabric colour: 2.5YR 4/2 (weak red); sand inclusions; medium-high firing temperature.
Description: beaker base.

AbT.12.38.7 - Fig. 8.127
Dimensions: wall th.: 0.9 cm; base diam.: 7 cm; base th.: 1.4 cm.
Clay: outer and inner colour: 10YR 8/6 (yellow); fabric colour: 5YR 4/4 (reddish brown); sand inclusions; medium-high firing temperature.
Description: cylinder.

AbT.12.38.8 - Fig. 8.127
Dimensions: wall th.: 0.9 cm; base diam.: 14.6 cm; base th.: 1 cm.
Clay: outer and inner colour: 10YR 7/4 (yellow); fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium-high firing temperature.
Description: flat base.

AbT.12.38.9 - Fig. 8.127
Dimensions: rim diam.: 19 cm; rim th.: 0.4 cm; rim wall th.: 0.5 cm.
Clay: outer, inner and fabric colour: 10YR 7/6 (yellow); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.38.10 - Fig. 8.127
Dimensions: rim diam.: 15 cm; rim th.: 0.4 cm; wall th.: 0.36 cm.
Clay: outer, inner and fabric colour: 2.5YR 4/6 (red); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.38.11 - Fig. 8.127
Dimensions: rim diam.: 28.2 cm; rim th.: 1.3 cm; wall th.: 1.2 cm.
Clay: outer, inner and fabric colour: 10YR 4/6 (red); sand inclusions; medium firing temperature.
Description: triangular rim bowl.

AbT.12.38.12 - Fig. 8.127
Dimensions: rim diam.: 15.2 cm; rim th.: 0.4 cm; wall th.: 0.4 cm.
Clay: outer, inner and fabric colour: 2.5YR 5/6 (red); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.12.38.13 - Fig. 8.127
Dimensions: rim diam.: 13.8 cm; rim th.: 0.5 cm; wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 2.5YR 5/6 (red); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.38.14 - Fig. 8.127
Dimensions: rim diam.: 16 cm; rim th.: 0.4 cm; wall th.: 0.5 cm.
Clay: outer, inner and fabric colour: 2.5YR 5/6 (red); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.38.15 - Fig. 8.127
Dimensions: wall th.: 0.8 cm; base diam.: 5 cm; base th.: 1.3 cm.
Clay: outer, inner and fabric colour: not registered; sand inclusions; medium-high firing temperature.
Description: conical bowl base.

AbT.12.38.16 - Fig. 8.127
Dimensions: rim diam.: 15.8 cm; rim th.: 0.3 cm; wall th.: 0.4 cm.
Clay: outer, inner and fabric colour: 10YR 8/4 (very pale brown); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.38.17 - Fig. 8.127
Dimensions: rim diam.: 14 cm; rim th.: 0.4 cm; wall th.: 0.7 cm.
Clay: outer, inner and fabric colour: not registered; sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.12.38.18 - Fig. 8.127
Dimensions: rim diam.: 18.4 cm; rim th.: 0.4 cm; wall th.: 0.5 cm.
Clay: outer, inner and fabric colour: 10YR 6/3 (pale brown); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.38.19 - Fig. 8.127
Dimensions: wall th.: 0.8 cm; base diam.: 4.5 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 5Y 6/6 (olive yellow); sand inclusions; medium-high firing temperature.
Description: conical bowl base.

AbT.12.38.20 - Fig. 8.127
Dimensions: wall th.: 0.6 cm; base diam.: 5.5 cm; base th.: 1.2 cm.
Clay: outer, inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium-high firing temperature.
Description: conical bowl base.

AbT.12.38.21 - Fig. 8.127
Dimensions: wall th.: 0.6 cm; base diam.: 4.1 cm; base th.: 0.8 cm.

Clay: outer and inner colour: 5YR 8/4 (pink); fabric colour: 5YR 4/6 (yellowish red); sand inclusions; medium-high firing temperature.
Description: conical bowl base.

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Objects

AbT.12.54 - Fig. 8.117
Description: white stone pebble.
Dimensions: 4x3x2 cm.

AbT.12.89 - Fig. 8.117
Description: lapis-lazuli bead.
Dimensions: 1x0.5 cm.

AbT.12.91 - Fig. 8.117
Description: lapis-lazuli bead.
Dimensions: 0.45x0.524 cm.

Pottery

AbT.12.42.1 - Fig. 8.128
Dimensions: rim diam.: 8.8 cm; rim th.: 0.5 cm; wall th.: 0.7 cm; base diam.: 3.5 cm; base th.: 0.8 cm; h.: 8.1 cm.
Clay: outer colour, inner, fabric colour: 5YR 6/3 (light reddish brown); sand inclusions; medium firing temperature.
Description: beaker.

AbT.12.42.2 - Fig. 8.128
Dimensions: rim diam.: 12 cm; rim th.: 0.3 cm; wall th.: 0.5 cm; base diam.: 4.5 cm; base th.: 1.1 cm; h.: 12 cm.
Clay: outer, inner and fabric colour: 10YR 8/4 (very pale brown); sand inclusions; medium-high temperature.
Description: beaker.

AbT.12.42.3 - Fig. 8.128
Dimensions: rim diam.: 20.4 cm; rim th.: 0.5 cm; wall th.: 0.8 cm; base diam.: 7.5 cm; base th.: 1 cm; h.: 8.5 cm.
Clay: outer, inner and fabric colour: 10YR 8/3 (very pale brown); sand inclusions; medium firing temperature.
Description: conical bowl.

AbT.12.42.4 - Fig. 8.130
Dimensions: wall th.: 0.6 cm; base diam.: 13 cm; base th.: 3 cm.
Clay: outer, inner and fabric colour: 7.5YR 8/4 (pink); sand inclusions; medium firing temperature.
Description: ring base.

AbT.12.42.5 - Fig. 8.128
Dimensions: rim diam.: 15 cm; rim th.: 0.6 cm; wall th.: 0.7 cm; base diam.: 6.1 cm; base th.: 0.9 cm; h.: 6.5 cm.
Clay: outer, inner and fabric colour: 2.5YR 6/6 (light red); sand inclusions; medium firing temperature.
Description: conical bowl.

AbT.12.42.6 - Fig. 8.128
Dimensions: rim diam.: 14 cm; rm th.: 0.4 cm; wall th.: 0.7 cm.
Clay: outer, inner and fabric colour: 10YR 8/4 (very pale brown); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.12.42.7 - Fig. 8.128
Dimensions: wall th.: 0.6 cm; base diam.: 4.5 cm; base th.: 0.7 cm.
Clay: outer, inner and fabric colour: 5YR 7/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.12.42.8 - Fig. 8.128
Dimensions: wall th.: 0.8 cm; base diam.: 5 cm; base th.: 1.1 cm.
Clay: outer, inner and fabric colour: 2.5Y 6/3 (light yellowish brown); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.12.42.9 - Fig. 8.128
Dimensions: rim diam.: 14 cm; rim th.: 0.7 cm; wall th.: 0.8 cm.
Clay: outer, inner and fabric colour: 10YR 8/4 (very pale brown); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.42.10 - Fig. 8.128
Dimensions: wall th.: 0.4 cm; base diam.: 4.5 cm; base th.: 1.3 cm.
Clay: outer, inner and fabric colour: 10YR 8/3 (very pale brown); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.12.42.11 - Fig. 8.130
Dimensions: rim diam.: 10 cm; rim th.: 0.5 cm; wall th.: 0.7 cm.
Clay: outer, inner and fabric colour: 5Y 7/1 (light grey); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.12.42.12 - Fig. 8.130
Dimensions: wall th.: 1.1 cm; base diam.: 14 cm; base th.: 2 cm.
Clay: outer, inner and fabric colour: 5YR 7/3 (pink); sand inclusions; medium firing temperature.
Description: ring base.

AbT.12.42.13 - Fig. 8.129
Dimensions: rim diam.: 12 cm; wall th.: 1.2 cm; base diam.: 7 cm; base th.: 0.6 cm.
Clay: outer, inner and fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium firing temperature.
Description: cylinder ring base.

AbT.12.42.14 - Fig. 8.128
Dimensions: rim diam.: 12 cm; rim th.: 0.6 cm; wall th.: 0.7 cm.
Clay: outer, inner and fabric colour: 10YR 8/4 (very pale brown); sand inclusions; medium firing temperature.
Description: rim of a beaker with bitumen incrustation (also on the fracture, probably due to post depositional fluidification of bitumen).

AbT.12.42.15 - Fig. 8.128
Dimensions: wall th.: 0.8 cm; base diam.: 4.3 cm; base th.: 0.7 cm
Clay: outer, inner and fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium firing temperature.
Description: drinking vessel base.

AbT.12.42.16 - Fig. 8.129
Dimensions: rim diam.: 27 cm; rim th.: 1.2 cm; wall th.: 1.7 cm; base diam.: 28 cm; base th.: 2 cm; h.: 8.5 cm.
Clay: outer, inner and fabric colour: not registered; sand and vegetal inclusions; medium firing temperature.
Description: tray.

AbT.12.42.17 - Fig. 8.128
Dimensions: wall th.: 0.5 cm; base diam.: 4.6 cm; base th.: 0.6 cm.
Clay: outer, inner and fabric colour: 7.5YR 8/6 (reddish yellow); sand inclusions; medium-high firing temperature.
Description: beaker base.

AbT.12.42.18 - Fig. 8.130
Dimensions: wall th.: 0.7 cm; base diam.: 10 cm; base th.: 0.5 cm.
Clay: outer, inner and fabric colour: 7.5YR 6/4 (light brown); sand and

vegetal inclusions; medium firing temperature.
Description: convex base.

AbT.12.42.19 - Fig. 8.130
Dimensions: wall th.: 0.8 cm; base diam.: n.d.; base th.: 2.2 cm.
Clay: outer, inner, fabric colour: 10YR 7/4 (very pale brown); sand and vegetal inclusions; medium firing temperature.
Description: ring base.

AbT.12.42.20 - Fig. 8.129
Dimensions: rim diam.: 12 cm; rim th.: 1.2 cm; wall th.: 0.9 cm; base diam.: 6.4 cm; base th.: 1 cm; h.: 3 cm.
Clay: outer and inner colour: 10YR 8/4 (very pale brown); fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: bowl attached to a stem.

AbT.12.42.21 - Fig. 8.130
Dimensions: wall th.: 2.2 cm; base diam.: 27 cm; base th.: 2.2 cm.
Clay: outer, inner and fabric colour: 7.5YR 6/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: ring base.

AbT.12.42.22 - Fig. 8.128
Dimensions: wall th.: 0.7 cm; base diam.: 4.5 cm; base th.: 1.4 cm.
Clay: outer, inner and fabric colour: 7.5YR 5/8 (strong brown); sand inclusions; medium firing temperature.
Description: conical bowl base.

AbT.12.42.23 - Fig. 8.128
Dimensions: rim diam.: 13 cm; rim th.: 0.5 cm; wall th.: 0.5 cm.
Clay: outer, inner and fabric colour: 7.5YR 7/4 (pink); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.12.42.24 - Fig. 8.130
Dimensions: base th.: 4.5 cm.
Clay: outer, inner and fabric colour: 10YR 8/4 (very pale brown); sand and vegetal inclusions; medium-high firing temperature.
Description: big ring base.

AbT.12.42.25 - Fig. 8.128
Dimensions: wall th.: 0.5 cm; base diam.: 4.3 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 7.5YR 8/4 (pink); sand inclusions; medium-high firing temperature.
Description: beaker base.

AbT.12.42.26 - Fig. 8.128
Dimensions: rim diam.: 9 cm; rim th.: 0.4 cm; wall th.: 0.5 cm.
Clay: outer, inner and fabric colour: 7.5YR 8/4 (pink); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.12.42.27 - Fig. 8.128
Dimensions: rim diam.: 14 cm; rim th.: 0.6 cm; wall th.: 0.7 cm.
Clay: outer, inner and fabric colour: 5YR 7/3 (pink); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.12.42.28 - Fig. 8.128
Dimensions: wall th.: 0.6 cm; base diam.: 3.5 cm; base th.: 0.5 cm.
Clay: outer, inner and fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: drinking vessel base.

AbT.12.42.29 - Fig. 8.128
Dimensions: wall th.: 1.1 cm; base diam.: 4.4 cm; base th.: 1.3 cm.
Clay: outer, inner and fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: drinking vessel base.

AbT.12.42.30 - Fig. 8.130
Dimensions: wall th.: 0.5 cm; base diam.: 10 cm; base th.: 0.7 cm.
Clay: outer, inner and fabric colour: 2.5YR 7/3 (light reddish brown); sand inclusions; medium firing temperature.
Description: convex base jar.

AbT.12.42.31 - Fig. 8.128
Dimensions: rim diam.: 11 cm; rim th.: 0.5; wall th.: 0.55 cm.
Clay: outer, inner and fabric colour: 5YR 7/3 (pink); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.12.42.32 - Fig. 8.130
Dimensions: rim diam.: 9 cm; rim th.: 0.4 cm; wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 10YR 7/3 (very pale brown); sand inclusions; medium firing temperature.
Description: plain rim jar.

AbT.12.42.33 - Fig. 8.130
Dimensions: wall th.: 0.6 cm; base diam.: 10 cm; base th.: 0.6 cm.
Clay: outer, inner and fabric colour: 7.5YR 7/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: ring base.

AbT.12.42.34 - Fig. 8.128
Dimensions: wall th.: 0.9 cm; base diam.: 4 cm; base th.: 1.3 cm.
Clay: outer, inner and fabric colour: 5YR 7/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.12.42.35 - Fig. 8.128
Dimensions: wall th.: 0.7 cm; base diam.: 4 cm; base th.: 0.8 cm.
Clay: outer and inner colour: 10YR 7/4 (very pale brown); fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.12.42.36 - Fig. 8.128
Dimensions: wall th.: 0.6 cm; base diam.: 4.8 cm; base th.: 1.3 cm.
Clay: outer, inner and fabric colour: 10YR 7/6 (yellow); sand inclusions; medium firing temperature.
Description: conical bowl base.

AbT.12.42.37 - Fig. 8.128
Dimensions: wall th.: 0.7 cm; base diam.: 4.6 cm; base th.: 0.8 cm.
Clay: outer, inner and fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.12.42.38 - Fig. 8.128
Dimensions: rim diam.: 11.2 cm; rim th.: 0.4 cm; wall th.: 0.8 cm; base diam.: 4.6 cm; base th.: 1.6 cm; h.: 12.2 cm.
Clay: outer and fabric colour: 5YR 4/6 (yellowish red); inner colour: 2.5Y 6/4 (light yellowish brown); sand inclusions; medium firing temperature.
Description: beaker.

AbT.12.42.39 - Fig. 8.128
Dimensions: rim diam.: 11.2 cm; rim th.: 0.5 cm; wall th.: 0.4 cm.
Clay: outer, inner and fabric colour: 10YR 6/6 (brownish yellow); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.12.42.40 - Fig. 8.128
Dimensions: rim diam.: 11.5 cm; rim th.: 0.5 cm; wall th.: 0.4 cm.
Clay: outer, inner and fabric colour: 10YR 6/6 (brownish yellow); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.12.42.41 - Fig. 8.128
Dimensions: rim diam.: 10 cm; rim th.: 0.4 cm; wall th.: 0.4 cm.
Clay: outer, inner and fabric colour: 5Y 7/3 (pale yellow); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.42.42 - Fig. 8.133
Dimensions: rim diam.: 34.6 cm; rim th.: 2 cm; wall th.: 0.9 cm.
Clay: outer, inner and fabric colour: 10YR 6/4 (light yellowish brown); sand inclusions; medium firing temperature.
Description: triangular rim bowl.

AbT.12.42.43 - Fig. 8.128
Dimensions: wall th.: 1 cm; base diam.: 5 cm; base th.: 1.1 cm.
Clay: outer, inner and fabric colour: 5YR 7/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: drinking vessel base.

AbT.12.42.44 - Fig. 8.128
Dimensions: wall th.: 1.1 cm; base diam.: 5 cm; base th.: 1.1 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/4 (pale brown); sand inclusions; medium firing temperature.
Description: conical bowl base.

AbT.12.42.45 - Fig. 8.128
Dimensions: rim diam.: 12 cm; rim th.: 0.6 cm; wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 2.5Y 6/3 (light yellowish brown); sand inclusions; medium firing temperature.
Description: drinking vessel rim with bitumen inside.

AbT.12.42.46 - Fig. 8.130
Dimensions: rim diam.: n.d.; rim th.: 3 cm; wall th.: 2.6 cm.
Clay: outer, inner and fabric colour: 2.5Y 6/3 (light yellowish brown); sand and vegetal inclusions; medium firing temperature.
Description: rounded rim big jar/vat with a small ridge on the wall.

AbT.12.42.47 - Fig. 8.128
Dimensions: wall th.: 1.4 cm; base diam.: 4.5 cm; base th.: 1.1 cm.
Clay: outer and inner colour: 10YR 7/4 (very pale brown); fabric colour: 2.5YR 6/8 (light red); sand inclusions; medium firing temperature.
Description: drinking vessel base.

AbT.12.42.48 - Fig. 8.128
Dimensions: wall th.: 1.1 cm; base diam.: 10.6 cm; base th.: 1.1 cm.
Clay: outer, inner and fabric colour: 2.5YR 6/6 (light red); sand and vegetal inclusions; medium firing temperature.
Description: flat base.

AbT.12.42.49 - Fig. 8.128
Dimensions: rim diam.: 14.3 cm; rim th.: 0.5 cm; wall th.: 0.4 cm.
Clay: outer, inner and fabric colour: 2.5YR 7/4 (light reddish brown); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.12.42.50 - Fig. 8.128
Dimensions: rim diam.: 13 cm; rim th.: 0.5 cm; wall th.: 0.3 cm.
Clay: outer, inner and fabric colour: 5YR 8/4 (pink); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.12.42.51 - Fig. 8.128
Dimensions: rim diam.: 14.8 cm; rim th.: 0.5 cm; wall th.: 0.5 cm.
Clay: outer, inner and fabric colour: 5YR 8/4 (pink) sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.42.52 - Fig. 8.128
Dimensions: rim diam.: 11 cm; rim th.: 0.3 cm; wall th.: 0.5 cm.
Clay: outer, inner and fabric colour: 10YR 7/4 (very pale brown) sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.42.53 - Fig. 8.128
Dimensions: wall th.: 0.6 cm; base diam.: 5.2 cm; base th.: 0.7 cm.
Clay: outer and inner colour: 10YR 6/3 (very pale brown); fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.12.42.54 - Fig. 8.128
Dimensions: wall th.: 0.6 cm; base diam.: 4.4 cm; base th.: 1.6 cm.
Clay: outer, inner and fabric colour: 5YR 6/6 (reddish yellow) sand inclusions; medium firing temperature.
Description: conical bowl base.

AbT.12.42.55 - Fig. 8.130
Dimensions: spout diam.: 2.2 cm; wall th.: 0.9 cm.
Clay: outer, inner and fabric colour: 10YR 6/3 (pale brown); sand inclusions; medium-high firing temperature.
Description: spout.

AbT.12.42.56 - Fig. 8.130
Dimensions: rim diam.: 10.9 cm; rim th.: 0.5 cm; wall th.: 0.8 cm.
Clay: outer, inner and fabric colour: 10YR 7/3 (very pale brown); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.12.42.57 - Fig. 8.129
Dimensions: wall th.: 1.8 cm; base diam.: n.d.; base th.: 2 cm.
Clay: outer, inner and fabric colour: 10YR 7/6 (yellow); sand and vegetal inclusions; medium firing temperature.
Description: flat base of a tray.

AbT.12.42.58 - Fig. 8.130
Dimensions: rim diam.: 18 cm; rim th.: 1.1 cm; wall th.: 0.8 cm.
Clay: outer, inner and fabric colour: 10YR 7/4 (very pale brown); sand inclusions; medium firing temperature.
Description: triangular rim jar.

AbT.12.42.59+60 - Fig. 8.129
Dimensions: rim diam.: 40 cm; rim th.: 2 cm; wall th.: 0.8 cm; base diam.: 20 cm; base th.: 1 cm; h.: 17 cm.
Clay: outer, inner and fabric colour: 2.5 YR 7/6 (yellow); sand inclusions; medium-high firing temperature.
Description: triangular rim bowl.

AbT.12.42.61 - Fig. 8.130
Dimensions: wall th.: 1 cm; base diam.: 60 cm; base th.: 2 cm.
Clay: outer, inner and fabric colour: 2.5Y 7/2 (light grey); sand inclusions; medium-high firing temperature.
Description: ring base.

AbT.12.42.62 - Fig. 8.129
Dimensions: wall th.: 1.8 cm; base diam.: n.d.; base th.: 1.2 cm.
Clay: outer, inner and fabric colour: 5YR 6/4 (light reddish brown); sand and vegetal inclusions; medium-high firing temperature.
Description: flat base of a tray.

AbT.12.42.63 - Fig. 8.130
Dimensions: rim diam.: 4 cm; rim th.: 0.6 cm; wall th.: 0.8 cm.
Clay: outer, inner and fabric colour: 10YR 8/3 (very pale brown); sand inclusions; medium-high firing temperature.
Description: miniaturistic plain rim jar.

AbT.12.42.64 - Fig. 8.130
Dimensions: rim diam.: 12 cm; rim th.: 0.3 cm; wall th.: 0.3 cm.
Clay: outer, inner and fabric colour: 2.5Y 6/2 (light brownish grey); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.12.42.65 - Fig. 8.128
Dimensions: rim diam.: 10.6 cm; rim th.: 0.4 cm; wall th.: 0.5 cm.
Clay: outer and inner colour: 10YR 7/4 (very pale brown); fabric colour: 2.5YR 7/8 (light red); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.42.66 - Fig. 8.130
Dimensions: rim diam.: 10 cm; rim th.: 0.9 cm; wall th.: 0.6 cm.
Clay: outer and inner colour: 2.5Y 7/4 (pale yellow); fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium-high firing temperature.
Description: hole mouth jar.

AbT.12.42.67 - Fig. 8.128
Dimensions: rim diam.: 14.2 cm; rim th.: 0.5 cm; wall th.: 0.8 cm.
Clay: outer and inner colour: 10YR 8/3 (very pale brown); fabric colour: 2.5YR 5/6 (red); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.42.68 - Fig. 8.130
Dimensions: rim diam.: 14 cm; rim th.: 0.4 cm; wall th.: 0.5 cm.
Clay: outer, inner and fabric colour: 2.5YR 7/6 (light red); sand inclusions; medium firing temperature.
Description: band rim jar.

AbT.12.42.69 - Fig. 8.130
Dimensions: wall th.: 0.8 cm; base diam.: 16 cm; base th.: 0.7 cm.
Clay: outer and inner colour: 10YR 8/3 (very pale brown); fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium firing temperature.
Description: slightly convex base.

AbT.12.42.70 - Fig. 8.130
Dimensions: rim diam.: 12.8 cm; rim th.: 0.4 cm; wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 10YR 8/3 (very pale brown); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.12.42.71 - Fig. 8.130
Dimensions: rim diam.: 9.8 cm; rim th.: 0.5 cm; wall th.: 0.8 cm.
Clay: outer, inner and fabric colour: 10YR 8/4 (yellow); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.12.42.72 - Fig. 8.130
Dimensions: rim diam.: 9.4 cm; rim th.: 0.5 cm; wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 10YR 8/3 (very pale brown); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.12.42.73 - Fig. 8.128
Dimensions: rim diam.: 19.4 cm; rim th.: 0.4 cm; wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 10YR 7/4 (very pale brown); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.42.74 - Fig. 8.128
Dimensions: rim diam.: 16.6 cm; rim th.: 0.4 cm; wall th.: 0.9 cm.
Clay: outer, inner and fabric colour: 2.5YR 5/6 (red); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.12.42.75 - Fig. 8.128
Dimensions: wall th.: 0.8 cm; base diam.: 3 cm; base th.: 1.7 cm.
Clay: outer, inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.12.42.76 - Fig. 8.128
Dimensions: wall th.: 0.8 cm; base diam.: 5 cm; base th.: 0.9 cm.
Clay: outer, inner and fabric colour: 2.5YR 5/6 (red); sand inclusions; medium firing temperature.
Description: conical bowl base.

AbT.12.42.77 - Fig. 8.128
Dimensions: rim diam.: 18 cm; rim th.: 0.6 cm; wall th.: 0.8 cm.
Clay: outer, inner and fabric colour: 2.5Y 7/4 (pale yellow); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.42.78 - Fig. 8.130
Dimensions: rim diam.: 13 cm; rim th.: 3.3 cm; wall th.: 0.9 cm.
Clay: outer, inner and fabric colour: 2.5Y 7/3 (pale yellow); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.12.42.79 - Fig. 8.130
Dimensions: wall th.: 0.8 cm; base diam.: 15 cm; base th.: 0.9 cm.
Clay: outer, inner and fabric colour: 10YR 7/6 (yellow); sand inclusions; medium-high firing temperature.
Description: ring base with bitumen traces mixed with vegetal temper (also on the fracture, probably due to post-depositional fluidification of bitumen).

AbT.12.42.80 - Fig. 8.130
Dimensions: rim diam.: 14 cm; rim th.: 0.6 cm; wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 10YR 8/3 (very pale brown); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.12.42.81 - Fig. 8.129
Dimensions: rim diam.: 16.8 cm; rim th. 1; wall th.: 0.9 cm.
Clay: outer, inner and fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: triangular rim bowl.

AbT.12.42.82 - Fig. 8.130
Dimensions: wall th.: 0.9 cm; base diam.: 13 cm; base th.: 0.8 cm.

Clay: outer, inner and fabric colour: 2.5Y 7/4 (pale yellow); sand inclusions; medium-high firing temperature.
Description: ring base.

AbT.12.42.83 - Fig. 8.128
Dimensions: wall th.: 0.6 cm; base diam.: 4.1 cm; base th.: 1.6 cm.
Clay: outer, inner and fabric colour: 5YR 7/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.12.42.84 - Fig. 8.128
Dimensions: wall th.: 0.4 cm; base diam.: 5 cm; base th.: 1.3 cm.
Clay: outer, inner and fabric colour: 10R 6/3 (pale red); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.12.42.85 - Fig. 8.128
Dimensions: rim diam.: 11.7 cm; rim th.: 0.4 cm; wall th.: 0.6 cm; base diam.: 4.6 cm; base th.: 0.7 cm; h.: 8.6 cm.
Clay: outer, inner and fabric colour: 10R 5/4 (weak red); sand inclusions; medium firing temperature.
Description: conical bowl.

AbT.12.42.86 - Fig. 8.128
Dimensions: rim diam.: 12.4 cm; rim th.: 0.5 cm; wall th.: 0.7 cm; base diam.: 4.2 cm; base th.: 0.8 cm; h.: 6.5 cm.
Clay: outer, inner and fabric colour: 2.5Y 7/4 (pale yellow); sand inclusions; medium-high firing temperature.
Description: conical bowl.

AbT.12.42.87 - Fig. 8.130
Dimensions: rim diam.: 26.4 cm; rim th.: 1.3 cm; wall th.: 0.8 cm.
Clay: outer, inner and fabric colour: 2.5Y 6/4 (light yellowish brown); sand inclusions; medium-high firing temperature.
Description: out-turned rim jar.

AbT.12.42.88 - Fig. 8.128
Dimensions: wall th.: 0.6 cm; base diam.: 4 cm; base th.: 2 cm.
Clay: outer, inner and fabric colour: 5Y 7/3 (pale yellow); sand inclusions; medium-high firing temperature.
Description: beaker base.

AbT.12.42.89 - Fig. 8.128
Dimensions: wall th.: 0.7 cm; base diam.: 5.4 cm; base th.: 0.6 cm.
Clay: outer, inner and fabric colour: 2.5YR 5/6 (red); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.12.42.90 - Fig. 8.130
Dimensions: wall th.: 0.4 cm; base diam.: 13 cm; base th.: 0.6 cm.
Clay: outer, inner and fabric colour: 2.5Y 7/4 (pale yellow); sand inclusions; medium-high firing temperature.
Description: ring base.

AbT.12.42.91 - Fig. 8.130
Dimensions: rim diam.: 15.2 cm; rim th.: 0.9 cm; wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/3 (pale yellow); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.12.42.92 - Fig. 8.130
Dimensions: rim diam.: 12 cm; rim th.: 0.5 cm; wall th.: 0.5 cm.
Clay: outer, inner and fabric colour: 5YR 7/4 (pink); sand inclusions; medium-high firing temperature.
Description: band rim jar.

AbT.12.42.93 - Fig. 8.130
Dimensions: rim diam.: 18 cm; rim th.: 0.7 cm; wall th.: 0.9 cm.
Clay: outer, inner and fabric colour: 10YR 6/3 (pale brown); sand inclusions; medium-high firing temperature.
Description: double-ridged rim jar.

AbT.12.42.94 - Fig. 8.128
Dimensions: rim diam.: 15 cm; rim th.: 0.5 cm; wall th.: 0.7 cm; base diam.: 5.2 cm; base th.: 0.8 cm; h.: 6.8 cm.
Clay: outer, inner and fabric colour: 5YR 7/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: conical bowl.

AbT.12.42.95 - Fig. 8.130
Dimensions: rim diam.: 18 cm; rim th.: 0.6 cm; wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 10YR 6/3 (pale brown); sand inclusions; medium firing temperature.
Description: plain rim jar.

AbT.12.42.96 - Fig. 8.129
Dimensions: rim diam.: 26 cm; rim th.: 1.3 cm; wall th.: 1.8 cm; base diam.: 27 cm; base th.: 2.2 cm; h.: 8.7 cm.
Clay: outer, inner and fabric colour: 2.5YR 6/3 (light reddish brown); sand and vegetal inclusions; medium firing temperature.
Description: tray.

AbT.12.42.97 - Fig. 8.130
Dimensions: rim diam.: 12 cm; rim th.: 0.3 cm; wall th.: 0.7 cm.
Clay: outer, inner and fabric colour: 10YR 6/4 (light yellowish brown); sand inclusions; medium-high firing temperature.
Description: band rim jar.

AbT.12.42.98 - Fig. 8.128
Dimensions: wall th.: 1.1 cm; base diam.: 7 cm; base th.: 1.6 cm.
Clay: outer, inner and fabric colour: 2.5YR 5/4 (reddish brown); sand inclusions; medium-high firing temperature.
Description: drinking vessel base.

AbT.12.42.99 - Fig. 8.128
Dimensions: rim diam.: 10 cm; rim th.: 0.3 cm; wall th.: 0.5 cm.
Clay: outer, inner and fabric colour: 10YR 8/3 (very pale brown); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.42.100 - Fig. 8.130
Dimensions: rim diam.: 24 cm; rim th.: 0.7 cm; wall th.: 0.5 cm.
Clay: outer, inner and fabric colour: 5YR 7/3 (pink); sand inclusions; medium-high firing temperature.
Description: plain rim jar with incised zigzag line on the neck.

AbT.12.42.101 - Fig. 8.128
Dimensions: rim diam.: 11.5 cm; rim th.: 0.4 cm; wall th.: 0.7 cm; base diam.: 6.8 cm; base th.: 0.4 cm; h.: 17 cm.
Clay: outer, inner and fabric colour: 2.5Y 7/3 (pale yellow); sand inclusions; medium-high firing temperature.
Description: beaker.

AbT.12.42.102 - Fig. 8.128
Dimensions: wall th.: 1 cm; base diam.: 5.2 cm; base th.: 0.4 cm.
Clay: outer, inner and fabric colour: 5YR 5/6 (yellowish red); sand inclusions; medium firing temperature.
Description: drinking vessel base.

AbT.12.42.103 - Fig. 8.129
Dimensions: rim diam.: 28 cm; rim th.: 1.5 cm; wall th.: 22 cm.

Clay: outer, inner and fabric colour: 5Y 8/2 (pale yellow); sand inclusions; medium-high firing temperature.
Description: plain rim of a tray or fragment of a huge ring base with bitumen traces.

AbT.12.42.104 - Fig. 8.128
Dimensions: wall th.: 0.7 cm; base diam.: 4 cm; base th.: 0.7 cm.
Clay: outer and inner colour: 2.5YR 7/8 (light red); fabric colour: 2.5YR 4/6 (red); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.12.42.105 - Fig. 8.130
Dimensions: wall th.: 0.4 cm; base diam.: 11 cm; base th.: 0.4 cm.
Clay: outer, inner and fabric colour: 2.5Y 6/3 (light yellowish brown); sand inclusions; medium firing temperature.
Description: ring base.

AbT.12.42.106 - Fig. 8.128
Dimensions: rim diam.: 16.7 cm; rim th.: 0.4 cm; wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/6 (yellow); sand inclusions; medium-high firing temperature.
Description: drinking vessel rim.

AbT.12.42.107 - Fig. 8.130
Dimensions: rim diam.: 14.4 cm; rim th.: 0.3 cm; wall th.: 0.5 cm.
Clay: outer, inner and fabric colour: 5Y 7/2 (light grey); sand inclusions; medium-high firing temperature.
Description: plain rim jar.

AbT.12.42.108 - Fig. 8.130
Dimensions: wall th.: 0.7 cm; base diam.: 12 cm; base th.: 0.8 cm.
Clay: outer, inner and fabric colour: 2.5Y 7/4 (pale yellow); sand inclusions; medium-high firing temperature.
Description: ring base.

AbT.12.42.109 - Fig. 8.128
Dimensions: wall th.: 1 cm; base diam.: 5 cm; base th.: 1.2 cm.
Clay: outer, inner and fabric colour: 2.5YR 5/6 (red); sand inclusions; medium-high firing temperature.
Description: drinking vessel base.

AbT.12.42.110 - Fig. 8.130
Dimensions: rim diam.: 18.8 cm; rim th.: 0.6 cm; wall th.: 0.5 cm; h.: 44 cm.
Clay: outer colour: 10YR 6/3 (pale brown), inner and fabric colour: 7.5YR 5/4 (brown); sand inclusions; medium-high firing temperature.
Description: band rim jar.

AbT.12.42.111 - Fig. 8.130
Dimensions: rim diam.: 17 cm; rim th.: 1.4 cm; wall th.: 0.7 cm.
Clay: outer, inner and fabric colour: 10YR 8/3 (very pale brown); sand inclusions; medium firing temperature.
Description: triangular rim jar.

Catalogue of US 134 Finds

Objects

AbT.13.42 - Fig. 8.118
Description: chert blade.
Dimensions: 1.6x4.5x0.5 cm.

Pottery

AbT.13.134.1 - Fig. 8.131
Dimensions: rim diam.: 14.5 cm; rim th.: 0.6 cm; wall th.: 0.7 cm; base diam.: 5.8 cm; base th.: 1.2 cm; h.: 7.8 cm.
Clay: outer colour: 10YR 7/4 (very pale brown); inner colour: 10YR 8/3 (very pale brown); fabric colour: 10YR 6/4 (light yellowish brown); sand inclusions; medium firing temperature.
Description: conical bowl, found in association with 11 shells.

AbT.13.134.2 - Fig. 8.131
Dimensions: rim diam.: 14 cm; rim th.: 0.6 cm; wall th.: 0.7 cm; base diam.: 5 cm; base th.: 1.3 cm; h.: 7.8 cm.
Clay: outer colour: 2.5Y 8/3 (pale brown); inner colour: 7.5YR 7/4 (pink); fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium-low firing temperature.
Description: conical bowl.

AbT.13.134.3 - Fig. 8.131
Dimensions: wall th.: 0.6 cm; base diam.: 4 cm; base th.: 1 cm.
Clay: outer and inner colour: 10YR 8/2 (very pale brown); fabric colour: 7.5YR 7/4 (pink); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.13.134.4 - Fig. 8.131
Dimensions: wall th.: 0.7 cm; base diam.: 4.5 cm; base th.: 1 cm.
Clay: outer colour: 2.5Y 7/3 (pale brown); inner and fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium firing temperature.
Description: beaker base.

AbT.13.134.5 - Fig. 8.131
Dimensions: wall th.: 0.9 cm; base diam.: 6 cm; base th.: 0.9 cm.
Clay: outer colour: 5Y 8/2 (pale yellow); inner and fabric colour: 2.5Y 7/3 (pale brown); sand inclusions; medium- firing temperature.
Description: beaker base.

AbT.13.134.6 - Fig. 8.131
Dimensions: wall th.: 0.8 cm; base diam.: 4.5 cm; base th.: 3.4 cm.
Clay: outer colour: 2.5Y 8/3 (pale brown); inner and fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium firing temperature.
Description: pointed base.

AbT.13.134.7 - Fig. 8.131
Dimensions: rim diam.: 34 cm; rim th.: 1 cm; wall th.: 1 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium firing temperature.
Description: shallow bowl rim.

AbT.13.134.8 - Fig. 8.131
Dimensions: rim diam.: 20 cm; rim th.: 1 cm; wall th.: 0.7 cm.
Clay: outer and inner colour: 10YR 8/2 (very pale brown); fabric colour: 7.5YR 5/6 (strong brown); sand inclusions; medium-low firing temperature.
Description: shallow bowl rim.

AbT.13.134.9 - Fig. 8.131
Dimensions: rim diam.: 24 cm; rim th.: 1.3 cm; wall th.: 0.7 cm.
Clay: outer and inner colour: 5Y 8/2 (pale yellow); fabric colour: 10YR 6/4 (light yellowish brown); sand inclusions; medium firing temperature.
Description: triangular rim bowl.

AbT.13.134.10 - Fig. 8.131
Dimensions: rim diam.: 25 cm; rim th.: 1.5 cm; wall th.: 1 cm.
Clay: outer and inner colour: 10YR 8/2 (very pale brown); fabric colour: 10YR 6/4 (light yellowish brown); sand inclusions; medium firing temperature.
Description: triangular rim bowl.

AbT.13.134.11 - Fig. 8.131
Dimensions: rim diam.: 28 cm; rim th.: 2 cm; wall th.: 1 cm.
Clay: outer and inner colour: 5Y 8/2 (pale yellow); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium firing temperature.
Description: triangular rim bowl.

AbT.13.134.12 - Fig. 8.131
Dimensions: rim diam.: 13 cm; rim th.: 0.4 cm; wall th.: 0.8 cm.
Clay: outer colour (slip?): 10YR 8/2 (very pale brown); inner colour: 10YR 8/2 (very pale brown); fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: plain rim jar.

AbT.13.134.13+14 - Fig. 8.131
Dimensions: rim diam.: 15.7 cm; rim th.: 0.6 cm; wall th.: 0.8 cm.
Clay: outer, inner and fabric colour: 2.5Y 8/3 (pale brown); sand inclusions; medium firing temperature.
Description: plain rim jar.

AbT.13.134.15 - Fig. 8.131
Dimensions: rim diam.: 15 cm; rim th.: 0.6 cm; wall th.: 0.6 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 10YR 6/4 (light yellowish brown); sand inclusions; medium firing temperature.
Description: plain rim of a jar with a small ridge on the wall.

AbT.13.134.16 - Fig. 8.131
Dimensions: wall th.: 1 cm.
Clay: outer colour: 2.5Y 8/2 (pale brown); inner colour: 10YR 8/2 (very pale brown); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-high firing temperature.
Description: fragment of a jar with a series of impressed decorations at the base of the neck.

AbT.13.134.17 - Fig. 8.131
Dimensions: wall th.: 0.7 cm; base diam.: 10 cm; base th.: 0.4 cm.
Clay: outer and inner colour: 2.5Y 8/3 (pale brown); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-high firing temperature.
Description: ring base.

Catalogue of US 143 Finds

Pottery

AbT.13.143.1 - Fig. 8.132
Dimensions: wall th.: 1.25 cm; base diam.: 23.5 cm; base th.: 0.9 cm; h.: 27.6 cm (max. preserved).
Clay: outer colour (self slip on the upper part): 2.5Y 8/2 (pale brown); inner and fabric colour: 7.5YR 7/3 (pink); sand inclusions; medium firing temperature.
Description: richly decorated jar with ring base and two ridges framing the shoulder section. The decoration on the upper part of the body consists of (from the neck to the base) one line of small incisions, an applied notched ridge, four incised wavy lines and a second applied notched ridge.

Catalogue of US 147 Finds

Pottery

AbT.13.147.1 - Fig. 8.133
Dimensions: rim diam.: 14 cm; rim th.: 0.6 cm; wall th.: 0.7 cm; base diam.: 5 cm; base th.: 0.9 cm; h.: 11.7 cm.
Clay: outer colour: 2.5Y 9/2 (very pale yellow); inner colour: 7.5YR 8/2 (pinkish white); fabric colour: 7.5YR 6/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: beaker.

AbT.13.147.2 - Fig. 8.133
Dimensions: wall th.: 0.8 cm; base diam.: 4.5 cm; base th.: 1.2 cm.
Clay: outer and inner colour: 7.5YR 6/4 (light brown); fabric colour: 7.5YR 5/6 (strong brown); sand inclusions; medium-low firing temperature.
Description: conical bowl base.

AbT.13.147.3 - Fig. 8.133
Dimensions: rim diam.: 28 cm; rim th.: 0.8 cm; wall th.: 1.2 cm.
Clay: outer colour: 2.5Y 8/2 (pale brown); inner colour: 10YR 8/3 (very pale brown); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium firing temperature.
Description: stem base (?).

AbT.13.147.4 - Fig. 8.133
Dimensions: rim diam.: 14 cm; rim th.: 0.6 cm; wall th.: 0.5 cm.
Clay: outer and inner colour: 10YR 8/3 (very pale brown); fabric colour: 7.5YR 5/6 (strong brown); sand inclusions; medium firing temperature.
Description: band rim jar.

AbT.13.147.5 - Fig. 8.133
Dimensions: wall th.: 0.8 cm; base diam.: 35 cm; base th.: 0.8 cm.
Clay: outer, inner and fabric colour: 7.5YR 5/6 (strong brown); sand inclusions; medium firing temperature.
Description: flat base.

Catalogue of US 152 Finds

Objects

AbT.13.49 - Fig. 8.119
Description: chert flake.
Dimensions: 5.4x6.6x2.7 cm.

Pottery

AbT.13.152.1 - Fig. 8.133
Dimensions: rim diam.: 36 cm; rim th.: 2 cm; wall th.: 1.2 cm.
Clay: outer colour: 2.5Y 4/4 (olive brown); inner colour: 2.5Y 7/4 (pale brown); fabric colour: 10YR 6/4 (light yellowish brown); sand inclusions; medium firing temperature.
Description: triangular rim bowl.

AbT.13.152.2 - Fig. 8.133
Dimensions: rim diam.: 20 cm ca.; rim th.: 1.5 cm; wall th.: 1.1 cm.
Clay: outer colour: 10YR 8/3 (very pale brown); inner colour: 10YR 7/4 (very pale brown); fabric colour: 10YR 6/4 (light yellowish brown); sand inclusions; medium firing temperature.
Description: triangular rim bowl.

AbT.13.152.3 - Fig. 8.133
Dimensions: rim diam.: 36 cm ca. (inner); rim th.: 1.7 cm; wall th.: 0.8 cm.
Clay: outer and inner colour (self-slip): 2.5Y 8/2 (pale brown); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-high firing temperature.
Description: triangular rim bowl.

AbT.13.152.4 - Fig. 8.133
Dimensions: rim diam.: 14 cm (inner); rim th.: 0.9 cm; wall th.: 0.7 cm.
Clay: outer and inner colour: 2.5Y 8/3 (pale brown); fabric colour: 7.5YR

6/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: band rim jar.

AbT.13.152.5 - Fig. 8.133
Dimensions: rim diam.: 18 cm (inner); rim th.: 1.5 cm; wall th.: 0.7 cm.
Clay: outer and inner colour: 2.5Y 8/3 (pale brown); fabric colour: 10YR 6/4 (light yellowish brown); sand inclusions; medium firing temperature.
Description: band rim jar.

AbT.13.152.6 - Fig. 8.133
Dimensions: rim diam.: 15 cm; rim th.: 1.3 cm; wall th.: 0.8 cm.
Clay: outer colour: 10YR 7/4 (pale brown); inner colour: 10YR 8/2 (very pale brown); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium firing temperature.
Description: band rim jar.

AbT.13.152.7 - Fig. 8.133
Dimensions: wall th.: 1 cm; base diam.: 18 cm; base th.: 1 cm.
Clay: outer and inner colour: 2.5Y 7/4 (pale brown); fabric colour: 7.5YR 6/4 light brown; sand and vegetal inclusions; medium firing temperature.
Description: ring base.

AbT.13.152.8 - Fig. 8.133
Dimensions: rim diam.: 10 cm; rim th.: 0.2 cm; wall th.: 0.7 cm; base diam.: 5 cm; base th.: 0.9 cm; h.: 10.5 cm.
Clay: outer colour: 2.5Y 8.5/2 (pale yellow); inner colour: 2.5Y 8/2 (pale brown); fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium firing temperature.
Description: beaker.

AbT.13.152.9 - Fig. 8.133
Dimensions: rim diam.: 20 cm; rim th.: 1.4 cm; wall th.: 0.9 cm.
Clay: outer colour: 10YR 8/3 (very pale brow); inner colour: 2.5Y 8/2 (pale brown); fabric colour: 10YR 6/4 (light yellowish brown); sand inclusions; medium firing temperature.
Description: triangular rim bowl.

AbT.13.152.10 - Fig. 8.133
Dimensions: rim diam.: 18 cm; rim th.: 0.8 cm; wall th.: 0.6 cm.
Clay: outer colour (self-slip): 5YR 6/4 (light reddish brown); inner colour: 10YR 8/3 (very pale brown); fabric colour: 10YR 5/4 (yellowish brown); sand inclusions; medium-low firing temperature.
Description: plain rim jar.

AbT.13.152.11 - Fig. 8.133
Dimensions: rim diam.: 16 cm; rim th.: 0.8 cm; wall th.: 0.6 cm.
Clay: outer colour: 2.5Y 8/2 (pale brown); inner colour: 10YR 7/3 (very pale brown); fabric colour: 10YR 6/4 (light yellowish brown); sand inclusions; medium-low firing temperature.
Description: plain rim jar.

AbT.13.152.12 - Fig. 8.133
Dimensions: rim diam.: 9 cm; rim th.: 1.1 cm; wall th.: 0.6 cm.
Clay: outer and inner colour: 5Y 8/2 (pale yellow); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-low firing temperature.
Description: triangular rim jar.

AbT.13.152.13 - Fig. 8.133
Dimensions: wall th.: 1.1 cm; base diam.: 20 cm; base th.: 1.9 cm.
Clay: outer colour (slip): 10YR 8.5/2 (very pale brown); inner colour: 7.5YR 6/6 (reddish yellow); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-high firing temperature.
Description: stemmed-dish base with hatched decoration.

AbT.13.152.14 - Fig. 8.133
Dimensions: rim diam.: 15 cm; rim th.: 0.9 cm; wall th.: 0.75 cm.
Clay: outer and inner colour: 7.5YR 8/3 (pink); fabric colour: 5YR 5/4 (reddish brown); sand inclusions; medium firing temperature.
Description: band rim jar.

AbT.13.152.15 - Fig. 8.133
Dimensions: wall th.: 1 cm.
Clay: outer and inner colour: 10YR 8/2 (very pale brown); fabric colour: 7.5YR 7/4 (pink); sand inclusions; medium firing temperature.
Description: jar shoulder fragment with notched ridge and incised decoration above it.

AbT.13.152.16 - Fig. 8.133
Dimensions: wall th.: 0.6 cm.
Clay: outer and inner colour: 10YR 8/2 (very pale brown); fabric colour: 7.5YR 7/4 (pink); sand inclusions; medium firing temperature.
Description: jar shoulder fragment with notched ridge and a single wavy incision above it.

AbT.13.152.17 - Fig. 8.133
Dimensions: wall th.: 1 cm; base diam.: 5.4 cm.
Clay: outer, inner and fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium firing temperature.
Description: body of a small jar with string-cut base, rounded shoulders and ovoid body.

AbT.13.152.18 - Fig. 8.133
Dimensions: wall th.: 1 cm; base diam.: 3.4 cm; base th.: 0.6 cm.
Clay: outer and inner colour: 7.5YR 6/4 (light brown); fabric colour: 10YR 7/4 (very pale brown); sand inclusions; medium firing temperature.
Description: pointed base.

AbT.13.152.19 - Fig. 8.133
Dimensions: wall th.: 2.1 cm; base diam.: 40 cm ca.; base th.: 2 cm.
Clay: outer and inner colour: 7.5YR 7/4 (pink); fabric colour: 7.5YR 6/4 (light brown); sand and vegetal inclusions; medium firing temperature.
Description: flat base.

AbT.13.152.20 - Fig. 8.133
Dimensions: wall th.: 0.5 cm; base diam.: 5.4 cm; base th.: 0.8 cm.
Clay: outer colour: 10YR 8/2 (very pale brown); inner colour: 7.5YR 7/4 (pink); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium firing temperature.
Description: rounded base.

AbT.13.152.21 - Fig. 8.133
Dimensions: wall th.: 0.9 cm; base diam.: 11 cm; base th.: 0.9 cm.
Clay: outer colour: 2.5Y 5/1 (grey); inner and fabric colour: 5Y 6/1 (grey); sand inclusions; medium firing temperature.
Description: flat base.

AbT.13.152.22 - Fig. 8.133
Dimensions: wall th.: 0.8 cm; base diam.: 20 cm; base th.: 1 cm.
Clay: outer colour: 10YR 8/2 (very pale brown); inner colour: 7.5YR 8/2 (pink); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium firing temperature.

Description: convex base with three feet.

Catalogue of US 163 Finds

Objects

AbT.13.66 - Fig. 8.120
Description: copper alloy fragment.
Dimensions: 1.8x3.1x0.9 cm.

AbT.13.67 - Fig. 8.120
Description: carnelian fragment.
Dimensions: 1.6x2x0.9 cm.

AbT.13.68 - Fig. 8.120
Description: clay wheel pierced in the middle.
Dimensions: 3 cm (perforation's diameter); 10.5x6.8 cm.

Pottery

AbT.13.163.1 - Fig. 8.134
Dimensions: rim diam.: 9 cm ca.; rim th.: 0.5 cm; wall th.: 0.8 cm; base diam.: 4.5 cm; base th.: 1 cm; h.: 8.8 cm.
Clay: outer, inner and fabric colour: 5YR 4/4 (reddish brown); sand inclusions; medium-low firing temperature.
Description: small beaker.

AbT.13.163.2 - Fig. 8.134
Dimensions: rim diam.: 14 cm; rim th.: 0.7 cm; wall th.: 1.1 cm; base diam.: 5 cm; base th.: 0.9 cm; h.: 7.8 cm.
Clay: outer colour: 10YR 6/4 (light yellowish brown); inner colour: 5YR 4/4 (reddish brown); fabric colour: 7.5YR 5/6 (strong brown); sand inclusions; medium firing temperature.
Description: conical bowl.

AbT.13.163.3 - Fig. 8.134
Dimensions: rim diam.: 12 cm; rim th.: 0.5 cm; wall th.: 0.6 cm; base diam.: 5 cm; base th.: 0.8 cm; h.: 6.6 cm.
Clay: outer and inner colour: 2.5Y 8/3 (pale brown); fabric colour: 7.5YR 5/6 (strong brown); sand inclusions; medium firing temperature.
Description: conical bowl.

AbT.13.163.4 - Fig. 8.134
Dimensions: wall th.: 0.7 cm; base diam.: 3 cm; base th.: 0.8 cm.
Clay: outer, inner and fabric colour: 7.5YR 4/4 (brown); sand inclusions; medium-low firing temperature.
Description: pointed base.

AbT.13.163.5 - Fig. 8.134
Dimensions: rim diam.: 23 cm; rim th.: 0.8 cm; wall th.: 0.8 cm.
Clay: outer and inner colour: 2.5Y 4/1 (dark grey); fabric colour: 5Y 5/1 (grey); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.13.163.6 - Fig. 8.134
Dimensions: rim diam.: 18 cm; rim th.: 0.6 cm; wall th.: 0.9 cm.
Clay: outer and inner colour: 2.5Y 4/1 (dark grey); fabric colour: 5Y 5/1 (grey); sand inclusions; medium firing temperature.
Description: drinking vessel rim.

AbT.13.163.7 - Fig. 8.134
Dimensions: rim diam.: 40 cm; rim th.: 2,1 cm; wall th.: 1.2 cm.
Clay: outer and inner colour: 7.5YR 5/6 (strong brown); fabric colour: 10YR 5/4 (yellowish brown); sand inclusions; medium firing temperature.
Description: triangular rim bowl.

AbT.13.163.8 - Fig. 8.134
Dimensions: rim diam.: 36 cm; rim th.: 1.9 cm; wall th.: 1.2 cm.
Clay: outer, inner and fabric colour: 7.5YR 5/6 (strong brown); sand inclusions; medium firing temperature.
Description: triangular rim bowl.

AbT.13.163.9 - Fig. 8.134
Dimensions: rim diam.: 36 cm; rim th.: 1.3 cm; wall th.: 1.3 cm.
Clay: outer colour: 10YR 6/4 (light yellowish brown); inner colour: 7.5YR 6/6 (reddish yellow); fabric colour: 7.5YR 4/4 (brown); sand inclusions; medium firing temperature.
Description: stemmed-dish bowl.

AbT.13.163.10 - Fig. 8.134
Dimensions: rim diam.: 26 cm; rim th.: 2.1 cm; wall th.: 1 cm.
Clay: outer and inner colour: 7.5YR 6/6 (reddish yellow); fabric colour: 7.5YR 4/4 (brown); sand inclusions; medium firing temperature.
Description: triangular rim bowl.

AbT.13.163.11 - Fig. 8.134
Dimensions: rim diam.: 23 cm; rim th.: 2.2 cm; wall th.: 1.2 cm.
Clay: outer colour: 10YR 6/4 (light yellowish brown); inner colour: 5YR 5/6 (yellowish red); fabric colour: 7.5YR 5/4 (brown); sand inclusions; medium firing temperature.
Description: triangular rim bowl.

AbT.13.163.12 - Fig. 8.134
Dimensions: rim diam.: 27 cm; rim th.: 2.1 cm; wall th.: 1 cm.
Clay: outer colour (self-slip): 10YR 8/2 (very pale brown); inner colour: 7.5YR 6/6 (reddish yellow); fabric colour: 7.5YR 5/6 (strong brown); sand inclusions; medium firing temperature.
Description: triangular rim bowl.

AbT.13.163.13 - Fig. 8.134
Dimensions: rim diam.: 16 cm; rim th.: 1 cm; wall th.: 0.7 cm.
Clay: outer colour: 2.5Y 8/3 (pale brown); inner colour: 10YR 8/3 (very pale brown); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-high firing temperature.
Description: stemmed-dish bowl.

AbT.13.163.14 - Fig. 8.134
Dimensions: rim diam.: 31 cm; rim th.: 1.8 cm; wall th.: 2.6 cm; base diam.: 30 cm; base th.: 1.8 cm; h.: 9 cm.
Clay: outer and inner colour: 7.5YR 4/6 (strong brown); fabric colour: 2.5Y 3/1 (very dark grey); sand and vegetal inclusions; medium-low firing temperature.
Description: tray.

AbT.13.163.15 - Fig. 8.134
Dimensions: wall th.: 0.7 cm.
Clay: outer colour: 7.5YR 7/3 (pink); inner and fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: cylinder with shaved walls.

AbT.13.163.16 - Fig. 8.134
Dimensions: rim diam.: 16 cm ca.; rim th. 0.4 cm; wall th.: 0.5 cm.
Clay: outer colour: 7.5YR 7/3 (pink); inner colour: 10YR 8/2 (very pale brown); fabric colour: 7.5YR 5/4 (brown); sand inclusions; medium-high firing temperature.
Description: plain rim with two lines of wavy decoration on the outer surface.

AbT.13.163.17 - Fig. 8.134
Dimensions: rim diam.: 16 cm; rim th.: 1.2 cm; wall th.: 0.9 cm.
Clay: outer colour: 10YR 5/4 (yellowish brown); inner colour: 10YR 6/4 (light yellowish brown); fabric colour: 7.5YR 5/6 (strong brown); sand inclusions; medium firing temperature.
Description: band rim jar.

AbT.13.163.18 - Fig. 8.134
Dimensions: rim diam.: 17 cm; rim th.: 0.7 cm; wall th.: 0.7 cm.
Clay: outer and inner colour: 5Y 7/3 (pale yellow); fabric colour: 7.5YR 4/6 (strong brown); sand inclusions; medium firing temperature.
Description: band rim jar.

AbT.13.163.19 - Fig. 8.134
Dimensions: wall th.: 1.4 cm.
Clay: outer and inner colour (self-slip): 2.5Y 8/3 (pale brown); fabric colour: 7.5YR 6/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: jar shoulder decorated with oblique incisions, one applied notched ridge and traces of incised waved lines.

AbT.13.163.20 - Fig. 8.134
Dimensions: wall th.: 2 cm; base diam.: 12 cm; base th.: 1.3 cm.
Clay: outer, inner and fabric colour: 5YR 4/4 (reddish brown); sand and vegetal inclusions; medium firing temperature.
Description: coarse fabric stand with a hole (diameter 1.8 cm) and three small feet at the centre of the ring (?) base. It could be considered also inverted.

AbT.13.163.21 - Fig. 8.134
Dimensions: wall th.: 1 cm; base diam.: 22 cm; base th.: 0.9 cm.
Clay: outer and inner colour: 2.5Y 7/4 (pale brown); fabric colour: 10YR 6/4 (light yellowish brown); sand inclusions; medium firing temperature.
Description: ring base.

AbT.13.163.22 - Fig. 8.134
Dimensions: rim diam.: 16 cm; rim th.: 0.6 cm; wall th.: 1 cm; base diam.: 5.3 cm; base th.: 1.5 cm; h.: 7.7 cm.
Clay: outer, inner and fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-low firing temperature.
Description: conical bowl. Found near the lower limbs of the body.

AbT.13.163.23 - Fig. 8.134
Dimensions: rim diam.: 14 cm; rim th.: 0.8 cm; wall th.: 0.7 cm.
Clay: outer colour: 2.5Y 8/2 (pale brown); inner colour: 7.5YR 6/4 (light brown); fabric colour: 7.5YR 5/4 (brown); sand inclusions; medium firing temperature.
Description: band rim jar.

AbT.13.163.24 - Fig. 8.134
Dimensions: rim diam.: 13 cm; rim th.: 0.9 cm; wall th.: 0.5 cm.
Clay: outer and inner colour (self-slip): 2.5Y 8/2 (pale brown); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium firing temperature.
Description: plain rim jar.

AbT.13.163.25 - Fig. 8.134
Dimensions: wall th.: 1 cm.
Clay: outer and inner colour: 10YR 8/2 (very pale brown); fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium firing temperature.
Description: wall fragment with an applied notched ridge.

AbT.13.163.26 - Fig. 8.134
Dimensions: rim diam.: 15 cm; rim th.: 0.6 cm; wall th.: 0.8 cm; base diam.: 4.8 cm; base th.: 1.2 cm; h.: 8.2 cm.
Clay: outer and inner colour: 5Y 8/2 (pale yellow); fabric colour: 5YR 6/3 (pale olive); sand inclusions; medium firing temperature.
Description: conical bowl.

AbT.13.163.27 - Fig. 8.134
Dimensions: wall th.: 1 cm.
Clay: outer colour: 2.5Y 8/2 (pale brown); inner colour: 10YR 8/2 (very pale brown); fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: shoulder fragment of a jar with 15 incised parallel lines.

AbT.13.163.28 - Fig. 8.134
Dimensions: wall th.: 0.5 cm; base diam.: 18.6 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: not registered; sand inclusions; medium-high firing temperature.
Description: ring base jar with bitumen traces (drops), perhaps a sort of simple decoration that occupies only half of the base. The decoration was clearly applied with the jar set upside-down. The jar contained fragments from AbT.13.163.29 to AbT.13.163.40.

AbT.13.163.29 - Fig. 8.134
Dimensions: wall th.: 1.3 cm; base diam.: 6 cm; base th.: 0.9 cm.
Clay: outer, inner and fabric colour: 5Y 8/2 (pale yellow); sand inclusions; medium-high firing temperature.
Description: beaker base. Inside jar AbT.13.163.28.

AbT.13.163.30 - Fig. 8.134
Dimensions: wall th.: 1.3 cm; base diam.: 7 cm; base th.: 0.9 cm.
Clay: outer and fabric colour: 10YR 6/4 (light yellowish brown); inner colour: 7.5YR 5/4 (brown); sand inclusions; medium firing temperature.
Description: beaker base. Inside jar AbT.13.163.28.

AbT.13.163.31 - Fig. 8.134
Dimensions: wall th.: 0.9 cm; base diam.: 5.3 cm; base th.: 0.8 cm.
Clay: outer colour: 7.5YR 7/3 (pink); inner colour: 7.5YR 6/4 (light brown); fabric colour: 7.5YR 5/4 (brown); sand inclusions; medium-high firing temperature.
Description: beaker base. Inside jar AbT.13.163.28.

AbT.13.163.32 - Fig. 8.134
Dimensions: wall th.: 1 cm; base diam.: 5.3 cm; base th.: 0.7 cm.
Clay: outer and inner colour: 7.5YR 8/3 (pink); fabric colour: 7.5YR 5/4 (brown); sand inclusions; medium-low firing temperature.
Description: beaker base. Inside jar AbT.13.163.28.

AbT.13.163.33 - Fig. 8.134
Dimensions: wall th.: 1.1 cm; base diam.: 5 cm; base th.: 1.2 cm.
Clay: outer colour: 10YR 8.5/2 (very pale brown); inner colour: 10YR 7/4 (very pale brown); fabric colour: 7.5YR 5/4 (brown); sand inclusions; medium firing temperature.
Description: beaker base. Inside jar AbT.13.163.28.

AbT.13.163.34 - Fig. 8.134
Dimensions: wall th.: 0.8 cm; base diam.: 5 cm; base th.: 1 cm.

Clay: outer, inner and fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-low firing temperature.
Description: conical bowl base. Inside jar AbT.13.163.28.

AbT.13.163.35 - Fig. 8.134
Dimensions: wall th.: 0.8 cm; base diam.: 5 cm; base th.: 1 cm.
Clay: outer, inner and fabric colour: 10YR 6/4 (light yellowish brown); sand inclusions; medium firing temperature.
Description: conical bowl base. Inside jar AbT.13.163.28.

AbT.13.163.36 - Fig. 8.134
Dimensions: wall th.: 1 cm; base diam.: 5.5 cm; base th.: 0.8 cm.
Clay: outer, inner and fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-low firing temperature.
Description: conical bowl base. Inside jar AbT.13.163.28.

AbT.13.163.37 - Fig. 8.134
Dimensions: wall th.: 1 cm; base diam.: 5 cm; base th.: 1.1 cm.
Clay: outer, inner and fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium-high firing temperature.
Description: conical bowl base. Inside jar AbT.13.163.28.

AbT.13.163.38 - Fig. 8.134
Dimensions: wall th.: 1 cm; base diam.: 5 cm; base th.: 1.1 cm.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium firing temperature.
Description: conical bowl base. Inside jar AbT.13.163.28.

AbT.13.163.39 - Fig. 8.134
Dimensions: wall th.: 0.7 cm; base diam.: 5 cm; base th.: 1.4 cm.
Clay: outer, inner and fabric colour: 5YR 6/6 (reddish yellow); sand inclusions; medium-low firing temperature.
Description: conical bowl base. Inside jar AbT.13.163.28.

AbT.13.163.40 - Fig. 8.134
Dimensions: wall th.: 0.7 cm; base diam.: 6 cm; base th.: 0.6 cm.
Clay: outer, inner and fabric colour: 2.5Y 5/2 (greyish brown); sand inclusions; medium-low firing temperature.
Description: conical bowl base. Inside jar AbT.13.163.28.

Catalogue of US 166 Finds

Objects

AbT.13.62 - Fig. 8.121
Description: chert sickle element.
Dimensions: 3.4x1.2x0.4 cm.

Catalogue of US 167 Finds

Objects

AbT.13.62 - Fig. 8.122
Description: stone vessel fragment with very slight abrasion traces on the internal surface, whereas the outer surface presents heavier vertical abrasion traces. [SC]
Dimensions: 1.5x7 cm ca.

Pottery

AbT.13.167.1 - Fig. 8.135
Dimensions: wall th.: 1.2 cm; base diam.: 6.8 cm; base th.: 1 cm.
Clay: outer and inner colour: 2.5Y 8/3 (pale brown); fabric colour: 10YR 6/4 (light yellowish brown); sand inclusions; medium firing temperature.
Description: cylinder.

Catalogue of US 200 Finds

Objects

AbT.12.16 - Fig. 8.123
Description: chert sickle element.
Dimensions: 1.2x4x0.3 cm.

Pottery

AbT.14.200.1 - Fig. 8.135
Dimensions: wall th.: 1.3 cm; base diam.: 7 cm; base th.: 1.1 cm
Clay: outer, inner and fabric colour: 2.5YR 5/6 (red); sand inclusions; medium firing temperature.
Description: conical bowl.

AbT.14.200.2 - Fig. 8.135
Dimensions: rim diam.: 15.5 cm; rim th.: 0.7 cm; wall th.: 0.6 cm.
Clay: outer, inner and fabric colour: 7.5YR 8/2 (pinkish white); sand inclusions; medium firing temperature.
Description: band rim jar.

AbT.14.200.3 - Fig. 8.135
Dimensions: rim diam.: 17.3 cm; rim th.: 0.4 cm; wall th.: 0.8 cm; base diam.: 5 cm; base th.: 1.2 cm; h.: 7.4 cm.
Clay: outer, inner and fabric colour: 5YR 6/4 (light reddish brown); sand inclusions; medium firing temperature.
Description: conical bowl.

AbT.14.200.4 - Fig. 8.135
Dimensions: rim diam.: 14.4 cm; rim th.: 0.4 cm; wall th.: 0.7 cm; base diam.: 5.4 cm; base th.: 1 cm; h.: 7.4 cm.
Clay: outer, inner and fabric colour: 7.5YR 6/4 (light brown); sand inclusions; medium firing temperature.
Description: conical bowl.

AbT.14.200.5 - Fig. 8.135
Dimensions: rim diam.: 14.2 cm; rim th.: 0.4 cm; wall th.: 0.7 cm; base diam.: 4.5 cm; base th.: 0.7 cm; h.: 7.7 cm.
Clay: outer, inner and fabric colour: 7.5YR 8/2 (pinkish white); sand inclusions; medium firing temperature.
Description: conical bowl.

CHAPTER 9

MICRO-DEBRIS ANALYSIS OF BUILDING A - PHASE 1 ROOM 23

CHAPTER 9
MICRO-DEBRIS ANALYSIS OF BUILDING A - PHASE 1 ROOM 23

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9.1 Introduction

This chapter presents the results of a microarchaeological investigation carried out in Building A - phase 1 Room 23 to better understand its use and function.[1] The floor of Room 23 was found in a much better preservation state compared to other related contexts, which in many cases were disturbed by erosional processes and by the strong salinization of the area. The integrity of the floor, together with the exceptionally high number of materials found *in situ* (Fig. 8.94), in some cases even in clusters, made this context well-suited for a "Micro-Debris Analysis" (Fig. 9.1). This technique examines the spatial patterning of the smallest human-related by-products (in this study between 15 and 1 mm) found within archaeological deposits and occupation surfaces. Indeed, these microscopic remains, coupled with the analysis of *in situ* macro-artefacts and the architectural features, can enhance our understanding of how the built space was used, lived and experienced by its inhabitants.

9.2 Use of Space and Microscopic Record

The study of built space to retrieve information about the social, economic and cultural traits of the investigated human groups, has been long practiced by archaeologists. An approach developed in the 1980s – now well-known – to study architecture is the so-called "Activity-Area Analysis", according to which the distribution of objects in one specific context is a reflection of the use of space through human action.[2] For long time, this analysis was based exclusively on the spatial patterning of the macroscopic artefacts found in direct association (*in situ*) with a living surface. Nonetheless, the archaeological context we investigate is the result of several natural and cultural transformations that affect the deposits during and especially after its formation. These processes create over time material compositions and arrangements that do not reflect the behaviours of the past. On the other side, micro-residues, given their reduced size, are less susceptible to post-depositional processes that normally affect the archaeological deposits. Their higher preservation potential and better chances of being found in, or

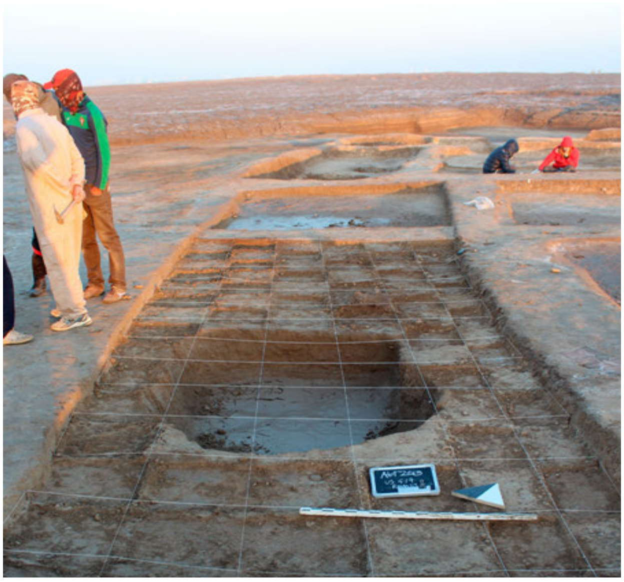

Fig. 9.1 Photo of the 50 cm^2 grid used to collect the floor samples. This picture was taken after the floor surface was sampled.

[1] For a full description of the Room, with its stratigraphic sequence and the recovered finds, see § 8.20.

[2] Wilk - Ratje 1982; Kent 1987.

Fig. 9.2 Illustrative picture of all types of micro-residues identified.

close to, the location where they were produced, used or deposited,[3] make them key-evidences for detecting what Schiffer calls "primary refuse".[4] Therefore, the concentration and distribution of micro-residues can reveal arrangements that reflect spatially persistent activities that took place over the lifetime of a structure[5] and allow us to discern patterns in the use of spaces.[6]

9.3 Data Acquisition and Processing

45 samples of sediment were collected from the floor surface according to a chessboard pattern,[7] using a grid of 50x50 cm that was placed on the surface with the aid of string and nails (Fig. 9.1).

The floor was overall well preserved, except for a portion in the centre of the Room, truncated by a later inhumation (Grave 24 - § 7.7.1). The floor was collected to a thickness of ca. 2 cm and particular care was paid to sample only the proper floor surface, so as to reduce the chances of including intrusive material. The mean volume of each sample was of ca. 7 L. The collected samples were then processed by flotation with a 0.5 mm mesh mosquito net in order to remove the fine components (silts and clays). Small bags of sediment were taken from each sample and set aside for chemical analysis.

The dry residues were then sieved again by means of precision Retsch® sieves, to clean the samples from residual silty dust that was not washed away with flotation, and to facilitate identification of micro-residues, by creating two smaller subgroups of each sample. For this work an upper limit of 15 mm and a lower limit of 1 mm[8] were set, based on heuristic considerations: an upper size that can still be trampled and evade removal during cleaning operations, and a lower one where the characteristics of the different material classes can still be distinguished by the unaided eye. The identified debris was divided into different material classes: bones, ceramics, bitumen, lithics, shells, eggshells (Fig. 9.2). These residues were then counted, and the raw counts were converted into numeric density (by dividing the number of finds by the volume of each sample), to uniform and compare the values of all samples.

Finally, the micro-residues densities were plotted on the ArcGIS® 10.5 software. The resulting graphical models allowed to directly perceive and easily interpret the distribution of density values.[9] The method adopted is the spline-tension interpolation, which predicts the values of cells at locations that lack sampled points through specific mathematical functions, filling the gaps where there are no density values.[10] In order to

[3] O'Connell 1987.

[4] Schiffer 1972; 1976; 1996.

[5] Ullah *et al.* 2015: 1239.

[6] For a discussion of the state of art of micro-residue analysis in the Near East and another case study coming from a later phase of the Building A of Abu Tbeirah, please refer to Cereda - Romano 2018.

[7] With the exception of the south-eastern portion of the Room, corresponding to Concentration D (see also § 8.20) and the southern wall of the Room, where they were collected in full.

[8] According to the ISO 14688-1 (International scale) these sizes fall within the "Fine Sand" and the "Medium Gravel" fractions.

[9] Ullah *et al.* 2015: 1256.

[10] Ullah *et al.* 2015: 1257.

maintain the interpolation points equidistant, not all samples collected around Concentration D were analysed, but only those that were consistent with the general chessboard pattern.

9.4 Results of Micro-Debris Analysis

The category with the most abundant number of fragments recovered in the Room is that of bones (Fig. 9.3). Because of the quantitative variation between classes of material residues, the interpolation maps are presented using different ranges of value, so that the signal from the less abundant residues is not obscured. The direct comparison between the density values of each sample can be seen in table Tab. 9.1 and in the bar chart Fig. 9.4. This way of presenting the interpolation results allows a better understanding of the spatial behaviour and the relative concentrations of each material class, that only in their totality and in their different contributions define the character and the story of the analysed Room.

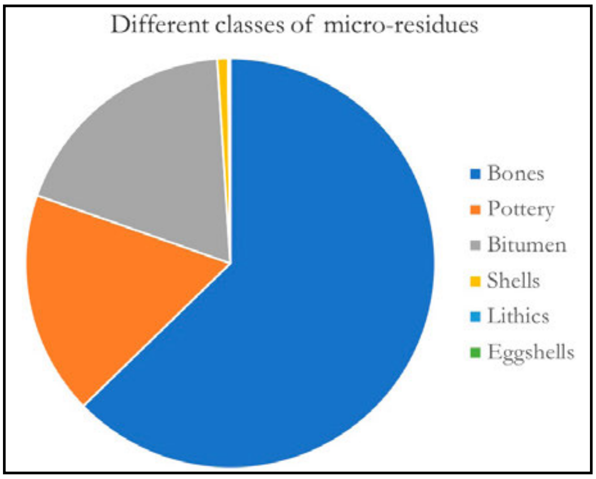

Fig. 9.3 Pie chart showing the relative abundance of the different classes of micro-residues.

Bones

Bone residues are mainly represented by non-diagnostic splinters that do not allow the identification of the animal they originate from. Few calcined bones can be identified but the frequent brown/dark brown colouring that many of them display is possibly a consequence of the depositional context (manganese contamination - see § 6.1.1.3) and the interaction of bones with minerals and organic substances in the sediment.[11]

Bones are the most abundant class of material and were recovered in all the samples, but a concentration can be recognized by the fireplace, spreading towards the north and western walls of the Room (Fig. 9.5).

Bitumen

Bitumen occurs as dark lumps of tar mixed with a fine mineral component and straw. In the larger pieces it is still possible to identify the void pseudomorphs of the original plant inclusions. In this room, fragments of bitumen are generally quite small[12] and despite being found in all the samples, more distinct concentrations can be

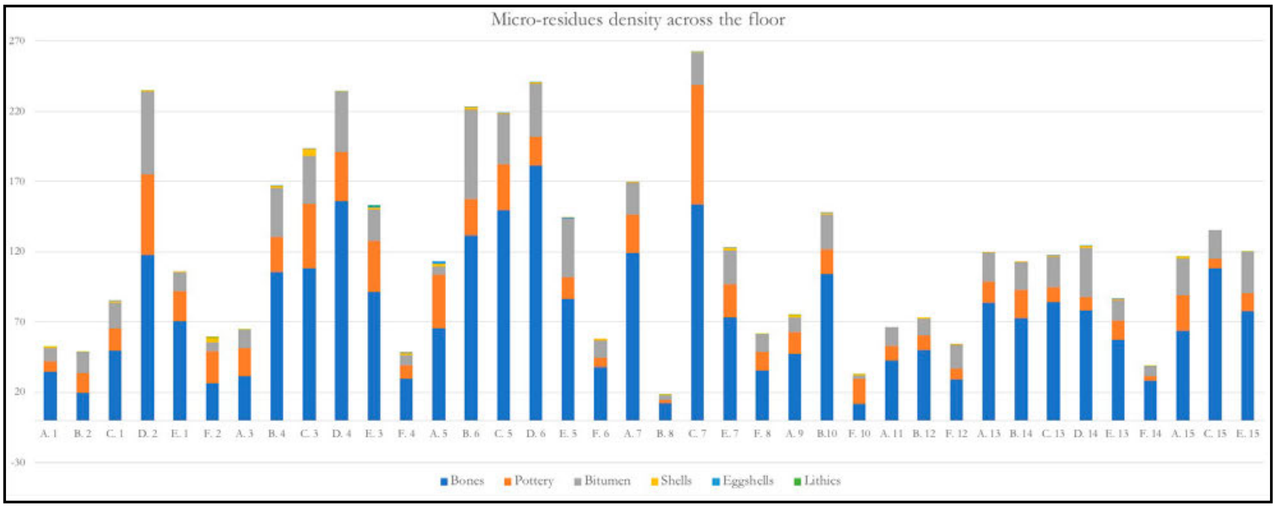

Fig. 9.4 Histogram showing the relative abundance distribution of each class of micro-residues in each sample.

[11] Dupras - Schultz 2013: 323.
[12] See Cereda - Romano 2018 for comparison.

	Residues < 15 mm					
Sample	Bones	Pottery	Bitumen	Shells	Lithics	Eggshells
A. 1	34571.4286	7428.57143	9714.28571	1285.71429	0	0
A. 3	31466.6667	20000	13200	266.666667	0	0
A. 5	65571.4286	38142.8571	6000	1428.57143	0	2000
A. 7	119090.909	27454.5455	22909.0909	545.454545	0	0
A. 9	47272.7273	15454.5455	10909.0909	1272.72727	181.818182	0
A. 11	42444.4444	10666.6667	13111.1111	0	0	0
A. 13	84000	14545.4545	20909.0909	545.454545	0	0
A. 15	64000	25333.3333	26000	1333.33333	0	0
B. 2	19400	14300	14600	100	0	0
B. 4	105894.737	24842.1053	34842.1053	1473.68421	0	105.263158
B. 6	131684.211	25789.4737	63789.4737	1263.15789	105.263158	210.526316
B. 8	12000	2571.42857	3238.09524	285.714286	95.2380952	0
B.10	104153.846	17384.6154	24923.0769	923.076923	0	461.538462
B. 12	50153,8462	10153.8462	12307.6923	769.230769	0	0
B. 14	72923.0769	19692.3077	20153.8462	615.384615	0	0
C. 1	49647.0588	16000	18235.2941	1176.47059	0	117.647059
C. 3	108235.294	45647.0588	34705.8824	4705.88235	0	705.882353
C. 5	149727.273	32454.5455	36181.8182	363.636364	0	272.727273
C. 7	153304,348	85130.4348	22869.5652	782.608696	0	173.913043
C. 13	84375	10250	21875	625	0	125
C. 15	108000	7200	20200	0	0	0
D. 2	117500	57600	59300	1000	0	0
D. 4	156166.667	34916.6667	42583.3333	500	0	250
D. 6	181545.455	20363.6364	37545.4545	1272.72727	0	636.363636
D. 14	78600	9400	34500	1700	0	100
E. 1	70166.6667	21833.3333	13833.3333	500	0	0
E. 3	91466.6667	36000	22533.3333	1600	133.333333	800
E. 5	86500	15375	41500	125	125	375
E. 7	73384.6154	23230.7692	24615.3846	1230.76923	0	307.692308
E. 13	57428.5714	13428.5714	15000	428.571429	0	571.428571
E. 15	77750	12500	29750	250	0	0
F. 2	26631.5789	22210.5263	6526.31579	3368.42105	105.263158	210.526316
F. 4	29578.9474	9578.94737	7368.42105	1473.68421	0	105.263158
F. 6	38235.2941	6117.64706	12470.5882	1764.70588	0	0
F. 8	35571.4286	12714.2857	13142.8571	714.285714	0	0
F. 10	11800	17800	2600	1000	0	0
F. 12	29090.9091	7818.18182	17090.9091	545.454545	0	0
F. 14	28285.7143	3285.71429	7142.85714	571.428571	0	0

Tab. 9.1 Density values of all micro-debris categories from each floor sample.

observed in the north-western part of the Room, in connection with the fireplace US 418 and the area of ceramic concentrations, and (to a lesser extent) also in the eastern portion of the Room, close to the south-eastern wall (Fig. 9.6).

POTTERY

The identification of pottery debris presents more challenges than the materials described previously. Indeed, it must be distinguished from material with similar composition (*e.g.* natural aggregates or highly weathered residues of mud-brick, plaster, or even pottery), the presence of which in the samples is probably not related to primary deposition. Some criteria to distinguish the ceramic fragments supposedly belonging to the use of the Room are: the occurrence of distinctive features, such as a flat or smooth surface; a higher resistance to breakage when pressure is applied; the occurrence of sharp edges that suggest a "fresh" fracture. As for their distribution, a small but distinctive accumulation can be identified close

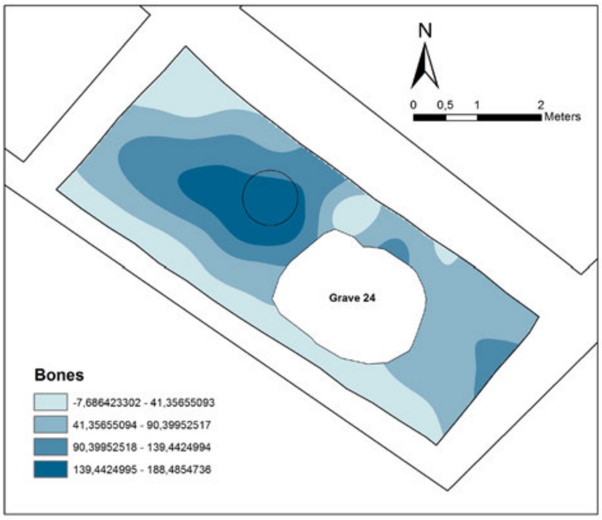

Fig. 9.5 Density map displaying the interpolated values of bone debris.

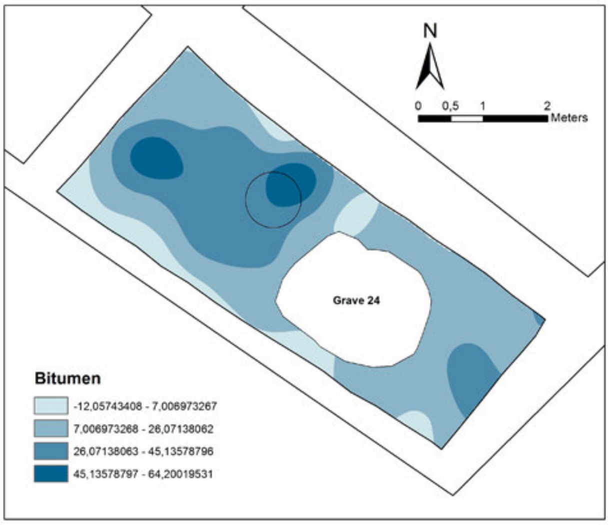

Fig. 9.6 Density map displaying the interpolated values of bitumen debris.

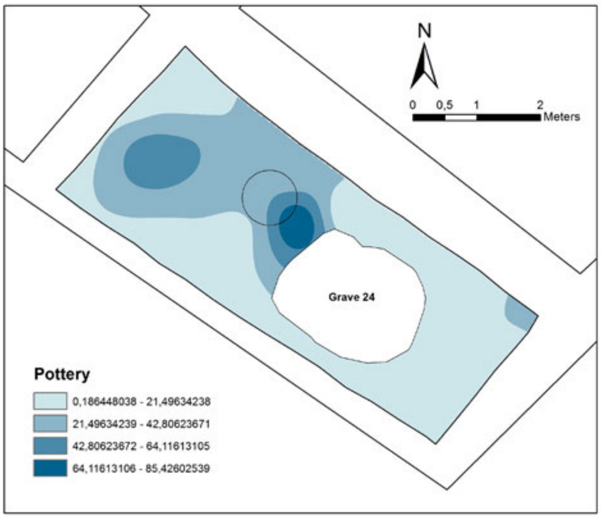

Fig. 9.7 Density map displaying the interpolated values of pottery debris.

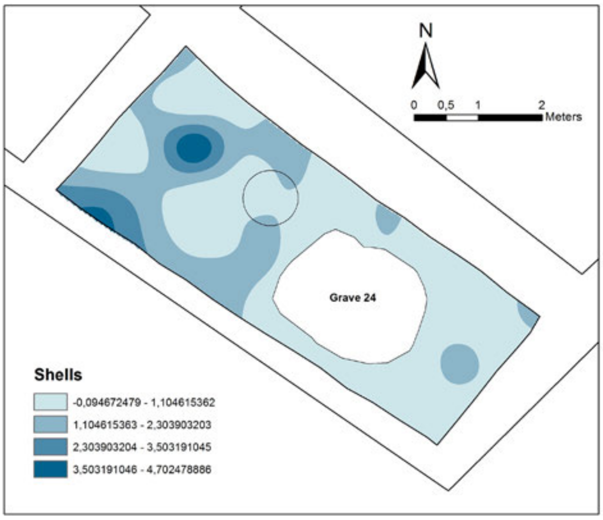

Fig. 9.8 Density map displaying the interpolated values of shell debris.

to the fireplace and another, less concentrated but still noteworthy, is located in the north-western part of the Room, in connection with the *in situ* Concentrations A and B (Fig. 9.7).

Shells

Shells are easily recognizable thanks to some physical features, such as the often layered structure,[13] their colour and occasional opalescent appearance. The finds of this class appear distributed in a more uneven way but a couple of denser spots can be observed in the western part of the Room: one directly in the south-western corner and the other in connection with concentration A (Fig. 9.8).

Eggshells

The identification of eggshells is based on their distinctive curvature, smooth surface both on the inside and the outer face, and the presence of pores that cross their structure.[14] Also in this case, like for the shells, the distribution observed is patchier, but a small accumulation can be seen

[13] Weiner 2010: 157.

[14] Weiner 2010: 151-152.

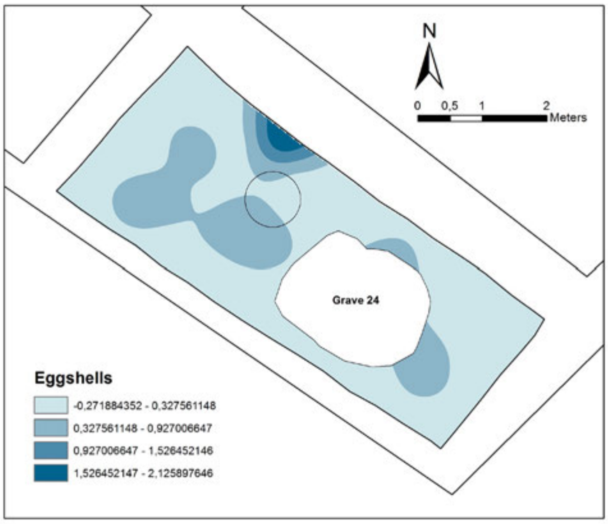

Fig. 9.9 Density map displaying the interpolated values of eggshell debris.

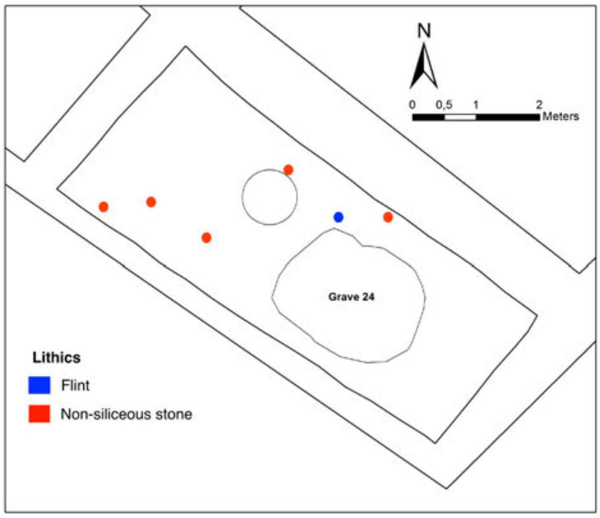

Fig. 9.10 Map displaying the location of lithic debris.

around the area of the fireplace, more precisely against the north-eastern wall (Fig. 9.9).

Lithics

The few lithic remains are represented mainly by fragments of non-knapped stones, possibly similar to the objects found *in situ* in the Room (see §§ 14-15), and one single chert flake. Given the scarcity of these remains and the fact that they were recovered always as single items, the distribution of this material class is only shown on a simple map where the location of each find is indicated. As evidenced by the map, the remains were found along an axis moving from the south-western corner to the northern side of Grave 24 (Fig. 9.10).

9.5 Discussion of Results and Interpretation of Room 23

The distribution patterns described in the previous section reveal that the strongest concentrations of micro-residues occur in the western portion of the Room, in connection or in the immediate proximities of fireplace US 418. The larger quantity of bones in this area hints at operations connected to food preparation and consumption. However, few of the retrieved bones show unequivocal signs of burning and/or are calcined, suggesting that exposure to fire must have not been direct or prolonged, and at the same time, that the bones were not tossed in the fire for waste disposal. Furthermore, it is interesting to note that compared to the results of a previous study conducted in another Room of the building,[15] there seems to be considerably lower amounts of fish bones, possibly indicating variations in the consumption of food resources in different areas of Building A.[16] Still, this observation is currently based only on a visual estimate and more detailed evidences will be provided by specific zoo-archaeological investigations.

Indications of cooking activities seem to be reflected also by the presence of small clusters of shells and eggshells, although off-centered compared to the location of the fireplace. The distribution of these materials further away from the fire installation and especially close to the north-eastern and south-western walls may be connected to the high mobility of the fragments due to their lightness and their expected tendency to accumulate in corners and sides. This, in turn, may also indirectly indicate possible forms of movement and cleaning practices inside the Room.

A similar distribution, revolving around the fireplace but slightly off-centered, can be observed for the pottery remains. The accumulation close to the western wall seems to be directly related to the presence of the two *in situ* pottery

[15] Room 5. See Cereda - Romano 2018.

[16] Or maybe in different periods, since the room described in Cereda - Romano 2018 belongs to the second phase of the Building.

Concentrations A and B.[17] This association could indicate either manipulation of ceramic material or that the recovered fragments directly originate from the *in situ* pottery. However, the amount and high degree of fragmentation of the debris suggests a prolonged process rather than a single event (the same connected to the breaking of pottery in Concentrations A and B). As for the concentration close to the fire installation, also here the manipulation of ceramic for cooking or fire-related activities may have been the primary cause of such material pattern. Though, a possible bias connected to the difficulty of confidently identifying the pottery debris from other forms of burnt clay material, especially for fragments ranging between 1-2 mm, must be taken into account. Indeed, the fireplace US 418 was not so well preserved and partly broken, suggesting the possible mixing of pieces from this clayey structure with the pottery material, which may have produced an altered and stronger signal of ceramic micro-residues.

Bitumen residues show the most interesting distribution pattern. This resource, which was well-known in the Near East and the use of which extends back to the Middle Palaeolithic,[18] was widely employed for its adhesive and waterproofing properties, even as building material and for artistic production.[19] In Room 23 a minor concentration towards the south-eastern wall is perhaps connected to the three bitumen cakes found in Concentration D[20] (Fig. 9.11). However, the majority of the micro-residues were found in association with and around the fireplace, suggesting that bitumen was exposed to fire in this part of the Room. The pyrotechnological process is, in fact, a necessary step to melt bitumen and make it workable for craft activities. The other cluster of high bitumen density was found in connection with Concentrations A and B, and it is of particular relevance that this pottery, composed exclusively by jars, shows traces of bitumen coating in its inner and outer walls (Fig. 9.12 and 8.97).

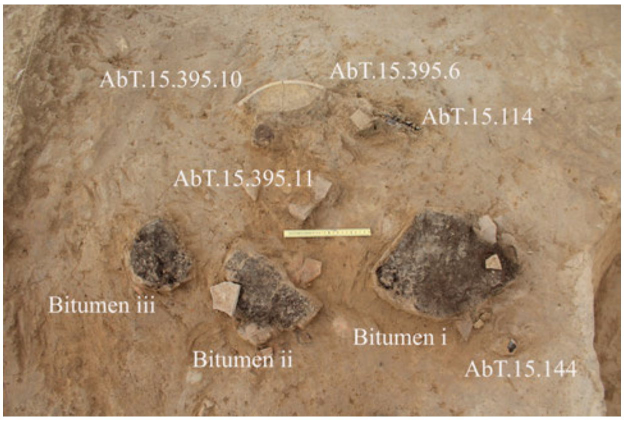

Fig. 9.11 Detail of concentration D, with the cakes of bitumen mastic, located in the south-eastern part of the Room.

Fig. 9.12 Fragment of *in situ* jar AbT.15.395.7 from Concentration A with the inner walls covered in bitumen (see also Fig. 8.97).

Indeed, the use of ceramic vessels to melt and decant bitumen is archaeologically attested already in earlier periods[21] and it is therefore possible to hypothesize that also the jars found in Room 23 were employed for the same purpose. Thus, the bitumen residues found in this location may represent traces of spilling from the processing and decanting stage and also the concentration of pottery in the same area gains a possible new connotation, since it may be related to the handling of ceramic containers for the bitumen processing. Finally, the recovery of several blade fragments, some of which still inserted in the bitumen (used to haft them on a sickle - see §§ 14-15), seems to further support the hypothesis that craft activities involving the manipulation of bitumen to repair

[17] See Fig. 8.94 for the exact location of *in situ* material.
[18] Boëda *et al.* 1996.
[19] Schwartz - Hollander 2000.
[20] In this case, contrarily to the pottery remains, the brittle nature of the bitumen lumps might speak in favour of a direct association of these micro-residues with their macroscopic counterparts.

[21] *E.g.* jars from 4th mill. BC Hacınebi Tepe (Schwartz - Hollander 2000).

and fix implements occurred in this part of the building.

As for the lithic remains, these micro-residues are very scarce and dispersed. The few findings are mainly represented by non-siliceous stones with a single chert flake, and this scarcity of lithic debris is particularly noteworthy given the abundance of *in situ* stone tools. Indeed, the divergence of evidence between macro- and micro-remains seems to indicate that knapping or retouching activities were not carried out, at least on a substantial scale. However, it is also possible that, given the harmful nature of chert debris, the area where these activities were carried out was covered, in order to easily remove the leftovers of the knapping or retouching works.

Finally, if we look at the distribution patterns of all material classes, a clear distinction between the western area, where the higher concentrations occur, and the eastern side of the Room, where the floor appears much cleaner, can be recognized. Such an arrangement diverges from the spatial behaviour of *in situ* materials, which have not only been recovered across the whole surface, but many of them where even found in a cluster in the eastern portion of the Room (Concentration D), leading the excavators to initially think that activities were performed prominently in this area. The integration of microscopic record and artifact distribution helps to clarify this picture: indeed, the main focus of different sets of practices appears to be the area of the fireplace, probably used both for the pyrotechnological processing of bitumen and for accomplishing craft works in general (the fire provided a light source), as well as for the consumption of food (Area A in Fig. 9.13). The area to the east, clean from residues but with many materials on the floor, may have conversely been used to store raw materials (*e.g.,* bitumen) and tools used for bitumen processing, together with the implements that needed to be fixed/hafted/coated (Area B in Fig. 9.13). Indeed, the dispersal of macroscopic finds (especially the isolated ones) across the floor may not reflect the original use and deposition of these materials, but rather post-depositional rearrangements of artefacts due to natural or cultural events, especially after the abandonment of the structure. Alternatively, it can be hypothesized (as mentioned before) that the floor in this part of the Room was covered, so that eventual traces of activity did not enter the floor substratum; or, even, that other types of activities that did not leave material traces took place in this area.

9.6 Conclusions

According to the spatial analysis of micro-debris within the floor, Room 23 can be interpreted as a multi-functional space with strong "workshop" overtones, characterized by clear traces of craft/productive activities. Indeed, beside food consumption, which is testified by the residues of foodstuff, the fireplace area was the focus of heating and processing of bitumen mastic. The bitumen, perhaps melted in the jars found close to the fire installation, was probably used to repair, attach or improve the functionality of tools, some of which were recovered across the floor (*e.g.*, sickle blades, pestles, etc.), while materials and implements were possibly stored in the south-eastern corner of the Room.

Importantly, this study has showed that *in situ* finds alone do not offer an unequivocal proxy to understand the use of space. Instead, the combination of two different lines of evidence, from the macroscopic and microscopic record, allowed a more accurate and informed interpretation of this space and how it was experienced by its occupiers. The different arrangements found in the archaeological context are indeed the result of complex and sometimes not easily recognizable formation processes, which may alter the nature and location of the original material assemblages. Therefore, the study of the microscopic record provides an invaluable help for archaeologists trying to understand the function of the spatial setting in which people lived and carried out their day-to-day practices.

From a methodological point of view, micro-residues present some challenges, connected to their recognition (*e.g.*, the problem encountered with the smallest pottery fragments), but mainly due to their possible secondary nature within the floor. This must be taken into account especially in sites that have multiple occupations and construction phases, since deposits reused for building purposes may already include residual anthropic material. In this regard, particularly useful for the recognition of primary and secondary refuse are the models elaborated in interpolation maps, which allow to visually identify statistically significant clusters that,

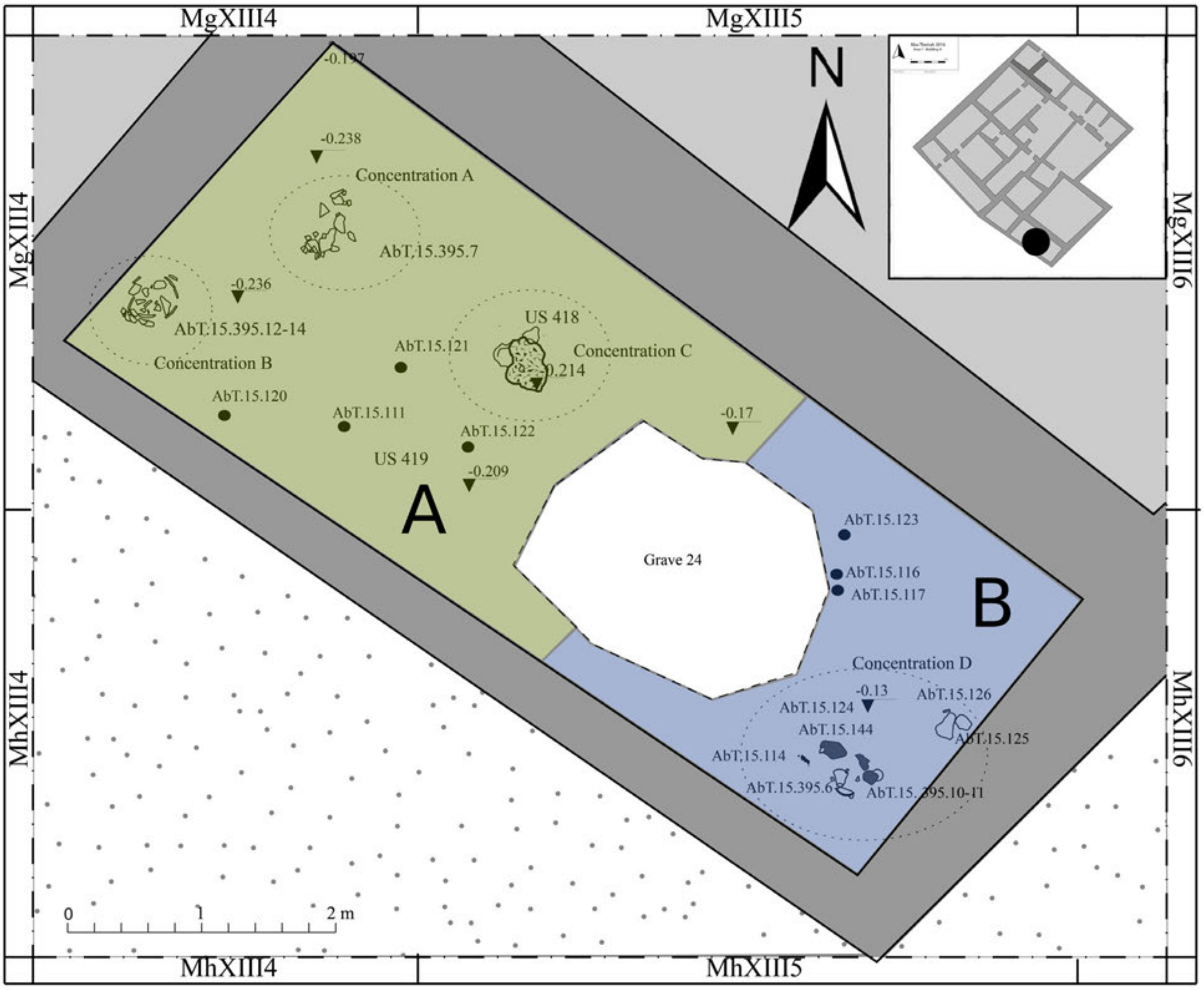

Fig. 9.13 Schematic representation of the functional division of Room 23. A) area where activities where performed in connection to bitumen processing; B) possible storage area where implements and raw material (bitumen) were kept.

in turn, must be interpreted in connection with the macro-remains and architecture to determine if the distinct concentrations are actually meaningful. Consequently, the so-identified representative spatial patterns allow to differentiate, with a higher degree of reliability, accumulations connected to the habitual use of the space from an eventually pre-existing background noise.

In conclusion, the study conducted in Room 23 represents only part of a larger project on the functional understanding of Building A. More samples for micro-residue analysis were collected from different rooms of the building and from both occupational phases[22] with the aim of defining the way the various spaces of this structure were used and experienced by people in the past and what kind of activities were performed there. Indeed, Building A represents an extraordinary investigation context and its thorough study will offer an invaluable opportunity to contribute to the investigation on Mesopotamian households.

[22] See Cereda - Romano 2018 for the study of Room 5 from phase 2.

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CHAPTER 10

AREA 1 POTTERY - PART 1
A PRELIMINARY ASSESSMENT ON TYPOLOGY, TECHNOLOGY AND USE

CHAPTER 10
AREA 1 POTTERY - PART 1
A PRELIMINARY ASSESSMENT ON TYPOLOGY, TECHNOLOGY AND USE

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10.1 Introduction [MZ][1]

The plain ware assemblages and sequence of the ED III/Akk. Transition in southern Mesopotamia continue to be even today not completely defined and understood.[2] The material available for comparison comes mainly from the contexts excavated - with different degree of stratigraphic accuracy - at Ur, Kish, Larsa, Abu Salabikh, Nippur and Diyala. Previous attempts in defining a coherent typological classification of the ED III/Akk. material encountered objective obstacles, the same found in analysing Abu Tbeirah pottery: on one hand the extreme variability of pottery profiles and the differences between entirely preserved grave assemblages and fragmentary household repertoire, and on the other hand the persistence of shapes during the second half of the 3rd mill. BC,[3] a clear sign of cultural continuity in a changing political frame.

In general, previous studies agree in describing the ED III/Akk. ware assemblage as plain and almost totally wheel-thrown. As noticed by C. Glatz, Mesopotamian plain pottery in general has gained less attention than other decorated pottery traditions,[4] being considered the results of a quick specialized mass production. These mass-produced vessels are usually assumed to be realized through wheel-throwing, a technology considered acquired and well established in the second half of the 3rd mill. BC. Notwithstanding this common assumption, other manufacturing techniques are often mentioned in Mesopotamian literature. Woolley describes some small pots as "very roughly made on the wheel and sometimes hand-made or at least scarcely turned".[5] At Abu Salabikh and Larsa some coarse vessels and large bowls are coiled, while some small/medium jars and several miniaturistic vessels are described as hand-made.[6] Flat-based trays at Larsa and Nippur are also realized by hand or slab-built.[7]

In the last decades ethnographic researches and experimental studies have led to a reassessment of pottery technology in the ancient Near East, revaluating the role of the potter's wheel in the 4th-3rd mill. BC: Courty and Roux convincingly demonstrated that the rotative device was used for shaping and refining vessels rather than throwing complete pots.[8] The focus on technology, not new in Near Eastern prehistoric studies, is increasingly spreading in Mediterranean and

[1] We are deeply grateful to N. Laneri, A. McMahon, J. Moon, and M. Ramazzotti for all the helpful comments and suggestions. Of course, all remaining errors are ours. M. Zingale is author of § 10.1, L. Romano of §§ 10.3-5; §§ 10.2 nd 10.6 are common work of the two authors.

[2] The label "ED III/Akk." is here accepted and adopted as suggested by A. McMahon, avoiding more specific chronological indication for our pottery assemblage (McMahon 2006: 59).

[3] Already Delougaz 1954: 87, 105.

[4] Glatz (ed.) 2015.

[5] Woolley 1934: 391 (Types 108-110).

[6] Moon 1987: nn. 169, 198, 204, 207-208, 443-444, 448, 791, 801-803, 806-809, 816; Thalmann 2003: 52 (*Récipients de stockage, types B1 et B2*).

[7] McMahon 2006: 61 and Types O-6a and b; Thalmann 2003: 53 (*Récipients de stockage [?]: terrine*).

[8] Courty - Roux 1995; 1998.

Levantine researches but is presently still limited in Mesopotamian studies.[9] According to C. Glatz, this bottom-up approach, derived by "a post-colonial theoretical framework", is in clear opposition to the classical "top-down perspective of Central State Control, acculturation and enforced culture change".[10]

The technological approach is based on the fundamental concept of *chaîne operatoire*,[11] the sequence of all the operations that lead from the raw material acquisition to the production of an object or instrument. The evolution of the concept and its application from the study of lithic to pottery analysis will not be analysed in depth, referring to the synthesis made by Laneri,[12] and Roux and Rosen for the Levantine region.[13] The concept of *chaîne operatoire* includes also the behavioural sequence, the ensemble of the "phases" of the cultural biography of an object including its use,[14] repairing, re-use, and discard. Moreover, researches on skills involved in the set of potters' practices, on their technical choices and behaviours aim at defining technical identities, seeing potters as individuals acting inside the society and subject to ecological and environmental, as well as cultural, factors and constraints.[15] In reconstructing ceramic production and technical identities both ethnoarchaeology[16] and experimental research provide critical data and a background for reconstructing technological processes.

The present reprise of fieldwork and researches within the modern Iraqi Republic gives the unique opportunity to apply these approaches to the newly excavated Mesopotamian material. The studies on Khaiber pottery by D. Calderbank, for example, focus on one side on the definition of the mechanical and intentional factors in 2nd mill. BC "standardized" production and on the other on the recognition of the actual *versus* intended function of the ceramic repertoire.[17] Similarly, our research at Abu Tbeirah aims at approaching synchronic and diachronic pottery variability not only from a typological perspective but also from the technological and behavioural point of view. In the following paragraphs a preliminary assessment on Abu Tbeirah pottery will be presented, focusing on the typological description of the main shapes and attempting to follow the entire life of the vessel, from clay selection (§ 11) to modelling, firing, use and re-use.

10.2 METHODOLOGY [LR - MZ]

In the 7 excavation campaigns carried out since 2012 a total of 2.681 pottery diagnostic fragments were selected and recorded. Pottery coming from each single US is collected on the field and analysed as a bulk. The collection method, moreover, involves the detailed documentation of the main contexts (pavements, graves etc.) with the annotation on plan of the position of the vessels. The boxes of pottery coming from the field are divided according to fabric[18] and then the diagnostic shapes are selected,[19] described and recorded on the online database, photographed and drawn. Each fragment is denominated with the abbreviation "AbT" followed by the year, the US and the progressive number of fragment (*e.g.*, AbT.15.342.3 where 342 is the US number and 3 the number of the fragment). Attention is also given to the technological aspects, recorded on the online-pottery sheet, including the realization of X-ray analyses made in Nasiriyah medical facilities:[20] the necessity of a focus on the pottery technology became clear after the first campaigns and preliminary studies, thus the radiographic analyses started only in 2014. Traces of use, where present, are recorded too and documented through photo and/or taking impressions with ®Provil paste. Sampling of the content of vessels

[9] Laneri 2009; Armstrong - Gasche 2014; Calderbank 2015; 2017.

[10] Glatz (ed.) 2015.

[11] Leroi-Gourhan 1943; 1945; 1964; 1965.

[12] Laneri 2011.

[13] Roux - Rosen 2009: 11-12.

[14] Ellison 1984.

[15] De La Fuente 2011; Gandon *et al.* 2018.

[16] Costin 2000.

[17] Calderbank 2015; 2017.

[18] Pottery fabrics are assessed through eye-naked observation and the use of ®Dinolite (see § 11).

[19] String-cut bases of drinking vessels, ring and convex bases, plain rims and other very common and chronologically not significant fragments were recorded in their measures but not selected for the complete documentation.

[20] We want to thank Ali Khadem Ghanim, Taher al-Hosseini and our SBAH colleagues for all the help given in the organization and performing of these analyses.

were undertaken, in particular from reliable contexts, and are in course of study. The hand-drawings are always 1:1 scale and in some cases also a 3D-photobased documentation is realized.[21] Hand drawings are copied with a vector graphic software during the didactic activities in Sapienza: the use of a vector graphic software allows to easily study the different shapes, applying for example the envelope method, or to calculate the volume quite accurately and quickly, creating a 3D model in few steps (Fig. 10.1).[22] On the base of the excavation permit, after eventual restoration and study, entire vessels are delivered to the Iraqi Museum in Baghdad. Fragments and not entirely preserved vessels are instead kept in Nasiriyah Museum, available for further studies.

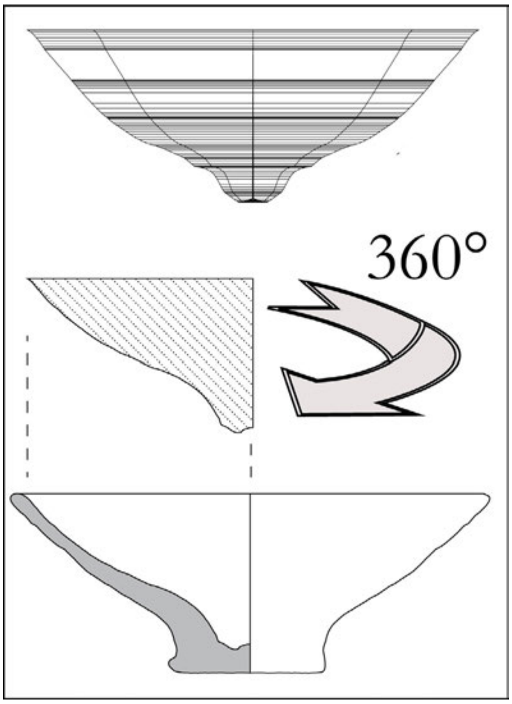

Fig. 10.1 Vessels volume estimation.

10.3 Typology [LR]

The present chapter aims at giving a first and preliminary overview of the most common vessels shapes found at Abu Tbeirah. Presently, the great variability in the shape and profiles, clearly due to the 3rd mill. BC serial produced pottery, makes the definition of a reliable typology premature.

The method chosen for the analysis of the different shapes is the "envelope" one:[23] the shards profiles are superimposed at the same scale in order to highlight variations in dimensions that might be connected to differences in the intended uses of the vessels. In the drawings here presented pottery shapes coming from Building A - phase 1 contexts are in blue, in green those from the later graves and in red the shards found in the other later activities.

An example, to be discussed in depth later, will be now used to show the limits of defining a clear typology of Abu Tbeirah pottery shards. In general, both open and closed shapes are realized using four kinds of rims: plain, triangular, band or double ridged.[24] If, for example, the plain rims are considered, these fragments can belong to open shapes (beakers and conical bowls) or to closed ones. In both cases obviously is not simply the rim to describe the shape but also the rest of the body. While in open shapes plain rim is associated only to conical bowls and beakers, apparently no recurrent association in closed shapes is evident. Closed shapes show instead a huge variety of combinations: see, *e.g.*, the trumpet base jars with plain (Fig. 10.14 *sub* c) and the triangular rim one (Fig. 18.16). This variety of association found in in the entire specimens is obviously not visible in the fragments recovered.[25]

10.3.1 Open Shapes

Conical bowls and **Beakers** are the most widespread shapes in both phases and were common also in Ur and other ED III/Akk. sites. The relative frequency of the two kinds at Abu Tbeirah is also similar to that attested in other

[21] The amount of time necessary to process all the vases for 3D is still not compatible with the timing of the mission.
[22] The 3D is realized on the basis of one section: the internal profile of the section is used to construct a curvilinear closed shape that is revolved about the central vertical axis. Then the volume is calculated automatically trough the measuring tools of a CAD program. Given the low profile symmetry of Abu Tbeirah's vessels, the volume obtained in this way should be considered however approximative. In the present chapter, unless differently stated, the volume estimated corresponds to the "total possible capacity" (the "capacity up to the meniscus of the vessel rim…probably not a practical capacity for the vessel, but it is easily replicable between researchers", Senior *et al.* 1995: 320-321).

[23] Orton 1987.
[24] Sometimes it is difficult to attribute a rim to one of the two categories (especially the decorated ones).
[25] The same problem was noted indeed in Nippur (McMahon 2006: 65 under C-1).

sites of the second half of the 3rd mill. BC: conical bowls are more frequent (70.5%) than beakers (29.5%).[26] Regarding these pottery shapes Woolley states: "the 'saucer', 'cup' and 'goblet' are distinguished by the relation of their height to their rim diameter, but the different types in practice run into each other. They are generally of rather coarse clay and the potting is always very careless, the vessel being lop-sided and the base very often cut off crookedly."[27] Due to the quick shaping procedure, it is often impossible to distinguish the two drinking vessel typologies on the base of the rim (that can vary in the same vessel from plain to slightly triangular) or base fragments: for this reason, only the complete or reconstructed vessels are considered, though also several fragments are published in the catalogue sections of §§ 7-8. Most of the vessels, moreover, are not symmetrical and this asymmetry often make attribution to one of the two classes more difficult.

Conical bowls[28] are usually quickly and poorly made on the wheel and their bases are detached with the use of a string (Fig. 10.2). The clay is of medium quality and usually is low/low-medium fired (though there are some vessels that show a higher firing temperature).[29] The rim diameter of the bowls ranges from 10 cm to a maximum of 18 cm (most of them have a diameter of ca. 14-15 ca. cm).[30] Rim and wall thickness is uneven and can vary from a minimum 0.3 cm to 1-2 cm near the base. The bases seem to be realized with standard measures: 4 cm, 4.5 cm, 5 cm, 5.5 cm and 6 cm.[31] The base should not be considered as a perfect circle: the detachment with a string literally "squeezes" the bottom of the vessel and, thus, the apparently less damaged side of the base is usually recorded. The height of the complete vessels ranges from ca. 6 cm to a maximum of 9 cm, with only one example from the Cemetery (AbT.15.332.9), showing an hight of more than 10 cm. The external angle formed by the walls and a horizontal line passing the bases ranges from 45° to 63°.[32] M. Gruber, analysing the evolution of the conical bowls during the ED, said that "(Nippur) Akkadian graves contained bowls with a base angle less than 40° while the late ED bowls remain above 42°".[33] Abu Tbeirah's conical bowls from the phases here analysed are in the range described and are well connected with the tendency, attested in several sites, toward shallower vessels at the end of the ED:[34] as visible in Fig. 10.3, indeed, it is possible to see how conical bowls from the latest graves and activities are in a way more standardized and shallower on average, if compared to those from Building A - phase 1. Bowls volume is almost always comprised between 0.3 and 0.5 L (see Fig. 10.4), and apparently there is no significant change between the analysed phases. This data is not, thus, on the same line with the noticed conical bowl capacity reduction from the second part of the ED:[35] this could be due to the probable short period that separates Building A last phase from the later graves or to a local peculiarity.

Conical bowls are sometimes attached to a **cylindrical or flared stand** (Fig. 10.5), a well attested and quite standardized shape at Abu Tbeirah (rim diameter mostly ranging from 10 to 14 cm[36] and a rim thickness <1 cm). No complete vessel was found yet but the two different parts (upper conical bowl and cylinder/stand) were recovered from the layers analysed by the present publication.[37] This kind of stand is attested at

[26] Only complete examples were considered. See the comparable data from Larsa (75% for conical bowls and 25% for beakers) in Thalmann 2003: 50.

[27] Woolley 1934: 390 Types 4-7, Pl. 251.

[28] The following number of complete vessels is considered here: 38 complete vessels from the later graves; 4 from other later activities, 51 from Building A - phase 1.

[29] Fabric A-B. See § 11.

[30] In the cases reported in the plates in §§ 7 and 8 the diameter is bigger than the interval quoted here. Nevertheless, this can happen in those cases in which the rim is poorly preserved or belongs to an uneven shaped vase: in these cases the rim should not be reconstructed as a perfect circular one, but rather as an oval one (see for example AbT. 13.170.3 with a diameter of 28 cm).

[31] On the wheel-production at Abu Tbeirah and the "standardized" measures of the bases see Romano 2015b.

[32] See for comparisons the results in Ochsenschlager 2004: 128 Fig. 7.12 (Al-Hiba conical vessels).

[33] Gruber 2015: 161.

[34] This previously noticed tendency in all the sites is well summarized by Gruber 2015 (with previous bibliography).

[35] Gruber 2015: 157.

[36] The only bigger example is AbT.14.242.37.

[37] Inside US 38 (Building A) both the cylinder and the conical bowl were found, while inside the dump pit US 242 a bigger conical bowl was probably connected to a coiled base with triangular rim. This last association is, however, not sure due to the different fabric colors (on the fabrics and the association between color and temperature see § 11).

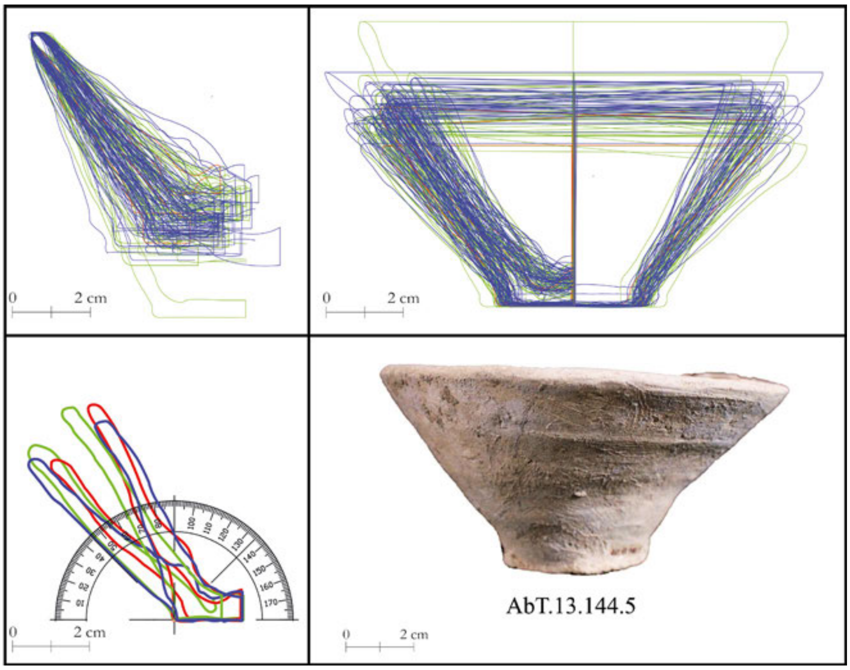

Fig. 10.2 Conical bowls: envelope.

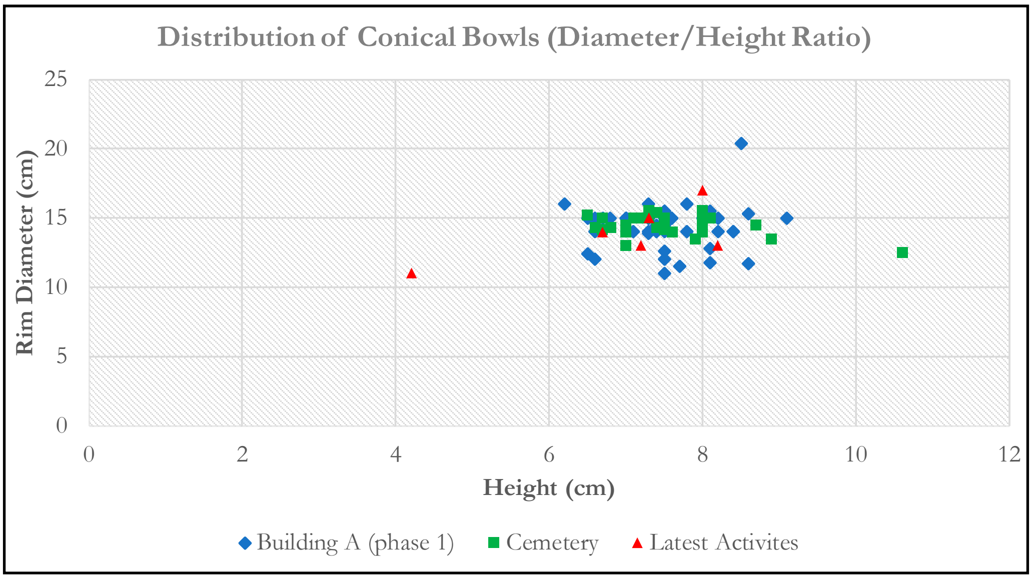

Fig. 10.3 Conical bowls: diameter/height ratio.

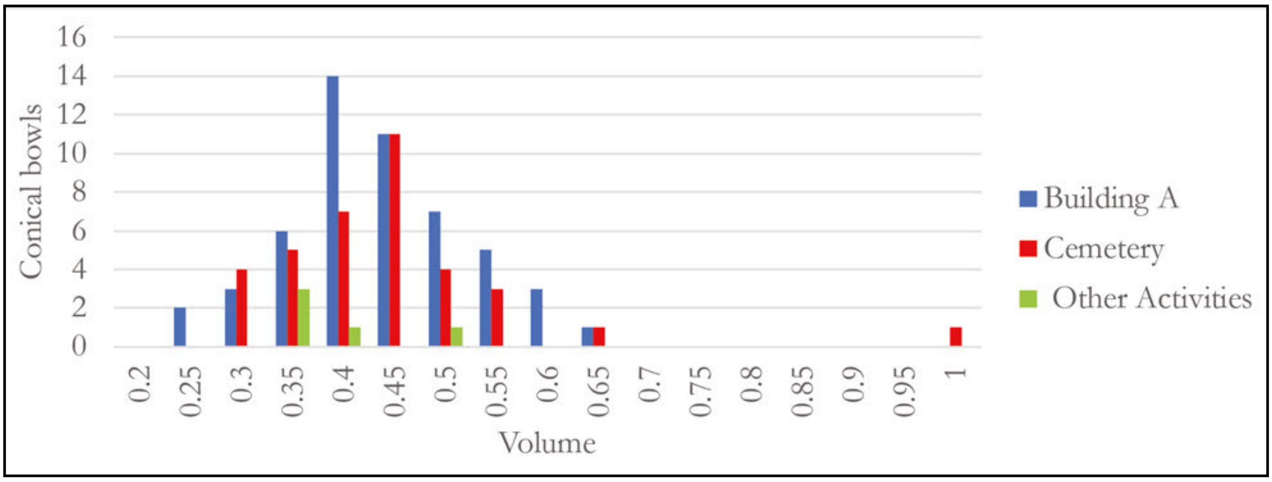

Fig. 10.4 Conical bowls: volume.

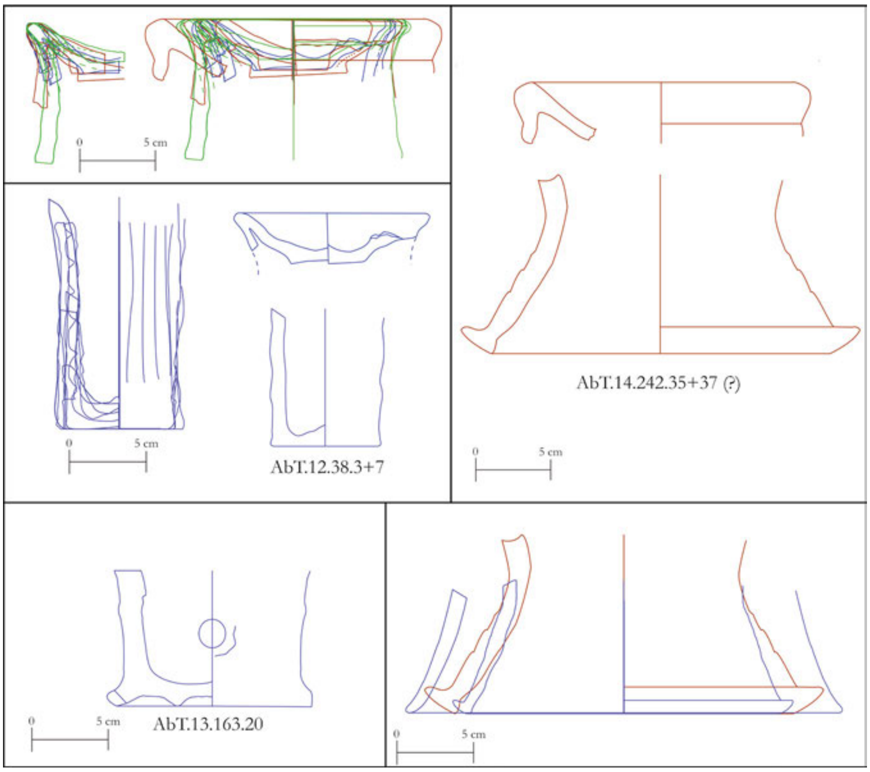

Fig. 10.5 Conical bowls attached to a stem. For a picture of the entire shapes see Fig. 10.25 (conical bowl attached to a stem), Fig. 10.26 (cylinder) and Fig. 10.27 (AbT.13.163.20).

Abu Salabikh, al-Hiba, Fara and Nippur[38] for the ED IIIa-b. However, it cannot be excluded a connection of conical bowls to a more flared stand like in AbT.13.195.17.[39] Cylinders at Abu Tbeirah have a string-cut base of 7-8 cm of diameter, more or less visible rillings inside and are attested only in the layers connected to the last phase of occupation of Building A.[40] AbT.14.194.6 is the better preserved and is almost 15 cm high. The presence of a string-cut base in the stand is in contrast with what is attested in the vessels found at Nippur.[41] In addition, another similar kind of cylindrical stand was found in Building A (AbT.13.163.20): this coarse vessel has three small feet in the middle of the base[42] and a hole in the wall. The second kind of stand can have a plain or triangular rim base and has a diameter ranging from 28 to 21 cm.

Beakers, similarly to conical bowls, are poorly and quickly wheel-thrown and with string-cut bases (Fig. 10.6). The clay is of medium quality and usually is low/low-medium fired (though there are some vessels that show a higher firing temperature). Rim diameter ranges from a minimum of 6 cm to a maximum of 17 cm (the average diameter of the beaker rim is of 11-11.5 cm). Rim and wall thickness is uneven and can vary a lot in the same vessel, like in the conical bowls, reaching a thickness 1-2 cm near the base. Bases seem in general to be realized with the same standard measures of conical bowls (4.5 cm, 5 cm, 5.5 cm and 6 cm) though also bigger and smaller examples are attested (respectively 7 cm and 3 cm). Height ranges from 6 cm to 19 cm ca., with most of the specimens of 10-13 cm. The external angle formed by the walls and a horizontal line passing the bases is always bigger than 70°,

[38] See McMahon 2006: 67 O-8 Pl. 82 (at Nippur fragments of this type come also from late Akkadian layers and can be considered, according to McMahon as a transitional type).

[39] A similar vase can be found in Woolley 1934: n. 244 Pl. 266; Martin 1988: 185 n. 99.

[40] One of them inside Grave 4.

[41] McMahon 2006: O-8 Pl. 82.

[42] The base's edge is broken: it is possible that the vase originally had a ring base. Probably it belongs to a completely different vase typology. The same could be said for AbT.12.42.13.

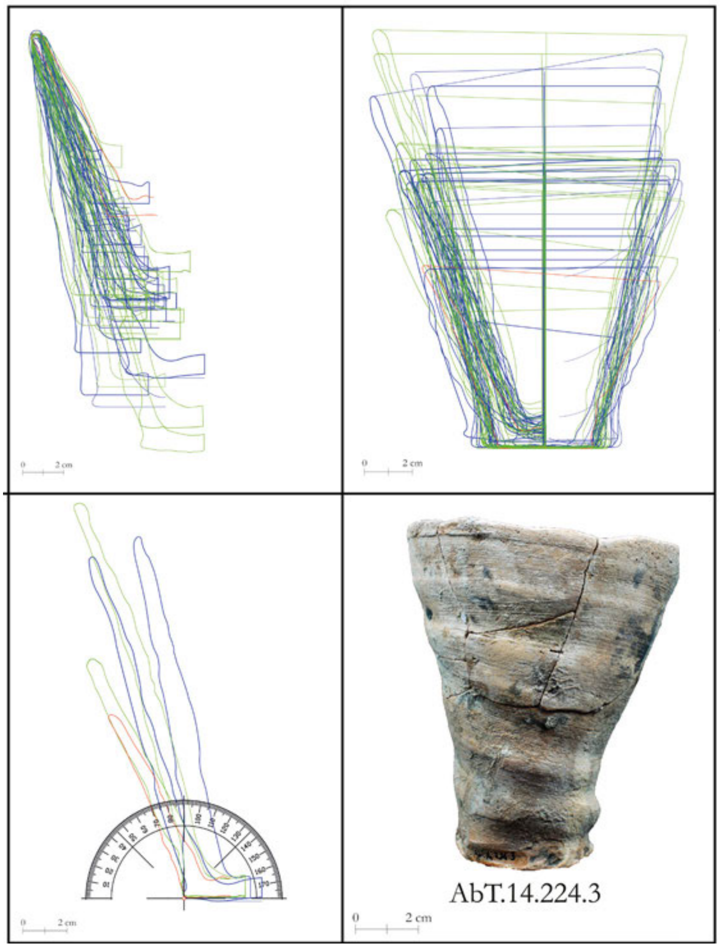

Fig. 10.6 Beakers: envelope.

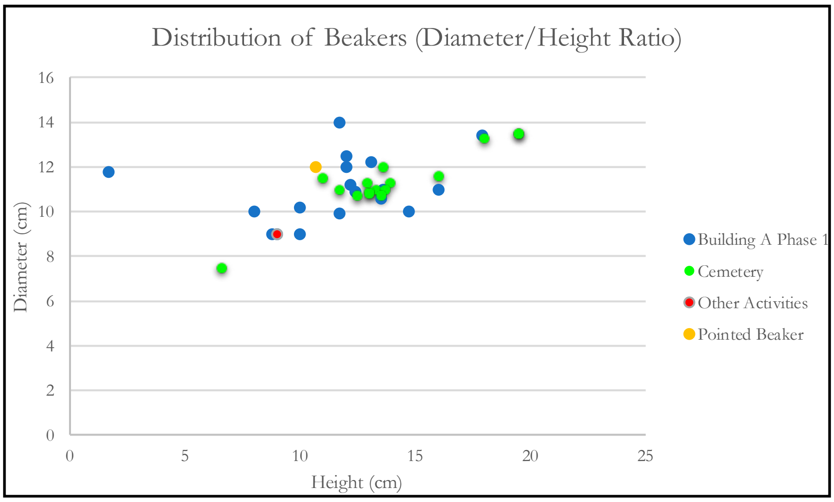

Fig. 10.7 Beakers: diameter/height ratio.

with the setting of some beakers' walls almost perpendicular to the base.[43] In Fig. 10.7 the ratio between height and rim diameter of the complete vessels preserved for each phase is reported: as for the conical bowls, beakers from the latest graves and activities seem more standardized.

On the basis of the volume (Fig. 10.8) it is possible to distinguish at least three dimensional categories (plus the miniaturistic one): the smallest and most

[43] A similar result was obtained for Al-Hiba beaker-like forms (Ochsenschlager 2004: 128 Fig. 7.12).

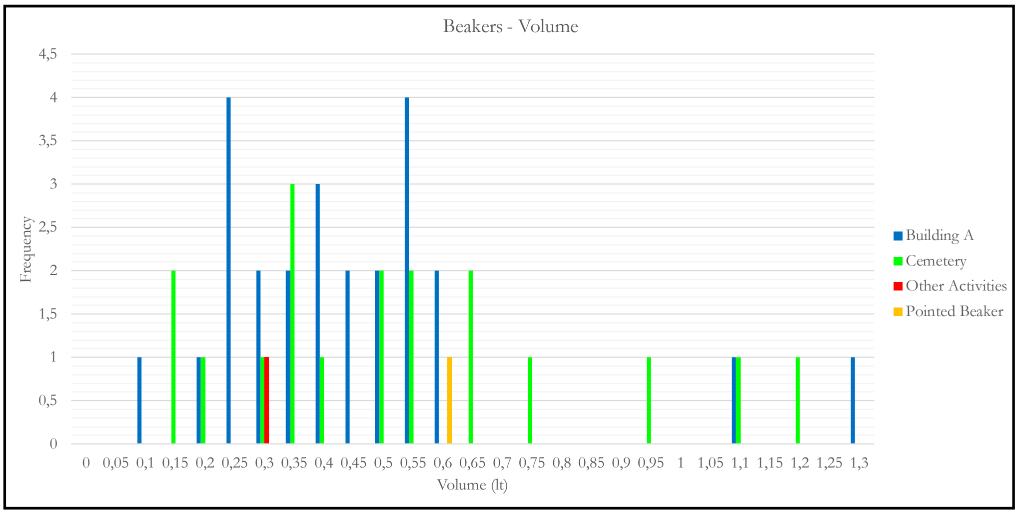

Fig. 10.8 Beakers: volume.

widespread group of 0.2-0.4 L ca.; the medium of 0.5-0.7 L ca.; the biggest of 1 L ca. On average it seems that beakers from the late Cemetery are bigger. While conical bowls are in general poorly shaped, some of the beakers recovered in the Cemetery (like AbT.14.332.10) seem to have been realized more carefully: it is early to determine if this is a difference of chronological importance or if it is linked to the presence of different workshops, or again to a difference in the shape's idea.[44]

A pointed version of the beaker is attested only in few examples both from the later graves and from Building A.[45] The ratio between height and diameter of this vessel fits the results obtained for the beakers (see Fig. 10.7) as well as the volume (Fig. 10.8). Comparisons come from ED III/Akk. contexts at Nippur.[46]

The so-called **trays** or **feed-trays** are generally oval/circular coarse[47] open vessels with plain rim, straight walls and a flat base, and are attested in both the latest activities and the Building A last occupational phase (Fig. 10.9).[48] Tray diameters range from 26 to 52 cm[49] and the rim is always thicker than 1 cm. The volume is around 2.5-3 L. A different version of tray, attested in Building A contexts,[50] distinguishes itself for the presence of some sort of "bridges",[51] departing from the rim toward the centre of the vessel.

Triangular rim deep bowls[52] can have the rim out-turned or overhanging (Fig. 10.10). This kind of rim can be associated to rounded, oblique, or almost straight walls, in all these cases the walls can be decorated with one or more ridges. Flat bases are attested for two vessels from Building A - phase 1,[53] while the ring base is attested in a vase found in the later Cemetery area.[54] The bowls with rounded walls and without ridge, attested only in Building A - phase 1, have a diameter ranging from 20-40 cm and the rim maximum thickness of 1.5 cm in average. When this kind of bowl has a ridge on the walls the diameter ranges from 15 to 46 cm, reaching thus bigger dimensions than the plain ones. The rim maximum thickness in these cases is of 1.5-2 cm in average. This type was found in all the contexts described in the book.

44 The presence of taller example in later ED or Akk.contexts was already noticed (see Thalmann 2003: 51, 87 type G3).
45 *E.g.* AbT.15.332.3; AbT.14.259.5-6.
46 McMahon 2006: 67 Type B-7, Pl. 123 nn. 3+4 (with references to similar findings in late ED III contexts of Kish, Tell Chuera, and Mari).
47 Usually low fired and with black core section (Fabric D1; see § 10).
48 It is not clear if also AbT.12.42.103 should be included in this group. Comparisons: Woolley 1934: n. 2 Pl. 251; Moon 1987: nn. 193-201 (ED II-III); McMahon 2006: 65 O-6a Pl.81 (ED III - Akk.).
49 With the exception of the small example AbT.14.221.39.
50 AbT.14.242.28.
51 McMahon 2006: 68 Type O-6b Pl. 81.
52 It cannot be excluded that some of the pieces attributed to this kind of shape are upper dishes or bases of stemmed dish. As already noted by Thalman (2003: 51) this kind of vessel, not attested in the Diyala, has comparisons from Tell Sabra, Abu Salabikh, Kish, Nippur, Larsa , Fara, Eridu.
53 AbT.15.397.3+AbT.12.42.60+61 (vol. 13.5 L).
54 AbT.15.326.1 (preserved volume 11 L).

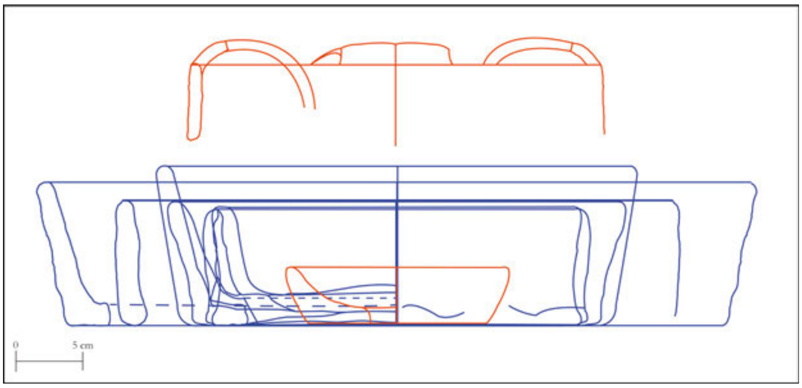

Fig. 10.9 Trays: envelope. For the entire shape see Fig. 10.29.

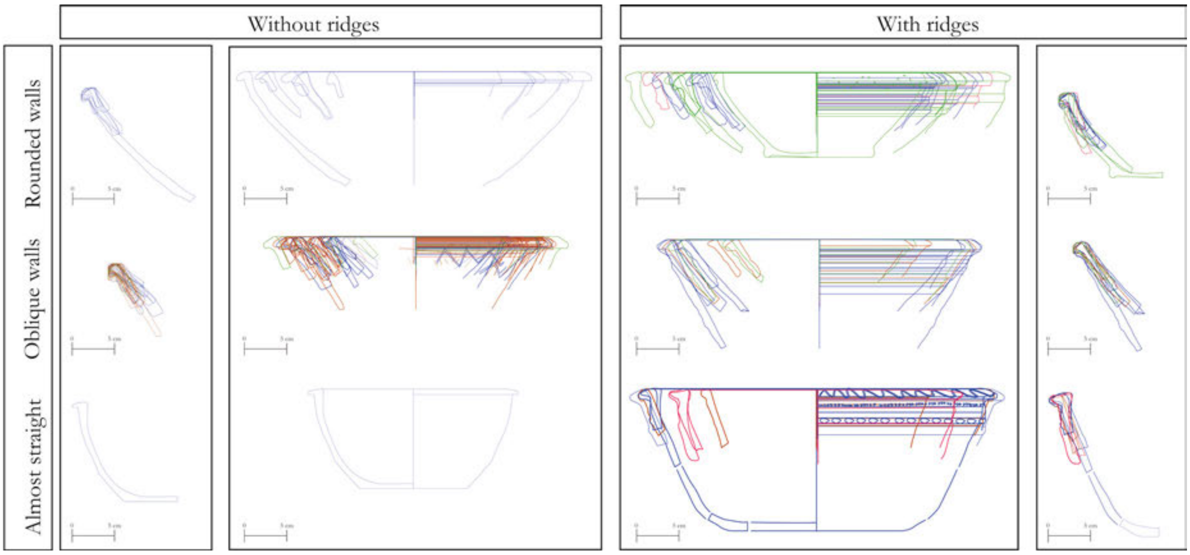

Fig. 10.10 Triangular rim deep bowls: envelope. For the entire shape see Figs 10.30-31.

The bowl with oblique walls is the largest attested, mostly from the domestic contexts or from the other late activities.[55] The rim diameter ranges from 14 to 40 cm: while the shapes without ridge are mostly of 20-32 cm of diameter and with a rim thickness ranging from 2.5-15 cm, the vessels with ridge have a diameter comprised between 33 and 40 cm or 22 and 26 cm[56] and with a rim ranging from 1.5 to 2 cm of thickness. Three specimens of the type without ridge are decorated with incisions.[57]

The last kind of triangular rim bowl has almost straight walls and a flat base, but only few specimens from domestic contexts are attested. The diameter ranges from 25 to 40 cm and the maximum rim thickness from 1.5 to 2 cm. AbT.15.379.3, entirely preserved, has a volume of 2.9 L.

It cannot be excluded that some of the pieces in Fig. 10.10 might originally belong to stemmed dishes.

Shallow plates/bowls appear only in Building A - phase 1 contexts (Fig. 10.11).[58] They can have a triangular, sometimes overhanging, rim or a band rim with a more or less marked profile (almost double ridged in some cases).[59] The best preserved examples show a convex base (AbT.12.53.17) or have a small ridge forming a sort of ring base (AbT.14.287.1). The diameter ranges from 24 to more than 45 cm. Similar shallow bowls, but usually decorated, are those used for the realization of the stemmed dishes: thus, it cannot be excluded that

[55] Only 6 fragments come from the Cemetery contexts and were plausibly in secondary deposition.

[56] This kind of bowl was found only in the Cemetery and in the other late activities.

[57] AbT.14.254.3; AbT.14.242.7; AbT.14.294.1.

[58] Comparisons: Woolley 1934: n. 18a(?) Pl. 252.

[59] Or, on the contrary, almost straight like in AbT.15.395.1 (very similar to McMahon 2006: Type O-4 Pl. 79 n. 2).

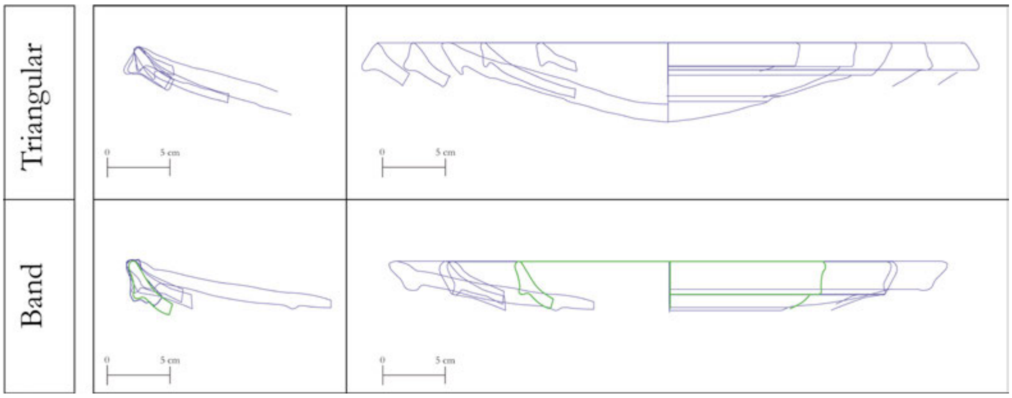

Fig. 10.11 Shallow bowls/plates: envelope. For the entire shapes see Fig. 10.32.

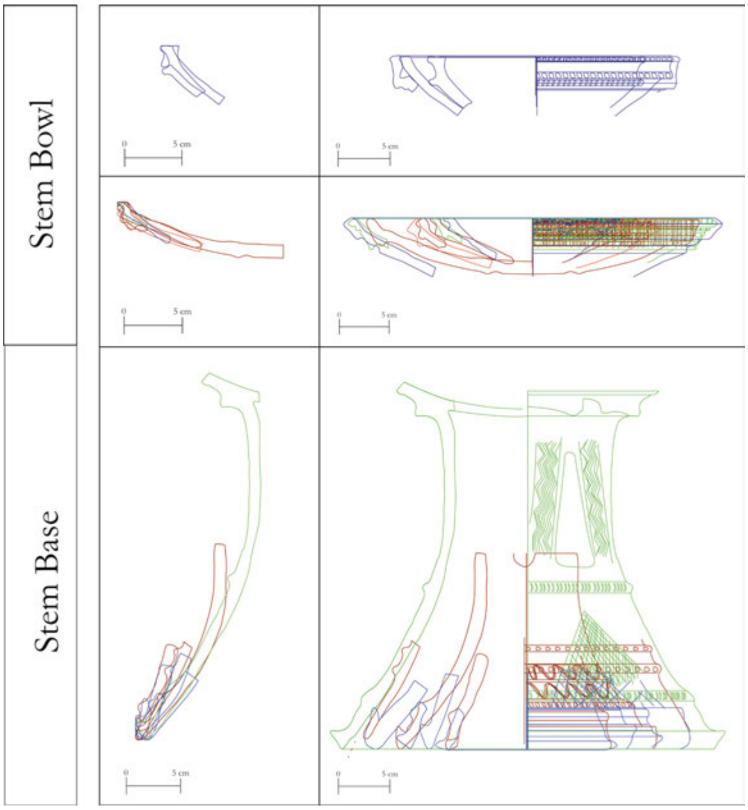

Fig. 10.12 Stemmed-dishes: envelope. For the entire shape see Fig. 10.33.

some of the pieces in Fig. 10.11 could originally belong to stemmed dishes (see below).

Stemmed dishes are a ED III quite widespread kind of vessel[60] and are formed by an upper bowl connected to a stand (Fig. 10.12). At Abu Tbeirah, like in other sites,[61] the upper bowls can be of two kinds: deep bowl with rounded walls or shallower bowls with oblique walls. The bowls can have a more or less marked band-rim[62] or a double-ridged one[63] (in this case also with a particularly elaborate and decorated profile)[64]. The upper bowl rims are often decorated with notches or with wavy/linear incisions. The diameter is comprised between 20 and 27 cm while only two bigger examples have a diameter of 34-36 cm. The stem is essentially

[60] See Moon 1981; 1982.

[61] For example: Moon 1984: n. 234 (deep bowl) and n. 236 (shallower bowl).

[62] See McMahon 2006: Type O-4 (ED III/early Akk.).

[63] See McMahon 2006: Type O-9 (ED III/early Akk.).

[64] In AbT.13.163.13 for example the two ridges of the rim are modelled by hand (pressing with the finger) in order to have a wavy profile.

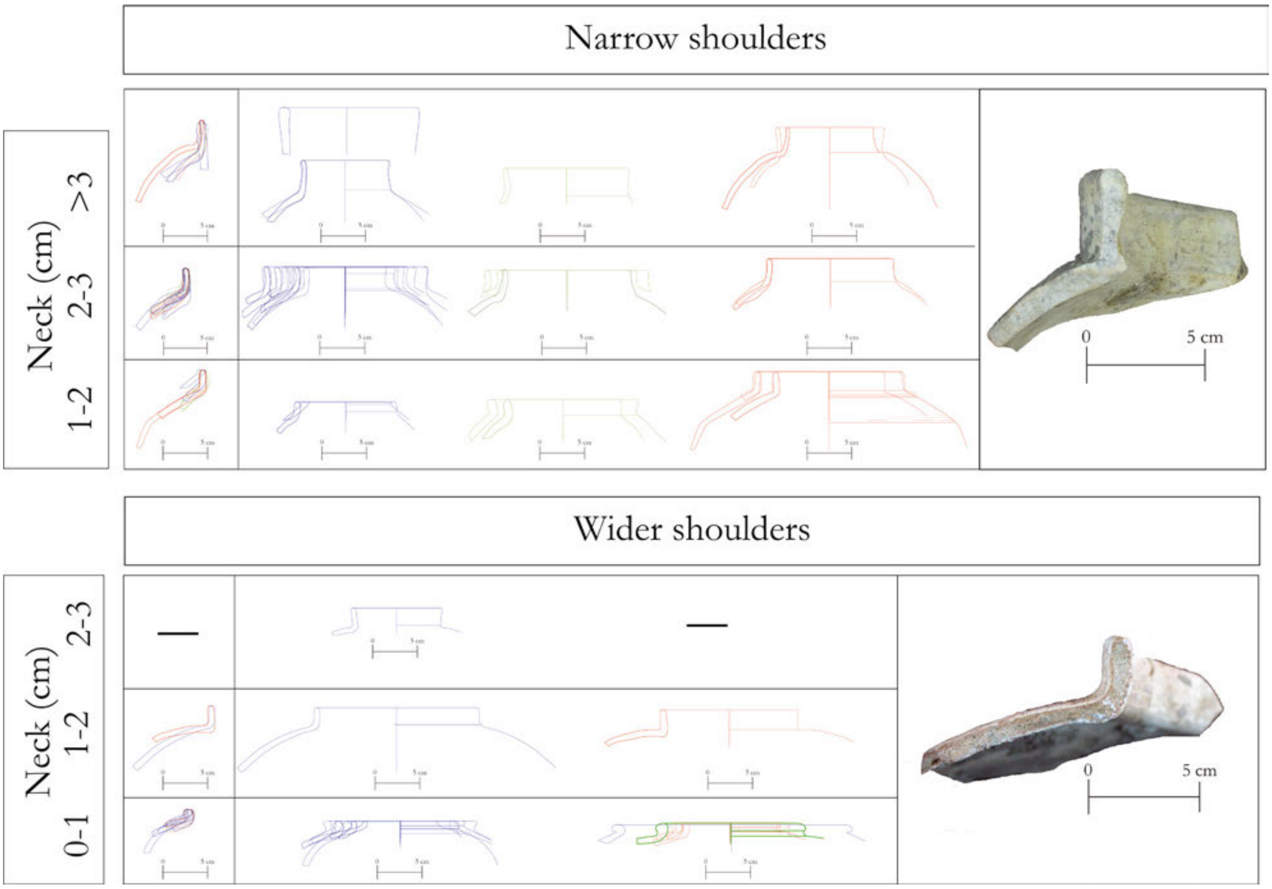

Fig. 10.13 Plain rim jars with straight neck: envelope.

an inverted open shape[65] extended and tapering up. The base has thus several kinds of "rim": triangular, simple or more or less overhanging, and almost plain. The stem can be decorated with incisions and with notched ridges. The base diameter is comprised between 14 and 37 cm. The best preserved and more richly decorated example is AbT.13.177.1 from Grave 17.

10.3.2 Closed Shapes

Plain rim jars can be associated to a great variety of bodies and bases (flat, convex and ring) and can also present a spout or handles. Entire specimens come mostly from later graves and apparently there is a great difference among these types and the shapes found in the domestic contexts. Two main groups can be distinguished (Figs 9.13-14): plain rim jars with flared or straight neck. Each of them can be subdivided in two main sub-groups based on the shoulders (more or less wide). Other internal differences can be identified on the base of neck height, but this last subdivision should be considered as possibly due to the absence of uniformity of 3rd mill. BC pottery production.

Plain rim jars with straight necks on narrower shoulders (Fig. 10.13) have a diameter ranging from 10 to 19 cm: usually the smaller the diameter, the higher the neck.[66] Rim thickness ranges from 0.3 to 0.6 cm. Among the shards with shorter necks only AbT.14.242.10 (a probably later specimen coming from the huge garbage pit US 242) shows a carinature between the shoulders and the body and three combed lines.

Plain rim jars with straight necks and wider shoulders show a diameter ranging from 10 to 18 cm ca., and a rim thickness of 0.6 cm. Also, some kinds of "hole mouth jars" are included in this

[65] This was also previously noted by McMahon (2006: 64 Type O-2): "Some sherds of this type can be difficult to distinguish from the bases of stemmed dishes, which are often very similar in diameter, shape, and decoration; correct orientation in the absence of the whole vessel is often impossible".

[66] With the exception of AbT.12.84.20, a plain rim jar in slightly coarse fabric. Due to the reduced dimension of the fragment it cannot exclude another interpretation of the shape (*e.g.* fragment of trumpet base).

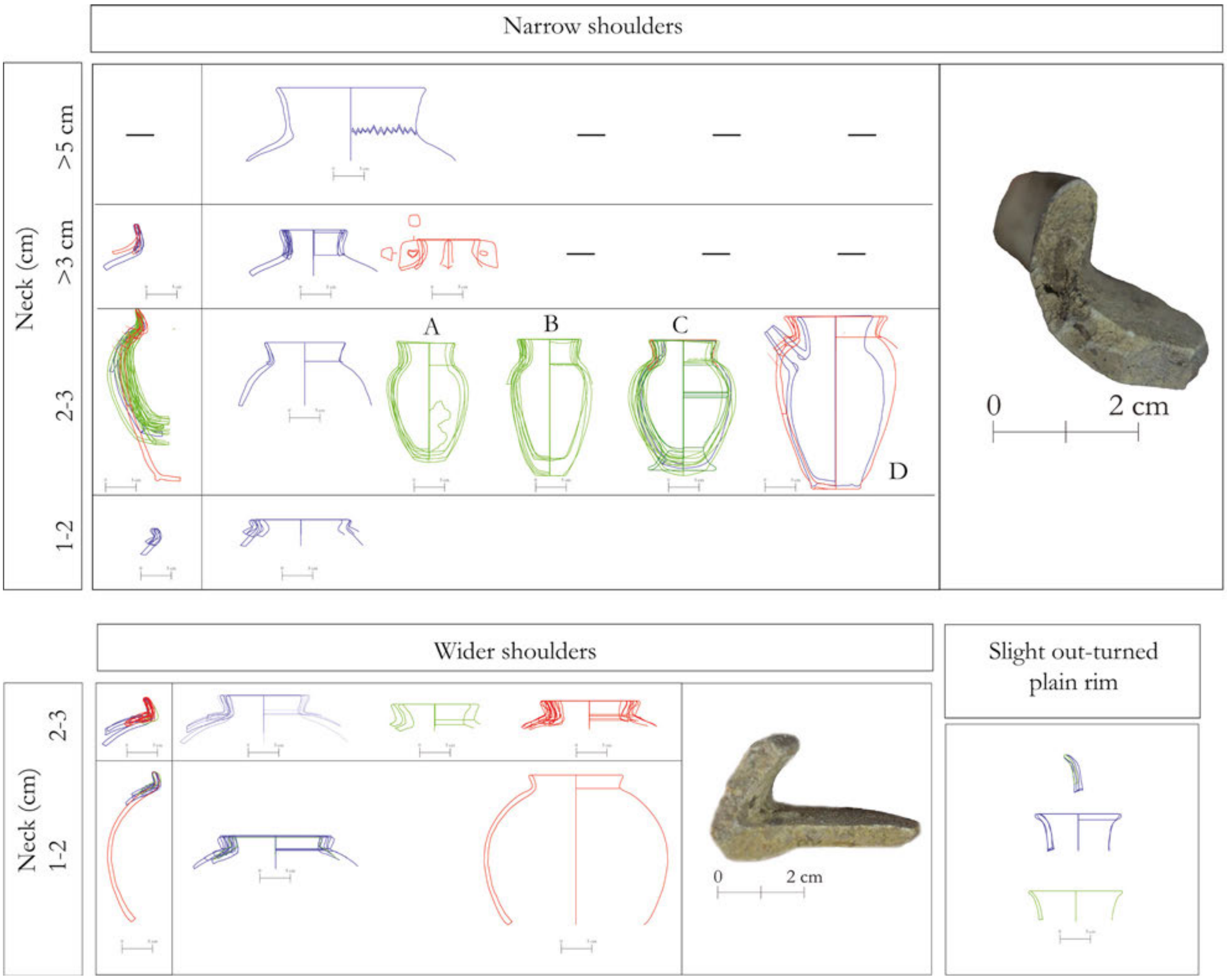

Fig. 10.14 Plain rim jars with flared neck: envelope. See also Figs 10.34 and 10.38.

group (neck 0-1 cm): in these cases, the rims are not always perfectly plain (in some case they are slightly flattened on the top and/or out-turned).[67]

Plain rim jars with flared neck on narrower shoulder (Fig. 10.14) have a diameter that ranges from 7 cm ca. to 17 cm ca.[68] Rim thickness ranges from 0.3 to 0.6 cm and in general the rim is thicker in the pieces with a very short or almost absent neck. Apparently, this kind of jar seems to be more widespread in funerary contexts than in domestic ones. Four different kinds of plain rim jars (Fig. 10.14 *sub* a-d) are attested in Area 1 Cemetery. All of them have usually an irregularl shape, with convex or almost flat bases. Nevertheless the envelope formed by the profiles is thinner than that of the conical bowls or beakers.[69] Type A finds direct comparisons at Ur[70] and Abu Salabikh.[71] The diameter is comprised between 7 and 10 cm and the height between 18 and 19 cm; the rim is around 0.4-0.5 cm thick. The volume ranges from 1 to 1.6 L. Type B has narrower shoulders and a more slender body than type A.[72] Two sizes are attested: the bigger one is 22-23 cm high (with a diameter around 9-10 cm and a rim thickness of about 0.4-0.5 cm), the smaller one is ca. 20 cm high (the diameter is 7-8 cm and the rim around

[67] Presently, the relatively reduced number of pieces did not lead us to the creation of a separate category.

[68] The bigger example AbT.12.42.100 with its decoration clearly belongs to a different kind of vessel but has been included in this group, being at present a *uniquum*. AbT.14.242.32 with handles, instead, is comparable to Moon 1987: n. 328 (ED IIIa, rectangular rim).

[69] This can be obviously due to the reduced number of jars recovered.

[70] Woolley 1934: 391 Type 108(?).

[71] *E.g.* Moon 1987: 86 cat.n. 421 (ED IIIa-b).

[72] Similar to Woolley 1934: 391 Type 110a or to Moon 1987: 83 cat.n. 407 (ED IIIb).

0.4 cm thick).[73] The two sizes contain respectively 1 L and 1.6 L. Type C has a rounded body and is 19-20 cm height, while its diameter is comprised between 9 and 11 cm and the rim 0.4-0.5 cm thick. Only AbT.13.185.5 comes from Grave 14, a sub-pavement inhumation inside Room 5.[74] As for the previous types, this kind of jar is comparable to the vessels found at Ur and Abu Salabikh.[75] The plain rim (though a little bit rounded) trumpet-base jar AbT.15.385.7 belongs to this type: a sort of bigger and thinner version of the ring base is attached to the rounded body of the jar, that is however characterized by a ridge in the middle of the body.[76]

The complete spouted vessel with ring base AbT.14.221.1 probably belongs to the huge dump pit of squares MdXIII5+6+MeXIII5:[77] and has bigger dimensions than the three-footed spouted jar AbT.13.144.2. The latter has almost the same shape but is smaller and was found in association with the sub-pavement Grave 14 inside Building A Room 4.

Plain rim jars with flared necks on wider shoulders have a diameter ranging from 10 to 18 cm and a rim thickness of 0.4-0.7 cm ca. Only 2 shards of this kind were found, out of context, in the later graves. AbT.14.268.3, the better preserved one,[78] finds comparison with the round-based jar (but with triangular rims) of ED IIIa-b from Abu Salabikh[79] and from Tell Razuk.[80]

The last kind of plain rim jar is characterized by a slightly out-turned rim and is attested in only three pieces: probably a version of the triangular rim jar with high neck, that will be described immediately below.

Some miniaturistic vessels often have a plain rim (beveled rims also occur) and flat/string-cut base (Fig. 10.15): as Woolley stated for the miniaturistic vessels from the Royal Cemetery of Ur, also Abu Tbeirah's miniaturistic vessels are "generally small and very poorly made, the types merging into each other".[81] Most of these tiny vessels have a small rim diameter (5-4 cm) and an oval or more globular body (the volume ranges from 0.4 to 0.1 L).[82] A second type of miniaturitic vessel has a larger rim diameter (6-5 cm), flared neck and globular body (vol. 0.14-0.24 L).[83] AbT12.56.2 is a miniaturistic vessel with a plain out-turned rim pierced in 4 points and has a volume of 0.12 L (until the level of the holes).

Triangular rim jars have a slightly flared or straight neck and can be on narrower or wider shoulders, with a more or less convex base (Fig. 10.16). Few complete vases were found in the layers analysed in the present book. The rim diameter of the jars with slightly flared neck ranges from 20 to 18-17 cm. The maximum rim thickness is around 1.1-1.2 cm. The big jars with longer neck have narrower shoulders and find comparisons at Nippur, Abu Salabikh and Ur.[84] The only two complete vessels[85] can contain 5.4 L (AbT.12.56.5) and 1.9 L (AbT.15.391.4). The vases with wider shoulders have a poor shaped and very fragile structure and resemble some vases found always at Ur and Abu Salabikh.[86]

A complete different typology of vessel is the trumpet base jar AbT.13.195.3: this jar has a very small triangular rim and is clearly a variation of the same kind of vessel with plain rim analysed above (AbT.15.385.7).

Triangular rim jars with almost straight neck have a rim thickness of 1-1.2 cm and a diameter of 20-17 cm, with the exception of the complete vessels

[73] Jar AbT.12.5.1 (no rim preserved) was included in the envelope.
[74] This is indeed the only example recovered from this phase of the Building.
[75] Moon 1987: 85 n. 416-417 (ED IIIa-b?); Woolley 1934: 391 Type 108a (?).
[76] For comparisons see Moon 1987: 122-125, in particular nn. 598-600 (with both plain or triangular rim; dating ED IIIa-b).
[77] See § 7.2.3.
[78] Preserved volume 13 L ca.
[79] Moon 1987: 72.
[80] Thuesen 1981: 155 Type 5a n. 2 (liv. 4, Loc. 79) Pl. 64 (ED levels).
[81] Woolley 1034: 391 Types 125-130 Pl. 259.
[82] Woolley 1034: 391 n. 129 Pl. 259; Delougaz 1952: Pl. 158 B.545.220a/b; Pl. 72 1-g; Moon 1987: n. 500 ED IIIa early, n. 507 ED IIIb or later, n. 512 ED IIIb.
[83] Moon 1987: nn. 458-459 (ED III late), 481-484, 491 (ED IIIa-b).
[84] Woolley 1934: Pl. 253 n. 46; Moon 1987: nn. 385; McMahon 2006: Pl. 118 C-24 (ED III/Akk.).
[85] In AbT.13.183.3, AbT.12.56.10 and AbT.13.183.9 the rim is not preserved: it is thus impossible to say if the rim was triangular or plain.
[86] Woolley 1934: Pl. 255 n. 79; Moon 1987: n. 344 (ED).

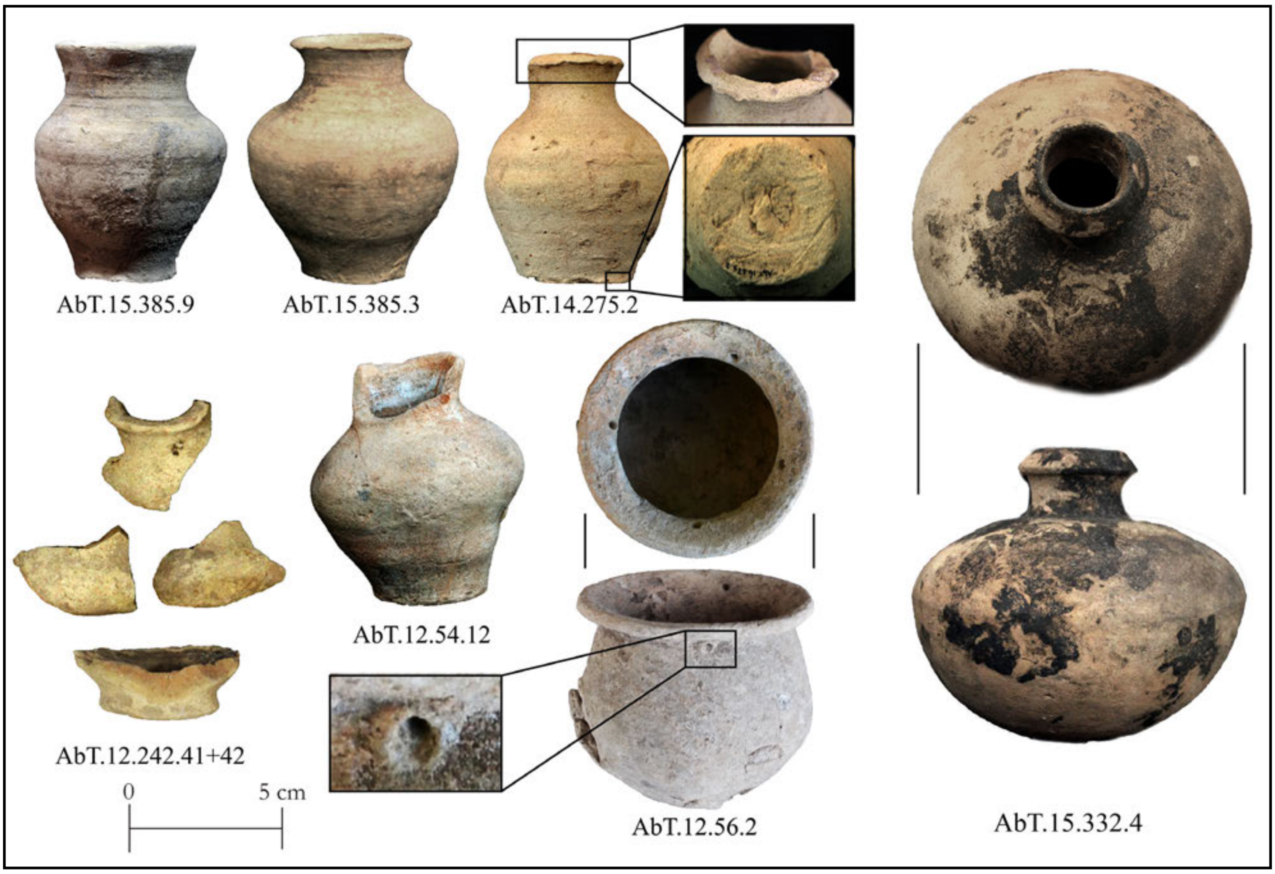

Fig. 10.15 Miscellaneous miniaturistic vessels (AbT.12.54.12; AbT.12.56.2; AbT.12.242.41+42; AbT.14.275.2; AbT.15.332.4; AbT.15.385.3; AbT.15.385.9.

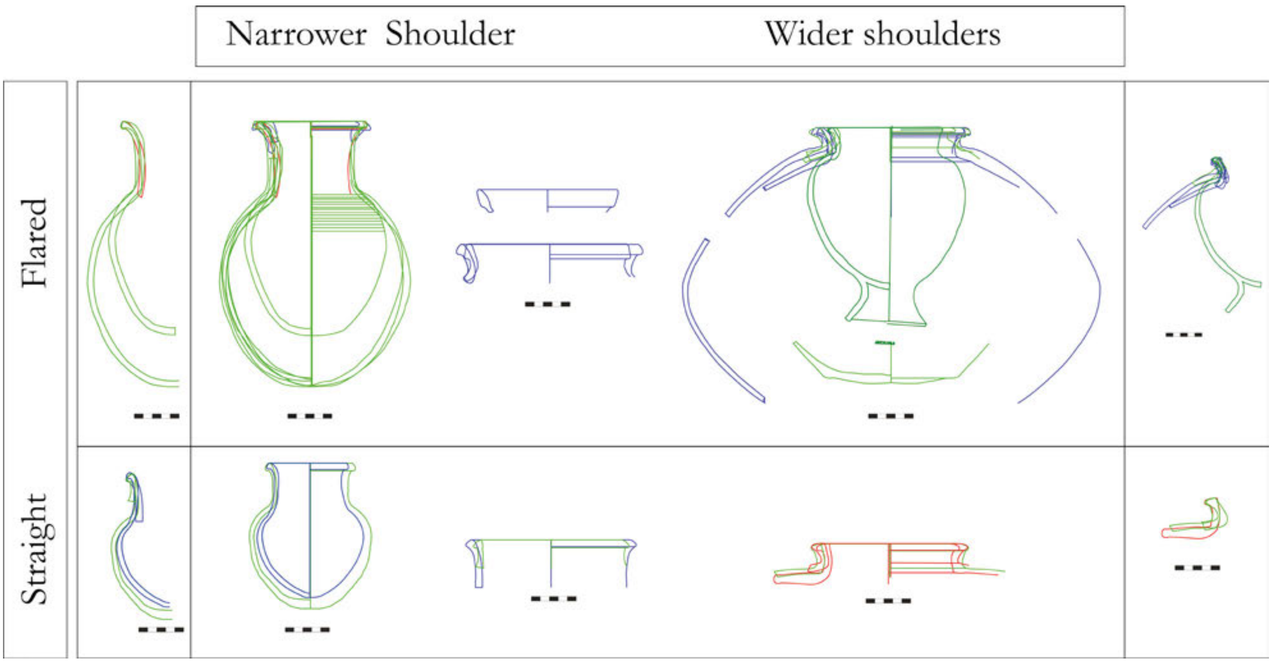

Fig. 10.16 Triangular rim jars: envelope. For the entire shape see Fig. 10.37.

AbT.14.226.9 and AbT.13.144.1[87] that have a diameter of 9-10 cm.

A small bottle AbT.15.332.4 (Fig. 10.15) with triangular rim was found inside Grave 22 and it is chronologically attested from the ED III to the Akk.-Ur III period.[88]

Band rim jars[89] are attested in Building A - phase 1 contexts, in the more recent graves[90] and in the latest activities of Area 1 (Fig. 10.17). The band rim scan be straight or flared. The curves of the rim are more marked in the second case than in the straight band rim jars, sometimes resembling the double-ridged rims[91]. Flared band rim jars are usually on a short neck[92] or without a neck[93]. The minimum rim diameter attested is 12 cm, the average 14-16 cm and the maximum is comprised between 18-20 cm.[94] The thickness ranges from 0.4 to 0.7 cm. Jars with flared band rim can have both wide/rounded or narrow/straight shoulders. The bases, attested only from fragmentary examples, are convex or straight. Straight band rim jars have a longer neck on average[95] and the curves of the rim profile are less marked in general. The rim diameters are comprised between 10-14.5 cm[96] or 18-20 cm. The thickness ranges from 0.5 to 0.8 cm. A variant of this kind of rim is AbT.14.242.20 with a ridge in the middle of the band. AbT.14.179.1 is probably an upright-handled jar found in secondary deposition inside a tannur in Room 7.[97]

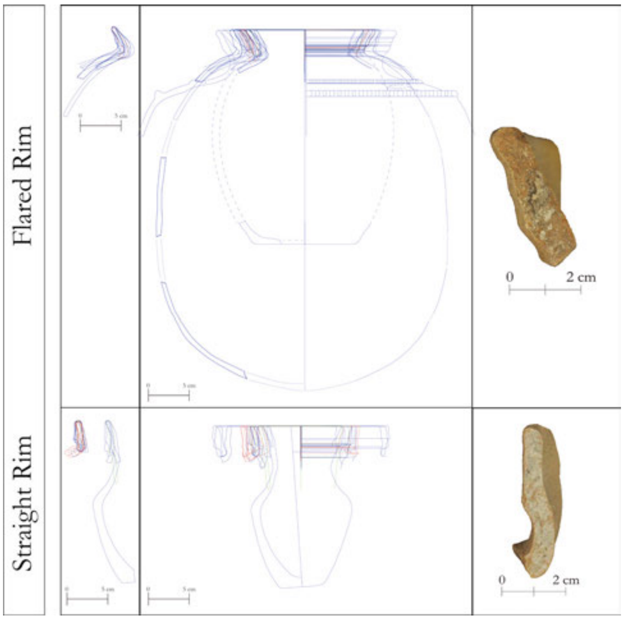

Fig. 10.17 Triangular rim jars: envelope.

Double-ridged rim jars, a more marked version of the band rim, are also attested in connection to a short straight or flared neck and to oblique or wider shoulders (Fig. 10.18). It must be stressed that it is not always easy to distinguish between a band rim and a double ridged jar: in the same vessel the rim is not uniformly shaped and can be more or less marked. The diameter ranges from 14 to 18 cm, except the smaller complete jar AbT.15.366.1 (diameter 10 cm ca.). The maximum rim thickness is of 0.7 cm ca.

10.3.3 Miscellaneous Vessels (Fig. 10.19)

Jars without preserved rims were added, when possible, to the already analysed envelopes but some vessels at present do not resemble any of the already analysed complete shapes. Some of them are too poorly preserved or cannot find any clear and direct comparison inside or outside Abu Tbeirah.[98] AbT.15.332.2, the globular bodied jar with disk base (Fig. 10.19 *sub* 8), finds comparisons at Abu Salabikh[99] and perhaps could be a more rounded version of AbT.14.226.9 and AbT.13.144.1.[100] Big containers at Abu Tbeirah are rarely attested. The huge jar AbT.12.278.1 (Fig.

[87] Similar vases of the ED IIIa-b or Akk. period come from Abu Salabikh (Moon 1987: 78-79 *e.g.* nn. 354-355 or 381) and Nippur (McMahon 2006: Types C-11 or C-24, Pl.136).
[88] McMahon 2006: 73 Type C-19 Pl. 114.
[89] McMahon 2006: 65 Type C-2 Pl. 97 (ED II-III and later).
[90] Only fragments were recovered.
[91] Like in AbT.13.163.17.
[92] The average angle between the shoulder and the rim is of 40°.
[93] AbT.13.152.5.
[94] The fragments coming from the upper graves and from the latest activities have a diameter comprised between 14.5 and 16.5 cm.
[95] *E.g.* the small jar AbT.14.275.1 (Building A, Room 9, Grave 20 - § 8.9) or in AbT.15.365.6 (filling of Grave 24 - § 7.7.1). AbT.14.275.1 is similar to McMahon 2006: Type C-17 Pl. 133 (ED-Akk).
[96] In Building A contexts the rims are comprised between 10-13 cm and in the later phase 10.5-14.5 cm.
[97] Moon 1987: 151 (ED III-Akk.).
[98] See for example AbT.12.12.5 (preserved volume 3 L ca.), AbT.12.56.13 and AbT.14.226.3.
[99] Moon 1982; 1987: n. 351 (ED IIIb).
[100] See above under "triangular rim jars".

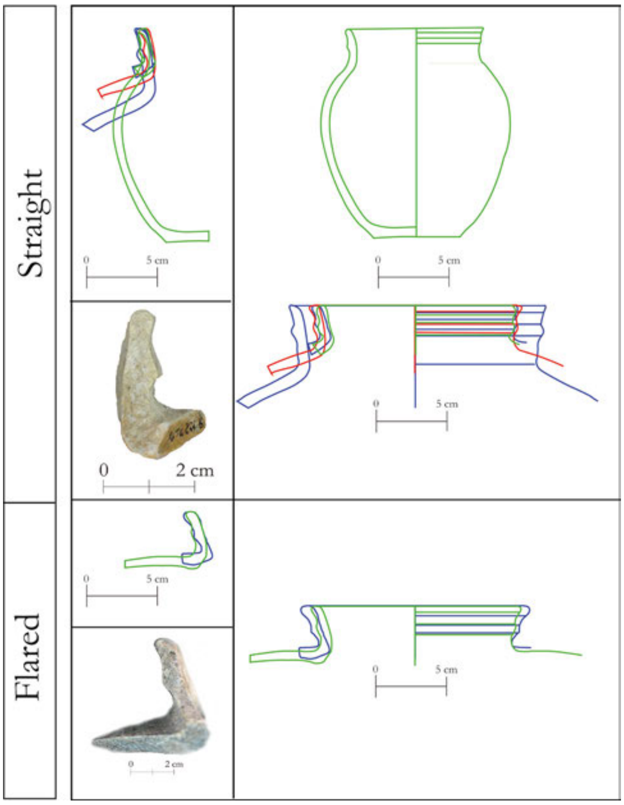

Fig. 10.18 Double ridged rim jars: envelope.

10.19 *sub* 2) has a volume of 39 L ca.[101] and might be considered a misshaped version with almost flat base of a jar from Abu Salabikh.[102] Ring base jar AbT.15.326.2 from the Cemetery, can be compared to a huge jar from Larsa, with spout and band rim;[103] the volume of the half preserved part is of 50 L ca. AbT.14.259.1 from Room 8, with rounded body, small neck and out-turned rim, has a volume of 1.9 L ca.

AbT.13.143.1 (Fig. 10.19 *sub* 3) is a squat jar (preserved volume 20 L ca.), from Building A external area that, with its decoration, resembles an upright-handled jar.[104] However, no handle or sign of the handle attachment is preserved and thus a comparison with decorated squat vessels attested in Tell Razuk ED IIIb/early Akk. contexts cannot be excluded.[105] AbT.12.37.15 (Fig. 10.19 *sub* 4), a

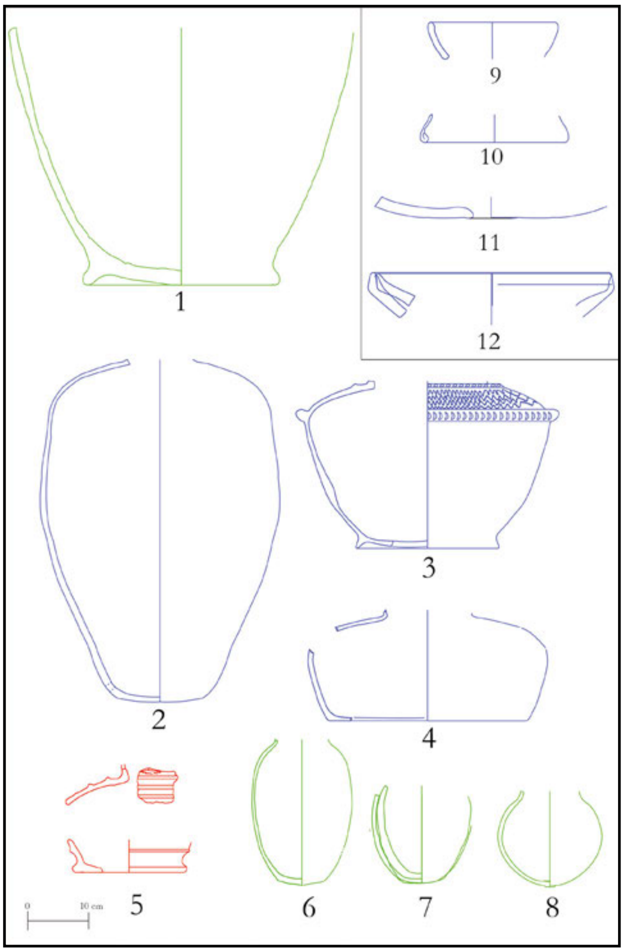

Fig. 10.19 Miscellaneous vessels. 1. AbT.15.326.2; 2. AbT.12.278.1; 3. AbT.13.143.1; 4. AbT.12.36.15; 5. AbT.14.242.13 + 14; 6. AbT.12.12.5; 7. AbT.14.226.3 +A bT.12.56.13; 8.AbT.15.332.2; 9. AbT.14.254.6; 10. AbT.15.331.2; 11. AbT.15.331.4; 12. AbT.15.338.23 and AbT.12.84.8.

fragile sort of squat flask with flat base does not find any easy comparison.

From the chronological point of view, it is important to also analyse the fragments of a ridged jar (shoulder and base area preserved, respectively AbT.14.242.13 and 14 - Fig. 10.19 *sub* 5), found inside the late dump cut by Graves 15 and 16. This kind of jar is usually considered an Akkadian type (multiple-ridged jar), but the particular context in which has been found led us to date this vessel to the ED III/Akk. Transition.[106]

[101] In this case the volume was calculated only on the preserved part of the vessel.

[102] Moon 1987: 94 n. 446, with band rim and ring base (ED IIIa). Conical bowl can be used as a lid too (as in the case of AbT.13.144.2 inside Grave 12 - see § 7).

[103] Thalman 2003: 51-52 R1, 97 Fig. 36 (ED III and ED III/Akk. Transition).

[104] Moon 1987: 162 n. 752 (ED IIIa).

[105] Gibson - Sanders - Mortensen 1981: 76, Uc 327 Pl. 95 (Burial 17), on the dating to the ED IIIb/early Akk. see page 80 (with also Diyala *comparanda*).

[106] For comparisons see also Moon 1987: n. 706 (ED IIIa); McMahon 2006: 73, Pl. 110 Type C-16b.

AbT.15.331.2 (Fig. 10.19 *sub* 10) is a small rim folded inside: vessels with similar rims were generally interpreted as lids.[107] Other unusual rim fragments, such as AbT.14.254.6, AbT.15.331.4, AbT.15.338.23, and AbT.12.84.8 (Figs 10.19 *sub* 9 and 11-12) could be interpreted as original parts of strainers.[108]

Big containers (jars, vat and coffins), realized with a coarse and vegetal tempered clay (Fabric D - see § 11), are rarely entirely preserved due to their fragile nature. The four coffins[109] from the later graves of the Cemetery are all very similar: all of them have the walls characterized by applied ridges and usually a ring base (only Grave 2 coffin has a flat base). Other fragments come mostly from the open spaces of Building A, where coarse flat or ring bases are frequently attested together with several kinds of rims. It is not always easy to categorize the kind of rim of these big vessels and containers because it can vary in the same vessel (plain, triangular, band or double-ridged). These kinds of big vats and containers are quite uniform in shape and in fabric (due probably to the physical limits imposed by dimensions) and are not chronologically diagnostic. [110]

10.3.4 List of Pottery Vessels Considered in the Envelopes

Conical bowls: Building A: AbT.12.37.19; AbT.12.37.13; AbT.12.37.14; AbT.12.37.33; AbT.12.42.1; AbT.12.42.2; AbT.12.42.38; AbT.12.42.85; AbT.12.42.101; AbT.12.51.1; AbT.12.51.2; AbT.12.51.3; AbT.12.51.4; AbT.12.53.16; AbT.12.84.1; AbT.12.147.1; AbT.13.152.8; AbT.13.163.1; AbT.13.185.1; AbT.13.185.2; AbT.13.395.5; AbT.13.395.6; AbT.14.297.1; AbT.13.163.1; AbT.13.185.1; AbT.16.346.1; AbT.16.346.2; Cemetery: AbT.12.12.3; AbT.12.12.1; AbT.12.12.7; AbT.13.183.4; AbT.13.183.6; AbT.13.183.8; AbT.13.195.1; AbT.13.195.2; AbT.13.195.7; AbT.13.195.9+10; AbT.14.224.1; AbT.14.224.3; AbT.14.224.4; AbT.14.226.1; AbT.15.332.1; AbT.15.332.10+11; AbT.15.385.4; Other activities: AbT.14.242.5; AbT.15.336.1; AbT.15.336.2.

[107] Moon 1987: n. 148 (ED III early).

[108] Moon 1987: nn. 117-126.

[109] Though it cannot be excluded that some of the coffins were re-used vat, the presence of a lid seems to point toward an exclusive use in the funerary practice (the only exception is the looted sarcophagus from Grave 2, whose lid was not preserved).

[110] As already demonstrated for Nippur (McMahon 2006: 66).

Conical Bowls attached to a stem: Building A: AbT.12.37.1; AbT.12.38.3; AbT.12.38.7; AbT.13.147.3; AbT.13.163.15; AbT.13.163.20; AbT.13.167.1; AbT.14.194.6; AbT.14.254.7; AbT.14.256.4; AbT.14.281.2; AbT.14.297.3; AbT.15.338.1; Cemetery: AbT.13.177.7; AbT.13.195.16; AbT.13.195.17; AbT.15.326.9; AbT.15.365.5; Other activities: AbT.12.4.2; AbT.14.221.30; AbT.14.242.35+37; AbT.14.268.13.

Beakers: Building A: AbT.12.37.13; AbT.12.37.14; AbT.12.37.19; AbT.12.37.33; AbT.12.42.1; AbT.12.42.2; AbT.12.42.38; AbT.12.42.101; AbT.12.51.1; AbT.12.51.2; AbT.12.51.3; AbT.12.51.4; AbT.12.53.16; AbT.12.84.1; AbT.13.147.1; AbT.13.152.8; AbT.13.163.1; AbT.13.185.1; AbT.13.185.2; AbT.14.297.1; AbT.15.339.5; AbT.15.395.6; Cemetery: AbT.12.12.1; AbT.12.12.3; AbT.12.12.7; AbT.1.183.4; AbT.13.183.6; AbT.13.183.8; AbT.13.195.1; AbT.13.195.2; AbT.13.195.7; AbT.13.195.9+10; AbT.14.224.1; AbT.14.224.3; AbT.14.224.4; AbT.14.226.1; AbT.15.332.1; AbT.15.332.10+11; AbT.15.385.4; Other activities: AbT.14.242.5.

Trays: Building A: AbT.12.42.16; AbT.12.42.96; AbT.13.163.14; AbT.14.297.9; AbT.14.297.10; AbT.15.382.5; Other activities: AbT.14.221.39; AbT.14.242.28.

Triangular rim deep bowls: Building A: AbT.12.37.20; AbT.12.38.1; AbT.12.38.11; AbT.12.42.42; AbT.12.42.60+61; AbT.12.42.81; AbT.12.52.19; AbT.12.77.1 (more rounded); AbT.13.134.9; AbT.13.134.11; AbT.13.144.13; AbT.13.152.1; AbT.13.152.2; AbT.13.152.3; AbT.13.152.9; AbT.13.163.7; AbT.13.163.8; AbT.13.163.10; AbT.13.163.11; AbT.13.163.12; AbT.13.169.2; AbT.13.170.1; AbT.14.254.3; AbT.14.254.4; AbT.14.254.5; AbT.14.256.7; AbT.14.256.8; AbT.14.270.1; AbT.15.331.5; AbT.15.343.1; AbT.15.345.2; AbT.15.379.3; AbT.15.395.2; AbT.15.395.3; AbT.16.346.4; AbT.16.480.1; Cemetery: AbT.12.56.24; AbT.13.177.2; AbT.13.177.3; AbT.13.183.21+22; AbT.13.195.18; AbT.13.195.19; AbT.15.326.1; AbT.15.365.2; AbT.15.391.8; AbT.15.391.9; Other activities: AbT.12.2.13; AbT.12.4.7; AbT.12.4.11; AbT.12.4.21; AbT.14.221.12; AbT.14.221.31; AbT.14.221.32; AbT.14.221.51; AbT.14.221.55; AbT.14.221.78; AbT.14.221.79; AbT.14.240.7; AbT.14.242.7; AbT.14.242.8; AbT.14.242.19; AbT.14.242.33; AbT.14.242.34; AbT.14.244.1; AbT.14.244.4; AbT.14.268.9; AbT.14.268.15; AbT.14.268.16; AbT.14.268.18; AbT.14.268.19; AbT.14.268.20; AbT.14.294.1.

Shallow bowls: Building A: AbT.12.53.17; AbT.13.126.1; AbT.13.134.7; AbT.13.134.8; AbT.13.163.11; AbT.14.256.7.

Stemmed dishes: Building A: AbT.13.144.14; AbT.13.144.15; AbT.13.163.9; AbT.13.163.13; AbT.14.152.13; AbT.14.259.4; AbT.15.337.8; AbT.15.338.25; AbT.15.382.2; AbT.15.395.10; Cemetery: AbT.13.177.1; AbT.13.177.11; Other activities: AbT.12.4.28; AbT.14.242.6; AbT.14.242.40; AbT.14.244.8; AbT.14.268.2; AbT.14.296.4+290.2; AbT.14.298.3.

Plain rim jars with flared rim: Building A: AbT.12.37.16; AbT.12.37.38; AbT.12.37.60; AbT.12.42.32; AbT.12.42.56; AbT.12.42.70; AbT.12.42.72; AbT.12.42.95; AbT.12.52.12;

AbT.13.134.12; AbT.13.134.13+14; AbT.13.134.15; AbT.13.144.2; AbT.13.152.11; AbT.13.163.24; AbT.13.185.5; AbT.14.194.3; AbT.14.254.8; AbT.14.270.3; AbT.15.337.6; AbT.15.337.10; AbT.15.339.4; AbT.15.338.22; AbT.15.338.24; Cemetery: AbT.12.5.1; AbT.12.5.2; AbT.12.56.4; AbT.12.56.6; AbT.12.56.8; AbT.12.56.12; AbT.13.183.5; AbT.13.183.12; AbT.13.195.4; AbT.13.195.5; AbT.13.195.6; AbT.13.195.20; AbT.13.195.21; AbT.13.195.22; AbT.13.195.23; AbT.14.224.2; AbT.15.385.7; AbT.15.391.13; AbT.15.326.7; AbT.15.326.11; AbT.15.326.12; AbT.15.385.8; AbT.15.391.5; AbT.15.391.6; Other activities: AbT.12.4.1; AbT.14.221.1; AbT.14.221.46; AbT.14.221.48; AbT.14.221.49; AbT.14.221.50; AbT.14.221.57; AbT.14.221.58; AbT.14.240.5; AbT.14.240.6; AbT.14.242.15; AbT.14.242.16; AbT.14.244.5; AbT.14.268.3; AbT.14.268.11.

Plain rim jars with straight neck: Building A: AbT.12.37.35; AbT.12.42.11; AbT.12.42.66; AbT.12.42.78; AbT.12.42.87; AbT.12.42.91; AbT.12.52.13; AbT.12.84.20; AbT.13.152.10; AbT.13.365.9; AbT.14.270.2; AbT.14.297.4; AbT.14.297.5; AbT.15.338.19; AbT.15.338.21; AbT.15.339.6; AbT.15.395.14; AbT.16.346.3; Cemetery: AbT.13.183.23; AbT.13.365.10; AbT.14.224.5; AbT.15.332.12; AbT.15.332.14; AbT.15.365.11; AbT.15.391.7; Other activities: AbT.14.221.47; AbT.14.221.83; AbT.14.221.84; AbT.14.221.85; AbT.14.221.86; AbT.14.242.9; AbT.14.242.10; AbT.14.242.17; AbT.14.242.18; AbT.14.242.36; AbT.14.298.2.

Plain rim miniaturistic jars: Building A: AbT.12.54.12; AbT.12.152.17; AbT.14.275.2; Cemetery: AbT.15.385.3; AbT.15.385.6; AbT.15.385.9.

Triangular rim jars: Building A: AbT.12.32.1; AbT.12.42.58; AbT.12.42.111; AbT.12.52.11; AbT.12.53.4; AbT.13.144.1; AbT.13.152.12; AbT.15.338.14; AbT.15.350.3; AbT.15.392.1; Cemetery: AbT.12.56.5; AbT.12.56.10; AbT.13.174.2; AbT.13.174.3; AbT.13.183.9; AbT.13.183.25; AbT.13.195.3; AbT.14.226.9; AbT.15.343.3; AbT.15.391.4; Other activities: AbT.12.4.34; AbT.14.221.82; AbT.14.242.23.

Band rim jars: Building A: AbT.12.37.37; AbT.12.42.68; AbT.12.42.92; AbT.12.42.97; AbT.12.42.110; AbT.13.147.4; AbT.13.152.6; AbT.13.152.14; AbT.13.163.17; AbT.13.163.23; AbT.13.169.4; AbT.13.169.5; AbT.14.194.7; AbT.14.200.2; AbT.14.254.9; AbT.14.254.11; AbT.14.254.12; AbT.14.275.1; AbT.15.338.16; AbT.15.338.18; AbT.15.338.20; AbT.15.376.2; AbT.15.343.3; AbT.16.346.5; Cemetery: AbT.13.183.27; AbT.14.226.8; AbT.15.365.6; Other activities: AbT.12.4.46; AbT.14.221.53; AbT.14.221.54; AbT.14.221.56; AbT.14.244.7; AbT.14.268.14.

Double-ridged rim jars: Building A: AbT.12.42.93; AbT.14.297.8; Cemetery: AbT.13.183.26; AbT.15.366.1; Other activities: AbT.14.221.52.

10.4 Shaping and Manufacturing Process [LR]

10.4.1 Insights into the Production of the Main Pottery Shapes

Conical bowls and **beakers** are the most widespread, serial produced vessels during all the 3rd mill. BC in Mesopotamia[111] and are both usually quickly realized and detached using a string, whose signs are clearly visible on the bases. Apart from the concentric signs on the bottom, conical bowls and beakers also have the edges irregularly raised or thickened, due to the rapid movements made by the potter. The wall thickness is irregular but there is a constant reduction from the base to the rim. External parallel striations characterize the external surface. These vessel typologies often show signs of quick production (Fig. 10.20): the base is sometimes badly detached from the throwing bat like in AbT.12.56.22 or AbT.14.221.25 or repaired like in AbT.14.221.70; in AbT.12.56.16 there is clearly a piece of extra clay left inside.

Bowls and beakers are usually considered as wheel-thrown, though from the X-rays analyses carried out it seems possible to hypothesize in some cases the combination and synergy of wheel-throwing and coiling as primary forming technique.[112] Wheel-coiled vessels are, indeed, often unrecognisable at a macroscopic level from wheel-thrown ones: both show internal and external rillings and concentric striation (string-cut) on the base.[113] X-ray analysis can be a useful tool in distinguishing the two techniques. Wheel-thrown vessels have in general a clearer base (thicker) and a gradual darkening towards the rim (due to the reduction of the walls) with an alternation of clearer and darker areas corresponding to the rillings. X-ray analyses of wheel thrown vessels show elongated oblique voids, due to a combination of the centrifugal force and the up-lifting of the clay compressed by the potter's hands.[114] Wheel-coiling is characterized in the radiography by an alternation of thicker areas (darker) and thinner ones (clearer), as in the wheel-thrown vessels, though also with a horizontal distribution at rim level; voids are usually horizontal and very indicative when

[111] See Moon 1987: 3; McMahon 2006: 63-64; Gruber 2015.
[112] On the different kinds of wheel-coiling techniques see Courty - Roux 1998.
[113] Berg 2008: 1181; 2013: 9.
[114] Vidale - Tosi 1996: 255; Berg 2009: 143-144.

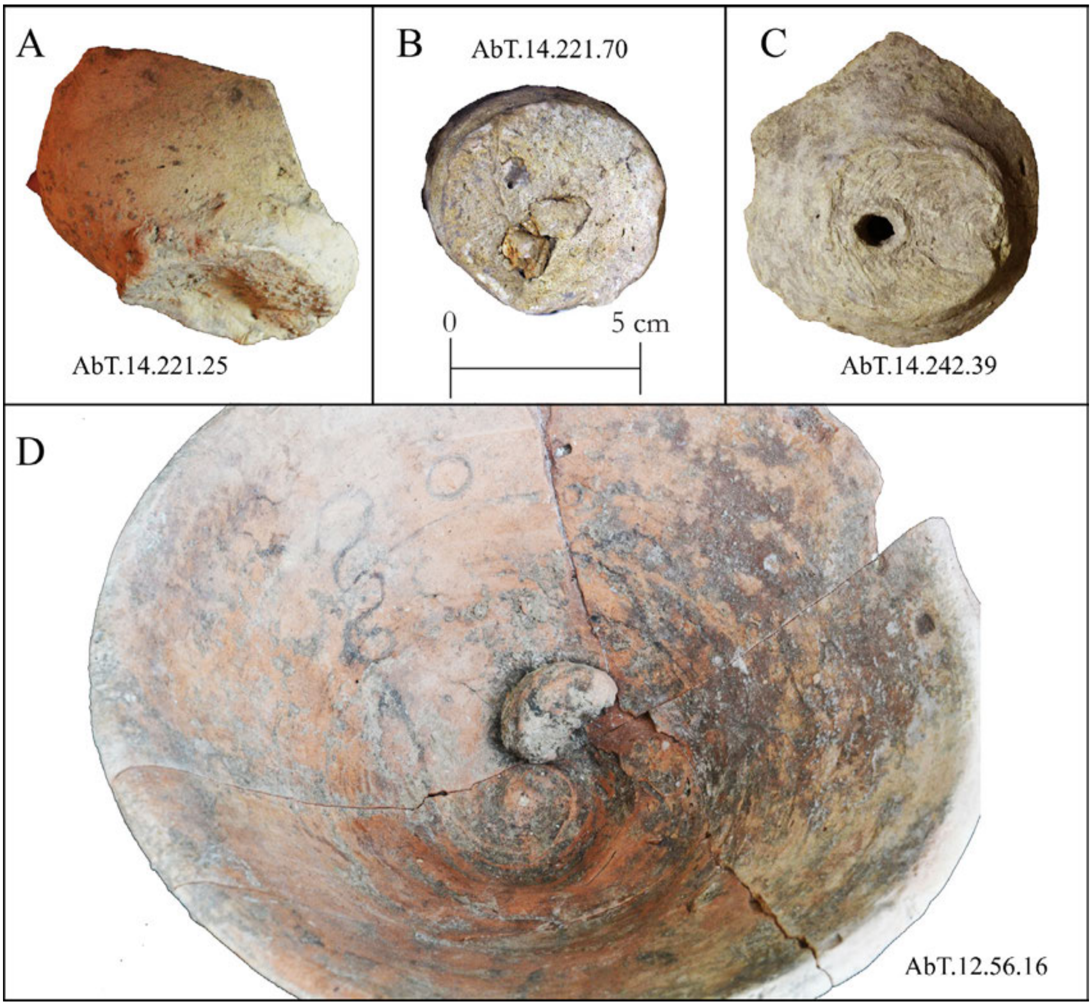

Fig. 10.20 Conical bowls: manufacturing details and peculiarities. a. AbT.14.221.25; b. AbT.14.221.70; c. AbT.14.242.39; d. AbT.12.56.16. Altered colors.

present between two coils.[115] However, X-rays are often not decisive in discerning between the two techniques, as already highlighted by Ina Berg for Cretan Bronze Age vessels: the X-ray quality, the ability of reading of the ceramologist, the skill level of the ancient potter in hiding the coils and the use of surface treatments can indeed obliterate the main forming technique.[116] Looking at Fig. 10.21, in the conical bowl AbT.17.632.1 the oblique voids follow the same direction of the spiral rillings and the external surface of the vessels is plane.[117] Instead, in AbT.15.365.1 the oblique voids cross the rillings[118] but some of them are also parallel to the clearer areas (thicker - in red in the picture): AbT.15.365.1, with its more regular profile, might be thus the result of the use of a wheel-coiling technique: comparable results were obtained through experimental reproduction[119] and the presence of the oblique pores might be the result of drawing the clay of the coils during the throwing or shaping on the wheel.[120]

The same situation can be highlighted for the beakers in Figs 10.22-24. AbT.15.385.4 seems to be completely realized on the wheel: oblique voids are visible in the radiography and the external surface

[115] Berg 2009: 144.

[116] Berg 2008: 1178; Berg - Ambers 2011; Rückl - Jacobs 2016: 298-299 (with experimental replicas).

[117] The vessel in the picture come from a context of the Cemetery excavated in 2017 but not included in the present volume. For another example see the X-ray published in Romano 2015b: Fig. 1 AbT.14.226.1.

[118] This can be obviously due to the different perspective of the two radiographies.

[119] See the base of a closed vessel in Rückl - Jacobs 2016: Fig. 23.

[120] Laneri - Vidale 1998: 245.

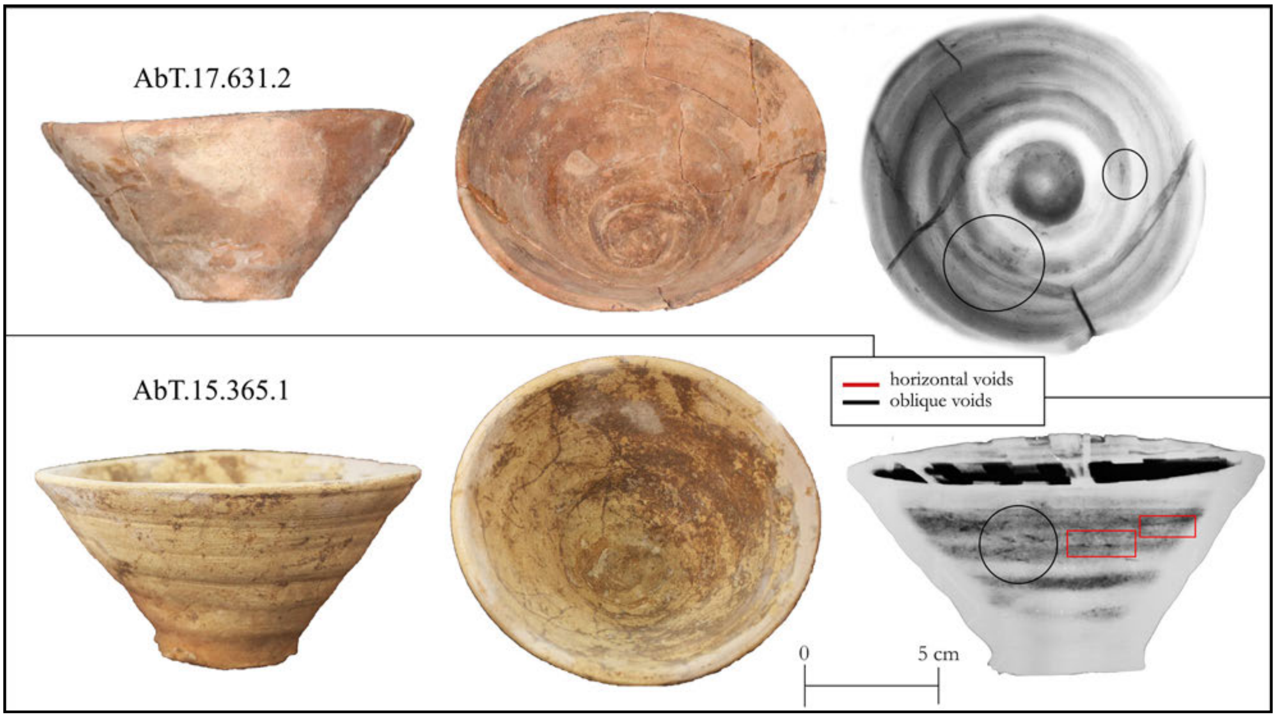

Fig. 10.21 Conical bowls X-rays (AbT.17.631.2; AbT.15.365.1).

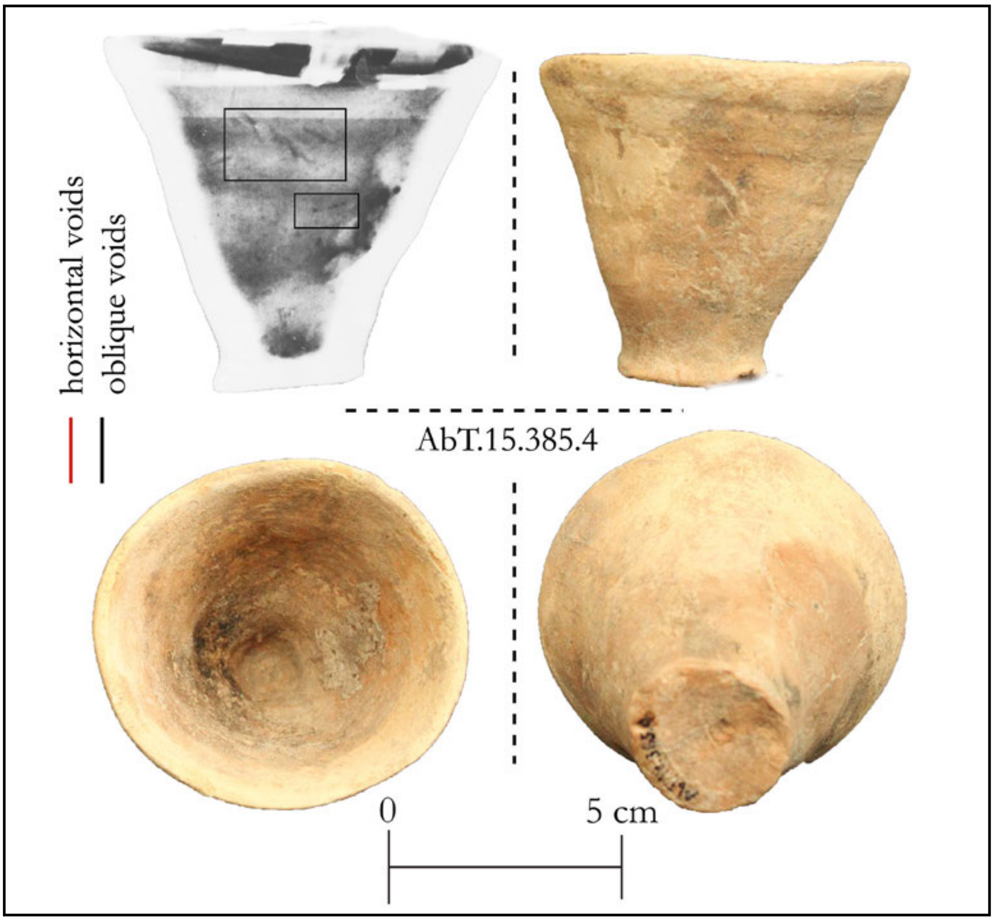

Fig. 10.22 Beaker AbT.15.385.4.

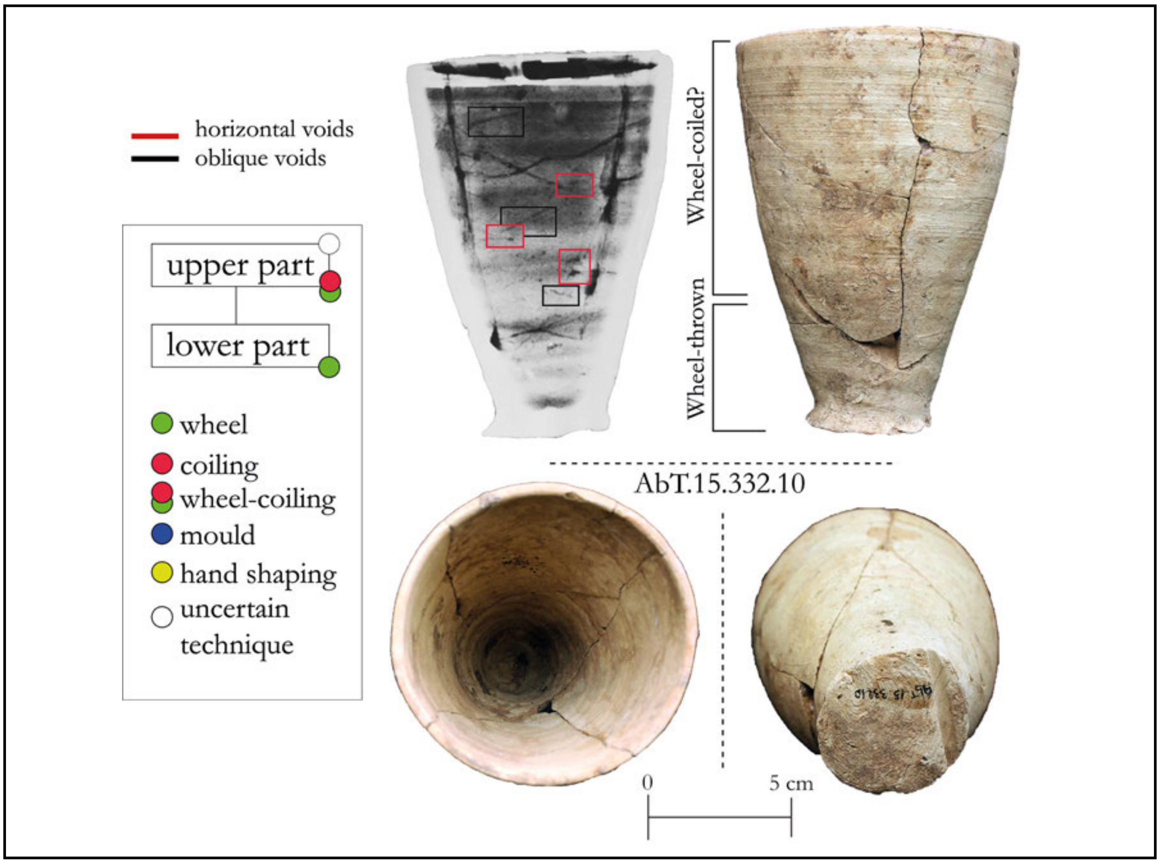

Fig. 10.23 Beaker AbT.15.332.10.

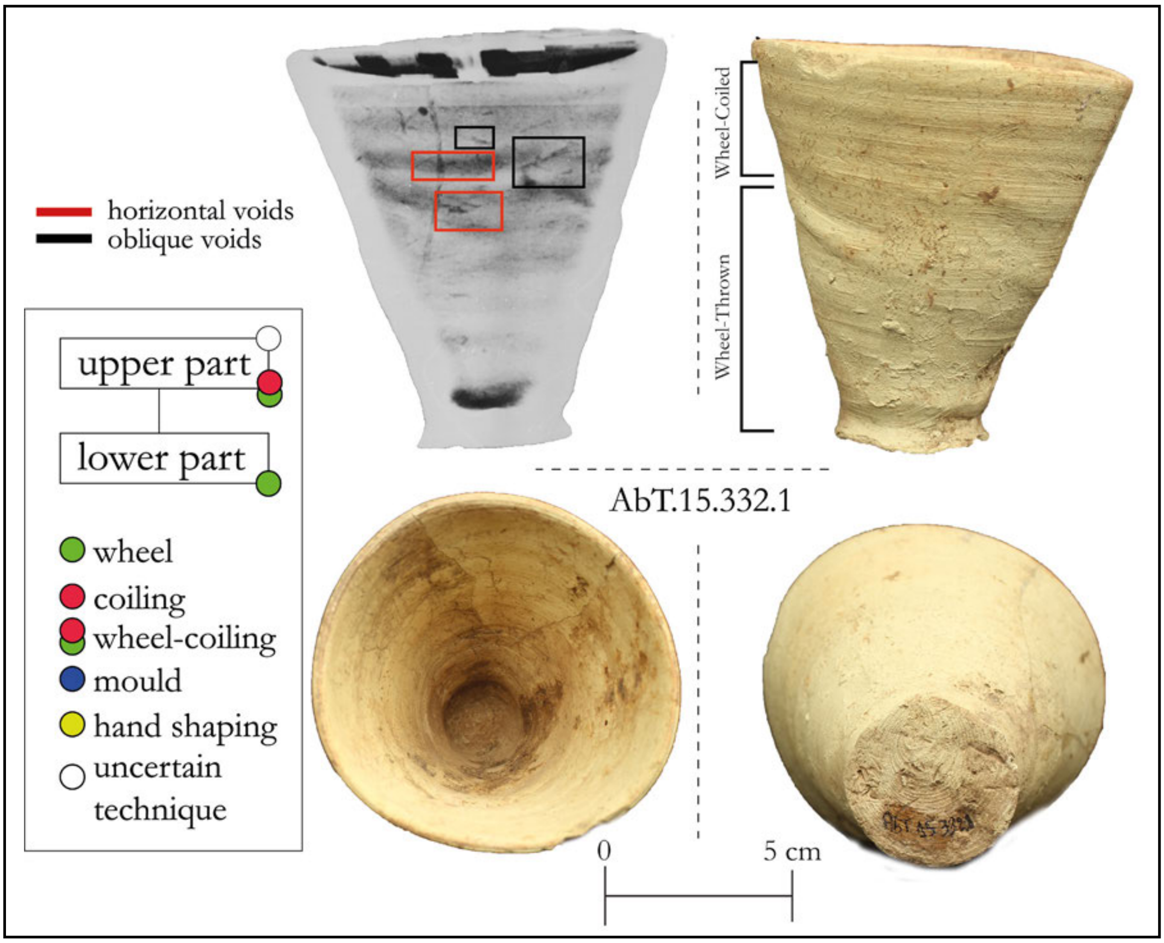

Fig. 10.24 Beaker AbT.15.332.1.

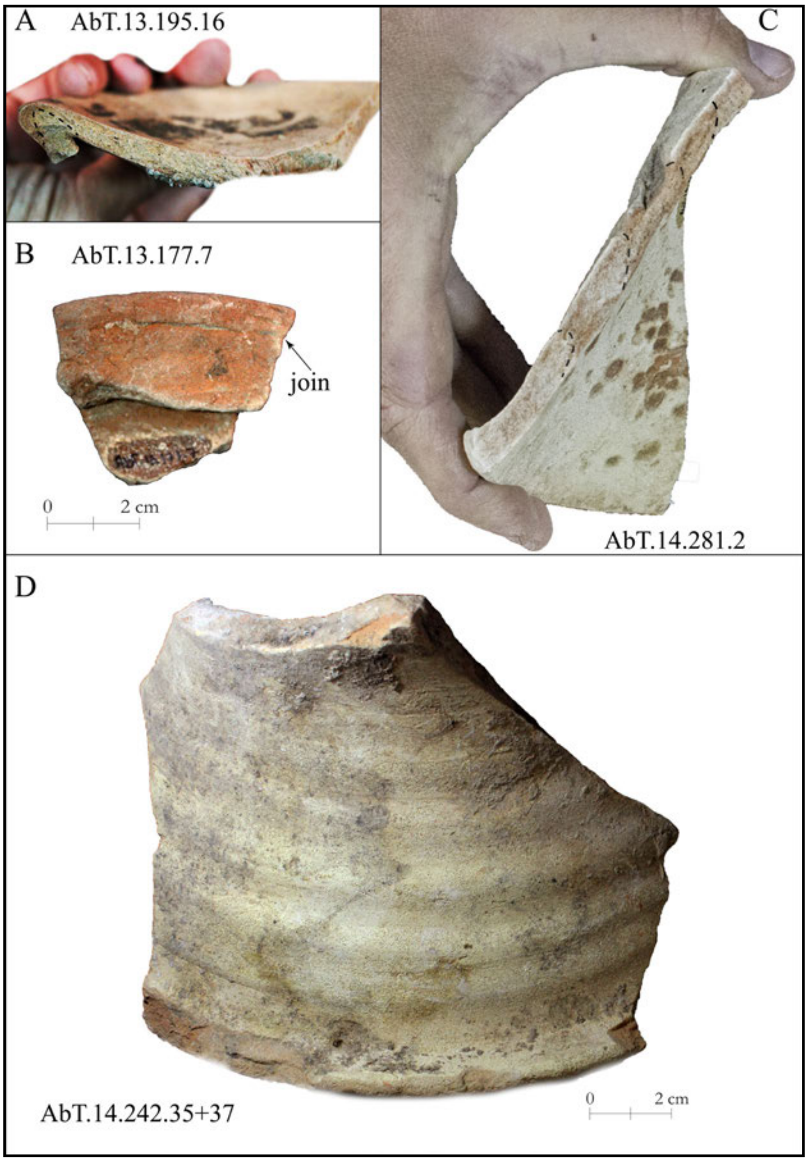

Fig. 10.25 Conical bowl attached to a stem: technological details. a.AbT.13.195.16; b. AbT.13.177.7; c. AbT.14.281.2; d. AbT.14.242.35.37. Alterd colors.

rillings show the spiral generated by the rotative kinetic energy (RKE).[121] AbT.15.332.10 is a very accurately shaped vessel and its upper part shows a quite uniform thickness, if compared with other beakers. While in the lower part of the vessel the spiral generated by wheel-throwing is visible, in the upper part the visible rillings are parallel: in this upper section of the beaker voids are both oblique and horizontal. This synergy of two techniques in the manufacturing sequence is perhaps more visible in AbT.15.332.1, that seems to be realized partially by throwing the vessel and partially by coiling the upper part, hence it is more uniform than the lower one. Indeed, in the upper part of the X-ray two different darker bands can be easily distinguished from the rest of the vessel body and might correspond to the coils seams.

The utilization of different techniques for the realization of the most widespread 3rd mill. BC shapes is an interesting possibility but not yet completely verified: further research and testing, including petrographic sections, microfabric analysis and experimental replicas, will contribute to a clearer view of the 3rd mill. BC manufacturing sequence of these characteristic shapes.

[121]The horizontally alternated clearer and darker areas could also be the sign of wheel-coiling, as previously said.

As said, **conical bowls** can be sometimes **attached to a stem** or to a **cylinder**. The conical bowl's rim is usually pulled down and joined to the coiled stem[122] or to the cylinder,[123] as visible in Fig. 10.25. The cylinders, with a string cut base, are usually realized on the slow wheel, as demonstrated by the X-ray (Fig. 10.26): the spiral is clearly visible both on the internal and external surfaces of the vessel and in the radiography. Two different kinds of the same vessels are realized in a similar way (Fig. 10.27): AbT.13.163.15 external surface was shaved with a tool that left vertical parallel striations,[124] while in AbT.13.163.20 the base was hand modelled, also adding three pinched feet, and shows a hole at the join with the walls.[125]

A peculiar vessel, the **pointed beaker**, is realized modelling the base by hand, as visible in Fig. 10.28: AbT.14.259.5 shows the remains of the not completely obliterated signs of the string cut base; the clay of the very bottom of AbT.15.332.3 was "folded" over the original base.

Trays are made in a very coarse vegetal tempered fabric (Fabric D_1), usually fired at a medium-low temperature and often showing a black core due to the partial oxidation of the organic matter. These vessels were probably modelled with coils and/or slabs: joins between coils or clay layers are often clearly visible in the sections, as shown in Fig. 10.29[126] In the distinction of the coils, a good help comes from the salinization of Abu Tbeirah's soil: the salt crystals, as for the stratigraphic units, accumulates in the space between the coils.

Triangular rim deep bowls are coiled and refined at the wheel. In Figs 9.30-31 coils are visible both in the section[127] and on the external surface: in particular AbT.15.326.1 clearly shows on the

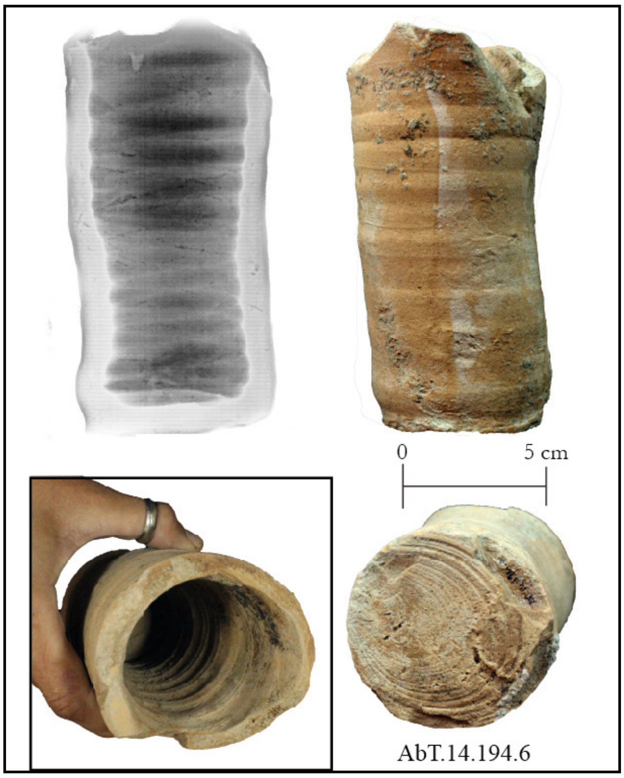

Fig. 10.26 Cylinder AbT.14.194.6.

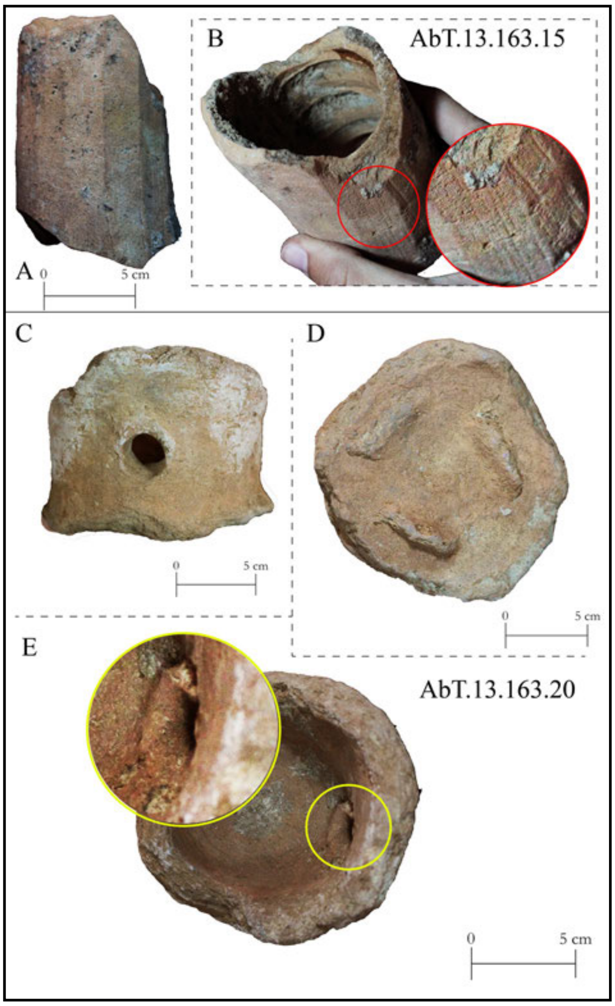

Fig. 10.27 Cylinders: a-b. AbT.13.163.15; c-e. AbT.13.163.20.

[122] As shown in Fig. 10.25 *sub* c-d, coils are very visible both on the external surface and the section.
[123] The use of the same technique is only supposed since no complete specimen has been found.
[124] Similar to Moon 1987: 25 n.134. See for comparisons the experimental replicas in Forte 2014: 626 Fig. b.
[125] Apparently, the base was pierced from the outside, as evident from the residual clay visible inside the vessel (Fig. 10.27 *sub* e).
[126] Sequential slab construction for similar vessels and other containers has been already notices and studied for other Near Eastern contexts (Vandiver 1987; Fazeli *et al.* 2010).
[127] On the coil seams recognition criteria used see Vandiver 1987: in particular p. 14.

Fig. 10.28 Pointed beakers AbT.14.259.5 and AbT.15.332.3 (top and right).

Fig. 10.29 Trays AbT.12.42.16; AbT.14.221.39; AbT.15.382.5. Altered Color.

Fig. 10.30 Triangular rim deep bowls AbT.13.163.7 and AbT.15.379.3.

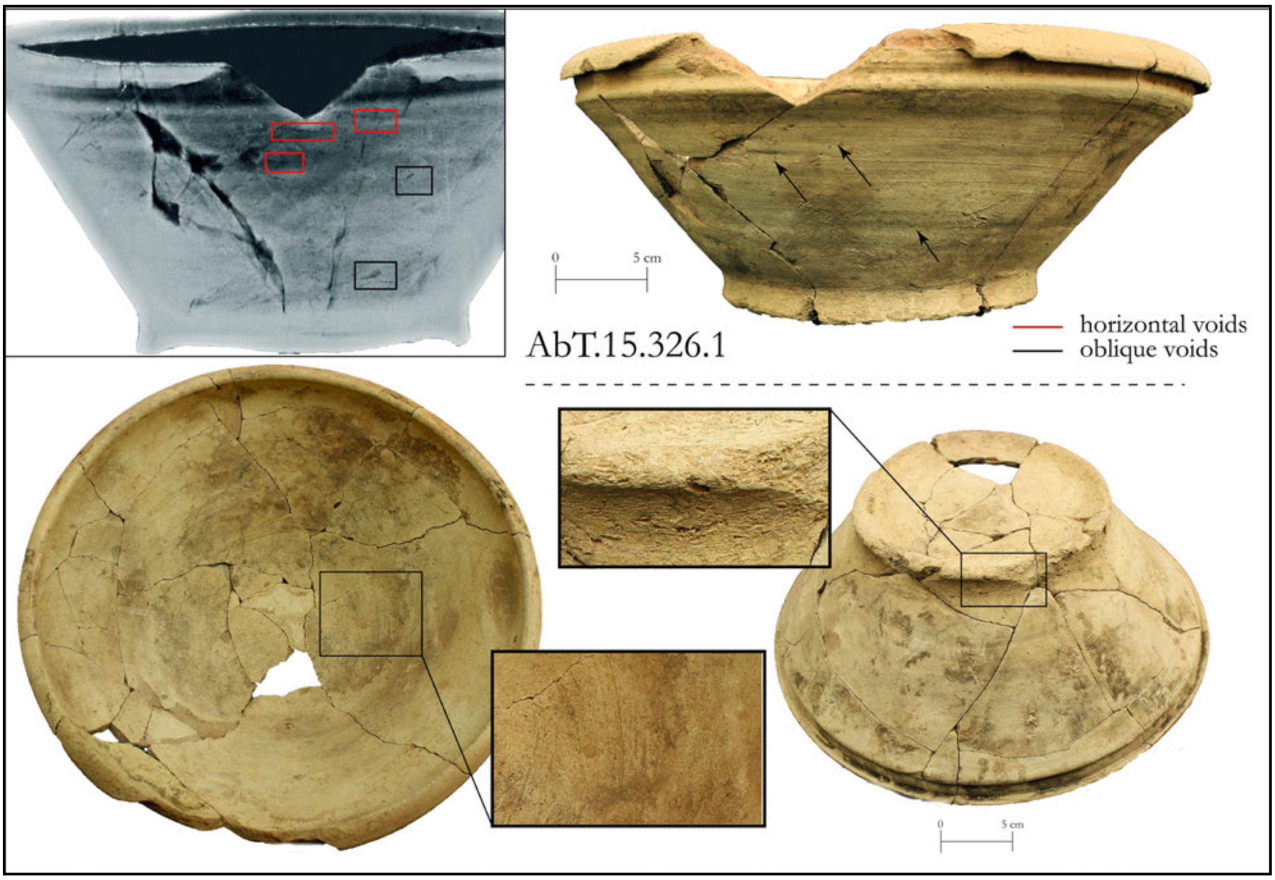

Fig. 10.31 Triangular rim deep bowl AbT.15.326.1.

surface the preferential horizontal breakage at the coil seam level, typical of the coiling technique.[128] The same technique was used also for the **big plates and shallow bowls** (Fig. 10.32). When the bowls have a ring base, this is invariably realized with a coarser, vegetal tempered fabric (see detail in Fig. 10.31): all ring bases in 3rd mill. BC Abu Tbeirah are realized in this way,[129] plausibly to allow a uniform firing for parts of the vessels that have a different thickness. The vessels interior is often refined with a tool, whose diagonal signs are sometimes clearly visible (see Fig. 10.31). The convex base of the deep bowls, but also of **plates and shallow bowls** (Fig. 10.32) and of jars were probably realized through the use of a mold (another vessel?), a technique attested also for Samarra ware. The clay was pressed and modelled, and the excess scraped away (see detail of AbT.14.287.1[130] in Fig. 10.32); partially dried, the base was taken out of the mold and the rest of the vessel was built.[131] Much like for conical bowls, plates and deep bowls can be used to realize more complex vessels: the stemmed-dishes (Fig. 10.33). Due to the huge dimensions of the stem it was impossible to throw the vessel completely on the wheel and thus the stems are also in this case realized with a synergy of different techniques, chosen by the potter on the basis of the size of the vessel. While coiling was probably the main technique used in the huge stand AbT.13.177.1, rillings are quite visible in AbT.14.268.2 (see the black arrows in the pictures) and the radiography apparently indicates the use of wheel-throwing technique for the upper section (oblique voids), while the lower one, near the notched ridge, shows the parallel voids of the coiling. The composite nature of this typology is also evident from the signs of the original attachment between stem and dish in AbT.14.298.3.

As far as jar manufacturing is concerned, some vessels will be analysed as example. **Plain rim jar** AbT.14.224.2 seems to be wheel thrown on the basis of clues coming both from the autoptic analysis and the radiography. The external surface shows indeed oblique fissures (a and b in Fig. 10.34) that are clearly visible in the X-ray, following here the spiral of the clay. If the particles disposition is considered, the spiral is very different from that of the cylinder AbT.15.385.4 and is more similar to a sort of vortex: clearly the vessel was wheel-thrown with a higher RKE.[132] The convex base of the vessel was probably realized with a mold and then modelled with a wooden or bone tool, trimming the excess clay.[133] After the vessel was thrown, it was clearly refined on the wheel with a smoothing tool: the sign of the tool are almost horizontal and are not coherent with the direction of the internal spiral and of the external fissures. The **trumpet base jar** AbT.15.385.7 (Fig. 10.35) was realized with a completely different technique: the jar was indeed clearly assembled from four different parts. The body is composed of two hemispherical parts joined interposing a single coil: both the halves show horizontally alternated dark and clear areas and show no oblique void. While the upper half was probably coiled, the lower part was instead smoothed with a tool that left oblique marks on the surface: this surface treatment, however, might also be an indication of the realization in a mold, like attested in the previously described plain rim jar AbT.14.224.2.[134] The neck and the rim were probably wheel-thrown: while oblique voids are visible, accompanied by horizontal smoothing signs on the surface, horizontally alternated thicker and thinner areas are equally present. The join to the "extended" version of the ring base is clear, with the potter's fingerprints still visible, but no indication on the technique is derived from the radiography. A similar composite pottery shape is AbT.14.259.1 (Fig. 10.36): the halves, probably coiled (no oblique void is visible), are joined in the middle interposing a single coil. The base and the

[128] See Rückl - Jacobs 2016: 309-310, Figs 15-16.

[129] This peculiarity is attested also in other sites (see McMahon 2006: 61).

[130] As suggested by A. McMahon (*pers.comm.*) AbT.14.287.1, if inverted, might be interpred as a stemmed-dish base.

[131] Nieuwenhuyse *et al.* 2001: 154; see also the "hump molds" used by modern potters as a template for slab work. These molds are realized with a plaster that absorbs water and helps the clay slab to dry out, thus easing the separation from the mold.

[132] See also Romano 2015b.

[133] See for comparison the Tell Arbid ED III shard studied by Smogorzewska 2007: 562 Fig. 10. See also the several occurrences in Moon 1987 of vessels with scraped lower part.

[134] This might justify the differences between the halves visible in the X-ray, the lower part on average clearer (and thus thicker) than the upper one. Coils could have been also assembled inside the mold.

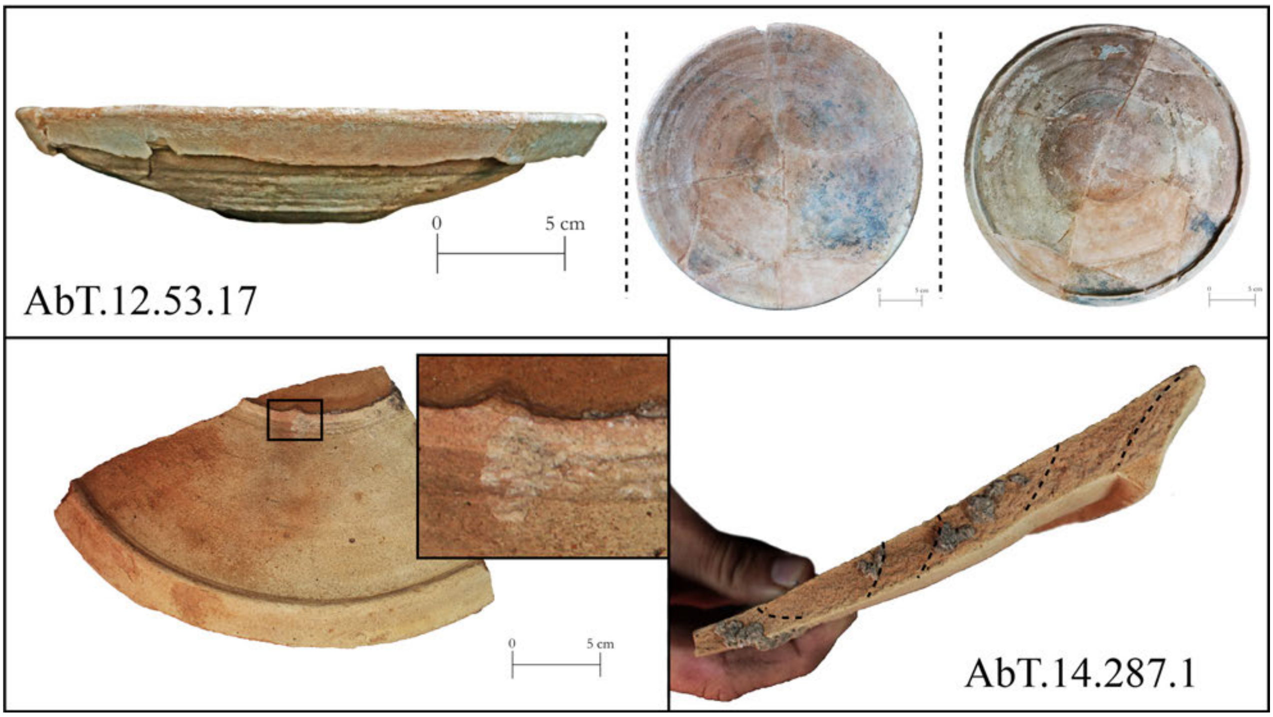

Fig. 10.32 Triangular rim shallow bowls AbT.12.53.17 and AbT.14.287.1. Altered colors.

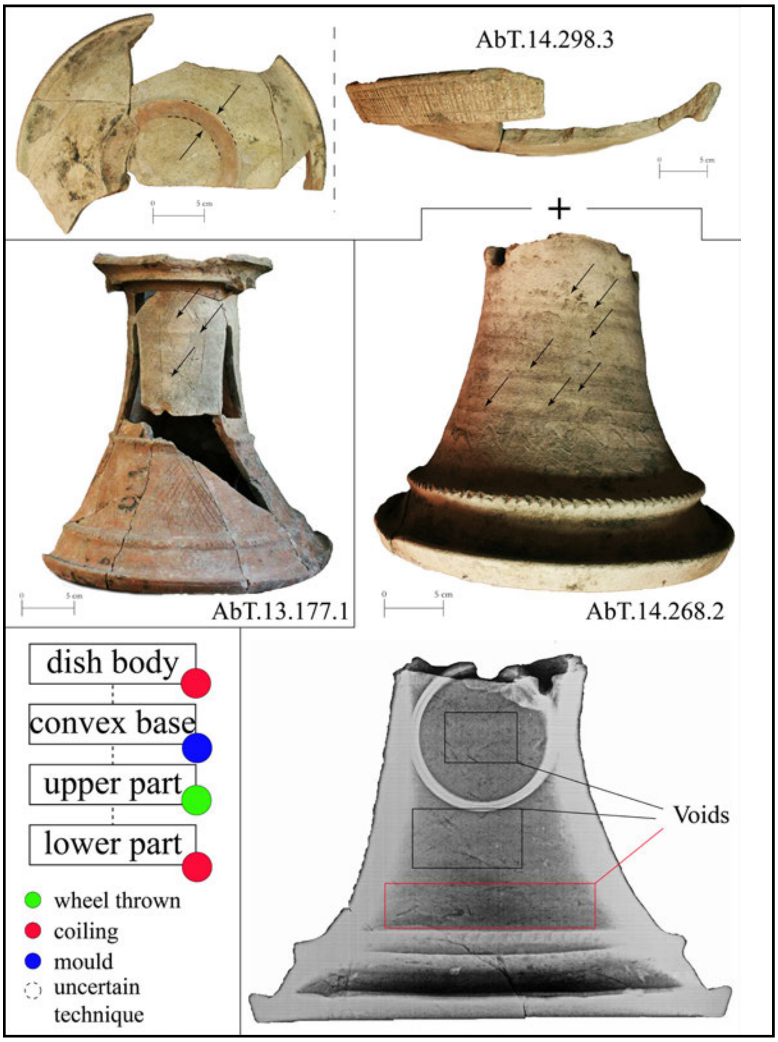

Fig. 10.33 Stemmed dishes AbT.13.177.1; AbT.14.268.2 (the white circle in the X-ray is due to the support used), AbT.14.298.3.

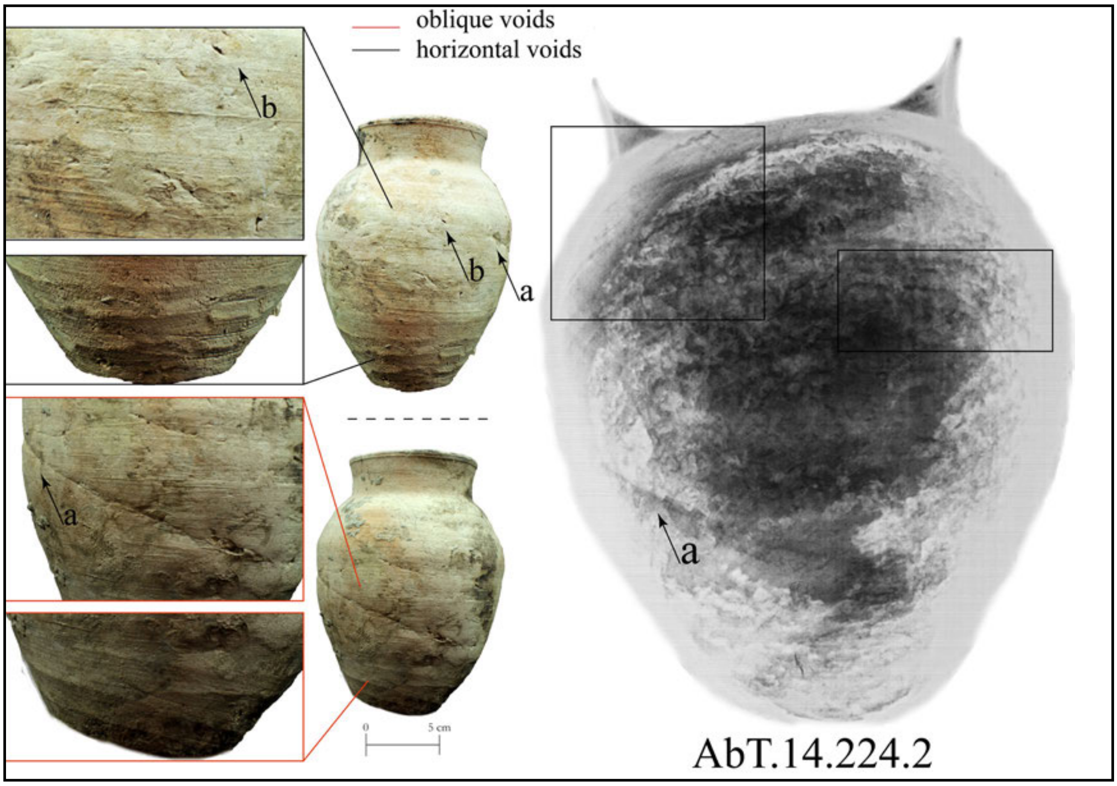

Fig. 10.34 Plain rim jar AbT.14.224.2.

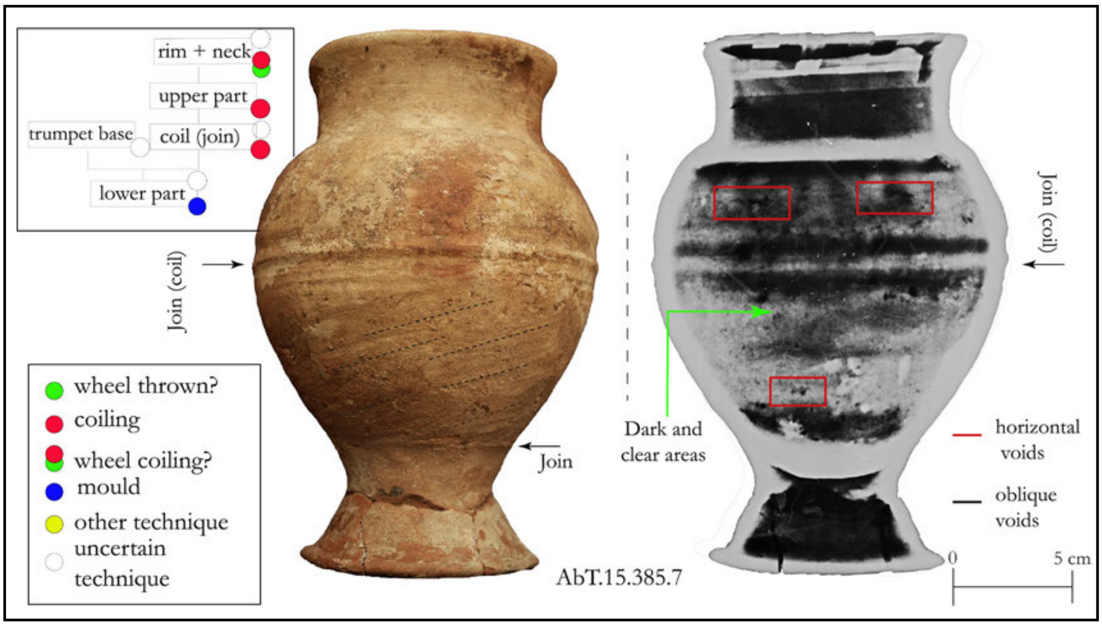

Fig. 10.35 Trumpet base jar AbT.15.385.7.

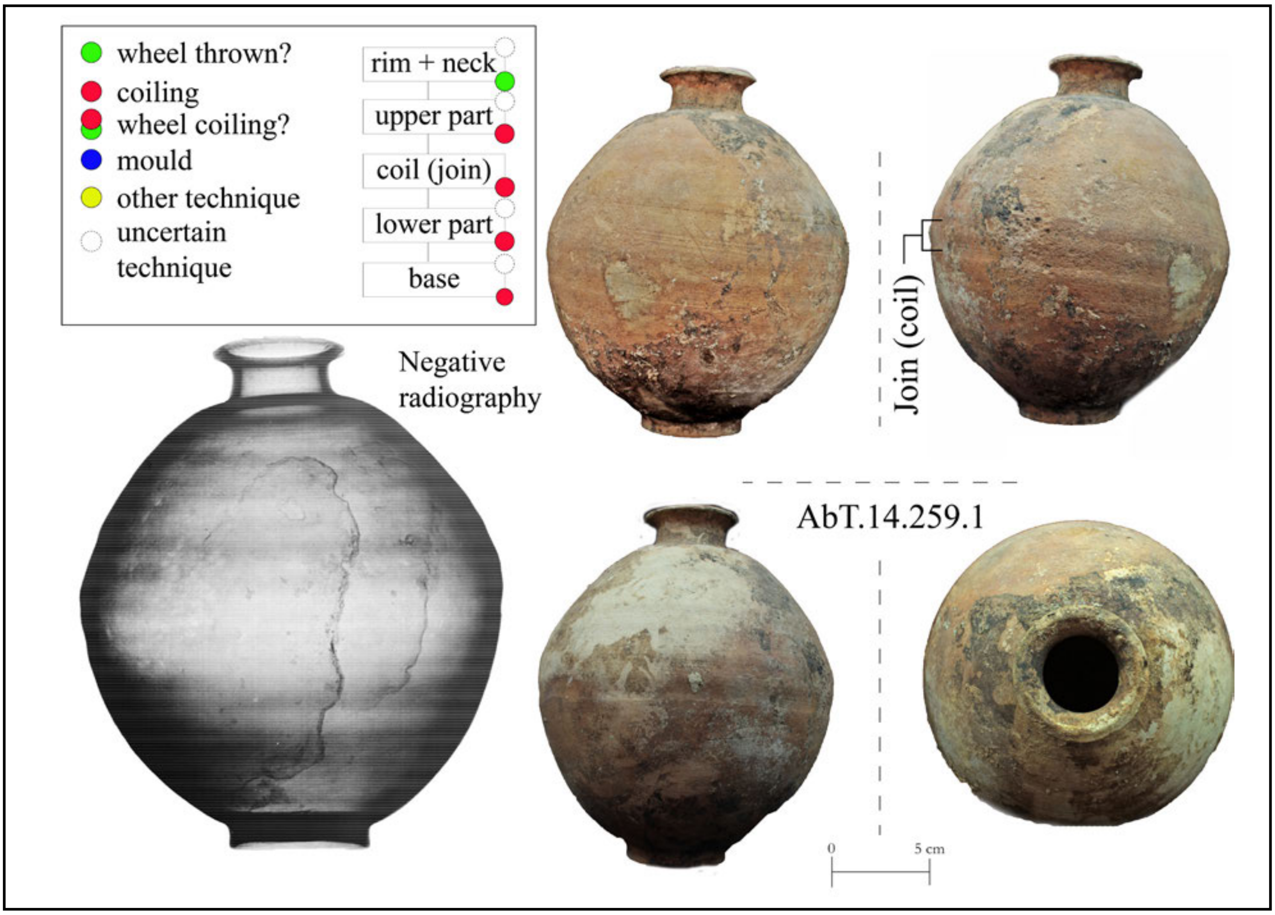

Fig. 10.36 Jar AbT.14.259.1.

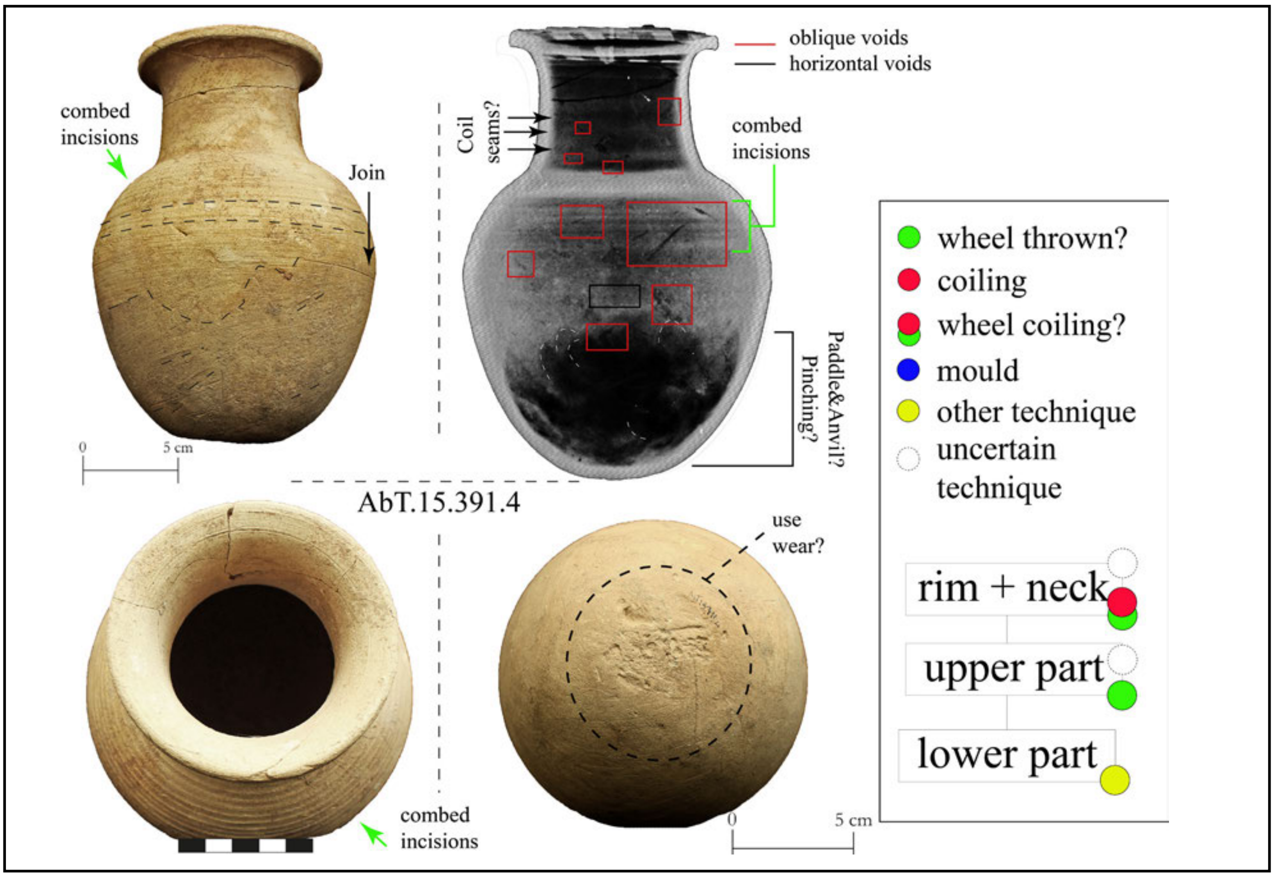

Fig. 10.37 Jar AbT.15.391.4.

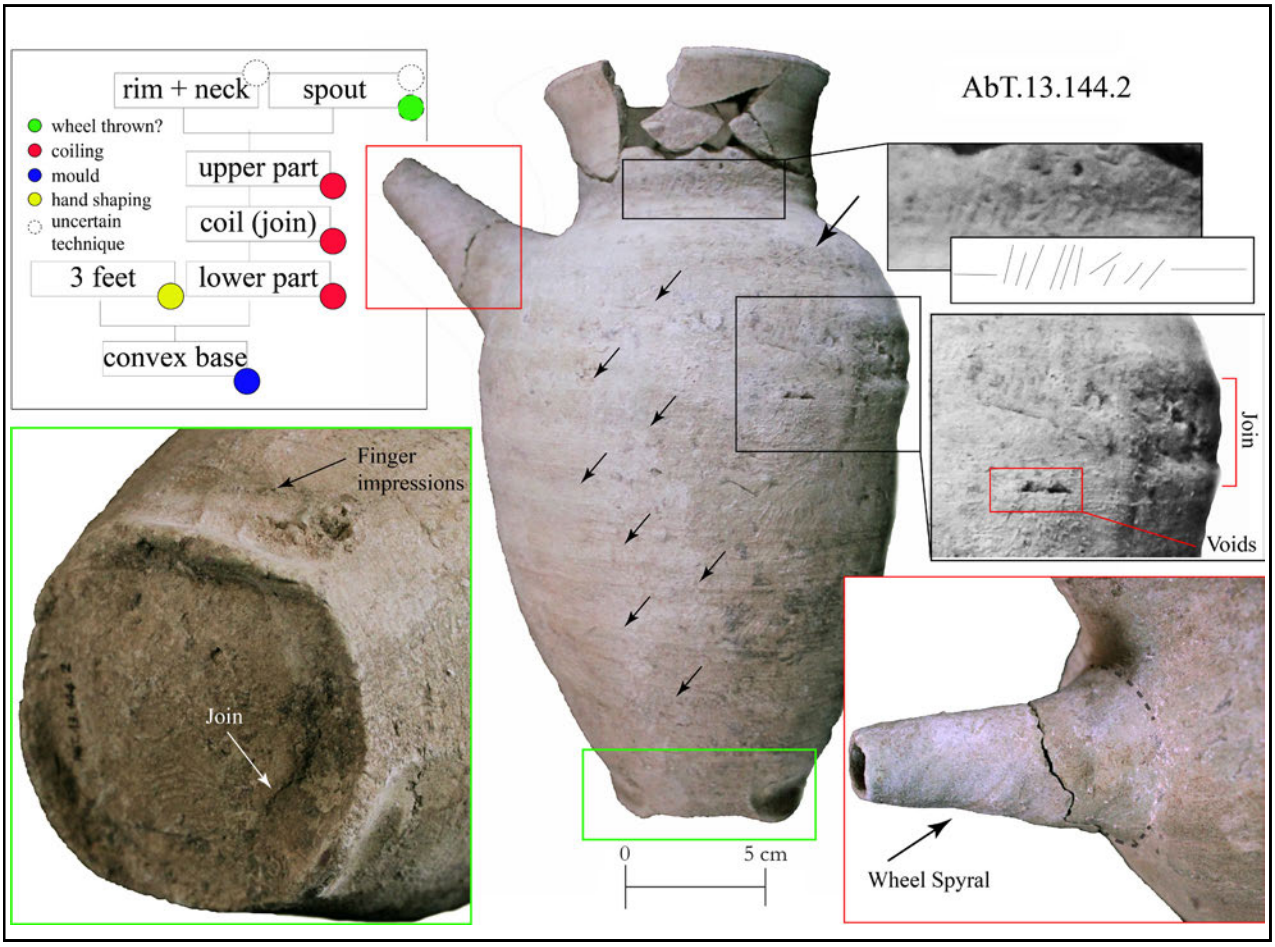

Fig. 10.38 Jar AbT.14.259.1.

short and small neck complete the vessel.[135] The composite nature of AbT.15.391.4 (Fig. 10.37) is visible in the radiography. In this case, the separation between the lower body and the upper part is clearly marked by a horizontal fissure and by the oblique signs on the surface. A hand-forming or mold method can be hypothesized on the basis of the X-ray: the semicircular concavities, visible on the bottom internal surface, might be due to the potter's hand (knuckles?)[136] or to the use of paddle and anvil.[137] The upper part of the body, with its oblique voids can be plausibly interpreted as wheel-thrown. However, the presence of the deep combed-like incisions on the external surface visible also in the radiography can hide the primary modelling technique. The neck and rim seem wheel-coiled, being present both oblique and horizontal voids and not uniform alternated dark and clear horizontal area.

The last case shown here is the **spouted vessel** AbT.12.144.2 (Fig. 10.38). Notwithstanding the absence of a radiography its modelling process could be hypothesized on the basis of the autoptic analysis and of the previously analysed vessels. The body is made of two parts, one for the lower section and the other for the shoulders, both with clearly visible coils. The joining between the two halves through a single coil is also marked by the presence of the usual horizontal fissures. Neck and rim modelling technique cannot be determined (coiled? wheel-coiled?) but oblique signs are visible at the join level. The spout shows the external rilling of the wheel production and the three pinched feet exhibit the potter's fingerprints.[138]

[135] There is no clear evidence on the realization of the rim.

[136] See for an ethnographic comparisons May - Tuckson 2000: 124 (knuckles are used to consolidate a coiled base).

[137] Carmichael 1986: 38. If this is the case, the oblique signs on the surface might be interpreted as facets left by the paddle.

[138] Fingerprints are also visible in the base AbT.14.283.1.

Big containers and coffins are clearly coiled and assembled on the same place of construction: the bottom of a boat-like vessel found in 2017 in a pottery deposit pertaining to the last phase of Area 1 has an irregularly corrugated surface probably created pressing the clay on the soil (Fig. 10.39).[139]

10.4.2 *Surface Treatments and Decorations*

After finishing, Abu Tbeirah vessels could receive a surface treatment such as smoothing, shaving, slipping, burnishing and be enriched with decorations (mainly incisions, impressions and rarely painting). Smoothing and shaving is in most of the cases functional to the modelling and assembly of the vessel and were discussed in the previous paragraph: smoothing lines running horizontally are probably obtained with the application of RKE and generated with wet fingers;[140] smoothing lines running diagonally at the base level of some jars might be the result of surface evening after the detachment from a mold (Fig. 10.34); the vertically shaved surface of the cylinder hides the strong rillings due to the slow-wheel modelling perfectly (Fig. 10.27).

The presence of a slip on ED III and early Akkadian vessels has always been subject of discussion: though the vases are often apparently covered by a clearer layer of clay, different from the inner fabric colour, it is often impossible to distinguish the presence of an actual slip from the so-called "self-slip".[141] This term indicates the effect of moistening the surface of a vase with a wet hand or cloth, a process that brings to the surface the finest particles of the clay,[142] creating a lighter layer that reaches easily a higher temperature and thus assume a clearer colour.[143] The self-slip, also called "false-slip" or "floated surface", should be distinguished from the whitish scum created

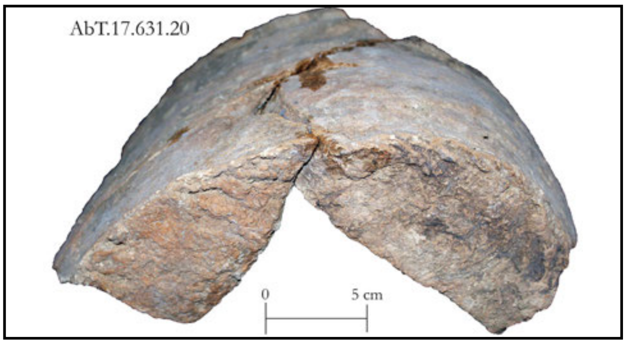

Fig. 10.39 AbT.17.631.20. Detail of the bottom, plausibly realized by pressing the clay on the soil.

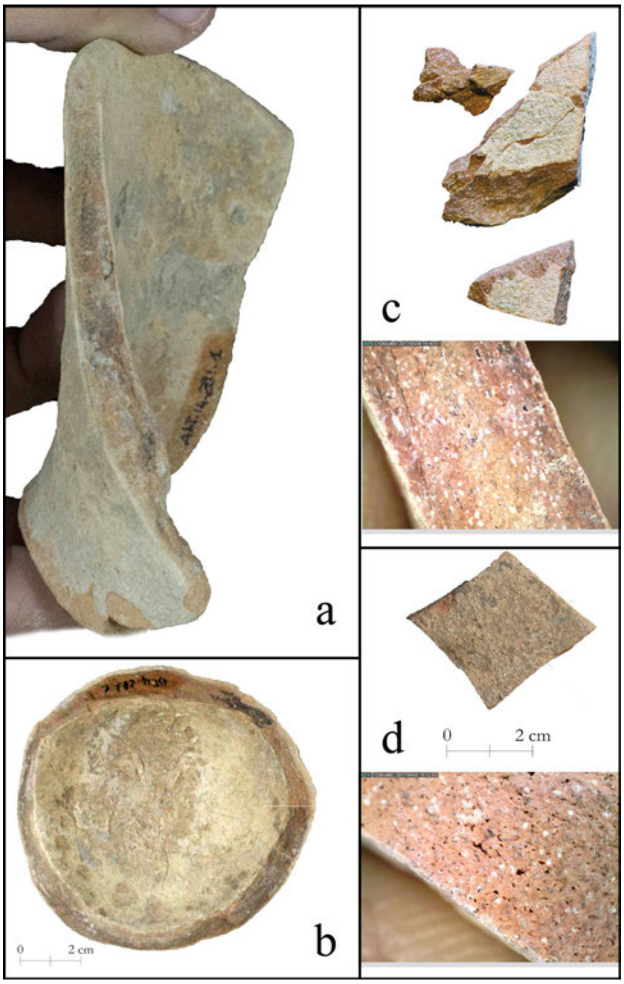

Fig. 10.40 Slip and self-slip: a. conical bowl AbT.14.281.1 (slip); b. jar base AbT.14.283.1 (slip); c. Sample 16 -AbT.12.56.4 (slip); d. sample 19 (slip?).

[139] It is presently not clear if this deposit was connected to a sarcophagus highlighted nearby but not excavated.

[140] Comparable to the experimental results obtained in Roux 2017: Fig. 15.

[141] Moon 1987: 180; Gerber 2005:59-61; McMahon 2006: 61; Armstrong - Gasche 2014: 88. On slip and self-slip see also § 11.

[142] Rice 2005: 151.

[143] See § 11. AbT.13.143.1 (Fig. 10.42 *sub* p) shows a clear self-slipped upper part and a more reddish lower body: this might indicate that the incised decoration was realized after moistening the upper part of the jars.

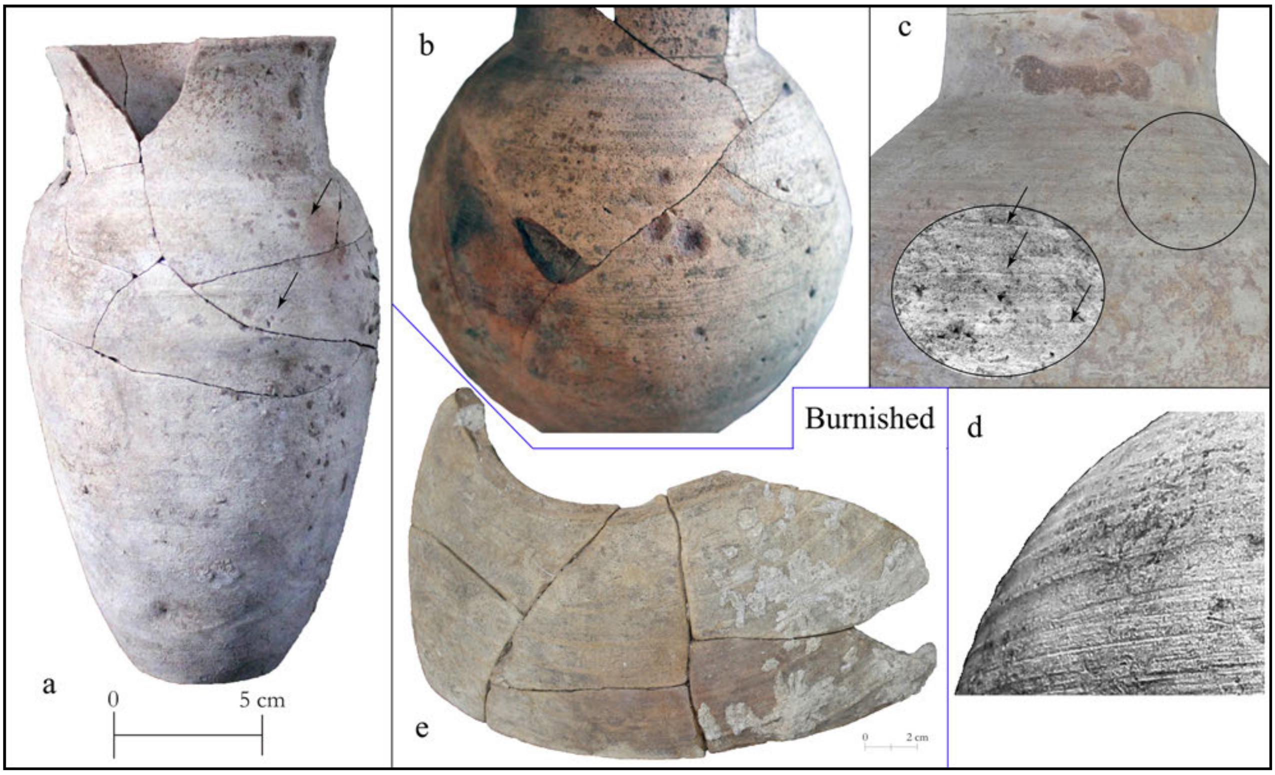

Fig. 10.41 "Reserved slip like" a. AbT.13.183.12; b. AbT.13.183.9; c. AbT.12.56.5; d. AbT.15.391.4; e. AbT.15.383.4.

by the migration and accumulation on the surface during drying of the salts, naturally present in Mesopotamian clay (Fig. 10.36 bottom left).[144] In analysing Abu Tbeirah's pottery, a distinction between the self-slip and the less frequent slipped vessels was attempted, though only more detailed archaeometric analyses will help in refining the distinction. The term "slip" was used in the catalogue only in the cases in which the external/internal layer of clay is clearly separated from the clay.[145] The slip/self-slip is attested mainly in jars and big bowls, and almost always when the vessel is decorated with incisions; conical bowls and beakers, with rare exceptions (Fig. 10.40 *sub* a), do not show any surface treatment.

Some jars from Building A and from the layers of the latest phase show a horizontal "reserved-slip" like effect, that might be generated smoothing on the wheel a leather-hard surface with a wet smooth tool or scraping out the wet surface (Fig. 10.41 *sub* a-c):[146] the realization of this horizontal lines displace the wet clay as visible in Fig. 10.41 *sub* c where margins of the horizontal "reserved" bands appear raised. This horizontal scraping can be more or less pronounced, like in Fig. 10.41 *sub* d, with the grooves/combed-like decoration visible also in the X-ray (Fig. 10.37). A similar effect was realized through burnishing as in the fragment in Fig. 10.41 *sub* e.[147] Planned archaeometric analyses and experimental replicas will be pivotal in better

[144] Rice 2005: 336; McMahon 2006: 61. See also § 11. Stemmed-dish AbT.13.177.1 in the figure show a variation of the external colour that ranges from light reddish brown (5YR 6/4) to light brown (7.5YR 6/4) and to brown (7.5YR 4/4), a colour variation that thus can be due to the not uniform drying and/or firing process.

[145] The interpretation might be distorted from post-depositional salt infiltration that produce a laminar flaking of the pottery (see § 6.1.1.1).

[146] Delougaz 1952: 33; Moon 1983: n. 337 "blunt combed effect", n. 522 "Incised (or perhaps raised) lines on shoulder"; McMahon 2006: *passim* "horizontal grooves" and Pl. 89 n.7 Type C4. For experimental comparisons see Roux 2017.

[147] Similar technique of Fig. 10.41 *sub* b but with a dry and hard tool. On the differences between smoothing and burnishing at a macroscopic and microscopic level see Ionescu *et al.* 2015 (esp. 22-23, "Smoothing makes ceramics appear 'matte' or 'dull', while burnishing gives ceramics an appearance that may be described as 'lustrous', 'shiny' or 'glossy').

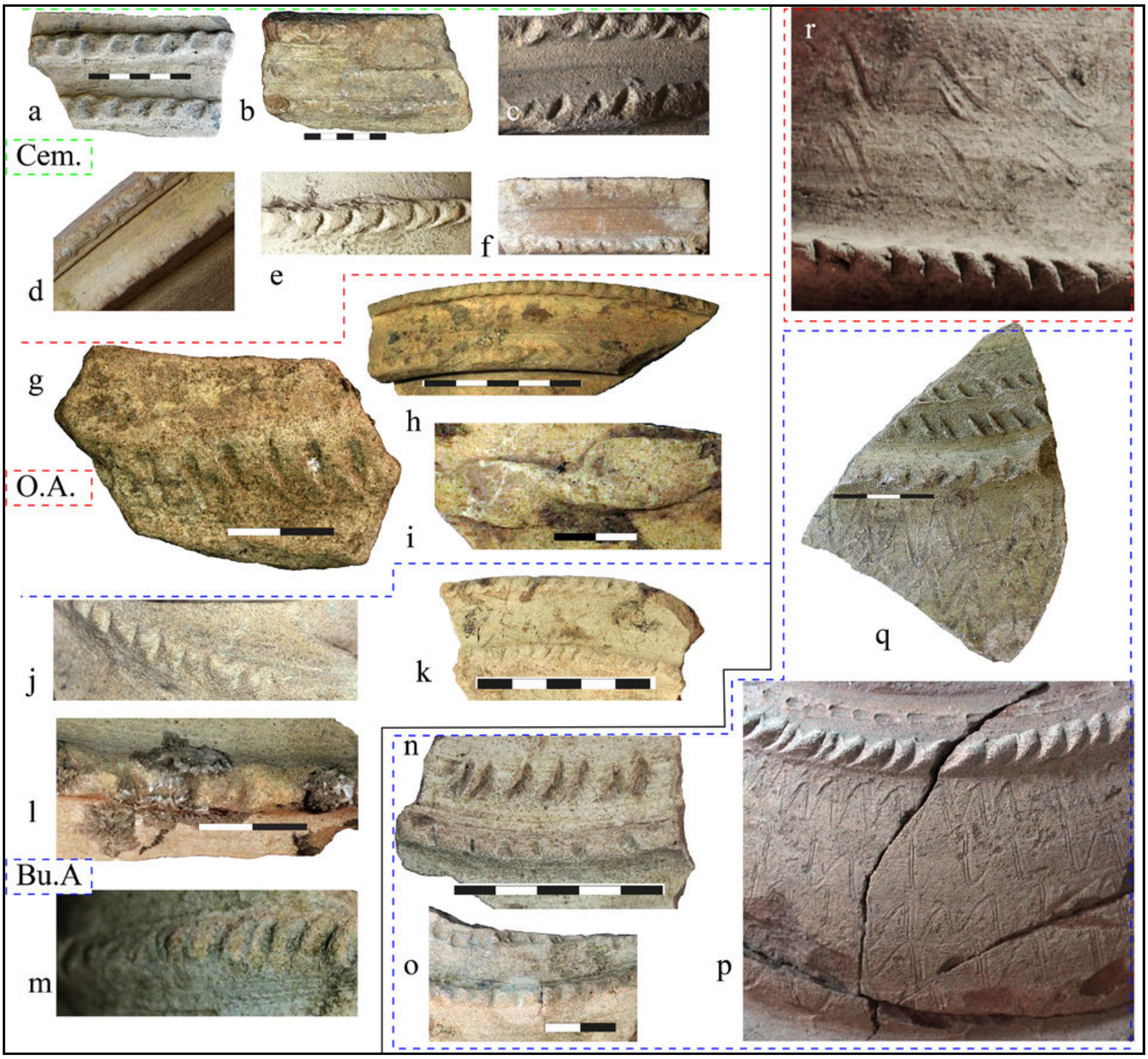

Fig. 10.42 Notched ridgee and incisions. a. AbT.12.84.19; b. AbT.14.242.25; c. AbT.14.242.6; d. AbT.14.242.40 (double ridged rim); e. AbT.14.221.45; f. AbT.14.290.2+296.4; g. AbT.13.183.30; h. AbT.15.326.10; i. AbT.15.326.3; j. AbT.13.144.14; k. AbT.15.382.2; l. AbT.13.152.16; m. AbT.13.163.25; n. AbT.13.163.19; o. AbT.13.152.15; p. AbT.13.143.1; q. AbT.12.37.3; r. AbT.14.268.2. Pictures not in scale if not otherwise indicated. Altered colors.

understanding this step of the pottery production process.

Decorations can be found on some ridges applied to jars and stemm walls[148] (also on coarser shapes such as Fig. 42 *sub* b) or on stemmed-dish double ridged rims. In the first case the ridges are mostly[149] not applied perpendicularly to the surface but follow the curve of the walls and are in a way more raised toward the upper part of the vessel. The decoration can consist of finger-impressions (Fig. 42 *sub* i; Fig. 44 *sub* c) or in a series of incisions realized with a tool (notched decoration)[150]. In some case the incisions are very regular and generate a quite homogeneous pattern

[148] AbT.12.53.13 has been not photographed while the wavy decoration on the top of the rim of AbT.15.382.2 is not clearly visible, due to the strong erosion of the surface, and has not been reported in the figure.

[149] See Fig. 10.42 *sub* a as exception.

[150] The notched decoration is realized cutting and displacing the clay of the vessel not impressing perpendicularly a tool

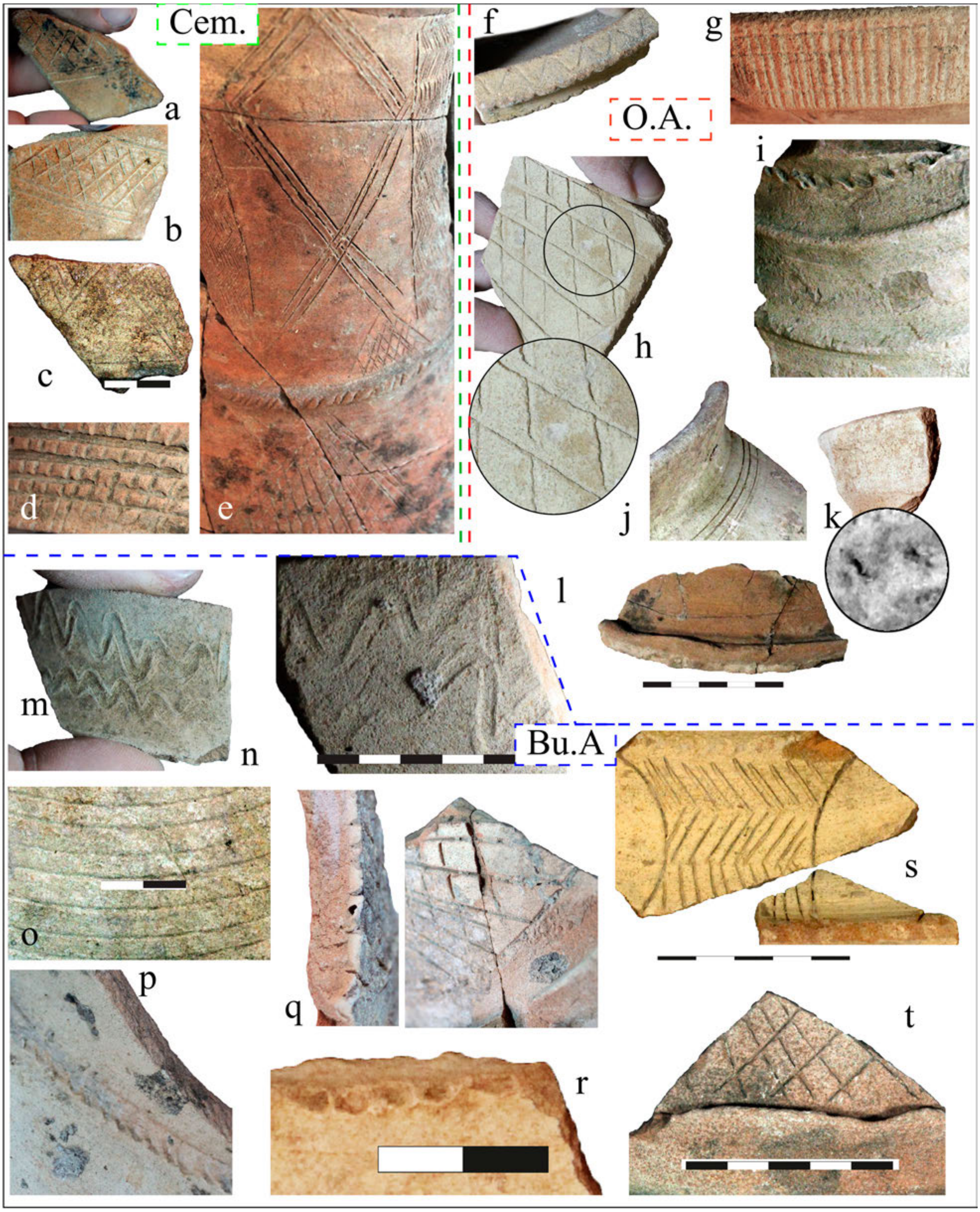

Fig. 10.43 Inincisions and excissions. a+b. AbT.13.177.10; c. AbT.13.183.29; d. AbT.13.177.11; e. AbT.13.177.1; f. 14.242.40 (rim upper part); g. AbT.14.298.3; h. AbT.14.294.2; i. AbT.14.242.13; j. AbT.14.242.10; k. AbT.14.242.20; l. AbT.14.242.13; m. AbT.13.163.16; n. AbT.14.254.3; o. AbT.13.167.27; p. AbT.13.134.16; q. AbT.13.152.13; r. AbT.15.350.2; s. AbT.14.179.1; t. AbT.13.144.15. Pictures not in scale if not otherwise indicated. Colors altered.

Fig. 10.44 Impressions and bitumen painting. a. AbT.14.240.8; b. AbT.14.221.13; c. AbT.12.84.31.

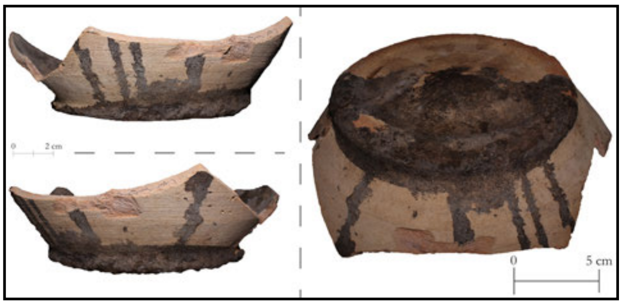

Fig. 10.45 AbT.13.163.28.

Fig. 10.46 AbT.12.84.30.

(Fig. 10.42 *sub* h, d), others are made more quickly and in a less homogeneous way (Fig. 10.42 *sub* m, p) or even cutting from the top down (Fig. 10.42 *sub* g). Several occurrences of a combination and sequence of wavy incised or combed decoration, notched ridges and other incisions were noticed in Building A - phase 1 and in the latest activities (Fig. 10.42 *sub* n-r).[151]

Incisions were apparently done when the vessel was still wet (*e.g.* Fig. 10.43 *sub* m-n) or not completely dried (*e.g.* Fig. 10.43 *sub* e)[152] and, when present, usually after the application of the slip or after dampening the surface (Fig. 10.43 *sub* q where the cut clearly cross the self-slip layer).[153] Incisions are used for simple parallel-line decorations (Fig. 10.43 *sub* o) or more complicated patterns, such as in the stemmed-dish discovered in Grave 16 (Fig. 10.43 *sub* e), including weaves,[154] hatched triangles, lozenges, grid-like or herringbone patterns. This cutting technique is used in a casual way (Fig. 10.43 *sub* l) or in a more regular one (Fig. 10.43 *sub* d). In Fig. 10.43 *sub* h the hatched pattern was realized doing the lines from right to left, then adding the lines from top to bottom, clearly displacing the clay. This might be a case of excision of the clay: the secondary lines are large and quite homogeneous and, moreover, it is evident the displacement of the clay toward the bottom, like if a tool was drawn through the clay, removing part of it.[155] Another kind of decoration very common at Abu Tbeirah is a line of small incisions usually made at or near the joining between the neck and the body of jars (Fig. 10.42 *sub* o-p; Fig. 10.43 *sub* p, r, k). While in some cases this is clearly a simple decoration (see above), as in the jar AbT.13.134.16 (Fig. 10.43 *sub* p) it might also have had a technological significance: the movement made drawing the clay from the top to the bottom might have strengthened (or masked?) the join between the two parts of the vessel.

(on the distinction used among the technique and applied in this volume see Rice 2005: 145).

[151] The case *sub* r has been found inside a soil heap immediately under the surface.

[152] The displacement of the clay is higher when the clay is wet. For a comparison of the effects of the incisions at a different stadium of drying see Rice 2005: 147 Fig. 5.16.

[153] The only exception is AbT.14.179.1 (Fig. 10.43 *sub* s) in which the slip clearly fills the less deep incisions (the two deeper incised curves show the fabric colour).

[154] AbT.13.152.16 presents a weavy decoration but has not been reported here.

[155] The clay displacement is limited and follows the direction of the tool.

Other less frequent decorations are small rounded impressions (Fig. 10.44 *sub* a, c) or simply bitumen painting (Fig. 10.44 *sub* b).[156] This kind of simple painting technique is interesting from the technological point of view because it was probably applied immediately after firing, when the vessel was still hot, allowing, in this way, the bitumen to melt: this technique was still in use in the '80s in some Diyala villages.[157] AbT.13.163.28 (Fig. 10.45) has a drop decoration only on half base and should have been applied with the jar upside-down. AbT.12.84.30 (Fig. 10.46) is a fragment of a vat rim and wall with two ridges highlighted with bitumen painting. In addition, the presence of two potter's mark (cross-like incisions),[158] coming from the large dump pit, should be mentioned.

10.5 Use and Re-Use [LR]

Research on the intended use and actual function of Abu Tbeirah's vessel's, though at its beginning, is already showing its potentiality. The analysis of use traces and/or of residue are nevertheless subjected to post-depositional processes that can create biases in the interpretation (see § 6.1.1): salt, first of all, always accumulates on pottery surface, creating crystals that can cause signs and breakages on the vessel exteriors; manganese can generate "sooting-like" traces on the pots; bitumen contamination can alter the results in the isotope and residue analyses.[159] With this background and on the bases of the preliminary results obtained, some general considerations can be made.[160]

The context in which the artifact was recovered is always considered of primary importance in restricting the potential functions. Morphology and actual use obviously have a connection that can be more or less nuanced, but shape and volume impose physical boundaries that can also help interpreting the intended function of a vessel. Therefore, the subdivision between open and closed vessels, used in the typological description, will be maintained, enucleating the cases in which evidence of an actual use different from the intended one was observed. Slip or burnishing and surface treatments, that can have also a practical function (*e.g.*, reducing the permeability of a vessel), are rare in our record and necessitate a wider study that also includes the frequently attested use of bitumen in waterproofing.[161]

Conical bowls and beakers, due to their dimension, shape, and volume, were probably originally intended as individual sized serving and eating vessels:[162] found in funerary and domestic contexts, they were used both in daily or "ritual" practices. However, their design makes them perfect to be used as multifunctional containers.[163] Conical bowls can be found over or inside jars,[164] indicating their use as lid, or can have a pierced base, such as AbT.14.242.39 (Fig. 10.20), to be used as funnels.[165] Their positioning along the walls of a room, one over the other, might indicate their use as lamps, as the bitumen incrustation found inside them seems to confirm.[166] Bitumen is often found inside conical bowls and beakers that

[156] See Mynors - Al-Kaissi 1987: 149 for analyses on the black painting, interpreted as organic (bitumen) origin. Some fragments recovered show very eroded red-painting traces (see § 10 Sample 1): further analyses on the fragment are needed to better clarify the red traces over its surface.

[157] Matson 1983, 623; for the 2nd mill. BC see Armstrong - Gasche 2014: 79, 82, 88.

[158] AbT.14.242.11-12.

[159] See Roffet-Salque *et al.* 2017, in particular p. 628 Fig. 2 in which are clearly re-assumed the "inputs, losses and transformation processes" influencing residue analyses.

[160] Recurrence in the association of shapes that might help in the interpretation of the function was not noticed in the contexts presented in the book. Here the actual use of some singular shapes will be highlighted, thought it cannot be excluded that further studies and comparisons with other contexts excavated at Abu Tbeirah will help in better defining and eventually correct the interpretation of their use. However, the contexts analysed, as stated in § 6.4, belong to the abandonment phase of Building A and to the Cemetery and other later activities in Area 1. While the function of the pottery equipment in the grave is discussed at § 6.3.2.2, in most of the cases the association among shapes in the layers pertaining to the abandonment of Building A cannot be considered as reliable.

[161] In AbT.12.32.1 the bitumen was limited at the lower part of the jar. On the use of bitumen and other substances as sealant see Roffet-Salque *et al.* 2017: 629.

[162] Henrickson - McDonald 1983: 632.

[163] Moon 1987: 3; Jones 1996: 159 (also Jemdet Nasr bowls are not specialized vessels); Thalman 2003: 50; Gruber 2015: 161-162.

[164] See for example AbT.14.226.4 inside Grave 17 (§ 7.4.2).

[165] Moon 1987: 3; Gruber 2015: 161-162. For a different interpretation see Delougaz 1942: 41.

[166] The use of conical bowls as lamps was also supposed by Thalman 2003: 50. The absence of bones or other evidence of offerings seems to confirm this interpretation at least for Abu Tbeirah contexts.

were thus probably used for preparing,[167] mixing or transporting small portion of the material. A singular connection was identified between beakers and tannur: the frequent discovery of beakers inside the conical oven should be related to the long shape of the beakers that might have facilitated access to the base of the tannur in an easier way, removing the accumulated ashes.[168] A similar function might be supposed for a small beaker AbT.13.183.4 (Grave 15) found inside the jar AbT.13.183.3: the small rim diameter probably is not adequate to identify its function as a lid and a use as a sort of "dipper" seems more plausible. Trays,[169] deep and shallow bowls have a capacity which is perfect for serving a group of people but were surely multi-purpose,[170] while the tray version with sort of "arms" protruding inside might be interpreted as a support.[171] Stemmed-dishes were probably multi-purpose too: from incense burners, lamps to serving vessel. AbT.13.177.1 (Fig. 10.33), instead, could also be interpreted as drum: it has clearly some small pinched "knobs" that could have been used to fasten a skin over the top of the vessel.[172] An unexplained finding was the recovery of a vegetal matting whose impression was covering the interior of the stand base AbT.14.268.2 (Fig. 10.33) found in the last activities of Area 1: is it a casual finding or could it be connected with some kind of sound control? The rarity of cooking pots in our pottery might be due to the use of tannur and other cooking techniques (such as indirect heating),[173] and at the same time might hide a specialized use of this kitchen tools. Jars and closed containers could obviously be used in a variety of different ways, from long to temporary liquid or dry storage. Surely the size and volume of the containers can help distinguishing the movable and unmovable ones and the extremely limited number of rim-profile's types could help in determine the vessel function.[174] Out-turned or double ridged rims could for example ease securing a lid or movable cover, like the presence of small pierced handles near the rim. AbT.14.242.32 (Fig. 7.57) had handles not solid enough to lift the vessel.[175] AbT.12.56.2 (Fig. 10.15) shows small holes at the base of the wide out-turned rim that could have been intended for hanging the vessel. The presence at Abu Tbeirah of jars with convex and pierced bases[176] could be connected to the production of beer[177] or of butter/cheese.[178] Big vat and coarse vases found in Abu Tbeirah's domestic contexts come mostly from open spaces and a possible interpretation of their function might be as water collector (though a complete vat has not been found *in situ*).

The intended or actual primary use of a vessel does always not correspond to its last life stage. Pottery was clearly not disposal for Abu Tbeirah's inhabitants: repairing, reuse and recycling were very common practices and are sometimes quite evident in our record. For example bitumen glue was used for repairing the sarcophagus of Grave 17 (US 225)[179] or an "alien" rounded shaped fragment of a coarse vessel was used to fix the

[167] The beaker AbT.15.395.5 was probably used as a sort of pestle in the activities with bitumen carried out in Room 23 (see § 9).

[168] See for example the beakers found inside the tannur in Room 2 (US 51 - § 8.2).

[169] Delougaz 1942: 100 suggests that some of them might be used as braziers. No evidence of a use in contact with fire was detected on Abu Tbeirah's specimens.

[170] Henrickson - McDonald 1983: 632.

[171] Moon 1987: 40.

[172] The interpretation of some stemmed dishes as drum is not new (Woolley 1934: 260) and finds support in the ethnographic evidence from the Marshland. The Ma'dain used, indeed, to realize sort of drum called *tabol* using the skin of a carp or the gullet of a pelican (Ochsenschlager 2004: 74-77, 90). We are grateful to M. Zingarello for this suggestion (*pers. comm.*).

[173] Inside Room 1 phase 2 several holes have been found in connection with a hearth (D'Agostino *et al.* 2013: 78-79 Fig. 10).

[174] The same is valid also for large bowls that can be also suitable for storage, if used, *e.g.*, with a cover.

[175] The same has been suggested by Delougaz 1942: 41: a "four-lugged" jars was found together with a conical bowl pierced on the bottom that was interpreted thus as a lid, originally fastened with a rope. Henrickson - McDonald 1983: 632 suggest also the use of the handle for tilting the vase.

[176] *E.g.* AbT.14.278.1.

[177] "The soaked or germinated grain could be pressed through the hole in the bottom to be spread out on reed mats for drying in order to stop the germination process, and to produce a stable and grindable kind of dried malt" (Damerow 2012: 16-17 who identifies the vessel with the term "nig$_2$-dur$_2$-buru$_3$").

[178] As in the dairy freeze found at Al-Ubaid. See also Romano 2010.

[179] In this case the breakage happened after firing. Repairing of broken vessel before firing is also attested at Abu Tbeirah: the miniaturistic plain rim jar AbT.14.275.2 had a small hole in the string cut base repaired before firing with clay.

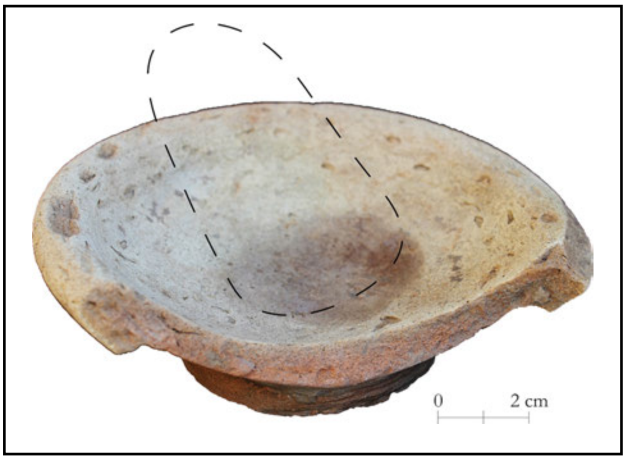

Fig. 10.47 Conical bowl AbT.12.4.2, once attached to a stem, reused as a mortar.

bottom of a ring base jar (AbT.14.268.1+4 - Fig. 7.66).[180] Another coarse ring base AbT.14.221.3 (Fig. 7.47) was pierced in antiquity in the middle to be reused. The stemmed-dish bowl AbT.14.298.3 was probably reused once detached from the stem and the broken bitumen decorated jar base AbT.13.163.28 (Fig. 10.45) was used as a sort of tray for containing other vessels (AbT.13.163.29 to AbT.13.163.40). Originally connected to a stand, the conical bowl AbT.12.4.2 (Fig. 10.47) was used as mortar as the circular depression obtained through pounding testifies.

10.6 Conclusions [LR - MZ]

The study of Abu Tbeirah pottery, though at its beginning, is already showing potentiality thanks to the new excavation and documentation methods but it is surely wiser to avoid sharp conclusions on the base of the evidences presented here. The "envelope method" has demonstrated to be a powerful tool for sorting and sketching the pottery horizon of the two occupational phases considered in the present volume. The pottery corpus of Area 1 corresponds to that of the ED III/Akk. but there is however no clear indication to which part of the transition the described pottery belongs to. § 6.4 showed how at present a better temporal definition of a household context such as Building A is not possible and that once again the absence of a good set of ^{14}C datings and/or written artefacts found in context makes it difficult to better define our pottery chronologically. Surely the prosecution of the excavations at Abu Tbeirah and other coeval sites will soon provide a more reliable sequence and a more specific chronological definition of the contexts excavated up to now.

The limited differences between the pottery from Building A and the Cemetery could probably be due to the aleatory nature of the archaeological record or to the peculiarity of the contexts (household goods *versus* burial equipment): *e.g.* the presence in Building A rooms of plates and trays, mostly absent in the later phase, or the jars with long necks absent in the Building.[181] The sharing of food and drinks was an element characteristic of many ritual practices and community events in 3rd mill. BC Mesopotamia,[182] consequently the absence of striking difference is not surprising in the frame of the comparatively limited shapes repertoire of the plain pottery tradition of this period. On the broader regional context, Abu Tbeirah pottery repertoire is obviously directly comparable with Ur and also with other southern Mesopotamian contexts. The presence and diffusion of beakers seems indeed characteristic of most southern sites: beakers were not so common at Abu Salabikh to be distinguished in a different category,[183] while they are largely attested at Ur, Larsa, al-Hiba and Fara.[184] Further studies on Abu Tbeirah pottery are needed in order to speculate on further differences with other southern Mesopotamian contexts.

Presently the most interesting and promising aspect of our research is the study of the *chaîne opératoire* and of the behavioural chain involved in Abu Tbeirah pottery production and use/reuse. The preliminary analyses carried out at Abu Tbeirah are showing, in contrast with what is usually assumed, a limited use of the wheel. Only small or easy-to-throw vessels and some jars are entirely realized through RKE. Most of the other shapes are indeed the result of the use of

[180] See for comparisons Doojes - Nieuwenheyse 2007; 2008; 2009.

[181] Trumped base jar and spouted vessels were found in graves belonging to Building A - phase 2, not considered in this volume). A substantial uniformity between the domestic repertoire and the funerary one was noticed in other contexts of the 3rd mill. BC Mesopotamia (see Nishimura 2015).

[182] See Romano 2015a for an assessment of the symposium and banquet in Mesopotamia.

[183] *E.g.* Moon 1987: 16 n. 92.

[184] Adams (1981: 309 Fig. 6) consider beakers as a guide shape for the Jemdet Nasr-ED Periods in "southern Mesopotamia" margins.

multiple techniques and in most cases the wheel was probably used to ease joining among parts, to realize the rim and refine the exterior of the final shape. As said in the introduction, the use of forming techniques different from the wheel at the end of the 3rd mill. BC was already noticed with sparse indications in the archaeological literature but has been strongly underestimated. The new researches on the prosecution of "older" pottery forming techniques, conducted in the Iranian, Levantine or other Mediterranean contexts, should be taken as reference for approaching southern Mesopotamian material. The limited use of the wheel in Abu Tbeirah's production could indeed reflect more than a local characteristic: the diffusion of the use of the wheel and the understanding of its potential might be a slower phenomenon than expected, involving a "technological practice" radically different from that involved in coiling/hand technique.[185] Furthermore, it has been demonstrated that coiling has a good degree of efficiency not only on the bases of the ratio between completed and discarded vessels but also in terms of time expenditure.[186] Throwing on a heavy, not perfectly centred, 3rd mill. BC potter's wheel[187] should have been a quite difficult task, probably manageable for small vessels/parts of vessel (conical bowls, spouts, not very tall beakers) but rarely used so virtuously as to throw an entire jar from a single lump of clay (as in AbT.14.224.2 Fig. 10.34). Looking at the conical bowls and beakers analysed above and at the other materials excavated, it seems that wheel thrown vessels were on average less symmetrical and poorly shaped if compared to those hand-made, demonstrating that the skill level in coiling was higher than in wheel-throwing technique.

Technological studies will lead, in perspective, to a better knowledge of the potter's figure and role at the end of the 3rd mill. BC. Abu Tbeirah's potters skills included a relatively limited number of rims and base kinds and, in a certain way, of types. A combination of different shapes was used to realize more complex vessels: this is the case of conical bowls attached to a stem or of the more complex stemmed-dishes. The same base of the stems, if found in fragments, is potentially undistinguishable from a deep bowl with triangular rim. Jars, with few exceptions, are the results of the joining of two halves, realized separately and then joined through the use of one or more coils. A jar made in this way can have a ring attached to the flat/convex base, and in some cases this ring can be extended forming the so-called "trumpet base". The rim in this particular kind of shape can be triangular or plain, meaning perhaps a completely different emic category for the Sumerian potters[188] but hardly distinguishable for us. In addition, the absence of a clear differentiation of shapes and of functional categories implies that there were no strict rules for the use of specific vessels and this is apparently confirmed by the preliminary results indicated at § 9.5, already showing that the same type of vessel was used for several purposes.[189]

The additive modelling process described above, that will be called "agglutinative" in a provocative way, is evident also in other sites: a jar from Larsa,[190] on the base of the same published drawing, seems to have been made using a big bowl as a base, adding over the rest of the body.[191] The realization of a vessel joining several parts obviously foresees drying periods among the steps and allows the segmentation of the production process. An ethnographic comparison for this technological practice can be found in the Marshlands: as described in depth by Ochsenschlager, it is interesting that the Ma'dain potters could produce a single vessel at a time or several at the same time, repeating for each the same steps, and that both productive procedures were accepted and depended on individual choices.[192] The multiple parts of the composite vessels might have been produced and joined by different potters:[193]

[185] See Courty - Roux 1998; Roux - Rosen 2009.

[186] Courty - Roux 1998: esp. 750.

[187] See Romano 2015b with a catalogue of 3rd mill. BC Mesopotamian potter's wheel.

[188] *E.g.*, on the basis of a different use or involving the presence of a cover in the vessel with the triangular rim.

[189] Abbink 1999: 163.

[190] Thalman 2003: 107 Fig. 41 - B 33

[191] This is a practice already documented for 4th mill. BC Iranian contexts (Vidale 2011).

[192] Ochsenschlager 2004: 111-121, in particular 119.

[193] According to Crown (2007: 685-686), recognizing "collaborative craft products" is important for several reasons: 1. if the collaboration is associated with task segmentation, it can suggest a certain type of specialized production; 2. it can help in understanding learning and teaching frameworks; 3. the presence of "collaborative" vessels in pottery assemblages implies that not all the vessels

decomposition and segmentation of tasks was plausibly based on their personal skills or their level of apprenticeship.[194] This is what seems to be depicted on the rare seals with pottery production scenes of the 3rd mill. BC re-assumed by Moorey.[195] At Abu Tbeirah for example, the extreme variety in the profiles of conical bowls and beakers or of other shapes might hide the presence of different hands[196] and/or different productive events,[197] that could refer to a serial (rather than mass) production.

Reassuming, the ED III/Akk. potters used an additive or "agglutinative"[198] production method that did not imply, if not partially and limitedly, the use of a wheel. This sequential construction of vessels might have involved different people with different tasks. Several questions arise from this assumption and our material evidence is still too limited to give a definitive answer. In what frame was the pottery production performed? And thus, were ED III/Akk. potters attached or independent specialists? If they were attached personnel, what was their degree of dependence from the institution?

The organization of pottery production at the end of the 3rd mill. BC has been object of debate from which a nuanced picture could be derived.[199] Clearly pottery was produced by specialists but there were different degrees of independence of potters from the institutions, at least for the Ur III period: potters could indeed be totally or partially dependent from their institution but also totally independent (such as the potters involved in the local community production).[200] The relative independence of these artisans seems evident from their rare occurrences in the cuneiform administrative record.[201] The ubiquitous presence of clay suitable for pottery production[202] is surely one of the reasons of the lack of interest of the administrations in the control of the production (or at least to the wide public production) of these utilitarian craft goods at the end of the 3rd mill. BC.[203] If part of the Ur III pottery production was probably "carried out in individual family-owned and family-operated workshops",[204] it might be reasonable to expect a similar situation in a medium-sized settlement such as Abu Tbeirah during the ED III/Akk. transition.[205] Further and broader analyses on Abu Tbeirah's findings will hopefully contribute in understanding our pottery as a reflection of the work of one or several workshops and then in distinguishing, both synchronically and diachronically, different communities of practice.[206]

are the work of individual artisans and thus interesting questions raise about ownership and use.

194 Children were also involved in pottery production (Steinkeller 1996: 240).

195 Moorey 1994: 141-143.

196 In this regards it is interesting the experiment conducted in Nepal by Gandon *et al.* 2018.

197 See the results obtained for Tell Leilan pottery (Blackmann *et al.* 1993). The ongoing cataloging of finger prints on our shards and the analysis that will be carried out in collaboration with the Italian Police Scientific Department are, indeed, aiming at documenting the potter as individual, reaching the deepest level of our planned bottom-up approach to Abu Tbeirah material culture.

198 On the Sumerian "agglutinative mind" see also Seminara 2001 and Ramazzotti 2010. See also the studies by Malfouris (2010) on the relationship between neural and cultural plasticity.

199 See Waetzoldt 1971; Stein - Blackman 1993; Moorey 1994: Steinkeller 1996; Dahl 2010.

200 On "craft specialization as archaeological category" see Clark 1995 with a discussion of the categories of independent and attached specialist.

201 Stein - Blockmann 1993: 53; Steinkeller 1996: 233.

202 See § 11.

203 Stein - Blockmann 1993: 53-54.

204 Steinkeller 1996: 249.

205 On the relationship between institution and potters in 3rd mill. BC Mesopotamia see also Glatz (ed.) 2015: 22.

206 Wenger 1998.

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CHAPTER 11

AREA 1 POTTERY – PART 2: CLAY, FABRICS AND FIRING TECHNOLOGY

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AREA 1 POTTERY – PART 2
CLAY, FABRICS AND FIRING TECHNOLOGY

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11.1 Introduction

The study of Abu Tbeirah's pottery fabrics is still ongoing, evolving and enriching on the basis of the new results that each campaign is producing.[1] As a result of our collaboration with the Consortium of Italian Research Infrastructure for Cultural Heritage (CoIRICH), the first analyses on the pottery recovered during the 2012-2014 campaigns have undergone non destructive and non invasive bulk analyses, instead of focusing immediately on classical studies. We decided indeed to use Neutron Diffraction (ND)[2] and Neutron Resonance Capture Analysis (NRCA)[3] in order to have a general picture of the ceramic pastes in use in the excavated phases and a first confirmation of the autoptic subdivision.[4] This work thus presents a non-destructive and non-invasive neutron study of ancient Sumerian pottery fabrics from the 3rd mill. BC and aims at verifying the potentialities and limitation of the information derived from the ND and NRCA. Both techniques have shown their potential in the investigation of complex artefacts of cultural and artistic relevance.[5] Further analyses are already planned and will benefit both from the results of the neutron analyses and the now improved knowledge of Abu Tbeirah's pottery horizon.

The analyses on Abu Tbeirah's pottery were performed thanks to the support of CNR, within the CNR-STFC Agreement 2014-2020 (N. 3420), concerning collaboration in scientific research at the Italian Neutron Experimental Station (INES)[6] and the ISIS Spallation Neutron and Muon Source, located at the Rutherford Appleton Laboratory of the Science and Technology Facilities Council, on the Harwell Science and Innovation Campus in Oxfordshire, United Kingdom.

11.2 Mesopotamian Clay Sources [LR]

Chemical and mineralogical composition of ceramic material from other Mesopotamian sites constitute the necessary base of comparisons for Abu Tbeirah's pottery. Most of the archaeometric studies focused on pottery of the 3rd mill. BC from the Diyala and Hamrin area (Fig. 11.1).[7] Notwithstanding the complete description of the pottery from this area, contemporaneous data from the southernmost part of Mesopotamia are still very few, with the exception of the published research by Mynors and Al Kaissi,[8] and few

[1] Festa is author of §§11.4.1-3; Romano is author of §§11.1-2; Forte is author of §§11.3. §§11.3.1 is common work of Romano and Forte while §§ 11.4.4 and 11.5 are common work of Festa and Romano.

[2] Windsor 1981; Festa *et al.* 2011a; 2011b.

[3] Postma - Schillebeeck 2005; Festa *et al.* 2011a; 2011b.

[4] The pottery analyzed come from Area 1 and other ED III/Akk. contexts.

[5] Festa *et al.* 2008; 2009; Pietropaolo *et al.* 2011; Festa *et al.* 2013; 2015; 2016; Postma - Schillebeeckx 2005. Few are the studies on archaeological pottery in general: Kockelmann - Kirfel 2001; 2006; Imberti *et al.* 2008.

[6] Imberti *et al.* 2008.

[7] Thuesen *et al.* 1982; Mynors 1983; Méry - Schneider 1996; Gibson (ed.) 1990 (also with data from the eastern Farukhabad).

[8] Mynors 1983 (including data from the northern site of al-Usiyeh); Mynors - Al Kaissi 1987. The sample analyzed are less than 40 for the following sites Tell-ed-Der, Jemdet

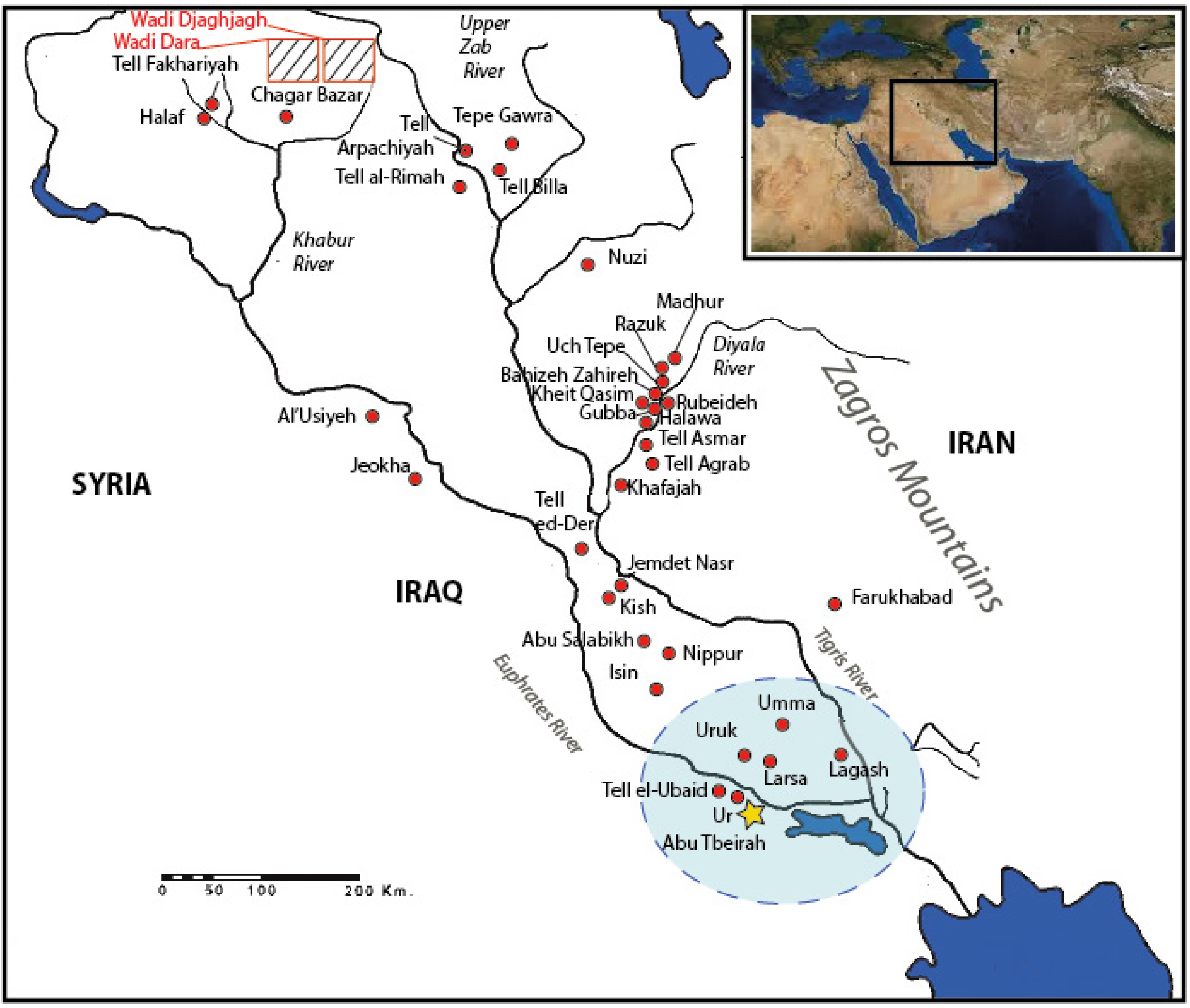

Fig. 11.1 Map with the indications of sites from which pottery samples have been analyzed (Festa *et al.* 2019: Fig. 1).

sparse data presented as comparisons from other contexts.[9] Data from the literature show in general a complete homogeneity of the ceramic pastes used in Mesopotamia. This chemical and mineralogical uniformity of Mesopotamian ceramic pastes' composition,[10] demonstrated by the quoted researches, is due to the nature of the alluvial plain (see § 3).[11] Abu Tbeirah's pottery production was based on the same natural secondary clay from the Mesopotamian alluvial plain and thus dissimilar results from those obtained by previous researches were not expected. Nevertheless, the limited amount of data on 3rd mill. BC southern Mesopotamian pottery make the archaeometric analyses on Abu Tbeirah's pottery compelling, in order to verify and support previous results, clarifying in the light of the new archaeometric analyses the Sumerian potter's technological choices.

Nasr, Nippur, Kish, Abu Salabikh, Fara, Tell al-Wilayah, Uruk, Larsa, Lagash, Obeid, and Ur.

[9] Méry - Schneider 1996.

[10] On the composition of southern Mesopotamian clay see Festa *et al.* 2019.

[11] Armstrong - Gasche 2014: 77.

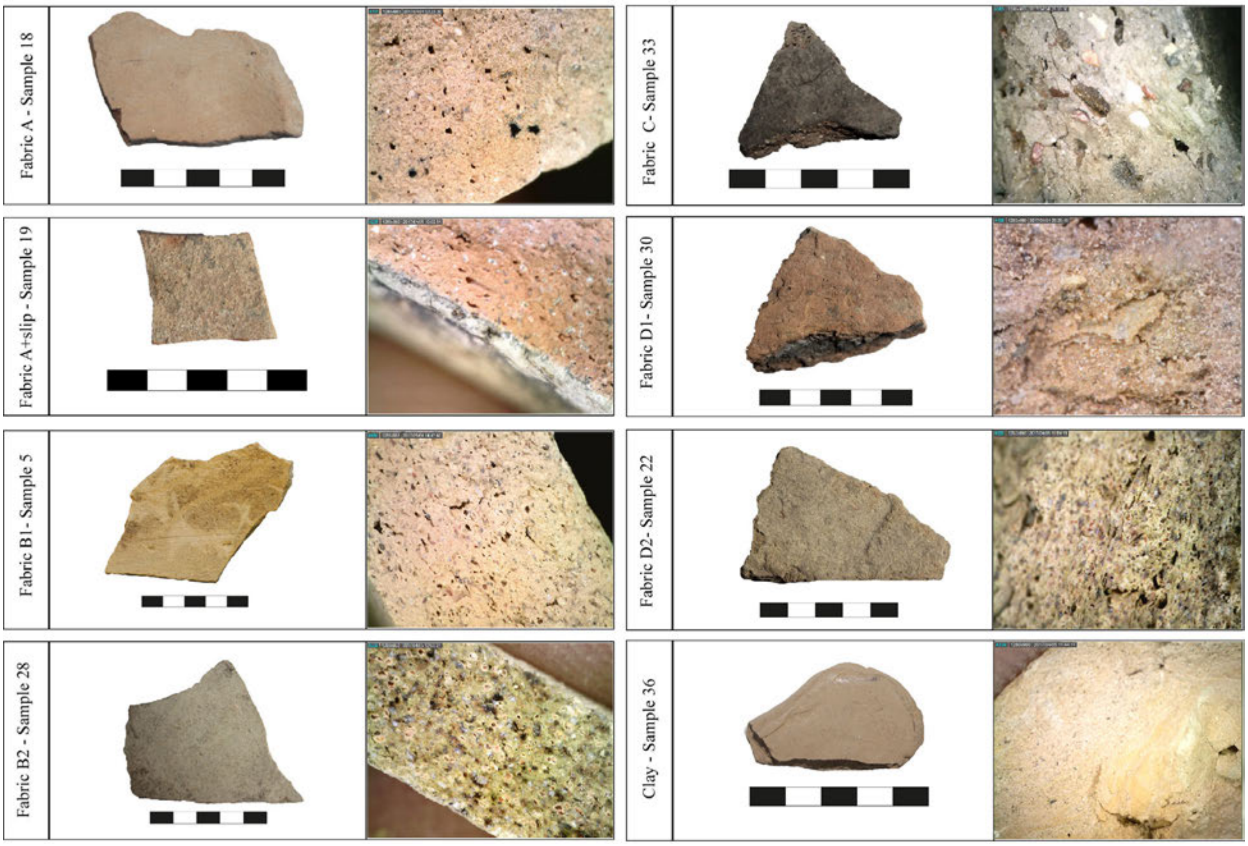

Fig. 11.2 A selection of pottery and clay samples analysed, divided following the fabric classification. Photo of the fragments' sections (not in scale) are acquired through a portable digital microscope (®Dinolite). (Festa *et al.* 2019: Fig. 2).

11.3 Macroscopic Classification of Ceramic Pastes [VF]

The first autoptic analysis allowed us to distinguish four main macroscopic groups (Fig. 11.2).[12]

- **Fabric A**: Fine grained paste with low porosity featured by planar voids. Red-orange colour of paste. Firing mainly in oxidised atmosphere. Sometimes covered with clearer slip (**Fabric A+slip**).
- **Fabric B_1**: Fine grained paste with a low porosity featured by planar voids. Yellow colour of paste. Firing mainly in oxidised atmosphere.
- **Fabric B_2:** Fine grained paste with a low porosity featured by planar voids. Yellow colour of paste with orange inclusions. Firing mainly in oxidised atmosphere.
- **Fabric C:** Coarse grained paste with abundant sedimentary fragments and angular inclusions. High porosity compared to other groups. Firing mainly in oxidised atmosphere.
- **Fabric D_1:** Fine grained paste with abundant straw. Red-orange colour of paste. Firing mainly in oxidised atmosphere.
- **Fabric D_2:** Fine grained paste with abundant straw. Yellow colour of paste with orange inclusions. Firing mainly in oxidised atmosphere.

[12] The different fabrics were distinguished also through the use of a portable microscope (®Dinolite AD 7013MZT; Druc 2015) It is still not clear if the samples 3 and 34, that have larger and very visible inclusions, should be considered as a separate fabric (and thus the result of the intentional adding of sand): this kind of fabric is quite rare and no association with specific shapes was detected up to now. Similarly, the evidence of a reducing firing atmosphere or of a not complete oxidation of the organic material seems to be quite casual and due to the not always complete control of the firing process by Abu Tbeirah potters.

11.3.1 Selected Fragments (VF - LR)

On the basis of the autoptic subdivision of the fabrics, 36 pottery shards were selected,[13] together with one clay sample, coming from the canal running east of Abu Tbeirah.

Sample n. 1 (AbT.13.140.17)
Fabric: B2.
Clay: Outer and inner colour: 2.5Y 8/3 (pale brown); fabric colour: 2.5Y 8/3 (pale brown) to 5Y 6/3 (pale olive).
Thickness (average): 0.6 cm.
Description: jar fragment with red slip? (5YR 6/3 light reddish brown) traces on the internal and external (not uniform) surface.

Sample n. 2 (AbT.12.109.24)
Fabric: A+Slip/Self-Slip.
Clay: Outer colour: 10YR 8/2 (very pale brown); inner colour: 7.5YR 7/3 (pink); fabric colour: 5YR 6/6 (reddish yellow).
Thickness (average): 0.7 cm.
Description: jar fragment with larger and more frequent than usual sand inclusions.

Sample n. 3 (AbT.12.97.47)
Fabric: A+Slip/Self-Slip.
Clay: outer colour: 7.5YR 8/3 (pink); inner colour: 5YR 6/4 (light reddish brown); fabric colour: 5YR 6/4 (light reddish brown) to 10YR 7/4 (very pale brown).
Thickness (average): 0.9 cm.
Description: jar fragment.

Sample n. 4 (AbT.12.84.30)
Fabric: D2.
Clay: outer, inner and fabric colour: 2.5YR 8/2 (pale brown).
Thickness (average): 1.9 cm.
Description: wall fragment of a big container with bitumen traces on the outside.

[13] In the tables and pictures some of the samples numbers are repeated because the analysis was performed on two different pieces of the same vessel.

Sample n. 5 (AbT.12.86.2)
Fabric: B1.
Clay: outer colour: 2.5Y 8/2 (pale brown); inner colour: 10YR 8/4 (very pale brown); fabric colour: 7.5YR 7/4 (pink).
Thickness (average): 0.7 cm.
Description: jar fragment.

Sample n. 6 (AbT.12.71.16)
Fabric: A.
Clay: outer, inner and fabric colour: 5YR 5/6 (yellowish red).
Thickness (average): 0.6 cm.
Description: conical bowl fragment.

Sample n. 7 (AbT.12.71.54)
Fabric: A (incomplete oxidation of the organic material).
Clay: outer colour: 2.5Y 8/3 (pale brown); inner colour: 10YR 6/4 (light yellowish brown); fabric colour: 2.5Y 5/1 (grey).
Thickness (average): 0.8 cm.
Description: jar fragment/cooking pot fragment.

Sample n. 8 (AbT.12.71.54)
Fabric: A (incomplete oxidation of the organic material).
Clay: outer colour: 2.5Y 8/3 (pale brown); inner colour: 10YR 6/4 (light yellowish brown); fabric colour: 2.5Y 5/1 (grey).
Thickness (average): 0.6 cm.
Description: jar fragment/cooking pot fragment (use traces on the exterior).

Sample n. 9 (AbT.12.96.46)
Fabric: A+Slip/Self-Slip.
Clay: outer colour: 10YR 8/3 (very pale brown); inner colour: 7.5YR 6/4 (light brown); fabric colour: 5YR 7/6 (reddish yellow).
Thickness (average): 0.7 cm.
Description: jar fragment.

Sample n. 10 (AbT.13.567.1)
Fabric: B1.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 10YR 6/4 (light yellowish brown).
Thickness (average): 0.7 cm.
Description: conical bowl with big intrusive inclusion.

Sample n. 11 (AbT.12.83.8)
Fabric: B2.
Clay: outer colour: 5Y 8/2 (pale yellow); inner colour: 2.5Y 67/4 (pale brown); fabric colour: 5Y 7/1 (light grey).
Thickness (average): 1.2 cm.
Description: straight wall of a coarse vessel.

Sample n. 12 (AbT.12.96.47)
Fabric: A.
Clay: outer, inner and fabric colour: 5YR 5/4 (reddish brown).
Thickness (average): 1 cm.
Description: conical bowl fragment.

Sample n. 13 (AbT.12.56.34)
Fabric: B2 + Reserved-slip like effect.
Clay: outer, inner and fabric colour: 5Y 8/2 (pale yellow), fabric slightly darker.
Thickness (average): 0.5 cm.
Description: jar fragment.

Sample n. 14 (AbT.12.109.25)
Fabric: A.
Clay: outer colour: 10YR 8/2 (very pale brown); inner colour: 7.5YR 6/4 (light brown); fabric colour: 5YR 7/6 (reddish yellow).
Thickness (average): 0.8 cm.
Description: jar fragment.

Sample n. 15 (AbT.12.85.16)
Fabric: A+Slip/Self-Slip.
Clay: outer and inner colour: 2.5Y 8/2 (pale brown); fabric colour: 5YR 6/6 (reddish yellow).
Thickness (average): 0.5 cm.
Description: jar fragment.

Sample n.16
Fabric: clay.
Thickness (average): 1 cm.
Description: clay from Abu Tbeirah's canal.

Sample n. 17 (AbT.13.140.16)
Fabric: A+Slip/Self-Slip.
Clay: outer colour: 7.5YR 8/3 (pink); inner and fabric colour: 5YR 7/4 (pink).
Thickness (average): 0.7 cm.
Description: jar fragment.

Sample n. 18 (Area 1)
Fabric: A.
Clay: outer, inner and fabric colour: 5YR 6/4 (light reddish brown).
Thickness: 0.7 cm.
Description: conical bowl.

Sample n. 19 (Area 1)
Fabric: A+Slip/Self-Slip.

Clay: outer and inner colour: 2.5Y 7/2 (light grey); fabric colour: 2.5YR 6/8 (light red).
Thickness (average): 0.6 cm.
Description: jar fragment.

Sample n. 20 (Area 1)
Fabric: B1.
Clay: outer colour: 2.5Y 8/2 (pale brown); inner colour: 7.5YR 8/4 (pink); fabric colour: 7.5YR 6/4 (light brown).
Thickness (average): 0.7 cm.
Description: jar/bowl fragment.

Sample n. 21 (Area 1)
Fabric: B2.
Clay: outer, inner and fabric colour: 2.5Y 8/3 (pale brown).
Thickness (average): 0.7 cm.
Description: jar fragment.

Sample n. 22 (Area 1)
Fabric: D2.
Colour: outer, inner and fabric colour: 2.5Y 7/3 (pale brown).
Thickness (average): 1.7 cm.
Description: big vat fragment.

Sample n. 23 (Area 1)
Fabric: A.
Colour: outer, inner and fabric colour: 5YR 6/6 (reddish yellow).
Thickness (average): 1 cm.
Description: big bowl wall fragment.

Sample n. 24 (Area 1)
Fabric: B2 (incomplete oxidation of the organic matter)
Clay: outer, inner and fabric colour: 10YR 5/1 (grey).
Thickness (average): 0.7 cm.
Description: jar fragment.

Sample n. 25 (Area 1)
Fabric: B2.
Clay: outer colour: 5Y 8/2 (pale yellow); inner and fabric colour: 10YR 8/3 (very pale brown).
Thickness (average): 0.7 cm.
Description: jar fragment.

Sample n. 26 (Area 1)
Fabric: B2.
Clay: outer, inner and fabric colour: 5Y 8/3 (pale yellow).
Thickness (average): 0.6 cm.
Description: jar fragment.

Sample n. 27 (Area 1)
Fabric: B1.
Clay: outer colour: 2.5Y 8/2 (pale brown); inner colour: 7.5YR 8/2 (pinkish white); fabric colour: 5YR 7/4 (light brown).
Thickness (average): 0.7 cm.
Description: jar fragment.

Sample n. 28 (Area 1)
Fabric: B2.
Clay: outer, inner and fabric colour: 5Y 7/1 (light grey).
Thickness (average): 0.6 cm.
Description: jar fragment.

Sample n. 29 (Area 1)
Fabric: D2.
Clay: outer, inner and fabric colour: 2.5Y 8/2 (pale brown), with reddish areas.
Thickness (average): 2.3 cm.
Description: big coarse vat rim fragment.

Sample n. 30 (Area 1)
Fabric: D1 (incomplete oxidation of the organic matter).
Clay: outer, inner and fabric colour: 7.5YR 7/6 (reddish yellow).
Thickness (average): 1.7 cm.
Description: big vat fragment.

Sample n. 31 (Area 1)
Fabric: A? (reducing atmosphere and use traces?).
Clay: outer and inner colour: 10YR 5/1 (grey); fabric colour: 7.5YR 2.5/1 (black).
Thickness (average): 0.9 cm.
Description: closed vessel fragment.

Sample n. 32 (Area 1)
Fabric: A (incomplete oxidation of the organic material).
Clay: outer and inner colour: 10YR 6/3 (pale brown); fabric colour: 10YR 4/1 (dark grey).
Thickness (average): 1 cm.
Description: cooking pot?

Sample n. 33 (Area 1)
Fabric: C (incomplete oxidation of the organic matter).
Clay: outer, inner and fabric colour: 10YR 5/2 (greyish brown).
Thickness (average): 0.8 cm.
Description: cooking pot?

Sample n. 34 (AbT.14.261.2)
Fabric: A (incomplete oxidation of the organic matter).
Clay: outer colour: 10YR 8/3 (very pale brown); inner colour: 7.5YR 6/6 (reddish yellow); fabric colour: 7.5YR 6/4 (light brown).
Thickness (average): 0.7 cm.
Description: cooking pot?

Sample n. 35 (US 152)
Fabric: B2 (incomplete oxidation of the organic matter).
Clay: outer, inner and fabric colour: 2.5Y 5/1 (grey).
Thickness (average): 0.8 cm.
Description.: big burnished bowl.

Sample n. 36 (US 195)
Fabric: B2.
Clay: outer, inner and fabric colour: 5Y 8/3 (pale yellow).
Thickness (average): 0.8 cm.
Description: jar fragment.

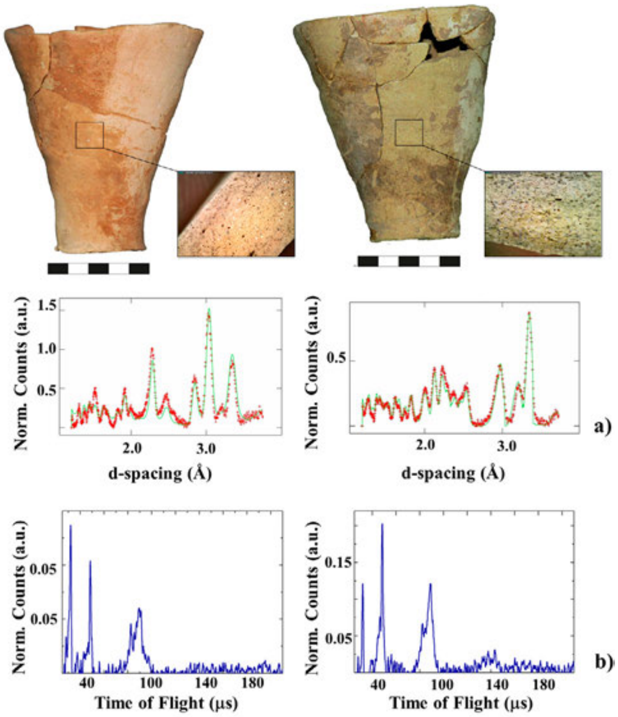

Fig. 11.3 Results of the analyses via neutron techniques on Fabric A (left) and B2 (right). a) Diffraction spectra of two vases are reported (normalized number of counts as a function of the d-spacing). Best fit of the data is also shown in green colour; b) Neutron Resonance Capture Analysis spectra (normalized number of counts as a function of resonant-neutron time of flight) are reported (Festa *et al.* 2019: Fig. 3).

11.4 Neutron Investigations: Results and Discussion [GF]

The samples were analysed through a simultaneous and integrated Time Of Flight (TOF) Neutron Diffraction (ND) and Neutron Resonance Capture Analysis (NRCA),[14] for the characterization of the compositional and microstructural features of Abu Tbeirah's pottery (Fig. 11.3).

11.4.1 Neutron Diffraction [GF]

Measurements were performed at the INES beamline, Rutherford Appleton Laboratory, Oxfordshire. INES[15] is equipped with a general-purpose neutron diffractometer that was built for accommodating large non-standard sample volume in the neutron beam, thus allowing archaeometric measurements. Thanks to the high penetration power of neutrons in ceramics, measurements allow us to determine bulk properties of the samples. Neutron Diffraction on pottery samples gives, thus, information about the crystal phases and compounds formed in the pottery during firing and allows to indirectly trace back the reached firing temperature.

The firing behaviour of clay minerals and inclusions was widely studied and in what follows the discussion will be limited to the transformations highlighted by the analyses. Quartz, the most abundant inclusion in most ceramic bodies, does not undergo significant variations at low temperatures, except for "alpha"-"beta" transition at 573 °C.[16] Although in appropriate conditions primary clay minerals may survive, calcite in the clays is subjected to two main thermic processes: clay de-hydroxylation (ca. 400-600°C) and de-carbonation of the calcareous materials (750-850°C). Higher firing temperatures lead the calcite decomposition products to react with fired clays (montomorillonite and illite/muscovite[17] in Abu Tbeirah samples) and form new calcium silicate phases such as gehlenite, anorthite or diopside (wollastonite). Starting at approximately 850°C, calcite reacts with clay minerals (Al_2O_3, SiO_2 and MgO) forming Ca-silicates as pyroxene (Al-rich diopside, T> 900°C), newly forming Ca-plagioclase feldspar (albite, anorthite over 950°C) or gehlenite (T> 800°C).

According to these trends and using illite/muscovite and diopside as track markers of firing processes, two groups of samples were distinguished in the analysis carried out on Abu Tbeirah material: illite/muscovite is present in the first half of the histogram (Tab. 11.1 and Fig. 11.4), while it disappears in the second half where the newly formed diopside (new calcium silicate phases) is present. On the contrary, quartz shows a constant trend: since quartz grains do not undergo any detectable morphological and chemical transformation until reaching a temperature of 1050°C, this indicates that firing temperature of all pottery under study was below this value. Finally, the trend of calcite reflects the complete

[14] For a detailed report on the analyses carried out see Nardini *et al.* 2018; Festa *et al.* 2019.
[15] Imberti *et al.* 2008.
[16] Rice 2005: 96-97.
[17] Illite is a layered alumino-silicate chemically similar to muscovite and thus not distinguishable in diffraction analyses.

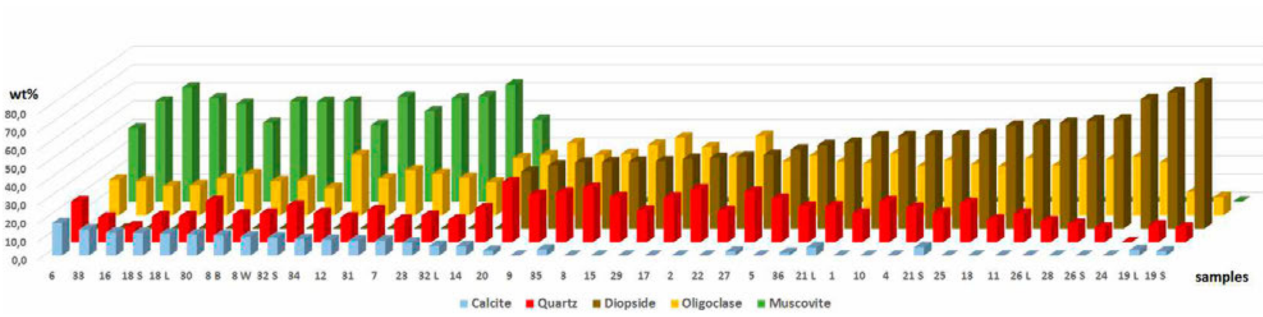

Fig. 11.4 Histogram based on the neutron diffraction quantitative results. The x-axis reports the number of the sample as function of the increasing percentage of diopside. The y-axis reports the weight percentage of the detected crystal phase, z-axis reports the detected phases (yellow - oligoclase, green - muscovite, blue - calcite, orange - quartz, brown - diopside). (Festa *et al.* 2019: Fig. 4).

transformation into carbonate of the original calcium oxide, indicating calcite of secondary formation over 850° C. Moreover, Fig. 11.4 shows that small amounts of calcite increase at high T, to indicate the calcite reaction and so the formation of new Ca-silicates. Taking into account the T stability of the mentioned mineral, the range of firing for the set of samples is between 800-1000°C.

11.4.2 Neutron Resonance Capture Analysis [GF]

Neutron Resonance Capture Analysis (NRCA) is an experimental technique based on the absorption by a nucleus of a neutron with energies in excess of few eV and up to hundreds of keV. This capture events are detected via the prompt gamma-cascade by which the newly formed nucleus de-excites: this resonance energy is characteristic of the element and isotope that produce the gamma. NRCA peak spectra are labelled by means of a comparison with the resonance energies related to (n, γ) processes provided by tables of neutron resonances.[18] The detected main peaks are reported in Tab. 11.2.

The NRCA technique was used to detect main isotopes ^{39}K, ^{56}Fe, ^{55}Mn, ^{23}Na and ^{35}Cl on the entire set of samples. The normalization of NRCA spectra was carried out to perform comparison between different samples through statistical methods; peaks intensities are normalized with respect to the acquisition parameters (incident neutron flux and integrated current), the (n, γ) cross section for each identified isotope and the thickness of each samples. The normalization is carried out through the ®Origin software and results are reported in Tab. 11.2. It should be highlighted that the values presented in Tab. 11.2 are not the quantities of the elements of the sample: they provide a relative indication to compare the content of the respective elements in the various samples through a statistical approach.

11.4.3 Classification of the Samples on the Basis of the ND and NRCA [GF]

The ND and NRCA data results (both phase and elemental analyses) are examined through descriptive statistical approach carrying out correlation analysis (in order to observe the homogeneity of the samples) and Principal Component Analysis (PCA),[19] a method of multivariate statistics that represents a powerful way to classify samples into various possible categories and allows to determine which variables actually contribute to the variation seen in a given data matrix. This technique has been successfully applied in archaeological contexts since the 1970's.[20]

Fig. 11.5 shows six groups of samples with specific tendencies according to T increases. Samples 31 and 5 are found in a border-line position between their group of memberships, described by the diopside and muscovite respectively. Diopside and muscovite appear in opposite position as expected. Samples number 19S+19L and 24 are

[18] Mughabghab *et al.* 1981.

[19] Jolliffe 1986; Husson *et al.* 2009.

[20] See, *e.g.*, Baxter 1994; Husson *et al.* 2009; Scatigno *et al.* 2017.

Sample	Fabric	Calcite	Quartz	Diopside	Oligoclase	Muscovite
1	B2	-	15.7	50.5	33.8	-
2	A	-	29.1	38.9	32.0	-
3	A	-	29.8	36.5	33.7	-
4	D2	-	18.9	51.1	30.0	-
5	B1	-	23.8	43.4	32.8	-
6	A	17.9	22.4	-	19.5	40.2
7	A	8.3	12.4	-	22.6	56.7
8 B	A	11.1	15.2	-	18.7	55.0
8 W	A	10.5	15.7	-	19.0	54.8
9	A	-	26.0	34.6	39.4	-
10	B1	-	22.4	50.7	26.9	-
11	B2	-	15.7	57.1	27.2	-
12	A	8.7	13.7	-	20.1	57.5
13	B2	-	12.4	56.5	31.1	-
14	A	5.3	18.5	-	31.3	44.9
15	A	-	24.6	36.8	38.6	-
16	Modern clay	12.7	8.7	-	16.0	62.6
17	A	-	24.4	38.3	37.3	-
18 L	A	12.1	14.2	-	20.1	53.6
18 S	A	12.5	14.2	-	16.5	56.8
19 L	A	3.2	9.4	74.7	12.7	-
19 S	A	2.4	8.0	79.7	9.9	-
20	B1	2.8	33.0	31.3	32.9	-
21 L	B2	4.7	19.8	47.1	28.4	-
21 S	B2	4.7	16.1	51.2	28.0	-
22	D2	-	17.1	39.5	43.4	-
23	A	7.2	14.5	-	20.5	57.8
24	B2	-	-	71.0	29.0	-
25	B2	-	21.4	51.9	26.7	-
26 L	B2	-	11.6	58.1	30.3	-
26 S	B2	-	8.0	59.8	32.2	-
27	B1	2.3	27.6	40.5	29.6	-
28	B2	-	10.1	59.3	30.6	-
29	D2	-	17.3	37.0	42.5	-
30	D1	11.6	22.5	-	22.5	43.4
31	A	8.3	17.6	-	24.6	49.5
32 L	A	5.5	12.4	-	18.0	64.1
32 S	A	10.0	20.0	-	15.0	55.0
33	C	14.4	13.6	-	18.6	55.0
34	A	9.0	16.0	-	33.0	42.0
35	B2	3.5	27.2	36.3	33.0	-
36	B2	1.6	19.5	45.8	29.3	-

Tab. 11.1 Results of Neutron Diffraction on Abu Tbeirah' samples. The weight percentage [wt (%)] of the detected phases are reported. The errors are ± 0.1 wt (%).

Sample	K	Na	Fe	Cl	Mn
1	0.03	1.76	0.01	1.12	<LOQ
2	0.01	1.35	0.01	0.33	<LOQ
3	0.02	1.08	0.01	0.44	<LOQ
4	0.01	0.72	0.01	0.38	<LOQ
5	0.02	1.27	0.01	0.33	<LOQ
6	-	1.02	0.01	0.60	<LOQ
7	0.02	1.22	0.01	0.66	<LOQ
8 B	0.03	1.94	0.01	0.26	<LOQ
8 W	0.02	1.23	0.01	0.49	<LOQ
9	0.03	1.35	0.01	0.49	<LOQ
10	0.01	0.72	0.01	0.63	<LOQ
11	0.02	1.33	0.01	0.66	<LOQ
12	-	1.89	0.01	1.31	<LOQ
13	0.02	1.01	-	0.93	<LOQ
14	0.03	1.94	0.01	1.11	<LOQ
15	0.02	1.33	0.01	0.31	<LOQ
16	0.01	0.50	0.01	0.13	<LOQ
17	0.02	1.51	0.01	1.20	<LOQ
18 L	0.02	1.28	0.01	0.27	<LOQ
18 S	0.02	1.07	0.01	0.27	<LOQ
19 L	0.01	0.74	-	0.19	<LOQ
19 S	0.01	0.65	-	0.19	<LOQ
20	-	1.15	0.01	0.24	<LOQ
21 L	0.01	0.95	-	0.39	<LOQ
21 S	-	0.99	0.01	0.27	<LOQ
22	-	0.77	0.01	0.21	<LOQ
23	0.01	1.11	0.01	0.27	<LOQ
24	0.01	1.35	0.01	0.33	<LOQ
25	-	0.87	-	0.12	<LOQ
26 L	-	1.11	0.01	0.27	<LOQ
26 S	-	0.89	0.01	0.14	<LOQ
27	-	1.02	0.01	0.21	<LOQ
28	-	1.02	0.01	-	<LOQ
29	-	0.59	0.01	0.32	<LOQ
30	-	0.49	-	0.21	<LOQ
31	-	0.93	0.01	0.59	<LOQ
32 L	-	0.61	0.01	0.18	<LOQ
32 S	-	0.63	-	0.13	<LOQ
33	-	0.80	0.01	0.55	<LOQ
34	-	0.95	0.01	0.88	<LOQ
35	-	0.83	-	0.50	<LOQ
36	-	0.94	-	0.64	<LOQ

Tab. 11.2 Values of the normalised intensity of the main peaks from the Neutron Resonance Capture Analysis spectra for each sample. The normalized intensities (norm. counts) are given with an error of 0.01. It should be highlighted that the reported values are not the quantities of the elements present in the samples, but they are related with their amount; they were used for relative comparison via a statistical approach. LOQ = limit of quantification.

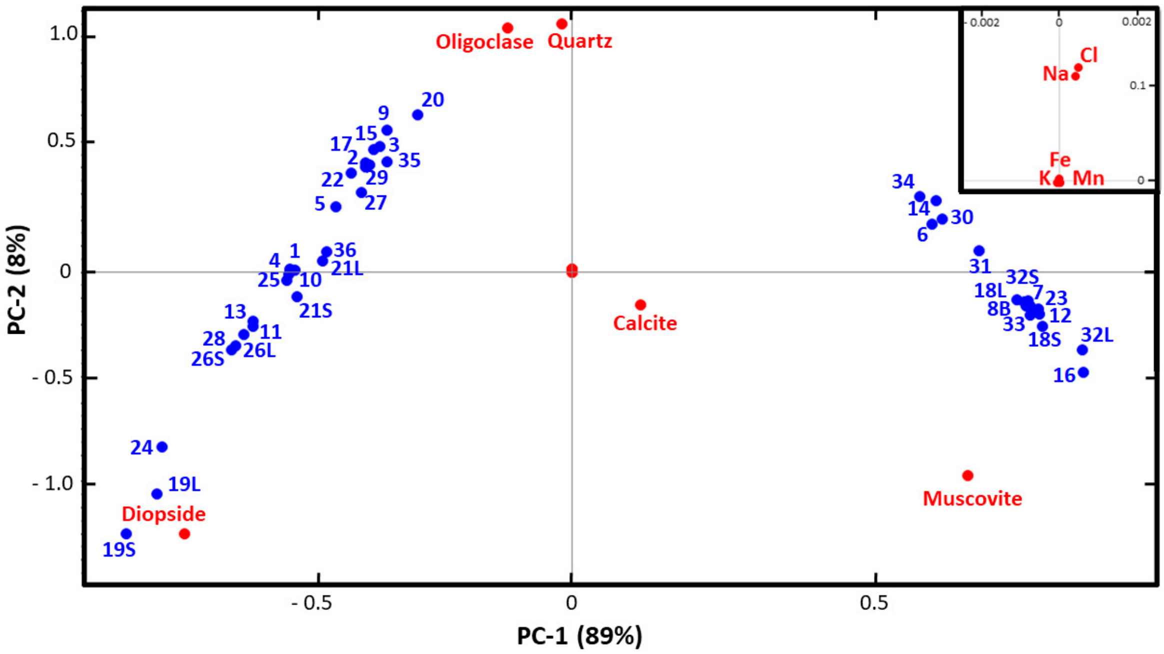

Fig. 11.5 Principal component analysis (PCA) results (Bi-plot) on the investigated AbT samples. The zoom around the origin of the axis is reported in the top right corner. Identified groups are highlighted; PCA Loading plot are reported in blue while PCA Scores plot of the phases and elements are in red. The third component has not been reported because does not improve the model (Festa *et al.* 2019: Fig. 5).

characterized by diopside, to indicate that these samples were fired at T that exceeded 900°C for long time. Muscovite, a mineral naturally present in Abu Tbeirah's clays, characterizes samples n. 16 (the unfired clay) and 32L (Fabric A, not completely oxidized sample): being the Muscovite stable during the firing process up to 900°C, it is clear that the two samples were fired under this limit.[21] Results from the Bi-plot are consistent with the diffraction results reported in Fig. 11.4. Finally, the insect of Fig. 11.5 shows that: Cl and Na are very close in the Bi-plot indicating probable salt intrusion, while Fe, Mn and K are located in the centre of the plot demonstrating that these elements are homogeneously distributed in the investigated sample set. Additionally, these three elements might be linked to pyroxenes, that are present in the metamorphic rocks at the origin of the 40% of heavy mineral composition of the Mesopotamian alluvial sediment.[22]

11.4.4 Autoptic VS Neutron Classification [GF - LR]

The classifications, based on the neutron and autoptic results, show some differences that might be easily explained, though further analysis will confirm or demise these hypotheses. Some features considered in the archaeological classification, such as the presence of vegetal temper mixed to the clay, are not influential from the chemical/compositional point of view (*e.g.*, for samples of Fabrics D_1 and D_2).[23] Moreover, the presence of the slip or self-slip[24] in samples 2, 3, 9, 15, 17, 19 (Fabric A) might justify the higher range of temperature identified by the neutron analysis. The presence of the slip/self-slip (see § 10.4.2) can thus alter the percentage of diopside in the investigated samples: in both the cases the vase surface loses water in a fasterway, reaching easily a temperature higher than 900°, forming crystals not present in the vessel body.[25] This might thus justify the position of the quoted sample in Fig 11.4. The presence of the big intrusive inclusion

[21] Rodriguez-Navarro *et al.* 2003; Rice 2005.

[22] See al-Mukhtar 2015.

[23] Future thin section analyses will help in better defining the ancient "ceramic recipes".

[24] See § 10.4.2 on the surface treatment.

[25] Jordan *et al.* 2009.

in sample 10 (Fabric B1) might have altered the results and thus the position in Fig. 11.5. A similar effect on mean data is observed for Fabric C (sample n. 33) used in the realization of rare cooking pots. Their coarse grained and porous paste, fired at a temperature lower than 900°C can help in withstanding the thermal shock due to the contact with fire:[26] the presence of bigger and angular sedimentary inclusions might be connected to a different preparation of the raw material by the ancient potter, through the addition of sand temper or avoiding the elimination of the bigger inclusions during the clay cleaning process. This Fabric is rare at Abu Tbeirah maybe due to the wider use of tannur and other peculiar firing installations for food processing.

11.5 Insights into the Clay Selection and Firing Process [GF - LR]

As previously demonstrated, clay from Mesopotamia was uniform in all the alluvial plain.[27] Nonetheless, a slight variation between north and south Mesopotamian pottery has been noted for the ED period: southern pottery seems to be characterized by the absence (or a less frequent presence) of pyroxene, biotite, epidote and, in a lesser extent, illite/muscovite.[28] However, on the basis of the limited amount of samples analysed these conclusions should be handled carefully: for example, while the similarity between pottery coming from Ur and from 'Ubaid is interesting and plausible, it is a parallel based only on two samples, one for each site.[29]

Analyses on Abu Tbeirah samples show, indeed, results that are sharply in contrast with this distinction between northern and southern 3rd mill. BC pottery. Comparing the diffraction data with the autoptic results, differences from the set of samples can be attributed mainly to firing temperature and in a less extent to clay preparation, confirming the general uniformity of the clay used in Mesopotamia. The samples analysed are, indeed, distributed in Fig. 11.3 according to an almost continuous temperature gradient.[30] Muscovite is present in the low fired samples and this discrepancy with the previous analyses is clearly due to the extremely reduced number of samples examined: probably the fragments selected simply belonged to vessels fired at higher temperature (thus with illite/muscovite completely transformed). The comparison of pottery samples with the clay gathered form the canal near Abu Tbeirah, seems to show a local origin of the used clay (see the uniformity in the values reported at Tabs 11.1-2 for phases and elements). Future analyses and researches on our samples will verify the possible presence of regional trends, though it appears once again clear that bulk chemical composition is not useful in grouping Mesopotamian clay fabrics on a regional base.[31]

Although Abu Tbeirah pottery presents inconstant use of the same fabric for a vessel typology, general trends can be recognized: a) drinking vessels, such as quickly wheel-thrown or wheel-coiled beakers and conical bowls, are usually realized in Fabric A and fired at a temperature lower than 900°C; b) medium and big closed vessels are instead mainly realized with Fabric B_1-B_2(T >900°C) or Fabric A self-slipped/slip;[32] c) rare cooking pots are realized in low fired (T <900°C) Fabric C; d) big containers, such as trays, vats or coffins are instead always realized in Fabric D_1 (T <900°C)-D_2 (T >900°C).

The thermal gradient, exhibited on and within Abu Tbeirah's vessels, confirms that the main distinction among fabrics is due to the temperature reached during firing: *e.g.* coffins and big coarse vat, on the bases of the firing temperature reached by each part of their body, show a fabric colour that ranges from red (D1) to pale-yellow/greenish (D2). This thermal gradient is, indeed, due to the non-uniform firing temperature to which vessels were exposed: the attribution of a sherd to a

[26] Rice 2005: 229-231. Müller 2016.

[27] Armstrong - Gasche 2014: 87.

[28] Mynors 1983; Mynors - al-Kaissi 1987: 144, 150 and Tab. 2.

[29] Data from the Southernmost part of Mesopotamia, in which Abu Tbeirah is located, are still extremely limited: a total of 40 shards coming from several sites (Tell-ed-Der, Jemdet Nasr, Nippur, Kish, Abu Salabikh, Fara, Tell al-Wilayah, Uruk, Larsa, Lagash, 'Ubaid, and Ur) were analysed (Mynors 1983; Thuesen *et al.* 1982; Mynors - al-Kaissi 1987).

[30] See also the comparable results for ED I-II pottery from the Diyala region in Gibson (ed.) 1990: 65. Here five group, very similar to ours, have been distinguished (with the addition of a grey-ware group).

[31] Gibson (ed.) 1990: 22.

[32] However, never in Fabric C or D (with the exception of ring bases realized always in Fabric D).

specific fabric group depends thus on the part of the vessel preserved or analysed.

As far as the firing technology is concerned, analyses carried out at Abu Tbeirah demonstrates that temperatures reached during their firing never exceeded 1000°C. The highlighted temperature range led us to focus on the firing technology in use for Abu Tbeirah's 3rd mill. BC pottery production. Utilization of kilns has been generally associated to a firing temperature range comprised between 750°C and 1150°C.[33] Kiln firing is considered a more advanced technique compared to open or pit fires, that are usually not considered adequate at reaching these temperatures.[34] Nevertheless, as already highlighted by several scholars, it is incorrect to search a linear technological progression from bone-fire to the adoption of kiln in pottery production.[35] Though pottery kilns are attested in Mesopotamian archaeological record also for earlier periods,[36] little attention was given to the presence of open-firings.[37] Though we do not exclude the use of kilns for Abu Tbeirah's pottery production (or at least for part of it), the sole maximum temperature reached during the firing cannot be taken as proof. Ethnographic comparisons show that temperatures of more than 900° C can be reached in open-firing using dung or palm fronds as fuel,[38] materials largely available in 3rd mill. BC southern Mesopotamia.[39] Besides, several doubts have been raised on the possibility of using firing temperature to determine the firing technology used:[40] ethno-thermometric approach demonstrates that the temperature reached by bone-fire and kiln overlap within the interval of 600-900°.[41] Furthermore, neither the structure, fuels, duration of the firing process, heating rate and soaking time induce thermal characteristics that can be considered as specific for open or kiln firings.[42]

In determining the firing technology in use in an archaeological site a synergy of elements should therefore be considered, together with archaeological data. In the case of Abu Tbeirah, we cannot suppose a kiln firing because of the temperature reached. In addition, some other elements related to Abu Tbeirah's pottery production might point toward the use of open/pit firing. Abu Tbeirah survey documented, especially in the North-Eastern part of the settlement, the presence of areas with pottery production wastes not connected to any visible structure: though the erosion that characterize Abu Tbeirah's surface could have obliterated the original kilns structure, it is not possible to exclude the identification of these areas with open firings.[43] Abu Tbeirah vases, as said, often show traces of a non-uniform firing, a characteristic that is usually connected to open-firing.[44] The dark or black core of some Abu Tbeirah vessels is due to the non-complete control of the firing atmosphere or to an insufficient duration of the firing process. All these elements put together suggest caution in hypothesizing the exclusive use of a specific firing technology: as for the pottery modelling technique (see § 10), the introduction of a new and more performative methodology[45] does not mean the complete abandonment of the old one[46] and both techniques could have been used in synergy for a period longer than expected.

[33] Tite 1969: 140 Tab. 3 (Ubaid pottery; 500-1110°C); Gibson (ed.) 1990: 40 (Tell Razuk; 850-1100°C); Méry - Schneider 1996: 86 (various site with a max. T>1000°C); Armstrong - Gasche 2014: 84; 89 (various sites; 750-1000°C).

[34] Gosselain 1992: 244-245 (open fire temperature ranges 500-900° C).

[35] Moorey 1994: 144; Laneri 2009: 111-114.

[36] Hansen Streily 2001; Laneri 2009: 117.

[37] Moorey 1994: 144-145. For a resumé of the evidence of open firings in the Near East see Laneri 2009: 113-114.

[38] Nicklin 1981: 352; Shepard 1985: 78 Fig. 4; Rice 2005: 157.

[39] Marsh's Arab used to bake their pottery in pits, using dung cakes (350-450 dung patties) and reeds to ignite (see Ochsenschlager 2004: 119-121).

[40] Gosselain 1992; Livingstone Smith 2001.

[41] Gosselain 1992: 257.

[42] Livingstone Smith 2001: 999.

[43] D'Agostino - Romano 2017. In the northern part of the site also a fragment of a potter's wheel was found (Romano 2015).

[44] Rice 2005: 158; Armstrong - Gasche 2014: 83. Nevertheless the results of kiln firing depends also on the potter's ability and on the same properties of the built structures.

[45] Kiln technology has several disadvantages such the necessity of maintenance and repair or the not completely efficient use of fuel (Rice 2005: 162).

[46] The association of the earliest productions with the "more primitive" techniques is a frequent trend in Ancient Near East archaeology, as already noticed by Moorey 1994: 144.

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CHAPTER 12

THE HUMAN REMAINS

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12.1 Introduction

The excavations undertaken at Abu Tbeirah between 2012 and 2017 yielded a considerable number of skeletons, most of which belonged to the so-called Cemetery in Area 1, and Building A. The state of preservation of the skeletal elements for most individuals was rather poor, with bones mostly fragmentary and missing several segments. Such poor conditions are likely to be ascribed to the type of soil in the area (see § 6.1.1). By contrast, the teeth were mostly well preserved.

Most of the graves were excavated and analysed *in situ* for preliminary osteological information (*e.g.*, diagnosis of sex and age at death, recording of bone measurements, etc.) with most of the skeletal data collected again later in the laboratory. The position and orientation of the bodies, the state of preservation, and taphonomy were also recorded on site and are fully described in §§ 7-8. The analysis of the skeletal sample started with the reconstruction of the mortality profile by determining the sex and the age at death of each individual.

The estimation of sex was based on the observation of morphological traits of the pelvis and the cranium). Methods are those recommended in the literature.[1] We calculated the sexualization index [2] by applying the following formula:

$$\sum wx/\sum w$$

where x is the degree of expression (on a scale of femininity-masculinity, ranging between -2 to +2) of the sexual traits of cranium and pelvis, and w is the weight (*e.g.*, the diagnostic relevance) of each trait. The sexualization index allows to determine the sex of the individual (values ranging from -2 to -0.4 indicate female sex, values ranging from -0.4 to +0.4 indicate indeterminate morphology, while values ranging from +0.4 to +2 indicate male sex). The diagnosis of sex was limited to individuals older than 13-15 years of age, when secondary sex traits are fully expressed and pelvic bones are mostly fused.

A combined method was also applied in the estimation of the age at death: for the infantile/adolescent individuals we observed dental development[3] together with patterns of bone growth.[4] For the adults we observed patterns of dental occlusal wear according to Lovejoy,[5] combined with cranial sutures closure following Meindl and Lovejoy.[6]

The skeletal sample was further subdivided in 7 age classes, as follows: Infant I (0-3 years); Infant II (4-6 years); Child (7-12 years); Adolescent (13-18 years); Young adult (18-30 years); Mature (30-40 years); Senile (>40 years). In order to assess possible under or over-representation of infantile and juvenile age classes, palaeodemographic indices have been calculated according to Bocquet

[1] Acsádi - Nemeskéri 1970; Ferembach *et al.* 1979; Ubelaker 1989, as synthetized in Buikstra - Ubelaker 1994.
[2] Acsádi - Nemeskéri 1970.
[3] Ubelaker 1989.
[4] Stloukal - Hanakova 1978.
[5] Lovejoy 1985.
[6] Meindl *et al.* 1983.

and Masset[7] as follows: *Juvenile index*: nd (5-14) / nd (20-x), and nd (5-9) / nd (10-14), where nd refers to the number of deceased individuals in the age range indicated in parentheses; we also calculated the index suggested by Buikstra *et al.*:[8] nd (1-5)/nd (1-10).

Measurements of the postcranial skeleton were used to reconstruct the prevailing physical activities performed and general life condition at Abu Tbeirah. Where possible, measurements of length and diameters were recorded on long bones of the upper and lower limbs according to Martin and Saller[9] with postcranial indices calculated. Stature was estimated applying two of the most commonly used methods: Manouvrier, and Trotter and Gleser with both the formulas for "Whites" and "Blacks".[10]

Non-metric or "epigenetic"[11] traits were recorded according to Manzi and Vienna,[12] so as to score the actual epigenetic significance of the phenotype. These traits were recorded on all the individuals (both adults and subadults) with a satisfactory state of preservation of the various areas of the skull and post-cranial skeleton. Although this method includes the scoring of additional information (degree of expression, position, etc.) only presence/absence (obtained according to the thresholds suggested by Manzi and Vienna)[13] are reported here.

Dental size was assessed to characterize the morphological variability of our sample and to allow future comparisons with coeval skeletal series from nearby contexts. We recorded the mesio-distal (MD) and bucco-lingual (BL) crown diameters of all permanent teeth following Goose.[14]

We recorded dental pathologies, through the observation of caries (on both deciduous and permanent teeth), enamel hypoplasia, abscesses and ante-mortem tooth loss (AMTL). For the descriptive analysis only data on presence/absence were used, but in the recording of caries and enamel hypoplasia we have also noted the grade of expression. Specifically, the presence of caries was registered on the basis of its localization (*occlusal*, *buccal*, *lingual*, *mesial*, *distal*) and classified according to Buikstra and Ubelaker[15] in four degrees of severity: 1) *light* (when only the enamel is affected); 2) *moderate* (when the enamel and the dentine are affected, but the pulp chamber is not open); 3) *severe* (when the pulp chamber is affected); 4) *destructive* (when there is the necrosis of all the pulp tissues). The enamel hypoplasia has been recorded in two degrees: *light* or *strong*.

We performed a preliminary palaeopathological assessment, strongly limited by the state of preservation of the skeletons. We recorded markers of aspecific or multifactorial stress (*e.g.*, periostitis, porotic hyperostosis, enamel hypoplasia). Porotic hyperostosis (*e.g.*, *cribra orbitalia* and *cribra cranii*) was recorded on both adult and subadult individuals. The presence/intensity of *cribra orbitalia* was evaluated according to Hengen 1971.[16] *Cribra cranii* were observed considering both the ectocranial and endocranial surfaces: the degree of severity was evaluated in 3 levels, observing the presence of osteophytes and the degree of healing of the lesions, following the same criteria adopted for *cribra orbitalia*.

We collected over 50 human and animal bone and dental enamel samples to perform an isotopic investigation to reconstruct past diet (through stable carbon and nitrogen isotopes) and residential mobility (through Sr isotope ratios - $^{87}Sr/^{86}Sr$). Only a selection of these samples will be discussed here, as relevant to the individuals and the associated fauna reported in this chapter. For stable carbon and nitrogen analysis collagen extraction followed Longin's method.[17] Cortical bone (0.5 g) was cleaned by abrasion and demineralised in 0.5 M HCl at 4ºC for several days. The samples were then rinsed to neutral pH and gelatinised in pH3 HCl at 70ºC for 48 hrs. Insoluble residues were filtered off with Ezee filters 5-8 μm. Samples were then frozen and freeze dried for 48 hrs. Each of the collagen

[7] Bocquet - Masset 1977.
[8] Buikstra *et al.* 1986.
[9] Martin - Saller 1957.
[10] Manouvrier 1893; Trotter - Gleser 1977.
[11] Hauser *et al.* 1989.
[12] Manzi - Vienna 1997.
[13] Manzi - Vienna 1997.
[14] Goose 1963.
[15] Buikstra - Ubelaker 1994.
[16] Hengen 1971.
[17] Longin 1971.

extracts were weighed (ca. 1 mg) in triplicate into tin capsules and stable carbon and nitrogen isotope ratios were calculated using an automated elemental analyser coupled in continuous-flow mode to an isotope-ratio-monitoring mass-spectrometer (Costech Elemental Analyzer coupled to a Thermo Finnigan MAT253 Mass Spectrometer). Analyses were carried out at the Godwin Laboratory, University of Cambridge[18]. Analytical error was + or - 0.2 ‰ (per mil) or better. The collagen yield, the percentage of carbon and nitrogen, and the atomic C:N ratio of each sample were also recorded to check collagen quality.[19] For strontium isotope ratio we mostly selected molars (M1s and M2s); however, we occasionally had to rely on canines or premolars. Standard strontium isotope geochemistry procedures were followed.[20] Bone and enamel samples weighing 3-5 mg were dissolved in 5 M nitric acid. The Sr-Spec resin was cleaned repeatedly with deionized water to remove Sr present from the resin manufacturing process. Sample solutions were placed on the columns, and strontium was eluted with nitric acid followed by water. Total procedural blanks were typically less than 80 pg, which is insignificant relative to the amount of Sr in the samples. Analyses were made at the Department of Geological Sciences at the University of North Carolina at Chapel Hill. Strontium was separated from dissolved samples by ion exchange chromatography using Eichrom Sr-Spec resin. Strontium was analysed in dynamic multi-collector mode using a VG Sector 54 thermal ionisation mass spectrometer. All $^{87}Sr/^{86}Sr$ ratios from the University of North Carolina at Chapel Hill laboratory are reported relative to a value of 0.710250 for the SRM 987 standard (*e.g.*, if the $^{87}Sr/^{86}Sr$ ratios for the 10-15 standards analysed with each group of samples averaged 0.710260, then 0.000010 was subtracted from each sample $^{87}Sr/^{86}Sr$ ratio).

12.2 Area 1 Cemetery

The so-called Cemetery is an area of approximately 1000 sqm. In this area 16 graves were unearthed. The first striking evidence is the clear absence of a recurrent funerary ritual, with tombs showing different types of deposition that go from simple pits excavated in the ground to more articulated tombs (that sometime show evidence of reed-mats placed around the corpse), to elaborated pottery sarcophagi containing the human remains. The same can be said for the position and, although partially, the orientation of the corpses that can be tightly contracted on the side or partly contracted to nearly supine. A detailed description of the burials is provided in §§ 7-8, while the most relevant osteological information are reported below.

12.2.1 Description of the Burials and Preliminary Osteological Information

12.2.1.1 Grave 1 H1 (Figs 7.13 and 7.21)

Despite the photographic documentation reports a fairly well preserved skeleton, what arrived in the lab is only a smaller portion of what was excavated. This is mostly due to the nature of the soil, in fact once extracted the skeletal elements tended to fragment severely.

The skeleton was of a subadult individual lying on the right side (east-west oriented, head towards the east) although part of the thorax was flat on the surface at time of recovery, the left arm was bent over the thorax, with the hand by the pelvis, the right arm was along the body, with the lower portion bent over the pelvis. The legs were bent over the right.

The state of preservation was rather poor, although most of the teeth (both deciduous and permanent) were preserved. Parts of the skull, of the upper and lower limbs were also recovered.

Upper teeth: (Left: m1, m2, c; M1, M2, P1, P2, C, I1, I2 - Right: m1, m2, c; M1, M2, I1, I2).

[18] Stable isotope concentrations are measured as the ratio of the heavier isotope to the lighter isotope relative to an internationally defined scale: Vienna Pee Dee Belemnite (VPDB) for carbon and Ambient Inhalable Reservoir (AIR) for nitrogen (Hoefs - Hoefs 1997). Isotope results are reported as δ values ($\delta^{13}C$ and $\delta^{15}N$) in parts per 1,000 (‰). Triplicate reproducibility is less than 0.2 ‰. The isotopic standards used are: International Atomic Energy Agency (IAEA) standards of caffeine and glutamic acid for carbon and nitrogen; in house laboratory standards of nylon, alanine, and bovine liver standard for carbon, nitrogen, and atomic C:N ratios. We thank Mike Hall and James Rolfe at the Godwin Lab, Department of Earth Sciences, University of Cambridge for help with isotopic analyses, and Catherine Kneale for help in sample preparation and analysis.

[19] DeNiro 1985; Ambrose 1990; van Klinken 1999.

[20] Faure - Mensing 2005.

Lower teeth: (Left: m1, m2, i2; M1, P1, I,1, I2 - Right: m1, m2, i2; I1, M1).

No sex estimate could be performed given the age. On the basis of dental eruption and development the age at death of the child is estimated at 6 years. The diaphyses of the limb were not fully preserved but a rough measurement of the right femur seems to confirm the age estimated according to the teeth.

12.2.1.2 Grave 2 (Figs 7.15-16)

This burial, excavated in 2012, preserved a pottery coffin that was found void of skeletal remains. It is likely that the skeletal elements did no preserve given the nature of the soil, or alternatively due to looting.

12.2.1.3 Grave 3 H1 (Figs 7.18-19)

A few remains of the vault of a skull and one tooth (a lower right M1) were the only elements preserved from this burial. The remains, once taken to the lab could only be reported for limited morphological and metric information.

On the basis of thickness of the parietal bone, as well as orbital roof we could tentatively determine the individual as a male. Ectocranial suture closure suggests the individual is a mature adult of about 30-40 years of age. The pattern of occlusal wear of the only tooth preserved, ranges around 40-50 years of age, although the severe occlusal wear observed in the whole skeletal series might contribute to an overestimation of the age at death.

12.2.1.4 Grave 6 (Figs 7.21-22)

The burial revealed the presence of two individuals. The better preserved one (H1) was buried in primary deposition, while the other (H2) was only partially preserved and appeared in secondary deposition, possibly moved from its original position to make space for the burial of H1.

12.2.1.4.1 Grave 6 H1

The skeleton was lying on the right side, north-west/south-east oriented with the head to the west. The upper portion of the body was lying on the back, with the head twisted on the side, resting on the right side. The legs were bent, lying on the right side. The state of preservation was poor and appeared highly fragmented. The texture of the bones was extremely fragile.

The skull was preserved for less than 50%, with only a few diagnostic segments, namely: the left orbit, the right and left zygomatic bone, the left mastoid with portion of the temporal bone, a fragment of the occipital bone bearing traces of the lambdoid suture. By contrast, all the teeth were preserved. The skull was rather thick. The two clavicles were preserved for about 2/3 (the ephiphyses were missing). The upper limbs preserved the right femur for most of its length (only the epiphyses were missing) and the proximal ½ of the radius, no significant parts of the ulna were present. The left femur was preserved only for its distal ½ with only a few fragments of the other bones of the arm. A few fragments of the phalanxes of the hands were preserved.

Of the pelvis only a very fragmentary portion of the ilium was preserved (no siding could be performed), near the schiatic notch.

The lower part of the body is also badly preserved, only the diaphyses of the left femur (more than 2/3) and tibia (about ½) are left, of the right femur about 2/3 of the shaft and about ½ of the tibia are also preserved. Only very fragmentary remains of the fibulae are left. A few bones of the tarsal are preserved.

Upper teeth: all teeth preserved.

Lower teeth: all teeth preserved.

Despite the male traits of the skull, the skeleton looks rather fragile, muscular insertions are not particularly evident and the general size of the skeleton is rather small. A careful examination of the pelvis suggest a female sex.

In consideration of dental wear the age is generally attributed to a mature individual (30-40 years old), the severe occlusal wear on the teeth, and on the upper dentition as opposed to the lower one, might bring to overestimating the age, hence the assessment performed on the basis of the lower teeth should be considered more reliable.

In fact, the individual appeared to have a severe occlusal wear on the upper central teeth (P2 to P2, side to side). The upper molars were equally strongly worn although to a lesser extent. The lower teeth had a generally lower wear on all of the teeth preserved, especially for what concerns the lower molars. It is extremely plausible that the upper teeth were used for an extra-masticatory purpose.

Of interest was the observation of the septal aperture of the olecranic fossa (Fig. 12.1a), a feature that is normally considered of epigenetic nature,[21] or associated with intense activity-related biomechanical stress.[22]

12.2.1.4.2 Grave 6 H2

The bone assemblage could not be observed during excavation, hence on the basis of the photographic documentation it is difficult to reconstruct the position of the body. The skeleton might have been moved to make place to the deposition of H1, the lower limb were kept together but placed over the skull in a very restricted space (ca. 40x40 cm). This might be a secondary deposition resulting from the deposition of H1.

Overall, only fragments of the upper and lower limbs, portions of the skull (with portion of the maxilla and 1/3 of the mandible) and very illegible portions of the coxal bone were preserved.

Upper teeth: not preserved.

Lower teeth: (Left: M2, M1, P2, P1, C, I2 - Right: C, P1, P2, M1, M2).

Of the upper and lower limbs only sections of the diaphyses were preserved for the femur, the humerus, the radius and the tibia (less than 1/3 of the shaft). We could record a few measurements for these. A few fragments of the hands and feet were also preserved. Of the skull, the mastoid process, various fragments of parietal bones, half of the mandibular and a very damaged maxilla with palate were recovered. We could collect some information on the teeth.

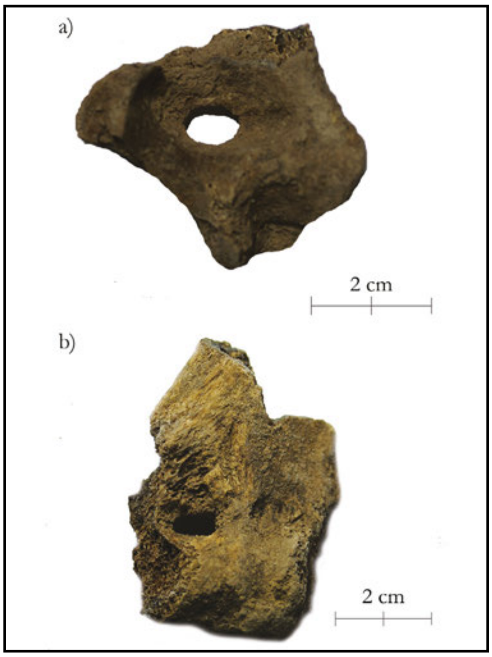

Fig. 12.1 Septal aperture of the olecranon of individual H1 (a), posterior view, and H2 (b) anterior view, from Grave 6.

On the basis of morphological traits of the mandible, the mastoid process, and general robusticity, the individual is believed to be a male.

Like for H1, in consideration of dental wear the age is generally attributed to a mature individual (30-40 years old). The severe occlusal wear on the teeth, and on the upper dentition as opposed to the lower one, might suggest extra-masticatory use of the teeth.

It is extremely interesting to observe how this individual, like H1, shows the septal opening of the olecranic fossa of the humerus (Fig. 12.1b). If we were to favour the association of this feature with biomechanical stress we could argue that the two individuals shared a labour-intense activity, which might also be associated with the extra-masticatory use of the teeth, as suggested from the severe wear of their upper dentition.

12.2.1.5 Grave 11 H1 (Figs 7.26-27)

The burial of an infant was brought to the lab within a block of soil to be excavated. It revealed to be the very well preserved skeleton of a child of perinatal age (40 weeks), hence the result of either a stillbirth or a perinatal death.

The corpse was lying on the right side in a fairly contracted position, east-west oriented with head

[21] Hauser *et al.* 1989.
[22] Mays 2008.

towards the west. The legs were bent. It was hard to reconstruct the position of the arms, possibly they were both bent towards the face, although the displacement of the arms was rather confused, especially considering the position of the left ulna.

The skull was only partially excavated (to prevent further breaking) with skeletal information reported. The rib cage was fairly well preserved: several (>12) vertebral bodies were complete, with fragments of the neural arches visible. The right scapula and left clavicle were preserved. Fragments of several ribs were also visible. One of the coxal bones was complete at moment of excavation but came to pieces in after the recovery.

The arms were fragmentary but mostly preserved. The right humurus was complete (although in fragments), together with most of the ulna. The left ulna was also preserved. The proximal midshaft of a radius was preserved but could not side it.

In consideration of the length of the femur and ulnae, the child was confirmed to be of perinatal age.

12.2.1.6 Grave 15 H1 (Figs 7.31 and 7.33)

The burial preserved only fragmentary remains of the lower portion of a skeleton. Given the position of the legs we can assume that the corpse was placed lying on the right side, with both legs strongly bent.

No axial skeleton was preserved. Possible, unrecognizable fragments of the pelvis might have preserved although they broke during excavation. Only very fragmented portions of the lower limbs were visible. The epiphyses of the right femur - which is slightly better preserved than the left one - are present. Left and right tibiae and fibulae are preserved. All of the mentioned bones are however flattened and have almost completely lost their shape. Two phalanges are preserved. Very fragmented portions of the tarsal were also visible.

Given the lack of diagnostic elements no sex diagnosis could be preformed and only a general attribution to adult age can be made.

12.2.1.7 Grave 16 H1 (Figs 7.37 and 7.39)

This is surely the better-preserved skeleton of the series. The body of the inhumed was lying on the left side, north-east/south-west oriented, with the head towards the south-west. The upper body was lying on the left side, with the left arm along the body and the right arm bent on the thorax. The legs were strongly bent on the left side.

The skeleton has a general robust appearance; it is also very large in terms of size of the single skeletal elements. It appeared to be in tight anatomical connection, preserving the connection of labile articulations. It was striking to observe how the right hand, which was bent on the thorax, was closed as if originally holding something (Fig. 12.2).

Most of the skull, with the maxillary and mandibular bone was preserved, with the exception of the part of the right parietal. All of the axial skeleton was preserved although fragmentary, together with upper limbs including the hands. The pelvis was well preserved with the exception of the pubic symphyses.

Upper teeth: (Left: M2, M1, P2, P1, C, I2 - Right: C, P1, P2, M1, M2, M3).

Lower teeth: (Left: M3, M2, M1, P2, P1, C, I2 - Right: I2, C, P1, P2, M1, M2, M3).

The morphological traits are indicative of male sex. Occlusal wear indicated an age range of 40-50 years old, although this might be slightly overestimated due to extra-masticatory severe dental wear.

The upper right M1 shows a severe abscess with bone perforation and alveolar retraction. All teeth are very worn, the anterior upper missing teeth (both I1 and the right I2) might have been lost *in vivo* although the associated alveolar bone is poorly preserved, and hence this hypothesis is mostly based on their unusual absence, despite careful excavation of the skull.

Slight signs of porotic hyperostosis (grade 1) are visible on the left orbital roof.

The strong occlusal wear, is particularly evident on the left the maxillary and mandibular teeth that show severe extramasticatory wear (Fig. 12.3), possibly associated with the processing of fibres or other material that was passed through the teeth repeatedly, so as to form a worn area with a rhomboid shape.

12.2.1.8 Grave 17 H1 (Figs 7.72-73)

The skeletal remains inside this pottery coffin were extremely badly preserved. Only fragments of the diaphyses of both humeri and fragments of the radii and ulnae were preserved. For the lower body the diaphyses of the femurs, tibiae and fibulae were preserved, with segments of the pelvis (*e.g.*, the sciatic notch). Neither the skull, nor the teeth were preserved.

The position of the body could not be identified. The observation of morphological traits on the preserved portion of the pelvis allows for a sex estimation: the individual is a female. The age at death could only be generically determined as adult, given the absence of diagnostic features.

12.2.1.9 Grave 21 H1 (Figs 7.86-87)

The only skeletal elements preserved for this individual are a portion of the mandible (*e.g.*, the mental eminence) and carpal bones. No estimation of sex or age at death could be performed. The skeletal segments preserved are however indicative of an adult age.

12.2.1.10 Grave 22 H1 (Figs 7.59-60)

The skeleton was in a fairly good state of preservation. The body was lying on the left side, oriented north-south, head facing west, the arms were bent on the upper body, and the legs were tightly contracted on the side. Parts of the skeleton maintained its anatomical connection (*e.g.*, the right arm and the right femur and the right coxal bone).

The skull was preserved for most of its right half, although in large fragments. In general terms the right side of the body was better preserved than the left one.

Upper teeth: (Left: M2, M1, P2, P1, C, I2, I1 - Right: I1, I2, C, P1, P2, M1, M2).

Lower teeth: (Left: M3, M2, M1, P2, P1, C, I2 - Right: I2, C, P1, P2, M1, M2).

Fig. 12.2 Grave 16 H1 during excavation. The unusual position of the right hand is partly visible: the carpal bones and the first phalanges are exposed while the second and third phalanges were bent under the visible portion of the hand, as if holding something.

Fig. 12.3 Extra-masticatory wear on the left posterior teeth of H1 (Grave 16). The tooth worn are the upper and lower second premolars and the upper and lower first molar. The shape of the worn area seems to suggest the passing of a structure (a fibre?) across the four teeth interested so as to produce a “rhomboid” worn area.

No vertebral bodies and very few fragments of the ribs were left. Of the upper limbs, the diaphysis of the left humerus and most of the right one were preserved, with both left radius and ulna and only portion of the right radius preserved. The lower limbs were preserved only for the right femur, both the tibiae and the right fibula. Fragments of the hands and feet were left. Only a fair portion of the right coxal bone (showing the schiatic notch) was preserved.

Following the observation of morphological traits of both the skull and the pelvis we propose a female sex. Dental wear and maturation suggests an age range of 18-20, especially when considering that the lower M3s have not reached the occlusal plane. The teeth showed sign of dental defects (*e.g.*, enamel hypoplasia) and pathologies, namely caries and dental calculus.

12.2.1.11 Grave 23 H1 (Figs 7.89-90)

The skeletal remains were in a poor state of preservation and could not be fully investigated at the time of writing, hence only very preliminary information is reported here. The corpse appeared lying on the left side in a foetal position, east-west oriented with the head towards the west and looking north; the legs were bent on the side. The skull was poorly preserved if only through several fragments, although the position of the head was easy to reconstruct. The lower limbs were fragmentary but mostly preserved, like portion of the upper limbs and of the pelvis. The ribs were partly preserved and maintained the anatomical connection. On the basis of a rough measurement of the length of the femurs diaphyses we could tentatively suggest an age of 1-1.5 years.

12.2.1.12 Grave 24 H1 (Figs 7.92 and 6.94)

The remains of an adult individual were found inside an oval ceramic coffin. The corpse was lying on the left side, south-west/north-east oriented, with head at south-west, facing west. Both legs tightly bent on the left side. The remains could not be studied at time of writing. Considering a very preliminary observation we can only tentatively suggest this is an adult male.

12.2.1.13 Grave 25 H1 (Figs 7.28-29)

The burial contained the remains of a subadult, resting on the left side, with both legs tightly bent on the side. The corpse was roughly oriented north-south, with head at the south facing north-west. The remains could not be studied at time of writing, however considering a very preliminary observation we can only tentatively suggest this is a child of 5-6 years of age.

12.3 SUB PAVIMENTAL GRAVES OF BUILDING A - PHASE 1

The skeletal remains from this area are related to a series of burials recovered under the pavement of the various rooms excavated in the building.

12.3.1 DESCRIPTION OF THE BURIALS

12.3.1.1 Grave 4 H1 (Figs 8.106 and 108)

The skeleton is extremely fragmentary although preserved for most of its elements. The body was lying on the right side, north-south oriented, head at north, facing west. The legs were flexed and the arms were bent with hands in front of the face. The head of the deceased was placed lying on a vessel, this created an unnatural flexion of the skull, which resulted in the partial verticalization of the cervical vertebrae. The atlas and the 2nd vertebra are complete; the former was lying flat on the surface and was likely in anatomical connection with the skull. The left humerus and scapula, together with the right knee (femur-tibia) preserved the anatomical connection.

The skull is extremely fragmentary, however some diagnostic elements could be identified, in particular portions of the right and left temporal bone with both mastoids, most of the occipital bone, and parts of the base. The right orbital bone is preserved. The maxillary bone is partially preserved, with most of the right maxilla and palate (including teeth) preserved. The mandible is complete although broken in three segments.

Upper teeth: (Left: m1, m2, c; M1, M2, P1, P2, C, I1, I2 - Right: m1, m2, c; M1, M2, I1, I2).

Lower teeth: (Left: m1, m2, i2; M1, P1, I1, I2 - Right: m1, m2, i2; I1, M1).

The vertebral column is well preserved, especially for its cervical and thoracic portion. The atlas is complete, so is the second cervical vertebra and part of the cervical segment. The thoracic and some of the lumbar vertebrae are preserved although in fragments. Most ribs are preserved, although in fragments. The left scapula and clavicle are preserved, the right clavicle is complete although broken and the right scapula is fragmented. The manubrium and a segment of the body of the sternum are preserved. The pelvis is mostly preserved. The three centres of ossification of the coxal bone are preserved (unfused); the proximal portion of the sacrum is preserved.

The upper limbs are well preserved: the left humerus is complete, with the proximal epiphysis preserved, the left radius is preserved for most of its length, only the distal third is absent, the left ulna is preserved (although broken in 3 segments). The right humerus is complete for most of its length (only the very distal end missing). Three or four bones of the hands are preserved. Of the lower limbs the diaphysis of left femur is preserved and so are both the (unfused) proximal and distal epiphyses. The left fibula is preserved although broken in two segments. The left patella is preserved. The diaphysis of the right femur and tibia are preserved (but in both cases broken in two pieces) with the (unfused) epiphyses preserved, the fibula is almost complete but highly fragmented. The left talus and astragalus are complete, while only the right talus is preserved. The left side of the body is generally better preserved than the right one.

On the basis of dental eruption and skeletal development the age at death of this infant is estimated at ca. 7 years. Measurements of the diaphyses of the upper and lower limb, together with the clavicle give an age at death of 8 years when using Stloukal and Hanakova[23] and 6.5-7.5 when using Ubelaker.[24] The coxal bones are still unfused. The pubis and ischium are not fused (age of fusion 4-8 yrs). The fusion of the humeral head with the tuberosity could not be observed. Vertebral arches are fused (hence >6 yrs). When observing the maxillary bone it is evident how the M1 has not reached the occlusal plane, hence the estimation of an age at death of 7 is favoured.

We could observe the right orbital roof to assess the absence of lesions referable to *cribra orbitalia*.

Upper and lower permanent molars were measured. The upper M1 (left), showed traces of hypoplastic defects (only discoloration, no grooves).

12.3.1.2 Grave 5 H1 (Figs 8.106 and 109)

The entire skeleton was heavily disturbed by soil encrustations. Given the extremely fragile nature of the bony elements (especially in consideration of the age of the individual) the skeleton was left partially uncleaned.

It was extremely difficult to reconstruct the position of the body as it became immediately clear that the skeleton had undergone post-depositional disturbances. The corpse did not appear lying on the side, as most of the other individuals investigated, but with the skull partially on the side, the left leg bent and the right leg stretched under it. The left arm was not visible if only for fragments of the radius and ulna. The right arm was partially visible and it rested on a pig's scapula. The ribs had collapsed on one another. Through excavating carefully what was preserved of the post-cranial most of the mentioned bone could be recovered. While excavating the skull, once the left parietal with corresponding part of the frontal were removed we found the left humerus lying inside the skull. Underneath it was the left temporal bone with part of the zygomatic bone and arch.

Given the puzzling position of the body and the relative stratigraphy of the bones we could suggest that the corpse was deposed as if sitting down; once the soft tissues decomposed the rib cage must have collapsed on itself creating the strange bony arrangement. The skull must have collapsed towards the floor, incorporating the left arm, which ended inside the skull between the fronto-parietal and the zygomaxillary bone.

The skull appeared almost complete (although in fragments) before the excavation. Most of the parietals appeared to be preserved, while the face was destroyed. During excavation the mandible appeared below the skull and, interestingly, while the skull looked as lying on the side the mandible

[23] Stloukal - Hanakova 1978.
[24] Ubelaker 1989.

appeared to be horizontal. Only deciduous teeth were visible, as follows.

Lower teeth: (Left: m1, m2, c, i1 - Right: m1, m2, c, i1).

Some ribs and vertebrae were visible. The arms were partially preserved; both the humeri were preserved for most of the shaft, while only small portions of the radii and ulnae were visible. The left femur was preserved and both the tibiae were visible for most of the shaft, which included the proximal ephyises. The right tibia and ulna were kept together by an encrustation of soil and salt.

The size of the only measurable bone and the grade of development of the deciduous dentition give an age at death of approximately 1 year.

12.3.1.3 Grave 12 H1 (Figs 8.19-20)

The skeletal remains of an adult individual were found lying on the left side, east-west oriented, with the head towards the west, facing north. The position of the body resembled other cases, with the axial skeleton lying on the back, the arms bent on the pelvis and the legs tightly contracted on the left side.

The skeleton was fairly well preserved although extremely fragmentary. The skull was mostly preserved with the right and left parietal bone and the right mandible well preserved. The axial skeleton was mostly preserved, with humeri, radii and ulnae well preserved. The pelvis was extremely fragmentary although partly preserved, the left femur was nearly complete, while the left was missing parts of the epiphyses. Hands and feet were partly preserved; some of the phalanxes of the hands were found lying around the pelvic bones.

Upper teeth: (Left: M1, M2, P2, C, I1, I2 - Right: M1, M2, M3, I1, I2).

Lower teeth: (Left: M1, P1, P2, C, I1, I2 - Right: M1, M3, M3, P1, C, I1, I2).

The morphological traits of parts of the pelvis and the skull are indicative of female sex. The age at death estimation was hampered by the strong disparity in occlusal wear among the two sides of the maxillary and mandibular bones. The left side showed to be extremely worn, so that the right side was used for age assessment: this can be estimated around 20-30 years.

12.3.1.4 Grave 13 H1 (Figs 8.106 and 110)

Only some segments of the pelvis were preserved, namely the two ischiatic bones, and the two pubic bones. Fragments of the diaphysis of one radius and one ulna are preserved, although it is impossible to determine the side. The proximal ephiphysis of one radius, and the distal epiphyses of both radii are present.

Of the legs, both the proximal epiphyses of the femurs are preserved. Of both tibiae, the shaft is present, although the right tibia is nearly complete, with the distal epiphysis and diaphysis preserved. One fragment of the shaft of the fibula is present, however it is impossible to side it.

The state of preservation of the skeleton does not allow for a thorough estimation of the age at death of the individuals. Diaphyses of the upper or lower limbs are extremely fragmented and the teeth are missing. On the basis of the grade of development of the os coxae and the proximal portion of the femurs we can tentatively estimate an age at death of 7-8 years.

12.3.1.5 Grave 14 H1 (Figs 8.27-28)

The skeleton was lying on the left side, north-east/ south-west oriented, with the head to the north-east, facing east. The body was contracted with both arms and legs bent on the body. The skeletal elements preserved consisted of fragmented segments of the skull (including both deciduous and permanent teeth), the right humerus and clavicle, the left radius and ulna, the left ilium, and both proximal and distal long bones of the legs.

Upper teeth: (Left: m1, m2, c; i2; M1, I1 - Right: m1, m2, c; M1, I1).

Lower teeth: (Left: m1, m2, c; M1, C, I1, I2 - Right: m1, m2, c).

An age at death of about 6-7 year is estimated according to dental eruption and length of the diaphyses of the lower limbs.

12.3.1.6 Grave 20 H1 (Figs 8.47 and 49)

Scanty bony elements of a child were recovered inside this burial. The body appeared to be buried on the right side, north-east/south-west oriented, with the head towards the south-east, facing east. Once excavated the remains further deteriorated.

Upper teeth: (Left: m2, c, i2 - Right: m1, m2, i1).

Lower teeth: (Left: m1, c, i1 - Right: m1, c, i1, i2).

Only a general attribution of an age at death of about 9 months can be assessed; this is based on the grade of maturation of the dental elements.

12.3.1.7 Grave 26 H1 (Figs 8.48 and 50)

The very badly preserved remains of an infantile skeleton were excavated along the north-western wall of Room 9. The body only preserved part of the skull and very scanty fragments of the post-cranial skeleton. Given the poor state of preservation it is hard to reconstruct the position of the body but it appeared to be lying on the right side, in a foetal position, with the head in an unusual setting, apparently resting on the wall. The body was roughly oriented east/west, head at east, facing south-west. The skeletal remains were still under study at time of this report but measurements taken on the field could tentatively suggest an age at death of 3-4 years.

12.4 Preliminary Osteological Notes

As a whole, the skeletal sample discussed here if composed of 21 individuals, with the Cemetery and the sub-pavimental graves taken together. Considering the series is only partially representative of the population of Abu Tbeirah and further excavations (and osteoarchaeological investigations) are planned, we report here the data obtained and refrain from attempting a comparison with other coeval series from the region, as this would be premature and only partially exhaustive.

A synthesis of the age at death and sex estimation of all observed individuals is reported in Tab. 12.1, with the mortality profile shown in Fig. 12.4. It is evident that there is an overrepresentation of subadults in the skeletal series. The juvenile index of 0.5 for this sub-portion of the sample excavated, is indicative of a population skewed towards

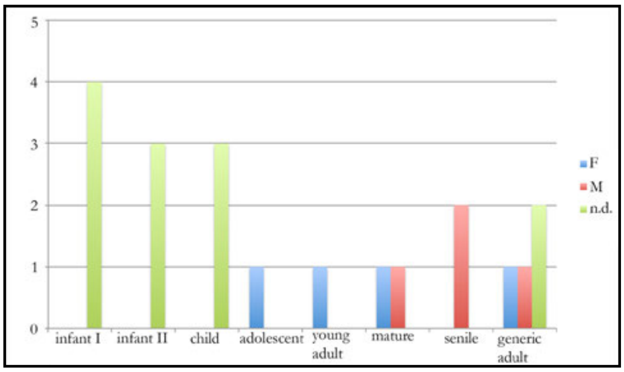

Fig. 12.4 Mortality profile of the individuals from the Cemetery and Building A area with data on sex and age at death. Abbreviations: F=female; M=male; n.d.=sex not determined.

subadult individuals (in ancient population the juvenile index should normally range between 0.1 and 0.3). Similarly the other indexes calculated are indicative of an overrepresentation of subadults, particularly when considering that the number of deceased in the earlier stages of childhood appear to be rather high (*e.g.*, nd (5-9) / nd (10-14) = 0; nd (1-5) / nd (1-10) = 0.4). Selective burial of juveniles within the walls of the buildings excavated could lead to this type of result.

No cranial measurements could be taken on the skeletons considering that not one individual preserved an intact skull. We could take a limited number of post-cranial measurements for the upper (Appendix - Tab. 12.4) and lower (Appendix - Tabs 12.6a-e) limbs, a limited number of bones from the thoracic girdle (Appendix - Tab. 12.5) and some tarsal bones (Appendix - Tab. 12.7). Only for one individual (Gr. 16 H1) we could calculate the stature (171 cm according to Trotter and Gleser, white males formula;[25] 172 cm according to Manouvrier,[26] which is in line with stature of other ancient populations from this region.[27] We observed a general robusticity in the samples, not as much in the body size and proportions rather in the evidence of mechanical load through robusticity of the muscular insertions (both upper and lower).

[25] Trotter - Gleser 1977.

[26] Manouvrier 1893.

[27] Tomczyk - Sołtysiak 2007.

Individual	Sex	Age at death (years)
Area 1 Cemetery		
Gr.1 H1	j	6-7
Gr.2 H1	-	-
Gr.3 H1	M	40-50
Gr.6 H1	F	30-40
Gr.6 H2	M	30-40
Gr.11 H1	j	perinatal
Gr.15 H1	n.d.	adult
Gr.16 H1	M	40-50
Gr.17 H1	F	adult
Gr.21 H1	n.d.	adult
Gr.22 H2	F	18-20
Gr.23 H1	-	1-1.5
Gr.24 H1	M	Adult
Gr.25 H1	-	5-6
Sub-pavimental graves - Building A		
Gr.4 H1	j	7-8
Gr.5 H5	j	ca. 1
Gr.12 H1	F	20-30
Gr.13 H1	j	7-8
Gr.14 H1	j	6-7
Gr.20 H1	j	9 months
Gr.26 H1	j	3-4

Tab. 12.1 Composition of skeletal sample from the so-called Cemetery, Building A, and external areas with indication of sex and age at death of the individuals excavated. Sexualization indices for pelvis and skull are calculated according to Acsádi and Nemeskéri (1970); age at death for the adults was estimated following Lovejoy (1985) for dental occlusal wear, combined with patterns of cranial sutures closure according to Meindl and Lovejoy (1985). Age at death of subadults was determinated following (Ubelaker 1989) together with (Stloukal and Hanakova 1978). Abbreviations: j=juvenile; M=male; F=female; n.d.=not determinable.

Measurements of permanent teeth could be taken for a limited number of adult individuals (Tabs 12.8a-b).

We observed a total of 175 permanent teeth and 64 deciduous teeth for pathological conditions. While deciduous teeth show no signs of pathologies, a small percentage of the permanent teeth analysed presented traces of caries (2.2%), abcesses (0.5%), *ante-mortem* tooth loss (AMTL) (1.7%), or enamel hypoplasia (4%). This, in turn, translates in 36% of the individuals having caries, 23% abcesses, 27%, AMTL, while 63% showed hypoplastic lines.

Skeletal pathologies linked to metabolic stress included porotic hyperostosis (*cribra cranii* and *cribra orbitalia*), which was observed on 2 individuals in the sample investigated (Gr. 3 and Gr. 16). This together with the presence of dental enamel hypoplasia might be an indication of nutritional deficiencies. No other signs of metabolic stress (*e.g.*, scurvy or rickets) could be identified. Similarly no traces of trauma or other pathological conditions could be thoroughly observed and call for further investigation, however any palaeopathological assessment is likely to be limited by the poor state of preservation of the skeletal remains.

What is worthy of note is that most, if not all, of the adult individuals investigated show sign of extramasticatory dental wear. This evidence, together with that linked to biomechanical stress of the skeleton could indicate a group involved in either specialized or labour-intense activity.

12.5 The Isotopic Investigation

12.5.1 Stable Carbon and Nitrogen Isotopes

Stable carbon and nitrogen isotope ratios of the selected samples are reported in Tab. 12.2. A main issue derived from the collagen yields of the samples, which showed to be extremely low, subsequently hampering the quality of the isotope data. In fact, of the 24 specimens (15 humans and 9 animals) discussed here only 10 yielded enough collagen (>1%) to guarantee reliable data; nonetheless, for samples slightly below the threshold of 1% we decided to proceed with analysis. We used C:N ratio as a collagen quality indicator and considered reliable only samples within the 2.9-3.6 range;[28] this reduced drastically the number of samples to include (Tab. 12.2).

The high rate of unsuccessful data is not surprising given the nature of the soil in the Abu Tbeirah area, coupled with the temperature registered; this is an extremely hot and dry environment,

[28] DeNiro 1985; van Klinken 1999.

ID	species	% collagen	$\partial^{13}C$	$\partial^{15}N$	C:N
Gr.1 H1	Homo	0.67	-23.2	-7.0	3.6
Gr.3 H1	Homo	1.05	-22.5	5.8	3.4
Gr. 4 H1	Homo	no yield	n.a.	n.a.	n.a.
Gr. 5 H1R	Homo	0.71	-23.6	7.2	5.3
Gr. 5 H1S	Homo	1.87	-24.6	5.3	4.9
Gr. 6 H1	Homo	0.54	-22.5	6.5	4.0
Gr.6 H2	Homo	1.15	-22.7	2.5	3.3
Gr.12 H1R	Homo	1.63	-27.7	0.3	50.7
Gr.12 H1S	Homo	1.63	-21.8	3.3	3.7
Gr.14 H1	Homo	no yield	n.a	n.a.	n.a.
Gr.15 H1	Homo	1.16	-21.3	4.0	3.7
Gr.16 H1	Homo	1.41	-24.9	n.a.	n.a.
Gr.17 H1	Homo	no yield	n.a	n.a	n.a
Gr.18 H1	Homo	no yield	n.a	n.a	n.a
Gr.19 H1	Homo	no yield	n.a	n.a	n.a
Gr.20 H1	Homo	no yield	n.a	n.a	n.a
Gr.21 H1	Homo	no yield	n.a	n.a	n.a
Gr.22 H1	Homo	no yield	n.a	n.a	n.a
F-Gr.6 H2 Ung	Ungulate	4.33	-22.9	2.8	3.9
G-Gr.6-Ovc	Ovis vel Capra	1.6	-22.1	4.6	4.3
H-Gr.10-Ovc	Ovis vel Capra	1.13	-23.8	3.3	6.5
I-Gr.13-Ovc	Ovis vel Capra	0.59	-24.7	2.4	5.4
N-Gr.1 NE-Ovc	Ovis vel Capra	0.99	-23.4	3.3	4.7
J-Gr.16-Sus	Sus	0.59	-23.1	n.a.	n.a
E-Gr.5-Sus	Sus	3.03	-24.4	4.7	5.0
A -Mod-Fish	Freshwater Fish	9.34	-21.3	5.6	2.5
K-AbT-Fish	Freshwater Fish	1.71	-23.5	3.9	8.4

Tab. 12.2 Samples selected for stable carbon and nitrogen isotope analysis on bone collagen, showing $\partial^{13}C$ and $\partial^{15}N$. Total (in %) collagen extracted and C:N ratios are reported as collagen quality indicators. Samples in grey are to be considered unreliable.

where the chances for collagen to preserve are very low and that to obtain reliable isotope values even lower.[29] What is striking is the bad state of preservation of the modern bone sampled for analysis (sample A-Mod-Fish), for which further analysis could help unravel the unexpected results.

With only 3 samples left to discuss, we can only generically comment upon data. The three specimens show $\partial^{13}C$ values, which are suggestive of a protein intake from C_3 plants, which is unsurprising given that most plants endemic to the region (*e.g.*, those of the Neolithic package such as wheat and barley) have a C_3 metabolism. For $\partial^{15}N$ it is interesting to observe the marked difference between the two adult individuals: while Gr.3 H1, shows relatively "normal" values, Gr.6 H2 has remarkably low $\partial^{15}N$ (2.5‰), which is consistent with a protein intake linked to a mostly vegetarian diet. This raises the question of whether diet differences between the two individuals are to be linked to different status. More so if we consider that Gr. 6 H2 shows signs of intense physical labour. The other individual is a child with an age (6-7 years), that makes it difficult not to associate the higher $\partial^{15}N$ values (7‰), with a breastfeeding effect.[30] Despite the extremely limited evidence, it is tempting to associated differences in the isotopic data with social inequality between the

[29] Grupe 1995.

[30] Fuller *et al.* 2006.

ID	Species	$^{87}Sr/^{86}Sr$ 87Sr/86Sr
Gr.1 H1	*Homo*	0.708006
Gr.3 H1	*Homo*	0.708039
Gr.4 H1	*Homo*	0.708106
Gr.5 H1	*Homo*	0.708035
Gr.6 H1	*Homo*	0.708111
Gr.6 H2	*Homo*	0.708101
Gr.12 H1	*Homo*	0.708063
Gr.14 H1	*Homo*	0.708066
Gr.16 H1	*Homo*	0.708012
Gr.1 H1	*Homo*	0.708006
Gr.3 H1	*Homo*	0.708039
mean		**0.70806**
sd		**3.9**
Gr.12	*Ovis vel Capra*	0.707999
Gr.11	*Ovis vel Capra*	0.708094
Gr.102	*Ovis vel Capra*	0.708069
18 Unio from Gr.7	*Unio*	0.708102
23 *Unio* from Gr.6	*Unio*	0.708063
20 *sus* from Gr.8	*Sus*	0.708020
22 *sus* from Gr.15	*Sus*	0.708022
21 US 509	*Equus*	No yield
mean		**0.70805**
sd		**3.8**

Tab. 12.3 Strontium isotope ratios ($^{87}Sr/^{86}Sr$) in human and animal dental enamel samples with mean and sd for humans and animals.

two adults (eventually leading to different access to food resources), especially considering that the adult with low nitrogen values showed osteological traits associated with hard labour (see above).

12.5.2 Strontium Isotopes Ratio

We measured the $^{87}Sr/^{86}Sr$ in dental enamel of 15 human and 8 faunal samples of which 15 are discussed here (Tab. 12.3). Mean strontium isotopes ratio for the humans is 0.70806 and for the animals is 0.70805. The Sr signatures are consistent with the geological background in the area of Abu Tbeirah, for which very little isotopic information is known. The site is located in the Mesopotamian basin, an area of saline lakes for which earlier studies show Sr signatures that are consistent with the data obtained here.[31] Sr isotope ratios is not expected to vary in the area, given its geology: this is consistent with the results obtained, which show very little variation among the humans and consistent values for the associated fauna.

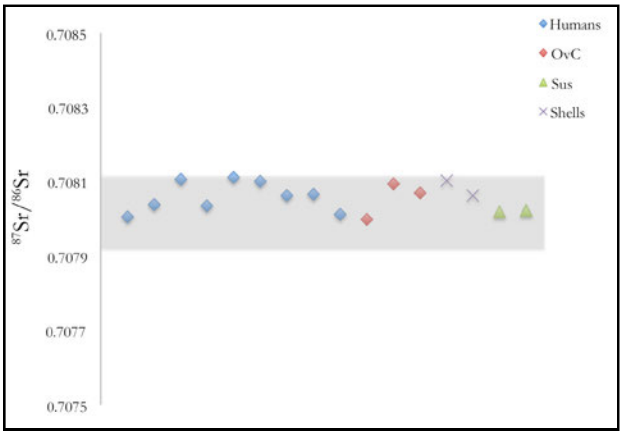

Fig. 12.5 Jitterplot of the Strontium isotope ratios of human and animal dental enamel sample from Abu Tbeirah. The local range (shaded area) was calculated ±2sd following Bentley (2006).

All individuals fall within the 'local range' (Fig. 12.5) measured by calculating 2 standard deviation from the mean animal values, according to Bentley.[32] This seems to suggest that all individuals are local to the region of the site with no outliers identifiable.

12.6 Concluding Remarks

The skeletal sample of 21 individuals reported here is only a portion of the population that inhabited Abu Tbeirah during the 3rd mill. BC. Further investigations at the site will allow us to complete the human sample and potentially yield a thorough picture of lifeways at Abu Tbeirah. It is however interesting to observe how the population examined here is clearly overrepresented for infants and children, suggesting that the excavated areas might have been selected for the deposition of the subadult portion of the population. Overall, the individuals observed show fairly good health condition, with limited incidence of pathologies and trauma. Nevertheless, evidence of biomechanical stress and dental wear suggest that daily life might have implied a sturdy physical activity.

[31] Kenoyer *et al.* 2013.

[32] Bentley 2006.

Future work will help complete the skeletal biography of this group and will represent an essential contribution to our understanding of ancient Mesopotamian populations.

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	Humerus																			
	max. length		fisiological length		proximal epiphysis width		distal epiphysis width		medial max. ø		medial min. ø		transverse head ø		sagittal head ø		mean circumference diaphysis		mean circumference	
ID	**r**	**l**	**r**	**l**	**r**	**l**	**r**	**l**	**r**	**l**	**r**	**l**	**r**	**l**	**r**	**l**	**r**	**l**	**r**	**l**
Gr.1 H1																				
Gr.2 H1																				
Gr.3 H1																				
Gr.4 H1																				
Gr.5 H1																				
Gr.6 H1									19.48		16.41						58.00	57.00	64.00	61.00
Gr.6 H2										23.35		19.44								
Gr.11 H1																				
Gr.12 H1									20.24	20.18	16.22	14.41					56.00	57.00	60.00	59.00
Gr.13 H1																				
Gr.14 H1																				
Gr.15 H1																				
Gr.16 H1								66.10	24.34	22.07	19.72	19.30					79.00	68.00	85.00	71.00
Gr.17 H1										20.40		16.30						55.00		58.00
Gr.20 H1																				
Gr.21 H1																				
Gr.22 H1									18.60		15.30									
Gr.23 H1																				
Gr.24 H1																				
Gr.25 H1																				
Gr.26 H1																				
mean	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**66.10**	**20.67**	**21.50**	**16.91**	**17.36**	**0**	**0**	**0**	**0**	**64.33**	**59.25**	**69.67**	**62.25**
ds	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2.54**	**1.49**	**1.93**	**2.44**	**0**	**0**	**0**	**0**	**12.74**	**5.91**	**13.43**	**5.97**
cv	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**12.29**	**6.95**	**11.43**	**14.08**	**0**	**0**	**0**	**0**	**19.80**	**9.97**	**19.28**	**9.58**

Tab. 12.4a Measurements (in mm) of humerus, radius and ulna, with mean values calculated on the whole sample.

	Radius										Ulna											
	max. length		fisiological length		transverse ø		sagittal ø		capitello circ.		max. length		fisiological length		medial dorso-volar ø		medial transverse ø		superior transverse ø		superior dorso-volar ø	
ID	**r**	**l**	**r**	**l**	**r**	**l**	**r**	**l**	**r**	**l**	**r**	**l**	**r**	**l**	**r**	**l**	**r**	**l**	**r**	**l**	**r**	**l**
Gr.1 H1																						
Gr.2 H1																						
Gr.3 H1																						
Gr.4 H1																						
Gr.5																						
Gr.6_H1																						
Gr.6_H2					13.40		15.96															
Gr.11 H1																						
Gr.12 H1					10.37	10.34	12.83	12.82	58.00						11.91	11.25	15.31	14.60	15.26	16.06	17.54	17.55
Gr.13 H1																						
Gr.14 H1																						
Gr.15 H1																						
Gr.16 H1	25.90	24.50	25.10	23.50	17.76	16.70	12.41	13.00	6.60			27.30		25.00		19.10		12.50		18.90		20.00
Gr.17 H1																						
Gr.20 H1																						
Gr.21 H1																						
Gr.22																						
Gr.23																						
Gr.24																						
Gr.25																						
Gr.26																						
mean	**25.90**	**24.50**	**25.10**	**23.50**	**13.84**	**13.52**	**13.73**	**12.91**	**32.30**	**0**	**0**	**27.30**	**0**	**25.00**	**11.91**	**15.18**	**15.31**	**13.55**	**15.26**	**18.90**	**17.54**	**18.78**
ds	**0**	**0**	**0**	**0**	**3.71**	**4.50**	**1.94**	**0.13**	**36.35**	**0**	**0**	**0**	**0**	**0**	**0**	**5.55**	**0**	**1.48**	**0**	**0**	**0**	**1.73**
cv	**0**	**0**	**0**	**0**	**26.84**	**33.26**	**14.12**	**0.99**	**112.52**	**0**	**0**	**0**	**0**	**0**	**0**	**36.58**	**0**	**10.96**	**0**	**0**	**0**	**9.23**

Tab. 12.4b Measurements (in mm) of humerus, radius and ulna, with mean values calculated on the whole sample.

ID	Scapula								Clavicle						Sternum				
	morphological breadth		morfological lenght		glen. cav. lenght		glen. cav. breadth		max.m length		vertical ø		sagittal ø		total lenght	manubrium lenght	body length	max. manubrium breadth	max. body breadth
	r	l	r	l	r	l	r	l	r	l	r	l	r	l					
Gr.1																			
Gr.2																			
Gr.3																			
Gr.4																			
Gr.5																			
Gr.6 H1																			
Gr.6 H2																			
Gr.11																			
Gr.12											8.83		10.85						
Gr.13																			
Gr.14																			
Gr.15																			
Gr.16																			
Gr.17																			
Gr.20																			
Gr.21																			
Gr.22																			
Gr.23																			
Gr.24																			
Gr.25																			
Gr.26																			

Tab. 12.5 Measurements (in mm) of bones of the thoracic girdle.

	Femur															
	max. length		**max. lenght gr.trochanter**		**fisiological length**		**fisiological lenght gr.trochanter**		**medial sagittal ø**		**medial transverse ø**		**sub-trochanter transverse ø**		**sub-trochanter sagittal ø**	
ID	**r**	**l**	**r**	**l**	**r**	**l**	**r**	**l**	**r**	**l**	**r**	**l**	**r**	**l**	**r**	**l**
Gr.1 H1																
Gr.2 H1																
Gr.3 H1																
Gr.4 H1																
Gr.5 H1																
Gr.6 H1									23.60	24.06	23.49	26.14				
Gr.6 H2										28.83		28.21				
Gr.11 H1																
Gr.12 H1									23.70	23.88	22.25	22.98		30.64		23.82
Gr.13 H1																
Gr.14 H1																
Gr.15 H1										23.10		25.35				
Gr.16 H1		461.00				442.00			27.02	27.46	30.14	32.33	35.11	45.31	27.88	30.63
Gr.17 H1									24.00	24.50	24.20	25.00				
Gr.20 H1																
Gr.21 H1																
Gr.22 H1																
Gr.23 H1																
Gr.24 H1																
Gr.25 H1																
Gr.26 H1																
mean	**0**	**461.00**	**0**	**0**	**0**	**442.00**	**0**	**0**	**24.58**	**25.17**	**24.30**	**26.27**	**35.11**	**35.53**	**27.88**	**26.09**
ds	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1.36**	**2.28**	**2.96**	**2.77**	**0**	**8.47**	**0**	**3.93**
cv	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5.51**	**9.06**	**12.18**	**10.56**	**0**	**23.84**	**0**	**15.07**

Tab. 12.6a Measurements (in mm) of femur, tibia, fibula, and patella, with mean values calculated for the whole sample.

	Femur (continues)											
	vertical neck ø		**sagittal neck ø**		**vertical head ø**		**sagittall head ø**		**intercondilar breadth**		**mean circumference**	
ID	**r**	**l**	**r**	**l**	**r**	**l**	**r**	**l**	**r**	**l**	**r**	**l**
Gr.1 H1												
Gr.2 H1												
Gr.3 H1												
Gr.4 H1												
Gr.5 H1												
Gr.6 H1											76.00	80.00
Gr.6 H2												
Gr.11 H1												
Gr.12 H1		24.80		19.02		33.93		35.39				
Gr.13 H1												
Gr.14 H1												
Gr.15 H1												
Gr.16 H1		34.27		30.25	49.08	50.32	47.61	49.10			80.00	82.00
Gr.17 H1						42.40		41.80				85.00
Gr.20 H1												
Gr.21 H1												
Gr.22 H1												
Gr.23 H1												
Gr.24 H1												
Gr.25 H1												
Gr.26 H1												
mean	**0**	**27.96**	**0**	**22.76**	**49.08**	**40.15**	**47.61**	**40.42**	**0**	**0**	**77.33**	**81.75**
ds	**0**	**5.47**	**0**	**6.48**	**0**	**7.87**	**0**	**6.53**	**0**	**0**	**2.31**	**2.36**
cv	**0**	**19.56**	**0**	**28.48**	**0**	**19.61**	**0**	**16.15**	**0**	**0**	**2.99**	**2.89**

Tab. 12.6b Measurements (in mm) of femur, tibia, fibula, and patella, with mean values calculated for the whole sample

	Tibia											
	max. length		max. lenght gr.trochanter		fisiological length		fisiological lenght gr.trochanter		total length		max. length	
ID	**r**	**l**	**r**	**l**	**r**	**l**	**r**	**l**	**r**	**l**	**r**	**l**
Gr.1												
Gr.2												
Gr.3												
Gr.4												
Gr.5												
Gr.6 H1												
Gr.6 H2												
Gr.11												
Gr.12												
Gr.13												
Gr.14												
Gr.15												
Gr.16		461.00				442.00						
Gr.17												
Gr.20												
Gr.21												
Gr.22												
Gr.23												
Gr.24												
Gr.25												
Gr.26												
mean	**0**	**461.00**	**0**	**0**	**0**	**442.00**	**0**	**0**	**0**	**0**	**0**	**0**
ds	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
cv	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Tab. 12.6c Measurements (in mm) of femur, tibia, fibula, and patella, with mean values calculated for the whole sample.

	Tibia (continues)											
	tuberosity sagittal ør		**tuberosity transverse ø**		**medial sagittal ør**		**medial transverse ør**		**nutrient foramen sagittal ø**		**nutrient foramen transverse ø**	
ID	**r**	**l**	**r**	**l**	**r**	**l**	**r**	**l**	**r**	**l**	**r**	**l**
Gr.1 H1												
Gr.2 H1												
Gr.3 H1												
Gr.4 H1												
Gr.5												
Gr.6 H1					23.01		19.78		29.91		21.89	
Gr.6 H2												
Gr.11 H1												
Gr.12 H1		25.64		19.96		23.38		17.65				
Gr.13 H1												
Gr.14 H1												
Gr.15 H1												
Gr.16 H1					29.90	28.30	21.50	21.70	36.40	36.50	26.80	24.90
Gr.17 H1					25.91	26.44	21.12	21.33	28.73	28.98	23.42	23.05
Gr.20 H1												
Gr.21 H1												
Gr.22 H1												
Gr.23 H1												
Gr.24 H1												
Gr.25 H1												
Gr.26 H1												
mean	**0**	**25.64**	**0**	**19.96**	**25.31**	**25.38**	**20.55**	**19.58**	**31.24**	**32.74**	**23.50**	**23.98**
ds	**0**	**0.00**	**0**	**0.00**	**3.98**	**2.43**	**0.90**	**2.24**	**3.49**	**5.32**	**2.32**	**1.31**
cv	**0**	**0.00**	**0**	**0.00**	**15.72**	**9.56**	**4.37**	**11.42**	**11.16**	**16.24**	**9.85**	**5.46**

Tab. 12.6d Measurements (in mm) of femur, tibia, fibula, and patella, with mean values calculated for the whole sample.

	Fibula						Patella					
	max. length		medial max. ø		medial min. ø		max. height		max. breadth		max. thickness	
ID	**r**	**l**	**r**	**l**	**r**	**l**	**r**	**l**	**r**	**l**	**r**	**l**
Gr.1 H1												
Gr.2 H1												
Gr.3 H1												
Gr.4 H1												
Gr.5 H1												
Gr.6 H1												
Gr.6 H2												
Gr.11 H1												
Gr.12 H1			11.48	10.96	8.82	8.53	35.94		36.24		17.43	
Gr.13 H1												
Gr.14 H1												
Gr.15 H1												
Gr.16 H1												
Gr.17 H1							39.10		36.60		19.50	
Gr.20 H1												
Gr.21 H1												
Gr.22 H1												
Gr.23 H1												
Gr.24 H1												
Gr.25 H1												
Gr.26 H1												
mean	**0**	**0**	**11.48**	**10.96**	**8.82**	**8.53**	**36.99**	**0**	**36.36**	**0**	**18.12**	**0**
ds	**0**	**0**		**0**	**0**	**0**	**1.82**	**0**	**0.21**	**0**	**1.20**	**0**
cv	**0**	**0**		**0**	**0**	**0**	**4.93**	**0**	**0.57**	**0**	**6.60**	**0**

Tab. 12.6e Measurements (in mm) of femur, tibia, fibula, and patella, with mean values calculated for the whole sample.

	Astragalus						Talus					
	lenght		breadth		height		lenght		breadth		height	
ID	**r**	**l**	**r**	**l**	**r**	**l**	**r**	**l**	**r**	**l**	**r**	**l**
Gr.1 H1												
Gr.2 H1												
Gr.3 H1												
Gr.4 H1												
Gr.5 H1												
Gr.6 H1												
Gr.6 H2		55.45		28.40								
Gr.11 H1												
Gr.12 H1		50.51				24.11						
Gr.13 H1												
Gr.14 H1												
Gr.15 H1												
Gr.16 H1	62.50	61.66	44.18	41.10	28.40	28.93						
Gr.17 H1	55.65	53.14	38.86	35.03	21.19	23.47	71.29		31.50		35.34	
Gr.20 H1												
Gr.21 H1												
Gr.22 H1		48.90		37.50		23.30						
Gr.23 H1												
Gr.24 H1												
Gr.25 H1												
Gr.26 H1												
mean	**59.08**	**53.93**	**41.52**	**35.51**	**24.80**	**24.95**	**71.29**	**0**	**31.50**	**0**	**35.34**	**0**
sd	**4.84**	**4.99**	**3.76**	**5.35**	**5.10**	**2.67**	**0**	**0**	**0**	**0**	**0**	**0**
cv	**8.20**	**9.26**	**9.06**	**15.08**	**20.56**	**10.72**	**0**	**0**	**0**	**0**	**0**	**0**

Tab. 12.7 Measurements (in mm) of tarsal bones, with means calculated for the whole samples..

		I1							I2						
		M-D				B-L			M-D				B-L		
ID		sx	dx	x		sx	dx	x	sx	dx	x		sx	dx	x
Gr.3 H1	sup														
	inf														
Gr.6 H1	sup														
	inf	5.4	5.1	5.2			6.3		5.4	5.6	5.5		5.9	6.6	6.2
Gr.6 H2	sup														
	inf														
Gr.12 H1	sup	8.6				6.8			6.7	6.7	6.7		5.2	5.5	5.4
	inf	5.4	5.4	5.4		5.6	5.1	5.4	5.7	5.7	5.7		5.6	4.9	5.3
Gr.16 H1	sup														
	inf								5.5				7.3		
Gr.22 H1	sup	9.4	9.2	9.3		7.3	7.1	7.2	6.4	6.7	6.6		6.5	6.2	6.4
	inf	5.8				6.5			6.3	6.3	6.3		5.5	6.4	6.0

		C						
		M-D				B-L		
ID		sx	dx	x		sx	dx	x
Gr.3 H1	sup							
	inf							
Gr.6 H1	sup							
	inf		6.5	6.5			7.8	
Gr.6 H2	sup							
	inf		7.2	7.2			7.6	
Gr.12 H1	sup	7.1				7.7		
	inf	6.3	6.4			6.4	7.1	6.8
Gr.16 H1	sup	5.6		5.6		9.0		
	inf	6.3	6.8	6.5		7.9	7.3	7.6
Gr.22 H1	sup	7.2	7.3	7.3		8.1	7.9	8.0
	inf	6.5	6.6	6.6		7.8	7.4	7.6

Tab. 12.8a Mesio-distal (MD) and bucco-lingual (BL) dental crown diameters (anterior teeth, values in mm), with area values (x).

		P3						P4					
		M-D			B-L			M-D			B-L		
ID		**sx**	**dx**	**x**	**sx**	**dx**	**x**	**sx**	**dx**	**x**	**sx**	**dx**	**x**
Gr.3 H1	sup												
	inf												
Gr.6 H1	sup												
	inf	6.9	6.7	6.8	8.3	8.2	8.3	7.5	7.3	7.4	9.3	9.3	9.3
Gr.6 H2	sup												
	inf		7.0			8.1			7.2			9.2	
Gr.12 H1	sup	6.8			9.5				6.5			8.8	
	inf	6.4	6.6	6.5	7.9	7.7	7.8	7.0			7.5		
Gr.16 H1	sup	5.6	6.0	5.8									
	inf	6.0	7.0	6.5	6.3	7.7	7.0	6.1	7.0	6.6	8.4	8.0	8.2
Gr.22 H1	sup	6.4	6.4	6.4	9.0	9.5	9.3	6.4	6.2	6.3	8.9	9.6	9.3
	inf		7.2			7.5		6.5	7.3	6.9	8.2	8.2	8.2

		M1						M2					
		M-D			B-L			M-D			B-L		
ID		**sx**	**dx**	**x**	**sx**	**dx**	**x**	**sx**	**dx**	**x**	**sx**	**dx**	**x**
Gr.3	sup												
	inf		9.4			10.5							
Gr.6 H1	sup		9.9			11.9		10.2	9.8	10.0	12.6	13.2	12.9
	inf	10.0	10.1	10.0	11.5	10.8	11.1	10.0	11.0	10.5	11.1	11.0	11.1
Gr.6 H2	sup												
	inf							10.7	10.7	10.7	11.6	10.9	11.3
Gr.12 H1	sup	9.5	9.4	9.5	10.3	11.6	10.9	8.7	8.1	8.4	9.5	10.6	10.1
	inf	9.6	9.1	9.4	9.7	9.9	9.8	9.9	9.6	9.8	9.2	9.3	9.3
Gr.16 H1	sup												
	inf	10.2	10.0	10.1	10.9	11.1	11.0	9.8	9.8	9.8	9.9	10.2	10.0
Gr.22 H1	sup	10.1	9.6	9.9	10.7	11.1	10.9	9.6	9.1	9.4	11.5	11.2	11.4
	inf	10.2	10.6	10.4	9.9	9.9	9.9	10.3	10.9	10.6	9.8	9.9	9.9

		M3					
		M-D			B-L		
ID		**sx**	**dx**	**x**	**sx**	**dx**	**x**
Gr.3 H1	sup						
	inf						
Gr.6 H1	sup						
	inf	10.2	10.4	10.3	9.9	10.7	10.3
Gr.6 H2	sup						
	inf						
Gr.12 H1	sup	8.3			9.3		
	inf		8.3			8.4	
Gr.16 H1	sup						
	inf		10.5			10.4	
Gr.22 H1	sup						
	inf						

Tab. 12.8b Mesio-distal (MD) and bucco-lingual (BL) dental crown diameters (posterior teeth, values in mm) with area values (x).

CHAPTER 13

FAUNAL REMAINS

CHAPTER 13
FAUNAL REMAINS

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13.0 General Introduction

The excavations carried out in Area 1 at Abu Tbeirah yielded a faunal assemblage of 1834 specimens: 622 from the Cemetery and Latest Activities and 1212 from phase 1 of Building A, including the sub-pavement graves identified inside and outside it.

The preservation state of the assemblage is not optimal and the high degree of fragmentation was increased by the presence of salts whose crystals, growing within the microfractures already present on the bones and teeth, further damaged the materials.

All the specimens, including unidentifiable ones, were inspected for detecting human, animal and other natural modifications. However, the presence of incrustations on many bones limited the observation of traces that could were present on the surfaces.

The positive identification of burning traces was very complex because it has been recently assessed (E. Peverati, *pers. comm.*) that many of the apparently burnt specimens were instead stained by manganese.

The fragmentation of the assemblage resulted in a high number of unidentifiable remains in addition to specimens which could only be attributed to more general size categories (*e.g.*, medium mammal, large mammal). In this research "medium mammal" would comprise sheep, goat, pig, dog, and animals of similar size, while equids, cattle and other large ungulates are considered "large mammal".

The age of domestic species was calculated on the basis of archaeozoological literature[1].

13.1 Area 1 Cemetery and Latest Activities

13.1.1 Introduction

A total of 622 faunal specimens were collected during the excavations of the Cemetery and the Latest Activities of Area 1. The distribution in the different types of contexts (Fig. 13.1) and even within the Cemetery is very variable (Fig. 13.2).

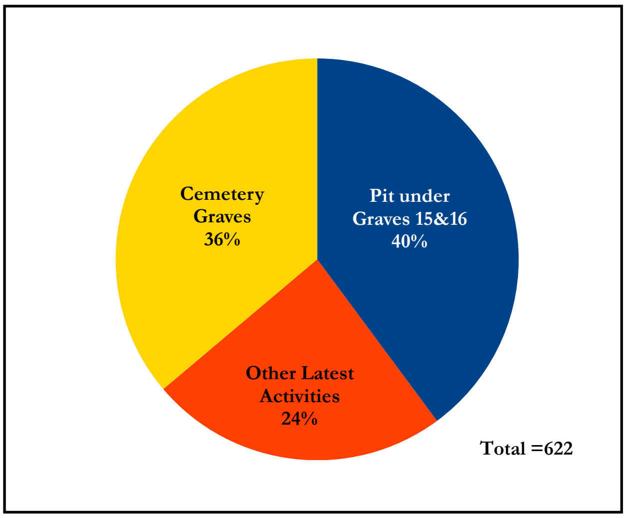

Fig. 13.1 Distribution of faunal remains in the different contexts of Area 1 Cemetery and Latest Activities.

[1] Silver 1969; Payne 1973; Barone 1981; Bull - Payne 1982; Grigson 1982; Barone 1995.

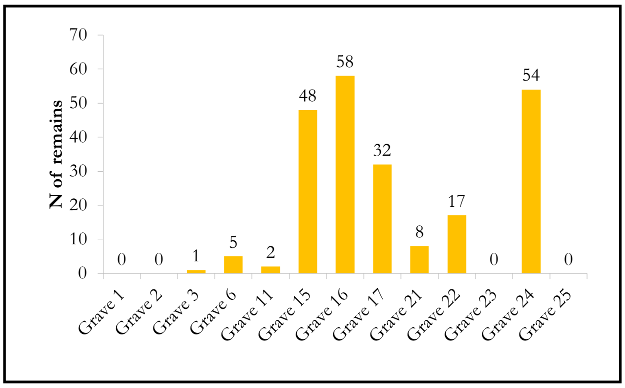

Fig. 13.2 Distribution of faunal remains within the Graves of the Cemetery.

13.1.2 Grave 1

No animal remains were associated to Grave 1.

13.1.3 Grave 2

No animal remains were associated to Grave 2.

13.1.4 Grave 3

Grave 3 yielded a single long bone shaft fragment of a medium mammal, but it is not possible to assess if it represents the only preserved part of the original faunal content of the grave (*e.g.*, offering) or if it just an accidental inclusion within the burial fill.

13.1.5 Grave 6

Although in Grave 6 there were two human individuals buried, the faunal assemblage includes just 5 specimens: a valve of *Unio tigridis* (a freshwater bivalve), the humerus portion of an ovicaprine, a vertebra fragment assigned to a medium mammal, an axial portion of a large ungulate, and finally an indeterminate fragment. Besides two burnt specimens there are no other modifications produced by humans or natural agents.

13.1.6 Grave 11

Only two animal remains were collected in Grave 11: a 1-2 years old ovicaprine upper molar and an unidentifiable fragment. No modifications were identified in this sample.

13.1.7 Grave 15

Grave 15 yielded an assemblage of 48 faunal remains (Tab. 13.1). There are three specimens each for *Unio tigridis* (a freshwater bivalve) and Cardiidae (marine bivalves). A radius shaft fragment of a very young equid, less than three months old, was identified. A tooth fragment and a distal tibia portion were assigned to ovicaprines, while eight specimens belonged to a minimum of two individuals of *Sus domesticus:* one 18-30 months old, the other 6-12 months, the remains of this latter animal were recovered close to the original position of the head of the deceased and were burnt. Three specimens were attributed to large ungulate, while the remaining 28 fragments were completely unidentifiable.

Species	**Grave 15**
	NISP
Marine Bivalvia	3
Freshwater Bivalvia	3
Equus sp.	1
Sus domesticus	8
Ovis vel Capra	2
Large mammal	3
Unidentifiable	28
Total	**48**

Tab. 13.1 Faunal assemblage of Grave 15 (NISP= Number of Identified Specimens).

13.1.8 Grave 16

The excavation of Grave 16 provided a faunal assemblage of 58 elements (Tab. 13.2). Aquatic resources are represented by both marine and freshwater molluscs as well as few fish bones. Eight elements belong to the pig and are referable to a minimum of one 19-23 months old individual. A third metatarsal and an unfused calcaneum were attributed to a single wild boar less than 30 months old whose estimated withers height was over 90 cm; a proximal rib portion was referred to the same *taxon* on the basis of size. The seven ovicaprine remains include a minimum of 3 radii attributable to two different individuals, one of them over 60 months old. Eight specimens could be assigned only to medium mammal, and because of fragmentation the remaining pieces could not be identified.

Among the remains, a fish spine and a medium mammal rib portion were recovered inside a jar (AbT.13.195.3), while a *Unio* shell was found in a beaker (AbT.13.195.12). No butchery marks were detected on this sample, but a pig scapula had been gnawed by a carnivore. Five specimens are burned.

Species	**Grave 16**
	NISP
Marine Gastropoda	1
Marine Bivalvia	1
Freshwater Bivalvia	1
Pisces	2
Sus scrofa	3
Sus domesticus	8
Ovis vel Capra	7
Large mammal	8
Unidentifiable	27
Total	**58**

Tab. 13.2 Faunal assemblage of Grave 16 (NISP= Number of Identified Specimens).

13.1.9 Grave 17

The sample from Grave 17 includes 32 fragments (Tab. 13.3). Molluscs are represented by two Cardiidae shells belonging to two different individuals and a small fragment of *Unio tigridis*. Among the mammals there are a tooth enamel splinter of an ovicaprine and a pig astragalus; the latter displays disarticulation cut marks and burning. Four long bone shaft fragments, two of them calcined, were assigned to medium sized mammals. The last 24 pieces were completely unidentifiable.

Species	**Grave 17**
	NISP
Marine Bivalvia	2
Freshwater Bivalvia	1
Sus domesticus	1
Ovis vel Capra	1
Medium mammal	4
Unidentifiable	23
Total	**32**

Tab. 13.3 Faunal assemblage of Grave 17 (NISP= Number of Identified Specimens).

13.1.10 Grave 21

In the fill of Grave 21 there are 8 specimens all belonging to *Ovis vel Capra*. Although the sample is very fragmented there are a minimum of two radii, one humerus and two carpal bones all from the right side suggesting that selected skeletal elements were deposited in the grave, some of them possibly still articulated. Such specimens belong to at least two adult animals over 40-60 months old. No bone modifications were detected on this small assemblage.

13.1.11 Grave 22

Grave 22 yielded 17 fragments (Tab. 13.4). Ovicaprines are the only identified mammal *taxon*, represented by a proximal right radius, two teeth fragments and a vertebral portion. Other four pieces could only be assigned by size to medium mammal. Molluscs are relatively common and include both freshwater species (*Unio tigridis*) and marine bivalves (one of them possibly an Ostreidae); finally there is one small marine gastropod with no alimentary value which may just represent an intrusive element. One of the *Unio* shell fragments is calcined. No butchery or carnivore marks were identified.

Species	**Grave 22**
	NISP
Small Gastropoda	1
Marine Bivalvia	2
Freshwater Bivalvia	6
Ovis vel Capra	4
Medium mammal	4
Total	**17**

Tab. 13.4 Faunal assemblage of Grave 22 (NISP= Number of Identified Specimens).

13.1.12 Grave 23

No animal remains were associated to Grave 23.

13.1.13 Grave 24

A total of 54 items were recovered in association with Grave 24 (Tab. 13.5). Aquatic *taxa* are the most frequent and include fish, one of them possibly a Cyprinid, freshwater as well as marine molluscs; the latter, a Cardiidae, probably represent a "cosmetic shell" similar to the one exposed in Grave 12. Among the mammals there is a single Equid carpal bone, three ovicaprine elements (a tooth fragment belonging to a 2-6 years old individual, a radius shaft fragment, and a second phalanx) and two pig specimens (a tooth and an astragalus). Three fragments could be assigned only to medium sized animals and one of them shows eburnation on the epiphisis. All the rest of the specimens were completely unidentifiable. Four of the fish specimens, the ovicaprine phalanx, and three of the indeterminable fragments were burnt; no other human or natural modifications were detected on this sample.

Species	Grave 24 NISP
Marine Bivalvia	2
Freshwater Bivalvia	4
Pisces	12
Equus sp.	1
Sus domesticus	2
Ovis vel Capra	3
Medium mammal	3
Unidentifiable	27
Total	**54**

Tab. 13.5 Faunal assemblage of Grave 24 (NISP= Number of Identified Specimens).

13.1.14 Grave 25

No animal remains were associated to Grave 25.

13.1.15 Pit Under Graves 15 and 16 (MdXIII5+6+MeXIII5)

A large faunal assemblage of 248 specimens was collected from US 221 and US 242 representing the fill of a huge pit underneath Graves 15 and 16 (Tab. 13.6).

Among the molluscs, both marine (Cardiidae and Ostreidae) and freshwater (*Unio tigridis*) bivalvia are present. Fish remains are relatively abundant and the few identifiable ones belong to Cyprinidae. Although thirteen equid bones were recovered they probably all belong to a single individual (Fig. 13.3) whose skeletal elements were found in some cases still articulated or in close anatomical position (Fig. 13.4). The withers height of the animal was about 119.4 cm. The metatarsals show disarticulation cut marks close to the proximal epiphysis, while nine of these specimens show evidence of carnivore gnawing.

Wild boar is represented by two specimens: a scapula portion and a pelvis fragment with the ischial tuberosity just fused, referable to a 6-7 years old animal. The thirteen *Sus domesticus* elements belong to a minimum of two individuals: a very young one between 4 and 6 months old and an adult 31-35 months old, the latter is male. Ovicaprines include a total of 42 specimens including two sheep and one goat remains; a minimum of 3 individuals have been identified: one was a young adult between 1 and 2 years, another was a 3-6 years old adult, and the latter was senile 6-8 years old. One ovicaprine humerus shows cut marks on the distal epiphysis. There are only four cattle elements likely belonging to a juvenile animal. Twenty-five elements could be assigned only by size to medium mammal, among them there is the tip of a bone awl probably worked by abrasion and a long bone shaft fragment with a shiny polish deriving from manufacture and/or use. A single axial fragment was assigned to an unspecifiable large mammal, likely cattle or equid in our case; the specimen displayed a cut mark. The remaining 110 fragments were completely unidentifiable.

Species	Under Graves 15 and 16 (US 221 and US 242) NISP
Marine Bivalvia	2
Freshwater Bivalvia	6
Pisces	30
Equus sp.	13
Sus scrofa	2
Sus domesticus	13
Capra hircus	1
Ovis aries	2
Ovis vel Capra	39
Bos taurus	4
Medium mammal	25
Large mammal	1
Unidentifiable	110
Total	**248**

Tab. 13.6 Faunal assemblage of the pit under Graves 15 and 16 (NISP= Number of Identified Specimens).

Besides the animal remains few human bones were also recovered, some of them surely do not belong to the burials above (Graves 15 and 16), suggesting the possibility of the presence of at least another interment disturbed by the later ones.

13.1.16 Mc-f XIII 1-4

The three hearths in US 22 yielded 24 fragments, most of them could not be identified with the exception of a pig maxillary portion without teeth, an ovicaprine enamel splinter and a medium mammal long bone shaft fragment (Tab. 13.7). As expected from the context, almost all the specimens are burnt.

In the horizontal layer US 4 there were 53 animal remains (Tab. 13.7). Both marine and fresh-water molluscs are present and together with fish remains indicate the exploitation of aquatic resources. Five pig elements indicate a minimum of one individual less than 12 months old; the calcaneum shows cut marks. The same number of specimens was attributed to a generic adult ovicaprine. The three cattle remains suggest the presence of at least two animals: one younger and one older than 24-30 months. Three fragments were referred to medium mammal, while the remaining 27 pieces could not be identified.

The fill of a large pit (US 84=397) contained 7 faunal specimens (Tab. 13.7). Molluscs are represented by one *Unio tigridis* (a freshwater species) and by two marine gastropods. The shell fragment of one of the latter *taxon* is very thick (ca. 7 mm) compared to other similar pieces and may represent a working debris. The only identified mammal is pig with a humerus and a toothless maxilla belonging to a single unspecified adult animal. An axial fragment and a lumbar vertebra portion could be assigned by size to medium mammal; both specimens are burnt and the vertebra shows also cut marks on the transverse process. No animal nor other natural modifications were detected on this small assemblage.

13.1.17 MdXIII6+MeXIII5+6

Several pits were identified in squares MdXIII6+MeXIII5+6, over Room 10 of Building A. The fill of two of them yielded some faunal remains (Tab. 13.8).

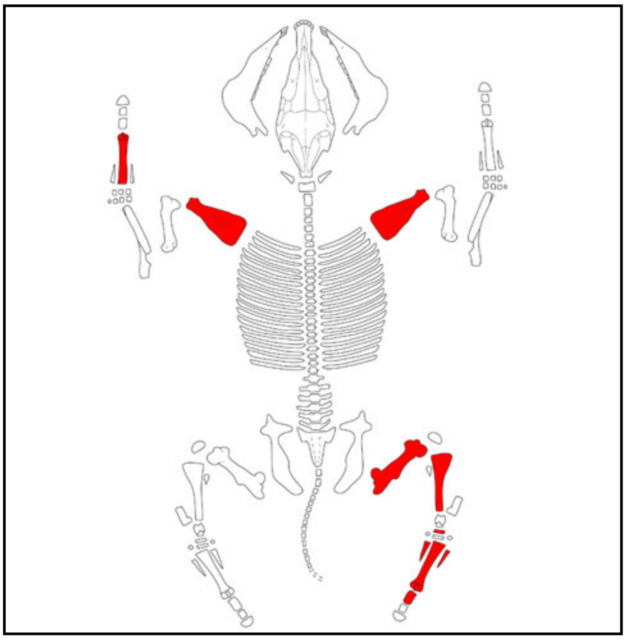

Fig. 13.3 Equid skeletal elments recovered (red).

Fig. 13.4 Partially articulated equid bones during the excavation.

Species	Mc-f XIII 1-4		
	US 4	US 22	US 84=397
	NISP	NISP	NISP
Marine Gastropoda			**2**
Marine Bivalvia	2		
Freshwater Bivalvia	2		1
Pisces	6		
Sus domesticus	5	1	2
Ovis vel Capra	5	1	
Bos taurus	3		
Medium mammal	3	1	2
Unidentifiable	27	21	
Total	**53**	**24**	**7**

Tab. 13.7 Faunal assemblage from Mc-f XIII 1-3 (NISP= Number of Identified Specimens).

Species	MdXIII6+MeXIII5+6	
	US240	US294
	NISP	NISP
Freshwater Bivalvia	1	
Sus domesticus		1
Ovis vel Capra	9	
Bos taurus	1	
Medium mammal	2	
Large mammal	1	
Unidentifiable	7	
Total	**21**	**1**

Tab. 13.8 Faunal assemblage from MdXIII6+MeXIII5+6 (NISP= Number of Identified Specimens).

In US 240 there were 21 fragments; ovicaprines are the most frequent taxon with 9 specimens belonging to a minimum of two individuals: one was between 1 and 3 years of age, while the other was 4-6 years old. Cattle is the only other identified mammal species with a single calcaneum that shows signs of carnivore gnawing. The only mollusc recovered is *Unio tigridis*. Two specimens were attributed to medium mammal, while one was referred to a large one. It was not possible to identify the remaining 7 fragments.

US 294 yielded just one pig cranial fragment.

13.1.18 Mb-dXIII6-7

In squares Mb-dXIII6-7 a soil heap (US 253) provided a small faunal assemblage with two *Sus domesticus* head fragments referable to a juvenile individual and four unidentifiable fragments (Tab. 13.9).

In another heap of the same area (US 268) there were 30 animal remains (Tab. 13.9). Six elements belonged to a minimum of one ovicaprine between 30 and 40 months old. A single rib portion with cut marks was attributed to a pig. A *Conus*-like gastropod and a *Unio tigridis* represent exploited molluscs, while a smaller gastropod is probably intrusive. Nine items were attributed on the basis of size to medium mammal and eleven pieces were so fragmented that could not be identified.

Seven faunal specimens (Tab. 13.9) were collected in the fill of a pit (US 336); they include a single fish bone, five ovicaprine teeth all belonging to a 4-6 years old individual and one completely unidentifiable fragment. No human, animal or natural modifications were identified on this assemblage.

13.1.19 Discussion - Cemetery and Latest Activities

Considering only the identified species, the range of *taxa* is similar among the three types of contexts (Fig. 13.5); the only exceptions is cattle recovered just in the pit under Graves 15 and 16 and in the other late activities, and the equid and wild boar that are present only in the Cemetery and in the pits; this may be a further support, beside the actual presence of scattered human bones, that the latter too may represent, at least in part a disturbed grave.

Species	Mb-dXIII6-7		
	US 253	US 268	US 336
	NISP	NISP	NISP
Small Gastropoda		1	
Marine Gastropoda		1	
Freshwater Bivalvia		1	
Pisces			1
Sus domesticus	2	1	
Ovis vel Capra		6	5
Medium mammal		9	
Unidentifiable	4	11	1
Total	**6**	**30**	**7**

Tab. 13.9 Faunal assemblage from Mb-dXIII6-7 (NISP= Number of Identified Specimens).

The faunal data from the Cemetery seem to suggest also that some skeletal elements may have been relevant in the funerary rituals, in particular the radius that is present for the very young equid of Grave 15 and "over-represented" for the ovicaprines in Graves 16 and 21; in the latter case also the side (right) was probably important.

13.2 Area 1 Building A - Phase 1

13.2.1 Introduction

The faunal remains from the first Phase of Building A include a total of 1212 specimens: 686 from the

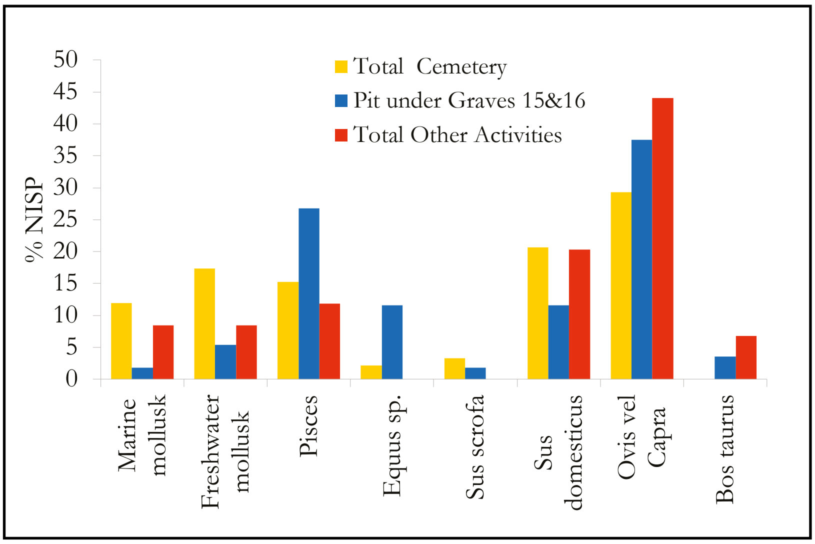

Fig. 13.5 Proportions among *taxa* in the different contexts of Area 1 Cemetery and other Activities. (NISP= Number of Identified Specimens).

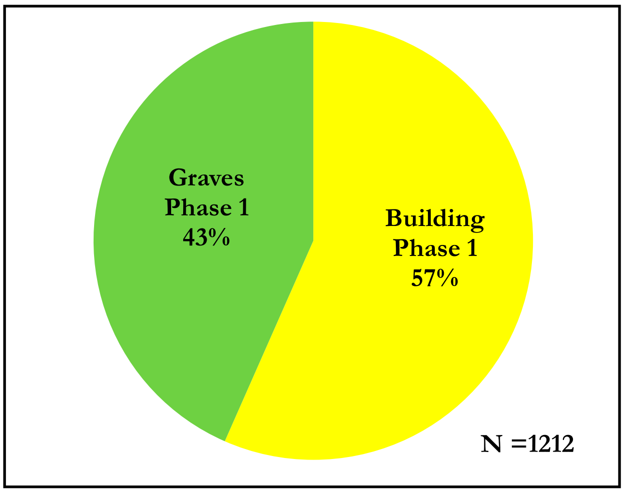

Fig. 13.6 Distribution of faunal remains in the different contexts of Area 1 during Phase 1.

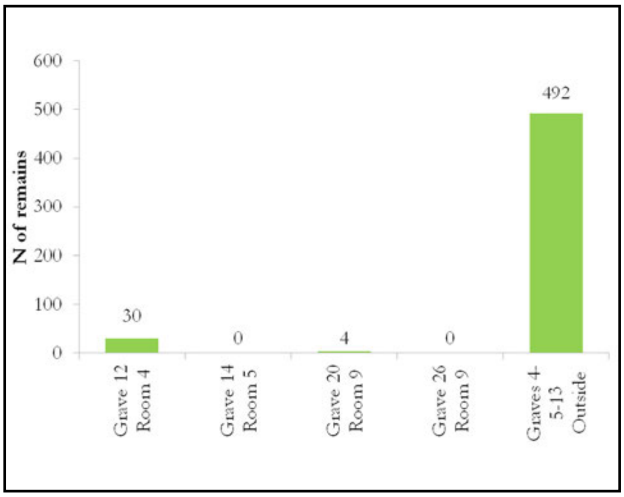

Fig. 13.7 Distribution of faunal remains in the different graves during Phase 1.

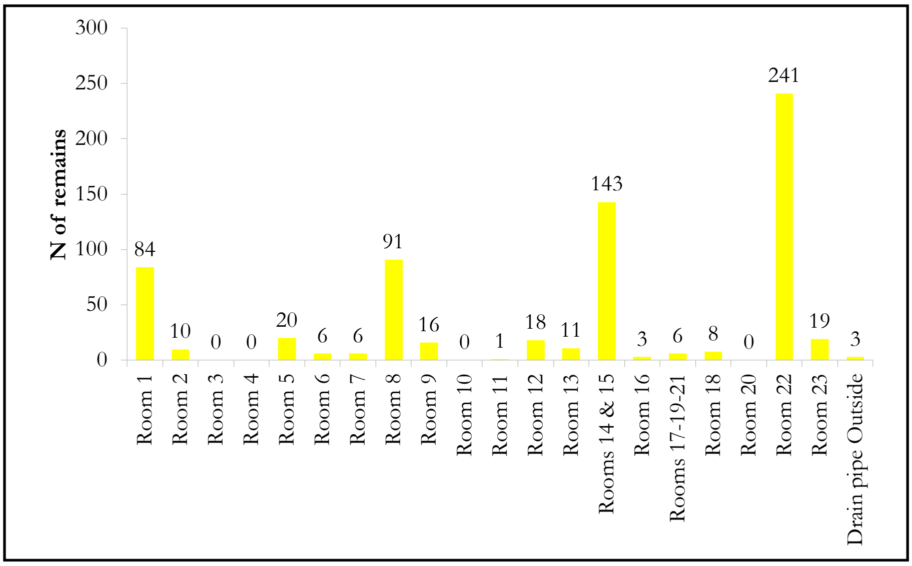

Fig. 13.8 Distribution of faunal remains in the different rooms of Building A during Phase 1. Excluding the sub-pavement graves identified inside and outside the Building.

occupation layers and 526 associated to some of the graves identified under the floor (Fig. 13.6). In the latter sub-sample most of the specimens were recovered outside the Building (Fig. 13.7). The distribution of the faunal assemblage within the different rooms is variable (Fig. 13.8). As in the case of the material from the Cemetery and other Activities the assemblage from the first phase of Building A is highly fragmented.

13.2.2 Room 1

The faunal assemblage collected in Room 1 was all recovered from US 53 and includes a total of 84 remains (Tab 13.10). Most of the specimens (NISP 79) were found underneath an upside-down large dish (AbT.12.53.17) and possibly belong to a single fish (Fig. 13.9), not yet identified to species level. The dark colour of such fish bones is very likely not related to burning/cooking because only the outer surface of the specimens is black while the inside of the of the bones is not affected; furthermore, with such degree of combustion the meat would have been inedible. This room yielded also three mollusc remains: two valves of *Unio tigridis* (a freshwater species) and a portion of a marine gastropod. The last two elements are unidentifiable mammal bone fragments.

Species	Room 1 US 53 NISP
Marine Gastropoda	1
Freshwater Bivalvia	2
Pisces	79
Unidentifiable	2
Total	**84**

Tab. 13.10 Faunal assemblage from Room 1 (NISP= Number of Identified Specimens).

Fig. 13.9 Dish AbT.12.53.17 with fish remains inside.

Species	Rooom 2			
	US 51 NISP	US 52 NISP	US 54 NISP	Total Room 2 NISP
Marine Bivalvia	1			1
Freshwater Bivalvia		1		1
Sus domesticus		2		2
Capra hircus		1		1
Ovis vel Capra		1	1	2
Medium mammal		2		2
Large mammal			1	1
Total	**1**	**7**	**2**	**10**

Tab. 13.11 Faunal assemblage from Room 2 (NISP= Number of Identified Specimens).

13.2.3 Room 2

Room 2 yielded 10 remains (Tab. 13.11) from different stratigraphic units (US 51, US 52, US 54). Two specimens belong to molluscs: one of them is a marine bivalve (Cardiidae), the other is the freshwater species *Unio tigridis*. The pig is documented by two elements belonging to a minimum of two individuals: one about 6-12 months old and the second somewhat older. One of the pig specimens appears slightly burnt. Three bones, a pelvis, a radius, and a first phalanx, were attributed to ovicaprines, the latter one is of a goat, and the pelvis is burnt; a minimum of one "adult" individual is attested. The other three specimens could be only referred by size to medium (2 specimens) and large mammal (1 fragment); all such specimens are burnt.

13.2.4 Room 3

No animal bones were recovered in Room 3.

13.2.5 Room 4

The 30 animal remains recovered in Room 4 were all associated with Grave 12 (US144) and probably represent grave goods (Tab. 13.12). Most of the identified specimens are bivalves (NISP=12) with both freshwater (*Unio tigridis*) and marine species (Cardiidae); the latter include a "cosmetic shell".[2] A further small marine mollusc, a gastropod, may represent just a residue from the bedrock or an element accidentally introduced (*e.g.*, with seaweeds). Of the two pig remains, a tibia belonging to a very young animal was found inside an upside-down vessel (AbT.13.144.8), the second specimen, a phalanx, was attributed to another older individual. The two ovicaprine remains too belonged to different individuals: one 2-3 years old and the other over 40 months old. Three fragmented specimens could be only referred to medium mammal, likely either ovicaprine or pig considering our assemblage, while the remaining ten bones where too damaged to be identified. No butchering marks have been detected on this sample, but almost half of the specimens are burnt.

[2] Two valves containing a "cosmetic" paste. A similar finding occurred also in Grave 24 of the Cemetery.

Species	**Room 4**
	US 144 (Grave 12)
	NISP
Marine Gastropoda	1
Marine Bivalvia	7
Freshwater Bivalvia	5
Sus domesticus	2
Ovis vel Capra	2
Medium mammal	3
Unidentifiable	10
Total	**30**

Tab. 13.12 Faunal assemblage from Room 4 (NISP= Number of Identified Specimens).

13.2.6 Room 5

Twenty specimens were collected from the fill of Room 5 (US 169) (Tab. 13.13). In this case too molluscs are frequent with fragments of both freshwater bivalves (*Unio tigridis*) (NISP=8) and marine gastropods (NISP=2). A fish opercular shows a polish on one of the edges and may have been used as a tool. The only mammal identified to species is pig represented by a single fragment of unfused lateral metepodial indicating an individual less than 2 years old. Two other bones, a rib and a pelvis fragment, could only be attributed by size to a medium mammal. The latter six specimens could not be identified, but all of them are burnt.

No animal remains were recovered in association with Grave 14 excavated under the floor of this room.

Species	**Room 5**
	US 169
	NISP
Marine Gastropoda	2
Freshwater Bivalvia	8
Pisces	1
Sus domesticus	1
Medium mammal	2
Unidentifiable	6
Total	**20**

Tab. 13.13 Faunal assemblage from Room 5 (NISP= Number of Identified Specimens).

13.2.7 Room 6

Room 6 yielded only 6 remains. There are four molluscs belonging to marine and freshwater *taxa* and include *Unio tigridis*, Cardiidae, Ostreidae, and a gastropod. A pterygiophore (fin bone) of a fish appears slightly burned and polished and, for it shape, may have been used as a pointed tool without preliminary modification. A similar item was recovered in association with the Graves 4-5-13 outside the Building. Finally a single ovicaprine distal tibia indicates the presence of an individual older than 2-3 years.

Species	Room 8			
	US 254	US 256	US 259	Total Room 8
	NISP	NISP	NISP	NISP
Freshwater Bivalvia		3		3
Sus domesticus	18	4	7	29
Ovis vel Capra	6	6	1	13
Bos taurus	1			1
Medium mammal	3	1		4
Unidentifiable	20	20	1	41
Total	**48**	**34**	**9**	**91**

Tab. 13.14 Faunal assemblage from Room 8 (NISP= Number of Identified Specimens).

13.2.8 Room 7

The fill of Room 7 was heavily disturbed by later activities (see § 8.7), therefore several layers initially identified inside this room have not been considered reliable. The faunal remains from more sure contexts were collected in a tannur (US 178): three lower molars of a single 2-3 years old ovicaprine. Three other specimens were recovered from US 194, a stratum of ashy soil, and include an ovicaprine tooth fragment and distal tibia as well as an unidentified medium mammal long bone shaft portion. No human or natural modifications were detected on these specimens.

13.2.9 Room 8

There are 91 animal remains in Room 8 (Tab. 13.14), collected from different stratigraphic units (US 254, US 256, US 259); over 45% of the specimens are completely unidentifiable. Only 3 freshwater bivalvia (*Unio tigridis)* were recovered in this context. Pig is represented by a total of 29 specimens belonging to a minimum of 3 individuals: one 31-35 months old female, a 24-30 months animal and a young pig about 1 year old. Thirteen specimens indicate the presence of 2 ovicaprines: one 4-6 years old and the other with an age of less than 2 years. Cattle is attested by a single vertebra fragment. No human modifications related to butchery were identified nor damage produced by animal gnawing. A single ovicaprine caudal vertebra is completely burnt.

13.2.10 Room 9

The faunal remains from Room 9 include a total of 20 specimens (Tab. 13.15): 16 from the fill (US 270) and only 4 from Grave 20 (US 275 and US 276). In the fill there are 2 valves of *Unio tigridis* possibly belonging to the same mollusc, a single cranial fragment of pig, and 5 ovicaprine specimens attributable to a minimum of 2 individuals: one is a very young animal and the other 40-42 months old; the sample is completed by 4 medium mammal bone fragments and 4 unidentifiable ones. In association with Grave 20 there are a fish vertebra, a *Unio* shell and 2 pig skull fragments probably referable to the same adult individual of indeterminate age. A sheep metatarsal from the fill displays disarticulation cut marks produced with a metal blade close to the proximal epiphysis. An ovicaprine metacarpal fragment is calcined. No other modifications were detected on this sample.

No animal remains were recovered in Grave 26 located in the western corner of this room.

13.2.11 Room 10

No animal bones were recovered in Room 10.

13.2.12 Room 11

Only a single *Unio tigridis* valve was recovered in the Room 11 (US 382). The shell presents an oval hole (12x9 mm) which could have been produced artificially.

Species	Room 9				
	US 270	US 275 (Grave 20)	US 276 (Grave 20)	Total Grave 20	Total Room 9
	NISP	NISP	NISP		NISP
Freshwater Bivalvia	2		1	1	3
Pisces		1		1	1
Sus domesticus	1		2	2	3
Ovis vel Capra	5				5
Medium mammal	4				4
Unidentifiable	4				4
Total	**16**	**1**	**3**	**4**	**20**

Tab. 13.15 Faunal assemblage from Room 9 (NISP= Number of Identified Specimens).

13.2.13 Room 12

Room 12 yielded 18 animal remains from the fill (US 331) (Tab. 13.16). Molluscs are represented by both fresh water species (*Unio tigridis*) and marine ones (Ostreidae and small gastropods); among the latter ones the small taxa are likely an accidental rather than intentional inclusion in the assemblage. The bone specimens could not be assigned to species, but only to medium sized mammals and include a fused cervical vertebra portion, a femur and three long bone shaft fragments. All the other remains are completely unidentifiable and two of them are burnt. No other human or animal modifications were detected on this sample.

Species	Room 12
	US 331
	NISP
Marine Gastropoda	2
Marine Bivalvia	1
Freshwater Bivalvia	2
Medium mammal	5
Unidentifiable	8
Total	**18**

Tab. 13.16 Faunal assemblage from Room 12. (NISP= Number of Identified Specimens).

13.2.14 Room 13

The 11 faunal remains from Room 13 come from the fill of the Room (Tab. 13.17). Aquatic species are represented by both molluscs (two U*nio tigridis*, and one small marine bivalve) and fish. Ovicaprines are the only identified mammal *taxon* with a single ulna portion belonging to a foetus/neonate. The remaining bones were attributed to medium mammal or were completely unidentifiable. None of the specimens displayed bone modifications.

Species	Room 13
	US 337
	NISP
Marine Bivalvia	1
Freshwater Bivalvia	2
Pisces	1
Ovis vel Capra	1
Medium mammal	2
Unidentifiable	4
Total	**11**

Tab. 13.17 Faunal assemblage from Room 13 (NISP= Number of Identified Specimens).

13.2.15 Room 14 and Room 15

The faunal assemblage from these two rooms separated only by a reed structure was actually found all in Room 14 (Tab. 13.18). A total of 143 specimens was recovered, most of them (NISP 132) are from US 338 that corresponds to the fill of the Room. In this layer aquatic species are represented by 9 *Unio tigridis* shell fragments and 7 fish specimens. The most frequent mammal *taxon* are ovicaprines with 12 items belonging to a minimum of 2 individuals, one of them probably a juvenile; many of the specimens are cervical vertebrae or vertebral fragments and an atlas portion displays a cut mark on the ventral surface,

Species	Rooms 14 and 15			
	US 338	US 340	US 486	Total Rooms 14 and 15
	NISP	NISP	NISP	NISP
Freshwater Bivalvia	9	1		10
Pisces	7			7
Sus domesticus	7			7
Gazella dorcas cf		6		6
Ovis vel Capra	12		1	13
Bos taurus	1			1
Medium mammal	6	3		9
Unidentifiable	90			90
Total	**132**	**10**	**1**	**143**

Tab. 13.18 Faunal assemblage from Rooms 14 and 15 (NISP= Number of Identified Specimens).

the other elements are two humeri, a radius and a pelvis fragment. The pig is represented by 7 remains (cranial and mandibular portions, a metatarsal and an ulna), attributable to a minimum of one individual less than 12 month old. A single molar fragment belongs to cattle. Six pieces could only be attributed to ribs and long bone shafts of medium sized mammals; finally most of the remains (NISP 90) are unidentifiable. Besides the already mentioned ovicaprine atlas no other element shows modifications produced during butchery. No animal gnaw marks were detected in the sample from US 338, while 4.5% of the specimens are burned.

Ten specimens were collected from US 340, the reed wall, most of them (NISP 6) belong to a single posterior limb (from femur to metatarsal) of a small gazelle, possibly *Gazella dorcas,* the elements are heavily calcined and distorted by the action of fire and show disarticulation marks on the head of the femur as if the leg was intentionally burnt and deposited in the structure; two medium mammal long bone shaft fragments probably part of the same limb were calcined, while a vertebra fragment was not touched by fire. The valve of *Unio tigridis* from this layer was also burnt.

A single bone, an atlas fragment of a small sized ovicaprine with slight traces of burning and animal gnawing, was recovered in a firing structure (US 486).

13.2.16 Room 16

There are only three animal remains in Room 16: a marine gastropod was recovered in US 358 and two pig teeth, belonging to a single 24-30 months old individual, were collected from US 376.

13.2.17 Rooms 17+19+21

Rooms 17+19+21 yielded only mollusc remains: four *Unio tigridis*, one Cardiidae, and a small marine gastropod; the latter likely not related to intentional human collection.

13.2.18 Room 18

Five animal remains were found in the fill of Room 18. Four of them were identified as pig and possibly belong to a single male individual 17-24 months old. The last specimen is a medium mammal long bone shaft fragment. No human or animal modifications were identified on this small assemblage.

13.2.19 Room 20

No animal bones were recovered in Room 20.

13.2.20 Room 22

A relatively large faunal assemblage was recovered in Room 22 (Tab. 13.19). However, most of the specimens belong to a single dog whose almost complete skeleton (US 405) was found in anatomical position. The animal (Fig. 13.10) was laying down on its left side with a north-east/ south-west orientation and facing north-east; the head and neck vertebrae are completely missing and the limbs are slightly flexed. The animal was about 2 years old and had a withers height between 52 and 55 cm. No bone modifications were detected on the dog skeleton and the black colour of many of the elements is not related to burning, but it is just manganese staining (E. Peverati, *pers. comm.*). Although a proper burial pit was not identified, this dog represents surely an intentional interment, whose deep meaning still needs to be understood.

Besides the dog other animal remains were found in the fill of the Room (US 394) and included two valves of *Unio tigridis*, four pig specimens belonging to a minimum of one adult individual of indeterminate age, eight ovicaprine elements referable to a minimum of 3 different animals (one 2-3 years old, one 3-4 years old, and the latter over 4-5 years old); there are also two medium mammal long bone diaphyses and 26 completely unidentifiable fragments. A pig rib fragment displays a cut mark, and several ovicaprine specimens appear burned.

Fig. 13.10 The dog skeleton in Room 22.

Species	Room 22		
	US 394	US 405	Total Room 22
	NISP	NISP	NISP
Freshwater Bivalvia	2		2
Canis familiaris	20	179	199
Sus domesticus	3	1	4
Ovis vel Capra	8		8
Medium mammal		2	2
Unidentifiable	12	14	26
Total	**45**	**196**	**241**

Tab. 13.19 Faunal assemblage from Room 22 (NISP= Number of Identified Specimens).

13.2.21 Room 23

Nineteen elements were recovered in the fill of Room 23 (Tab. 13.20); few of the specimens were found close to ceramic concentrations, but no apparent patterned distribution was identified. The exploitation of aquatic resources is indicated by a single *Unio* valve and three fish remains. One pig metatarsal and an ovicaprine phalanx represent the identified terrestrial *taxa*, while four other specimens could only be assigned to medium mammals. Nine bone fragments were completely unidentifiable. No butchery marks were detected on the remains from this room, but 63.2% of the specimens are burnt. The pig metatarsal was gnawed by rodents.

Species	Room 23
	US 395
	NISP
Freshwater Bivalvia	1
Pisces	3
Sus domesticus	1
Ovis vel Capra	1
Medium mammal	4
Unidentifiable	9
Total	**19**

Tab. 13.20 Faunal assemblage from Room 23 (NISP= Number of Identified Specimens).

13.2.22 Outside Building A North-Western Side

A large bone sample of 495 specimens was recovered outside Building A in the north-western side, but the situation is fairly complex due to the presence of three, probably contemporaneous, burials (Graves 4-5-13). Except for 3 remains: a pig skull fragment and the articulable radius and ulna of an ovicaprine, coming from the fill of a drain pipe (US 127), all the other elements are associated to the burials, both as grave offerings and debris of a funerary banquet. The latter interpretation is supported by archaeological evidence (see § 8.21) as well as by the large size of the assemblage in comparison to the other graves.

In the grave complex assemblage (Tab. 13.21) marine molluscs are represented by both Bivalvia and Gastropoda: the first *taxon* includes Ostreidae and Cardiidae, while in the second one there are some very small shells possibly accidentally accumulated and fragments of larger *Conus*-like or conch shells that may have been used as raw materials for the production of objects (*e.g.*, seals, rings). *Unio tigridis* represents the only fresh water species, but accounts for most of the mollusc

Species	Graves 4-5-13						
	US 43	US 163	US 166	US 134	US 152	Undefined US	Total Graves 4-5-13
	NISP	NISP	NISP	NISP	NISP	NISP	NISP
Marine Gastropoda		2		1		7	10
Marine Bivalvia		2		1	1	2	6
Freshwater Bivalvia		4		45	2	6	57
Pisces	1	5	3		1	7	17
Micromammal					1	0	1
Equus sp.		1				1	2
Sus domesticus	1	24	3	2	14	22	66
Ovis aries		1	1			2	4
Ovis vel Capra		31	5	5	7	16	64
Bos taurus		2				0	2
Medium mammal		10	7	1	14	11	43
Large mammal		2				0	2
Unidentifiable		104	25		58	31	218
Total	**2**	**188**	**44**	**55**	**98**	**105**	**492**

Tab. 13.21 Faunal assemblage from Graves 4-5-13 (NISP= Number of Identified Specimens).

sample. There are 17 fish bones: two of them are from a jar associated with Grave 13 and another is a possible bone pointed tool similar to the one recovered in Room 6. A skull portion of a micromammal, possibly a small rodent, is probably intrusive, resulting from natural accumulation. Equids are represented only by an upper tooth and a radius proximal fragment referable to a single adult individual; given the fragmentary nature of the specimens the exact species could not be ascertained and aDNA analyses evidenced that both domestic donkey and hemione were surely present at the site.[3] There are 66 pig remains belonging to a minimum of 9 individuals: three are between 7 and 11 months old, one of them male, another male is 19-23 months old, two are about 24-30 months, and the latter three are 31-35 months old; no females have been surely identified. More than half of the pig remains belong to head portions, but elements referable to all other body parts, except vertebrae, are also present. Ovicaprines are represented by 68 specimens, including 4 sheep remains; two of them, both metatarsals, allowed to assess a withers height of about 63.5 cm in one case and 68 cm in the other. The *Ovis vel Capra* sample could be attributed to at least 6 individuals spanning all ages between 6-12 months and 6-8 years old. In this case too head portions, especially loose teeth, are prevalent and, among the other skeletal elements, the femur and the ribs are missing. Only two cut marks were identified on an atlas and on a cervical vertebra. Cattle is present with only two specimens, a tibia and a femur head, referable to a single individual about 3 years old. As expected from the identified *taxa*, medium mammal remains are markedly prevalent over large mammal ones; the remaining 218 fragments were completely unidentifiable. The only butchery marks were those, already mentioned. Carnivore gnaw marks were detected only on a sheep metacarpal and on a pig humerus. Burning affects 13.2% of the specimens, but in most cases contact with heat was not very intense.

13.2.23 Discussion - Building A - Phase 1

The animal samples associated with the Graves identified under the floor inside and outside the Building have very different sizes (NISP 30 inside vs. 492 outside) therefore differences may only be apparent and comparisons should be taken with caution (Fig. 13.11).

Except for *Equus* and cattle that were recovered only outside, the range of species is very similar although proportions among *taxa* differ. Marine

[3] Gabbianelli *et al.* 2015.

molluscs are prevalent over freshwater ones in the graves inside the building, while the opposite is true outside, but this may be related to the presence of several Cardiidae, including a "cosmetic shell" associated to the woman in Grave 12.

Comparing the faunal assemblage from the living contexts of Phase 1 of Building A with the animal remains associated to the Graves inside and outside the building (bearing in mind that the data from the Graves reflect mainly the situation outside the building), it is possible to observe peaks (Fig. 13.12) in the Building for *Canis familiaris* because of the interment in Room 22 and for fish in Room 1 because of the findings inside the large dish (AbT.12.53.17).

If we remove completely the dog elements and reduce the number of fish remains from Room 1 the two samples are almost identical (Fig. 13.13), except for the presence of few Equid specimens only in the Graves and some gazelle bones in Rooms 14 and 15 of the building.

13.3 Conclusion - Faunal Remains from Area 1

In general the faunal composition does not show particular differences in the use of the main species in daily life, as evidenced by the remains found in Building A, and in funerary rituals both in the sub-pavement burials of Phase 1 of the building and in the Cemetery (Fig. 13.14).

The only possible exceptions are Equids and wild boar that were recovered only in burial contexts, the gazelle found only in the building and cattle that was not identified in the Cemetery.

The dog skeleton (not reported in the graph of Fig. 13.14) is the only finding of this species in Area 1 of the site; other rare examples have been recovered so far from two burials in Area 2.

The discovery of *Sus scrofa* in Grave 16 may be related to the characteristics of the deceased who was an adult robust male, possibly hinting at its hunting abilities. Also the abundance of shells in Grave 12 may be referred to the personality of the inhumated, a female in this case, as also documented in female burials at other sites.[4]

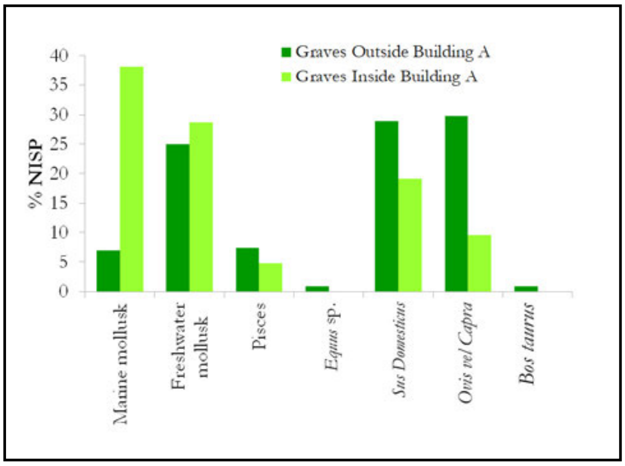

Fig. 13.11 Proportions among the *taxa* identified in the graves inside and outside Building A (NISP= Number of Identified Specimens).

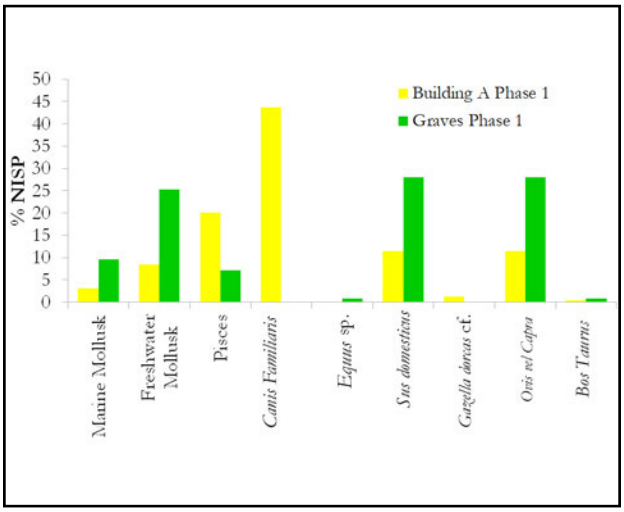

Fig. 13.12 Proportions among the taxa of the living contexts of Building A and of the graves of Phase 1 (NISP= Number of Identified Specimens).

The general scarcity of cattle could partially be explained by the type of environment around the site that was much more rich in water compared to the present day and probably not suitable for large scale agriculture for which this animal would have been needed, or if, in contrast, this *taxon* was mainly employed for traction and transport it was not used as food and therefore was not discarded together with the alimentary debris.

The analogous abundance of ovicaprines and pigs in all the typologies of contexts may seem an anomaly considering the low frequencies, especially in some periods, of textual and iconographic evidences about pigs compared

[4] *E.g.*, Abu Salabikh, Martin *et al.* 1985.

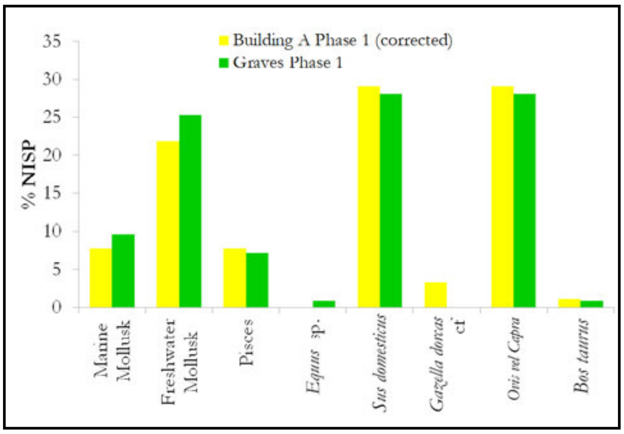

Fig. 13.13 "Corrected" proportions among the *taxa* of the living contexts of Building A and of the graves of Phase 1 (NISP= Number of Identified Specimens).

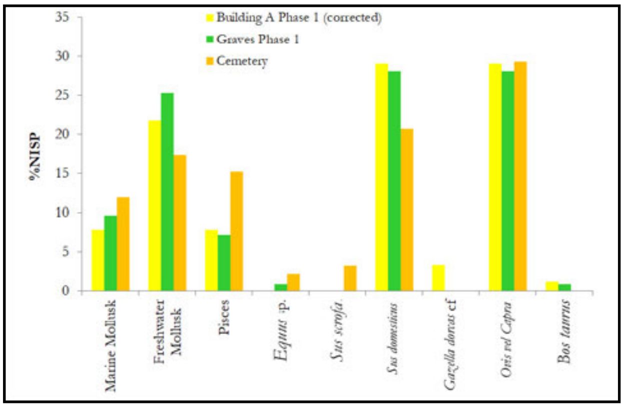

Fig. 13.14 "Corrected" proportions among the *taxa* of the living contexts of Building A and of the graves of Phase 1 and of the Cemetery. (NISP= Number of Identified Specimens).

to sheep and goat,[5] but such anomaly could be explained by the fact that swine herding was probably done at family level[6] and did not need registration in official documents. Furthermore, these animals were probably fed with leftovers from human activities within the city boundaries[7] as also possibly supported by the small size of Sumerian pigs noted not only at Abu Tbeirah, but also at other settlements;[8] such type of herding in fact does not allow cross-breeding with the local wild boar (*Sus scrofa attila*) that is instead very large, as also evidenced by the individual found in Grave 16; the latter finding also demonstrates the actual presence of this species in the surroundings of the site.

In general, as far as the burials are concerned, there seem to be no relationships between the number of faunal remains recovered, the burial method, the sex and age of the individuals as well as the number of inhumated corpses (see § 12).

The data on the age at death are relatively few and it is difficult to draw economic conclusions about the exploitation of ovicaprines and pigs. In general sheep and goat are represented mainly by adult individuals associated, in the case of pig, to young and young adult animals. In the graves the age pattern is similar to the living contexts, but generally the remains of the younger pigs seem to be associated more strictly to some of the deceased as in the case of the specimens found within ceramic containers in Grave 12 and Grave 16 or close to the head of the inhumated as in Grave 15.

Most of the faunal remains related to the Graves 4-5-13, for their abundance, are referable to a funerary banquet, however in our case the ritual involved probably a relatively restricted number of individuals, probably at family level, and do not represent the excessive feasting hypothesized for some archaeological and ethnographic cases.[9] Furthermore, it is also possible that some of the faunal remains from other burials at Abu Tbeirah represent smaller funerary banquets or that the ritual involved only the use of liquids that did not leave clear traces except for the containers employed for drinking that were sometimes found piled (therefore presumably empty) (*e.g.*, Graves 6, 15, 16), as part of the burial goods (see § 6.2.2).

The presence of clear archaeological evidences of ritual banquets only in the sub-pavement graves of Phase 1 outside Building A, could be referred to an extraordinary event (*e.g.*, the death of several individuals within a short span of time).

The data presented in this chapter seem to indicate that there were no marked differences between the animals associated to the burials and those referred to living contexts, but only subtle variations and nuances sometimes influenced by the characteristics of the deceased. However,

[5] *E.g.*, Breniquet 2002; Scurlock 2002; Grigson 2007; Redding 2015.
[6] D'Agostino - Spada *in press*.
[7] Grigson 2007.
[8] *E.g.*, Clutton Brock - Burleigh 1978; Grigson 2007.
[9] *E.g.*, Pollock 2003; Hayden 2009.

the information collected so far needs to be verified and refined with the continuation of the excavations in the other areas of the settlement.

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CHAPTER 14

CHIPPED STONE ARTIFACTS: TECHNOLOGICAL ANALYSIS

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CHIPPED STONE ARTIFACTS: TECHNOLOGICAL ANALYSIS

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14.1 Introduction

In this chapter an integrated analysis, which combines preliminary data about raw materials and a classical technological study, of the chert[1] artifacts excavated from the ED III/Akk. layers of the Abu Tbeirah mound will be presented. This study was conducted in order to reconstruct all the phases of the *châine opératoire* aimed at the production of lithic tools. In the specific, this contribution will be focused on three main topics: characterization of the raw materials, *débitage* techniques and economy, blank transformation through retouch.

Lithic industries in metal using societies of the Bronze Age southern Mesopotamia had received little attention in the archaeological literature.[2] Few studies were focused on typological aspects of the retouched or formal tools recovered from excavations, or in describing through illustrations selected lithic inventories from the sites. The technological approach allows the reconstruction of the ways in which natural resources - in this case knappable rocks - were exploited and managed during ancient times. The study of the organization of the production[3] can give relevant insights into the understanding of cultural traditions and craft practices (tool-kits, techniques, *savoire faire*) linked to economic activities such as agriculture, materials working and other subsistence activities. Furthermore, the spatial dimension of the technology can introduce the notion of "territory" as a way to understand the circulation and exchange of goods and raw materials.[4] At Abu Tbeirah, thanks to the attention paid to this artifact category during the fieldwork, it was also possible to contextualize the data acquired from this study, contributing to the general and functional interpretation of the different contexts.

14.2 Composition of the Lithic Assemblage

The analysed sample consists of 45 artifacts (Tab. 14.1) coming from the latest occupational phase of the Building A - phase 1, excavated on the south-eastern part of the mound and dated to the ED III/Akk. on the basis of the ceramic vessels. The artifacts were chosen from secure and preserved contexts, such as ground-surfaces and room fillings. Other contexts and materials recovered during surface scraping, although numerically consistent, were not considered in this study.

Retouched tools are the largest part of the lithic artifacts: the 60% of the entire assemblage is constituted by sickle inserts with one or both the edges transformed by direct denticulate retouch and obtained by intentional fragmentation of blades. These tools exhibit a naked-eye glossy on the edges, suggesting their use during agricultural activities (see § 15). The remaining part is represented by blades and blade fragments with

[1] The term "chert" is used accordingly to the archaeological terminolgy, including thus various siliceous minerals (*e.g.,* micrite).

[2] Angevin *forth.*; Payne 1980; Unger-Hamilton *et al.* 1987.

[3] Pelegrin *et al.* 1988.

[4] Geneste 1991; Perlès 2007.

Technological classes	N	%
Sickle inserts	23	51
Retouched blades	3	7
Retouched flakes	1	2
Total tools	27	60
Blades	5	11
Semi-cortical blades	1	2
Surface maintenance blades	1	2
Neo-crested blades	2	4
Maintenance flakes	1	2
Tranchant flakes	1	2
Partially cortical flakes	4	9
Naturally convex flakes	1	2
Totally cortical flakes	1	2
Total débitage	17	38
Unifacial flake core	1	2
Total	45	100

Tab. 14.1 Lithic artifacts from Building A - phase 1.

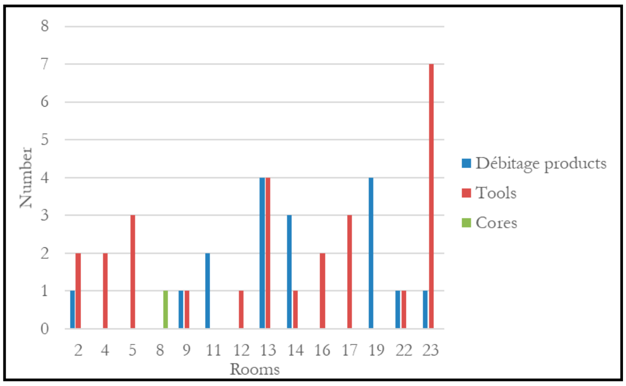

Fig. 14.1 Distribution of the lithic artifacts inside Building A - phase 1.

marginal retouch (7%), probably used as reaping knives, and only one retouched flake.

Débitage products, as a result of knapping activities are very scarce (17 items) and could not be directly related to knapping activities performed inside the various rooms of Building A. Problems connected with cleaning activities of the ground-surfaces by the site inhabitants could have masked the real amount of knapping debrìs (see § 9). Among the knapping products, entire blades (2 semi-cortical) and blade fragments are the most consistent *débitage* classes represented and the presence of one neo-crested laminar element, along with core maintenance blades, could indicate that some episodes of blade production took place at the site, despite the apparent lack of cores.

The remaining part of the assemblage is represented by cortical and semi-cortical flakes of very small size and an unifacial flake-core on a small pebble.[5]

Looking at the distribution of the lithic artifacts inside Building A - phase 1 (Figs 14.1-2), it is possible to note the relative ubiquity of the retouched tools - especially the sickle inserts - inside the various rooms. The other categories are under-represented, but the presence of a flake-core inside Room 8, could suggest that expedient-flake productions were performed in relation to other kind of activities.

Room 23, located along the south-eastern limit of the main excavation area, appears to be one of the most preserved context of Building A, due to the high concentration of *in situ* materials on the ground-surface and traces of hearths and to the activities related with bitumen processing (see § 9). In this context, a fragmentary bitumen handle (AbT.15.114) with three sickles inserts, and possibly a fourth, was recovered during the excavation, in association with ceramic vessels and bitumen lumps. The study of ground-surface's heavy residues and their spatial distribution analysis made possible the interpretation of this room as a place in which bitumen was processed: composite sickles might have been created or repaired here and then stored in specific locations of the available space.

14.3 Raw Materials

Chert represents the exclusive raw material utilised for the production of the lithic tools. Only two dark limestone flakes related to *tranchant* sharpening were recovered in the excavation. The largest part of the assemblage is constituted by non-cortical products, few cortical pieces and naturally convex flakes allowed the recognition of primary chert cortex, indicating the introduction at the site of

[5] This study was conducted during the 2015 mission field campaign. Most of the artifacts excavated in Area 1 Cemetery and Building A - phase 1 contexts during the 2012-2013-2015 were studied. It was possible to document the flake-core through the archive photos of the mission.

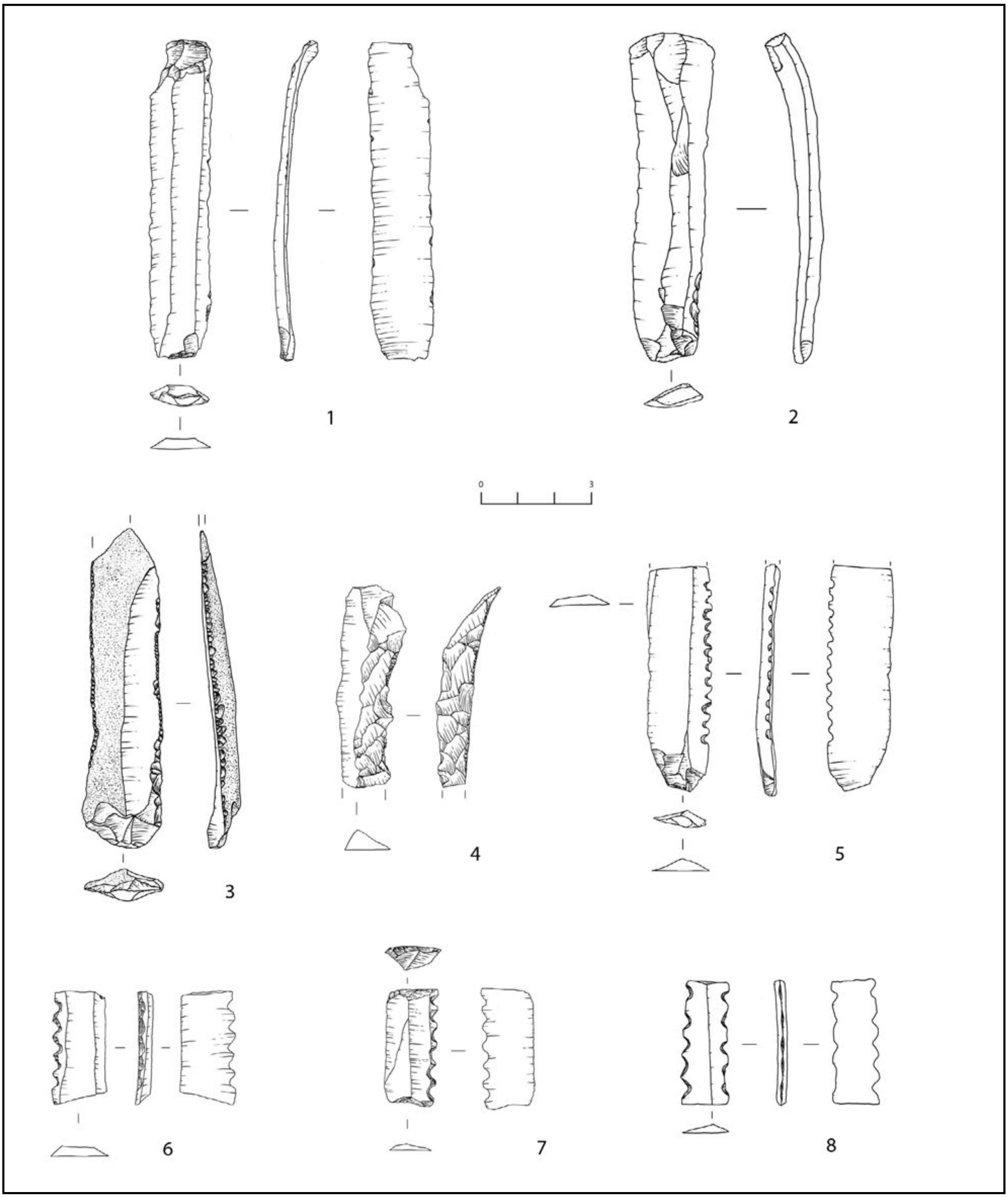

Fig. 14.2 Chipped stone artifacts from Building A - phase 1: pressure blade (1); Retouched blades made by direct or indirect percussion (2-3); neo-crested blade (4); sickle inserts (5-8) (drawings by D. Moscone).

nodular cherts. Furthermore, the limited number of the pieces composing the assemblage and their bad preservation made very difficult the complete identification of the chert types.

14.3.1 Artifacts Patination

The entire surface of the site is covered by a heavy crust of salt, which affected the preservation of the original soil structure and the underlying archaeological remains (see § 6.1.1.1). This alteration involved the development of a heavy white patina which covered, in most of the cases, the entire surface of the artifacts, provoking small pits, visible to the naked eye, and a partial chemical dissolution of the silica phases of the internal structure of the cherts. As noted in the previous

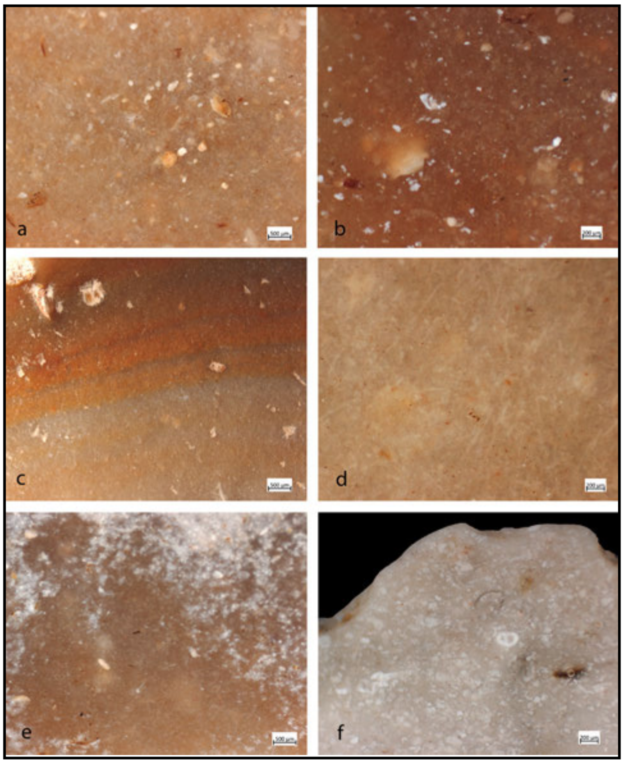

Fig. 14.3 Petrographic features of the cherts. Type A translucent brownish chert with spotted structure, wakestone (a); foraminifera in a Type A chert (b); Type B translucent brownish chert with reddish laminations (c); abundant sponge and foraminifera in a Type B chert (d); salt alteration on a Type C chert (e); foraminifera, sponge spiculae fragments and a brachiopod test in a Type C chert (f).

paragraph, the reconnaissance and description of the chert types was very difficult. In this contribution, will be presented a preliminary list of types.

14.3.2 Preliminary Data About Chert Petrography

A petrographic analysis was conducted on the best-preserved archaeological samples. The main goal was to characterize the different cherts exploited at the site.

The study was performed following the methodology outlined by Tarantini *et al.*,[6] which provides a macroscopic description of the visible properties of the chert. Regarding the cortex, five features were described by adopting pre-established variables for each feature: thickness, nature (siliceous or calcareous), induration, surface and boundary. As far as the siliceous matrix is concerned, four features were recorded: subcortex (presence or absence), structure, texture[7] and fracture. Obtained data were integrated with a microscopic observation of the fossil fauna component, by using a stereo-microscope at different magnifications (10x-40x) as proposed by Delluniversità *et al.*[8]

Preliminary results allowed the recognition of three main chert types, of very good quality (Fig. 14.3):

- Type A: translucent brownish chert, spotted structure, wakestone texture, with fossil fauna (mainly foraminifera);
- Type B: translucent brownish chert, reddish laminations and light grey mottled structures, wakestone texture, smooth and thin nodular primary cortex, with fossil fauna (abundant sponge spiculae and foraminifera);
- Type C: translucent greyish chert, spotted structure, wakestone texture, with fossil fauna (abundant foraminifera, sponge spiculae, rare brachiopods).

14.3.3 Chert Availability in Southern Mesopotamia

The geological setting of southern Mesopotamia, in which the site of Abu Tbeirah is located, is characterised by a thick alluvial fan and late quaternary deltaic sediments originated by the effort of the Euphrates and the Tigris Rivers transport (see § 3). In this picture, the area around the site has to be considered lacking primary chert resources suitable for knapping.

Given the total absence of studies regarding chert availability for the southern Iraq, a survey of the recent geological literature of south-western Desert of Iraq[9] and south-western Zagros Mountains[10] allowed the recognition of different formations, dated between the Early Jurassic and the Middle Miocene, in which several chert horizons in primary deposition were reported. These areas

[6] Tarantini *et al.* 2016.

[7] The study was conducted following the Dunham's classification of sedimentary rocks (Dunham 1962).

[8] Delluniversità *et al. forth.*

[9] Mohammed - Sissakian 2007; Sissakian *et al.* 2017; 2018.

[10] Haynes - McQuillan 1974; Rezaee - Ali Nejad 2014; Tamar-Agha - Al-Sagri 2015; Yavari *et al.* 2017.

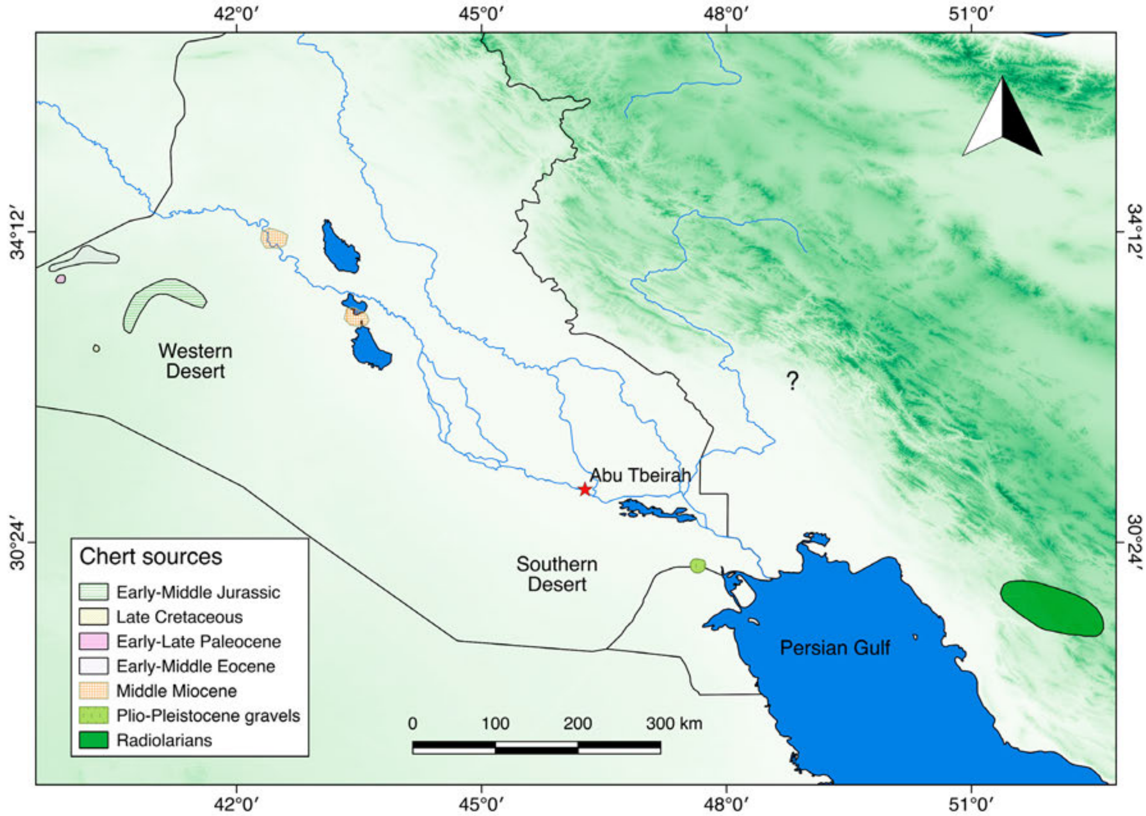

Fig. 14.4 Map based on the geological literature showing the location of of the potential chert sources of southern Mesopotamia (GIS elaboration by D. Moscone).

are located about 400-500 km from the site. The lack of specific data about the chert types available do not allow to formulate hypotheses. Although, the presence of not yet investigated outcrops could shed light on new scenarios regarding the procurement of chert raw materials during the 3rd mill. BC. A summary is presented in Fig. 14.4.

The presence of secondary sources of pebbles transported from the northern areas by the Euphrates and Tigris rivers could only be hypothesized on the basis of the archaeological literature.[11] Plio-Pleistocene conglomerates of the Jabal Sanam, several kilometres south-east from the site, are the nearest source of chert pebbles. The suitability of this source remains to be verified.

As show in fig. 14.4, the Western Desert sources are located about 400 km from the site. The occurence of chert raw materials in these outcrops needs further researches in the light of the regional availability. The west-southern Zagros sources, consisting of Late Cretaceous radiolarians bedded cherts, have been not encountered so far in the lithic evidence. Other chert types, hypothesized as imported raw materials at the Bronze Age city of Mari,[12] comes from the Syrian Desert.[13]

14.4 Blade Production

The largest part of the assemblages from Building A - phase 1 is characterised by blades processed in order to obtain sickle inserts. Despite the heavy intentional segmentation, it is possible to note the extreme regularity of the blanks by which these agricultural tools were obtained. The majority of the blades exhibit very regular and parallel previous blade removals on the dorsal face, configuring thin trapezoidal or triangular sections. Other blades, less regular and thicker, were not selected for sickles production.

[11] Borrell 2010; Moscone *forth.*

[12] Angevin *forth.*

[13] Delage 2007; Borrell - Vicente 2012.

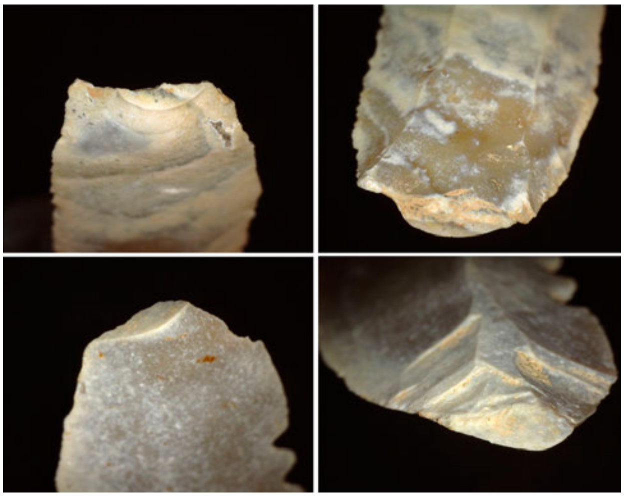

Fig. 14.5 Proximal ends of two pressure-blades (dorsal and ventral views).

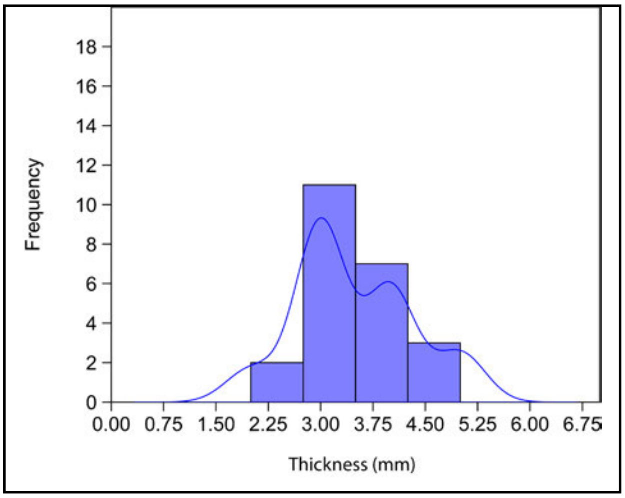

Fig. 14.6 Histogram showing the distribution range of the sickles inserts thickness.

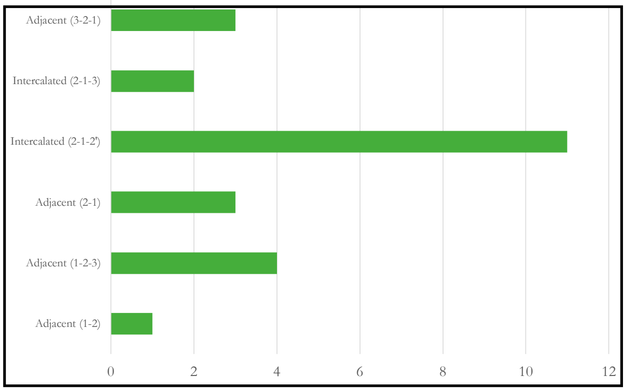

Fig. 14.7 Chronology of the dorsal negatives of the blades.

14.4.1 Knapping Technique

The analysis of the technical features (Fig. 14.5) of the blades allowed to isolate one specialized production, realized by pressure technology. The study was conducted on three entire blades present in the lithic record, on the proximal fragments (n.2), and by analysing the organization of the previous blade removals on the retouched items (n.23). Of course, this is a reduced number of objects, but the technical parameters observed resulted to be consistent with the pressure technique.

The butts are always non-cortical and flat, semi-circular in shape and of small size with respect to the general width of the blade. Any preparation negatives was observed and any cracks was recorded on their surface. The angle between the pressure plane and extraction surface is about 90° in each specimen. Some blades exhibit, in their proximal portion, repeated small lateral detachments finalized to platform isolation during the process of core reduction. On the ventral surface, the bulb of force is prominent and concentrated under the butt and is generally marked by ripples development. The profile is, in most of the cases, straight with an evident curvature observed in the distal end.

Blade terminations are rectangular and prepared, while some others distal fragments are convergent, suggesting that these items were detached at different stages of core reduction which could indicate also the reduction of different core morphologies (prismatic with a flat base and sub-conical).

The longest and almost entire pressure blade is 79 mm in length, 15 mm in width and 3 mm in thickness. Following Pelegrin's experimental research on pressure blades, the width of the blades, more than the length, is considered to be diagnostic of a specific mode of pressure.[14]

This observation is based on the fact that much wider is the blade, greater is the amount of pressure necessary to generate the fracture.[15] As a result, different range of width could indicate the employment of several modes of pressure. In the analysed lithic assemblage, due to heavy edge retouch and the scarce abundance of entire blades, it could be assumed on a statistic base that the width of 15 mm of the only one entire specimen is representative of the general situation, by comparing its thickness of 3 mm with the

[14] Pelegrin 2012.
[15] Crabtree 1968.

thickness values reported for the sickle inserts in the graph at Fig. 14.6.

In fact, the distribution shows a trimodal tendency inside the population, with three peaks at 3.5 mm, 4 and 5 mm; reaching a minimum thickness of 2 and a maximum of 5 mm (mean 3.5 mm; std. dev. 0.8 mm). On the basis of this values, considering the value of 15 mm of width for the entire blade and the relative low variability of the thickness, the evidence is placed at the limits of applicability of the Pelegrin's pressure with a short crutch in a sitting position and in the full range of the pressure with a long crutch in a standing position.[16]

As mentioned above, the majority of the blades has a trapezoidal section (n.21), while the remaining blades have triangular or sub-triangular section (n.4). The analysis of the chronology of the dorsal negatives[17] on these blades, originated from the previous removals, permitted to obtain informations about the methods of *débitage*, also in absence of cores.

Leaving aside the blades with triangular section, the Fig. 14.6 clearly indicates the existence of two different groups of trapezoidal blades. The first group has an intercalated module (2-1-2' or 2-1-3) which is characterized by blades exhibiting a symmetric trapezoidal section with parallel ridges on the dorsal face, obtained by the systematic detachment of centred blades departing each time from the same side of the core. The second group is characterised by an adjacent module (1-2-3 or 3-2-1) which features a less symmetric section and a less centred distribution of the dorsal ridges, indicating a systematic detachment of blades, characterised by alternate changes in direction during knapping, from the two extremities of the core.

Given these observations, we must rule out that complete blades evidence is actually poor, and the raw material state of preservation cannot help with the understanding of the relations between these different blade-knapping processes.

[16] Pelegrin 2012: 479.
[17] Binder - Gassin 1988.

14.4.2 Technical Blades

The lithic evidence includes also three blades whose features do not fit with the pressure ones. Two of these are semi-cortical while the last is non-cortical. Their morphology is less regular, larger and thicker, with a curved profile and a slightly plunged and rectangular termination (this latter supports the idea of cores with a flat base). The bulbs are less prominent with more evident and diffused ripples on the ventral faces. In one case, the butt is large and show evidence of percussion traces (large ring crack, ventral fissures). Given their morphology, these blades could be interpreted as initialization/maintenance technical solutions linked to the main pressure-blade *châine opératoire* and detached by direct or indirect percussion. The record includes also a neo-crested blade fragment, which indicates re-preparation of the core lateral convexities. Despite their low number, all these elements support the hypothesis of episodes of blade production performed at the site.

14.5 Sickle Production

Sickle inserts are the most represented tool category (51% of the entire assemblage). This evidence testifies the importance of the agricultural practices, as economic ad subsistence activity, at the site and will be further discussed in § 15.

14.5.1 Retouch

These inserts were entirely realized on pressure blades, whose regularity could have certainly facilitated their insertion/management into a handle, processed by fragmentation and edge transformation. The retouch, always localized on the dorsal surface (direct position), was applied on all the perimeter of the lateral edge, by creating a series of continuous and regular notches, delineating a strong denticulated edge. The larger part of the sickle inserts was retouched on both the edges.

In most of the cases, the retouched edge exhibits a heavy gloss, parallel to the technological axis of the blade (see § 15). It was noted that frequent interventions of edge re-sharpening, due to intense use, removed the gloss on the dorsal face, while it remains more visible on the ventral one. These maintenance activities provoked, in some cases,

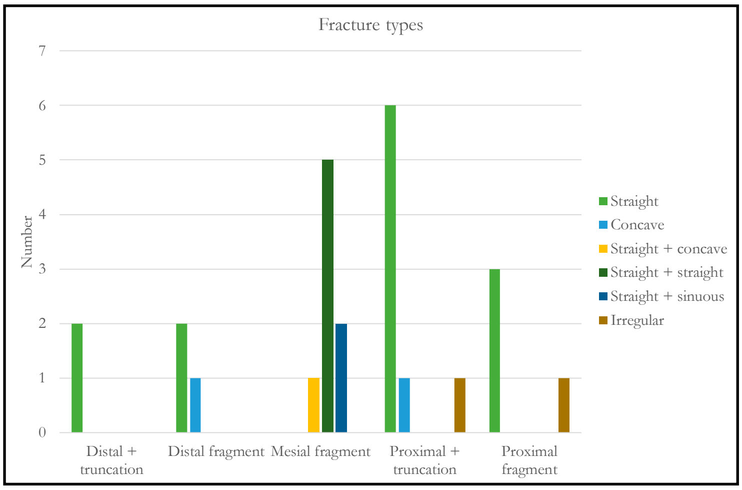

Fig. 14.8 Localization and association of the different fracture types observed on the sickle inserts.

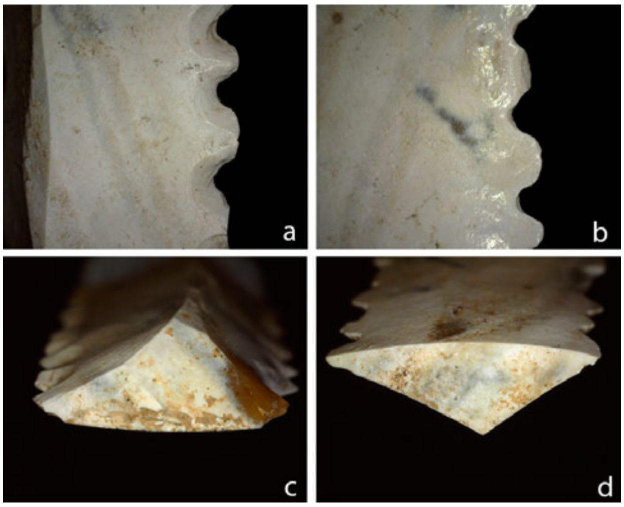

Fig. 14.9 Details of a sickle insert: direct denticulate retouch (a); glossed edge on the ventral side (b); truncation on the distal end (c); straight fracture on the proximal end (d).

a backed edge as a result of the high intensity at which the edge was used.

As previously stated, pressure blades were fragmented in order to obtain the sickle inserts. Fig. 14.8 shows the occurrence of the different types of fracture observed and their relative localization and association on the blade segment. The most attested fracture is the "straight" one, which often occurs on both ends of the segment or, with less frequency, associated with "concave" or "sinuous" fractures. Other relevant types exhibit a truncation, opposed to "straight" (the most frequent), "concave" or "irregular" fractures. Straight and concave fractures are generally associated with direct percussion,[18] while sinuous fractures can be obtained by flexion without any other technical investment (*e.g.*, creating a notch, as the case of the microburin technique), according to our experience in experimental knapping. Unfortunately, due to the bad preservation of the objects, it was very difficult to recognize a clear impact point on the blade ends. Despite this circumstance and considered the extreme regularity of the profile fractures, it could be hypothesized a very controlled percussion, maybe with the support of some kind of anvil (bipolar percussion).

Truncations was always realized by steep retouch, sometimes scalariform, on the dorsal face of the blade segment, delineating in most of the cases a rectilinear (or concave) edge with an acute angle comprised between 40° and 75°. Any traces of use were noted in these tool portions: on this base it could be hypothesized a "practical" aim, finalized at regularizing the inserts during sickle handling or maintenance activities. The graph indicates also that distal and proximal blade fragments were adopted for sickle production at occurrence.

14.5.2 The Sickle Fragment from Building A - Room 23

During the excavation of Building A, a not entirely preserved sickle (AbT.15.114) was found on the ground-surface of Room 23 (US 395) inside "Concentration D" of archaeological materials, located at the south-eastern corner. The objects assemblage included also a series of ceramic vessels associated with bitumen lumps. The spatial and heavy residues analysis of this room (see § 9) allowed to understand that the room space was managed in different modalities and several activities were performed in specific locations: in the south-western portion of the room, bitumen was processed in order to be employed in artifact production, while in the area of concentration D, the objects were stored.

[18] Manclossi *et al.* 2015.

Fig. 14.10 Sickle fragment with three retouched inserts excavated in Room 23 - US 395.

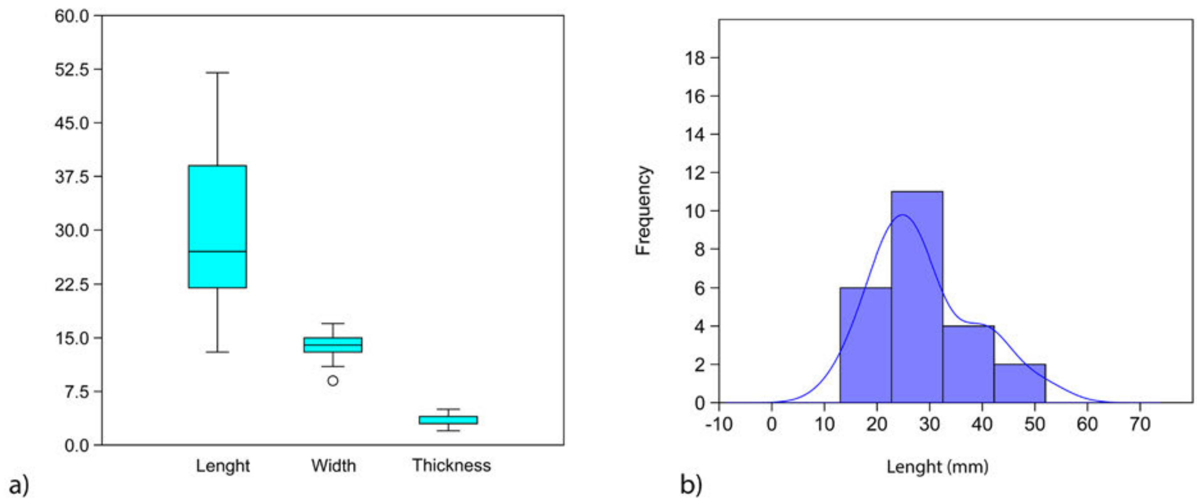

Fig. 14.11 Boxplot graph of metrical data about the sickles inserts (a) and histogram based on the values of their length (b).

The preserved portion of the sickle[19] is about 9 cm long and 2 cm wide. Three inserts were in their original position inside the handle, which unfortunately was not preserved, apart from the bitumen used as adhesive. In Fig. 14.10, the smaller item (length 23 mm; width 13 mm; thickness 3 mm) is located in the centre, the largest (length 30 mm; width 15 mm; thickness 3 mm) at the top, and the last (length 24 mm; width 14 mm; thickness 3 mm) at the bottom. They were fixed with the same orientation and in direct contact with each other, in order to create a continuous and straight denticulated working edge sharing the same angle. The value of thickness (3 mm in all the three inserts) and the profile morphology (straight in each case) could be significant for a better fix of the inserts into the same handle. However, the items clearly belong to different blades, as the raw

[19] When discovered, the object was very damaged. We decided to withdraw the portion of sediment in which it was incorporated, to conduct a micro-excavation in the laboratory at the mission-house. We wish to thank G. Barella who carefully excavated and put together all the small fragments, completely restoring the original shape of the tool.

materials and their technical attributes suggest: the largest item has a trapezoidal section (2-1-2' module) featuring a wide central negative, while the others, despite they share the same module (2-1-2'), exhibit a less large central removal. All the edges were retouched and, obviously, damaged due to use which caused the development of a wide gloss (see § 15) and show evidence of re-sharpening.

In the boxplot graph at Fig. 14.11a, we used the maximum values of the sickles inserts three dimensions (length, width, thickness) to investigate the standardization of these tools. The thickness values are classifiable into a very reduced interval. In fact, as we noted in the previous paragraph (Fig. 14.6), the thickness is a technological parameter very well controlled at the site, therefore depending by the needs and choices made by the knappers during blade production. The width values, instead, represent an indication of the scale of retouch of the inserts edge, which features different values depending from retouch intensity and working time, therefore it cannot be used in this analysis, but deserve more attention.

When dealing with length, a high variability must be noted. The graph in Fig. 14.11b shows that there is a bimodal distribution of the values with two peaks at 27 (higher) and 42 (lower). In explaining these values, any correlations between range size, presence/absence of truncations and spatial distribution of these items was found. We also must note that the state of preservation of certain rooms is low, due to the later occupations (see § 6.4), and the archaeological assemblages could be not representative of certain parts of the building.

However, the evidence of the sickle fragment from Room 23, tells us that standardization in sickle inserts was first searched in blades production and selection, then in retouch regularity and handle fixing. Variability in length could be explained as individual choices, depending by the modalities in which every living unit acquired the blades, produced and managed these tools.

Finally, the present state of research does not permit speculations or hypothesis about the entire shape of these composite tools. The distribution of the gloss on the edges, always parallel to the blade axe, along with the evidence from Room 23, certainly will address future researches at the site.

14.6 Conclusions

Technological analysis of the lithic artifacts from the ED III/Akk. layers of Building A, integrated with a preliminary petrographic study of the raw materials, allowed to identify a specific *châine opératoire* aimed at the production of sickles.

Chert was the exclusive natural resource used as raw material for the production of lithic tools. Petrographic analysis allowed to preliminarily recognize three main chert types of very good quality, coming from primary nodules of unknown size. As known, the southern Mesopotamian alluvium is poor of rocks suitable for knapping. The survey of the available geological literature highlighted the presence of primary chert sources far distant of about 400-500 km. Investigations of these outcrops, and new field-researches in the southern Zagros Region might reveal the existence of previously unknown sources and circuits of raw materials and/or finished products exchange to which the centers of Southern Mesopotamia may have adhered. Conversely, secondary sources, in shape of small pebbles were locally available but there is only a little evidence of their exploitation. Finally, the course of the Euphrates and Tigris Rivers, being navigable, could certainly have encouraged communication routes linked to the supply or exchange of these raw materials, as evidenced by other types of resources (timber, precious stones, metals *etc.*), as reported by the Ur III texts.[20]

The blades, from which the sickle inserts were obtained, were produced by specialized knappers who carefully managed the pressure technique, performed by the employment of a long crutch. Only future excavations at the site will definitely clarify if the blades were produced on-site or were imported as blanks. Data available allowed to hypothesize only some sporadic episodes of blade-knapping.

The blanks were probably processed inside Building A rooms, as the evidence of Room 23 strongly suggest. Sickle inserts were obtained

[20] Laursen - Steinkeller 2017.

by controlled fragmentation of the blades through direct percussion or flexion, and then by transformation of the edges in order to obtain very regular denticulated working edges. Composite sickles were hafted adopting the bitumen as adhesive, which is a natural resource very common in Mesopotamia, and by fixing the inserts into the handle in direct contact with each other, creating a continuous straight edge.

The specificity of this technology seems to be a cultural trait of the Sumerian lithic technological systems, which evolved from a local tradition of small blades, starting from the 5th mill. BC, in opposition to the large blade technologies of the northern Mesopotamia.[21]

There is only a little evidence of expedient productions at Abu Tbeirah. The cause of this lack is not known to us on the basis of the available data. Certainly, the coexistence of metal tools could have produced diversified behaviours that could be understood only through the continuation of the field research at the site. However, lithic industries were not a secondary craft, but of greater importance in the sphere of subsistence and socio-economic activities. The almost exclusive presence of sickle inserts underlines the relevant role of the agricultural practices inside the Sumerian society of the half of the 3rd mill. BC.

[21] Angevin 2018.

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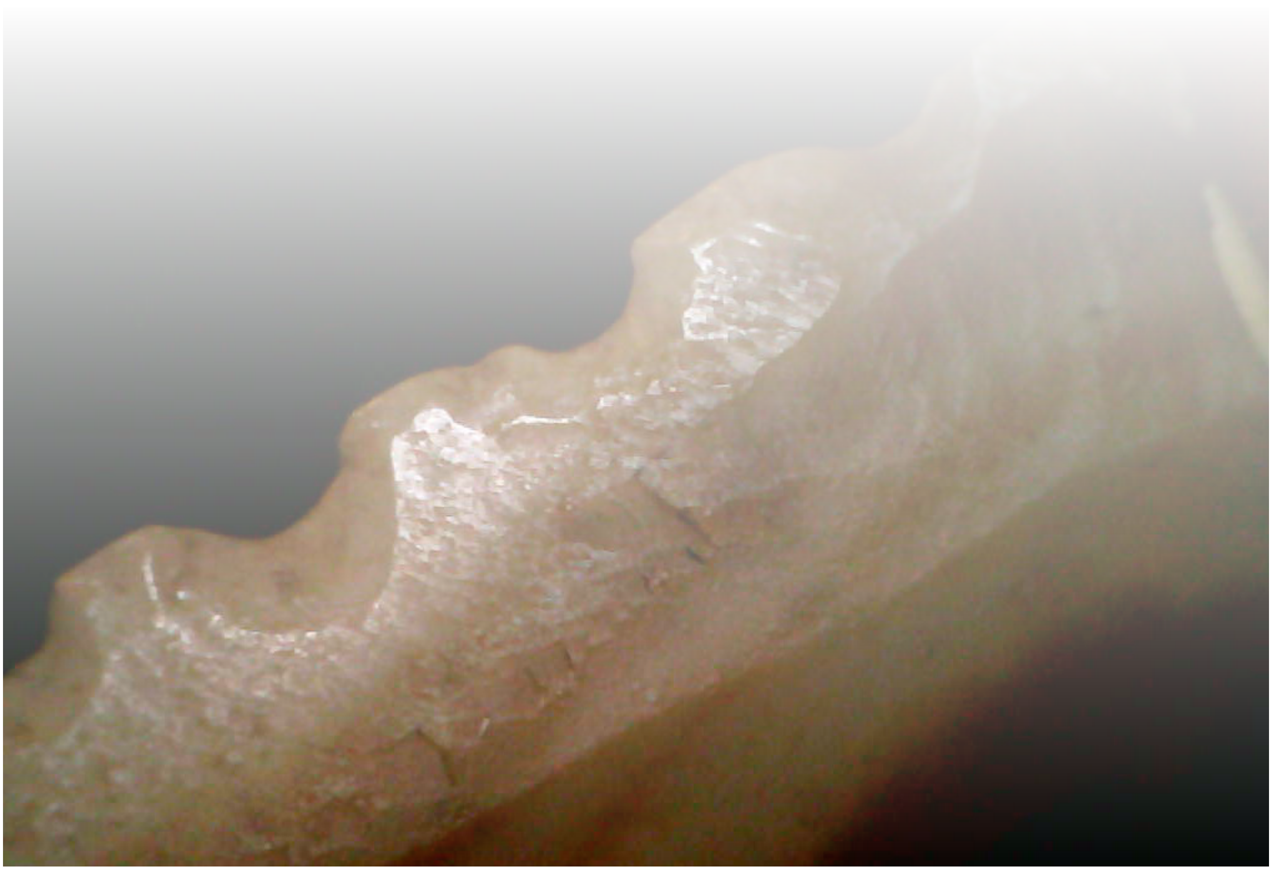
CHAPTER 15

CHIPPED STONE ARTIFACTS: USE WEAR ANALYSIS



CHAPTER 15
CHIPPED STONE ARTIFACTS: USE WEAR ANALYSIS

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15.1 Introduction

Use-wear analysis is the macroscopic and microscopic study of wear traces preserved on chert tools. Wear traces are approached through the basics of tribology, which is the study of the interacting mechanics in the process of friction, lubrication, and wear. Wear is defined as attrition of material caused by use, producing distinctive traces. Tribology techniques are, thus, employed in order to understand the processes that generate the wear traces.[1] The contact between the stone and the processed material causes the formation of micro-wear. These micro-wears are diagnostic because the surface of the stone is modified differently depending on the characteristics of the material (moisture, elasticity, resistance, abrasion, cohesion, mineral content, etc.).[2]

Since the introduction of the Keeley method,[3] the use-wear analysis turned out to be a way to distinguish the processed materials on the base of the traces of use on the lithic surface. This method allows to distinguish various categories of processed material (for example woody or non-woody, siliceous or not siliceous plants, animal material, different types of hide), and it can also be used to recognize traces of handling and prehension.

The analysis of wear traces on Abu Tbeirah chert tools involves a "low" and a "high power" approaches, the two traditional techniques of wear traces observation. Based on the presence of macro traces, the first approach consists in the initial observation aimed at identifying which objects could have been used.[4] The observation of macro traces is carried out using a stereo microscope (Nikon SMZ-U) with 10x oculars and magnifications between 0.75 and 7.5. The observation is carried out both on actual tools and on ®Provil impressions. The "high power" approach is used for the study of micro traces.[5] The analysis and description of micro traces is carried out using a metallographic microscope (Nikon Eclipse ME 600) with 10x oculars and magnifications comprised between 10x and 20x.

The interpretation of use wear on archaeological objects is then based on the comparison between experimental traces and the reference collection available at Laboratory of Technological and Functional Analysis of Prehistoric Artefacts (LTFAPA), Sapienza University of Rome.

Considering all the chert tools since now recovered during the excavation, the presence of post-depositional alteration linked to the strong salinization of the soil (see § 6.1.1.1) hampered in some cases the analysis both of the macro and micro traces. This factor affected especially the materials coming from the survey or from the upper layers, closest to the surface. Even presenting some patinas/alterations, objects coming from the underlying layers can still be analysed.

[1] Adams 2002.
[2] Méry *et al.* 2007.
[3] Keeley 1980.
[4] Semenov 1964; Odell 1977; Trigham *et al.* 1974.
[5] Keeley 1976; Van Gijn 1989.

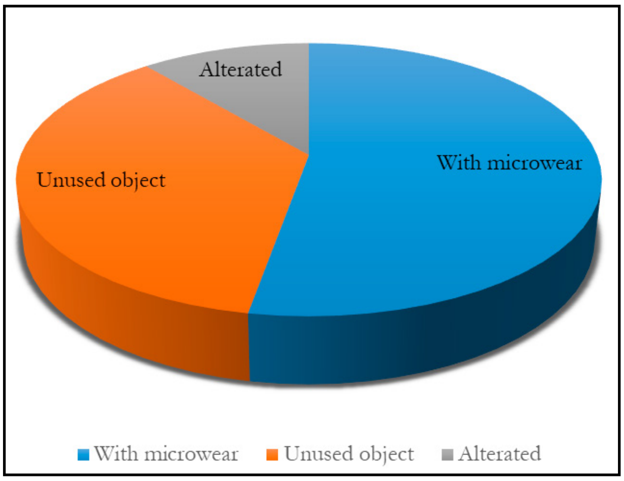

Fig. 15.1 Summary of the traces recognized on the blades.

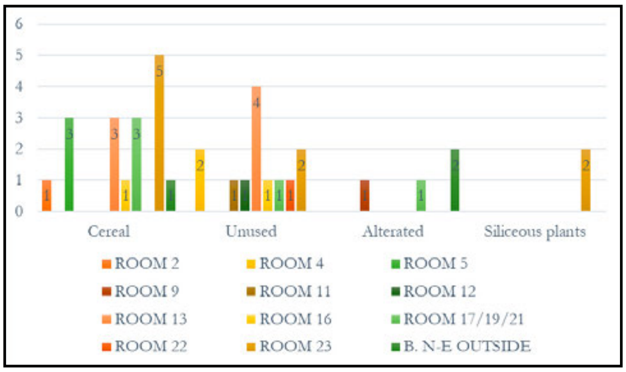

Fig. 15.2 Distribution of blades and their use inside Building A - phase 1 rooms.

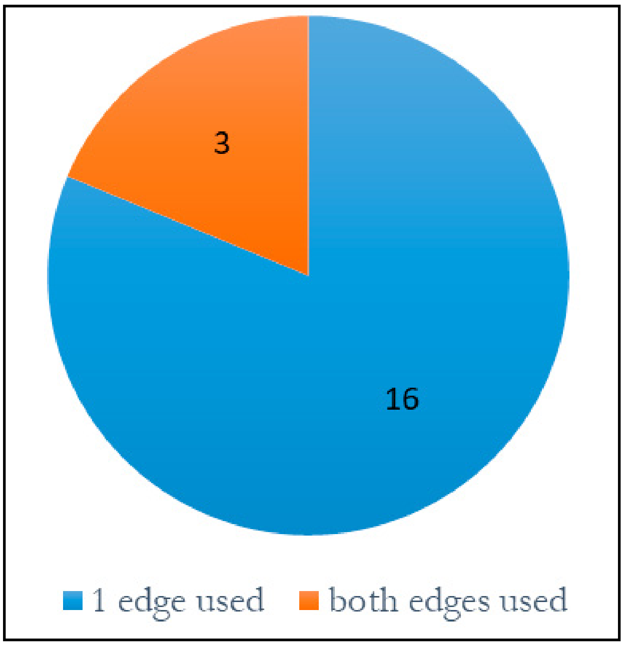

Fig. 15.3 Pie-chart showing the number of blades with one or both sides used.

The strong salinization of the soil could therefore have had a different influence on the conservation of the lithic objects also according to the level of depth at which they were found.

Some preliminary results will be presented, with a particular focus on 36 objects found inside Building A - phase 1. Sickle blades belonging to AbT.15.114, discovered in Room 23 (see § 8) will be analysed in detail.

15.2 Results from Building A - Phase 1 Chert Tools

Within the analysed sample (Building A - phase 1, total of 36 objects), 19 objects show use wear, 13 show no use wear, while 4 objects present traces that are not recognizable or can not be distinguishable due to the presence of alterations (Fig. 15.1). Though the sample analysed is not exhaustive, it still can give some general indications on the dynamics of exploitation and use of lithic objects in the last phase of occupation of Abu Tbeirah Building A.

The analysed sample is strongly homogeneous from the point of view of the activities carried out. All objects presenting traces were used for cutting cereals (Fig. 15.2). The polishes on the active edges in many cases are very developed.[6] The edges are strongly rounded and the polishes are completely smooth and flat. Moreover, in most cases, even on objects affected by alteration / patina, the polishing bands appear quite thick also to the naked eye. These polishing bands refer to the cutting and harvesting of cereals that lasted for several hours. The polishing bands are all parallel to the working edge and this gives us information on the handles linked to the use of these sickles.

Based on the information obtained from the use-wear analysis, it is not possible to give specific information on the activities carried out in the individual rooms of Building A (see § 6.4 on the limits of the reliability of the context).

In the choice of the supports, there is a nearly complete predilection for the laminar ones. In particular, the sickles were made using mesial

[6] Anderson - Chabot 2001; Anderson *et al.* 2004; Anderson - Sigaut 2014.

and distal-mesial fragments (see § 14). Fig. 15.3 reports the data regarding the presence of laminar supports with use wear on one or both functional edges: the pie-chart shows a tendency to use only one functional edge and leave the other completely unused. Only three objects show, indeed, use wear on both edges.

The data concerning the presence of retouching were combined with those related to the use of the edges: the objects that showed polish only on one edge were considered in order to determine how many of these had one or both retouched edges. Fig. 15.4 shows that in most cases (10 objects) only the used edge is retouched. Only five cases present retouching on both the functional edges of the tools, even if only one edge was used. Just in one case, polish were found on an object that did not have any retouching on either edges.

Another interesting feature is the presence of polishing inside the retouches. The presence of use wear inside the scars caused by retouching is a symptom of the use of the object after retouching. This behaviour, generally linked to prolonged working activities or reuse of objects, was identified only in two cases within the sample analysed: AbT.15.94 (Fig. 15.5) and AbT.15.114 C (Fig. 15.6). The rarity of objects that present polishes inside the snatches, in a general context characterized by the presence of highly developed traces, suggests the necessity of not having to use up to the complete exhaustion the sickle elements available. This choice may be related to the ease of acquisition of raw material or to cultural factors related to the exploitation of the available resources.

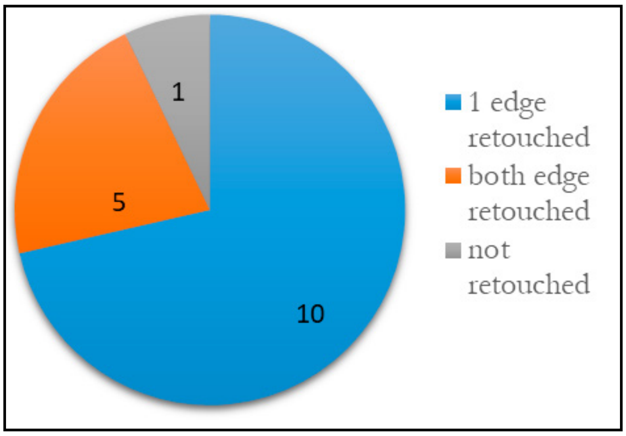

Fig. 15.4 Edges with presence of retouching.

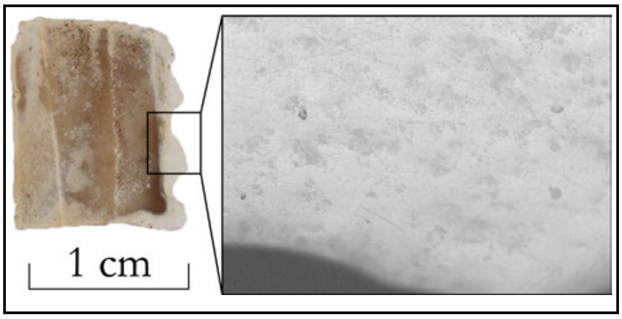

Fig. 15.5 AbT.15.94.

15.3 The Sickle Elements of the Bitumen Handle AbT.15.114 (Building A - Phase 1 - Room 23)

As said above, Fig. 15.2 shows that there is no particular concentration of chert blades in relation to the various rooms of Building A. The only room that stands out is Room 23 (see § 9). In this room five objects used for cutting cereals and two unused objects were found. Among these, three elements, AbT.15.114 A AbT.15.114 B and AbT.15.114 C, belonged to the same sickle (Fig. 15.5 - see also § 14 and Fig. 14.10). Though belonging to the same object, the polish could have been assigned to the cut of cereals only in the case of AbT.15.114 C. On the contrary, in the case of AbT.15.114 A and B the characteristics of the polishing did not allow a certain assignment: it was thus preferred to attribute them to a more generic cut of siliceous plants. This difference could be due to the position of the three elements inside the handle. If this hypothesis is correct, AbT.15.114 C would be the insert that came more in contact with the stalks of the cereals, as a result of the movement carried out during the use of the sickle. The finding of the elements as part of the same handle obviously suggests a similar use also for AbT.15.144A and B. However it cannot be excluded that the blades originally belonged to different sickles, re-assembled inside a new handle inside Room 23. The activities related to bitumen melting highlighted by the heavy residue analysis (§ 9) could point also toward this hypothesis.

Moreover, it cannot be excluded that post depositional agents might have altered the blades in a different degree, preserving the use wear only on one element.

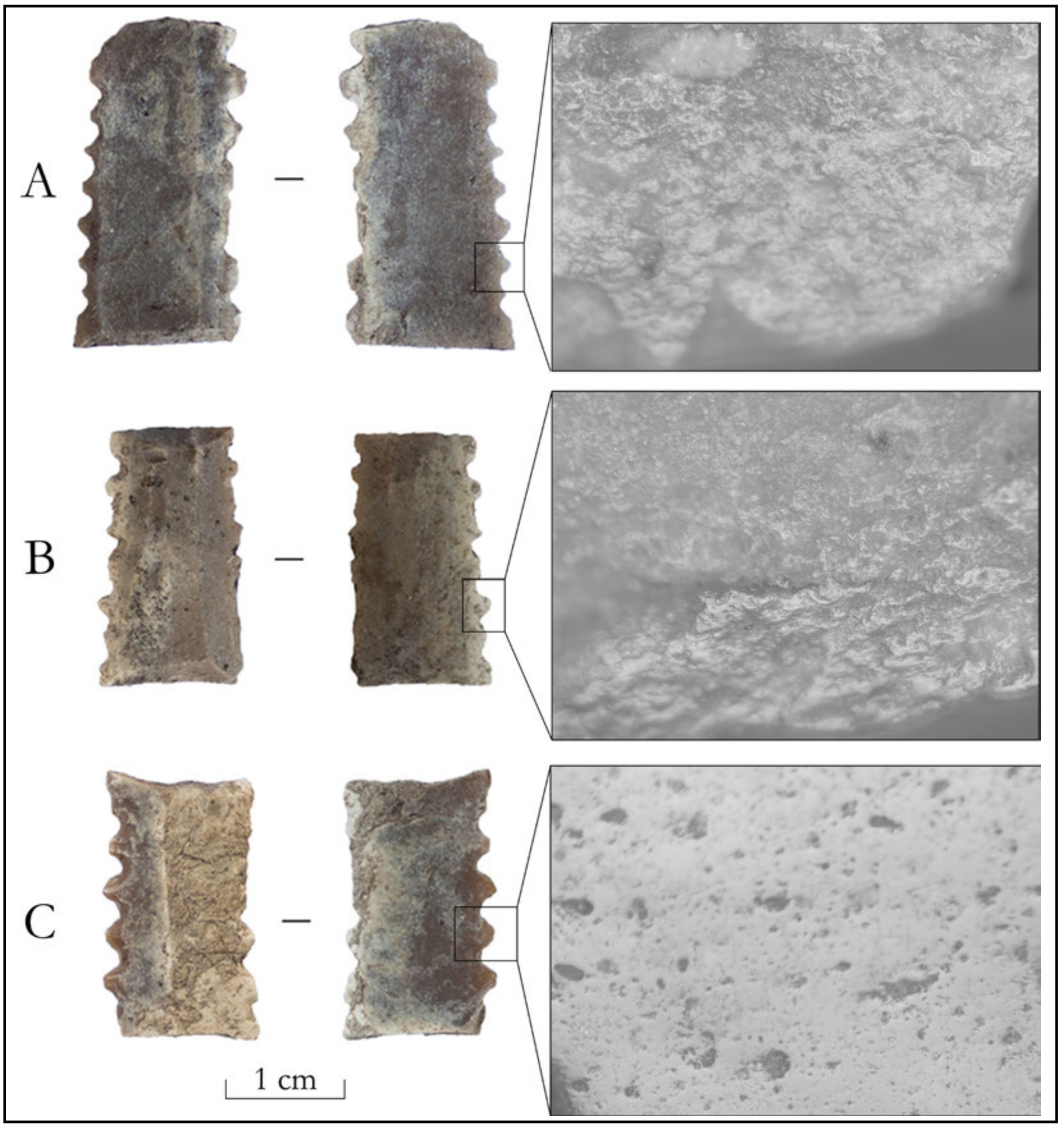

Fig. 15.5 Use-wear on AbT.15.114 elments. In the picture the three elements are in the same order in which they were handled. (magnification 10x).

15.4 Conclusions

The data related to the use wear analysis have produced a significant, although preliminary, knowledge of the dynamics of exploitation of the chipped lithic elements in the site of Abu Tbeirah. From the use wear analysis of the lithic tools belonging to the considered sample it is clear how chert tools recovered inside Building A were utilized in activities concerning the harvesting of cereals. In fact, among all the objects that showed use wear (19 objects out of 36) 17 showed the presence of cereal polishing.

The thickness of the bands of polish present on the edges of the tools and the characteristics of polishes are connected to cutting activities of cereals which lasted for several hours. Abu Tbeirah chert tools showed strongly rounded edges and highly smooth and flat polishes, suggesting the presence of very extended agricultural fields (Figs 15.6-11). The high concentration of sickle elements can still give indications on the importance of this type of activity for the subsistence of the inhabitants of the Abu Tbeirah and on the characteristics of the objects used for the harvesting of cereals. Obviously, further researches together with ongoing studies on Abu Tbeirah's region will help in reconstructing this specific production activity.

One important characteristic of the analysed sample is the total lack of use wear related to the handling of these objects: no traces due to handles or prehension were indeed found. Indirect data concerning the type of handles can be derived from the shape of the polishing bands present on the edges of the lithic tools. All the sickle elements have a polishing band parallel to the edge which is connected to a horizontal insertion within the handle. Only in the case of AbT.13.84 there is the presence of a diagonal band that seems to be related to a different type of insertion in the handle. The discovery of three sickle elements, AbT.15.114 A, B and C, found set in bitumen, could suggest the use of this type of glue to fix the lithic elements to the handle. This suggests that the absence of traces of handles found so far could be partly linked to this factor. The large amount of bitumen found still attached to the sickle elements might not have allowed the formation of traces of hafting, usually produced by the contact between the handle and the lithic objects. However, this remains only an initial hypothesis that requires further investigations, including both the analysis of larger samples of material and targeted experiments. In order to allow a more specific and rigorous comparison, these experiments will concern the reproduction of the polishes found on the archaeological material reproducing sickles using bitumen as a glue.

Some dynamics regarding both the acquisition and the way of using the sickle elements remain to be clarified. In particular, it would be interesting to investigate the dynamics related to the large quantity of retouched objects which, however, do not show traces of use after retouching. This behaviour suggests an activity of preventive retouching, disconnected from the real will to (re) use of the objects. It is necessary to continue the excavation activities and the analysis of the lithic material to verify this hypothesis.

Excavation of Building A rooms did not reveal any pattern in chert tools distribution or specific concentrations of sickles elements in the individual rooms, though HRA of the pavements is still ongoing. The only significant exception is the concentration found in Room 23, in which five objects related to cereal cutting were found.

The peculiar characteristic of the elements of the sickle discovered in Room 23 (poor development of polishing in AbT.15.114 A and AbT.15.114 B) potentially might contribute, thanks to further researches and experiments, to understand the gestures and movements of the ancient user of the tool or, rather, contribute to better clarify the function(s) of this part of the Building.

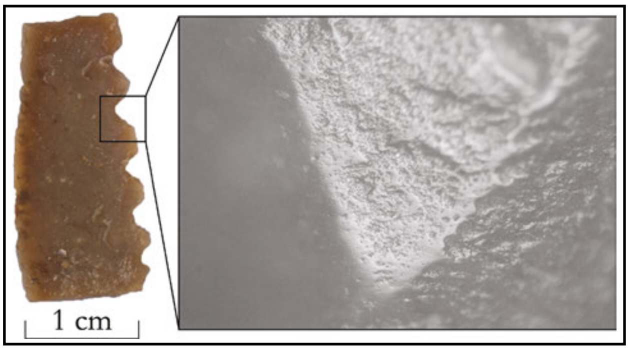

Fig. 15.6 AbT.15.3.

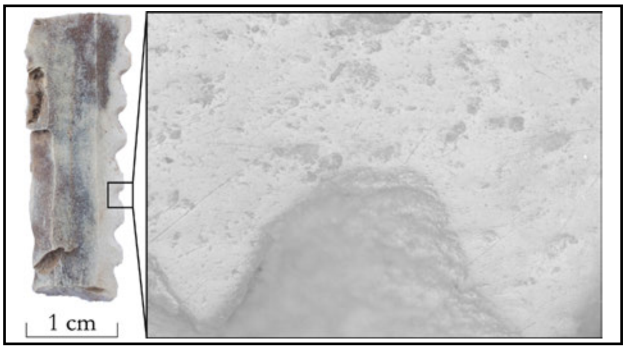

Fig. 15.7 AbT.15.52.

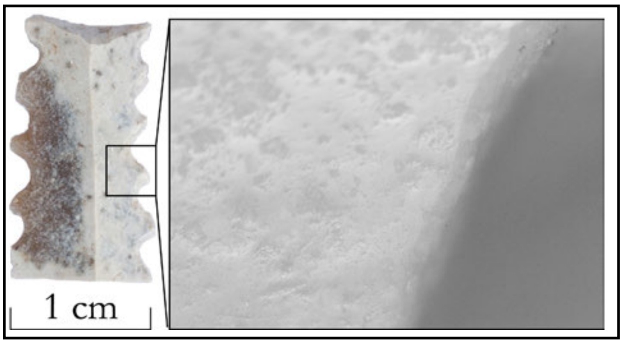

Fig. 15.8 AbT.15.66.

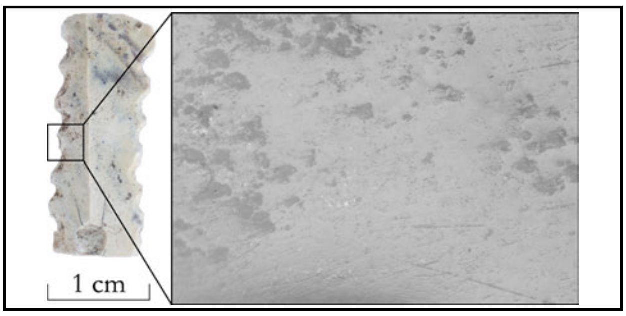

Fig. 15.9 AbT.15.82.

Fig. 15.10 AbT.15.122.

Fig. 15.11 AbT.15.144.

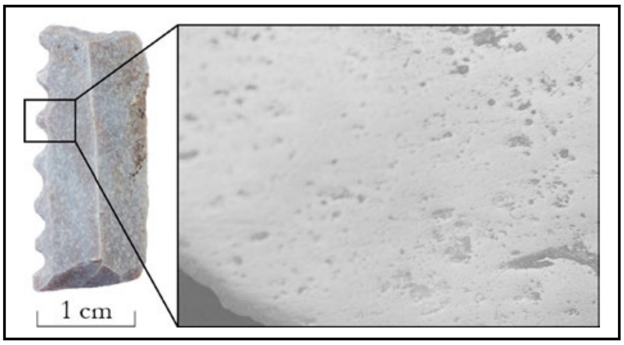

Fig. 15.12 AbT.15.145.

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CHAPTER 16

ABU TBEIRAH.
A PHILOLOGICAL AND EPIGRAPHIC POINT OF VIEW

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A PHILOLOGICAL AND EPIGRAPHIC POINT OF VIEW

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16.1 Premise[1]

As archaeological work on the field is still in progress in Abu Tbeirah and eloquent epigraphic evidence lacks so far, apart from some uncertain fragments and inscribed bricks (see Appendix below), the following considerations must be regarded only as an appraisal of the information we can get from the epigraphic sources, mainly from the 3rd millennium BC, related to the geographical area where Abu Tbeirah lays, and in no way they intend to represent a direct proposal of identification of the city with an ancient toponym.

Our task is here much simpler: we would like to highlight some specific clues the site offers in order to put forward some considerations about its ancient geographical and historical setting, as this comes out from the written documentation on the area (see also § 3) - its proximity to the ancient capital city of Ur (a distance almost equivalent to that between Ur and Eridu) being the most evident aspect - and in doing so to point out the "political" background of the Sumerian city. On the base of this description a group of toponyms is sorted out as possible candidates of the ancient name of our site.

The size of Abu Tbeirah (see § 6.1), however, hints to a significant geographical, political and economic role played by this city in the region in the period of its *floruit* (2450-2000 BC, see § 6.1), and this aspect must always be kept in mind in the following considerations.

16.2 The Water System of Abu Tbeirah[2]

Already T. Jacobsen noted in 1960 that "a systematic survey of all existing settlements (tells) in a region [...] will therefore show that they are grouped in linear patterns representing the lines of the major water courses of the region in antiquity".[3] In fact, although Abu Tbeirah lays just beyond the area surveyed by Wright (10 km south-west of Nasiriyah) in the late 60s of the past century,[4] a sequence of ancient sites extending north-est from Ur, along what can have been the course of an ancient canal, can been traced, as Fig. 16.1 will show (see also § 4).

Wright's survey seems to indicate that the canal system eastward of Ur appeared in ED period (ca. 2900-2350 BC) and disappeared in the OB period (ca. 2000-1500 BC). At that time, two main canals lapped the city of Ur, one north and one south. The comparison between Wright's maps and modern satellite imagery could suggest that the northern canal may have continued north-

[1] F. D'Agostino is the author of § 16.4 and Appendix, while A. Greco of §§ 16.2 and 3; 16.1 and 5 are common work of the two authors. Bibliographic abbreviations follow CDLI Abbreviation List for Assyriology: http://cdli.ox.ac.uk/wiki/abbreviations_for_assyriology. Literary composition, if not differently stated, are cited by number according to ETCSL (http://etcsl.orinst.ox.ac.uk/edition2/etcslbycat.php).

[2] For the inner canalization system of the city see D'Agostino - Romano 2018: 35 ff. and below..

[3] Jacobsen 1960: 174.

[4] See *e.g.* D'Agostino - Romano 2014: 165.

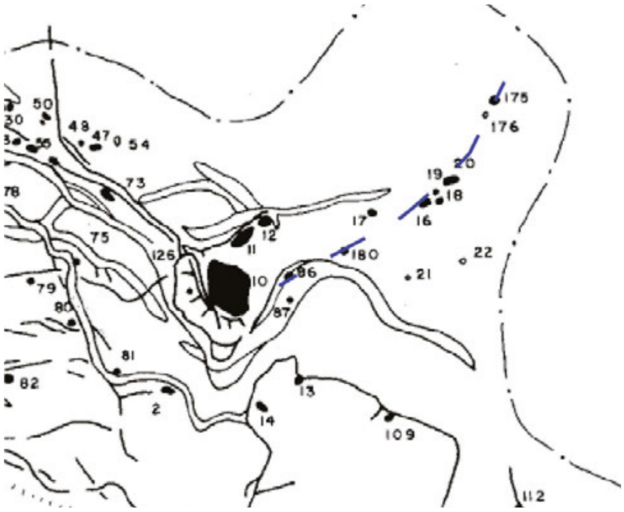

Fig. 16.1 Map of the southern Sumer survey area (modified from Wright 1981: 299).

TCTI 2, 3317 (Ĝirsu, AS 8/xi)

o.	*o.*
1. 6 ĝuruš u$_4$ 15-**še**$_3$	*6 workers for 15 days*
2. ma$_2$ zi$_3$-da gid$_2$-da	*to tow a boat (loaded with) wheat*
3. Ĝir$_2$-su^{ki}-ta	*from Ĝirsu*
4. Uri$_5$^{ki}-**še**$_3$	*to Ur,*
5. Uri$_5$^{ki}-ta	*(then) from Ur*
r.	*r.*
1. Unug^{ki}-še$_3$	*to Uruk;*
2. ugula Ur-^{d}Lama	*the supervisor was Ur-Lama*
3. dumu Ur-^{d}Nun-gal	*son of Ur-Nungal*
4. ĝiri$_3$ Ur-^{d}Lama dumu Urdu$_2$-ĝu$_{10}$	*the 'conveyor' was Ur-Lama son of Urduĝu*
5. iti še-sag$_{11}$-ku$_5$	*month: xi*
6. mu en Eridu^{ki} ba-huĝ	*Year: AS 8*

eastwards, a supposition that still requires a confirm, but which is supported by the presence of various sites grouped along the north-east axis in that lapse of time. Therefore, it is not to be excluded that the canal running north of Ur may have been the water course crossing Abu Tbeirah.[5]

Hypothetically, considering that the distance of 16 km between Abu Tbeirah and Ur can approximately correspond to 2 day trip towing a boat (considering an average speed of 8.1 km/day),[6] Abu Tbeirah might have represented a stage in the routes crossing the territory surrounding Ur toward east. During the 3rd mill. BC the territory of Ur boarded north-east with that of Ĝirsu/Lagaš, respectively modern Telloh, laying ca. 65 km north-east of Ur, and modern Tell al-Hiba, ca. 25 km south-east of Telloh. An administrative text from the end of the 3rd millennium, TCTI 2, 3317, seems to refer to two different routes connecting Ur with 'northern' cities: a route extending north-east, towards the territory of Ĝirsu, and a route extending north-west, towards the city of Uruk. It indeed records the employment of 6 male workers for towing a boat during 15 days from Ĝirsu to Ur and then from Ur to Uruk.

In that period, the main water courses crossing the area between Ur and Lagaš were the Nannagugal canal, which may have represented the territorial border,[7] and the Nun canal, a branch of the Tigris, which from the area of Apisal,[8] north of Ĝirsu, ran southwards along the provincial border to reach eventually Ur.[9] In addition, a marshy area laid in the southern territory between the two canals, which, according to Carroué,[10] was drained and restored for cultivation by Ur-Namma, who brought them back inside the borders of Ur.[11]

As said above, our intent is to describe the topographical evidence that can be gathered from texts regarding the territory near Ur in order to sort out the sites which can represent, for their specific setting, the geographical and cultural characteristics of the site of Abu Tbeirah. In order to do so, we are going to utilize mainly the information from the literary texts mentioning routes, or geographical aspects, involving the Sumerian Capital of Ur.

[5] D'Agostino - Romano 2014: 164.
[6] Measure danna at a cubit of 50 cm, see Powell 1987-90: 467 *ad* §1.2.l; Algaze 2008: 61.

[7] Already Pettinato 1970-71: 320.
[8] Identified with modern Muhallaqiya. Despite its proximity to Ĝirsu, at the end of the 3rd mill. BC Apisal fell in the territory of the city of Umma. See Steinkeller 2001: 54.
[9] *Ibid.* 55-56.
[10] Carroué 1993: 59.
[11] So, a waterway led from Ĝirsu to Ur and from Ur to Uruk: the bifurcation north of Abu Tbeirah of the canal running through the city may well account for this reconstruction of the canal system of the end of the 3rd mill. BC. Traces of a marshy environment in the territory of Abu Tbeirah were recently discussed in D'Agostino - Romano 2018.

16.3 Literary Compositions Describing Routes in the Proximity of Ur

In the last 60 years, several scholars analyzed the topography of the area surrounding Ur. Among them, we mention here specifically the works of Jacobsen,[12] Nissen and Adams,[13] Wilcke,[14] Wright,[15] Carroué.[16] More specifically, Wilcke and Carroué analyzed Sumerian literary compositions which depict routes involving the city of Ur. Among those compositions, the ones which may involve toponyms representing the geographical area in the immediate vicinity of Ur and can more straightforwardly be put in relation with the ancient site of Abu Tbeirah, topographically and politically, are represented by the *Temple Hymns* (TH A and B, for the *sigla* see below), the *Lamentation over the destruction of Sumer and Ur* (LSU), *Šulgi D* (ŠD),[17] *Šulgi X* (ŠX),[18] the *Nanna's Journey to Nippur* (NanJ).

The *Temple Hymns* (TH A, for the composite texts see ETCSL 4.80.1) describes a route going from south to north which involves several temples, holy quarters and cities of the Mesopotamian region; its origin possibly dates back to the early part of the Sargonic period.[19] A variant of this same composition, labelled here *Temple Hymns B* (TH B), following the *siglum* by Wilcke,[20] can be ascribed to the end of the 3rd mill. BC or the beginning of the 2nd mill. BC.

The *Lamentation over the destruction of Sumer and Ur* (LSU, ETCSL 2.2.3) reflects the advance, and possibly the itinerary, of Elamite troops at the end of the 3rd mill. BC from Gu'aba, in the territory of Ĝirsu/Lagaš**,** the eastern border, toward Ur.[21]

Šulgi D (ŠD**,** ETCSL 2.4.2.04) concerns the military campaign of Šulgi against the Gutians and describes a route between the cities of Ur and Larsa,[22] while *Šulgi X* (ŠX**,** ETCSL 2.4.2.24) might be the continuation of *Šulgi D* with the description of the return journey.[23]

The Nanna's journey to Nippur (NanJ, ETCSL 1.5.1) quotes just few cities in the god's journey from Ur to Nippur. Here, a lacuna affects the sequence between Ur and the city of Enegir, while two names before Nippur are lost. It is interesting to stress here, however, that according to Wilcke, *Nanna's Journey to Nippur* was originally composed during the time of Ur-Namma.[24]

Beyond the afore-mentioned ones, a further composition that needs to be recalled is represented by the so called *Zami Hymns* (ZH), which dates backs to the Early Dynastic period; it quotes several deities and relevant cult places, although the list does not seem to reflect a proper geographical order.[25]

Tab. 16.1 reports the stages quoted or inferable in the above mentioned literary compositions lying

[12] Jacobsen 1960.

[13] Nissen - Adams 1972.

[14] Wilcke 1972.

[15] Wright 1981.

[16] Carroué 1993.

[17] Klein 1981: 50 ff.

[18] Klein 1981: 124 ff.

[19] See Wilcke 1972: 46-48 (also for the different recensions) and ETCSL 4.80.1.

[20] Wilcke 1972: 45 ff.

[21] The first part of the composition can be interpreted as focusing on the loss of power of the Ur kingdom in the northern territories, describing a route running from north-west to south-east, for which see Wilcke 1972, 43; but see also Michalowski 1989, 10 ff. (taking into account the reluctance of the Author to 'summarize' a literary text): "This synopsis of the whole section [of the first Kirugu] that dealt with Sumer provides the opportunity to move from the general to the particular, from the land of Sumer to the center, to the primary topic of the text: the city of Ur. Eventually, the text returns to the topic of Sumer, which now includes Ur as the center".

[22] According to Frayne, the composition describes Šulgi gathering troops from various cities; Frayne 1983: 96. As noted by Wilcke (1972: 42) the sequence of cities in this composition can be traced through the list of city-gods invoked by the king during his journey: Gilgameš (who is indicated as brother and friend of Šulgi; thus he might have been quoted for his role, without any hints to specific places), Nanna (Ur), Ningublam (Kiabrig), Ningišzida (Ĝešbanda), Ninazu (Enegir), Enki (a mention that, according to Wilcke, didn't imply a travel stage at Eridu, but rather that Enki supported the king from Eridu at the place where the Eridu and Iturungal canals met), Utu (Larsa).

[23] On this regard, see Frayne 1983: 93 and 96-97.

[24] Wilcke 1974: 180.

[25] Biggs 1974: 45 ff.; Sallaberger - Schrakamp: 2015: 65, define it as an important literary source for the geographical horizon of the Fara Period, though, of course, not all the mentioned place names can be identified with certainty.

TH 1	TH 2	NanJ	Šulgi D	Šulgi X	LSU	ZH
						Nippur
Eridu	Eridu					Kullaba
Nippur	Nippur					Eridu?
Keši	Keši					Ku'ara
Ur	Ur	Ur	Ur	Ur	Ur	Ur
Ku'ara	Ku'ara	Enegir	Kiabrig	Enegir	Kisig	Eridu
Kiabrig	Kiabrig	Larsa	Ĝešbanda	Larsa	Eridu	Zabalam
Ga'eš	Enegir	Uruk	Enegir		Ku'ara	Sippar
Larsa	Ĝešbanda	Šuruppak	(Eridu)		Ĝešbanda	Kutha
Enegir	Ga'eš		Larsa		Enegir (Egida)	Kiš
Ĝešbanda	Larsa				Kiabrig	Adab
					Aššu	Keš
					Ga'eš	
Uruk	Uruk			Uruk	I-Nun Nanna	Uruk
					Edana Nanna	Karkara
					Niĝin	Ereš
					Kinirša	Umma
					Lagaš	Lagaš
					Gu'aba	Niĝin
						Ĝirsu
						Kiabrig
						Enegir
						Eššu
						AB.KID:KID
						etc.

Tab. 16.1 List of ancient cities quoted in literary compositions.

in area comprised between Ur and Uruk in the south of the region.[26]

16.4 Cities in the Vicinity of Ur

So far, the ancient cities quoted in the literary compositions were connected with the sites surveyed by Wright along the axis north-west of Ur, very likely on the banks of an ancient canal flowing west of Ur and connecting the two cities of Uruk and Eridu. This is completely meaningful, since, as clearly shown in the table above, the sequence of cities mostly follows the direction Ur-Larsa/Uruk.[27]

Of course, literary sequences not necessarily reflect a linear geographical order, as the starting sequence of TH Eridu-Nippur-Keši-Ur easily shows. The only composition which may suggest a route extending north-east[28] of Ur is LSU, since, as already seen, it possibly describes a sequence of cities going from the territory of Lagaš to that of Ur. Various cities quoted in LSU[29] can be considered satellites of Ur[30] or cult centres situated in the general environs of Ur.[31] Therefore, it seems plausible that, given the size of the ancient site and its proximity to Ur, one of the cities mentioned by the compositions might be the ancient name of

[26] For a complete schema, see Wilcke 1972: 40-41.

[27] With regard to the sites north-west of Ur, along what may have been a canal connecting Eridu and Uruk in late 4th - early 3rd millennium BC, see Wright 1981: 327 and Benati 2015: 12.

[28] A similar sequence may be also suggested by ZH, which however does not describe any specific route nor a linear geographical sequence.

[29] As in Wilcke (1972), Tab. 16.1 inverts the sequence of the quoted cities, showing Ur as starting point of the journey.

[30] Steinkeller 1995: 278.

[31] Frayne 1997: 102.

Abu Tbeirah: what follows is a list of information on these toponyms.

16.4.1 Enegir

Among the cities in the vicinity of Ur behind the name of which could hide the identity of Abu Tbeirah, the city of Enegir is the most often cited in the documentation at our disposal, the cult place of the god Ninazu[32] and his spouse Ninĝirida, whose temple is E$_2$-gid$_2$-da.[33] See most clearly in TH 179-185:

Enegir^{ki} a-pa$_4$ gal a-pa$_4$ piš$_{10}$ ^{d}Ereš-ki-gal-la-ka / Gu$_2$-du$_8$-a ki-en-gi-ra gu$_2$ si-a nam-lu$_2$-ulu$_3$ / E$_2$-gid$_2$-da ĝissu-zu nun kur-ra-ke$_4$-ne kur-ra ša-mu-ni-in-la$_2$ / nun-zu a en gal-la šita ki gal-la ^{d}Ereš-ki-gal-la-ke$_4$ tud-da / gu$_3$ nun za-na-ru-ba šu tag-ga amar ad-ba sa$_6$-sa$_6$ / ^{d}Nin-a-zu inim šudu$_3$-da-ke$_4$ / e$_2$ Enegir^{ki} muš$_3$-za e$_2$ bi$_2$-in-gub bara$_2$-za dur$_2$ bi$_2$-in-ĝar

"O Enegir, big libation pipe, libation pipe at Ereškigal's quay; o Gudu'a of Sumer where mankind gathers; o Egida, your shadow was spread over all the princes in the foreign land! Your prince, the seed of the great lord, the priest of the underworld generated by Ereškigal, who plays the *zanaru*-instrument with the princely sound (whose voice is pleasant like that of the calf), Ninazu, (the one of) the word of the prayers (for the dead), a temple of Enegir, a house, established in your holy space and took (his) residence in your sanctuary!".[34]

As cult place of the god Ninazu, Enegir was obviously connected to the underworld:[35] the description of Enegir as "big pipe, pipe of Ereškigal's quay" in the cited passage, where the "pipe" is to be interpreted as the clay tube down which offerings to the dead of a liquid nature were poured (see above), is a clear reference to the representation of the city as the *axis* between the world of the living and the one of the dead.[36]

In LSU, ll. 206-209, one reads (after Kiabrig, below *ad* 2, and before Ĝešbanda, below *ad* 3):

^{d}Nin-a-zu E$_2$-gid$_2$-da-ke$_4$ ^{ĝeš}tukul ub-ba i-ni-in-gub / ^{d}Nin-hur-saĝ E$_2$-nu-tur-ra-ke$_4$[37] u$_4$ hul ba-an-da-dal / tu^{mušen}-gin$_7$ ab-lal$_3$-ta ba-da-an-dal edin-na bar bi$_2$-ib-gub / a iri^{ki} gul-la e$_2$ gul-la-ĝu$_{10}$ gig-ga-bi im-me

"Ninazu of Egida put his weapon in a corner. Ninhursaĝ of Nutur flew away the horrible storm flying as a pigeon out of a window and went out to the plain, crying in pain: 'O, my destroyed city! O, my destroyed temple!'"

There are different proposals of identification of this city: Išan Khaiber, north-west of Ur;[38] Mašar, about 25 km north-north-west of Ur;[39] Umm al-Wawiya, south of Larsa and Uruk;[40] Diqdiqah, a mound situated 2.4 km north-east from the Ziqqurat of Ur.[41] Except for that of Diqdiqah, all the proposals agree in locating it north-west of Ur.

In the ED III the spelling of the city occurs as EN.GI$_{(4)}$.KI; later, in the Sargonic and Ur III sources it occurs as EN.DIM$_2$.GIG^{ki}, to be replaced from the Old Babylonian period by the writing IM^{ki} (see also below).[42]

Though there are no direct references indicating that Enegir lays on the banks of a canal, the sequence in *Nanna's Journey to Nippur*, that is Enegir, Larsa, Uruk, and Shuruppak, can suggest that Enegir was on a branch of the Euphrates. Even if we do not have any clue as to the distances to the other cited places, the above mentioned list

[32] Wiggermann 1998-00a.

[33] George 1993: 94 *ad* 392; see also *implicite* Ninazu A (ETCSL 4.17.1), ll. 20 ff., where the temple is described as kur and Nanna's Journey, referring to Ninĝirida, Krebernik 1998-00.

[34] See also *Šulgi X*, 80-132, where Ninazu blesses Šulgi before the king enters in front of Nanna in Ur, and *Nanna's Journey*, where in the trip of the god to Nippur one finds the sequence Enegir - Ur (198), followed by Larsa - Enegir (209), during the procession; still *e.g.* LSU 206, Michalowski 1989: 91 and below in the text.

[35] On this regard, see Lambert 1980: 61, and Wiggermann 1998-00a: 329 ff.; this connection is known since the ED period, see NTSŠ 168, XI, 6.

[36] Lambert 1980: 61. See also the Ur-Namma inscription to Gilgameš of Enegir (written EN.DIM$_2$.GIG^{ki}), where the identification of this city with the underworld is related to the king of Uruk as judge of the Netherworld, RIME 3, 2.1.1.47 (commentary on p. 82 f. for the writing).

[37] According George 1993: *s.v.* and Michalowski 1989: 91, this is the only attestation of this temple name, but the toponym Nutur(a) is often cited in Ur III texts, *e.g.* most recently BPOA 7: 2202, 2511 (always in connection with ^{d}Nin-hur-saĝ and ^{d}Šul-pa-e$_3$), see Sallaberger 1993: 59 and fn. 246, for the possibility that this could represent a by-name of the temple of the same goddess E$_2$-ga-nu$_{11}$^{mušen} in Ĝešbanda, and *ibid.*: 189, fn. 896; also Frayne 1997: 102, and see also below, fn. 57 (does it belong here the PN Nin-nu-tur, CTNMC 54, o. VI, 20?).

[38] Wright 1981: 340; Frayne 1983: 96.

[39] Frayne 2008: 10.

[40] Nissen - Adams 1972: 40.

[41] Steinkeller 1981: 86.

[42] Carroué 1993: 35 ff., esp. p. 38, Tab. III; Wiggermann 1998-00a: 333.

and the sequence in the *Temple Hymns*, *e.g.* Larsa, Enegir, Ĝešbanda, and Uruk, seem to suggest a location not far from Uruk and Larsa.[43] Moreover, Enegir was probably included in the geographical horizon of Presargonic Lagaš, even if ambiguity in the spelling must be taken into consideration. In fact, as said above, in the ED IIIa/b the name of the city is written EN.GI$_{(4)}$.KI, a writing which is in itself ambiguous.[44]

Anyway, Enegir was clearly considered a place under the direct influence of Ur, if we have to believe to Šulgi D, 373-374, where the citizens of the two cities, jointly, accompany the king Šulgi to Nippur to visit Enlil after the revenge on the enemies of Sumer:

a-ne-ne dumu Enegir^{ki} dumu Urim$_2$^{ki}-ma-me-eš$_2$ / en-da ^{geš}ĝisal ZA x mu-da-la$_2$-ne

"it is indeed they, the citizens of Enegir and the citizens of Ur, who immerse the oars in$^?$ the ... together with the lord".[45]

In Ur III the writing is EN.DIM$_2$.GIG.KI, for which see *e.g.* AuOr 7, 160 (ŠS, date broken, Drehem), r. I, 12'-14': 2 udu [x] / ^{d}Nin-[šubur$^?$] / ša$_3$ Ene[gir] (EN.DI[M$_2$.GIG.KI]) ša$_3$ min$_3$ TUR [x]; for the integration as Nin-šubur of the worshipped god see UET III 267 (IS 13/viii/-, Ur), r. I, 15: 2 sila$_3$ ninda ^{d}Nin-šubur Enegir^{ki} (= EN.DIM$_2$.GIG.KI) and Studies Levine 132-138 r. I, 26-29: 1 udu / 1 sila$_4$ / ^{d}Nin-šubur / ša$_3$ Enegir^{ki} (= EN.DIM$_2$.GIG.KI) in a list of sheep for Ninšubur, Ninazu, and Ereškigal in Enegir, followed by offerings for Ninĝešzida in Ĝešbanda (see below *ad* 3). Always from Drehem see A 5503, ŠS 9/xii/17, o. 4: 3 udu niga 4-kam us$_2$ / ša$_3$ Enegir<ki> (EN.DIM$_2$.GIG) / ki-a-nag *A-bi$_2$-si$_2$-im-ti* (in Ur). During the Third Dynasty of Ur the city seems to be devoted to the cult of the dead, a sort of gate to the Netherworld (for which see TH 179 ff. cited above).

16.4.2 Kiabrig

The god of the city of Kiabrig (written KI.ABRIG$_x$[NUN.DU] or KI.AB$_2$.RIG$_7$)[46] is Ningublaga, son of Nanna,[47] dwelling in the temple (e$_2$) Ĝa$_2$-bur-ra[48] with his spouse Nin-(e)-igara.[49] It must be stressed that very few, beyond the literary tradition, is known about this city;[50] the toponym is cited in the following literary passages. In LSU, ll. 200-205, before Enegir (above *ad* 1), after Aššu (below *ad* 5), one finds:

Ki-abrig$_x$(NUN.ME.DU)^{ki}-ga ab$_2$ lu amar lu-a-ri tur$_3$ dugud-gin$_7$ ba-gul / ^{d}Nin-gublaga-ke$_4$ Ĝa$_2$-bur-ta ĝiri$_3$ kur$_2$ ba-ra-an-dab$_5$ / ^{d}Nin-i$_3$-ga-ra$_2$-ke$_4$ ni$_2$-te-na er$_2$ gig mu-un-še$_8$-še$_8$ / a iri^{ki} gul-la e$_2$ gul-la-ĝu$_{10}$ gig-ga-bi im-me / ĝe$_6$-par$_4$ ku$_3$ nam-en-na-ba šu ba-e-la$_2$-la$_2$ / en-bi ĝe$_6$-par$_4$-ta ba-da-an-kar ki-erim$_2$-e ba-ab-de$_6$

"Kiabrig, once full of numerous cows and calves,[51] crumbled like an heavy stall. Ningublaga from the (temple) Ĝabur moved away his foot, Ninigara wept bitterly all alone, crying in pain: 'O, my destroyed city! O, my destroyed temple!'. Its sacred chamber of the *en*-ship was violated, its priestess was

[43] Nissen - Adams 1972: 51: "The lists seem to contradict one another as one puts Enegir between Ur and Larsa, whereas the other places it between Larsa and Uruk. This could be explained if the point where the two branches of the Euphrates joined is placed not near Larsa but in the area between Larsa and Uruk (cf. above). Since Enegir is reached before Larsa on the way upstream from Ur, and since it is at the same time between Larsa and Uruk, it then may have been located right at the confluence of the two branches of the Euphrates".

[44] See EDATŠ, 11 ff. and Sallaberger - Schrakamp 2015: 202 ad fn. 67, with bibliography, for different hypotheses of interpretation.

[45] See also Ninazu A, where it is said (repeated twice at ll. 16-17), en ^{d}Nin-a-zu Urim$_2$^{ki}-ma tud-da ^{d}Nanna he$_2$-e-da-hul$_2$, "O Ninazu, begotten in Ur, may Nanna be happy with you!".

[46] See Edzard 1976-80: 586 ("in Südbabylonien"): in ŠD between Ĝešbanda and Ur, in TH between Ku'ara and Ga'eš or Enegir, in LSU between Aššu and Enegir (occurrences in Hh after Kiniršа and Kimaš only for alliteration) - see fn. 47 and below in the text. Writing: ki-^{ab2}abrig$_x$(NUN.DU)^{ki}, ki-ab$_2$-rig$_7$^{ki}.

[47] Cavigneaux - Krebernik 1998-00b: 374 (*ad* § 2 for the writing of the name); see also Michalowski 1989: 90 f. *ad* l. 200.

[48] George 1993: 86 *ad* 294. According to Charpin 1986: 221 f., this temple might have been destroyed as a consequence of the fall of Ur (see below in the text) and never built again in Kiabrig, while the worship of Ningublaga continues at Ur in a temple with the same name, see George 1993: 86 *ad* 295 (admittedly, having not yet found the site of Kiabrig, this is merely a truism); see the negative considerations of Michalowski 1989: 90 (with further bibliography).

[49] Cavigneaux - Krebernik 1998-00: 348; see also Michalowski 1989: 90 f. *ad* l. 202.

[50] Carroué 1993 places it in the very proximity of Ur, since Ningublaga was considered among the deities of the city of Ur during Ur III times (see preceding footnote).

[51] This is a hint to Ningublaga as *Rindergott*, for which see Cavigneaux - Krebernik 1998-00b: 374 and e$_2$-gu$_4$-du$_7$-šar$_2$ as an epithet of Ĝabura in TH, l. 147 and *passim* - see also below.

taken out of the chamber and brought to an hostile place!".

In TH, between Ga'eš (or Enegir) and Ku'ara, ll. 147-157:

E$_2$-gu$_4$-du$_7$-šar$_2$ ^{na4}nir$_2$ ku$_3$-ga lugal-bi u$_5$-a / ĝeš-bur$_2$ mah il$_2$ dumu nun-na / u$_2$ li du$_{10}$-bi ku$_3$ du$_{10}$-ba ĝal$_2$-la / Ĝa$_2$-bur-ra tur$_3$ ku$_3$ ab$_2$ ^{u2}musur niĝin$_2$-na / nun-zu am gal am-si a$_2$-ni-še$_3$ hul$_2$-la / sumun$_2$ si mu$_2$ si muš$_3$-a-ni-še$_3$ hul$_2$-la / maš-maš eme ha-mun dungu an-na bi$_2$-DU / u$_4$ an-na gu$_3$ mur ak u$_4$-de$_3$ ki šu ra-ra šum$_2$-mu / ^{d}Nin-gublaga dumu ^{d}Nanna-a-ke$_4$ / Ki-abrig^{ki} muš$_3$-za e$_2$ bi$_2$-in-gub bara$_2$-za dur$_2$ bi$_2$-in-ĝar

"O E-gu-du-šar (place with innumerable perfect oxen) of pure *nir*-stone, where its master sits, the son of the prince lifts the lofty ... (and) in which the sweet pure oil is the sweetest! Ĝa-bura (precinct of big bowls), pure stall where cows wander (eating) ...-plants, where your prince, a great wild bull, an elephant as for his strength, (and) the wild cow (Nin-igara$^?$),[52] a well-formed horn as for her radiance, rejoice. The incantation priest of different languages - he put clouds in the sky, the storm roaring in the sky, the storm giving … to the earth, Nin-gublaga, the son of Nanna, o Ki-abrig, a house established in your holy space and took (his) residence in your sanctuary!".

Finally, the following passage of Šulgi D hints to the god Ningublaga, without citing him nor his temple directly (ll. 299-303):

am gal-še$_3$ tu-da piriĝ ne$_3$-ba gub-ba / ibila kalag-ga šul ^{d}Suen-na / dumu ur-saĝ ^{d}Aš-im$_2$-babbar-[ra] / sumun$_2$ zi za$_3$ gab$_2$-bu-ni-a ba-X X [X] / Šul-gi sipa zi ki-en-gi-ra ĝiri$_3$-a ba-da$^?$-DU$^?$

"Begotten (to be) a wild bull (*scil.* Nin-gublaga), a lion standing firmly in its strength, powerful heir of Suen, the young, first-born of Ašimbabbar, at whose left side the faithful wild cow (*scil.* Nin-igara) [sits$^?$], accompanies Šulgi, the faithful shepherd of Sumer".

The vocation of Ki-abrig in the Sumerian (literary) tradition seems to be tied directly with cattle and cattle breeding.[53]

[52] No attestation of this epitheton for the paredra of Nin-gublaga is known to me, even if it would be not too strange for the spouse of a *Rindergott* considered am gal; for the interpretation of sumun$_2$ as referring to Nin-igara see also below, Šulgi D, l. 302.

[53] See also Sallaberger - Schrakamp 2015: 209 and fn. 81 (with bibliography), for references of the city in Early Dynastic and Sargonic time; see also Carroué 1993: 46 ff. *ad* 3.2.1 for a hypothesis of localization.

16.4.3 Ĝešbanda

Ĝešbanda, in Ur III also spelled Nišbanda (see below), is the city of the god Ninĝešzida[54] and his spouse Ninazimua,[55] where their temple, with the same name as the city itself (see LSU 210 below), was to be found.[56] It should be noted that the little city of Ĝešbanda, which represents the main center of the cult of Ninĝešzida, is very rarely attested in the 3rd mill. BC.[57]

The proposed localization seeks the city in the vicinity of Ur, between Enegir and Kiabrig or in the area of Ku'ara, proposal based mainly on its patron deity and the literary tradition:[58] Tell Umm al-Dhab, near Tell al-Ubaid, with caution, has been proposed as an appropriate candidate.[59]

In the literary tradition Ĝešbanda can be found in LSU (after Enegir, before Ku'ara), ll. 210-213:

Ĝeš-ban$_3$-da e$_2$ er$_2$-re ĝal$_2$-la-ri gi er$_2$-ra ba-an-mu$_2$ / ^{d}Nin-ĝeš-zi-da Ĝeš-banda$_3$ ĝiri$_3$ kur$_2$ ba-ra-an-dab$_5$ / ^{d}A$_2$-zi-mu$_2$-a nin iri-a-ke$_4$ er$_2$ gig mu-un-še$_8$-še$_8$ / a iri^{ki} gul-la e$_2$ gul-la-ĝu$_{10}$ gig-ga-bi im-me

[54] See in general Wiggermann 1998-00b: 368 *ad* §1 for spelling and meaning of the name; also known as ^{d}Ĝeš-banda$_{(3)}$ (*ibid.*, 372).

[55] See Cavigneaux - Krebernik 1998-00a and Wiggermann 1998-00b: 369 *ad* §2.

[56] To the best of my knowledge the expression *e$_2$ Ĝeš-banda does not appear in the documentation, see George 1993: 95 *ad* 408.

[57] Wiggermann 2000b: 372 ad § 4: "a very small town that could hardly sustain an extensive cult" (*ibid.* for the many cities where the cult of this important god is attested) - it is much probable that in post Ur III time the cult of Ninĝešzida was transferred to Ur.

[58] The relationship with Enegi is also stressed by the fact the Ninĝešzida is the son of Ninazu and Ninĝirida (Wiggermann 2000b: 369 ad §2, and above in the text).

[59] Tell al-Ubaid is on the ancient course of the Euphrates river, recognized as Nutur, cult centre of Ninhursag, 6 km NW upstream of Ur, occupied since Eridu/Early Ubaid to Ur III, abandoned and never reoccupied again, see already Sallaberger 1993: 59, for which see also above, fn. 36; Carroué 1993: 50 (Tell Umm al-Dhab on the consideration that Ninĝešzida is a recent innovation, hence it is to be exspected archaeologically few remains of his sanctuary in his city – but see the definition of ki ul, "primeval place" for Ĝešbanda in TH below); Frayne 1997: 102. Note that Tell al-Ubaid has been proposed also as the modern name of Ku'ara, for which see Steinkeller 1980 and Sallaberger - Schrakamp 2015: 198, fn. 15.

"As for (the temple) Ĝešbanda, the house established for lamentation, reeds of lamentation grew;[60] Ninĝišzida from the (temple) Ĝešbanda moved away his foot, and Ninazimua, the Lady of the city, burst into bitter tears, crying in pain: 'O, my destroyed city! O, my destroyed temple!'".

In the TH, ll. 187-196, after Enegir (see above) and before Uruk, we read:

ki ul kur sig galam-e ĝar-ra / itima ki huš ša$_3$ tum$_2$-ma ri-a / su-zi a-ra$_2$ mah lu$_2$ nu-pa$_3$-de$_3$ / Ĝeš-ban$_3$-da^{ki} si-ĝar igi-te-en gan$_2$ ki-gal ĝiri$_3$ nu-e$_3$ / bar gi$_4$-a nim-ma ^{ĝeš}eš$_2$-ad-gin$_7$ rib-ba / ša$_3$-zu ki u$_4$ e$_3$ nam-he$_2$ daĝal šum$_2$-mu / nun-zu nun **šu** sikil gid$_2$ ku$_3$ an-na-ke$_4$ / siki ul he-nun bar-ra ĝal$_2$-la en ^{d}Nin-ĝeš-zi-da / ^{d}Nin-ĝeš-zi-da-ke$_4$ Ĝeš-ban$_3$-da^{ki} / muš$_3$-za e$_2$ bi$_2$-in-gub bara$_2$-za dur$_2$ bi$_2$-in-ĝar

"Primeval place, low$^{?}$ mountain established for admiration; chamber, wild place lying in a meadow; terror-inspiring (place), whose lofty paths none can run; Ĝešbanda, bond, meshed net, of the Underworld from which none can get out: your elevated$^{?}$ exterior is big like a snare; your interior, where the sun rises, offers enormous plenty. Your prince is the holy prince who stretches out his pure hand toward the heaven, with luxuriant and abundant hair at his back, lord Ninĝešzida; Ninĝešzida a house has established in your holy space and took (his) residence in your sanctuary!".

It must be stressed that a correlation between Enegir and Ĝešbanda can be detected also in the Ur III administrative documentation, where Ĝešbanda is often cited together with Enegir, for which see *e.g.* Studies Levine (broken date), r. I, 22-33: 1 udu / 1 sila$_4$ / ^{d}Nin-a-zu / 1 udu ^{d}Ereš-ki-gal / 1 udu / 1 sila$_4$ / ^{d}Nin-šubur / ša$_3$ Enegir^{ki} (=EN.DIM$_2$.GIG.KI) / 1 udu / 1 sila$_4$ / ^{d}Nin-geš-zi-da / ša$_3$ Ĝeš-banda$_3^{ki}$.[61]

16.4.4 Ga'eš

Ga'eš was an Ur III centre near Ur,[62] attested both with the writing Ga-eš^{ki} and Ga-eš$_5^{ki}$. In the Ur III documentation the toponym mostly occurs in the year names of the 36th year of reign of Šulgi and of the 9th year of reign of his son Amar-Suena, mentioning the installation of an En-priestess in the local temple. The name of the temple is Karzida, dedicated to Nanna of Ga'eš,[63] occurring in the above mentioned year names together or at the place of Ga'eš itself.[64] Ga'eš was involved in Nanna's festivals of the Akiti, which started in Nanna's temple in Ur and then followed in Ga'eš, hinting to the fact that the two centres were likely directly connected through a canal, which was used by the procession to reach the festival stage in Ga'eš.[65] In the Larsa Period, Ga'eš is finally quoted as birthplace of the ruler Sîn-iddinam.[66]

Carroué suggests a location of Ga'eš a few kilometers (north-)east from Ur,[67] followed by Stone - Zimanski, who have recently proposed an identification with Tell Sakhariyah, east of Ur.[68] A. Al-Hamdani, in § 2 of this volume, defends convincingly the hypothesis that Tell Abu Tbeirah could be Ga'eš.

The city is also attested in the literary tradition. The section concerning Ga'eš in LSU, ll. 188-194, starts after a sequence of cities in the eastern territory of Ĝirsu/Lagaš, which are followed by the mention of the Nun-canal of Nanna, i$_7$ nun ^{d}Nanna,[69] and the settlement E-dana of Nanna;[70]

[60] ETCSL 2.2.3, *ad l.*, reads gul, "destroy" (for the reading here accepted see Michalowski 1989: 91 and 145).

[61] As said above, the city can be spelled Nišbanda in Ur III, starting from AS 8 (JCS 23, 114, 31, Drehem) to IS 8 (MVN 13, 17, Ur).

[62] Already Unger 1957-71: 132. It is not to be excluded that Ga'eš was already known in ED II administrative texts, see Sallaberger - Schrakamp 2015: 59.

[63] George 1993: *ad* 108; the name of the temple is synonimous with the city, see the comment of Stone - Zimanski 2014: 57: "That Ga'eš was overwhelmingly ceremonial is suggested by the fact that it was sometimes simply called Karzida, equating the temple with the place itself"; the same is true for Ĝešbanda, *e.g.* LSU, l. 210, cited without determinative, see above *ad* 3.

[64] For the complete year names and variants see Frayne 1997: 105 and 241. For the 9th year of reign of Šulgi, mentioning Nanna of Karzida, the holy area of Ga'eš, see Frayne 1997: 98.

[65] Sallaberger 1993: 170-172.

[66] Frayne 1990: 167.

[67] Carroué 1993: 51 and 63.

[68] Stone - Zimanski 2014. It must be noted that the name of the temple of Ga'eš, meaning "the reliable port, or the reliable docking", nicely recalls the importance of the harbor of Abu Tbeirah as highlighted in D'Agostino - Romano 2018 (the religious and cultic relation between Ur and Ga'eš resembles the one between Nippur and Tummal, see Sallaberger 1993: 171 and fn. 800).

[69] Steinkeller considers the Nun canal as a branch of the Tigris, which from north of Ĝirsu ran southwards along the provincial borders to reach Ur, Steinkeller 2001: 55-56. Hypothetically, the specification Nanna might refer to the stretch of the canal course in correspondence with the territory of the capital Ur.

[70] E-dana Nanna might have been a specific geographical

it ends eventually before the section devoted to Aššu.

Ga-eš^{ki} ga-gin$_7$ ur-re ba-an-de$_2$ i$_3$-gul-gul-lu-ne / alan dim$_2$-ma ulutim$_2$ sa$_6$-ga-bi im-ze$_2$-er-ze$_2$-re-e-ne / a iri gul-la e$_2$ gul-la-gu$_{10}$ gig-ga-bi im-me / ĝi$_6$-par$_4$ ku$_3$ nam-en-na-ba šu ba-e-la$_2$-la$_2$ / en-bi ĝi$_6$-par$_4$-ta ba-da-an-kar ki-erim$_2$-e ba-ab-de$_6$

"They destroy Ga'eš (as) a dog crashes (lit. pours) down the milk;[71] they smash its beautifully fashioned statues – she (the en-priestess) cries in pain: 'O, my destroyed city! O, my destroyed temple!' – the holy Ĝipar of its en-ship was violated, its priestess is taken out from the Ĝipar and brought to a foreign place!".

In TH, ll. 158-168, dedicated to e$_2$ ^{d}Nanna Ga-eš^{ki}-a, after Kiabrig (see above *ad* 2) and before Larsa, one reads:

eš$_3$ e$_2$-NUN (= agrun) gal tur$_3$-e ri-a / iri ban$_3$-da su$_3$-ra$_2$-aĝ$_2$ ^{d}Suen-na / Kar-zi-da ša$_3$-zu ki u$_{18}$-ru-na temen-zu ku$_3$ šen / eš$_3$ ĝe$_6$-par$_4$-zu sikil-e ĝar-ra / ^{ĝeš}ig-zu uruda ni$_3$-kalag-ga ki-gal-e ĝar-ra / e$_2$-tur$_3$ gu$_4$ nun ninda$_2$-gin$_7$ si ib$_2$-[il$_2$] / nun-zu en an-na ul šar$_2$-a gub-ba / an-bar sud-a gaba X eš HI bur$_2$ [X] / Kar-zi-da ^{d}Aš-im$_2$-babbar$_2$-re / muš$_3$-za e$_2$ bi$_2$-in-gub bara$_2$-za dur$_2$ bi$_2$-in-ĝar

"O, sanctuary, big chamber built like$^?$ a stall, mighty beaming city of Suen, Karzida, your interior is a powerful place, your foundation is holy and clean. O, sanctuary, your Ĝipar is established in purity, your door is copper, something (very) strong, established in the Underworld. O, cattle-pen, which rai[ses] the horns like a breeding bull, your prince, the lord of heaven standing in ... joy. ... at midday and ... O Karzida, Ašimbabbar, a house has established in your holy space and took (his) residence in your sanctuary!"

16.4.5 Aššu/Eššu

There is little information sofar about the city of Aššu, the city mentioned after Ga'eš in LSU. Sources of that composition attest to both the writing Aš-šu^{ki} and Aš-šu$_2^{ki}$,[72] while an old variant spelling may be seen in Eš:šu(.KI), which occurs in ZH in connection with the goddess Namma and led to hypothesize an affiliation of the Ur III ruler Ur-Namma to the city of Aššu/Eššu.[73] However, attestations of this city oddly are still lacking in the extensive corpus of the Ur III documentation.

Differently, the Nanna's cult place, the Ni$_3$-erim$_2$ nu-dib$_2$,[74] likely a holy site in the city,[75] is attested in the Ur III documentation either as a shrine (bara$_2$ si-ga),[76] or as the place where a warehouse (e$_2$ kišib-ba) and a granary (guru$_7$) was present,[77] or also as a deity receiving offerings.[78] Just before the section devoted to Kiabrig, LSU quotes the house of assembly, e$_2$ pu-uh-ru-um-ma, l. 199, which is not attested elsewhere.[79] As noted by Frayne,[80] in all likelihood, then, Aššu was a small town in the general vicinity of Ur. LSU, ll. 196-199 (before Kiabrig, after Ga'eš):

Aš-šu^{ki} e$_2$ i$_7$-de$_3$ la$_2$-a-ri a-e ba-da-ab-bu / ni$_3$-erim$_2$ nu-dib ^{d}Nanna-ka lu$_2$-erim$_2$-e ba-an-dib / e$_2$ ur$_5$-re-am$_3$ a-na-am$_3$ ab-ak / e$_2$ pu-uh-ru-um-ma ša$_3$ su$_3$-ga ba-ab-ĝar

"Aššu, the house that stretches out toward the river, was deprived of water. At (the place) of Nanna (where) evil could never pass, the enemy passed. How could the temple be treated like this? (Even) the E-puhruma was reduced to silence!".

16.5 Conclusions

As said above, the present observations do not intend to offer a solution for an identification of Abu Tbeirah, but they only want to highlight the geographical frame inside which the (mainly literary and religious) Sumerian tradition refers to the area of Ur, where much probably the city must be sought. The size of Abu Tbeirah seems to hint to an important economic, political and religious role played by this city as a settlement in the immediate vicinity of the Capital, but its ancient name will

place, rather than being a generic reference for a way station, see Michalowski 1989: 89.

71 See l. 187: lu$_2$ kar-ra-bi maš kar-ra-gin$_7$ ur im-me-da, "the dogs bite$^?$ its (*scil.* of Edana-Nanna) refugees as (if they were) raided goats" (but see Michalowski 1989: 90 *ad* l. 187).

72 Michalowski 1989: 90.

73 Frayne 1997: 9.

74 A. George interprets the temple name as: "(the gate of warriors) through which the wicked cannot pass", see George 1992: 293.

75 Michalowski 1989: 90 *ad* l. 196-197.

76 UET 9, 111, date broken, from Ur.

77 UET 3, 1088 and UET 3, 1092; both from Ur and dated to Ibbi-Sin's 6th year of reign.

78 TRU 370, o. 1, and Studies Levine 132-138, r. III, 4; both from Drehem and with broken date.

79 Michalowski 1989: 90.

80 Frayne 1997: 9.

be only unveiled when further eloquent epigraphic material will come to light in future excavations.

APPENDIX. FRAGMENTS OF TABLETS AND INSCRIBED BRICKS FROM ABT

So far, only a few fragments of tablets, each one too eroded to be interpreted, were found on the site. The first two were unearthed during the 2014 campaign in Area 1, AbT.14.45 and AbT.14.67 in US 242 (see Fig. 7.51): the shape of the tablets, given their bad state of preservation, cannot be used as a clue to their date or type. In 2017 in Area 6 another fragment of a tablet were recovered, AbT.17.108 in US 1544[81], unfortunately eroded as well and uninterpretable.

The two bricks (for details see below) are inscribed with the so called 'standard inscription' of Amar-Suena (2044-2036 BC), the third king of the Third Dynasty of Ur, and are labeled with the *siglum* AbT.17.106 and 107.[82]

AbT.17.106 (Fig. 16.2)

Half-brick with standard inscription of Amar-Suena (AS no. 2)

Measur.: 31×16.5×79 cm[83]

Note: the brick was cut in two in order to be laid *in situ*; there is a fracture in the middle of the brick that runs on the left side of the inscription; half of l. 1 is a fragment (restored). Inscription complete (12×7 cm, 9 ll.;10 AS no. 2).

Lit.: RIME 3/2: 245-247 (1.3.1), with previous literature; Prov.: Adab, Bad-Tibira, Eridu, Ĝirsu (Telloh), Isin, Kisurra, Sippar, Tell el-Lahm, Ur.

Transliteration:
1. [^{d}]Amar-^{d}EN.ZU
2. Nibru^{ki}(EN.LIL$_2$^{ki})-a
3. ^{d}En-lil$_2$-le
4. mu pad$_3$-da
5. saĝ-us$_2$
6. e$_2$ ^{d}En-lil$_2$-ka
7. nita kal-ga
8. lugal Urim$_2$(ŠEŠ.AB)/^{ki}-ma
9. lugal an-ub-/da limmu$_2$-ba

Translation:
"[A]mar-Suena, whose name has been chosen by Enlil in Nippur, the provider of the temple of Enlil, the mighty man, the king of Ur, the king of the four quarters (of the world)".

AbT.17.107 (Fig. 16.3)

Half-brick with standard inscription of Amar-Suena

Measur.: 31×16.5×7.5 cm

Note: the brick was cut in two in order to be laid *in situ*; it presents two inscription, one on the face (A) and one on the left side (B): the cut has destroyed ll. 1-3 of inscr. A and ll. 2-9 of inscr. B.84

Inscription A: incomplete (9.5×7 cm, 6 ll. out of 9 ll., AS no. 2)

Inscription B: incomplete (9.5×7 cm, 2 ll. out of 9 ll., AS no. 2)

Transliteration (face)

(ll. 1–3 lost)
1' mu pad$_3$-da
2' saĝ-us$_2$
3' e$_2$ ^{d}En-lil$_2$-ka

[81] Its size is 3.3x4.1x1.3, its right lower part is lost and the tablet is heavily eroded; traces of the rolling of a seal on the lower right edge of the rev.(?) that squeezed the right edge of the tablet upwards, can be noted; the form of the tablet and the ductus of the few traces of signs strongly recall Ur III tablets.
[82] It is repeated here the information in D'Agostino - Romano *in press*, where more details can be found.
[83] See D'Agostino - Romano *in press*: 334 f., fn. 9: "The measures of both bricks fall into the average for the same objects with inscription of AS no. 2; cf. Walker 1981: 30, where the average measures for the bricks with this inscription are the following ones: complete bricks: 33/30.5×33/29.5×8/5.5 cm; half-bricks: 34/30×16.5/15.5×7.5/7; for the epigraphic evidence see Stol 2017: 275 *ad* § 3.6.1.".
[84] See D'Agostino - Romano *in press*: 336: "The bricks during 3rd and 2nd millennia could be inscribed on the face, on the edge, or on either the face and the edge; see further that "[W]here inscriptions appear on the edge of a brick during the third and second millennia BC they are stamped or inscribed in short lines at right angles to the long axis of the brick such that when built into a wall they would appear sideways; this follows the normal pattern of monumental and votive inscriptions down to the end of the Isin II dynasty" (Walker 1981: 11, and also 167f.), as it is the case with our brick. This possibly assumes that the inscribed face of the brick is the upper one, even if it would have been perfectly possible to read a brick inscription though not put in the presumed "right" direction (see Hallo 1982: 114).

Fig. 16.2 AbT.17.106.

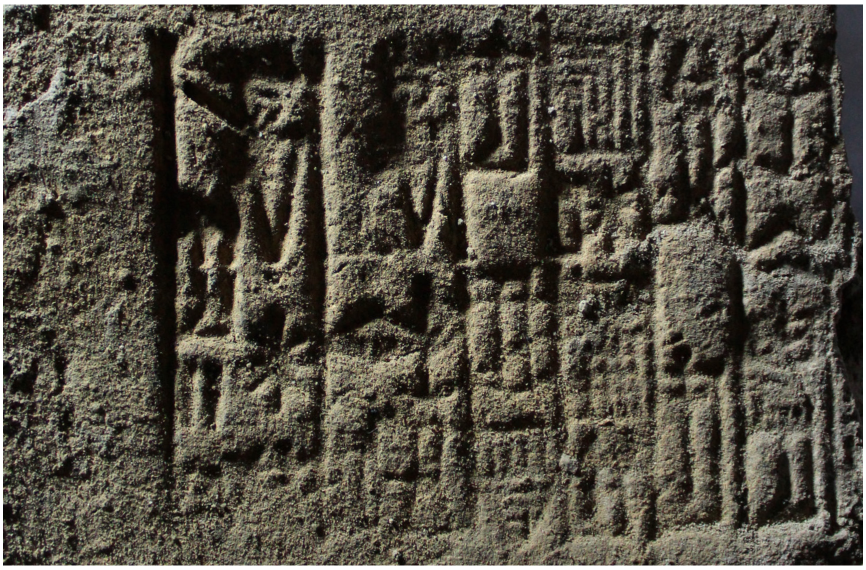

Fig. 16.3 AbT.17.107.

4’ nita kal-ga
5’ lugal Urim$_2$(ŠEŠ.AB)/^{ki}-ma
6’ lugal an-ub-/da limmu$_2$-ba

Inscr. B. Transliteration (left side, in opposite direction as A, see comm. above):
1. ^{d}Amar-^{d}[EN.ZU]
2. Nib[ru^{ki}] ([E]N.L[IL$_2$^{ki}])
(ll. 3–9 lost)

Translation A+B:
“Amar-S[uena], whose name has been chosen [by Enlil in] Nip[pur], the provider of the temple of Enlil, the mighty man, the king of Ur, the king of the four quarters (of the world)”.

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