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THE LATE CHALCOLITHIC 1 PERIOD IN NORTHERN MESOPOTAMIA:  
TELL ZEIDAN, SYRIA, IN REGIONAL CONTEXT

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*For the People of Syria*

## TABLE OF CONTENTS

LIST OF TABLES .....	viii
LIST OF FIGURES .....	x
LIST OF PLATES.....	xii
ACKNOWLEDGEMENTS.....	xiii
ABSTRACT .....	xvi
INTRODUCTION & SUMMARY OF CHAPTERS .....	1
A. The Site of Tell Zeidan, Syria.....	4
B. Structure of Dissertation.....	6
CHAPTER 1: INVESTIGATING THE LC 1 PERIOD IN MESOPOTAMIA:	
PROBLEM, THESIS, & DEFINITION.....	9
1.1 Identification of the Problem .....	9
1.2 Main Thesis.....	16
1.2.1 Characterizing the LC 1 Period in Mesopotamia.....	17
1.2.2 An Explanatory Model of Change for the LC 1 Period .....	19
1.3 Defining the LC 1 Period in Greater Mesopotamia .....	23
1.3.1 The LC 1 Period Across Space .....	24
1.3.2 Terminology of the Period.....	26
1.3.3 The Issue of Ceramic Definitions .....	31
1.3.4 General Patterns in Ceramics.....	37
1.3.5 Regional Patterns in Ceramics.....	38
1.3.6 Relative Chronology & A Working Definition .....	44
1.4 Chapter Summary .....	48
CHAPTER 2: CURRENT SCHOLARSHIP OF THE LC 1 PERIOD:	
SETTLEMENT, MATERIAL TRENDS, & MODELS OF CHANGE .....	49
2.1 Traditional Interpretations of the LC 1 Period.....	49
2.2 Evidence for Spatial & Material Trends .....	52
2.2.1 Settlement Patterns.....	52
2.2.2 Pottery .....	59
2.2.3 Economy: Trade.....	62
2.2.4 Economy: Craft Production .....	67
2.2.5 Economy: Subsistence .....	71
2.2.6 Mortuary Practices .....	73
2.2.7 Architecture.....	77
2.2.8 Glyptic Art & Administration.....	79
2.3 Models of Change for 5 <sup>th</sup> Millennium Mesopotamia.....	85
2.3.1 General & Traditional Models of Mesopotamian Development .....	86
2.3.2 The Coba Bowl & Its Relatives .....	99

2.4 Chapter Summary .....	107
CHAPTER 3: THEORY & METHOD .....	109
3.1 Theoretical Issues & Approaches .....	110
3.1.1 Change through Time .....	111
3.1.2 Innovation & Variability in a Changing System.....	126
3.2 Methodology.....	136
3.2.1 The Context of Modern Warfare.....	136
3.2.2 Data Collection .....	137
3.2.3 Faunal Analysis.....	140
3.2.4 Ceramic Analysis.....	143
3.2.5 Notation & Recording System .....	144
3.2.6 Site-Wide Phasing.....	146
3.3 Methodological Theory & Analytical Methods.....	148
3.4 Anchoring the Sequence: Stratigraphy & Periodization of the Step Trench .....	149
CHAPTER 4: EXCAVATED REMAINS OF THE LC 1 PERIOD ON THE NORTHWEST MOUND AT TELL ZEIDAN.....	154
4.1 Architecture & Stratigraphy of Operations 10 & 2.....	154
4.1.1 Operation 10.....	157
4.1.2 Operation 2.....	161
4.2 Spatial-Functional Analysis of Operations 10 & 2 .....	164
4.2.1 Building S.A1 .....	164
4.2.2 Structure S.A6.....	178
4.3 Chapter Summary .....	179
CHAPTER 5: EXCAVATED REMAINS OF THE LC 1 PERIOD ON THE NORTHEAST MOUND AT TELL ZEIDAN .....	181
5.1 Architecture & Stratigraphy of Operation 3 .....	182
5.1.1 Operation 3 Phases A-B (Late Ubaid).....	182
5.1.2 Operation 3 Phase C; Building S.B2 (Ubaid-LC1) 183	
5.1.3 Operation 3 Phase D; Building S.B3 (LC 1a).....	185
5.1.4 Operation 3 Phase E; Building S.B4 (LC 1b).....	186
5.1.5 Operation 3 Phase F; Building S.B5 (LC 1c) .....	188
5.2 Architecture & Stratigraphy of the Lower Town.....	190
5.2.1 Area G, Operation 20.....	190
5.2.2 Area H, Operation 19.....	191
5.3 Spatial-Functional Analysis of Operation 3.....	192
5.3.1 The Burnt Building – S.B2 .....	192
5.3.2 The Black Building – S.B3 .....	193
5.3.3 The Plastered Building – S.B4.....	196
5.3.4 The T-Shaped-Hall Building – S.B5.....	198
5.4 Chapter Summary .....	198

CHAPTER 6: EXCAVATED REMAINS OF THE LC 1 PERIOD ON THE SOUTH MOUND AT TELL ZEIDAN.....	200
6.1 Architecture & Stratigraphy of Area C (Operation 9) .....	201
6.1.1 Op. 9 Late Ubaid Levels (Phases F-D) .....	201
6.1.2 Op. 9 Phase B; Building S.C4.....	202
6.2 Architecture & Stratigraphy of Area D (Operation 17) .....	204
6.2.1 Op. 17 Phase II; Building S.D1 (Late Ubaid).....	204
6.2.2 Op. 17 Phase I; Building Phase S.D1a (Ubaid-LC 1).....	205
6.3 Architecture & Stratigraphy of Area E (Operations 15 & 16).....	209
6.3.1 Op. 15 Phase E; Building S.E5 (LC 1a).....	209
6.3.2 Op. 15 Phase D3; Building S.E4 (LC 1a-b).....	213
6.3.3 Op. 16 Phases D3-2; S.E1, S.E2, & S.E3 (LC 1b).....	213
6.3.4 Ops. 15 & 16 Phase D1 (LC 1b-c).....	217
6.4 Spatial-Functional Analysis of the LC 1 Period on the South Mound .....	220
6.4.1 Spatial-Functional Analysis of LC 1 Contexts in Area C.....	220
6.4.2 Spatial-Functional Analysis of LC 1 Contexts in Area D.....	222
6.4.3 Spatial-Functional Analysis of LC 1 Contexts in Area E.....	224
6.4.4 Small Finds from the Step Trench Area .....	233
6.5 Chapter Summary .....	234
 CHAPTER 7: INTRASITE ASSESSMENT OF THE LC 1 PERIOD AT TELL ZEIDAN .....	 236
7.1 Small Finds Analysis .....	237
7.1.1 Textile Manufacturing .....	237
7.1.2 Lithic Manufacturing.....	239
7.1.3 Food Processing & Preparation Equipment.....	241
7.1.4 Food Serving Objects.....	242
7.1.5 Administration Debris.....	243
7.2 LC 1 Fauna at Tell Zeidan .....	246
7.3 LC 1 Ceramics at Tell Zeidan.....	252
7.3.1 Northwest Mound .....	253
7.3.2 Northeast Mound .....	254
7.3.3 South Mound.....	255
7.3.4 Ceramics Summary.....	255
7.4 Architecture.....	256
7.4.1 Building Types.....	257
7.4.2 Construction Techniques & Materials .....	259
7.4.3 Functional Features.....	261
7.5 Chapter Summary .....	265
 CHAPTER 8: SUMMARY & CONCLUSION: TELL ZEIDAN IN MACRO-REGIONAL CONTEXT.....	 267
8.1 Settlement .....	267
8.2 Ceramics .....	269
8.3 Economy .....	277
8.4 Mortuary Practices.....	285
8.5 Architecture.....	286
8.6 Glyptic.....	291

8.7 Discussion & Conclusion.....	294
8.8 Epilogue .....	306
BIBLIOGRAPHY .....	308
APPENDIX A: GAZETTEER OF LC 1 SITES IN GREATER MESOPOTAMIA.....	353
A.I Cilicia.....	354
A.II Amuq Valley .....	357
A.III Orontes Valley .....	361
A.IV Queiq Region (Syro-Turkish Border Piedmont).....	366
A.V Turkish Upper Euphrates .....	369
A.VII Syrian Upper Euphrates.....	378
A.VIII Turkish Upper Tigris.....	387
A.IX Upper Khabur & Khabur .....	391
A.X Middle Khabur .....	406
A.XI Upper Tigris Piedmont.....	410
A.XII Erbil Plain.....	417
A.XIII Ranya Plain (Dukan Dam Region).....	423
A.XIV Shahrizor Plain.....	422
A.XV Southern Caucasus .....	425
A.XVI Northwest Zagros (Lake Urmia Basin).....	427
A.XVII Western Zagros (Kermanshah/Kangavar Valley Region).....	430
A.XVIII Hamrin Valley .....	432
A.XIX Luristan .....	433
A.XX Khuzestan (Susiana & Ram Hormuz Plains) .....	434
A.XXI Southern Mesopotamia .....	436
A.XXII Northeastern Arabia.....	443
PLATES .....	444

## LIST OF TABLES

Table 1: Relative Chronology of Chalcolithic Mesopotamia and Neighboring Regions	11
Table 2: Relative Chronology of Greater Mesopotamia in the early Late Chalcolithic Period	45
Table 3: Site Levels and Internal Chronology of Tell Zeidan	147
Table 4: Small finds from Tell Zeidan Building S.A1 (Op. 10 Phase D; Level LC 1b)	167
Table 5: Small finds from Tell Zeidan Area C Building S.C4 and Its Foundation, Level Ubaid-LC 1	221
Table 6: Small finds from Tell Zeidan Area E (Level LC 1a)	225
Table 7: Small finds from Tell Zeidan Area E Phase D3-2 (Level LC 1b)	230
Table 8: Small finds from Tell Zeidan Area E Phase D1 (LC 1b-c)	232
Table 9: Small finds from Tell Zeidan Step Trench Area	234
Table 10: Textile production and leather working objects from Tell Zeidan	238
Table 11: Lithic manufacturing objects from Tell Zeidan grouped by Site Level	240
Table 12: Breakdown of obsidian objects analyzed per source/period at Tell Zeidan	241
Table 13: Food Preparation and Processing Objects from Tell Zeidan LC 1 Levels	242
Table 14: Food Serving/Consumption Objects from Tell Zeidan	243
Table 15: Administrative small finds from LC 1 levels at Tell Zeidan	245
Table 16: Fragment Counts by Period at Zeidan	247
Table 17: Relative Taxonomic Abundance by Mound	249
Table 18: Numbers of Burnt Bones by Mound and Context No.	250
Table 19: Relative Abundances of the Main Genera by Operation, LC1	251
Table 20: Body Part Distributions of <i>ovis/capra</i> , <i>capra</i> , and <i>ovis</i> (Count and %)	252
Table 21: Pottery Manufacturing Debris at Tell Zeidan	256

Table 22: Structural Remains of Level Ubaid-LC 1	263
Table 23: Structural Remains of Level LC 1a	263
Table 24: Structural Remains of Level LC 1b	264
Table 25: Structural Remains of Level LC 1b-c and LC 1c	265
Table 26: Structural Remains of Level LC 1d and LC 1-2	265

## LIST OF FIGURES

Figure 1: Schematic drawing of storage jar ZD3199	165
Figure 2: Survivorship Curve for Ovis/Capra at Tell Zeidan	246
Figure 3: Proportions of Wild and Domestic Genera at Zeidan by Period	248
Figure 4: Pottery Profiles through Time on the Northwest Mound, Tell Zeidan	254
Figure 5: Pottery Profiles through Time on the Northeast Mound, Tell Zeidan	254

## LIST OF PLATES

Plate 1: Map of the Near East in the mid-5th Millennium BC (Ubaid & LC 1 Periods), Showing the Location of Tell Zeidan	444
Plate 2: Extent of Occupation at Tell Zeidan through Time	445
Plate 3: Tell Zeidan Site Plan with Trench and Area Locations	446
Plate 4: Stratigraphic Section of Operation 1, Step Trench, Tell Zeidan	447
Plate 5: Stratigraphic Sections, Operation 6, Step Trench, Tell Zeidan	448
Plate 6: South Stratigraphic Section, Operation 2, Area A, Northwest Mound	449
Plate 7: Stratigraphic Sections, Operation 10, Area A, Northwest Mound	450
Plate 8: Building S.A1, Operation 10, Phase D, Area A, Level LC 1b, Tell Zeidan	451
Plate 9: South Stratigraphic Section, Operation 3, Area B, Northeast Mound	452
Plate 10: Building S.B2, Operation 3 Phase C, Area B, Level Ubaid-LC 1, Tell Zeidan	453
Plate 11: Building S.B3, Area B, Operation 3 Phase D, Level LC 1a, Tell Zeidan	454
Plate 12: Building S.B4, Operation 3 Phase E, Area B, Level LC 1b, Tell Zeidan	455
Plate 13: Building S.B5, Operation 3 Phase F, Area B, Level LC 1c, Tell Zeidan	456
Plate 14: South Stratigraphic Section, Operation 9, Area C, South Mound, Tell Zeidan	457
Plate 15: Building S.C4, Level Ubaid-LC 1, Operation 9, Area C, Tell Zeidan	458
Plate 16: Stratigraphic Sections, Operation 17, Area D, South Mound, Tell Zeidan	459
Plate 17: Building S.D1, Late Ubaid & Ubaid-LC 1, Op. 17, Area D, Tell Zeidan	460
Plate 18: Building S.D1, Late Ubaid & Ubaid-LC 1, Op. 17, Area D, Tell Zeidan	461
Plate 19: Stratigraphic Sections, Operation 15, Area E, South Mound Tell Zeidan	462
Plate 20: Stratigraphic Sections, Operation 16, Area E, South Mound, Tell Zeidan	463
Plate 21: LC 1a and LC 1b Buildings in Area E, South Mound, Tell Zeidan	464
Plate 22: Adult Burial 95, Building S.E5.2, Level LC 1a, Operation 15, Area E	465

Plate 23: Ubaid-Period Scraped-Bottom & Mold-Made Bowls, Tell Zeidan	466
Plate 24: Ubaid-LC 1 Bowls & Bases, Tell Zeidan	468
Plate 25: LC 1a-b Bowls, Tell Zeidan	470
Plate 26: LC 1 Jars, Pots, & Bases, Tell Zeidan	471
Plate 27: LC 1c-d Bowls, Tell Zeidan	474
Plate 28: LC 2 Vessels from Tell Zeidan	476
Plate 29: Photographs of LC 1 Pottery from Tell Zeidan	477
Plate 30: Examples of Painted Motifs of the LC 1 Period across Northern Mesopotamia	478
Plate 31: Circumstantial Evidence for Beer in the LC 1 Period	479
Plate 32: Illustrated LC 1 Small Finds from Tell Zeidan	480
Plate. 33: LC 1 Craft Production Small Finds from Tell Zeidan	481
Plate 34: Small Finds from Tell Zeidan	482
Plate 35: LC 1 administrative artifacts	483
Plate 36: Obsidian and chipped-stone tools from the Northeast Mound, Level LC 1b	484
Plate 37: Count of Small Finds by Area at Tell Zeidan	485
Plate 38: Percentages of Small Finds at Tell Zeidan	486
Plate 39: Distribution Pattern of Small Finds at Tell Zeidan (Radar Charts)	487
Plate 40: Map of LC 1 Sites in Greater Mesopotamia	488

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## ABSTRACT

Using recently excavated material from the large Chalcolithic site of Tell Zeidan, Syria, this dissertation considers a new approach to one of the most debated questions in the field of Prehistoric Near Eastern Archaeology today—how did formal, multi-tier social hierarchies first develop in ancient Mesopotamia in the late 5<sup>th</sup> millennium BC (Late Chalcolithic 2 period). In order to understand this issue, I propose that the answer lies in the time leading up to that change—the Late Ubaid and Late Chalcolithic 1 (LC 1) periods (mid-5<sup>th</sup> millennium BC)—the former yielding innovations in various aspects of the craft and subsistence economies that allowed for a wider range of socioeconomic and sociopolitical strategies in the latter.

While the Ubaid period has been a major focus of archaeological study for decades, only recently has the poorly-known LC 1 period received attention as a key source of data for discussing the development of social complexity. Based on recent fieldwork and the development of new, more locally-focused chronologies, we can now identify roughly 80 sites in Greater Mesopotamia as dating to the LC 1. Building off of this reassessment, this dissertation explores concepts such as the impact of what I call “instrumental innovations” in the Ubaid period on the range of potential economic strategies in the LC 1 period, and this proposed sequence of development can provide a new path toward understanding a major shift in the sociopolitical organization of Mesopotamian society. I document an integral part this shift—the middle—by reevaluating the available data for the LC 1 period and by examining craft production, subsistence strategies, and degree of sociocultural cohesion at one of the largest LC 1 sites ever excavated, Tell Zeidan.

## INTRODUCTION & SUMMARY OF CHAPTERS

One of the most intriguing and yet challenging questions to ask of the past is how human society changed from what it was into what it is. Such a question is too broad to approach in its totality, and so archaeologists have explored increasingly discrete segments of societal change over time. Massive, punctuated transformations in human society such as the Agrarian Revolution (ca. 7000 BC), the Urban Revolution (ca. 3500 BC), or the Chalcolithic period “between the revolutions” (ca. 5000-4000 BC), took place in a previously unprecedented geocultural expanse, from the Zagros to the Taurus mountains and from the Persian Gulf to the Mediterranean Sea, and demand scholarly explanation. Yet to understand *how* things changed requires an examination of much smaller segments of time and, in particular, the precipitating conditions and dynamic processes underpinning those changes.

This dissertation addresses the precipitating conditions of this intermediate transformation “between the revolutions,” when, for the first time, human society became socio-politically stratified under institutions whose rulers oversaw formalized, hierarchical systems of administration and governance that laid the foundations for the first urban societies. This occurred during what archaeologists call the Late Chalcolithic 2 or Early Uruk period (ca. 4200-3850 BC), centuries after the Ubaid period<sup>1</sup> and yet centuries before the site of ancient Uruk grew into the world’s first city in southern Iraq, ca. 3500 BC. In order to provide the background for such a dramatic change, this dissertation focuses on

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<sup>1</sup> The Ubaid period or “horizon style” (ca. 6000/5200-4600 BC) was named after the site of al-’Ubaid in southern Iraq where Henry Hall and Sir Leonard Wooley first discovered the distinctive dark-paint-on-buff-paste ceramic style. It is attested archaeologically, from ca. 5200 BC onward, in both southern and northern Mesopotamia, as well as surrounding regions such as the Amuq Valley in western Syria, the Upper Euphrates in southeastern Anatolia, and the Susiana Plain in southwestern Iran (see Stein 2010b; 1994).

socioeconomic conditions in the Late Chalcolithic 1 period (ca. 4600-4200 BC), which up until very recently had not been thoroughly investigated in terms of either access to empirical data or theoretical approaches to that data. To address these problems, this dissertation presents excavated evidence from one of the largest Late Chalcolithic 1 sites ever explored in northern Mesopotamia—Tell Zeidan, Syria—and reevaluates the nature of this understudied but crucial period that provided the sociocultural basis for the parturition of formally stratified, institutionalized societies.

Ancient Mesopotamia, the land between the Tigris and Euphrates rivers that flow through southeastern Turkey, eastern Syria, and Iraq into the Persian Gulf, has been one of the great laboratories for testing theories of pristine development in human society. Indeed, it boasts the earliest evidence for many underpinnings of classical and modern civilization: cities, state bureaucracy, writing, calendrical systems, irrigation agriculture, sailing, beer, distillation, perfumes, and even archaeology itself.<sup>2</sup> Many of these developments occurred in southern Mesopotamia in between the Neolithic period (“New Stone Age,” ca. 10,000-5500 BC) and the Bronze Age (ca. 3000-1500 BC), during the Chalcolithic period—referring to early evidence for human manipulation of copper (‘chalco-’) alongside a still heavy reliance on stone tools (‘lithic’). Recent excavations in northern Mesopotamia, though, have shown that many of these great advances in civilization are the product of a complex network of societies spread out across a geographically and culturally polymorphic Greater Mesopotamian macro-region.

Over the past two decades, archaeologists have begun to compile and define the datasets to document the early Late Chalcolithic (LC) 1 period in northern Mesopotamia,

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<sup>2</sup> Attributed to the Iron Age king Nabonidus, last ruler of the Neo-Babylonian Empire (r. 556-539 BC), who conducted excavations and created a museum of ancient Mesopotamian artifacts in Babylon.

augmenting them with material from new excavations, and they have since started developing more sophisticated theories and analytical approaches to interpret the data. But due to a number of factors, including the vagaries of archaeological discovery, the massive overburden of later remains on top of the prehistoric LC 1 occupation levels—and especially modern geopolitics and military conflict—field research has temporarily halted in northern Mesopotamia. As a result, the amount of information available has not caught up to the discipline’s interest level in the topic, and the explanations in some cases have suffered resultantly.

This dissertation picks up at that point, presenting a reassessment of the LC 1 period based on an updated relative chronology (Table 2) and the results of recent excavations from across an entire, large LC 1 occupation (Chapters 4-7). The Oriental Institute’s Archaeological Expedition to Tell Zeidan, under the direction of Prof. Gil J. Stein, excavated the site from 2008 to 2010, has produced evidence for a 12.5-hectare community with a continuous sequence spanning the Halaf, Ubaid, LC 1, and LC 2 periods. The settlement apparently reached its peak size in the LC 1 (Pl. 2). The excavations exposed not just a single household or area of the LC 1 occupation, but evidence for domestic and craft areas in six different parts of the site over the course of six successive levels of the LC 1 period. Where previous theories of change related to this time period have faltered from being either too general or too narrow in their scope or datasets, or have been hampered by periodological inaccuracies, the primary body of evidence from Tell Zeidan, presented here, is better tailored to understanding a complete LC 1 society and is complemented by a substantial reassessment of the period that identifies its great structural variability across sites and regions.

Furthermore, building off of the behavioral archaeology of Earle (1991), the variability and heterarchy perspective of Stein (2010; 1998), and the role of technological innovation emphasized by archaeological pioneers such as Childe (1942; 1972), this dissertation takes a new theoretical approach to understanding change in the Late Chalcolithic period. It is rooted in empirical, present-day experimental studies in the field of cognitive science, rather than using predetermining—and difficult to prove—theoretical constructs such as Structural Marxism or prehistorically presumptive paradigms such as kin-group dynamics. These cognitive studies tell us that humans, in social learning, are predisposed to imitate social conventions from a young age but are more inclined to experiment with tool innovation, indicating that behavioral variability is much more commonly the result of the latter. In short, once technologies exist, people use them, and organize (or reorganize) themselves accordingly. Thus, the goal is to demonstrate how material inventions (or instrumental innovations<sup>3</sup>) that humans generated during the Ubaid period facilitated a time of great sociocultural variability in the LC 1 period. Additionally, I posit that this variability engendered a broad landscape of highly varied segments and strategies that were eventually, in the LC 2 period, reconsolidated into a much more complexly coherent northern Mesopotamian sociopolitical framework.

#### A. The Site of Tell Zeidan, Syria

Tell Zeidan is a 12.5 hectare (ha) multi-period archaeological site located in northern Syria, approximately 5 km east of the city of Raqqa, at the southern end of the

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<sup>3</sup> I define ‘instrumental innovation’ as any specific materially-expressed action for which the innovator has had no prior instruction or conditioning. This applies to an action that is slightly similar to other, common instrumental behaviors, the unique combination of previously apparent materials or behaviors, and design of entirely new material objects or behaviors.

Balikh River Valley, near the confluence of the Balikh and Euphrates rivers (Pl. 1). The source of the Balikh River is the ‘Ayn al-Arus, in the foothills of the Taurus Mountains, while the northern end of its valley is in the western Jezirah. The Balikh produces 6 m<sup>3</sup>/s average flow and so is a very small river compared to the Khabur (50 m<sup>3</sup>/s) and, of course, the Euphrates (840 m<sup>3</sup>/s). The northern part of the valley is suitable for rain-fed agriculture, while the lower portion, and Zeidan itself, is situated just below the 200 mm isohyet, raising the possibility of partial reliance on floodwater recession (Smith et al. 2015: 67) or irrigation for agricultural subsistence.<sup>4</sup>

The tri-mounded site of Tell Zeidan is primarily prehistoric, with its earliest levels dating to at least as early as the Halaf period (ca. 5800 BC; Stein 2009: 136, Table 1). The latest occupations include scattered contemporary houses, primarily on the Northwest Mound, modern, Islamic burials near to the summit of the South Mound, and a small, 3<sup>rd</sup> millennium BC occupation featuring a stepped mudbrick platform built on the west slope of the South Mound (Stein 2010a: 111, Fig. 13). Though the site seems to sprawl across multiple hectares of horizontal stratigraphy during the Halaf period, and there is a substantial developmental sequence throughout a Halaf-Ubaid transitional phase, the majority of the mounded settlement’s vertical deposition dates to the Ubaid and LC 1 periods. The occupation of the site seems to have contracted during or just prior to the LC 2 period (ca. 4200 BC), leaving the South Mound either partially abandoned or repurposed as a graveyard (Pl. 2).

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<sup>4</sup> Although this entire region would fall within Wilkinson’s “zone of uncertainty,” in which “wide interannual fluctuation in rainfall” characterizes the precipitation patterns (2000: 3). The 500 mm isohyet is just north of Urfa in Turkey; the 300 mm isohyet is near the Turkish border; and 250 mm of rain falls near Hammam et-Turkman, upstream from Tell Zeidan on the Balikh River.

In 1926 W.F. Albright was the first to visit Tell Zeidan for scientific collection, and Max Mallowan conducted investigations at sites in the Balikh not long afterward in the 1930s. The University of Amsterdam began a multi-decade archaeological program in the Balikh in 1968, and Lorraine Copeland led an archaeological survey of the Balikh Valley in 1978. More recently, in 2010 Maria Giuseppe Trentin published a survey of the Ubaid-period settlements the Balikh Valley that addresses landscape settlement on a finer time scale than had previously been possible.

The Oriental Institute of the University of Chicago, directed by Prof. Gil J. Stein, conducted scientific excavations, site surface collection, and archaeological analyses at Tell Zeidan over the course of three one-month seasons, from 2008 until 2010. It was only in the 2010 season that the author began an excavation program designed to provide datasets specifically for the purposes of this dissertation; the excavations, unfortunately, were cut short by the military conflict that began in Syria in 2011 and is still ongoing, spanning large parts of Iraq and Syria. However, this dissertation draws data, generously provided by the Oriental Institute of the University of Chicago and Director Gil J. Stein, from the three seasons of excavations conducted prior to the cessation of access to Tell Zeidan (Pl. 3).

## B. Structure of Dissertation

Chapter 1 introduces the main problems that the dissertation will address, presents the thesis of the dissertation, and then defines LC 1 period based on a collation of the available data. In doing so, it establishes a methodology for the reinterpretation of stratigraphy at 5<sup>th</sup> millennium sites in Greater Mesopotamia that allows for a more precise picture of the LC 1 period than has been available.

Chapter 2 summarizes the scholarship to-date on the LC 1 period, including the synthetic models used to explain key changes in Mesopotamian society in the 5<sup>th</sup> millennium BC. Since these models have accumulated over many decades and have been based on different interpretations of the Late Chalcolithic periodology, this chapter works off of a new relative chronology, enabled by the compilation of the LC 1 site gazetteer in Appendix A,<sup>5</sup> in order to evaluate and reconsider these models according to an updated empirical framework.

Chapter 3 outlines the methods and theoretical bases of the dissertation, laying out the two key foundations for interpreting the LC 1 data from Tell Zeidan and elsewhere. One foundation gives theoretical primacy, not just empirical acknowledgement, to the role of materially-attestable variability in promoting major structural changes across Mesopotamia. The other foundation is the methodology of identifying degrees of both economic and sociocultural variability; for the former, I engage with and compare evidence for craft production and subsistence across Zeidan; for the latter, I examine variation within the LC 1 architectural tradition at the site.

The empirical core of the dissertation appears primarily in Chapters 4-7, and details the archaeological remains associated with the LC 1 levels at Tell Zeidan. Chapters 4-6 are divided according to topography (i.e., each of the three mounds receives one chapter), and are further divided by trench. The final sections in Chapters 4-6 assess the artifacts in their functional context.

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<sup>5</sup> Appendix A uses the definition of the LC 1 proposed in Chapter 1 to build a kind of “gazetteer” of 80 archaeological sites that date to the LC 1. It cannot claim to be exhaustive, though it does incorporate both sites known to the general archaeological community and those sites not typically cited in analyses of the period. It also aims to provide clarity as to what levels and phases belong to the LC 1 period at multi-period sites. This is an essential step in moving forward, as a discipline, with studies of the Late Chalcolithic period, as the extreme disclarity that has crept into the archaeological record over the decades has forced scholars to compare unequal datasets and misinterpret findings and material trends.

Chapter 7 first provides a basic intrasite assessment of the Zeidan craft economy by grouping datasets such as the small finds (“objects”) by level, area, and artifact class. To look at subsistence strategies, it then incorporates summaries of the faunal and ceramic analyses performed by Tell Zeidan’s specialists, Dr. Kathryn Grossman and Khalid Abu Jayyab, respectively. Finally, it compares architectural styles and construction techniques across the mound in order to investigate the degree of sociocultural cohesion symbolized in domestic dwellings.

Chapter 8 then places evidence for the LC 1 period at Tell Zeidan in macro-regional perspective, reconsidering the data and explanatory models detailed in Chapter 2 in light of the new evidence presented in Chapters 4-7. The dissertation then concludes by reviewing the support marshaled for the initial thesis: that successful, materially-attestable innovations of the Ubaid period, such as rapid pottery production or the slow potters’ wheel (“*tournette*”), helped to diminish the cultural constraints on individuals and groups, enabling them to pursue more varied means of interaction and, in turn, created a multiplicity of outcomes. Such variability formed the ‘precipitating conditions’ for further development of social complexity that are attested in the LC 1 period. The model goes on to suggest (testable by future research) that these conditions, eventually in the LC 2 period, engendered new, more complex modes of sociopolitical organization and aided strategies that included consolidation of dispersed political economies, development of institutions, and formal organizational mechanisms that would go on to underpin the genesis of urban civilization in Mesopotamia.

CHAPTER 1  
INVESTIGATING THE LC 1 PERIOD IN MESOPOTAMIA:  
PROBLEM, THESIS, & DEFINITION

1.1. Identification of the Problem

The Late Chalcolithic (LC) 1 period (ca. 4600-4200 BC) is a poorly understood unit of chronological demarcation for northern Mesopotamia and the surrounding areas (Stein 2012; Nissen 2001: 170), but it is also a period that has great potential for investigating the developmental modalities of social complexity in the broader region. It is a time of both gradual and punctuated change from the preceding Ubaid period (ca. 5200-4600 BC in northern Mesopotamia, where it started later than in the south), evidencing more widespread metallurgical practices, advances in rapid ceramic production, mortuary differentiation, increased long-distance trade, increased human representation in glyptic art, and localized trajectories of material culture.

While recently-published datasets and analyses have provided new material and fresh perspectives, the terminological and parametric issues that have long hindered clear discussion and explanation of the LC 1 period persist. Furthermore, the current prevailing paradigm for conceptualizing the change from the Ubaid to the Late Chalcolithic rests on the nature of kin groups—which are difficult to see in the archaeological record—and particularly focuses on a posited shift from extended family dwellings to nuclear family dwellings (e.g., Balossi-Restelli 2010; Forest 2005; Bréniquet 1995). However, excavated sample sizes and chronological problems have impeded clear understanding of this issue. Thus, larger datasets of excavated material, a fresh periodization of sites, and new theoretical bases are warranted.

Over the past decade, study of the LC 1 period has been bolstered by fieldwork in Syria (Baldi 2015; Stein 2011; al-Quntar et al. 2011; Trentin 2010; Ur 2010a), Turkey (Parker et al. 2006; Koizumi 2014; Kennedy 2012); Kurdistan (Kopanias & MacGinnis eds. 2016; Niewenhuyse et al. 2016; Wengrow et al. 2016; Stein et al. 2015), and southwestern Iran (Alizadeh 2014). However, while publication of these projects is slowly becoming available, we are still left with sizable lacunae of understanding and evidence about the LC 1 period (Stein 2012: 132) for two main reasons.

The first is that although several key excavations from the late 20<sup>th</sup> and early 21<sup>st</sup> century have generated material and synthetic explanations of the LC 1 period, the mid-5<sup>th</sup> millennium BC is a time of local developmental trajectories and increasing regional diversity of material culture (Marro 2012; Baldi 2012b; Balossi-Restelli 2008; Mazzoni 1999; Frangipane 1993). Excavated datasets for the period can be complementary, but the growing body of data is still being collated by the scholarly community (Marro 2012).

Secondly, modern-day politics, in terms of international relations, regional governance, land rights, and military conflict, have in many ways shaped the program of fieldwork for archaeologists of the Middle East (and elsewhere) over the past half-century. Most recently, the ongoing war in Syria and the subsequent development of conflict between the Islamic State and other actors have prevented the archaeological community from engaging in further excavation or in-person research of collections housed in those regions. However, the picture of any Mesopotamian society generated by archaeological research conducted in the past half-century has to be viewed with an understanding that the means of interpreting it are defined themselves largely by forces having nothing to do with the discipline (and which are at times quite destructive of it; Lowenthal 2000).

BC Cal.	Tell Zeidan Site Level	Northern Mesopotamia	Southern Mesopotamia	Amuq Valley	Susiana
3100		LC 5	Late Uruk		“Protoliterate”
3400		LC 4	Late Middle Uruk		
3600		LC 3	Early Middle Uruk	Amuq F	
3850	LC 2b LC 2a	LC 2	Early Uruk		Susa B/ Susa II
4200	LC 1-2 LC 1d				“Terminal Susa A”
4400	LC 1c LC 1b	LC 1	“Terminal Ubaid”/ al ’Ubaid III	Amuq E-F	Susa A/ Susa I
4600	LC 1a Ubaid-LC 1				Late Susiana 2
4800		Late Ubaid/ Ubaid 4	Ubaid 4/ al ’Ubaid II		Late Susiana 1
5000	Ubaid Levels			Amuq E	
5200		Early Northern Ubaid/ Ubaid 3	Ubaid 3/ al ’Ubaid I		Late Middle Susiana
5400	Halaf-Ubaid		Ubaid 2/ Hajji Muhammad	Amuq D	Early Middle Susiana
5600		Halaf Period			
5800	Halaf Levels		Ubaid 1/Eridu	Amuq C	Early Susiana

*Table 1: Relative Chronology of Chalcolithic Mesopotamia and Neighboring Regions*

For these reasons, Lower Mesopotamia (southern Iraq), the premier locus of urban genesis during the Uruk period (ca. 4200-3100 BC), is particularly challenging to fit into both the interpretive and chronological frameworks that govern the major changes evident there and in Upper Mesopotamia in the Ubaid period and following. These changes include

such seminal innovations as the slow potters' wheel (the *tournette*), irrigation farming, and streamlined methods in the manufacturing of ceramics such as chaff-tempering, vessel molds, and base-scraping to quickly remove the excess clay of quickly-made bowls for faster drying (see Arnold 1985: 208).

While the division of the Late Chalcolithic period into five segments (LC 1-5) is the present-day standard for investigating and describing Upper Mesopotamian relative chronology in the 5<sup>th</sup> and 4<sup>th</sup> millennia BC (see Table 1 and Rothman ed. 2001), it is challenging and perhaps invalid to apply that framework to Lower Mesopotamia since there is such limited exposure of material that could be dated to the LC 1-2 periods there. As a result, the vocabulary for southern Mesopotamian periodization remains eponymous, in that the Ubaid period is followed by the Uruk period (both named after local archaeological sites). This in and of itself causes further issue because, for one, it does not even allow for the LC 1 period to exist (see Appendix A.XXI for further discussion).<sup>1</sup>

Ironically, one of the best inroads toward an explanation of change during the LC 1 period is also why it is so difficult to understand: accepting that material cultural and developmental uniformity in LC 1 Mesopotamia are at best only generally attestable. There has been a traditional inability within Near Eastern Archaeology to clearly identify an assemblage of LC 1 material culture (Wright et al. 1975: 131), and from that, an accurate association of archaeological occupation levels with the broader LC 1 period.

The problems described above have contributed to various assumptions, some founded and some not, regarding the LC 1 period, including: a) that it was developmentally

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<sup>1</sup> The LC 1-5 chronology was designed for use in northern Mesopotamia and remains most applicable there. Archaeologists of the ancient Near East devised the LC 1-5 chronological schematic for two main reasons: a) the chronology of southern Mesopotamia (Ubaid period followed by Uruk period) does not fit well in the north, since it would contain gaps; and b) the need to have a *local* chronology for the north that does not automatically assume all developments are related to southern Mesopotamia.

stagnant or a retrograded continuation of the preceding Ubaid period (e.g., Hole 1994; Braidwood & Braidwood 1960); b) that it represents a general collapse of Ubaid-period societies (e.g., Sørenhagen 1993; Copeland 1979: 271); or c) that it was essentially a precursor to the more evidently manifested changes of the LC 2 period (ca. 4200-3850 BC). As such, it is necessary to revisit these and other interpretations of the LC 1 period within a clear framework of understanding of its assemblages, occupations, parameters, and problems (see Ch. 2 & Appendix A).

Going beyond the empirical questions, study of the LC 1 period provides an excellent opportunity to investigate bigger questions in archaeology. Prime among them is the arguably pristine development of sociopolitical complexity from the two-tier settlement hierarchy (Lupton 1996) and fictional homogeneity of the Ubaid period (Stein 1994: 43) to the overtly hierarchical societies of the LC 2 and later periods (Stein 2012; Rothman 2002). However, just as empirical issues hinder even a basic agreement as to the archaeological markers of the period, similarly do theoretical issues plague explanatory arguments.

Chapter 2 addresses both of these problems in more detail, but, for instance, even the concept of societal development itself is problematic, since it assigns agency to a non-agentive entity—“society,” in the abstract sense—which is arguably the construct of the researcher; i.e., society cannot improve, evolve, collapse, or otherwise change itself. It is the humans within a society who alternate between maintaining cultural norms of behavior (and material identities) and choosing divergent strategies, behaviors, and material

expressions (Hodder 1985).<sup>2</sup> Transformation, transition, development, and other terms that imply agency in structural change, are often used to describe the society at large but should more accurately be thought of as describing something at a much more granular level (see, e.g., Shanks & Tilley 1987: 178). Similarly, theories of change relying on evolutionary stages oversimplify a very complex issue and what was likely a very complex dynamic of behavior by ancient individuals and groups (ibid.: 147; Stein 1998).

For example, Pollock and Bernbeck note the general characterization of the Halaf period (or “cultural package”) as “pottery shapes (e.g. ‘cream bowls’) and painted motifs (e.g., ‘bucrania’) as well as the round buildings dubbed *tholoi* and seals that usually bare geometric designs.”<sup>3</sup> They judge this standard kind of characterization, however, as problematic in that through it “life in the past is perceived as largely static, punctuated by the occasional change in material culture.” This, in turn, perpetuates “an understanding of the past in which the actions of past people do not really matter” (Pollock & Bernbeck 2010: 40). It is therefore more productive to use general characterization of periods, cultures, assemblages, typologies, etc. as a baseline or framework for further investigation precisely *into* those actions of past persons (see also Pollock 2010: 107).

Chapter 2 discusses in specificity the main models that archaeologists have used to explain the big changes of the early Late Chalcolithic period in Mesopotamia. However,

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<sup>2</sup> An alternative, more recent view on this concept suggests that “personhood” consists of overlapping realms of bodily and social existence, and that agency comes not just from the individual body, but from the “wider sets of social relationships that make up the person;” to exercise power, then, is to subject oneself to the interests of other persons (Brück 2001: 655). But despite the reflexive social influence of various persons on the aggrandizer (to whatever degree), the distinction remains: agency, though often limited by society and other conditions, still resides with the individual, and *not* “society.”

<sup>3</sup> For their own characterization, they give room for spatial and temporal variation (“dancing ladies” of the transitional Halaf phase or polychrome decoration of the Late Halaf occupations in the east) (Pollock & Bernbeck 2010: 40). This is a good step forward, but still fits within the familiar framework. Improving that framework is important, but it should not be the final product of archaeological research.

here I will mention that the prevailing argumentation has focused on a posited shift in the basic organizational modality of society from one family type (e.g., extended families) to another (e.g., nuclear families) based on changes evident in the architectural tradition (Balossi-Restelli 2010; Forest 2005; Bréniquet 1995), funerary trends (Marro 2012), or in pottery production (Baldi 2015) in the 5<sup>th</sup> millennium BC.

Despite analyses such as those of Rova (2000), Mazzoni (2000; 1999), Frangipane (1993), Marro (2012), and Baldi and Abu Jayyab (2012) that define the LC 1 landscape through different “circuits of interaction” or “cultural provinces,” most of the explanatory models for change between the Ubaid and Late Chalcolithic periods focus on the possibility of shifting kinship norms, typically assuming an opposition between singular modes of social organization (i.e., extended vs. nuclear families). There do seem to be trends evident in the Late Chalcolithic Mesopotamian material assemblage that fit this model, but ultimately, kinship has very few distinctive archaeological correlates in a prehistoric society and so cannot truly be tested. More importantly, a modal shift in social organization, such as a prevalence of nuclear family units, seems more likely to have been an *effect* rather than a *cause* of systemic societal change and so does not explain the change so much as characterize it.

Thus, the aims and contributions of this dissertation will focus on providing a synthetic explanation for both what the LC 1 period is, in terms of the diverse timeframes of adoption and material assemblages, and how archaeologically-attestable evidence for variability of choice in both form and function can help to explain the shift in modes of sociopolitical organization in northern Mesopotamia between the Ubaid and Late Chalcolithic periods. Whereas we know that the later mode cannot have simply supplanted the earlier, we do not know how or why (Rothman 2009: 25), and theoretical problems still

impede viable explanation of what is becoming a robust but varied LC 1 material assemblage. Through archaeological excavation of a large LC 1 site, synthetic analysis of the data available from the rest of Greater Mesopotamia, and reconsideration of the theoretical issues that govern a productive understanding of the period, this dissertation attempts to address these questions.

## 1.2. Main Thesis

If the black-on-buff painted pottery style seen across the broad expanse of the greater Ubaid interaction sphere from ca. 5200-4600 BC represents shared, embedded social processes (Weeks et al. 2010), a shared ideology of identity (Stein 2010b), or a widespread “tradition” that constrains behavior and promotes “continuities of both practice and form” (Carter & Philip 2010: 12; Pollock 2010: 94; Campbell 2010: 154), then its gradual but consistent and definite decline in prevalence in the LC 1 period must reflect gradual change on a practical, structural scale. Pottery is a typically conservative technological domain with high resilience to change (Maguire 2010: 165; Arnold 1985: 221; Rice: 1984: 245; cf. Gosselain 2000), and yet low percentages of Ubaid-like but quickly-painted pottery and high percentages of quickly-made, undecorated, crude bowls typify Mesopotamian pottery assemblages of the LC 1 period, demonstrating quite a substantial difference.

Thus, social change likely happened concomitantly with material change, and neither produces an obvious answer as to ‘why’ except that they seem somehow related. This section presents the main thesis of the dissertation firstly by characterizing the LC 1 period as one in which individuals broke from Ubaid traditions more frequently over time and by proposing an answer as to why that began to happen in the face of an otherwise

long-lasting pottery tradition; and secondly, by offering an explanatory model that considers the longer-term consequences of individual acts of instrumental deviation.

### **1.2.1. Characterizing the LC 1 Period in Mesopotamia**

While there is no highly evident, definitive break in any one category of material culture between either the Late Ubaid period and the LC 1 period (Hole 1994), or between the LC 1 and the LC 2 periods (Akkermans 1988b), across all of Greater Mesopotamia there are clear, characterizing elements of LC 1 occupations that may differ from region to region or site to site. Each of these defining elements on their own typically signifies a gradual change from the pseudo- or “trans-egalitarian” traditions of the preceding Ubaid period (Forest 2005; see also Stein 1994), but both the varied and the gradual natures of the changes across Greater Mesopotamia during the mid-5<sup>th</sup> millennium reflect the growing ‘augmentation of opportunity’ (see Winter 1977). This ‘augmentation of opportunity’ can be seen as increased wealth-finance, decentralized authority, decline in culturally unifying material elements such as the painted-pottery tradition, and generally a greater degree of ‘social reflexivity’—or the ability of each individual to reshape or replace often constraining cultural conventions within a society. That is, individuals became less culturally constrained and had greater opportunity to pursue new, different, or varied economic and sociopolitical strategies.

The material record reflects these changes in different ways at different sites, including shifting settlement patterns that signal new networks of communication (Casana & Wilkinson 2005b; Henrickson 1989), diversification of architectural design (Akkermans 1989: 351), non-hierarchical distribution of administrative artifacts (Rothman 2002), mortuary differentiation (Hole 1989; Akkermans 1989) and ranking (Marro 2012; see Wooley 1955 for evidence), consumption practices reflecting both individualistic

(Magness 2010: 123) and cross-group (Kennedy 2012: 132) behavior, and decentralization of religious practice (Gurdil 2010; Rothman 2009).

The defining elements of LC 1 occupations taken together suggest that the veneration of Ubaid identity as an organizing principle, commonly expressed artistically through painted pottery, began to fade alongside new developments in pottery manufacture, which, I submit, allowed for the growth of parallel modes of sociopolitical organization. Rather than immediately collapsing due to exogenous forces, the socio-culturally cohesive Ubaid system was slowly relegated to one among several options for interrelations such as the participation of less-interdependent groups in variable exchange systems.

As “local variation is the factor that actually generates the interaction sphere in the first place” (Stein 2010b: 37), the variation evident during the LC 1 period likely helped contribute to greater complexity in the succeeding periods. Archaeological evidence from the end of the LC 1 period demonstrates that ancient peoples began to reconsolidate the dispersed hierarchies through a variety of means including military action (e.g., Tepe Gawra; Tobler 1950: 26), trade (e.g., Tell Hamoukar; Al Quntar, Khalidi, & Ur 2011), ritual/religious means (Oates 1993: 411), or otherwise. We have a general sense of what happened over the course of the Ubaid, LC 1 and LC 2 periods, but archaeological studies have not offered a means to explain the “conditions which encourage the generation of variation” (Eerkens & Lipo 2005: 317).

As Eerkens and Lipo argue, we should identify a “robust set of techniques for explaining variability in material culture,” as “variation is the raw material upon which selection operates to cause changes in the frequency of cultural traits through time” (ibid.). Thus, we need to investigate two areas of change in early formative societies; the first is the cause of variability, and the second is the means through which individuals capitalized

on a state of variability in order to reorganize aspects of society to their disproportionate benefit. This dissertation focusses on the first—variability—as it developed over the course of several centuries in Late Ubaid and LC 1 northern Mesopotamia, and then offers some ideas as to how the second—sociopolitical transformation—may have happened in relation to that, heading into the LC 2 period. Ultimately, it offers a conceptual framework that can help explain the long sequence of change between the end of the Ubaid period and the LC 2 period.

### **1.2.2. Using an Explanatory Model to Understand Change in the LC 1 Period**

Recent research in the field of cognitive science identifies a strong distinction between two main types of innovation—‘conventional’ and ‘instrumental.’ The practical studies of Legare, Nielsen, and others in the realm of social learning demonstrate that ‘instrumental innovation’ is a decidedly more attainable adaptive strategy in human children than innovation of social conventions (Wen et al. 2016; Legare & Nielsen 2015; Legare et al. 2015; Nielsen et al. 2014). That is, sociocultural continuity in human society is generally quite strong, based on the human predilection for ‘conventional imitation’ that fosters in-group cohesion; however, humans can more easily and readily reimagine and reformulate non-conventional, instrumental behaviors as evidenced through tool innovation at young ages. Those instrumental innovations, if adopted, then provide an opportunity for behavioral variability, which allows for groups and individuals to promote new, competing sociocultural conventions, especially when mapped onto the new instrumental behaviors.

The implications of these studies in cognitive science is that sociocultural changes are likely to have occurred having been precipitated by other factors—namely, variability through instrumental innovations. Through the continuous social learning process of

cultural convention, a society member is normally disinclined to operate outside of the given social order. An “aggrandizer”—Clark and Blake’s ever-present, and occasionally successful, self-promoting “political entrepreneur” (1994: 17)—would be precluded from successfully convincing others to participate in altering that social order to meet his or her own ends. What helps break or loosen the chain of conventional imitation, cognitive science tells us, is ‘instrumental innovation.’ The result is a heightened opportunity for behavioral variability, in terms of both socioeconomic strategy and organizational modality, as well as—and often expressed through—material culture. Aggrandizers could then co-opt the new technology and build new social conventions into its associated behaviors.

In light of the breakthrough discoveries in cognitive science for understanding social learning processes, in this dissertation I propose a model of change that dispenses with ‘kinship’ as a reliably attestable and primary causal factor but instead views ‘instrumental innovations’ of the late 6<sup>th</sup> and early 5<sup>th</sup> millennia BC, such as the *tournette*, copper smelting, irrigation farming, or rapid pottery production (using molds and chipped-stone tools), as conduits—but not determinants—for the multiplicity of sociopolitical strategies evident in the socially-reflexive LC 1 period.<sup>4</sup> An atmosphere of ‘social reflexivity’ and ‘augmented opportunity’ enabled autonomous aggrandizing agents to repurpose new techniques and develop them into technological domains, providing a

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<sup>4</sup> Similarly, Clark proposed that “advances in the means of production have indeed determined history, but only in the sense that they have widened the range of choice open to human societies” (1972: 76). This dissertation expands on this basic concept by theorizing and demonstrating the entire process of innovation, choice, variability, and change and, most importantly, possible reasons behind it. Rather than assigning agency to technology in a deterministic assessment of culture change, it explores the material and behavioral opportunities that instrumental innovation affords individuals.

means of instituting cultural-ideological innovations such as conspicuous consumption and individualistic wealth accumulation, as possible examples.

While Chalcolithic northern Mesopotamia makes an excellent case for such a theory, the phenomenon of instrumental innovation leading to variability as a basis for structural change is apparent in historical examples as well. One case that scholars have heavily investigated is the fervent adoption of the horse by North American Plains Indians in the 17<sup>th</sup> century. Clark Wissler, in the early 20<sup>th</sup> century, identified the adoption of horse usage and development of equestrian equipment by Plains Indians as “a cultural stimulant” (1914: 15) that incited greater mobility, increased warfare, and more extensive interaction. It also enabled wealth accumulation and the advent of the “high tide” of Plains culture (ibid.: 17). LaBounty has more recently investigated this issue and shows that horse ownership could have an exponential impact on personal wealth accumulation, particularly in the form of attached producers and political allegiance attained through exchange of the horse as a prestige good and, ultimately, a form of currency (2008: 33). The formerly egalitarian Blackfoot tribe developed “a new structure based on horse-wealth” (ibid.), but another significant outcome of horse adoption was the breakdown of strict social conventions governing both polygyny and clan endogamy (ibid.: 34-36), creating a multiplicity of society-organizing strategies that finally resulted in a class-based society.

Perhaps most interestingly, though, is that the tribes of the Southern Plains adopted horse-culture at around the same time as their Northern Plains counterparts but did not alter their social structure or traditional cultural conventions (ibid.: 33). Contra LaBounty, who writes that technology can be “a primary *cause* of culture change” (emphasis in original; ibid.: 30), this last fact highlights the important point that instrumental innovations themselves govern no social changes. Rather, the innovators and, ultimately, adopters are

actors who can *choose* to use instrumental innovations or capitalize on convention breakdowns to manipulate material culture and social customs to their advantage.

An example of the opposite phenomenon, where conventional behavior (such as “ritual”) supports cultural continuity in instrumental behavior, comes from the Pueblo Indians of the southwestern United States. Their potters incorporated prayers into certain steps of pottery production, particularly decoration, in order to reinforce iconographic taboos; geometric motifs were expected, while figural representation was impermissible. Overall, stability in pottery design persisted and the degree of variation was low over hundreds of years (Crown 2014: 78). From another angle on technical variability, Mesoudi and O’Brien have used computer, agent-based simulations to identify learning-based causes of variation and sameness within lithic assemblages. They demonstrate that the lowest degree of variation resulted from what they term ‘cultural transmission’ of instrumental skills, which features social learning of craft skills in groups contexts (2008: 640). Where individuals engaged in technical learning outside of a social context, variability was high (ibid.).

Thus, to summarize the thesis of this dissertation, innovations that occurred during the otherwise culturally-continuous Ubaid period, across a variety of technological domains (but best exemplified in ceramics), helped set the stage for conventional (sociocultural) variation in the LC 1 period, creating ideal conditions for aggrandizing actors to engage in new socioeconomic strategies and, eventually, new modes of social organization and differential development of complexity across a heterogeneous LC 2 social landscape. In a sense, the otherwise conservative medium of pottery supported a culturally-embedded sociopolitical framework in the Ubaid period, and introduction and adoption of new instrumental techniques allowed producers to disrupt that link and foster

greater material variability. This, in turn, enabled new modes of behavior, economic opportunity, and, ultimately, sociopolitical organization. As such, identifying variation archaeologically could be the key to understanding both the LC 1 period empirically and sociopolitical changes theoretically. This dissertation provides evidence and argumentation primarily for the changes apparent from the Ubaid to the LC 1 period, while offering a model that allows for the further development seen in the LC 2 period.

The Oriental Institute of the University of Chicago's expedition to Tell Zeidan has provided in only three seasons of excavation substantial evidence for elements of social organization in the LC 1 period including domestic grain storage, architectural differentiation, metallurgy, administration, and variable subsistence strategies in the context of a competitive, varied, and urbanizing environment. Chapter 3 Section 3.1 will expand on the ideas offered here and place them in the context of theoretical discourse in archaeology, while Chapter 8 will draw on the body of evidence presented in the following chapters in support of this thesis. The most important contribution of this theoretical model is its ability to cast the substantial changes evident in between the Ubaid and LC 1 periods in northern Mesopotamia in a coherent and materially-identifiable framework.

### 1.3. Defining the LC 1 Period in Greater Mesopotamia

Although recent research has made inroads toward an understanding of the nature and significance of the LC 1 period in Upper Mesopotamia (Baldi 2015; Stein et al. 2015; Marro 2012a; Stein 2012; Kennedy 2012; Kennedy 2008; Brustolon & Rova 2007; Forest 2005; Rothman 2001a; Tomita 1998b; Trufelli 1997; Lupton 1996), its body of material is still largely unknown and challenging to interpret (Stein 2012; Marro 2012b). The Late Chalcolithic Period in general is considered to be a time of great change in terms of the

structure of society and basic modes of living (Marro 2012b; Stein 2012; Forest 2005), and yet the earliest part, the LC 1 period, had, until recently, largely gone unnoticed as the time during which many of those changes began or can be seen in their infancy (Stein 2012: 132; Helwing 2012: 204). Furthermore, attempts to work with the material of the Late Chalcolithic period still have to either explicitly or implicitly grapple with the basic problem of how to delimit the epoch and its constituent periods (Frangipane 2012a: 50; Trufelli 1997: 6; Vértessalji 1986). To approach a solution to these problems, this section will establish a working definition for the LC 1 period based on available evidence, and Appendix A uses that definition to present a gazetteer of 80 LC 1 occupations across Greater Mesopotamia, arranged by sub-region (see map, Pl. 40).

### **1.3.1. The LC 1 Period across Space**

Near the western limits of Ubaid-related material culture is the Amuq Valley. This region was generally thought to have been abandoned during what would have been an Amuq E to F “transitional period” (Marro 2012: 25), which corresponds roughly to the Upper Mesopotamian LC 1 Period (see Table 1), though select reports demonstrate otherwise. While the general trend of contraction is a plausible interpretation (see, e.g., “Tell ‘Imar al-Jadid al-Sharqi,” Appendix A, II.3), the settlement pattern during both the Ubaid and the LC 1 periods in the Amuq valley seems to be a two-tier site hierarchy with a 15-20 ha center and 1 ha satellite sites (Yener 2005: 195), but with a possible lateral shift in the LC 1 period (Casana & Wilkinson 2005a: 36).

Between the Ubaid and the LC 2 periods in the Karababa basin (Turkey) and the North Jezirah region (Syria) a major change occurred in terms of both internal and external power relations, as evidenced by the increase from a two-tier to a three-tier site settlement hierarchy (Lupton 1996; Helwing 2012: 219). Similarly, Mazzoni sees that the Late

Chalcolithic period exhibits both better avenues of exchange and a denser settlement pattern, the impetuses for which probably were “intensification of agriculture and trade” (1999: 112-113).

More specifically, Balossi-Restelli delineates two “circuit[s] of regional connections” in the LC 2 period: the Altinova plain, Tell Brak, Nineveh, and Tepe Gawra in the east; and Arslantepe, Öylum Höyük, and Hammam et-Turkman further west (2008: 25; see also Frangipane 1998: 195). Both of these areas must have been in contact, considering the widespread occurrence of styles such as geometric painted ware. For instance, chaff-and-mineral-tempered scraped dark ware, a northern/western variant of the basic early LC types, has been found at distant Nineveh (Balossi-Restelli 2008: 25), but the basic ceramic characteristics are different. The coalescence in the LC 2 period of different sub-regions into these two circuits, though, masks the very different cultural affinities that are only recently becoming apparent for the LC 1 period (see below).

Survey data for Upper Mesopotamia currently available for the early Late Chalcolithic is typically not refined enough to distinguish between the LC 1 and LC 2 periods (see Ur 2010a; Brustolon & Rova 2007: 8-9, 21<sup>5</sup>). New surveys being conducted in Iraqi Kurdistan, such as the Erbil Plain Archaeological Survey and the Shahrizor Survey Project, are already adding new early Late Chalcolithic sites to the map, but the quantified results still generally exclude a distinction between the LC 1 and 2 periods.

Going back to Copeland’s early survey of the Balikh Valley (1979), the vague distinctions between Ubaid and Uruk occupations still frame the basic nature of our

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<sup>5</sup> Also see Oates 1978: 28 for a brief discussion of the disclarity brought early-on to the Ubaid-Uruk transitional material in the Warka survey by lumping the “Terminal Ubaid” pottery with that from Ubaid 4 (see Adams & Nissen 1972: 99).

understanding of the settlement changes through to the end of the second millennium AD.<sup>6</sup> The picture painted is of the beginning and end results, with little information as to the process by which the so-called three-tier settlement hierarchies came to replace the two-tier systems of the Ubaid period. To answer the question ‘how social complexity developed’ in Upper Mesopotamia during the 5<sup>th</sup> millennium, one must use excavation data from individual sites.

For example, Rothman (2001) has taken steps toward combining excavation results with a settlement analysis, thereby re-evaluating the details of the settlement pattern in the northern piedmont for both the LC 1 and the LC 2 sub-periods. LC 1 sites west of the Tigris are Leilan, Grai Resh, Hamoukar, Tell al-Hawa, Shelgiyya, and Telul eth-Thalathat. East of the Tigris, LC 1 sites include Nineveh (which may have been abandoned before the LC 2), Arpachiyah, Tepe Gawra, Tell Surezha, and Qalinj Agha. The main distinction that Rothman is able to make between the LC 1 and 2 settlement patterns is that the LC 1 features areas of sparse inhabitation, where small sites existed in places “optimum for agricultural exploitation” (2001: 378; see also Rothman 2014: 58; Mazzoni 1999: 112-113).

### **1.3.2. Terminology of the Period**

As excavation data from 5<sup>th</sup> millennium sites, and corresponding analyses and syntheses, have become gradually more available over the past twenty years, the ability to effectively define both the individual periods and distinct sub-regions has increased. However, the ways that Near Eastern archaeologists have done that have changed concomitantly. Recent expositions on prehistorical societies of the Ancient Near East have

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<sup>6</sup> Helwing also points out that Ubaid-period painted pottery is more noticeable during surface collection than the plain wares typical of the following LC periods (2012: 219), thereby obscuring the periodization of settlement in the mid-late 5<sup>th</sup> millennium BC.

further commented that paradigms of chrono-cultural definition common to Near Eastern studies need to be, at the least, carefully applied or, perhaps, entirely re-thought (e.g., Rowan & Lovell 2011).

Already by the mid-20<sup>th</sup> century Anne Perkins had recognized that substantial changes took shape at the end of the Ubaid period in Northern Mesopotamia:

After the Ubaid period there began an era of regional specialization in which Mesopotamia was much less closely connected with Iran and Syria than during the Ubaid dominance in which northern and southern Mesopotamia began to develop separate cultures (Perkins 1949: 96).

This was an astute statement then, before archaeological scholarship had even begun to address such issues in northern Mesopotamia. Even now, though, it is a valid assessment of the regional variation that helps to characterize the LC 1 period in comparison with the Ubaid period (Marro 2012; Mazzoni 1999, 2000; Akkermans 1988a).

However, between 1949 and today a variety of issues, including inconsistent terminology, the limited exposure of mid-5<sup>th</sup> millennium occupations, and challenges of material definition, have impeded a clear understanding of the LC 1 horizon. Terminologically, LC 1 levels in Syria, Iraq, and Turkey have alternately been lumped-in with or called the “Terminal Northern Ubaid” Period<sup>7</sup> (Thuesen 2000: 76; Rothman 2001b: 371; Pittman 2001; Akkermans & Schwartz 2003: 154-56, 184-86; Hammade & Yamazaki 2006: 459; Marro et al., 2009; Oates 2012: 66)<sup>8</sup> and called “post-Ubaid” (Oates 2012: 65;

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<sup>7</sup> “Terminal Ubaid” is a term that was coined much earlier than considerations of the LC 1 as a period (Oates 1976: 26-28; see also Forest 1996: 387), and its drawbacks are discussed below.

<sup>8</sup> But note in some recent publications an equivalency between the terms “LC 1” and “Terminal Ubaid” (e.g., Kennedy 2012: 8; Forest et al. 2012: 34; see also Bernbeck & Costello 2011: 683). See Sudo 2010 for a recent continuation of the temporal distinction between the Terminal Ubaid and Post-Ubaid periods. This terminological problem becomes particularly evident in diachronic or synthetic studies include LC 1 levels in the Ubaid period (e.g., Gawra XII as Ubaid 4; Schmid 2009: Table 60), and/or when the “Post-Ubaid” is defined as LC 2-3 periods (e.g., Ökse & Gormuş 2013: 135).

Brustolon & Rova 2007: 8; Carter & Philip 2010: 15; Hole 2000: 22-23; Adams 1971: 581) or Ubaid 5 (Finkbeiner 2001, though he is more specifically describing the southern Mesopotamian levels).<sup>9 10</sup>

Vértesalji (1984, 1987) made the attempt to take up V. Gordon Childe's suggestion and assign numbers rather than proper nouns and applied it to the subdivisions of the Chalcolithic Age, but the results are wanting and the schema never took hold. In many cases, Vértesalji's ambitious relative chronology mismatches forms and dates (to be expected from such an exercise), and its focus on tenuous connections between sites in the south may actually serve to exacerbate the issue.<sup>11</sup> Rothman (2001) outlines a framework of terminology, periodization, and some inroads for investigation of the early LC periods, but also calls for more data and research of the LC 1 in order to make progress toward a complete understanding of the period. The Fosseuse conference of 2009<sup>12</sup> and the resulting publication have refocused the attention of archaeologists onto the early part of the Late Chalcolithic period (Marro ed. 2012). They have, however, nominally joined the LC 1 and

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<sup>9</sup> For further discussion of these terms see Tomita 1998b: 197 and Nishiaki 2003: 155.

<sup>10</sup> Speiser (1936), and then Perkins after him (1949: 193), used the term "Gawra Culture" to describe the Late Chalcolithic material (primarily LC 2-3), though this has been largely retired (but cf. Forest 2005 in reference to the LC 1-2 periods and Kopanias et al. 2012: 7). Abu al-Soof (1974: 9) briefly used the term "post-Ubaid" to describe Speiser's "Gawra Culture" pottery, but lumped that in with everything "pre-Ninevite V," and finally declared it all to be "Uruk" material. This, of course, implies that the Ubaid Period at Tepe Gawra ran up until Level XI-A, including XII, which is generally no longer considered to be an accurate date for the end of the Ubaid (see below). Speiser, of course, originally termed the Susa A period/pottery and its relatives across Mesopotamia "First Aeneolithic," which might have been preferable had it stuck.

<sup>11</sup> For example, assigning Gawra XII to Chalcolithic III B 1, his "Early Uruk" phase (Vértesalji 1989b: Fig. 1), or placing pottery from Warka's Steingebäude into the Late Ubaid phase of Chalcolithic III A 3 (1987: 514) are problematic attempts at north-south reconciliation that conflate the period of later (Uruk) levels in southern Mesopotamia with the period of early LC levels in the north. The Steingebäude is an Uruk-level building set into a cut that Ubaid strata run up against (M. Gibson, pers. comm.).

<sup>12</sup> Entitled 'The Post-Ubaid Horizon in the Fertile Crescent and Beyond. International Workshop held at Fosseuse, 29<sup>th</sup> June-1<sup>st</sup> July 2009.'

LC 2 periods together in the term “Post-Ubaid,” thereby further obfuscating both the name and the issue, ironically (Marro 2012: 14-16; Frangipane 2012a: fn 44).<sup>13</sup>

Incorporating the term “Uruk,” in reference to the succeeding period in southern Mesopotamia, Sürenhagen describes the potentially corresponding levels at Warka (XVI-XIIb; see Appendix A, “Warka”) as “proto-Uruk” (1999), which Vértessalji labels as “Chalcolithic III B 1” in his schema (1984). Abu al-Soof used the term “pre-Uruk” for material collected from Kirdi Bir during the 1956 Dukan Dam salvage operations in the Ranya Plain (now Lake Dukan) in northeastern Iraq (1970: 65),<sup>14</sup> <sup>15</sup> and more recently Kepinski (2011) has used this term for the Late Chalcolithic levels at Grai Resh, as if the rapidly-produced ceramic types such as the Coba Bowl (see, e.g., Pl. 29) anticipated the later Beveled-Rim Bowls of the Uruk period.<sup>16</sup> However, the style and nature of the material culture in northern Mesopotamia in the early Late Chalcolithic period in no way warrants use of the term Uruk (as in “pre-Uruk” or “Northern Uruk”), as the ceramic types are completely different and such terminology would, thus, only confuse the issue of when and how peoples of the two regions interacted (see Stein 2012: 145).

Alternatively, the rationale for incorporating the word ‘Ubaid’ into the terminology for these levels, as in “Post-Ubaid,” “Terminal Ubaid,” or “Ubaid 5” relies on the gradual,

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<sup>13</sup> The overall content of the Fosseuse conference proceedings, though, brings together LC 1 and 2 datasets from all across Greater Mesopotamia and is a major step forward in both delineating and understanding the period. Baldi’s 2015 dissertation on the production of “mass-produced” pottery at Tell Feres builds off of the issues raised at Fosseuse and addresses many of the challenges in periodization of the early Late Chalcolithic with a detail-oriented approach to the varied ceramic assemblages. It is to-date the most reliable source for identifying LC 1 levels across the broader region.

<sup>14</sup> However, the Kirdi Bir material is unpublished and at the moment impossible to identify as related to the early Late Chalcolithic ceramic horizons of Greater Mesopotamia.

<sup>15</sup> Abu al-Soof later explicates his preference for the term “Uruk” over “post-‘Ubaid” for the northern Chalcolithic materials, citing the “continuity... and... the general uniformity of the pottery types of this period” (1972: 5).

<sup>16</sup> Petrie does note that “the technology used to produce the ‘wide flower pot’ is in turn very similar to that used to produce the so-called ‘bevel rim bowl’” of the Uruk Period, and that the technology of Coba bowl likely led to the development of the Wide Flower Pot (2012: 291).

sometimes subtle, change in material culture that occurred between the Ubaid period and the Late Chalcolithic period (Stein 2012: 132; Oates 2012: 73; Akkermans 1988c: 288; cf. al-Soof 1972: 5). Most notably, the pottery tradition moves away from the mineral tempered, dark-on-buff painted pottery typical of the Ubaid period toward the vegetal tempered, less-often decorated ceramics of the Late Chalcolithic (Helwing 2012: 204), but often with continuation of both mineral tempering and simple painted geometric motifs pottery, usually on lesser scales.

The LC 1 levels at many sites feature a partial or general continuation of Ubaid-related painted styles, and the ubiquitous Coba Bowls<sup>17</sup> that help define the period at many sites actually begin to appear in Ubaid levels in northern Mesopotamia (Baldi 2015; 2012), central Mesopotamia (Jasim 1985), southern Mesopotamia (Oates 2012: 70) and southeastern Anatolia (Frangipane 2012a; Trufelli 1997).<sup>18</sup> Thus, there are clear elements of continuity between the material culture of the Ubaid period and what followed. However, these aspects of continuity also help to mask the important structural changes that should help define the LC 1 period and which necessitate a break from the Ubaid-based terminology such as “Terminal Ubaid” or “Ubaid 5.”

“Terminal Ubaid,” though, is a problematic term on its own, since it has been used as a reference to a range of different time periods. Its usage dates to the mid-1970s, initially coined to name the transitional phase between the Late Ubaid and the Early Uruk periods

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<sup>17</sup> Coba Bowls are quickly- and crudely-produced open vessels with plain rims made by hand-forming a lump of wet clay into a simple bowl shape with a thickened profile, and then removing excess clay from the mid-point downward in order to reduce clay mass for faster drying (Arnold 1985: 208). The typical tool for removal seems to have been a chipped-stone blade (Abu Juyab n.d.; Baldi 2015; Balossi-Restelli 2012a). A morphological variant of the Coba Bowl, though commonly equated with it, is the Beaded-Lip Scraped-bottom Bowl (also called the Beaded Scraped Bottom Bowl; Abu Juyab n.d.). For examples, see Pl. 29.

<sup>18</sup> See also Finkbeiner 2001 for a study of the continuity at Warka between the Late Ubaid pottery and “Post-Ubaid” (or “proto-Uruk”) types; he suggests calling the Post-Ubaid levels (XVI-XIII) “Ubaid 5” (156).

(Wright, Neely, Johnson, & Speth 1975: 131; Oates 1976: 28). In this regard it might have sufficed through to the present day, but, as Nishiaki (2001) points out, current usage has obfuscated it, sometimes employing it as a synonym for the LC 1 period (e.g., Rothman 2001a: Table 1.2), and sometimes as a transitional period between the Late Ubaid and the LC 1 (e.g., Rothman 2001a: Table 1.1). Thus, its utility has run its course.

### **1.3.3. The Issue of Ceramic Definitions of the LC 1 Period**

Further hindrances in studying LC 1 societies have resulted from a lack of agreement about ceramic assemblages and chronology.<sup>19</sup> Although this partially stems from the semi-localized character of LC 1 material culture,<sup>20</sup> select analyses from the last two decades have recognized the potential to better establish the LC 1 ceramic horizon (e.g., Baldi 2015; Baldi & Abu Jayyab 2012; Rothman 2001b; Rova 2000; Tomita 1998b; Schwartz 1988; Akkermans 1988a).<sup>21</sup>

However, problems have arisen from shifting definitions of the LC 1 ceramic assemblage over the last twenty-five years.<sup>22</sup> For example, Matthews notes that Leilan Period VIb, “interpreted as Late Ubaid or LC 1 in date, [but which] includes elements which could equally fit within an Early Uruk or LC 2 context,” such as “flint-scraped coarse bowls” (i.e., Coba Bowls), internally-beveled rim bowls, and neckless flaring rim jars (200a3: 33, after Schwartz 1988: Figs. 65-66). More recently, the periodological specificity

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<sup>19</sup> See, e.g., Helwing 2000 for the resulting difficulties; confusion seems to abound as to what levels are Ubaid, LC 1, or LC 2, and what sites are strictly local versus those with heavy influence or presence from the Urukian south.

<sup>20</sup> One of the outcomes of the Fosseuse conference is the demonstration of interrelated but distinct spheres of material culture across southeastern Anatolia and northern Mesopotamia (see Marro 2012 and below).

<sup>21</sup> Thus, it is important to establish a clear periodization from the material at Tell Zeidan so that ceramic and radiometric correlations supersede the limitations that have arisen from terminological inconsistency. The ceramicist at Tell Zeidan, Khaled Abu-Jayyab, has begun this process and Chapter 7 incorporates a summary of his work.

<sup>22</sup> Regarding Tell Leilan VIb, see Matthews 2003a: 33; the same problem persists for Tell Ziyadeh Operation J and Hammam et-Turkman Phase IVD, although continued work on defining the LC 1 ceramically is correcting these issues.

of these types has improved based on excavations at sites such as Tell Hamoukar and Tell Feres (central Jezirah): flint-scraped bowls and flaring-rim globular jars can now be thought of as LC 1 types, and the inwardly beveled-rim bowl as a late LC 1 or early LC 2 type (Al-Quntar, Khalidi, & Ur 2011; Abu Jayyab 2012; Baldi & Abu Jayyab 2012).

Another issue that has hampered the development of a straightforward relative chronology of the LC 1 period is the uneven pace of change at each site and the related question of defining the LC 1 period as either a cultural horizon or a chronological stretch of time. For instance, Hammam-et Turkman (Balikh Valley) and Tell Ziyadeh (Middle Khabur) are both sites that feature definite LC 1 levels, but Hammam evidences a very gradual change from the Ubaid (IVA-B), through the early LC 1 (IVC-D), into the late LC 1 (VA) and LC 2 (VB) periods (Akkermans 1988a-c). At Tell Ziyadeh, the excavators have posited a gap between the Ubaid (16-15) and “post-Ubaid” levels (14-13) based on radiometry and ceramic parallels with Hammam IVD-VA and Gawra XII (Hole et al. 1998; Hole 2000). However, some LC 1 traits (e.g., internally-incised bowls; Pl. 31 a) simply appear slightly later at Ziyadeh.<sup>23</sup> In some cases, recent reevaluations have led to the argument for a longer LC 1 period, but in other studies the ceramic hallmarks and other traits associated with the LC 1 are attributed to the latest Ubaid levels, assuming a more discrete LC 1 ceramic assemblage.

In another example, Mazzoni sees an increase in painted Ubaid-style wares at Tell Afis in the Late Chalcolithic period and links this to the Euphrates-west regional preference for continuation of the Ubaid style in the second half of the 5<sup>th</sup> millennium (1998: 18, 24;

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<sup>23</sup> Baldi (2015) dates the earlier Ziyadeh levels of 15 and 16 to the LC 1 nevertheless. Furthermore, at Tell Feres, the internally-incised bowls appear at the end of Level 9a (corresponding to Hammam VA; Baldi 2012a: 161 Table 21), which is also later than at other sites such as Zeidan (see Ch. 7.4). Thus, the chronology of adoption is not even across northern Mesopotamia.

2000: 98-100).<sup>24</sup> This could partially be a function of the shifting relative chronology (see Appendix A.III), but Late Ubaid styles also appear conspicuously in the assemblages of the far-eastern limits of the Greater Mesopotamian LC 1 interaction sphere. For example, at Tepe Dava Göz, in the Lake Urmia basin, Level II (LC 1) seems to show an increased affinity with the Ubaid painted style relative to the earlier, Ubaid-related Dalma Phase (Abedi & Omrani 2013: Figs. 9-10), while forms such as the incurved-rim bowl and various painted motifs continue from Ubaid levels into XII-A and XII at Tepe Gawra (Tobler 1950: Pl. CXXXIII no. 236) and other sites. Thus, the Tell Afis material could be, instead of an aberration, representative of an inter-regionally uneven development of stylistic appropriation where the geographic extremes of the interaction sphere adopt traits in a different way and at a much slower rate during a time period like the LC 1, when northern Mesopotamia was diverse or less culturally cohesive.

Using pottery to determine periodological breaks, of course, has its limitations (Gibson & McMahon 1997), especially when the changes are gradual through time, as at the end of the Ubaid period and the beginning of the Late Chalcolithic. Furthermore, even percentages of Coba Bowls, paint decoration, or chaff tempering within specific collections varies greatly between contemporary site assemblages,<sup>25</sup> and so we have to recognize the possibility that sites adopted trends in ceramic style and production at different rates and/or in different ways.

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<sup>25</sup> For instance, in the Balikh, the percentage of painted pottery in the LC 1 levels is between 1-5%, where at Tell Feres, in the Khabur Triangle, it is over 9% (Akkermans 1988a; Baldi 2012a; Abu Jayyab n.d.).

Furthermore, the lack of a unified cultural assemblage is evident across multiple material categories as well as developmental trajectories. For example, sites such as Değirmentepe (Gurdil 2010), Norşuntepe (Gülçur & Marro 2012), and Tülintepe (Esin 2001) show greater evidence for metallurgy in the LC 1 period, whereas Yümüktepe in Cilicia evidences a metallurgical regression after the Ubaid, despite continued economic development (Caneva et al. 2012; see Ch. 2 Section 2.2.4). Sub-regional settlement trajectories are also unique, with the Upper Khabur, for instance, experiencing an urbanizing trend after the LC 1 (Wilkinson & Tucker 1995), while the Balikh undergoes contraction and eventual abandonment at around the same time (Trentin 2010; Wilkinson 1998; see Ch. 2 Section 2.2.1).

Thus, defining the LC 1 period requires an atypical approach, since the standard commonalities of a cultural period or horizon style are less attestable than for other periods. Even the most basic ceramic criteria of the LC 1 period—a plurality of “mass-produced” or ‘rapidly-made’ bowls;<sup>26</sup> increase in chaff tempering relative to mineral tempering;<sup>27</sup> and decrease in the prevalence and variety of surface decoration<sup>28</sup>—are neither uniformly

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<sup>26</sup> This category includes three main types: the Coba Bowl, its slight variant the Beaded-Lip Bottom-Scraped Bowl, and the Wide Flower Pot Bowl. The last one is typical of the eastern region of northern Mesopotamia (e.g., Tepe Gawra), though it occurs in the west as well. The level of standardization among these types is actually quite low, as they are typically handmade or in a crude mold, and so Kennedy (2012; 2008) uses the term “expediently produced” rather than “mass produced,” the latter of which has more industrial implications than are warranted for the LC 1-2 periods. Similarly, Baldi questions the implications of “mass production,” and suggests “serially produced” as a more accurate description based on his ‘estimated vessels represented’ calculation of ~40 vessels per family per year (2012: 143). See Ch. 2 Section 2.3.2 for further discussion. Here I opt for the term ‘rapidly made,’ as it seems to be the most functionally neutral.

<sup>27</sup> See Stein 2009 and Thuessen 2000; see Baldi & Abu Jayyab 2012: 171 regarding the variance between sites.

<sup>28</sup> These guidelines come from select sites in different sub-regions that were occupied from at least the Ubaid until at least the LC 2 period. Thus, according to the Dewar Method, they have been occupied throughout the entire LC 1 sequence (Dewar 1991). Such sites include Tell Zeidan, Tell Mashnaqa, Tepe Gawra, Tell Feres al-Sharqi, Tell Surezha, and Hammam et-Turkman. See also Trufelli 1997: 8 for a similar description of the period but one that includes the “introduction of grey ware.”

distributed nor punctuated signifiers of when the Ubaid ends and the Late Chalcolithic period begins.<sup>29</sup>

The solution is two-fold: to first examine the regional trajectories based on parallels in form, and then to look at site-specific changes through the levels within a broad range of absolute dates (4700-4200 BC), with a goal of reframing the relative chronology based more on changes in function at a localized level than on a macro-regional typology. This avoids having to match site levels to one another through artificial equivalencies, and instead assesses and compares the changes that define the period within sites and across regions (see Appendix A), allowing for and highlighting the material and developmental variability.

In the mid-20<sup>th</sup> century Tobler began trying to identify an assemblage for what is now the LC 1 period in the trans-Tigridian corridor (northeastern Mesopotamian piedmont zone) based on the Tepe Gawra Level XII assemblage. This included “pots with carinated bodies and long, sloping shoulders,<sup>30</sup> ... pots with globular bodies, ... spouted jars, ... [and] small jars” (Tobler 1950: 146), and was a good starting point but was skewed on account of the Gawra excavations prioritizing painted wares even though they make up a minor fraction of LC 1 assemblages (Rothman 2002). In the 1980s excavations at Hammam et-Turkman in the Balikh Valley and Tell Leilan in the Khabur Triangle (central Jezirah region) produced key stratigraphic sequences for those parts of northern Mesopotamia, and Akkermans’ “updated chronology” (1988c) and Schwartz’ appendix of comparanda (1988)

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<sup>29</sup> Abu Jayyab attributes these kind of trends to the “continuous, gradual relegation of ceramics from an aesthetic medium, charged with meaning, to a more utilitarian item,” and, along with Karsgaard, sees the roots of this continuum in the “transition” from the Halaf to the Ubaid period in northern Mesopotamia (Abu Jayyab n.d.; Karsgaard 2010).

<sup>30</sup> Carinated pots with “sloping shoulders” are also apparent in the Hammam IVD assemblage (Akkermans 1988b: Pl. 92 nos. 265-267), fitting them into the western LC 1 repertoire as well.

are invaluable resources for assessing the trans-regional parallels (and variances) in form. All of these publications, though, predate the current Late Chalcolithic relative chronology, and so need to be reconsidered.

Over the past two decades, archaeologists have made several attempts and many improvements toward creating regional LC 1 ceramic typologies. At the turn of the millennium, Tomita devised a basic schematic for dating a level to the LC 1 or LC 2 periods within northeastern Mesopotamia. He identified hole-mouth jars,<sup>31</sup> U-shaped pots, an abundance of Wide Flower Pots Bowls and/or Coba Bowls, and the distinctive decorative painted motifs of Sprig Ware and the “panel pattern”<sup>32</sup> as common indicators of the LC 1 period there (Tomita 1998b: 200 & Fig. 84). However, Sprig Ware is a kind of luxury good with a particular distributional pattern that typically excludes many smaller sites, and Wide Flower Pot Bowls and Coba Bowls also occur in LC 2 levels. A key recognition by Tomita, though, was that certain painted motifs—though they continued the basic dark-on-buff or reddish-brown-on-buff style of the preceding Ubaid period—are particular to the LC 1 period (see below and Pl. 30). These are typically geometric patterns “simplified” from the Ubaid repertoire, nearly eliminating representational motifs such as animals and vegetation. It is not only the simplification of the painted motifs that changes from the Ubaid into the LC 1, but also the brush style of painting them, having gone from finer,

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<sup>31</sup> I would add, however, that beaded-rim hole mouth pots are more typical of the LC 2 Period than plain-rimmed hole mouth pots, which are more related to the LC 1 period; the beaded-rim variant begins in Level XIA at Tepe Gawra (Tobler 1950; Rothman 2002: Pl. 8:775) and Level 3/2 in Hamoukar’s Southern Extension and is thus datable to the early LC 2 at the earliest. Beaded-rim hole mouth pots also occur at Hammam in VA (Akkermans 1988c: Pl. 108 no. 102), and so further west they may start to acquire a beaded lip earlier on, in the late LC 1 period.

<sup>32</sup> The “panel pattern” is essentially what Schwartz more accurately describes as “lozenges interspersed with horizontal lines” (Schwartz 1988: 77, Table 16), which appears at Gawra in clearly stratified contexts for the first time in Stratum XII (Tobler 1950: 147 & Pl. CXXXIX), at Tell Leilan in Phase VIb, Stratum 52a (Schwartz 1988: fig. 62 nos. 7-8), in Telul eth-Thalathat Tell II Stratum 4 (Egami 1959: 105 & Fig. 35), and at Ibrahim Bayis (El Amin & Mallowan 1950: 57, Fig. 1).

more delicate strokes to thicker bands and cruder applications, and the use of the slow wheel to produce continuous bands (Moorey 1994: 153).

#### **1.3.4. General Patterns in Ceramics of the LC 1 Period**

Johnny Samuel Baldi's recent dissertation thesis (2015) presents a detailed study of the pottery from Tell Feres al-Sharqi and meticulously reevaluates the ceramic types across the Near East during the LC 1-2 periods. This is to-date the best guide for defining the LC 1 Period by type, but one clear outcome of his study, reaffirming earlier interpretations (e.g., Akkermans 1998), is that forms typical of LC 1 occupation levels appear in Ubaid levels at many sites while others appear in LC 2 levels (see esp. Baldi 2015: Fig. V.19). And so, there are both spatial and temporal issues associated with attempting to create a singular LC 1 typology. However, understanding both the inter- and intra-regional types is an important step in identifying the local Ubaid-LC 2 sequence, and sites in the Syrian Jezirah such as Tell Brak can help define those overlaps, as both "western" and "eastern" forms appear together there (Marro 2012: 23; Oates 2012).

Key ceramic types and features that help connect the LC 1 period from the west to the east include: 1) flint-scraped, rapidly-made bowls (i.e., Coba Bowls; e.g., Pl. 29 b-d); 2) internally crosshatch-incised bowls (e.g., Pl. 31 a-b); 3) plain-rim hole mouth jars (without beaded lips; e.g., Pl. 24 r); 4) and neckless flaring rim jars (or flaring simple rim jars; e.g., Pl. 26 a). Other forms include 5) "bowls with incurved vessel walls" (or globular bowls; e.g., Pl. 25 z) and 6) "bowls with sharply incurved vessel walls" (e.g., Pl. 23 f-g). The latter can feature both beaded rims and low carination, and Koizumi offers the possibility that these are the precursors of the casseroles of the LC 3 period that occur commonly in the eastern Jezirah (1993: 59). The earlier, LC 1 version appears across northern Mesopotamia; e.g., in Hammam IVC-D (Akkermans 1988b: Pl. 86 no. 216 & Pl.

93 no. 281), Kashkashok II (Koizumi 1993: 59), Leilan VIb Stratum 52a (Schwartz 1988: Fig. 66 no. 1), and Gawra XII (Tobler 1950: Pl. LXXIX).

Along with the decreasing percentage of painted pottery seen in LC 1 levels, the nature of painted motifs changes in LC 1 period toward simplified geometric patterns often with continuous brush strokes (Moorey 1994: 153). These can be more commonly identifiable trans-regionally than plain-ware forms (Akkermans 1988a: 112), and include the ‘bowtie pattern,’ ‘superimposed swags’ (or swoops) hanging from the rims of bowls on their interior, ‘hanging loops,’ the ‘hanging-X’ motif, and the all-over ‘X-pattern’<sup>33</sup> (see Pl. 30 for examples). While the Sprig Ware motif is a good temporal indicator,<sup>34</sup> its occurrence is limited to the area from the Khabur River to the Tigris, and even within that range it has selected distribution. Thus, its presence means both LC 1 temporality and a material connection to the Khabur region, but its absence does not mean the opposite.

### **1.3.5. Regional Patterns in Ceramics of the LC 1 Period**

Now it is valuable to look at some of the main regional patterns, commonly referred to in the literature but only addressed in specificity on occasion (e.g., Baldi 2015; Marro 2012; Balossi-Restelli 2008; Rothman ed. 2001).<sup>35</sup> The ceramic sequence in the Balikh

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<sup>33</sup> Interestingly, Copeland wondered if the X-pattern decoration that he saw painted on sherds from Tell Zeidan were abstractions of flowers or butterflies (1979: 265 Fig. 16 nos. 7-8).

<sup>34</sup> The exact dating of Sprig Ware had been unclear for a time, but Ur has correctly argued that its temporal range is limited to the LC 1 period exclusively (2010: 234). This chronological specificity is particularly apparent in the assemblage of Shelgiyya, which includes abundant, locally produced Sprig Ware and yet no chaff-faced wares (Ball 1997).

<sup>35</sup> Marro (2012) outlines six different “cultural” provinces: Cilicia, Balikh, Western (Upper) Euphrates, (Eastern) Upper Euphrates, Khabur, and southern Caucasus. This list clearly omits other major regions such as the Orontes Valley, southern Mesopotamia, the Upper Tigris and Piedmont zones, the Erbil Plain, and western Iran—some for lack of data—and conflates LC 1 regional affinities and LC 2 regional affinities, and so is neither exhaustive nor completely reliable. The handful of regions discussed in this chapter is even briefer, as its purpose is to define the major characteristics of LC 1 northern Mesopotamia rather than trace every connection and idiosyncrasy. For a more thorough examination of the regional assemblages see Appendix A, which identifies 24 different regions and over 80 sites.

Valley—on the Euphratian side of Upper Mesopotamia—is anchored by the step trench at Hammam et-Turkman but now can include the Zeidan assemblage.<sup>36</sup> It begins with early LC 1 open types such as the internally beaded-rim bowl (Akkermans 1988b: Pl. 86 nos. 218-219), bowls with sharply incurved walls, outrolled rims, or low carinations (ibid.: Pl. 86 nos. 216-217), sinuous sided bowls, the internally crosshatch-incised bowl (ibid.: Pl. 87 no. 226), and a plentitude of Beaded-Lip Bottom-Scraped Bowls (ibid.: Pl. 86 no. 215). Flaring rim jars (“angle-necked cooking jars”) (ibid.: Pl. 85 no. 203) with different rim variants and collar-necked storage jars (ibid.: Pl. 94 no. 283) typify the closed types. Red Wares and Gray Wares are present in small amounts (~2%) at both sites (Abu Jayyab n.d.). In the progression from the early LC 1 to the later LC 1 period, Beaded-Lip Bottom-Scraped Bowls decrease in number relative to Coba Bowls at Hammam (1988b: 213-214),<sup>37</sup> and later LC types such as hemispherical bowls with sharp, high carinations (Akkermans 1988a: Fig. 8 no. 130), extended ledge-rim bowls (ibid.: Fig. 8 nos. 116-117), globular pots with heavy rounded rims, and internally-beveled-rim bowls appear. The percentage of rapidly-made bowls rises to 46% at Zeidan in the later LC 1 period and 49% in Hammam VA (Abu Jayyab n.d.).

LC 1 painted motifs seen at Hammam and Zeidan include solid fields, solid bands, undulating bands beneath the rim, lines-in-reserve (rare at Hammam), superimposed swags beneath the rim on bowl rim interiors (occurs earlier at Hammam; Akkermans 1988a: Fig. 3 no. 30; here Pl. 30), and some crosshatching, but the percentage of painted wares is

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<sup>36</sup> The LC 1a and LC 1b levels at Zeidan roughly correspond to Hammam IVC and IVD, though more specifically later Hammam IVC and IVD, with Zeidan Level Ubaid-LC 1 corresponding to earlier the earlier strata of Hammam IVC. Zeidan LC 1c-d correspond to Hammam VA. See Table 3 in Ch. 3 Section 3.2.6.

<sup>37</sup> At Zeidan, Coba Bowls are common throughout the sequence, but eventually Wide Flower Pot Bowls—rarely attested at Hammam—start to supplant the Beaded-Lip Bottom-Scraped Bowls (Abu Jayyab n.d.).

consistently low, ranging from 6% and 2.4% in Hammam IVC and IVD, respectively, to 1.1 % in VA (ibid.: 128).<sup>38</sup> Painted motifs that appear in the later LC 1 levels include lines-in-reserve (continuing at Zeidan), solid bands, and some Ubaid-like crosshatching; also seen at Zeidan is the bowtie pattern, though the exact composition of the Zeidan variant is rare (horizontally black, with crosshatched squares and horizontal bands; Pl. 25 l).

The Middle Euphrates sub-region is geographically not far from the Balikh—just north of Lake Assad—and, expectedly, the two ceramic repertoires overlap somewhat, especially with regard to Zeidan (which is on the Euphrates, while Hammam is not), but local distinctions are readily apparent. Tell al-'Abr Stages II-IV roughly correspond to Hammam IVC-VA and Zeidan Ubaid-LC 1-LC 1d (see Table 2). Early in the sequence, both regions display incurving-rim bowls and inverted-rim pots with high carination (Yamazaki 2012: Fig. 3 nos. 20-22) along with simple-rim fine bowls (ibid.: no. 18). The sinuous-sided bowls (or bell-shaped bowls) are more flaring with wider rims (ibid.: Fig. 4 no. 8). The flaring-rim jars (or angle-necked jars) have a similar variety of rim types to the Balikh versions, but the triangular rim is consistently sharper (ibid.: Fig. 3 no. 26), and the U-shaped pots have a more globular body (ibid.: Fig. 4. Nos. 18-19). Shared painted motifs include the 'solid-field' (though seen strictly on jars; ibid.: Fig. 3 nos. 30-31), 'superimposed swags' on the interior (ibid.: Fig. 6 no. 3), 'lines-in-reserve' (though the lines are always straight; ibid.: Fig. 4 no. 3), and different kinds of wavy bands. Many Balikh and Khabur-Tigris motifs such as the 'bowtie pattern' and 'X pattern' are not present, and a lot of the motifs are similar but still distinct enough to say that the painted traditions developed somewhat locally. The 'slitted-lozenge' motif appears at Hammam

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<sup>38</sup> The percentages at Tell Zeidan in the corresponding LC 1a and LC 1b levels are very similar, at 5% and 3%, respectively, down to 1.4% in LC 1c-d levels (Abu Jayyab n.d.).

(IVC; Akkermans 1988b: Pl. 81 no. 164) and ‘Abr (Yamazaki 2012: Fig. 6 no.17), but not Zeidan.

The scraped-bottom bowls of ‘Abr are quite different from those in the Balikh, also, coming in three variants that are also quite locally specific: the flaring-rim bowl (ibid.: Fig. 3 nos. 23-25), the deep, open bowl (ibid.: nos. 17-19), and the inturned-rim bowl (ibid.: nos. 20-22).<sup>39</sup> All are made using a rotating device (presumably, the *tournette*), as evidenced by striations, and are typically mineral tempered with fully-oxidized cores (ibid.: 188).

The LC 1 period in southeastern Anatolia has its own sub-regions. The Malatya Plain (western Upper Euphrates) is largely known from a single trench at Arslantepe and the earlier level (SpCh1) of Oylum Höyük. Though there are crossovers with ceramics from the Balikh Valley and Altınova/Elazığ Plain, the distinctions are more apparent. Scraped vessels are common at Arslantepe and Oylum Höyük, occurring on vegetal-tempered jars that sometimes feature incised decorations (Balossi-Restelli 2008: Fig. 3a-b; Trufelli 1997: Fig. 3), though at Arslantepe this ware is absent from the earlier (LC 1) level. Particular to the earlier (late LC 1) phase of both Arslantepe VIII and Oylum SpCh1 is a vegetal-tempered ware with a pale paste and/or white slip that can be dark-painted in basic geometric patterns (ibid.: Fig. 3d); as well as a mineral-tempered, burnished ware that can also appear with paint decoration at Arslantepe (ibid.: 25), but which is attested in Oylum SpCh1 as unpainted “*Feinkeramik*” (Özgen & Helwing 2003). Norşuntepe and Koruçutepe, on the former Altınova Plain (eastern Upper Euphrates), share some affinities with the Malatya Plain, such as the light-colored (or slipped), sometimes painted chaff-

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<sup>39</sup> The inturned-rim bowl is vaguely reminiscent of a flint-scraped type from early in the Late Ubaid sequence at Zeidan, suggesting an early cross-adoption. See Pl. 22.

ware. However, Norşuntepe is also connected to the northeastern Mesopotamian sites, featuring Wide Flower Pot Bowls and a Sprig Ware variant (seen in the Khabur Triangle; Hauptmann 1976: Pl. 50 nos. 5, 14), and adopts even closer relations with sites such as Tepe Gawra in the LC 2 levels.

LC 1 forms seen from the Middle Khabur to the Upper Tigris region include round-walled, shallow bowls with interior ledge rim in grayish ware that appear at Umm Qseir (Tomita 1998a: Fig. 63 no. 5), Tell Kuran Area D (Hole et al. 1991), Brak HS 6 Levels 9-6 (Matthews 2003: Fig. 3: 12, nos. 3, 9), and Yenice Yani YY5 (Bernbeck & Costello 2011: Fig. 8 a-c). The ‘negative circle’ motif occurs primarily in the Upper Tigris region, at Yenice Yani (Bernbeck & Costello 2011: 669 Fig. 7 b), Kenan Tepe (Parker et al. 2006: Fig. 16), and Salat Tepe (Ökse & Gormuş 2013: Fig. 4). Internally-incised bowls do not appear everywhere this far east, but at Brak they occur quite late (HS6 Level 6) and have simple rims with no internal beading (Matthews 2003a: Fig. 13 nos. 11-13) or in-beveled rims (Hole 2001: Fig. 7 nos. 3, 5); Feres also has the simple-rim type of internally-incised bowl, occurring from the early LC 1 into the LC 2 period (Baldi 2012a: Pl. 8 no. 1).

The S-shaped beaker is a form seen only from the Jezirah eastward in the LC 1 (Koizumi 1993: 59) and LC 2 periods, but also in the latest Ubaid levels.<sup>40</sup> Pedestalled braziers occur in Norşuntepe J/K 17 (Hauptmann 1982: Pl. 38 no. 8) and Tepe Gawra (Tobler 1950: Pl. CXXXV nos. 270-271). Cornets appear toward the end of the LC 1 period at Brak (Oates 2012: Fig. 6 nos. 64-68), Feres (Baldi 2012a: Pl. 7 no. 5), and in LC 2 levels at Hamoukar (Baldi & Abu Janyab 2012: Fig. 5). Simple-rim bowls, sinuous-sided bowls, globular bowls (with in-turned rims), double-mouth jars, U-shaped pots (or straight-sided

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<sup>40</sup> Attested at Gawra XIII-XI (Tobler 1950: Pl. CXXIX), Telul-eth-Thalathat XIII (Fukai et al. 1970: Pl. 71 no. 19), Leilan VIb Stratum 57 (Schwartz 1988: Fig. 63 no. 1), but at Tell Brak in the Late Ubaid (Oates 1987a: Fig. 3 no. 14), and none from more westerly sites such as Hammam et-Turkman or Zeidan.

urns), hole-mouth jars, and flaring-rim jars are key types for this area, even if they are not abundantly attested (Marro 2012: 23; Baldi & Abu Jayyab 2012) and appear elsewhere. Other, very early LC 1 types include the jar with chevron-impressed bands on the shoulder (and sometimes neck), seen at Gawra XIII (Tobler 1950: Pl. CXXXI),<sup>41</sup> Surezha early LC 1 levels (on the Erbil Plain; Stein et al. 2015), and at Tell Madhhur Level II (Ubaid 4) in the Hamrin Valley (Roaf 1989). A deeply-excised corrugated-band decoration also appears at some sites in the eastern region such as Tell Feres Levels 9-7 (Baldi 2012a: Pl. 6 a) and Surezha (Stein et al. 2015: Fig. 12).

For southern Mesopotamia and related areas such as Khuzestan, Luristan, Deh Luran, and Northeastern Arabia, Joan Oates made an early summary definition of the phase between the Late Ubaid and the Early Uruk in the 1970s that is still quite useful today:

This late phase is distinguished by the predominance of unpainted wares and the appearance of some Uruk types, yet its most easily recognized feature remains the painted 'Ubaid pottery, albeit in relatively small quantity and in its most uninspired and pedestrian form (Oates 1976: 26).

However, it is not simply types, but rather the combination of manufacturing techniques that can help distinguish the LC 1 Period from the Ubaid and LC 2 periods ceramically. The "expedient" production evident in the manufacture of Coba Bowls (Kennedy 2012; cf. Baldi 2015), the rapidity, cost-effectiveness, and scale of production seen in the predominance (or sharp increase) of vegetal tempering (Akkermans 1988a), and the decorative surface treatment of painted motifs (possibly made on the *tournette*; Baldi & Roux 2016; Nissen 1989) all demonstrate a unique matrix of both new and traditional approaches to pottery manufacture in the LC 1 Period. It is perhaps this agglomeration of varying techniques that led to the dramatic increase in the number of styles and types

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<sup>41</sup> Though probably out of place and likely from a higher level (G. Stein, pers. comm.).

evident in the archaeological record, locally (e.g., Akkermans 1988c), sub-regionally (e.g., Tobler 1950: 146), and regionally (Marro 2012).

### **1.3.6. LC 1 Relative Chronology & A Working Definition**

Following the work of Marro ed. (2012), Wright and Rupley (2001), Akkermans (1988a), and Hole (2000), a more fine-tuned periodization is now available for the LC 1 sub-period in northern Mesopotamia (see Table 2). The Tell Zeidan Expedition has processed six radiocarbon dates, using Accelerator Mass Spectrometry, from carbonized wood samples taken from secure LC 1 contexts. This radiometry not only pushes the relative dates for the period back into the first half of the 5<sup>th</sup> millennium BC (Stein 2011: Table 1), but it also demonstrates a lengthy timeframe for the LC 1 period that could stretch from 4650 to 4200 BC in the Balikh Valley and elsewhere.<sup>42</sup>

One of the main discussion points of this dissertation is to what extent the LC 1 period is simply a chronological unit of time or a chrono-cultural unit defined by a decreasing ratio of Ubaid-like painted ceramics to utilitarian shapes and easily-produced types such as the Coba Bowl. Or is the LC 1, rather, a time of newly localized trajectories of material culture,<sup>43</sup> especially in terms of pottery and the technology of ceramic production (Baldi & Abu Jayyab 2012: 166, 167; Akkermans 1988b), that facilitated or happened concomitantly with structural changes across social, political, and economic spheres? Following Joan Oates' subdivisions of the Ubaid period (2010: 46), I argue here that the LC 1 should be defined by (localized) changes evident in architecture, technology, style, stratigraphy, consumption habits, etc.

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<sup>42</sup> The data from Tell Surezha, in the Erbil Plain, indicates that the influence of the Ubaid style may have ended much earlier there, and that the LC 1 may have started at least as early as 4800 BC (Stein & Alizadeh 2014: 149-150, Table 2).

<sup>43</sup> Relative to both the preceding Late Ubaid period (Baldi 2012a: 129), the succeeding LC 2 period (Frangipane 2012a: 48), and especially the following LC 3 period (ibid.: 49).

BC Cal.	Period	Tell Zeitdan	Cilicia	Amuq & Orontes	Queiq Region	Middle Euphrates	Batikh Valley	Upper Euphrates	Middle Khabur	Upper Khabur	Tigris	Erbil Plain	Caucases & Western Iran	Southern Mesopotamia
3850					Coba Höyük IVC; Oylum Höyük Phase 4			Hacmebi Phase A; Arslantepe VIII upper level		Brak TW 23 Hamoukar Level 2	Gawra XA - IX	Qalini Agha III	Ovular Tepesi Phase II; Susa B	Early Uruk; Eanna XII
4000	LC 2	LC 2b	Yümüktepe XIII	Amuq F; Hama K7-1			Hamamm VB	Korçuntepe Early Phase B		Brak CH 19; HS6 Level 6; Feres Level 6	Ninveh III L.62		Susa B Acropole 22-19; Godin Late VII	Eanna XIII
4100		LC 2a	Gözü Kule LC					Norçuntepe Phase II Level 10		Hamoukar Level 3	Yenice Yani YY4	Qalini Agha IV		Eridu Temple Sounding V
4200		LC 1-2		Tell es-Sheikh II-1			Hamamm VA Strata 3-4		Ziyadeh Phase III Levels 15-16		Gawra XIA/B	Surezha LC 2	Ovular Tepesi Phase I; Godin Early VII	Eanna XIV
4300		LC 1d		Ras Shamra III B b-f; Hama K10-8	Coba Höyük IVB; Oylum Höyük Phase 5-6	Tell al-'Abr Stage IV	Hamamm VA Strata 1-2b	Norçuntepe Phase II Level 11	Umm Qseir Phase 2	Tell Feres 7; Brak CH 20; HS6 9-8; Leilan V1b, Stratum 52a	Yenice Yani Later YY5	Qalini Agha V	Terminal Susa A Acropole 24-23; Susa Necropole; Later Pisdeli Phase	Eanna XV
4400		LC 1c		Abd al-Aziz 4-1; Arjoune Trench VI; Tell es-Sheikh IV-III		Tell al-'Abr Stage III-2	Hamamm IVD Strata 11-12	Arslantepe VIII lower level	Ziyadeh Phase III Level 14		Gawra XII		Kul Tepe Level VII; Hasanlu Level VIII	Eridu Temple Sounding VI
4500		LC 1b				Tell al-'Abr Stage III-1	Hamamm IVD Strata 9-10	Norçuntepe Phase IC		Feres Level 8	Kenan Tepe Ubaid Phase 4	Qalini Agha VI	Susa A period Acropole 27-25; Earlier Pisdeli; Godin VIII; Seh Gabi Phase	Eanna XVI
4600		LC 1a		Karaca Khirbet 'Ali; Tell es-Sheikh VII-V		Kosak Shamali Sector A Lv. 1; Tell al-'Abr Stage II (Lv. 5)	Hamamm IVC Strata 8a-c	Dəğirmen-tepe Layer 7	Ziyadeh Phase III Level 13	Feres Level 9a	Gawra XIIA; Ninveh II L.60; Yenice Yani Earlier YY5	Surezha LC 1		Eridu Temple Sounding VII
4700	Ubaid-LC	Ubaid-LC 1	Yümüktepe XVI	Ras Shamra III B i Late Amuq E; Hama L2-1	Coba Höyük IVA	Kosak Shamali Sector B Lv. 6	Hamamm IVC Stratum 7	Norçuntepe Phase IA		Brak CH 21 Leilan V1b, Strata 57-52; Feres Level 9b			End of Dalma Phase; Godin IX	
4800								Dəğirmen-tepe Layer 8			Gawra XIII	Qalini Agha VII		

Table 2: Relative Chronology of Greater Mesopotamia in the early Late Chalcolithic Period

One aspect of the change in ceramic assemblages among LC 1 occupations is the increased diversity of forms and styles. This is true both on the macro (regional) level (Marro 2012: 20) and, in certain instances, on the micro (site-wide) level (Akkermans 1988c; Balossi-Restelli 2008). Both the increasing percentage of undecorated potsherds and the increasing number of types indicate that the change in ceramics from the Ubaid to the LC 1 Period is actually a paradigm shift and not simply another change in stylistic preference (Wengrow 2001). Diversity in both forms and manufacturing techniques likely reflects a gradual breakdown in the ubiquity of Ubaid socioeconomic and sociopolitical systems in favor of decentralized and/or heterogeneous systems.

While it is important to note that any definition of a chrono-cultural period will necessarily be an “etic” one (i.e., it is an archaeological construct created by the definer, having little or nothing to do with the presumed persons who actually lived in those societies), nevertheless it is critical for this study to outline a working definition of an LC 1 occupation so that it can be identified in the field, analyzed, synthesized, and, ultimately, explained. Such a definition should distinguish LC 1 societies, chronologically, from Ubaid and LC 2 societies. It is not meant to distinguish an “LC 1 culture” from other cultures, but is meant to be inclusive within the larger region in order to fully consider variability and change across what can be thought of as a weak supra-interaction sphere that housed many smaller, stronger interaction spheres in the mid-late 5<sup>th</sup> millennium (Baldi 2015: 121-126; Marro 2012: 19). These small interaction spheres, though, are perhaps better thought of as “interaction pathways,” based on the uneven distribution of material culture cognates (see Ch. 8 Section 8.2).

Instead of using a combination of old and new concepts to “define” and delimit an LC 1 occupation, here I will consider two main criteria. The first will be absolute

chronology, to the extent that it is available, which will include a recalibration of radiocarbon dates provided by site reports, synthetic studies, and Frank Hole's report on his project to collect and process new radiocarbon samples from existing archaeological sections (Hole 2001). The range of pertinent dates is 4700-4200 BC, and it is based on radiocarbon dates from Tell Zeidan areas A, B, and E, as well as good contexts at other Upper Mesopotamian sites, including Tell Surezha on the Erbil Plain (Stein & Alizadeh 2014).

The second delimiting criterion will be the sequence of occupation at each site leading up to, and following, the range of absolute dates used here. No occupation can be isolated in a chronological vacuum and so this method will incorporate the unique trajectory of each society as it progressed through the second half of the 5<sup>th</sup> millennium. Because the purpose is to try to understand the nature of change in Mesopotamia during this lesser-known period,<sup>44</sup> the method is intended to cast as wide a net as possible while being limited to those societies in and around Upper Mesopotamia that display at least minimal parallels of either material culture or development.

In terms of regional settlement, the broad picture of northern Mesopotamia during the transition from the Ubaid to the Late Chalcolithic period is one in which settlement systems underwent notable transformations, possibly through contraction and abandonment (Akkermans 1989: 363; Rothman 2001b: 378).<sup>45</sup> Although this assessment needs to be reevaluated (see Ch. 2), one of the basic empirical premises is that regions occupied within the Ubaid interaction sphere(s) continue to be occupied, perhaps to a greater or lesser extent, in the Late Chalcolithic period.

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<sup>44</sup> Frangipane 2012a: 48, regarding the western Jezirah specifically, and footnote 44, in general.

<sup>45</sup> See also Brustolon & Rova's survey of the Tell Leilan area for a similar assessment of the LC 1 period (2007: 28).

## 1.4 Chapter Summary

Our picture of the early Late Chalcolithic period is changing. There are more than eighty excavated sites in Upper Mesopotamia and the surrounding areas that are datable to the LC 1 Period. Appendix A enumerates the sites by sub-region and make arguments for (or against) their inclusion in the LC 1 period interaction supra-sphere. The following chapter reviews the trends in material culture and settlement evident from the reexamination of sites and then discusses and evaluates the models of change that the field of Near Eastern Archaeology has so far offered to interpret the available datasets. Ultimately, this dissertation will: A) address the difficulties in knowing what, where, and when the LC 1 period is in Mesopotamia; B) present unpublished material from Tell Zeidan to offer a more complete picture of material variability in the LC 1 period; and C) offer a new framework in which to view the macro process of material and sociopolitical change in the mid-5<sup>th</sup> millennium BC.

CHAPTER 2  
CURRENT SCHOLARSHIP OF THE LC 1 PERIOD:  
SETTLEMENT, MATERIAL TRENDS, & MODELS OF CHANGE

Study of the Late Chalcolithic (LC) 1 period (ca. 4600-4200 BC) is an integral component of any discussion concerning the development of social complexity in prehistoric Mesopotamia (e.g., Stein 2012; Ur 2010b; Frangipane 2007; Rothman 2002), and yet has only recently received specific attention supported by sufficient datasets (e.g., Stein et al. 2015; Baldi 2015; Marro 2012; Kennedy 2012;). This chapter will first provide an overview of some of the earlier perspectives on the nature and significance of what archaeologists now term the LC 1 period (see Rothman 2001a: Table 1.1), and then examine the material evidence that comes from a collation of LC 1 data provided by a reassessment of sites across Greater Mesopotamia (see Appendix A). The third section will present recent arguments and explanatory models concerning the development of social complexity in Greater Mesopotamia during the 5<sup>th</sup> millennium BC.

2.1. Traditional Interpretations of the LC 1 Period

Many scholars have addressed the issue of emergent leadership and socioeconomic complexity in Ubaid societies (e.g., Gibson 2010; Stein 2010, 1994; Nissen 2001; Henrickson & Thuesen 1989; Wright 1984; J. Oates 1983), and have considered the developmental trajectory of complex, formally stratified societies in the Late Chalcolithic 2 and 3 periods (e.g., Stein 2012, 2001, 1998; Matthews 2003a; Rothman 2001a; J. Oates 1993). As mentioned in Chapter 1, though, until very recently (e.g., Stein et al. 2015; Baldi 2015; Kennedy 2012; Balossi-Restelli 2010), the majority of discussions concerning what archaeologists of the ancient Near East define as the LC 1 period (ca. 4600-4200 BC) had

either assumed a general decline, based on the reported downturn in settlement following the Ubaid period (e.g., Sørenhagen 1993; Copeland 1979: 271), or had ignored the possibility of a significant distinction between the Late Ubaid and LC 1 periods (Matthews 2003b: 105; Rova 1996: 15; Hole 1994; Safar et al. 1981: 112; Lloyd 1978: 81; Redman 1978: 246, Fig. 8.1). Other studies emphasized the crucial developments that occurred between the Ubaid and LC 2 periods, but were limited by the lack of data, chronological precision, and analysis available until recently.

For example, Akkermans provides a list of attributes attained by northern Mesopotamian societies during the “transition from the Ubaid to the Late Chalcolithic period,” emphasizing a “gradually developed” shift toward “major changes.” These include the abandonment of many Ubaid sites, clustered agglomerations of residences, the “appearance of fortified buildings,” the prevalence of undecorated ceramics, “a wider variation in burial practices,” and the “appearance of metals and other rare materials” (1989: 346).

These developments, however, occurred across the entire Late Chalcolithic period (4600-3200 BC), spanning over a millennium. Akkermans’ early assessment, based on the relative chronology of the time, discusses those developments as a single package, but evidence now demonstrates that they neither happened simultaneously nor occurred in linear progression.

Lupton frames the 5<sup>th</sup> millennium change in Upper Mesopotamian sociopolitical organization as a transformation in the structuring of power relations. The “communal restrictions” typical of Ubaid-period politics became less pronounced and an “increasingly stratified social structure” arose (Lupton 1996: 34). Such insightful observations, however, still do not address how the societies of the LC 1 period promoted or contributed to such a

transformation (Rothman 2009: 25), or even how they functioned during the process of systemic change.

Other, older perspectives on the Ubaid-Late Chalcolithic “transition” in northern Mesopotamia assumed a minor distinction between the two periods, emphasizing the relative continuity of northern societies in comparison with the urban explosion that occurred later in the south (e.g., Hole 1994: 134). The enduring influence of this perspective is apparent whenever publications refer to Level XII at Tepe Gawra as part of the Ubaid strata (e.g. Schmid 2009: Table 60; Charvát 2003; Matthews 2003b: 105; Schwartz 1988: 75; Lloyd 1978: 81).

Occasionally, one will hear about post-Ubaid cultural decline as evidenced by the aesthetically less-appealing pottery (Akkermans & Schwartz 2003: 170)<sup>1</sup> or downturn in occupational density (Akkermans 1989: 346). Another early explanation of LC 1 phenomena, suggesting a departure from Ubaid-period practices, is that two of the predominant wares of the LC 1 period, painted pottery and chaff-faced pottery, were the result of two different groups of people cohabitating at sites (Brumfiel 1987: 676).

More recent scholarship of the LC 1 period has emphasized the regional and local nature of societal development following the Ubaid period (e.g., Marro ed. 2012; Balossi-Restelli 2008; Mazzoni 1999), but still has not fully demonstrated how LC 1 societies functioned. This is partially due to the limited exposures of LC 1 occupations at the sites where it has been attested, or perhaps because of the obscurity of LC 1 data. The following section uses the evidence marshaled in Appendix A to help characterize the LC 1 period as

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<sup>1</sup> E.g., Braidwood & Braidwood describe the post-Kurdu phase at Karaça Khirbet ‘Ali as “recrudescence” of the earlier style (1960: 204). More recently, McAdam has posed the question whether the disappearance of the finely-modeled and painted “ophidian” Ubaid figurines relates to the disintegration of some kind of core “center” of the Ubaid cultural expression (2003: 186). Tidy as these assessments may be, they both oversimplify and under-appreciate the processes that cause the conditions of the change they observe.

a time of divergent local trajectories of material culture whose main commonality is a structural shift from the preceding societies of the Ubaid period.

## 2.2. Evidence for Spatial and Material Trends in the LC 1 Period

This section will review the trends in changes within relevant material culture assemblages during the LC 1 Period, considering the following categories: settlement; ceramics; luxury goods and imported commodities; craft production; consumption and subsistence; mortuary practices; architecture; and administrative practices. It is based on a review and, occasionally, reanalysis of site occupations dating to the LC 1 period (Appendix A), as defined in Chapter 1 (Section 1.3).

### **2.2.1. Settlement Patterns**

The downturn in occupation noted by Akkermans that happened at the end of the Ubaid period (1989: 346; see also Wilkinson 1998: 71 for the Balikh Valley; Nishiaki 2003: 56 for the Euphrates; Jasim 1985: 201 for the Hamrin), is not evenly distributed across northern Mesopotamia (Matthews 2003a: 37), and does not typically last into the LC 2 period (Brustolon & Rova 2008, 2007; Lupton 1996;). In the LC 1 period, occupation density varies between regions and is difficult to specify,<sup>2</sup> but combining the site data in Appendix A with published regional survey data it is possible to start to see some settlement patterns emerge (see Pl. 40 for map of sites).

For example, in the Amuq Valley, the abandonment of the large, centrally located site of Tell Kurdu at the end of the Ubaid-related Phase E occupation (Yener & Wilkinson 1997: 12) but subsequent occupation of nearby Tell ‘Imar al-Jadid al-Sharqi (Casana &

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<sup>2</sup> For example, the Orontes Valley has produced some of the southwestern-most evidence of Ubaid-related pottery (e.g., Arjoune; Parr 2003), but as Philip et al. describe, “Chalcolithic remains [in the Orontes Valley] have generally proven evasive during reconnaissance survey” (2002: 19).

Wilkinson 2005b: 221) supports the general idea of a localized settlement shift at or just before the LC 1, rather than a major abandonment or settlement downturn in between the Ubaid-related/Amuq E occupations and the LC 2/Amuq F period. In fact, Karaça Khirbet ‘Ali, which appears to have been founded at the end of Amuq Phase E (i.e., the LC 1 period; see Appendix A, II.4 and Giannessi 2012: 269), is the first site in the Amuq to be settled in the uplands along a “long-distance route from inland Syria” (Casana & Wilkinson 2005b: 36). These two pieces of evidence suggest the development of a new paradigm for habitation and movement of goods and/or peoples in the LC 1 period in this region.

Across Greater Mesopotamia during the LC 2 period, many sites grew (e.g., Tell Brak, Tell al-Hawa; Ur et al. 2011; Wilkinson & Tucker 1995), were reoccupied (e.g., Nineveh; Gut 2005), or were founded (e.g., Hacinebi; Stein et al. 1998). However, in the Balikh River Valley the pattern is different. Trentin’s Balikh Valley survey demonstrates 100% continuation of occupation of sites between Hammam periods IVA/B and IVC (Ubaid and early LC 1), and a tripling in the number of sites to 24 due to an increase in the number of small sites (2010: 334). This indicates growth and densification throughout the Late Ubaid period.

During the Hammam IVD period (LC 1) is when sites start to contract and/or disappear, and survey evidence for the VA period (late LC 1) shows a marked decline in the number of settlements, especially for smaller sites (ibid.). Wilkinson has shown that, in general, rural settlement receded from the Ubaid period into the Late Chalcolithic period in the Balikh Valley (1998: 71, Figs. 7 & 10).

Trentin posits a population shift northward within the Balikh Valley during the Hammam VA period (*ibid.*: 335).<sup>3</sup> Furthermore, the site surface collection at Tell Zeidan, conducted by Daniel Mahoney in 2008, demonstrates a similar settlement progression in which the Late Ubaid and LC 1 periods saw the greatest extent of site occupation followed by contraction in the LC 2 period (Stein 2009; see Pl. 2) or possibly in the late LC 1 period (see Ch. 8 Section 8.1).

For the Khabur Triangle, the suburban survey of Tell Brak produced little evidence dating to either the Ubaid or LC 1 periods, but it demonstrates a massive 55 ha site in the LC 2 period (Ur et al. 2011: 4-6). Henry Wright's extensive outer survey shows that 61% of the 85 Ubaid sites are occupied into the LC 1 period (Oates 2012: 75). The Tell Hamoukar Survey lumped the LC 1 and 2 together into its "Period 4" (Ur 2010a: 96), and so tells us little about the LC 1 period specifically, though in the Southern Extension, also known as Khirbet al-Fakhar, the University of Chicago team discovered six clusters of LC 1-2 occupation of the outer town areas (Ur et al. 2007: 1188, Fig. 1), and some of the sites definitely date to the LC 1 period (see Appendix A, IX.34-35).

Generally, the Ubaid period saw "considerable abandonment" in the Hamoukar region compared to the earlier Halaf and the later LC 1-2 patterns (*ibid.*: 95-99). Ur sees the spatial layout of the early Late Chalcolithic period signifying an early development of the later, more advanced communication network of the Bronze Age (*ibid.*: 98), though this probably characterizes the LC 2 period more so than the LC 1. On occasion the publication does provide observations and figures that can identify some specific LC 1 occupations such as THS site no. 17. Al-Maisha, as no. 17 is known, is a 2 ha village that

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<sup>3</sup> Settlement in the Balikh during the Halaf period was heavily oriented toward the north end of the valley, where rainfall was sufficient for rain-fed agriculture (Wilkinson 1998: 71 & Fig. 6a). Thus, a return to that pattern in the LC 1 or 2 period could reflect a reversion to non-irrigated modes of agricultural production.

was not occupied in the Ubaid period (*ibid.*: 180), and so it attests to the practice of founding of new subordinate sites in the LC 1 period in this region.

Wilkinson's survey of the North Jezirah region produced an excellent dataset of settlement information for the 5<sup>th</sup> millennium (Wilkinson & Tucker 1995: 40-45). Within the relative chronological framework of the time, however, sites were determined to be either 'Ubaid' or 'Uruk.' One outcome of comparing the datasets is that the Ubaid period is far better represented in this sub-region than slightly to the west in the Hamoukar vicinity (Ur 2010a: 95), and so this empirical fact lends potential toward understanding the spatial impact of the sociopolitical dynamics of the LC 1 period. However, limitations persist. For instance, Tell al-Hawa, a large Ubaid and Late Chalcolithic site (15-18 ha during the former, 30-50 ha in the latter), was not excavated to Ubaid or LC 1 levels (Ball et al. 1989), but almost certainly has an LC 1 occupation based on the discovery of Sprig Ware there (*ibid.*: Fig. 18; Ball 1997: 99; see Appendix A, IX.36). But without stratigraphic sequences for subordinate sites (since Sprig Ware has selective distribution), the actual LC 1 settlement pattern remains unknown.

Excavations at Khanijdal East, a 1 ha Late Ubaid—LC 1 site 7 km south of Hawa (Wilkinson et al. 1996; Wilkinson & Tucker 1995: 40-43) provide clues to this question, however. The relationship between the two sites suggests that both continued to be occupied after the Ubaid period and that the settlement system did not break down immediately. Khanijdal East was not inhabited in the LC 2 period or later, while Hawa and other, new subordinate sites were occupied then, and so there seems to have been a possible political shift either during or just after the LC 1 in the Iraqi North Jezirah. Tell Brak and Tell Feres al-Sharqi also evidence a continuation of their Ubaid-period settlement relationship into the Late Chalcolithic, though in this case the subordinate site, Tell Feres,

continued to be occupied into the LC 2 period and later (Forest et al. 2012), representing at least some level of continuity within the settlement system.

Overall, only 31% of sites in the North Jezirah demonstrate continuity of occupation between the Ubaid and Late Chalcolithic (“Uruk”) periods (Wilkinson & Tucker 1995: 43), but the number of sites occupied increased in the Late Chalcolithic period from 43 to 66 (ibid.: 44). This suggests that the perceived downturn in settlement after the Ubaid has some validity but more likely reflects a settlement shift during the LC 1, as competing or coexisting entities altered relations and alliances. Thus, the LC 1 period is an important time of major changes in occupation patterns in the Khabur Triangle.

The University of Michigan survey of the Keban Dam region (Altınova Plain) distinguishes only between “Early Chalcolithic” (EC), “Late Chalcolithic,” (LC) and “Chalcolithic-Early Bronze Age Transitional” occupations. Thus, the similar number of sites attested in the EC (13) and LC periods (12), and the continuity of occupation at a reasonable portion of them (Whallon 1979: 265-268), does not speak directly to the question of change between the Ubaid and LC periods. In the LC pattern the main sites remain occupied (e.g., Norşuntepe, Koruçutepe; see Appendix A.V), but the distribution of smaller settlements is much different, with the smaller sites generally spread out around the edges of the plain rather than between centers (Whallon 1979: 268 & Fig. 195). The time when this new pattern emerged, though, is indeterminate without a reappraisal of the pottery from scratch.<sup>4</sup>

Yenice Yani, located in the Seyhan Valley of the Turkish Upper Tigris region, is occupied during Phase YY5 in Sectors B and A but in Phase YY4 only in Sector B,

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<sup>4</sup> See Rothman (2014) for a brief assessment of the flaws in the dating of the materials, which could impact the overall settlement pattern.

indicating a site contraction during the LC 2 period, and the site was abandoned during or just after the LC 3 period (Bernbeck & Costello 2011: 677). At nearby sites Kenan Tepe (Parker & Kennedy 2010) and Salat Tepe (Ökse & Gormuş 2013), the settlements also appear to contract between the LC 1 and the LC 3 periods. Thus, the Upper Tigris region shows occupational continuity into the LC 1 period with seemingly substantial changes during or following, not entirely dissimilar from the Balikh Valley (Trentin 2010).

The Tigris Piedmont zone Rothman describes as a “fairly sparsely occupied zone,” although he acknowledges the lack of data as one of the determining factors (2001b: 378). Looking at the map of LC 1 sites generated by Appendix A (Pl. 40), we can see a more balanced occupation of this zone, but a more detailed picture drawn from a regional survey dataset is unavailable.

Nearing the northeastern extreme of the Ubaid/LC 1 *oikumene*, in northwestern Iran, Frank Hole reports a downturn in settlement during the Late Chalcolithic period, reversing the trend of the Middle Chalcolithic in which he sees a population shift eastward out of Mesopotamia, but also into the Kangavar Valley (1987: 85). While this analysis does not discriminate between the sub periods of the Late Chalcolithic, it does present a useful rationale for the growing populations of Mesopotamian sites in the later Late Chalcolithic, and contrasts this with the preceding Middle Chalcolithic/Ubaid period. What we can glean from the known occupations (see Appendix A.XVI-XVII) is that some sites continued to be occupied after the Middle Chalcolithic (e.g., Dalma, Pisdeli, Hasanlu, etc.), while others (e.g., Ovçular Tepesi) seem to be founded during the LC 1 period, helping to corroborate Hole’s argument. Further data from the Mahi Dasht Plain, west of Kangavar (Henrickson 1994: Table 13), and the Solduz Valley, south of Lake Urmia (Voight 1989), indicates that most sites were abandoned at the end of the Pisdeli (i.e., LC 1) period, though two sites

were founded not long after (Geoy Tepe and Gijlar; Rothman 2002: 13). Thus, significant population shifts are also evident in northwestern Iran during the LC 1 period.

Alizadeh notes that the Susiana Plain saw a major settlement shift in the Late Susiana 1 phase (roughly equivalent to the Late Ubaid; see Table 1) from the east (Chogha Mish) to the west (Susa) that was likely based on conflict between pastoral and agricultural communities (2010: 363). In the Late Susiana 2 phase (ca. 4500; also Susa A or Suse I, roughly contemporary with the early LC 1 period), the number of sites decreased while Susa itself flourished (*ibid.*). In the following Terminal Susa A phase, which precedes the Early Uruk period and so dates to the middle-late LC 1 period (see Table 2), settlement decreased again, nearly by half on the Susiana Plain (Wright & Johnson 1975: Table III). The marginal plains were nearly abandoned, with evidence on the Deh Luran Plain for a shift and resettlement closer to a natural water source (*ibid.*: 275).

In the Ram Hormuz Plain, southeast of Susiana along the southwestern edge of the Zagros Mountains, near the Mamatian bitumen springs, a similar pattern is visible from the survey data collected by Donald McCown and published by Abbas Alizadeh. The dominant site of Tall-e Geser is occupied from the Middle Susiana period (Ubaid 2) through the Late Susiana 2 and Terminal Susa periods (Alizadeh 2014: 30-32), which overlap with the LC 1 period. In the rest of the plain, there was a decrease in the number of occupied sites in the Late Susiana 2 and the Terminal Susa periods (*ibid.*: 236), and the settlement system does not recover until after the Susa II phase during Proto-Elamite period (*ibid.*: 237).

Looking at the settlement landscape of specifically the LC 1 period across the entire space from the Mediterranean to Kermanshah is obviously challenging because many survey projects and publications have not distinguished between sites occupied in the LC 1 and LC 2 periods. Thus, we cannot say based on survey data alone what the settlement

landscape looked like immediately after the Ubaid period, as many of the occupied sites reported for LC 1-2 would have only been occupied in the LC 2. However, by combining this kind of survey data with the 80 sites occupied in the LC 1 period (see Appendix A and Pl. 40), we can begin to see regional patterns emerge. Apparently, many zones continued to be occupied at the beginning of the LC 1 period but with changes occurring internally, and so the shift toward the LC 2 pattern of a three-tier settlement hierarchy (Lupton 1996: 34) may have been partially generated by changes that occurred during the LC 1 period.

### **2.2.2. Pottery**

Almost half of a century ago, G.H. Brown asserted that the wide distribution of rapidly-produced bowls such as the Coba Bowl indicates “an underlying cultural unity across the plains of Mesopotamia and Syria, stretching into south Central Anatolia” (1967: 132). However, some researchers view the gradual disappearance of the Ubaid style of black-on-buff painted pottery and its replacement with chaff-faced ware and rapidly-produced bowls as an indication that there was a lower degree of cultural expression during the LC 1 period (e.g., Forest 1993). Others have tried to reconcile these two perspectives by identifying mini-interaction spheres or regional circuits of cultural affinity (e.g., Balossi-Restelli 2010; Mazzoni 2000; Frangipane 1993).

One emphasis of this dissertation is that while there is no evidence for a pervasive, multi-regional complex of cultural traits following the Ubaid period, there are enough overlaps in the ceramic assemblages from the Mediterranean to the Zagros and from the Keban Dam to the Persian Gulf that can tie the local trajectories into a single synthetic discussion of change and development in the LC 1 period. Thus, the similarities in the pottery assemblages become crucial for relative dating, but also for the apparent changes

in technology (Petrie 2012; Marro 2012; Akkermans 1989) and style (Yamazaki 2012) that form important attributes of the LC 1 period.

Clearly, the rapidly-made Coba Bowl (e.g., Pl. 29 b-d), Beaded-Lip Bottom-Scraped Bowl (e.g., Pl. 29 a, Pl. 25 o), and Wide Flower Pot Bowl (Pl. 27 j) are key components of LC 1 assemblages across the various regions of Greater Mesopotamia, though their distribution is neither uniform nor even. In fact, there is considerable variation through time and space, with the hand-made, flint-scraped types (Coba Bowls and Beaded-Lip Bowls) alleged to appear more frequently in western sites than the flat-bottomed, mold-made Wide Flower Pot Bowls, which are said to be more common closer to the Tigris River and, perhaps, later in time (Rothman 2002: 55; Abu Jarryab 2012; Baldi 2015).

However, it is not actually so simple. Wide Flower Pot Bowls do appear at western sites such as Hammam et-Turkman and Tell Zeidan (where they actually occur much earlier than previously attested; see Ch. 7.4), and Coba Bowls do appear abundantly at sites further east such as Tell Hamoukar and Tell Feres. But these two “types” are truly categories of rapidly-produced bowls whose main distinction from one another is the technique of production—hand forming and flint scraping vs. mold forming. Within these types are countless morpho-variants including wheel-made “Coba Bowls,” hand-smoothed bowls, beaded-lip bowls, stone-scraped bowls, and so forth, and these differences are sometimes evident according to site or sub-region (see, e.g., Balossi-Restelli 2008), but not always (Abu Jarryab n.d.). The functionality is likely similar across all of the variants, though, at least partially because they were all used for a multiplicity of purposes (not just food dispensing/consumption). More thorough discussion of the implications of “mass-produced” or ‘rapidly-made’ bowls appears below, but the technique of flint-scraping in order for wet clay forms to dry more quickly certainly predates the Late Chalcolithic period

(Baldi 2012b; see also Chapter 8 Section 8.2), and Coba Bowls appear at certain sites in Upper Mesopotamia toward the end of the Ubaid period (e.g., Tell Feres; Baldi 2015: Fig. VIII13).<sup>5</sup>

The Coba Bowl is not the only evidence for technological change in ceramic production in the LC 1 period. Ring bases, which Akkermans cites as a technical distinction as much as a preference in form (1988: 128), begin to appear more frequently in Gawra XIII but become popular in XII (Tobler 1950: 140, 146; Pl. CXXXIV nos. 248, 250), along with Leilan VIb and Hammam IVC (see also Koizumi 1993: 53). This occurs in combination with ceramic evidence for “much wider use of the *tournette*” (Akkermans 1988: 128; see also Koizumi 1993: 53; Nissen 1989: 248; Tobler 1950: 146). At the same time, cups and bowls increased relative to jars within ceramic assemblages (e.g., Akkermans 1988c: 289 Table 38), which possibly signifies a shift toward a consumption-oriented assemblage (Magness 2010; Kennedy 2015).

In the LC 1 period, these new modalities of ceramic production<sup>6</sup> occurred alongside an often simplified version of the Ubaid painted pottery tradition, as the repertoire of

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<sup>5</sup> Balossi-Restelli acknowledges the confusion over the earliest dating of the Coba Bowl but mentions that Değirmentepe provides clear evidence that flint-scraped hemispherical bowls appear in the Late Ubaid assemblage of Layer 7 (2012: footnote 21). However, this fails to recognize that Layer 7 is more likely a Late Chalcolithic occupation (see, e.g., Sievertsen 2010: 206), or, perhaps, a Middle-Late Chalcolithic transitional level (Algaze 1990b footnote 51; see also Appendix A, this volume). Baldi (2012) cites the Ubaid-period Coba Bowls in Level 5 of Tell al-‘Abr, but that sequence does not lend itself well to clear-cut periodization and Level 5 seems to date to the Ubaid-LC 1 boundary in terms of both relative and absolute chronology (see Yamazaki 2012 and Appendix A, VII.21). Furthermore, even if we accept a Late Ubaid date for Level 5, Yamazaki has pointed out that those flint-scraped bowls are quite different from Coba Bowls with regards to their mineral tempering, fully oxidized cores, and wet-smoothed surfaces (2010: 325), though this is not necessarily indicative of a temporal issue as the form of the “Coba” bowl varies considerably from site-to-site. Ultimately, the technology of flint scraping to lessen the drying time existed in the Ubaid period (see Chapter 8), but the development of the technological domain of Coba Bowls (and related types) happened later.

<sup>6</sup> Cf. Stein (2009), who offers the possibility that the increasing preference for chaff-tempering and unpainted ceramics reflects a resurgence of dormant, substrate, “local” styles that had existed in the far reaches of the Ubaid oikumene before the painted style of southern-Mesopotamian origin was added into their repertoires. In response to the challenges of creating a relative chronology between the Khabur and the Balikh, Wilkinson

painted motifs dwindled gradually across the LC 1 and 2 periods.<sup>7</sup> The pottery of the LC 1 period can in some ways can look very much like pottery of either the Ubaid period or the LC 2 period, but with its own set of regional or local divergences. And yet it shows evidence of major transformations in technology—chaff-tempering, use of the slow wheel, more quickly-applied painted designs, flint scraping, and mold production<sup>8</sup>—that occurred concomitantly with changes in function and form, as bowls became predominant relative to jars and the aesthetic elements of Ubaid-style pottery became less abundant and less pronounced.

### **2.2.3. Economy: Trade**

By the LC 2 period (ca. 4200-3850), Anatolian gold appears at Qalinj Agha and Grai Resh in Iraq, Anatolian silver appears at Qalinj Agha, Koruçutepe, and Hacinebi Tepe, and lapis lazuli from Afghanistan was found at Qalinj Agha, Grai Resh, and Tepe Gawra (Stein 2012: 136; Kempinski 2011: Fig. 3; Rothman 2001b: 380; Lupton 1996: 35; Van Loon 1978; al-Soof & es-Siwwani 1967: 72). Lupton attributes even earlier distribution of obsidian, lapis lazuli, turquoise, and other exotic materials throughout Greater Mesopotamia to the Ubaid period, and so the Ubaid exchange networks were nearly as extensive as later ones. It was the sociopolitical significance of the goods imported by local

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& Tucker propose the possibility that some sites have “an Amuq F assemblage running virtually throughout” (1995: 43), thus offering another perspective on the persistence of a stylistic substrate.

<sup>7</sup> The northern-Mesopotamian Ubaid tendency to represent figures in painted pottery seems to be one of the key absences in the LC 1 repertoire (with notable exception); at the same time, figural representation in the glyptic tradition increases in frequency from Gawra XIII onward. Speculatively, this (perceived) change in venue for figural representation might be a clue to the changing role of humans and/or relationship between humans and the natural world (see Chapter 8 Section 8.8 for further discussion).

<sup>8</sup> Koizumi et al. discuss the change from the earliest evidence for the slow-turning wheel in the “Terminal Ubaid” period, which features finger impressions on the clay joins, to the less clumsy “Post-Ubaid” version (2016: 150 footnote 3). This development is intriguing as a process of technological change happening in parallel with the increased usage of chaff tempering, both of which indicate greater emphasis on production speed (Al Quntar & Abu Jayyab 2014), though the adoption process of these developmental technologies is not uniformly attested.

and long-distance exchange in the Late Chalcolithic period that changed (Lupton 1996: 33). This is attested by the higher quantity of luxury items and exotic materials found in the Late Chalcolithic graves at Tepe Gawra (*ibid.*: 32; see Tobler 1950: 103 ff. for burial data) in comparison with the earlier Ubaid-period burials.<sup>9</sup>

A shift in the significance of imported items was probably an important part of how stratified polities developed in the LC 2 period and later, and how the exchange economy functioned in the LC 1 period can help define this shift. The “loose network of exchange” that Rothman, similarly to Lupton, posits for the Northern Mesopotamian Ubaid period (2001: 378; see also Baldi 2015) is evident from the lapis lazuli, obsidian, and pieces of worked copper found at the end of the Ubaid at Tepe Gawra, Level XIII (Tobler 1950: 192, 211). In the LC 1 period (Gawra XII), the international contacts implied by the evidence of imported goods are more manifest, seeing the appearance of both long distance materials (e.g., gold beads; Tobler 1950: 193) and regional imports such as Sprig Ware (Rothman 2001b: 380; 2002: 81; Rothman & Blackman 2003).

Rothman, based on Stein’s interpretive framework (1994), also notes that LC 1 levels are the earliest in northern Mesopotamia to produce evidence for wealth finance, and social ranking based on importation of exotic materials is evident (Rothman 2002: 15, 75). The number, quality, and state of the exotic materials from Tepe Gawra Level XII suggests a regional or supra-regional exchange system that brought raw materials, both luxurious and mundane, to the site for processing (*ibid.*: 81) and conspicuous consumption (*ibid.*: 75).

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<sup>9</sup> Although different amounts of exposure of the Ubaid, LC 1, and LC 2 levels at Gawra make a generalized quantitative comparison difficult, the number, quality, and state of the exotic materials from Level XII suggest a regional or supra-regional exchange system that brought raw materials, both luxurious and mundane, to the site for processing (Rothman 2002: 81) and conspicuous consumption (*ibid.*: 75).

Discovery in Gawra Level XII of exotic materials such as gold, lapis lazuli, shell, alabaster, and Gawra's earliest occurrence of smelted copper (a blade; Tobler 1950: 211-213) produced a clustered pattern of distribution (Rothman 2001b: 379, 395-396), demonstrating wealth-based status differentials and/or varying degrees of access to exchange networks. However, the more evenly patterned deposition of obsidian cores (Tobler 1950: 201-202) indicates the procurement and distribution of some foreign materials through a type of regularized system (ibid.: 202). Rothman and Blackman describe the system as "simple redistribution" (2003: 16), though a single blanket term for the highly unregulated and variable LC 1 economy is unlikely to suffice.

Indeed, the idea of regionalized LC 1 systems of "formal exchange" (Rothman 2002: 148) might seem to be pushing the interpretation too far, and the distributional overlap of obsidian blades and obsidian cores in three tripartite houses of Gawra XII (ibid.: Fig. 5.4) indicates a household- or locality-based system of importing and working obsidian. Gold and copper beads are primarily associated with the White Room building, which is the largest structure in Level XII, and in the nearby "storage and sorting" area. Metal tools also cluster around the White Room, along with the gold-and-lapis pin (ibid.). Evidence from Gawra XII also includes a non-centralized distribution of administrative finds and storage facilities (ibid.: 82, 87), though, and so the upshot from Level XII is that households engaged in trade to different degrees depending on material and source. Some, such as the White Room occupants, had wider connections while others had fewer connections but still orchestrated their own acquisition of foreign materials. However, Tepe Gawra, like many sites in the LC 1 period, is not necessarily representative and tells a unique story about change at the end of the Ubaid period.

The three copper axes discovered in an LC 1 jar burial from Ovçular Tepesi, in the Lower Caucasus region (Marro et al. 2011: 80), complement the Tepe Gawra data. Contemporary infant burials did not contain similarly prestigious funerary goods (ibid.), and so acquisition of wealth items seems to indicate ascribed social status at Ovçular. This parallels the wealth-based ranking evident in Wooley's al-'Ubaid III group of graves (roughly equivalent to the LC 1 period in date; see below and Appendix A.XXI). Ranking is indicated by a wide range of grave goods attested, from plain and painted pottery in some graves to a macehead, polished axe, or copper spearhead in others.

Certainly the most readily-attested long-distance import at most LC 1 (and Ubaid) sites in northern Mesopotamia is obsidian. At Kosak Shamali (Middle Euphrates Basin), change occurred in the obsidian assemblage of LC 1 levels 5 and 6 in Sector B. Cores and unretouched flakes appear in considerably larger relative quantities than in the Ubaid contexts, suggesting that importation of the raw material increased in the LC 1 period (Nishiaki 2003: 41, 56).<sup>10</sup> Furthermore, the consistent "intensive reduction" of cores found in the LC 1 levels (ibid.: Fig. 11.53:7) denotes a situation in which onsite obsidian production underwent intensification, possibly based on high demand for the raw material (Goldstein 2014: 14; Tripcevich & Contreras 2013: 35). Indeed, Gibson has pointed out the ubiquity of baked clay sickles in southern Mesopotamia during the Ubaid and Uruk periods and proposes that it represents a response to the growing market and resultantly limited supply for such materials (2010: 88).<sup>11</sup>

Khalidi et al. (2016) have recently compiled a regional analysis of obsidian sources

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<sup>10</sup> Nishiaki has recognized a strikingly similar increase in obsidian debitage in the unpublished lithic data from Telul eth-Thalathat II (2003: 56).

<sup>11</sup> Potts has suggested that the clay sickles may represent a functionally-specific tool, such as for cutting reeds (Potts 1997: 115), rather than a dearth of obsidian for harvesting crops; however, they appear in off-site fields in regions with little or no reed growth, indicating that they were harvesting tools (M. Gibson, pers. comm.).

in the Halaf, Ubaid, and Late Chalcolithic periods for key sites in northern Mesopotamia. The results of this analysis show that the range of sources was greater in the Ubaid—10 sources, covering the western Caucasus area and eastern Anatolia—than in any other period included in the analysis (Halaf through LC 3). In the LC 1 period, the number of sources declines to 7, but this trend continues in the LC 2 and LC 3 periods, to 5 and 4, respectively (ibid.: Fig. 9). The shift is also apparent in the degree of reliance on each particular source, which is substantially different between the Ubaid and LC 1 periods but not as much between the LC 1 and LC 2.

The greatest distinctions of the LC 1 obsidian data are the relatively high percentage (~8%) of material from the 3D source, which is reported to produce low-quality obsidian, and around the same amount from the Sarikamiş S and Sarikamiş N sources (~8% each; ibid.: 753, Fig. 9). Speculatively, I would interpret the reliance on the 3D source as a reflection of competition over resources, where individuals or groups were able to (or had to) obtain their own raw material and finished products and so some were forced to seek out lesser-quality sources. After controlled political economies were established in the LC 2 period, the less-desirable material became unnecessary, as exchange became more centrally organized. Whatever the reason, the obsidian data from the Late Chalcolithic period relative to the Ubaid period does not seem to fit the “wider range of more irregular contacts” interpretation proposed by Baldi for LC 1 importation in general (2012: 145), at least for the obsidian trade.<sup>12</sup> This might reflect a sampling issue, where the LC 1 period is underrepresented compared to the Ubaid period, especially for Tell Zeidan, which produced the largest number of sources overall (Khalidi et al. 2016: 748). The key

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<sup>12</sup> Though it is still a good characterization of the LC 1 trade economy in general (see Ch. 8).

takeaway, though, is that the contacts did change going into the Late Chalcolithic period, indicating the development of new trade networks that began in the LC 1 period and became further refined or centralized in the LC 2 period.

#### **2.2.4. Economy: Craft Production**

If there was greater evidence for a flow of exotic goods and imported materials in the LC 1 period than in the Ubaid period, and if this increase was tied to a change toward a wealth-finance system and “networking strategies” of socio-political integration (Rothman 2001b: 360-361), then it would stand to reason that evidence for local craft production might reflect attempts at control and intensification so that elites could maximize their exchange capabilities (Wright & Johnson 1975: 277). However, the evidence is not evenly distributed.

Suggestive lines of evidence from Kosak Shamali, other than obsidian (see above), include the decreasing weight of spindle whorls (Sudo 2003: Fig. 15.13), thereby suggesting that weavers were producing finer (higher-status?) textiles with greater specialization (Mårtensson et al. 2006: 11; Sudo 2010: 174).<sup>13</sup> The larger number of clay scrapers (Sudo 2003: 213) may be related to the scraping technique used for Coba Bowls. The severe decrease in the number of bone implements (Kadowaki 2003: 190 & Table 14.2) is also notable. Along with the increased importation of raw obsidian, these changes hint at the early development toward a political economy of specialized workers with specialized tools creating craft items worthy of exchange for luxury goods or exotic materials (Rothman & Fiandra 2016). Evidence from Salat Tepe, in the Turkish Upper Tigris region, also hints at a shift in the economy from the Ubaid into the LC 1 period but

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<sup>13</sup> Sudo also demonstrates this phenomenon for a larger sample size of spindle whorls from Telul eth-Thalathat II (Sudo 2010: 174, figs. 12.6 & 12.7), suggesting a region-wide move toward producing finer and possibly higher-quality textile products in the early Late Chalcolithic period.

in this case the context of pigment residues undergoes a change from “domestic production” to a “workshop” (Koizumi 2014).

Değirmentepe Layer 7 (Phase B, early LC 1), a small 1 ha site on the (eastern) Upper Euphrates in Anatolia, strategically located close to the important Ergani Maden copper source, provides some of the best evidence for metallurgical practices in the mid-5<sup>th</sup> millennium, as summarized by Gurdil (2010). Pyrotechnic features with short tunnels connecting the main chamber to an adjacent pit were filled and surrounded by metal slag. Three of these smelting furnaces cluster in and around the tripartite Building BC, and one with a slightly different construction and no slag occurs next to Building I. Interestingly, no metal objects were recovered from the site. All of the handful of tripartite buildings were multi-functional, demonstrating evidence for a full range of domestic activities (*ibid.*: 367), and so it appears that some level of specialization may have occurred but not as an organizing principle of the total site economy (see also Stein & Özbal 2007).

The salvage expedition to Shelgiyya, on the Iraqi-Turkish border in the Eski Mosul Dam region, recovered dense deposits of Sprig Ware plus abundant pottery production debris from LC 1 contexts (Rothman & Blackman 2003; Ball 1997). Neutron Activation Analysis of ceramic samples from Tepe Gawra, Tell Brak, and Shelgiyya demonstrates that the clay of Sprig Ware sherds from both Gawra and Brak source to Shelgiyya (Rothman & Blackman 2003: 14), though this specialty ware is absent at other sites in northeastern Mesopotamia such as Nineveh (Gut 2001), and Tell Surezha (Stein et al. 2015), or is present in single-digit numbers at sites like Tell Feres (Baldi 2012a). Thus, specialty ceramics were subject to selective distribution over a considerably wide geographic area. This matches a scenario in which some elites could corral specialized laborers to produce

distinctive versions of otherwise utilitarian goods, though the uneven distribution indicates that such an arrangement was not pervasive.

For Tell Feres, Baldi (2015; 2012a) identifies a gradual change in pottery production over time with respect to both the rapidly-made (or “serially-produced”) bowls (i.e., Coba Bowls) and wheel-made wares. According to his statistical analysis of vessel dimensions, standard deviation in size decreased level-by-level from 10 to 6 (Ubaid-LC 2), demonstrating an increase in standardization over the course of the LC 1 period. However, this standardization is specific to vessel size, and does not include other categories of analysis. Baldi does not see it as formal specialization so much as a shift in the technical mode of production and the decline of symbolic meaning instilled in pottery (2012a: 143-144). However, other attempts to identify standard dimensions of Coba Bowls have yielded somewhat wanting results (Yamazaki 2012: 194; Caneva et al. 2012: 366; see also below).<sup>14</sup>

Not all LC 1 sites and industries have produced evidence for development of industrial capacity. In fact, there seems to be significant evidence to suggest that following the Ubaid period craft specialization (or concentration) receded in some ways. Clustering of pottery kilns seen in the Ubaid period (Streily 2000: 75-80; Jasim 1985: 53-54; Stein 2010b: 109; Tobler 1950: 41) is not attested in the LC 1 period (Balossi-Restelli 2010). This implies that the socioeconomic mode of ceramic manufacture had changed by then, possibly to open-pit oxidation firing, and perhaps had become even more household-centric.<sup>15</sup>

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<sup>14</sup> Even for the Beveled-Rim Bowls ubiquitous in the LC 2-5 periods, which many have considered “ration” bowls (e.g., Pollock 2003), Beale (1978) has dispelled the theory that they came in set sizes, noting considerable variation in dimension.

<sup>15</sup> Baldi (2015) sees the manufacture of Coba bowls as a part-time specialization, where potters would take time for pottery production seasonally.

In another example, at the western-most limits of Coba Bowl distribution—Yümüktepe in Cilicia—metallurgy seems to have died off, or at least had become less of a centralized focus of the site, in the LC 1 period, contrasting with the picture of Değirmentepe (above), though the shift of metallurgical specialization from general-purpose sites to sites closer to copper sources could be related phenomena. The Ubaid-period settlement (Level XV) produced substantial evidence for metallurgy concentrated in the central citadel of the site, while the succeeding (LC 1) level (XVI) showed a marked change in the overall settlement and particularly in the dearth of metallurgical remains (Caneva et al. 2012: 366). We can only speculate as to why this change occurred; specialized metallurgy moved off-site, competition over access to the raw material increased, a newly diminished political economy could not support such an industry, or demand dissipated for some reason—but it signifies a major break from the earlier mode of craft production where metallurgical practice was concentrated in a particular area.

The change in function of the excavated space at Tell al-‘Abr in the levels following the Ubaid period further highlights this kind of economic shift, but demonstrates a slightly different path of development. De-specialization and decline in architectural integrity occurred gradually over the course of the LC 1 period at Tell al-‘Abr, replacing the organized and industrial occupation of the end of the Ubaid period with increasingly less formally-specialized contexts, to be superseded by a more complex structure and a specialized craft industry in the LC 2 Period (Yamazaki 2012; Hammade & Yamazaki 2006; see also Appendix A, VII.21).

Changes are also apparent in the artifactual records of Ubaid and LC levels. For instance, groundstone artifacts in the Tell al-‘Abr assemblage decline in number between the Ubaid and LC 1 periods (Hammade & Yamazaki 2006: 356, Table 8.1), while at Tepe

Gawra spindle whorls increase in number in Level XII and take on decorative elements (Tobler 1950: 168). Thus, the overall picture of craft production in the LC 1 period is one of change, but each site—and perhaps different industries within each site—followed its own path of development, either in terms of increasing, decreasing, or altering degrees of specialization.

### **2.2.5. Economy: Subsistence**

Consumption practices evidenced in the “post-Ubaid” levels at Tell Ziyadeh, located in the Middle Khabur Basin, can be seen in the faunal data, which indicate a shift toward greater consumption of domesticated animals (Hole 2000: 615).<sup>16</sup> Flora from HS6 at Tell Brak include both domesticates such as glume wheat chaff and grain, barley grain, and some lentil, and wild taxa such as grasses and small legumes (Colledge 2003: 390). The latter, Hald suggests, were used as fodder (2008: 109), while the former dominated the floral record throughout the HS6 trench (including both LC 1 and LC 2 levels). Although the exposure of LC 1 materials in the HS 6 trench at Brak is limited to a 2 x 2 m sounding, this initial examination of both the floral and faunal material published from the LC 1 period illustrates a trend of increasing reliance on domesticates since the Ubaid period, which is a trend that continues throughout the Late Chalcolithic period.

Tepe Gawra Level XII features what Rothman has argued is a grain storage facility (2002: 80; 2009) that complements the parallel strategy of household storage also attested (Rothman & Fiandra 2016). Though the distribution of administrative remains (stamp seal-impressed clay sealings) suggests a decentralized system of goods control (Rothman 2002: 82), the appearance of two sealings within the non-domestic, multi-cellular spaces across

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<sup>16</sup> Ubaid levels: 70% wild species (onager and gazelle); “post-Ubaid:” 65% domestic species (caprines and cattle).

from the White Room—the “granary”—highlights the possibility of a controlled redistributive element in the Gawra XII subsistence economy.

Kennedy (2015) has argued that the pottery assemblage from Yenice Yani YY5 (LC 1) demonstrates greater cultural emphasis on individual consumption as evidenced by an increase in cups and bowls (i.e., personal-serving-sized vessels; Magness 2010: 123) from Ubaid level YY6. The amount of bowls relative to jars is also highly skewed in favor of bowls at Hammam et-Turkman in the LC 1 period (Akkermans 1988b: 213; 1988c: 288), as at many other LC 1 sites including Zeidan (see Ch. 7 Section 7.3). While this could imply that the ceramic means of consumption shifted from serving vessels toward consumption vessels, supporting an interpretation of a redistributive scenario, the actual functioning of such an arrangement is still undetermined and a strict dichotomy between ‘serving’ and ‘consumption’ vessels is not necessarily valid.

Although variation between sites precludes a definitive conclusion, Balossi-Restelli (2010) looks at the different distributions of cooking ovens between Ubaid occupations such as Tell Abada Level II and Tell Maddhur Level II and Late Chalcolithic occupations such as Arslantepe Level VIII. The mobility of cooking equipment in the Ubaid period, evidenced by the prevalence of firedogs/andirons, contrasts with the stationary nature of ovens in the early Late Chalcolithic period, she finds, and this likely corresponds to differences in consumption practices between the two periods. While there are some issues with this assessment, which I consider further in Chapter 8 (Section 8.3), the appearance of indoor, domed ovens is generally attestable in the LC 1 period.

Schmid (2009) sees the co-occurrence of larger habitation spaces (such as the White Room) and grain storage in Tepe Gawra Level XII as an important development toward greater accommodation of herds (Warburton 2015: 162). The onsite, intramural practice of

animal husbandry, possibly “a visible marker of surplus wealth,” could imply another form of conspicuous consumption (Tripcevich 2010: 69), or at least testifies to the increasing role of herding (along with faunal evidence; see Ch. 7 Section 7.2). Schmid’s view is partially supported by the occurrence of fodder in the archaeobotanical record from HS 6 at Tell Brak (Hald 2008: 109; see above), although in many cases LC 1 domestic spaces are actually smaller (see, e.g., Balossi-Restelli 2010; Ch. 8).

Taken all together, there is sufficient evidence for changes between the Ubaid and LC 1 periods in the subsistence strategies used, some of which continued into the LC 2 period. These changes often include an increased reliance on domesticated species and what Baldi calls “*activités de redistribution à une petite échelle*” (2015: 475), but not every site followed the same pattern. Clearly, though, the political economy of the Ubaid period seems to have given way in most locations to new or augmented systems of exchange, production, and subsistence.

#### **2.2.6. Mortuary Practices**

One hallmark of the Ubaid period is the notable absence of ranking or even demonstrable individuality evidenced in grave-good assemblages (Stein 1994; Thuesen 1989). Apart from the general distinction given to infant burials,<sup>17</sup> who were buried in jars that were typically discovered beneath the floors of houses,<sup>18</sup> adults received a generic burial treatment: primary corporeal placement in supine position, with a standard repertoire of pots (Hole 1989: 167) that may have contained foodstuffs and liquids. In the al-’Ubaid I-II graves (Ubaid 3-4) of the Ur cemetery, the only marks of distinction other than varying

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<sup>17</sup> Infant jar burials are primarily seen at central and northern Mesopotamian sites such as Tell Abada (Jasim 1985: 49) and Tepe Gawra (Tobler 1950: 109), respectively.

<sup>18</sup> Sometimes adorned with flowers, as seen in an Ubaid-period infant jar burial at Tell Zeidan, evidenced by archaeobotanical analysis (Stein 2011: Figs. 23-24).

sizes of pottery assemblages are occasional clay, anthropomorphic figurines and several examples of hematite-paint on the bodies (Wooley 1955: 87 ff.)

In the LC 1 period burial practices started to change. While definitive mortuary evidence for ranked individuals is not apparent region-wide until the LC 2 Period (Kennedy 2012: 8), especially at Tepe Gawra (Tobler 1950: 51, 106, Table A), several of the otherwise simple graves constructed with *pisé* architecture (ibid.: 109), and a small number of “capsule burials” among the urn burials (ibid.: 108), evidence a limited degree of mortuary differentiation in Level XII, even in the relatively homogeneous LC 1 burials.<sup>19</sup> Furthermore, one *pisé* grave from Gawra XII containing a child, G36-106, also included an engraved bead, further distinguishing it from the other onsite burials (Tobler 1950: 119).

Matsutani, investigating the Kashkashok II cemetery, makes a case for the transmission of Khabur Valley burial customs that originated in the LC 1 period (his “Terminal Ubaid”). These include the use of “wing bricks,” which are standard bricks flanking an otherwise pit-like grave on its eastern and western edges,<sup>20</sup> moving eastward across northern Mesopotamia at the beginning of the Late Chalcolithic period (Matsutani 1991: 62).<sup>21</sup> Like the Kashkashok II cemetery (near the confluence of the Khabur and Jagh Jagh rivers), the few burials discovered at Salat Tepe (Upper Tigris region) feature graves with a shaft and mudbrick sidewall construction (Koizumi 2014), as does one from Telul eth-Thalathat (Iraq, Nineveh province; Egami 1959: 193, Fig. 67). This shows that while

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<sup>19</sup> One *pisé* grave containing a child, G36-106, also includes an engraved bead, further distinguishing it from the other onsite burials (Tobler 1950: 119). At Ovçular Tepesi (LC 1 and/or LC 2), one jar burial contained three copper axes (Marro et al. 2011: 80).

<sup>20</sup> Furthermore, “the tombs whose wing bricks are situated in the burial chambers ... are older than those whose wing bricks are in the shafts” since the former contain votive objects that compare to Middle Uruk [LC 3] materials elsewhere (Matsutani 1991: 62).

<sup>21</sup> Both the practices of consistently orienting contracted corpses from west to east and of using the sidewall grave technique appear at Telul eth-Thalathat in the “Terminal Ubaid” (Layer 4c; Egami 1959: 186, 193, Fig. 67) and at Gawra in the LC 1 (Level XII; Tobler 1950: 108, 113-114, Table C).

the Ubaid period reveals long-distance exchange and the transmission of ideas over a wide geographical range, the end of that period did not completely interrupt the process of trans-regional transmission, though the pathways may have altered.<sup>22</sup>

Mortuary data from other regions during this time period also show a departure from Late Ubaid practices, including differentiation (and perhaps status) through burial goods. Sprig Ware, arguably a prestige ware, appears in burials at both Tepe Gawra and the Shaikh Humsi Cemetery, located in the Jebel Sinjar region (Ball 1997: 96-99). And, as mentioned above, in Azerbaijan, an infant jar burial from Ovçular Tepesi Phase I contains three copper axes, in contrast with the other infant burials of Phase I (Marro et al. 2011: 80). Thus, inherited status and identity were recognized in special cases.

Also as mentioned above, Sir Leonard Woolley's al 'Ubaid III phase of the graves beneath the Royal Cemetery of Ur, in southern Mesopotamia, roughly dates to the LC 1 period (see Appendix A.XXI), and Akkermans' reconsideration of these graves highlights changes from the earlier, al 'Ubaid I-II burials (Akkermans 1989: 359; see also Hole 1989: 168). Flexed position replaced the typically supine position of the body, and plain wares largely replaced the painted wares that had dominated the grave assemblages. Though ceramic vessels are the most common accompaniment, for the first time in the Ur sequence,

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<sup>22</sup> Instead, parts of northern Mesopotamia in the early Late Chalcolithic period might be displaying quite a high degree of interaction (Oates 1993: 414), in the sense that shared mortuary practices can indicate a higher level of cultural affinity than, say, shared ceramic motifs; see, e.g., Caldwell 1964, though Brown (1967: 132) asserted that the wide distribution of mass-produced bowls such as the Coba Bowl evidences "an underlying cultural unity across the plains of Mesopotamia and Syria, stretching into south Central Anatolia." With fewer sites occupied in the LC 1 period than during the Ubaid 4 period (see above), increased cultural integration could have occurred through augmented contact due to intensification of exchange relations (Rothman 2002: 148; see also Henrickson 1989: 395) and/or military operations (Rothman 2002: 27). Mazzone notes the "cultural unity" of the Chaff-Faced (material) cultures (1999: 112), and a high level of interconnectedness seems to manifest in the "strong foreign influences [that] were being made apparent in the material culture of the Gawrans" in Level XII (Tobler 1950: 108, 141, 175-176). Evidence of at least low-level military activity comes from Gawra XII as well, indicated by localized destruction and several unburied corpses in the street, one with a stone in its back (Tobler 1950: 25-26).

a clear differentiation of grave goods is apparent. Three bodies out of the over twenty interred were found with prestigious objects such as a steatite macehead, a polished stone axehead, and, most significantly, a copper spearhead (Wooley 1955: 87 ff.). Thus, the Ur cemetery provides an excellent example of a major socioeconomic change in between the Ubaid and Late Chalcolithic periods in southern Mesopotamia. The data suggest that some people began to identify as individuals in mortuary contexts and demonstrate how certain individuals began to separate themselves ideologically from the populace through conspicuous consumption of finished products made from imported materials such as copper.<sup>23</sup>

The late Susa A period, especially Acropole levels 24-23 (also called “Terminal Susa”), is roughly contemporary with the LC 1 period (see Appendix A.XX and Table 2), and has produced the largest amount of mortuary data available for the period. The graveyard, located at the edge of the massive Acropole platform, contained what appear to be elite burials, accompanied by “hordes of imported materials and finely made beakers” (Rothman 2002: 15) that include copper axes (Hole 1983: 318). Stein suggests that the luxury goods found in the burials imply a prevalence of ‘networking strategies’ in the political economy of Susa during the Susa A period (2010: 32). Clearly, conspicuous consumption of luxury goods denotes marked social differentiation at Susa during the time of the LC 1 period, a substantial departure from Ubaid-period practices.

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<sup>23</sup> The Ubaid cemetery at Tell Songor-A, in the Hamrin Valley in Central Iraq, features burials that contain slightly differentiated grave goods including one burial with a polished stone palette (Kamada & Ohtsu 1991), and Pollock has shown that maceheads occur infrequently in the Ubaid burials at Eridu (1989; see also Safar, Mustafa, & Lloyd 1978). Copper weaponry in burials, though, seems to have begun only in the LC 1 period (or the chronological equivalent in Susiana and southern Mesopotamia).

### 2.2.7. Architecture

Architectural traditions of the LC 1 period vary from site to site, since the developmental trajectory from the Ubaid period to the more stratified occupations of the LC 2 period is not uniform. At Tell Ziyadeh, the tripartite building in its latest Ubaid level (Akkermans & Schwartz 2003: 161) was replaced in the “post-Ubaid” period by a combination of large, casemate constructions and conglomerate buildings made of sets of small, polygonal (“trapezoidal”) rooms (Hole 2000: 62).

Tepe Gawra Level XII displays the reversal of a trend toward monumental, public architecture that reached its peak in Ubaid-LC 1 Level XIII (Akkermans 1989: 343; see also Rothman 2009: 27-31). However, the tripartite residential form returns in the LC 1 period, only to be replaced by tripartite temples and conglomerate residences in the LC 2 levels (Rothman 2002: 74). Residential architecture at Tell al-‘Abr shows a similar shift, from irregular buildings in the Ubaid period to a well-made and externally-plastered *mittelsaal* building in the “post-Ubaid” Stage IV, Level 2. This building is internally segregated into ceremonial and domestic parts (Hammade & Yamazaki 2006: 455). Tripartite houses in Layer 7 at Değirmentepe also demonstrate a combination of religion and residence, although those houses are not formally segregated (Gurdil 2010).

The absence of temples discovered in Tepe Gawra Level XII (Rothman 2002: 74) is reflective, in general, of the situation in the LC 1 across Northern Mesopotamia—published reports seem to all lack description of LC 1 public religious buildings. Like in the *mittelsaal* building at Tell al-‘Abr Level 2, elements of “ritual” occur throughout the site in the residential buildings of Gawra Stratum XII, suggesting household-centric religious practices (ibid.).

At Tell Feres, a small site within the vicinity of Tell Brak (Forest & Vallet 2008), the architecture progresses through a series of changes between the Ubaid (Level 10), Ubaid-LC 1 (Level 9a), early LC 1 (9b), and later LC 1 and 2 levels (7-4b). In 9a, the “*Grand Bâtiment*,” a monumental public building in Level 10b, was restructured to incorporate surrounding houses, and by Level 7 (late LC 1), the plan is entirely different, featuring “*structures assez agglutinées*” (Baldi 2015: 484), similar in nature to the “agglutinant” domestic buildings of Arslantepe Level VIII (Balossi-Restelli 2010; 2008) and Zeidan Area E Level LC 1b (see Ch. 6.3).

Wall decoration is another element of LC 1 architecture evident at several sites. Değirmentepe Layer 7 contains “white plastered walls painted with red dots and schematic designs framed by some black lines” (Esin 1985: 254). The exposed building in Arslantepe Phase VIII Level 1 (LC 1) evidences interior and exterior painted decoration (Balossi-Restelli 2008: 24). Finally, Tell Zeidan Level LC 1b in Area E features a room (S.E3.2) with two interior wall surfaces that were white plastered and painted in red (see Ch. 6 Section 6.3.3).

Because of fragility of wall paint and its limited potential for preservation, (Moorey 1994: 322), it is hard to draw definitive conclusions or identify regional patterns regarding its significance in any one period. There is evidence for wall painting in the Ubaid and earlier periods,<sup>24</sup> as well as in the LC 2 and 3 periods,<sup>25</sup> and so it is certainly not a period-

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<sup>24</sup> Early wall painting has been long known from Neolithic Çatal Höyük (Mellaart 1962), and authors typically site Değirmentepe (e.g., Building I; Gurdil 2010: Fig. 22.5) as an example for the Late Ubaid period (e.g., Frangipane 2012b: 24; however, the latest Ubaid level in Değirmentepe seems to actually correspond to the LC 1 period (see Appendix A)). Tepe Gawra Levels XVI and XIII, dating to the Ubaid period, both include buildings with red-painted interior walls (Tobler 1950: 33 & Pl. XI).

<sup>25</sup> Wall painting occurs in Norşuntepe J-K 18-19 Level 8 (LC 2; Hauptmann 1976: Pl. 42 no. 3) and Arslantepe Level VII (LC 3; Frangipane 2012b: 24). In the latter, it serves to demarcate a monumental context (Holly Pittman, lecture).

specific development. However, for a reserved minority of interior domestic contexts, LC 1 persons differentiated them by applying wall paint.

The total picture of architecture in the LC 1 period is fairly varied, but several patterns emerge. The first is that in the very latest Ubaid levels, monumental architecture is attested (Tell Zeidan (See Ch. 6 Section 6.1.1), Tell Feres 9a, Yümüktepe XVI, Tepe Gawra XIII). However, in most cases, in the following, early LC 1 levels, it is not. Where there is some continuity of monumentality (e.g., Yümüktepe XV, Tell Feres 9b, Susa Acropole 24-23), there is a substantial change in either the structure or the context.

Another pattern is the appearance of “agglutinant” domestic architecture (e.g., Arslantepe VIII, Tell Feres 7, Ziyadeh 13-14), though it is certainly not a ubiquitous style. At some sites, the tradition of tripartite domestic architecture continues from the Ubaid period. This is most visibly attested in Tepe Gawra Level XII but also Değirmentepe Layer 7 and possibly Hammam et-Turkman VA 2a-b (which is also possibly a public building). Değirmentepe actually demonstrates variability in domestic architecture, as the southern buildings fit the smaller, multi-cellular type, while the majority of the houses are larger and tripartite in construction (Gurdil 2010). Again, what is most apparent is that all of the examples given above demonstrate some kind of change between the Ubaid and the LC 1 periods. Thus, if “the form of buildings actually helps shape social interaction” (Osborne 2014: 6; see also Warburton 2015: 157), in many places the basic mode of living underwent a substantial but localized transformation (Akkermans 1989: 350-351).

### **2.2.8. Glyptic Art & Administration**

Clay sealings form the largest component of information about prehistoric administrative systems. They are lumps of levigated, unbaked clay typically affixed to a unit of storage (jar, bag, box, or even doors to storerooms), which are then impressed with

an engraved seal (usually made of stone) bearing an individualized but culturally-embedded motif. These motifs correspond to an art-historical milieu, often identifying specificities of period, location, social class and/or rank, or other details of the prehistorical and historical record such as sociocultural norms, cosmology, religious practices, or political ideologies (Gibson 2010; see also Gibson & Briggs eds. 1977). Thus, the motifs preserved on the clay sealings (or on the seals) intimate a sense of the ancient sociopolitical dynamic while the context and distributional pattern of the sealings provides evidence detailing the ancient political economy (Rothman 1994).

Although it is not the only clay-sealing assemblage dated to the LC 1 period, the sealings from Tepe Gawra Levels XIII-XII form one the largest and most coherent collections. Aruz, following Buchanan (1952), has noted that while the ceramic assemblage from Gawra XII demonstrates an overlap between the painted Ubaid style and plain wares typical of the following period, "...this division is not reflected in the glyptic material and the seals of levels XII-XI (preceded by transitional phase XIII) belong to a single artistic tradition..." (Aruz 1992: 16). Others characterize the change in glyptic style from the Ubaid to the Late Chalcolithic as not very stark (Pittman 2001; Caldwell 1976: 231),<sup>26</sup> and indeed new stylistic elements appear gradually until there is a new, fully formed repertoire in the LC 1 or 2 period.

Key changes are apparent, though. The range of motifs did expand at the very end of the Late Ubaid (in Gawra XIII) to include the bird-headed/masked ("shamanistic") figure, copulating humans, humans and animals, and caprids. From Gawra Level XIII onward, figural motifs such as 'master of animals' and 'bird-headed humans,' occur

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<sup>26</sup> In southern Mesopotamia, the use of the drill in glyptic carving marks the change from the Ubaid to the Uruk period (Pittman 2001: 416), though how this applies to the levels in between (e.g., Warka XIV) is unclear.

alongside the traditional geometric motifs that appear earlier (Tobler 1950: 182; see also Von Wickede 1990: 150). Level XIII, Aruz's "transitional" phase, includes "Luristan crosses" (composed of chevrons; e.g., Tobler 1950: Pl. CLXI no. 64), known from Tepe Giyan, that Caldwell sees as imports, also appearing as far away as Tall-e Bakun A in Fars province (1976: 234). Thus, the repertoire of meaningful symbols was expanded through trans-regional interaction.

Caldwell also identifies a change in the style of depiction between Gawra XIII and XII, where the latter tends toward more naturalistic designs that include more realistic proportions of figures and, at times, the suggestion of movement. The use of "filling motifs" is also a development in Gawra XII from the Ubaid levels (*ibid.*: 231).

Two unique seals come from Gawra Level XII that provide insight into the character of LC 1 society there. Tobler's No. 90 (1950: Pl. CLXIII) shows two bird-headed, presumably male figures facing one another, one of whom is measurably larger than the other. A tree(?) and other symbols, including stars, surround the figures, and the larger one seems to control two objects of unclear identification, one with each hand. The one in his left hand, behind his head, could be a mace. Hole sees these as "two figures in motion with elongated (masked?) heads" (Hole 2010: 234). The upshot, independent of the exact interpretation—though the bird faces do appear to be masks—is that this motif, new to Upper Mesopotamia at this time, features figures depicted quite distinctly from the standard human form. That there are two of them is intriguing as it suggests a setting in which a multiplicity of religiously-specialized individuals (or shamans) co-existed or even co-operated.<sup>27</sup>

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<sup>27</sup> While the majority of the "shamanistic" seal designs feature only one bird-headed/shaman figure, several feature two and one features three (Tobler 1950: Pl. CLXIII no. 92).

Seal No. 91 shows two facing figures of equal size using sticks, straws, or rods to manipulate the contents of a large piriform jar with a conical base situated between them (Tobler 1950: Pl. CLXIII). To read later Mesopotamian concepts back into 5<sup>th</sup> millennium society—as fraught with issues as that can be—this certainly looks like either a drinking or brewing scene (McGovern 2009).<sup>28</sup> It certainly could be a scene depicting preparation of another kind of semi-liquid food, as beer is in no way specified. However, the use of long-handled instruments, which are possibly antecedents of <sup>giš</sup>MAR known from cuneiform texts, furthers the curiosity, and the textual evidence for potable liquids in Mesopotamia is largely concerned with either beer or milk (and milk seems unlikely). Examination of archaeobotanical remains from Kenan Tepe “Ubaid Structure 4” (a building of early LC 1 date) has identified germinated cereal embryos, suggesting that malting may have taken place there (Kennedy 2012: 145-146). The pierced-bottom pot in Gawra XII (Tobler 1950: Pl. CXL no. 325) and pierced-bottom piriform jar, even more so, in Hammam VB (Akkermans 1988c: Pl. 109 no. 118) are reminiscent of <sup>dug</sup>NÍG.DÚR BÙR (*gakkul* vats) that Mesopotamians used for brewing beer in the Bronze Age (Ellis 1977: 33-34).

Thus, new evidence for brewing in the Late Chalcolithic period, the kind that could have easily escaped the attention of prior research, can help develop new interpretations for old material. In the case of the Gawra seal, a brewing (or cooking) scene is not implausible, and seems to fit better than a drinking scene, especially based on the piriform vessel type and the angles of the “straws” or rods. That brewing (or communal drinking)

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<sup>28</sup> Pittman, along with Hole (2010: 234) regards this as “communal drinking (suggested by groups in association with a large vessel and straws)” (Pittman 2001: 417). However, the “straws” do not reach the heads of the figures but rather, if they are multi-segmented, bent straws, meet the shoulders of each man. If the straws are only one segment long and the second segment is the arm of each figure, then they would only be preparing to drink, since the straws are in hand but not near their mouths.

became an aspect of glyptic art in the LC 1 period correlates well with the theory that Ubaid-style systems of social cohesion (e.g., painted pottery) were disappearing in favor of a new, possibly factional mode that relied more heavily on cross-group interaction through alcohol consumption.<sup>29</sup>

Another aspect of the LC 1 glyptic from Tepe Gawra that characterizes the period is the appearance in Level XII of a new figural style featuring triangular torsos, which is absent thereafter (Tobler 1950: 182, Pl. 164). Such changes in artistic representation, some of which only lasted a few hundred years, surely reflect a time of experimentation and divergence from previous conventions.

Looking at the political economy through the distribution of administrative artifacts such as seals and sealings, Tepe Gawra Level XII again provides one of the most informative datasets. As mentioned above, Rothman sees a decentralized storage economy emerge in Level XII based on the nearly democratic distributional pattern of sealings and household goods across the site (2002: 80-82; 2009), which he has also described as “vertical egalitarianism” (Rothman & Fiandra 2016: Fig. 2.4). In actuality, 4 out of 6 total seals cluster in one building (not the White Room building), while sealings cluster in a more evenly dispersed pattern across three houses (but are slightly more apparent in the White Room building). Neutron-Activation Analysis (NAA) conducted on sealing clays shows a multiplicity of clay sources including those locally sourced and those of foreign origin, indicating long-distance trade and local control over locally stored items (Rothman & Blackman 1990).

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<sup>29</sup> Wright, discussing the changes in the ceramic repertoire from the Ubaid period into the LC 2 period, offers the possibility that such changes could “relate to the consumption of beer or other liquids” (2014: 124), providing another category of potential evidence for the growing role of beer consumption in the Late Chalcolithic period.

The distributional pattern at contemporary Değirmentepe is similar to Gawra's but is not exactly the same. Within the agglomerated layout of tripartite houses, like the layout of Gawra XII, clay sealings occur in multiple rooms within most of the buildings, also like Gawra. Unlike Gawra, the 22 seals, too, are relatively evenly distributed. Of the many sealings distributed across the site, none are door sealings; i.e., all of the goods sealed are movable goods (Esin 1994: 79). In Building I, sealings do not seem to have clustered in any one area but a slight plurality occurs in the main, central room, where a wide range of domestic activities is evidenced. The most common co-occurrence with sealings are spindle whorls (Gurdil 2010: Fig. 22.7), though the sample size is too small to draw solid conclusions. Overall, Gawra Level XII and Değirmentepe Layer 7 display evidence of similar organizational principles, and both are small (ca. 1 ha), densely inhabited sites.

Finally, although very little glyptic evidence occurs there, Hammam et-Turkman provides a glimpse of systemic context for clay sealings in the Balikh Valley. In the possibly tripartite building of Period VA, Stratum 2a, an unimpressed, unbaked clay jar stopper colocates with Coba Bowls, storage jars, and possibly votive building model fragments (Meijer 1988: 74). Van Loon interprets this room assemblage as evidence for administration of commodities in a public building (1988: 661). This view may be stretching the available evidence, but the finds do demonstrate the three-way connection between Coba Bowls, storage jars, and clay sealings (or stoppers).

### **2.2.9. Summary**

And so, in many ways the evidence from LC 1 societies demonstrates the onset or gradual adoption of significantly new socioeconomic modalities following the Ubaid-period. This is seen in the very gradual increase in rapidly-made pottery and the concomitant gradual decrease in painted pottery, both of which began in the Ubaid period

(Theusen 2000; Akkermans 1988a), but it is also evident in less clearly defined patterns of change. Not all sites demonstrate major developments in the same categories or at the same time, but the combined data suggest trends both away and toward semi-specialization in certain industries,<sup>30</sup> often without any indication of centralization (Rothman 2002: 164).

### 2.3. Models of Change for 5<sup>th</sup> Millennium Mesopotamia

The material culture of the Mesopotamian LC 1 period is not a coherent, homogeneous assemblage, and yet it does represent a time period that lends itself readily to discussions of change in human society. As a result, scholars have offered numerous viewpoints and arguments to explain developments in social complexity during the 5<sup>th</sup> millennium BC, usually focused on the most salient elements of the period such as “mass-produced” pottery or new architectural norms. This section will outline the various explanations proposed for interpreting change in the mid-5<sup>th</sup> millennium BC.

#### **2.3.1. General and Traditional Models of Mesopotamian Developmental Complexity**

Adams (1972; 1971), in the heyday of Processual Archaeology, saw the “development of civilization” as a process that began<sup>31</sup> with temple dominance over the communal task of irrigation agriculture in the southern Mesopotamian alluvium, allowing for temple-related personnel to become a separate, theocratic class of “religious elite.” This phenomenon in and of itself breeds heterogeneity, which undermines temple authority. Simultaneously, the accumulation of wealth fostered by centralization of labor and subsistence resources through the temple system incentivizes military participation. The

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<sup>30</sup> Wright characterizes even the later LC 2 economies as “less-specialized” (2014: 124), citing the “simple” manufacturing techniques of mass-produced and chaff-tempered pottery; this, however, ignores other lines of evidence and, thus, reduces the entire economy to a single industry.

<sup>31</sup> This time period Adams calls the late “Formative” period (i.e., Late Ubaid), approximately contemporary with Tepe Gawra Level XIV and Eridu Level IX (1972: 363; 1971: 576).

result is a diversity of social groups with potential for violence, integrated through an authoritarian figure not associated with, but actually in conflict with, the temple, but still religiously endowed. Each sector (sacral and quasi-secular) develops its own institutional symbolism and dependent hierarchies.<sup>32</sup> Adams' is an effective mechanical narrative of change, but one that has very few and general datapoints, and they are largely read backwards from the perspective of 3<sup>rd</sup> millennium BC Mesopotamian archaeology.

A decade later, working under the rubric of developmental complexity within the societal stage of the 'chiefdom,' Henry Wright developed a model to capture the nature of a heterogeneous, dynamic 5<sup>th</sup>-millennium BC society by focusing on data from the southwestern-Iranian site of Susa in the Susa A period (roughly contemporary with the early LC 1 period in northern Mesopotamia; see Table 2 and Appendix A, XIX.71). Susa was founded after the site of Chogha Mish was abandoned in the Late Middle Susiana period (roughly equivalent to the Late Ubaid period), and its founders built a monumental platform that supported public structures and ritual activity. The inhabitants continued to use an Iranian-influenced variant of the dark-on-light painted pottery of the Ubaid style, which appears as fine ware grave goods in many of the burials of the necropolis associated with the final levels of the Susa A period. The grave goods also include a great concentration of over 50 rare metal objects (in over 2,000 graves), possibly indicating wealth-based social ranking (Pollock 1989).

The political structure that Wright describes is a "complex chiefdom," which draws its leaders "from an elite class that cross-cuts many local subgroups," and has two levels of hierarchical control over the populace (Wright 1994 [1984]: 68). The evidence from the

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<sup>32</sup> This time period Adams calls the "Florescent" period, which begins with the "Developed Ubaid" of Eridu Temple Sounding Levels VII-VI and Tepe Gawra Levels XIII-XII (1971: Table 1).

monumental platform at Susa indicates that such a leadership apparatus will cycle between one and two levels of administration every decade, and that every century or so the entire system will breakdown, evidenced by the abandonment (and possibly violent end) of the Susa acropolis (ibid.: 71).

Evidence for Wright's model of 5<sup>th</sup>-millennium political dynamics exists primarily at Susa, however. Unlike other kinds of monumental architecture such as temples or public buildings, it is unlikely that another massive two-stage platform similar to the Susa A acropolis has gone thus-far undiscovered, and so Susa is a unique site for the period. Although Wright claims that all chiefdoms fall somewhere along a continuum of complexity, the end result of his analysis is a binary option between a "simple" and a "complex" chiefdom. Such an approach can be useful for cross-cultural analyses, but in general overlooks the subtle variations between societies and their functional mechanisms (see Stein 2001: 270), especially for the LC 1 period when sites and sub-regions exhibit very localized trajectories of development.

Indeed, Wright's more recent investigation of the plains at the border of the Zagros mountains looks beyond Susa for broader regional evidence of "social formation" during the second half of the 5<sup>th</sup> millennium BC (roughly contemporary with the Upper Mesopotamian LC 1-2 periods). The limited amount of available data demonstrates that both Chogha Parsi'a (0.6 ha on the Susa Plain, northeast of Susa) and the equally small Kozagaran (on the Saimarreh Plain, northwest of Susa) produced ceramics in the Susa A style throughout the entire sequence (Wright 2010: 16, 18). However, Tepe Musiyan on the Saimarreh Plain provides evidence of a larger center there during the Susa A period whereas there is no comparable site located on the Susa Plain (ibid.: 18). He concludes that "occupation of different parts of the Zagros Front Ranges represent different socio-

political strategies,” and that “different strategic considerations dictated Susa’s involvement [in] the two areas” (ibid.: 19).

Although the data are sparse, the concept of “strategic considerations” is vague, and the different spatial dimensions of the Susan and Saimarreh plains helps to explain the divergent site settlement hierarchies,<sup>33</sup> Wright’s analysis is informative about both the region of southwestern Iran and the time period in general. Neither hegemony nor cultural affiliation were uniformly distributed, leaving not only the politics and culture of Susa open to strategic variation, but also the politics and culture of the local sites and centers. This type of variation and dispersed cultural affiliation is an important element of the LC 1 period in northern Mesopotamia, as well.

Frangipane’s synthesis of the Halaf and Ubaid periods (2007) provides an interesting, if not entirely substantiated, juxtaposition of two models that explain both the general nature of Mesopotamian society and, tersely, a possible mechanism of socio-political development. Noting that all societies have some balance between cooperation and competition, according to Frangipane it is the increasing “capacity to centralize wealth” that led, by the end of the Ubaid period, to greater social ranking and “increasing competition and differentiations in resource access” that required additional, perhaps specialized, management and oversight (2007: 163-169; 2001). The logic that the conical kinship system of social organization, prevalent in the Ubaid period, was conducive to the later development of social ranking seems plausible, although more data and further explanation are warranted. Furthermore, “kinship” is a heuristic and conveniently familiar term, but ultimately has no reliable archaeological correlates in a prehistoric society.

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<sup>33</sup> According to Wright, the Susan Plain is too small to support a larger center whereas the Saimarreh Plain is not (2010: 19).

Perhaps the least satisfying aspect of this explanation, though, is that there is still no final mechanism or series of actions described that explains why change happened to the Ubaid conical kinship system when it did, other than, perhaps, the vague implication that a condition of gradually increasing wealth differentials and competition persisted for long enough to force or allow a qualitative change.<sup>34</sup>

In another attempt to frame kinship as a major factor in the changes of the Late Chalcolithic period, Francesca Balossi-Restelli (2010) has compared Ubaid residences at Değirmentepe, Maddhur, and Abada with “post-Ubaid” residences at Arslantepe, demonstrating several elements of change between the Ubaid and Late Chalcolithic periods. The main distinction is between the Ubaid-style, tripartite house plans of Değirmentepe Layer 7 and the “agglutinant” (or “multi-cellular”) house plans of Arslantepe VIII. Also in contrast are the location and nature of the cooking apparatuses, as mentioned above. In the Ubaid period, as at Tell Abada in central Mesopotamia, ovens are generally located outside of houses, whereas in the LC 1-2 periods, they are found inside houses, and the presence instead of firedogs/andirons inside the Ubaid-period houses signifies mobile cooking activities.

The result of the study is that Ubaid households accommodated extended or “stem” families along with functionally less specified spaces, permitting activities such as weaving or cooking to have no permanent location in order to accommodate ever changing stem-family sizes (cf. Roaf 1989). The later households of the LC 1-2 period at Arslantepe,

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<sup>34</sup> Flannery, among others, has also cited ‘competition’ as a motivator for the development of sociopolitical hierarchies, referring in the Mesopotamian case to competition between secular and religious spheres of power (2012: 289). These kinds of hypotheses are more like suggestions, though, as they lack a crucial explanatory element. Adams has also considered the role of counteraction between forces of religious and secular power in an increasingly complex society such as prehistoric Mesopotamia (1972: 361), though with a more developed narrative.

though, must have housed nuclear families and as a result, family size would not have fluctuated as much, allowing for greater permanence of functional specificity required by fixed ovens (ibid.: 197).

This analysis is intriguing and presents a pertinent observation on the changes that occurred between the Ubaid and Late Chalcolithic period, particularly in the architectural record. However, even though it is primarily meant to address the situation on the Malatya Plain, it draws evidence from too many far-flung sources and yet is too selective in the evidence brought to bear. Furthermore, it offers no explanation as to why the inhabitants of the Malatya Plain would have abandoned the extended-family model of social organization for a nuclear-family one, as the new domestic format would almost certainly have been an effect of change rather than a cause. Finally, there is some evidence that the tripartite houses of Değirmentepe Level 7 date to the early LC 1 period rather than the Ubaid (see Appendix A.V), negating the diachronic comparison. Further to that point, excavations at Hammam et-Turkman uncovered a likely tripartite building in Level VA Strata 2a and 2b (Meijer 1988: Pl. 24) that dates to the LC 1 period (see Appendix A.VII), and Tepe Gawra Level XII is almost entirely covered in tripartite houses (Tobler 1950: Pl. VIII), highlighting the limitations of broadly trans-regional claims for this period.

Johnny Samuel Baldi, in his unpublished PhD thesis (2015), takes a much different and more in-depth approach to changes in the LC 1 period, using an intensive analysis of pottery and its *chaîne opératoire* at Tell Feres to demonstrate substantial, concomitant shifts in pottery production, subsistence, and social organization. His analysis shows decreasing levels of standard deviation in vessel dimensions between the Ubaid and LC 1 levels, particularly (but not exclusively) among Coba Bowls. Thus, he sees the repetitive gestures of forming these bowl types as evidence of “serial production” (as opposed to the

more commonly- but errantly-used term, “mass production”). This represents gradually increasing levels of standardization, which Baldi suggests is reflective of the growth of institutional influence on society and economy in a “proto-urban” period.

Alongside the processes of standardization and institutional development, petrographic analysis shows that the different households, as early as the Ubaid levels, utilized different clay sources, and this continued into the Late Chalcolithic levels but with a declining number of sources. In conjunction with changes in the local architecture and spatial functionality (including semi-communal, extramural grain storage facilities), Baldi concludes that there was a reorganization of extended kin groups in the LC 1 period into smaller kin-based units within broader, cross-lineage communities.<sup>35</sup> Siding with the gradual school of social evolution and based on Agent-Network Theory, the mechanisms of change in this process are both the human actors and the objects of their production, such as pots, which have a kind of agency in the influence that they can reflect back onto humans in a dialectic of transformation. Thus, instrumentality is key to the process of change in this view, but its role in this case is perhaps exaggerated, to the point of agency and near animacy.

Jean-Daniel Forest, like Balossi-Restelli, views the hallmark of the LC 1 period as the replacement of the “stem-family” dwellings with smaller tripartite houses better suited to nuclear families, as seen at Tepe Gawra Level XII. Some of these dwellings display status and support for dependents in the thickness of their walls and the “open” nature of their layout, respectively (Forest 2005: 190; Forest 2001: 178).

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<sup>35</sup> Pollock raises concern over equating ‘houses’ with ‘households’ in the “sense of a discrete socioeconomic and reproductive unit” (Pollock 2012: fn. 2) and I think that it is especially important to keep in mind for prehistoric societies.

According to Forest, the formation of an elite social stratum during the LC 1 Period is visible in the spatial isolation of the largest and most elaborate residences near the top of the *tell* as well as in increasingly disparate mortuary conditions for elites and commoners.<sup>36</sup> Furthermore, the White Room structure in Gawra Level XII, in Forest's understanding, represents an "audience hall" and, considering its "courtyards and granary," is the "prototype of a palace." Thus, occupation levels from the Late Ubaid period through the LC 1 period at Gawra (and across northern Mesopotamia) represent "gradual hierarchization of society," "successive levels of a chiefdom," and sociopolitical evolution (Forest 2005: 191).

Forest bases his assessment of change during the 5<sup>th</sup> millennium on Bourdieu's concept of *habitus* and sees leadership and sociopolitical organization as outgrowths of the common interest. Major changes to society begin with "individual initiatives," but are also rooted in *habitus* and are numerous and lengthy enough that the members of a society do not fully perceive them. However, the individuals responsible for change are themselves subsumed as a control structure of society, and their interests are always "subordinate to the common one" (ibid.: 199-200). Thus, Forest prefers explanations of vague consensus rather than of constraint (or compulsion) as the impetus for changes to standard practices of sociopolitical organization.<sup>37</sup>

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<sup>36</sup> Kennedy asserts that "excavations of Terminal Ubaid cemeteries have provided little evidence for social differentiation in the burial remains" (2012: 130), though this is an over-simplification of the evidence. In fact, compared to the clear opposition toward mortuary differentiation during the Ubaid period (Stein 1994, 2011), the onset of variety within burial practices is a critical piece of evidence for societal transformation between the Ubaid and the LC 1 (see Section 2, above).

<sup>37</sup> However, Forest interestingly notes that by the Akkadian period "habitus had gone adrift," allowing for the rise of individual interest (as a consequence of change and not the cause of it) and, specifically, "Sargon's conquest by force" (Forest 2005: 201). There may be something to be said for the increasing potential of the individual to amass power over the course of the 4<sup>th</sup> and 3<sup>rd</sup> millennia BC, but *habitus* and individual agency are not options in direct opposition to one another (cf. Shanks & Tilley 1987: 108).

While Forest highlights some important aspects of the debate about change in social structures, there are some logical and theoretical problems with this perspective that bear examination. One is that while the explanation acknowledges the importance of individuals as the progenitors of change (ibid.: 199), it also rests firmly on the notion that society organizes itself. It is “*habitus*” that is the subject which “promote[s] integration” which, in turn, leads to evolution (ibid.: 201). *Habitus*, which is a dialectic, changes in response to changing conditions, whether they be environmental, demographic, a combination, or otherwise. From this perspective, then, at no point in the chain of events that leads toward a major societal change do human, agent-based decisions seem to have direct impact, and non-agents such as “*habitus*” are given the highest level of agency: the ability to remake social structures.

Forest’s explanation of sociopolitical transformation is also empirically refutable in that it asserts that conflict did not play a substantial role in Mesopotamia until the late 3<sup>rd</sup> millennium BC, when “*habitus* went adrift.” This perspective excludes the evidence for violence from Tepe Gawra Levels XII-A, XII, and XI (Rothman 2009). The Level XII occupation was founded on the destroyed remains of XII-A, and ended with a localized conflagration and unburied bodies, one of whom showed evidence of having been attacked (Tobler 1950: 26). Oates and Oates interpret the “Round House” at the center of Level XI-A/B as a fortified and elaborated version of the tripartite houseplan, but question its restriction to only one level at Gawra (1976: 133). To this I would answer that the entire LC 1 sequence at Gawra displays hints of significant violence and defense against it, and so this is simply one manifestation of that at the end of the LC 1 or beginning of the LC 2 period.

Militaristic confrontation seems to be one component of the change from Ubaid to LC 1 society at Gawra (Butterlin 2009: 153; Rothman 2009), and conflagrant destruction episodes are also attested in the Hammam et-Turkman VA:2a tripartite building (Meijer 1988: 74) and at the Susa A Acropole (Alizadeh 2010: 363).<sup>38</sup> On the Deh Luran Plain, Wright and Johnson note the militarization of one settlement with stone walls, implying inter-site conflict (1975: 275). The prevalence of sling bullets discovered in LC 1 occupations (Fukai et al.: 78-79 & Pl. LX no. 1; Wilkinson et al. 1996: Fig. 14 nos. 1-4; see also Ch. 8), considering Reichel's theory that they were employed as military weaponry (2006: 9),<sup>39</sup> certainly helps frame the episode of violence in Gawra Level XII within the greater context of possibly factional competition and conflict during the LC 1 period.

Although Forest is correct in seeing Level XII as both a turning point in sociopolitical organization and a cultural link between the urbanizing 4<sup>th</sup> millennium societies and what he calls "trans-egalitarian" Ubaid societies, there are few sites similar to Tepe Gawra that have been excavated in northern Mesopotamia (Değirmentepe being the closest, which was also burned in its LC 1 level; Gurdil 2010). Furthermore, the interpretive schematics are somewhat problematic, from the basic theoretical foundation to the assertion of the White Room as a palace prototype.<sup>40</sup> The gradual nature of the changes

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<sup>38</sup> The LC 2 "death pit" at Tell Majnuna adds another large-scale violent episode to the story of development of social complexity (Ur 2010b).

<sup>39</sup> Though Fukai et al. have suggested a hunting function instead for the biconical "sling balls" found at Telul eth-Thalathat from Level XI onward (1970: 78-79). Certainly, they could have been multipurpose, and efficacy in hunting nearly implies efficacy in warfare (see Moorey 1994: 166). Furthermore, a somewhat concomitant increase in the number of these objects with evidence for decreased reliance on wild/hunted species of animals over the course of the 5<sup>th</sup> millennium (see, e.g., Hald 2008) also suggests a military function.

<sup>40</sup> While the Mesopotamian palaces of later periods have elements reminiscent of the White Room such as the white-washed aesthetic and a distinction between public and private space, a 'prototype' is usually something that is intentionally created in order to form a basis for further development. In this sense, the White Room almost certainly does not qualify—or, at the least, we cannot know the intentions of the designer/builder/commissioner.

in cultural material across the 5<sup>th</sup> millennium is evident, but what seems less apparent is a continual hierarchization. To the contrary, the developments in sociopolitical complexity between the Ubaid and LC 2 periods are neither uniform nor linear (Yoffee 2005; Cowgill 1994), and trying to understand an aspect of material culture like architecture by seeing it as an antecedent of future phenomena can be problematic.

However, Gibson (2010; 2000) sees palatial elements in Ubaid-period architectural contexts such as Building A at Tell Abada (Jasim 1985: Fig. 13) and the monumental building at Uqair (Lloyd, Safar, & Frankfort 1943: Pl. VI), raising the possibility that these were actual palaces or domiciles of kingly figures. Whereas most scholars reserve the advent of kingship for the Late Uruk period, when the office of 'king' is attested in both art (sculpture and glyptic) and text (the cuneiform document called the Standard Professions List), Gibson asserts that kings and the roots of state-level civilization had already come into existence by the Ubaid period. It seems to be at least partially a question of definitions, where the distinction between a 'king' and a 'chief' is that a king has enough extra-consanguine support that he has powers of life and death over a population without the blowback of an affronted group (i.e., the 'blood feud'). This is difficult to test archaeologically, although the Ubaid period is known to have little evidence for violence (unlike the LC 1 period).

In Gibson's theory, the key difference between the Ubaid and Uruk periods in terms of leadership and polity is not the leaders' capacity to wield power, but their ability to sustain their polity to the point that it would look like a fully functioning state and have long-term institutional stability and continuity. Specialization, socioeconomic differentiation, and even kin-independent power bases were all elements of the Ubaid period (and earlier), in different forms and amounts, but the development of the more

traditional, permanent form of kingship happened as a result of increased capacity for legitimation.

This unique viewpoint on the development of social complexity in Mesopotamia touches on several important issues. One is that there is no rule that ‘chiefs’ and ‘kings’ cannot coexist in the same supra-regional geocultural entity, allowing for a kind of structural or organizational variability that is certainly plausible for the Chalcolithic period. Furthermore, though the refutation of unilineal sociocultural evolution rid archaeological discourse of many unfounded presumptions (e.g., Liverani 2006; Yoffee 1993), it is also a presumption that some ‘chiefdoms’ did *not* grow directly into ‘kingdoms.’ Indeed, though the evidence is still sparse, stratigraphic continuity is fairly strong across the presumed Ubaid/Uruk temporal boundary in southern Mesopotamia (Lloyd, Safar, & Frankfort 1943: 134; see also Appendix A.XXI). Finally, Gibson sees the development of social complexity, especially in northern Mesopotamia, as a product of interaction between geographically distant groups of peoples. It may rely too much on the unidirectional transfer of complex ideas and people from south to north, but interregional interaction is an important concept in theories of development.

The case of the LC 1 period in northern Mesopotamia is apparently different than in southern Mesopotamia. Rothman, in adapting the older but seminal excavation material from Tepe Gawra, like Lupton (1996), argues that the LC 1 period is the beginning of a process of “radical transformations” (Rothman 2002: 1). Also like Lupton, Rothman sees the change from Ubaid to LC 1 at least partially due to “conditions [that] made it impossible for members of a polity to organize themselves solely through extended kinship systems” (Rothman & Blackman 2003; Rothman 2004), including “the interaction of groups” between “pockets of resources” (Rothman & Fiandra 2016; Rothman 2001a). This links

sociopolitical changes to economic changes, including specialization, surplus production, more formal and far-flung exchange systems (Rothman 2004). Baldi describes this more specifically as “a wider range of more irregular contacts in LC 1, which become more structured and geographically defined in LC 2” (2012: 145). J. Oates calls this “more privately organized economic relationships” (1993: 411).

While the economic dimension of social interactions is certainly a component of 5<sup>th</sup> millennium change, Rothman’s conclusion only goes so far as to posit that the LC 1 level at Tepe Gawra represents a “simple chiefdom” in which, in Wright’s terms, there is “only one level of control hierarchy above the local community” (Wright 1994: 68)” (Rothman 2002: 147). Rothman’s work itself seems to support a more nuanced perspective on LC 1 society, though, perhaps one that does not even fit into the chiefdom model, as evidence for centralized polities is spotty at best in the LC 1 period, and centralization is a fundamental aspect of chiefdoms (Earle 1987).

However, the absence of specifically religious architecture in Gawra XII, in contrast with the Ubaid levels, also contrasts with roughly contemporaneous evidence from the Susa Acropole. Hole (1983) sees religious ideology as a motivator for the Susa population to construct monumental architecture and support elite activity. While scholars had long associated the religious and mortuary evidence from Susa as parallel to that from Ubaid-period Eridu, Gawra, and Ur, it may actually represent a unique trajectory from the end of the Ubaid period into the Uruk period there. Unlike the Temple Sounding sequence at Eridu, which continued uninterrupted from the Ubaid levels (XVIII-VII) into the successive level (VI) and Early Uruk Level V (Safar et al. 1981: Figs. 129-130; see also Appendix A, XXI.79), the Acropole society of Susa A came to an abrupt and perhaps violent demise in the Terminal Susa A period (Alizadeh 2010: 363).

Indeed, more recently, Rothman and Fiandra (2016) have applied a kind of fashionably Marxist terminology for evolutionary stages—from “horizontally egalitarian” to “stratified states”—to northern Mesopotamia, identifying Gawra XII as “vertically egalitarian.” Relating to the question of *why* the change occurred from the vertically egalitarian LC 1 period to the “vertically stratified” societies of the LC 2 period, they consider the effect of stressors (both external and internal, human and environmental) on social structures. Evidence for both communal and private grain storage particularly implies that agricultural uncertainty was one factor, along with wider circuits of craft exchange and demographic changes such as population growth and inter-regional movement of peoples. Finally, they call for new models of integration to address the totality of factors that would explain the change.

The “stage model” of societal typology has been offered (Service 1975, 1962; Fried 1967), refuted (Gibson 2010; Verhoeven 2010; Yoffee 1993), and reformulated (Rothman & Fiandra 2016; Frangipane 2007; Wright 1994[1984]) many times in anthropological and archaeological literature, and its utility both remains and remains in question (see Ch. 3 Section 3.3.1). Though the terms used by Rothman and Fiandra are newer and are more descriptive than the evocative ‘bands-tribes-chiefdoms-states’ schematic, it is another variant of the ‘stage’ approach, and so can obscure variability.

One clear example of this is that Frangipane (2007) characterizes the Halaf society of 6<sup>th</sup> millennium northern Mesopotamia as “horizontally egalitarian” and its successor, the Ubaid-period, as “vertically egalitarian.” The argument is perfectly reasonable given the constraints of such a framework, and yet, taking Rothman and Fiandra’s assertion above, that leaves the LC 1 period without any distinction at all from the Ubaid. But, given the evidence cited above for a fairly clear trend of departure from the organizational dimension

of Ubaid-period practices, and yet the persistence of lingering elements and addition of new elements, almost any stage model would render such a period/society unfit for classification or would subsume it into some inappropriate category. This is unfortunate, as these “transitional” periods are exactly what we need to investigate in order to understand the change. Thus, “vertically egalitarian” is unsatisfying as a description, and the as-of-yet unknown ‘model of integration’—to explain the details of how so many attestable and unattestable factors overlapped in some particular way to cause/allow for change—remains undiscovered.

### **2.3.2. The Coba Bowl & Its Relatives**

The most commonly found artifact type of the LC 1 period throughout Greater Mesopotamia has been the broad category of quickly-produced bowls that includes types such as the Coba Bowl and Wide Flower Pot (Bowl). The extent to which all of the variations of rapidly-made bowls share a core typological element is debatable, but Baldi (2015; 2012; 2010) divides them into four types (see below) and yet sees them all as representing the same cultural and functional concept (2010: 355). Here I will present a range of perspectives on the meaning and significance of rapidly-made bowls, following Baldi in treating them largely as different variations on a single concept.

The excavators of the Coba Bowl’s namesake site, Coba Höyük, initially offered the suggestion that the flint-scraped, simple, coarse-ware bowls were “used for domestic purposes, perhaps to mix the dough for baking” (du Plat Taylor et al. 1950: 77). But it was around two decades ago that scholars first started to see the rapidly-made, flint-scraped

Coba Bowl and its variants<sup>41</sup> as evidence of a radical transformation in the political economies of northern Mesopotamia. Henry Wright (2001) and Marcella Frangipane (2001, 1996) both note that the onset of “mass production” is a sign of early political complexity.<sup>42</sup> Bernbeck and Costello take Frangipane’s argument that elites used Coba Bowls filled with rations to pay workers but suggest that the dominated group may have included craft producers (Bernbeck & Costello 2011: 680; see also Frangipane 1996: 141). Baldi has also suggested that their primary function in the LC 1 period may have been as ration bowls (2010: 357). Rothman, too, has called them “ration bowls” but notes the very important point that they were multi-purpose, with functions ranging from mixing bitumen to cooking to burying infants (2009: 23).

Jason Kennedy (2012; 2008) takes another tack in approaching the meaning of what he calls “expediently-produced” bowls, looking at evidence for parallelism rather than domination. He notes that in the LC 1 period at Yenice Yani and Kenan Tepe they appear specifically in household contexts, likely for ‘labor feasts’ in a system of “Dispersed *Corvée*,” rather than in a system overseen by public institutions or elites.<sup>43</sup> He suggests that the remains of rapidly-made pottery reflect a system of collective labor or “alliance-based” strategies in which multiple households shared labor resources during periods of labor-intensive work such as harvests or construction (2012: 131; 2008: abstract). Thus, a partially ad hoc economy supported a non-hierarchical (even “largely egalitarian”) society.

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<sup>41</sup> The hemispherical Coba Bowl was seen as a primarily western version and the flat-based Wide Flower Pot Bowls being the eastern form (Trufelli 1994: 8-9), though this division is not perfect. Beaded-rim versions, those with scraped bases and not, and even finer versions all appear in a non-regionally defined mixture (Abu Jayyab 2012). Though, despite the apparent variation in form and production technique (Baldi 2015: 463-465), Baldi holds that all variants serve a similar function or functions (ibid.: 466). See Section 2.3.2 for further discussion.

<sup>42</sup> Similarly, but with respect to chaff-faced pottery, Marro sees such a development as a “fundamental evolution” of great complexity (2010: 35).

<sup>43</sup> However, cf. Baldi 2012a, p. 144: at Tell Feres al-Sharqi “pottery manufacture was directed towards both the household and external distribution.”

Kennedy's explanation at least partially conforms to the data from the mid-5<sup>th</sup> millennium, when there is little hard evidence for centralized institutional activity. However, the White Room from Tepe Gawra Stratum XII, the Susa A Acropole "haute terrace" and Necropole, and the copper spearhead in the al-'Ubaid III graves at Ur, among other pieces of evidence, indicate that elites were almost certainly present in Greater Mesopotamia at or around this time (Stein 2012), but perhaps operating without specialized political institutions in most cases (Warburton 2015: 166). Though the concrete examples are spread widely across the landscape, this could be an element of either variability or recovery bias, and so to eliminate socioeconomic hierarchy from the argument completely is, at this point, unfounded.

Furthermore, the argument that *corvé* labor—labor conscripted by an authority—would have been extant in the 5<sup>th</sup> millennium BC is not only unsubstantiated by the available evidence, but is also contradictory to the basic premise of Kennedy's argument—that institutional authority did not exist at this time. If the authority of certain households extended reliably to other households so that one could command the human resources of the other without remuneration, then the process of formalizing power relations would have already begun (Adams 1974b). It seems as if the argument requires less definite terminology than "*corvé*," and would function better by focusing on "soft" concepts such as 'persuasion' and 'reciprocity.' Finally, the most curious element of the commensality/communal labor model is that there is actually greater evidence for projects that would have required extra-household labor pools in the Ubaid period (Hole 1994: 138), whereas except for a few exceptions, monumental architecture is less the mode in the LC 1 period, especially in northern Mesopotamia. Of course, larger-scale agricultural production or greater reliance on irrigation in the LC 1 would have required inter-group

labor pools if Balossi-Restelli (2010) is correct that extended kin groups were no longer the common mode of household organization, but the former is speculative and the latter is unknown. Furthermore, the proposed contraction of settlement area in the LC 1 period (see above) suggests that perhaps less land was being tilled.

One strength in Kennedy's argument is that it does address the economic dimension of societal transformation. Because there was a ready system of labor in place by which households could mobilize groups of workers, the groundwork was laid for aggrandizing individuals or households to cast hegemony over this labor class, thereby hierarchizing the economy (Kennedy 2012: 131-132 footnotes). Although it is an interesting theory, it is difficult to establish that there was such a coherent labor class, and so remains speculative and is more of an interpretive framework than an empirically-demonstrable phenomenon. Although there are no textual documents to provide such information, glyptic motifs could help identify emic conceptions of labor relations (Stein 1998; see Ch. 8 Section 8.6). Another key question, if the basic concept is validated archaeologically or otherwise, is the applicability of this explanation across the varied socioeconomic landscape of mid-5<sup>th</sup> millennium Mesopotamia, where patterns of ceramic distribution are quite different between sites.

While the ubiquitous, rapidly-made Coba Bowls and Wide Flower Pot Bowls are a vital hallmark of the LC 1 period across an area that includes the modern countries of Iraq, Iran, Syria, Turkey, and Azerbaijan, it is not nearly as uniform a type as the Beveled-Rim Bowl of the Uruk period. The precise meaning of the introduction of expedient or rapid pottery production is still quite debatable, but, as with most other material and developmental categories, part of the significance of the Coba Bowl phenomenon certainly relates to its variability.

While Abu Jayyab (n.d.) identifies three basic types of “Coba” bowls at Zeidan—the Beaded-Lip Bottom-Scraped Bowl (e.g., Pl. 25 o), the Coba Bowl (e.g., Pl. 25 f-j), and the Wide Flower Pot Bowl; e.g., Pl. 25 m—this tripartite division is particular to the Balikh Valley, and Baldi recognizes a total of four types spread across Greater Mesopotamia (2012b: Figs. 2-5):

- I. Hemispherical with an extended base; mold made and/or base attached separately;
- II. Hemispherical with scraped lower exterior; hand made by pinching and stretching, then flint scraped to remove excess clay (“true Coba bowl?”);
- III. Obtuse angled with a flat or slightly-extended base; hand made by pinching and stretching;
- IV. Obtuse angled with a flat or slightly-extended base; pressed onto a support and coil made (“Wide Flower Pot” as Baldi defines it).

Type I is the most regionally specific, appearing primarily at “eastern” sites in northern Mesopotamia such as Tell Feres, Tepe Gawra, and Tell Leilan until the LC 2 period, when it is attested at Oylum Höyük; it may have appeared there prior to the LC 1 period, though if so, just barely. It is also the least like the “true” Coba Bowl. Type II is more-or-less the typical, flint-scraped Coba Bowl, appearing from Sakçe Gözü (Coba Höyük) and Tell Afis in the west to Tell Leilan in the east. It is mostly, but not entirely, restricted to the LC 1 period. Type III looks like what many would call a Wide Flower Pot, and it has a broader chronological range, from Sakçe Gözü IVA (Late Ubaid) to Tabara al-Akrad VI (LC 1-2); it also spans the east-west division, though is more heavily attested in the west. Type IV, Baldi’s Wide Flower Pot (Bowl), appears from Sakçe Gözü to Qalinj Agha (Erbil) but is largely absent in the Euphrates Valley and arrives in the Tigridian zone only in the LC 1 and LC 2 periods (from Baldi 2012b: Figs. 2-5; see also Baldi 2015; 2010).

These four types—two more than most scholars identify—do not even compose the full range of variants. In addition to the Beaded-Lip Bottom-Scraped Bowl mentioned above, Tell al-‘Abr (Middle Euphrates) has three of its own variants (all of which are bottom-scraped, mineral tempered, and wet-smoothed, and some can be wheel-made or painted) in Stages II-IV (Yamazaki 2010: 325; 2012: 188; see also Ch. 1.3). Ovçular Tepesi (Lower Caucasus) presents another, stone- or wood-scraped variant that is occasionally paint decorated (Marro et al. 2011: 67 Photo 12). The count is now up to nine, and it is not based on exhaustive analysis; there are probably numerous other regional, local, temporal, or technological variants in the archaeological record if one looks closely enough. The inwardly-beveled-rim bowls of the LC 2 period (but appearing in late LC 1 levels; Abu Jayyab 2012) are generally flint-scraped along the lower half as well, making ten. Exactly which of these qualify as “true Coba Bowls”<sup>44</sup> does not seem as significant as the facts that they are all quite different from one another and that they all demonstrate techniques that promote rapid production at the expense of aesthetic quality (in our modern sense, at least, if not universally), but to varying degrees.

Form and technique are not the only informative factors of the Coba Bowl phenomenon, however. For example, use-alteration analysis on the Kenan Tepe assemblage (Kennedy 2012) indicates that Coba Bowls were used less often than other vessel classes (including painted wares) before discard, and were found in slightly different household contexts than other types (near doorways, etc.). However, Kennedy argues that they were used by all members of society (or, at least, all groups), since they have been

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<sup>44</sup> Coba Höyük (Sakçe Gözü)—the eponymous site of the initial discovery of the Coba Bowl—has Baldi’s types II-IV, only missing the molded, extended base variant, which is largely restricted to sites in the “eastern” zone of Upper Mesopotamia (Baldi 2012b: Figs. 2-5).

recovered evenly across all excavated domestic buildings at both Değirmentepe and Tepe Gawra *ibid.*: 147). Other site reports and analyses show that Coba Bowls are often found concentrated in single rooms (Baldi 2015; Oates 2012: 69; Caneva et al. 2012: 167,<sup>45</sup> Akkermans 1988b; Du Plat Taylor et al. 1950). Taken together, the distributional evidence suggests that for some sites or households, rapidly-made bowls had very specific expectations of them that did not require durability or intra-household ubiquity.

At both Tell Brak and Kosak Shamali, the later examples become increasingly poorly made in comparison with the well-made earlier examples (Oates 2012: 70; Nishiaki et al. 1999: Figs. 12, 21). At Tell Feres, however, there is little change in the production of Coba Bowls over time, but there is an increase in overall homogeneity of the general pottery assemblage (Baldi 2012a: 143). For the Gawra assemblage, Rothman has noted that the Wide Flower Pot Bowls become more finely produced over time between Levels XII and XI (2002: 55; Baldi 2012b: 399; cf. Baldi 2015: 468). Thus, variable material trajectories are apparent.

Regarding the question of standard volumes, at Tell al-‘Abr scraped-bottom bowls appear in “several set sizes” according to the excavators (Yamazaki 2012: 194),<sup>46</sup> and at Yümüktepe the excavators noted two specific sizes (1000-1500cc and ~3000cc,<sup>47</sup> Caneva, et al. 2012: 366). The sizes, though—as noted—are within fairly broad ranges, and therefore seem more like an attempt to fit the data into a preconceived interpretive framework than an actual assessment. Baldi’s statistical analysis of Coba Bowls at Tell

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<sup>45</sup> E.g., in room 301 at Yümüktepe at least 75 Coba bowls make up 94% of the pottery (Caneva, Palumbi, & Pasquino 2012: 367).

<sup>46</sup> Yamazaki makes the point that they are not Coba Bowls exactly, sharing more technological traits of production with other plain pottery from Tell al-‘Abr than with Coba Bowls (Yamazaki 2012: 195), though this is part of the variability in adoption of the technology and type.

<sup>47</sup> Approximately 1.4L of food per bowl, which the authors note is more food than a single family would need as a daily ration, though it is close and that is debatable.

Feres does suggest that there was an adherence to dimensional standards, and to a greater degree over time, but he sees this as a product of the serial nature of their production (“*gêstes répétitivité*,” 2015: 484). Similar studies at Arslantepe VIII, though, show very little control over the dimensions of consumption vessels beyond ‘small,’ ‘medium,’ and ‘large’ sizes for some types (Balossi-Restelli 2012: 53, Fig. 6). Thus, perhaps the term “ration bowl” is not fully warranted, and especially not independent of site and context.

The relationship between “hamlets” and smaller sites such as Tell Feres and centers such as Tell Brak is only recently beginning to be addressed for the LC 1 Period.<sup>48</sup> However, the excavators of the 1.2-hectare Yenice Yani note the evidence for functional differences between Coba Bowls at Brak and at Yenice. The consistent occurrence of burning on the interior of Coba Bowls at Brak (Matthews 2003) stands in contrast to the unburnt nature of the bowls at Yenice. Such burning indicates the Coba Bowl’s likely usage in food preparation at Brak, while those at Yenice seem to have been used primarily for consumption (Bernbeck & Costello 2011: 682). This contrast in function highlights a potential element of complexity that developed during the mid-5<sup>th</sup> millennium—namely, that settlements may have had vastly different subsistence strategies and modes of organization. Bernbeck and Costello (2005) and Baldi and Abu Juyab (2012) see center vs. periphery as one significant variable,<sup>49</sup> though there are other variables at work as well (e.g., locality, region, or perhaps something less structural and identifiable such as translocational interpersonal relations).

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<sup>48</sup> See, especially, Baldi & Abu Juyab 2012 for comparative analysis of Hamoukar, a large center, and Tell Feres al-Sharqi, a 4 ha site.

<sup>49</sup> They also remark that centers, at this time, engaged in a “rising complexity of spatial structures” (Bernbeck & Costello 2011: 682).

Baldi's diachronic examination of spatial-functional context for Coba Bowls and Wide Flower Pot Bowls has shown that during the LC 1 period their distribution is quite varied from site to site and often within sites, but that at Tepe Gawra, for example, the pattern in the LC 2-3 periods changes toward one evidencing redistribution contexts (2015: 473). Thus, there may have been a three-stage progression of usage for these bowl types: 1) introduction during the Late Ubaid period correlating to alternative modes of bowl manufacture and food dispensing; 2) spread-of-practice during the LC 1 period, correlating to socioeconomic organization and the dominant mode of food distribution; and 3) refocusing-of-purpose during the LC 2 period at select sites, correlating to new socioeconomic ideologies. However, not only do the ceramic data suggest variability across both space and time, but also across analytical methods. It is hard to rely on a decisive interpretation of the Coba Bowl, but this is in part because different sites demonstrate different uses and even their own, local interpretations of rapid pottery production.

#### 2.4. Chapter Summary

Looking at the total picture of LC 1 Greater Mesopotamia, a complex network of settlement patterns, cultural affiliations, and trade relations emerges. While a new, denser, and more hierarchically differentiated settlement pattern did not seem to reach fruition until at least the LC 2 period,<sup>50</sup> the movement of peoples and abandonment and founding of select sites following the Ubaid period may have allowed for or encouraged a multiplicity

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<sup>50</sup> Heavier occupation in general, and specifically in places not previously settled, including the Tabqa Dam region, the Amuq Valley, eastern sites along the Khazir Su, and elsewhere, away from river channels, is one hallmark of the LC 2 settlement pattern in Northern Mesopotamia (Rothman 2001b: 380-381).

of exchange relations between raw-material-producing locales (such as the Nemrud Dagh volcano in southeastern Anatolia) and elites at LC 1 Mesopotamian sites.<sup>51</sup> Competition between local elites pursuing new socioeconomic strategies, made possible by the diminution of traditional exchange systems of the Late Ubaid period, may well have been part of the character of the LC 1 period, but competition itself is not an agentive entity.

The LC 1 period in Greater Mesopotamia, as demonstrated above, is an interesting test case for different theories of change such as the role of inter-group dynamics in transformations of sociopolitical organization. The results of the different excavations show that many LC 1 occupations exhibit evidence of sociocultural development within a less culturally cohesive and/or politically rigid structure than Ubaid society, some favoring greater cooperation (e.g., Kenan Tepe, perhaps), some competition (e.g., Tepe Gawra), while many feature a cloudier mixture.<sup>52</sup> The evidence varies greatly from site to site, and so the overall nature of the LC 1 period is a time during which peoples experimented with different cultural ideas, technologies, and even modes of sociopolitical organization.

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<sup>51</sup> Nishiaki has already suggested that “abandonment in [the] Euphrates valley during the Terminal Northern Ubaid could imply a significant change of social relations among regional communities. ... If the obsidian import system changed at Tell Kosak Shamali during the Terminal Northern Ubaid, the cause(s) should be sought in social changes on a regional scale” (2003: 56).

<sup>52</sup> Frangipane, interestingly, has seen competition between households as a “southern” Mesopotamian component of socio-political complexity (2001: 311). Herein, I argue that although competition may be less evident in the north during the Ubaid period, in the early Late Chalcolithic period it became an available mode of interaction in that region and a strategic possibility; recently, Rothman and Fiandra (2016) have made a similar argument based on the evidence from Tepe Gawra.

### CHAPTER 3 THEORY & METHOD

All one can hope to achieve is a compilation of the evidence, while suggesting some lines of development. A great deal more hard work will have to be done in archaeology before one can hope to answer the many questions of why and how... (Mellaart 1975: 10).

The search for an answer to the question ‘what happened’ has always been the underpinning of the archaeological discipline. ‘Why’ things happened is harder to answer with archaeological evidence alone,<sup>1</sup> and is generally the domain of other social sciences such as history. But fields such as social anthropology and evolutionary human behavior have enabled inquiries along the lines of ‘how’ things happened—what are the *mechanisms*<sup>2</sup> of change in human societies. And so the questions herein are ‘what’ happened in the Upper Mesopotamian Late Chalcolithic 1 period and, if that ‘what’ can be thought of not as a condition of sociocultural stasis but as particularities within a process of change, then ‘how’ the end results developed.<sup>3</sup>

This chapter reviews the theoretical concepts that have informed the interpretative framework used in this dissertation to help explain the changes that occurred in between the Ubaid and Late Chalcolithic periods, and then it explains the methodological techniques used in the primary field research, analyses, and final interpretation. Essentially, it lays out

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<sup>1</sup> See, e.g., Earle & Ericson, regarding how systemic models can explain both ‘how’ systems operate and ‘why’ they evolve (1977: 10).

<sup>2</sup> The term “mechanism” here is not giving agency necessarily or exclusively to inorganic aspects of a society; the “mechanisms” can very well be types of human interactions just as well as they can be a category of person (e.g., “elite”), a particular arrangement of social groups (e.g., “warring”), or even specific persons in time (about whom, in prehistory, we will never know).

<sup>3</sup> It must be acknowledged that any kind of “end point,” or, at least, a periodological one, is a construct of scholarship and not a reflection of the ancient mindset in any determinable way. In this case, the Ubaid and LC 2 periods provide good bookends since archaeological markers such as the material culture, the settlement patterns, and most interpretations of the sociopolitical frameworks evident in Upper Mesopotamia vary greatly between the two; whereas in the LC 1 period, those categories of inquiry blur heavily in each chronological direction (see Ch. 2).

the two main underpinnings of the dissertation: 1) to give theoretical primacy, not just empirical acknowledgement, to the role of material variability in promoting major structural changes across northern Mesopotamia; and 2) to identify degrees of variability in both a) the economic sphere, by comparing evidence for LC 1 craft production and subsistence across the three mounds of Tell Zeidan; and b) the sociocultural sphere, by examining variation within the LC 1 architectural, ceramic, and dietary traditions at Zeidan.

### 3.1. Theoretical Issues & Approaches

As discussed in Chapter 2, the current theoretical climate of early Late Chalcolithic studies in northern Mesopotamia acknowledges an important change in sociopolitical structure, but generally does not provide a viable explanation of that change for the area as a whole. One factor that must be taken into consideration when trying to formulate such an interpretation is the potentially artificial nature of a synthetic explanation of developmental processes during the LC 1 period. While a caution against over-generalization (and thus over-simplification) is applicable to all studies of ancient societies, it is perhaps even more so for the LC 1 period in the sense that LC 1 societies show lower levels of geographically broad cultural affinity, at least in terms of material culture. This is one reason why I favor an explanatory model of change that incorporates variability as a prime element.

The basic theory, as introduced in Chapter 1 (Section 1.2), is that changes in technology (instrumental innovations) provide new opportunities for strategic variance, based on the human cognitive tendency toward conventional (sociocultural) imitation but capacity for instrumental innovation. After the early onset of new technologies and resulting material variability, a period of ‘social reflexivity’ occurs, during which time sociocultural variability is high, social cohesion is low, and individuals have greater

influence on society than is otherwise typical. The contemporaneity of strategic multiplicity, sociocultural fractiousness (low cohesion), and high social reflexivity is a good ‘precipitating condition’ for sociopolitical restructuring (conventional/sociocultural innovation). The following section will tie this model into the existing theoretical discourse.

### **3.1.1. Change through Time**

Chapter 2 Section 2.3 presents descriptions of phenomena and theories of change evident in the scholarship as applied to northern Mesopotamia in the 5<sup>th</sup> millennium BC. This section will step back from the data and consider theories of stability and change more generally.

#### **Chieftoms and Terminology**

On the matter of terminology for “non-state complex societies,”<sup>4</sup> several options come out of the archaeological, anthropological, and sociological literature. The most common term, and one that has been offered (Fried 1967; Service 1962, 1975), reconsidered (Earle 1977; Carneiro 1981: 45), revised (Stein 1994; Earle 1997), critiqued (Gibson 2010; Yoffee 1993), and reformulated (Nakassis 2010; Lee 2004; Beck 2003) frequently in the past half-century, is ‘chieftom.’ Carneiro provides one of the most basic and commonly referenced definitions, describing it as “an autonomous political unit comprising a number of villages or communities under the permanent control of a paramount chief” (1981: 45), though this description begs the question by essentially stating that a ‘chieftom’ is a domain controlled by a chief. Other definitions typically refer

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<sup>4</sup> Baldi takes issue with the term ‘complexity,’ in that it is a value judgment and, ultimately, a component within a teleology (2015: 80). I would disagree that it is necessarily such things—all societies have some degree or nature of complexity (Gibson 2010: 89; see also Verhoeven 2010), and identifying the nature at any given one is a worthy task. Assessing ‘degree of complexity’ does not necessarily have to result in terms such as “Early High Civilization,” as Nissen has called the Late Ubaid period (1989: 250).

to chiefdoms as being, above all else, hierarchical (e.g., Frangipane 2007), centralized (Earle 1987), and involving a certain-sized region or population (Earle 1997), but being restricted in some way (Beck 2003), especially in terms of the capacity of the decision-making apparatus to administer goods and people (Wright 1994; Wright & Johnson 1975).

However, if these types of societies were as abundant in pre-history as suggested by the voluminous scholarship devoted to the topic, any definition must account for variability (Stein 2010; 1994). A new approach to chiefdoms in ancient Mesopotamia brought new, more contextually-suitable conceptualizations that include a broadened range of implications and identify variability within the general meaning of ‘chiefdom’ itself (Stein 2010, 1994; Frangipane 2007; Rothman 1994). Wright (1994 [1984]) distinguishes between ‘simple chiefdoms’ and ‘complex chiefdoms,’ with a varying number of tiers of administration between them, and this has had a large influence on usage of the term (e.g., Rothman 2002).

To repurpose the ‘chiefdom’ concept to further accommodate variability in modes of power acquisition, Beck offers the ‘apical-constituent’ model. This model contrasts ‘constituent’ chiefdoms, in which power is given, with ‘apical’ chiefdoms, in which power is taken (Beck 2003: 641-2). “Transegalitarian” is another, newer term concerned with a certain level of sociopolitical complexity within some non-state societies, but it is intended to be more specific than ‘chiefdom’ (see Wright 2004). Transegalitarian societies maintain “...an egalitarian ethos, but ... there are sizable differences in wealth and power between individuals and family groups” (Clarke 2001: 147). They are akin to Frangipane’s ‘vertically egalitarian’ societies (e.g., in the Ubaid period; Frangipane 2007; see also Rothman & Fiandra 2016). The benefit of these new terms is that they address not just

variability within a typological group, but also attempt to find and redefine narrower and narrower types within the very broad range.

Ideas such as these push the conversation forward but still do not account for all of the modes of variation within the realm of non-state complex societies. They are typological rubrics that help to both explain the nature and organizational mode of a society and compare societies across space and time (Stanish & Haley 2004). However, typologizing a given society does not address the question of change.

### **Modelling Change**

A well-known study of state formation in the Uruk period of Greater Mesopotamia by Wright and Johnson (1975) conceives of the main difference between a ‘state’ and ‘chiefdom’ as the presence in a ‘state’ of internal administrative specialization. This study tests single-variable state formation theories such as population increase (Carneiro 1970) and exchange of goods (Polanyi et al. 1957) with data from the geographically circumscribed plains of Susiana, Deh Luran, and Ram Hormuz in southwestern Iran. Their results are that neither of the single-variable phenomena is attested in notable proportions at the time of (or just prior to) state formation (the Early Uruk period, ca. 4000 BC), and so they propose a multi-causal, positive reaction-loop model. A logical response to the failure of single-variable hypotheses it is, surely, but it is neither tested nor proven, nor even truly testable.

In a more recent adaptation of information theory, Lee states that the key for a society to “evolve” from chiefdom to state is the ‘control strategy’ (2004: 175). Most chiefdoms do not become states, as evidence has shown us (Liverani 2006; Yoffee 1993), and for Lee it is because chiefs (the individual human agents) are typically unable to

“establish hierarchically specialized regulators” (2004: 173).<sup>5</sup> Those who are able to establish those regulators, however, can increase the political apparatus’ capacity for information as well as improve their ability to communicate with subjugated groups. This approach relies on identifying innovations made by human agents (administrators), but what are the archaeological correlates for such innovative ‘regulators,’ and what conditions or criteria would govern this rare chiefly ability? Stanish and Haley (2004) assert that ritual performed in the context of public architecture is a highly productive regulator (see below).

This variant approach does little to improve upon the issues of earlier information-theory models, as it assumes a condition of constant competition and attempted expansion. It also ignores the high likelihood that not all relationships between the paramount leadership and individual groups and persons are the same. For instance, “weak ties” across groups, tiers of intragroup hegemony, or geospatial boundaries can have important but archaeologically invisible roles in both the cohesion and development of a society. The nature of cross-group relations is often more complex but also more significant than prehistorians typically identify (Stein 1999).

Other lines of thought focus more on the political economy than on politics. A prime example is the work of Timothy Earle and his collaborators, who explore the relationship between the economy and political activity within the context of the

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<sup>5</sup> Another outcome of such a system, which features a fissioning of chiefly power (and is derivative of a structuralist kind of information theory), occurs through information overload. For example, as a chief improves his position with respect to neighboring territories and subjugates them, causing excessive growth, the control apparatus may reach a point of qualitative degradation in decision making abilities. With this comes a concomitant decline in communication between the chief and the public,<sup>5</sup> allowing lesser lineages to promote their own leaders. This creates the likelihood of competition, fissuring, and ultimately collapse (Lee 2004: 174).

Spencer (1998) suggests that the limit of a chief’s control is one day’s travel. While this is too prescriptive, whatever the exact spatio-temporal limitations of an individual’s influence may be within early political systems, it is useful to keep in mind distance-decay of political power (see ‘distance-parity model’ in Stein 1999).

development of social complexity (Earle 1982; D'Altroy & Earle 1985; etc.), and how that relationship could contribute to sociopolitical breakdown or growth (e.g., Johnson & Earle 1987). Earle's work has also identified one aspect of social complexity as an archaeologically attestable, material correlate: that goods in a more socially complex society have higher distinction and durability (i.e., moving closer to the wealth-finance economy; Earle 1982: 80). This basic model of chiefdom functionality and development is predicated on the concept that aggrandizers can expand their purview through disproportionate accumulation of wealth capital, which has fewer inherent limitations than accumulation in a staple-finance system, though in both systems there is potential to increase political power based on accumulation of economic capital. Such ideas have had enduring influence on study of political economies in early complex societies.

The concept of "regional consolidation" appears in many models of chiefdom formation, as a common definition of 'chiefdom' features the integration of "multicommunity polities" (e.g., Beck 2003: 641-2). Based on the ideas of D'Altroy and Earle (Earle 1989; Earle & D'Altroy 1985), Beck's notion of consolidation (or aggregation) focusses on the expansion of the office of chief as the aggrandizer who increases the agricultural surplus using one of two strategies: intensifying or expanding agricultural production. Both of these strategies "fuel conflict between local-level chiefs striving to control the regional political economy" (Beck 2003: 644). In this view, variability with respect to the power dynamic between subordinate leaders and the regional chief is the true source of conflict (ibid.: 645). Some chiefs preside over polities of greater complexity and some over polities of less, and local conflict is between these types both horizontally (chief vs. chief) and vertically (apical chief vs. constituency).

The balance between conflict and resolution is a key part of governance structuring, and Beck's model ties subsistence strategies into that cycle of politics. The next step—consolidation and the emergence of a regional hierarchy—occurs through “temporary resolution of this conflict” (Beck 2003: 644). It is a simple solution, but unfortunately it lacks archaeological distinction from other theories. Resolution politics almost certainly played a part when aggrandizers achieved integrated control over multi-tier hierarchies, but without historical records, this theory is challenging to apply to prehistoric societies.

The role of conflict and foodways in a regional system of high structural and material variability such as the LC 1 period is valuable, however. These kind of questions are what should underlie studies of the early Late Chalcolithic period, and attempts are underway to connect concepts like the surplus economy with the available evidence (e.g., grain storage in Rothman & Fiandra 2016 and Baldi 2015). Hayden has noted that “major changes in feasting behavior [i.e., the scale and the function] take place with the transition from transegalitarian to stratified societies” (2001: 46), and so further comparative studies might yield more results in this vein, especially if we replace “feasting” with a more general term such as “foodways,” and compile enough data from the right contexts for significant analysis.<sup>6</sup>

Clark and Blake (1994), who initially coined the term “aggrandizers” to mean self-interested “political entrepreneurs,” offer another view on the shift from a less vertically integrated, chiefdom-like society to a more hierarchical, state-like society. With the right cultural, technological, and environmental circumstances, self-interested competition

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<sup>6</sup> One main problem with ‘feasting’ as an interpretive construct is demonstrated by Hayden’s list of the four types of feasts (2001: 54-58), which are in some cases subdivided further, sometimes to the point of non-distinction (literally called “minimally distinctive feasts”)—all feasting is simply some variant of food consumption by more than one person at a time.

between aggrandizing figures can lead to ‘hereditary inequality.’ If they “give more than they receive,” they are in a socially superior position; if that is sustained for long enough, such social inequality becomes institutionalized. Another way of explaining this phenomenon is “spiraling competitive generosity in a transegalitarian society” (Lesure & Blake 2002). Similar to Frangipane’s (2007) theory that a conical-clan mode of sociopolitical organization, especially where wealth can be centralized, is directly conducive to further hierarchization, this could be taken as either a passive view of societal transformation based on changing conditions, or as a “big-man” theory, in which we are simply waiting for the right person to come along and up the ante.<sup>7</sup> Thus, such explanations highlight the problem with the assumption of a unilateral context for political dynamism.

To discuss the development of states and cities from smaller-scale societies is actually much more challenging than the basic phrasing, and the voluminous literature on the topic, might suggest. For example, Norman Yoffee (1993) has pointed out that the progression from loosely related egalitarian societies to states is very rarely attested.<sup>8</sup> Others have noted that it is highly unlikely to occur directly between an identifiable chiefdom and a later, state-level society (e.g., Liverani 2006). However, no ancient city-state developed in a vacuum (Stein 1999: 4; Algaze 1993; Adams 1974a), as the both inter- and intra-regional interplay between local polities often helped foster the development of environments in which otherwise somewhat unnecessary political activity became crucial (Geoff Emberling, lecture 2004). This fits conceptually within Mann's interpretation of

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<sup>7</sup> In fact, cognitive studies have shown that in a population of chimpanzees approximately 1 out of 50 individuals will innovate (Whiten et al. 2009), suggesting that a single innovator is not a model for development in human society. The going theory in cognitive science is that ‘cumulative culture’—the ability of human individuals to replicate innovations and add them to their cultural repertoire—explains the capacity for development in human society.

<sup>8</sup> Even in the 1960s scholars were questioning the concept of unilineal sociopolitical development (e.g., Clark & Piggot 1965: 162).

sociopolitical evolution in *The Sources of Social Power* (1986), that overlapping “power networks” or spheres of influence produce a combination of conflict and interaction that form a building block for a more vertically-integrated and centralized society. In Yoffee's more recent study on the evolution of the Mesopotamian polity, the ability for an individual to take power involves a strong social element. It is precisely his “social groups, the means by which power could be got” (2005: 315), that both display and foster variability. These ideas are important, as manipulating social custom has to play a part in understanding structural change in a society.

Competing groups can be termed ‘factions,’ according to Rosenwig’s definition, as a faction is

“...any group with shared interests that has the ability to act cohesively. [It] can be based on class, ethnicity, or lineage membership as well as on gender, age grades, business cartels, secret societies, and so on.” The competition between them tends to be based on “social and economic factors that are redirected for political ends” (Rosenwig 2000: 417).

Brumfiel, taking a “subject-centered analysis,” writes that “structurally similar groups compete for advantage within a larger social unit such as a kin group, ethnic group, village or chiefdom [and] this internal competition provides the dynamic for political development” (1994: 3). Brumfiel is right to highlight the roles of interrelated but often competing factional agendas and “the efforts of individuals to advance their goals of material advantage” (ibid.: 12). ‘Internal competition’ is a vague and unnecessary concept with respect to the mechanics of sociopolitical transformation, but the key feature of her argument as I see it is that “social relations and cultural rules and values” can constrain behavior but also “provide opportunities for innovation” for the individual (ibid.). Brumfiel’s perspective shifts the discussion from either ‘society’ or ‘environment’ (i.e., ‘systems’) as the deterministic final arbiter of change to the individual, but it is still tangled

in ‘society’ as the agent generating the conditions necessary on which the individual can capitalize. Below, I take a different approach to the nature of “constraints” on innovation, since I think it is valuable to try to push human agency as far back as possible in the chain of decision making.

Scholars have continued to explore the role of groups in social organization and sociopolitical development. For example, Lesure and Blake have reinterpreted the “platform buildings” at Paso de la Amada, Mexico, as residences that each represent a corporate group; they are essentially “lineage-houses” that are “linked symbolically to the groups that built them rather than the leaders” (2002: 7-8). Only a few of the areas with a platform display evidence of “formalized activity,” suggesting that only those groups had hegemony over aspects of the ritual economy. The relatively even distribution of prestige goods such as obsidian implies a socioeconomic system in which elites gained status through giving rather than hoarding, according to Lesure and Blake (2002: 13-14). And so, Paso de la Amada society (1400-1100 BC) reflects multilateral social organization with multiple foci of sociocultural power and, more restrictively, bi-nodal ritual foci. However, this is still an “egalitarian” society as demonstrated by artifact distribution, and there are countless other examples in archaeological and ethnographic literature where colocated groups or even factions coexist without breeding “political development.” But the account of Paso de la Amada is additionally instructive, as the succeeding occupation does evidence a demonstrable sociopolitical transformation.

There is thus no hint in the artifacts that the sociopolitical system in place from 1400 to 1100 B.C. was on a progressive trajectory toward greater inequality. Institutionalized economic inequalities may have instead emerged only in association with a radical ideological transformation in the region subsequent to the abandonment of Mound 6. After a century-long transition period involving considerable population dislocation, a new ideological synthesis was achieved by 1000 B.C., one that seems to have

much more effectively legitimized economic control by an emergent elite class.... Without radical ideological change, the developmental potential of systems is limited (Lesure & Blake 2002: 20).

Lesure and Blake, thus, favor a punctuated theory of sociopolitical evolution to explain the changes at Paso de la Amada between the 2<sup>nd</sup> and 1<sup>st</sup> millennia BC. The problem that stands out, however, is that achieving “a new ideological synthesis” is a characterization, and not an explanation, of change. Flannery and Marcus (2013) might interject that the emergent elites were able to manipulate the “social logic” of Paso de la Amada society at some point prior to their ascendancy, ca. 1000 BC, although such an argument would still require data. The “century-long transition period” (1100-1000 BC) suggests that something happened that enabled a reconstituted elite to occupy the site anew but on fresh terms with the populace, diverging from earlier inter-class relations, but we do not know what. Unfortunately, apparently during the period when the new ideology coalesced, there is a lacuna of data. And so the Paso de la Amada example cannot provide a sufficiently detailed explanation of the processes of change. It nevertheless attests to the pattern of a gap in between two socioculturally strong but structurally different societies and offers the concept of ‘ideological innovation’ as a required part of the restructuring.

If social culture is at least partially mediated through material culture, which is predicated on the repetitive production of related forms, then innovations such as Lesure and Blake’s ‘ideological’ must somehow relate to the craft-production process. I.e., material culture will inevitably be affected by (or affect) ideological changes, and so the process of manufacture is at least indirectly related, if not directly in many cases.<sup>9</sup> Over the

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<sup>9</sup> Bliege Bird and Smith, in proposing ‘signaling theory’ as a construct for interpreting the significance of material variability, connect pottery production directly to politics in Meriam Island society (Torres Straits, Australia), in that the better potters among the females have greater eligibility for marriage to more powerful males, who can increase their political influence through better-quality ceramics (2005: 230-231). Gosselain

past three decades, archaeologists and anthropologists have begun to reconsider the earlier assumption of uniform intergenerational transfer of craft tradition by incorporating the multivariate procedures of craft learning into archaeological interpretations of culture change. For example, learning context—e.g., domestic versus apprenticeship—can play a role in the nature and strength of instrumental learning (Goody 1989) and degrees of socialization and control of knowledge (Graves 1989). Lave has theorized a connection between changes in the situated learning of craft production and transformations in community activity and peer relations (1991: 80-82), though without truly getting at the mechanisms of change in craft practice and society. Still, the relationship between community structure and craft manufacture is a productive area in which to explore further.

Though ‘communities’ almost certainly played a large role in the replication of (and divergence from) cultural and ideological conventions, Rothman has pointed out the geocultural dichotomy of societal development. He writes that “evolution is ultimately local, although local responses are conditioned and affected by interactions in larger intra- and interregional contexts,” somewhat recalling V. Gordon Childe’s combination of evolutionism and diffusionism (Faulkner 2007), and calls for investigation of overlapping economic, cultural, and political networks (Rothman 2004: 107; Rothman 2001a). To some extent, this idea attempts to redress the problem of unilineal development—namely, that transformation *did* happen in a location (if not by some kind of universal law, then at least as evidenced in Mesopotamia and other places), even if attestation of direct transformation is unavailable. This moves the discussion toward a regional approach but one that still

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(2000) shows that in Sub-Saharan African societies, social learning of the ceramic craft is related to the formation of symbols of identity and ideology.

treats each component individually, and can help address the “radical ideological change” that is noticeable but whose mechanisms are dispersed.

Where early neo-evolutionary and sociological approaches to the development between non-states and states generally identify a mythical aggrandizer, external pressures on the socioeconomic structure, society itself, or some kind of dialectic as the prime mover, this dissertation examines society at a time when it does not fit neatly into a stage model. Stage models, still cited and used today, at best only heuristically, in discussing the trajectory of Mesopotamian prehistory and history, do not generally explain the mechanisms that effect qualitative changes in sociopolitical organization.

Thus, to really get at the questions of ‘how’ and ‘why,’ it is necessary to think outside of the framework of stage models and neo-evolutionary theory. Blanton and Feinman (Blanton et al. 1996; Feinman et al. 2000) define an alternative approach to description and development of past societies, particularly in the “Dual-Processual Theory” of sociocultural evolution. This theory establishes a continuum between ‘corporate’ and ‘networking’ political economies, identifying oscillation between the two in Mesoamerican civilization.

Blanton and Fargher (2008), in a rejection of functionalist theories that focus too heavily on the role of elites and aggrandizing behavior in state formation, use ‘collective action theory’ to address the role of continual processes of decision making and management in state societies. Issues such as “free-riding” and conditional compliance among society members can plague states—particularly archaic ones—but so do issues emanating from the elite and administrative sectors. Ultimately, this theoretical stance serves to add important detail and cross-class agency to the discussion of how states emerge and function, and to identify one element of what gives governed populations agency in

improving their own living standards. They see ‘collective action’ as a component of every complex society, and that many regions in which early states emerged, such as the Indus Valley and Teotihuacan, feature pre-state societies with a “shared egalitarian ethic” rather than overt distinctions between classes (ibid.: 291),<sup>10</sup> demonstrating that ‘collective action’ is one possible means of generating social complexity. However, as the authors admit, they do not reach theoretical closure, and I would say that this is because there is no mechanical description of sociopolitical change, only of an element (collective action) that is, in general, ever-present to varying degrees.

Stanish and Haley (2004) employ ‘evolutionary game theory’ to address what they see as the main archaeological question of (early) sociopolitical development: how do individuals create a permanent system of cooperatively-enhanced productivity in which potential “exploitation strategies” neither dissuade “conditional cooperators” from participation nor lead to system collapse. Power—or the ability to either coerce (as in a state) or persuade (as in a chiefdom) others into acting otherwise—is predicated on the existence of a surplus economy, which requires cooperative activity. ‘Surplus,’ in another anti-functionalist explanation, is generated not only through coercion to get members to work harder, but also, and much more successfully, through persuasion to get members to work together in different manners that are ultimately more productive. Better internal organization leads to greater surplus, which enables greater external leverage over other groups (ibid.: 56-8).

As humans tend to be “conditional cooperators,” in Stanish and Haley’s view, in order to achieve a state of cooperatively-induced productivity that can produce a surplus,

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<sup>10</sup> One could certainly argue that Ubaid Mesopotamia and the succeeding periods of state formation in the region fit that pattern as well.

“smart individuals” need to perceive the benefit to them in order to participate and help organize. Persuasion toward this end rests largely on the neutralization of the threat of exploitation (such as “free-riding”), achieved through “reputation-and-reciprocity-based social psychology.” Early Central Andean public architecture, they argue, had high visibility and would have been used in conjunction with “ritual” to amplify the impact of punitive action against a deviant members’ reputations, thus convincing adaptive individuals that the system will function effectively and fairly (ibid.: 59-60).<sup>11</sup> In their model of sociopolitical development, the “size and number of the public structures” corresponds to degree of complexity in that the buildings must accommodate the decision-making members of the faction or group (ibid.: 62-63). The authors recognize, of course, that this could seem very much like circular logic, in that a surplus is needed to reorganize, but reorganization is needed for surplus; however, they identify “cost-benefit calculation” of cooperative reorganization as what I would call the ‘precipitating condition’ to begin the spiral of increasing complexity. Ultimately, this theory addresses the questions of why humans within a society would agree to individually do something differently, and in some cases try harder, when there was no external pressure or coercion to do so, and how that could be sustained. The answers—respectively that smart individuals can perceive the benefits of cooperation, and that through manipulation of the burgeoning cooperative system they can amplify system-sustaining elements (e.g., what I would call “reputation jeopardy”)—provide one possible means toward sociopolitical reorganization. Though this theory claims to work outside of a stage model, it actually provides a reasonable narrative

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<sup>11</sup> Which seems very much like public shaming, or at least a forum for it. “Ritual,” though, is most often associated with seeking positive outcomes, and so I think the argument would be stronger if the positive were emphasized more strongly than the negative.

as to how chiefdoms emerge, become qualitatively more complex, and then develop state-like features such as restricted-access institutional architecture.

These sometimes explicit efforts to go beyond ‘stage models’ have had a large impact on archaeological theory and research, and yet the concept of “development” from chiefdom to state seems to linger. For example, Abrutyn and Lawrence’s (2010) more recent attempt to reconcile the ‘gradualism’ and ‘punctuated equilibrium’ theoretical schools of sociopolitical evolution ends up dealing explicitly with the change from chiefdom to state despite the best of intentions. Even in this integrative study, there is still no substantial consideration of the internal developments of a single non-state society that might have originally generated the components of the state-level society necessary for its emergence such as stratification (Fried 1967), administration (Wright 1994), and urbanization (Adams 1966), or heterogeneity and conflict (Durkheim 1893).

Overall, we can see that single-variable explanations of change are not effective, but very general, multivariate positive feedback-loop models are neither fully testable nor particularly explanatory.<sup>12</sup> By the time an information-theory explanation is testable (by knowing the total information inflow of a system relative to its information-processing capacity), the ‘state’ is already in place. Even the excellent *cretulae* studies on Arslantepe VI A (LC 5; Frangipane et al. 2009), while able to demonstrate an ancient information processing system, are characterizing a society that has already undergone that key shift. Development between “chiefdoms” and “states” is a tricky issue, but the best attempts at understanding changes between differently-complex forms of sociopolitical organization

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<sup>12</sup> For instance, Flannery’s ‘system theory’ of “pre-historic culture change” relies on a positive feedback model (in the method of “second cybernetics”) that itself relies, ultimately, on “(initial) accidental deviations in the system” (1971: 95). I would offer that ‘accident’ is not a helpful explanation of change in human systems.

identify the archaeologically attestable conditions in which new forms of organization emerged, and furthermore posit aspects of the human condition that would initiate and perpetuate such changes.

There are plenty of other schools of sociocultural evolution not discussed above, but in general, many of these theories are frameworks that either permit or require further development as they are applied to specific cases. For instance, Cultural Ecology (e.g., Nissen 2001; Hole 1994), for which the bedrock data is constantly changing and often debated,<sup>13</sup> addresses important aspects of change and adaptation in ancient society. However, adaptation is typically technological/instrumental, leaving room for further argumentation to address the changing relationship between society and its material culture. Now, I will take some of the concepts mentioned above and reconsider them in a new conceptual framework of change in society.

### **3.1.2. Innovation & Variability in a Changing System**

The problem here is the very limited number of models that archaeologists have considered. ...there might well be many different stages and characteristic patterns of change associated with different paths to complexity. ... Until archaeologists have some idea of the range of variability that can exist in complex systems and in their developmental trajectories, they are at an enormous disadvantage (Binford 1983: 231).

In this section, I offer an alternative model for explaining the mechanisms of change that not only addresses variability in a complex system, but prioritizes a specific type of sociocultural variability as an important element in a *changing* system. I call this the

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<sup>13</sup> E.g., Nissen (2001), among others, claims that a drying period in the southern alluvium, allowing for greater population density to develop, is a key factor in the major changes seen following the Ubaid 4 period; however, Pournelle has shown that the “Terminal Ubaid” and Early Uruk environment continued to feature flooding and seasonal marsh formation (2003: 185-200). See also Nissen 1988: 60 for a retraction of prior cultural-ecological argumentation. The point is that the ancient environment is a very difficult thing of which to be certain, and so tying cultural phenomena to it is bound to yield fluctuating results.

‘Innovation & Variability Model of Societal Change.’ First, though, it is necessary to address a few underlying issues of archaeological interpretation and inference.

Analogy, or middle-range theory, in archaeology (e.g., Binford 1983; 1981) has been thoroughly critiqued and often refuted since its inception (e.g., Pierce 1989; Raab & Goodyear 1984). However, present day archaeological studies of the ancient Near East readily use ethnography, experimental archaeology, and taphonomy on a fairly consistent and productive basis (e.g., Baldi 2015; Parker 2011; Gibson 2010; Zarnkow et al. 2006; Alizadeh 2003a; Stein 1994: 41; Gibson 1974), without which we would have fairly impoverished explanations of past phenomena. The issue is the critical application of studies from other fields, rather than the concept of analogical reasoning itself, and so this mode of scholarship continues to have the ability to improve our understanding of the archaeological record.

Furthermore, in the last two decades, the discourse of archaeological theory has more-or-less reconciled the processual and postprocessual schools (to some degree in the so-called “processual plus” archaeology), recognizing the underlying role of inference and, especially, abductive reasoning<sup>14</sup> in all theoretical views (Fogelin 2007; Hegmon 2003). For Fogelin, ‘explanation’ (processual) and ‘interpretation’ (postprocessual) are “fundamentally similar enterprises” (2007: 616). Thus, all archaeologies are equally (in)valid in the view of the Cartesian skeptic, but the strongest approach to archaeological exposition is ‘contrastive explanation.’ It is implicit in most archaeological studies, but is better when made explicit (ibid.: 617, 620). Thus, the question is not simply ‘why did

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<sup>14</sup> ‘Abductive reasoning’ is, according to Fogelin, “inference to the best explanation” (2007: 612). Wikipedia defines it as “a form of logical inference which goes from an observation to a theory which accounts for the observation, ideally seeking to find the simplest and most likely explanation.” Thus, in abductive reasoning, the explanatory process moves from data to theory.

sociopolitical development occur at the end of the 5<sup>th</sup> millennium,’ but ‘why did sociopolitical development occur, rather than developmental stagnation or decline, at the end of the 5<sup>th</sup> millennium,’ or better, ‘why did it occur there and then, as opposed to at any other place and time.’<sup>15</sup> Where many explanations of sociopolitical change take a theoretical standpoint and then imagine how the data fit that particular model, the explicitly abductively-inferred answer examines the data and then devises the explanation given *that data*.

Thus, in terms of analogical inference, the theoretical background for the alternative model of change that I am proposing is a single concept generated by current research agendas and empirical studies in the field of cognitive science. Recently, the results of many of these studies have coalesced around a basic conception of the human psyche with respect to innovation: that humans are naturally disinclined to innovate in the realm of social convention but can more readily innovate in the realm of instrumental tools (Tomasello 2016; Legare & Nielsen 2015; Legare et al. 2015; Beck et al. 2014). Because the process of social learning is largely predicated on imitative repetition, instrumental behaviors, as opposed to conventional behaviors, afford children ‘imitation flexibility’ (Clegg 2016; Legare et al. 2015). Thus, “novel behavioral variation [occurs] through innovation” (Legare & Nielsen 2015: 7). Essentially,

...learning an instrumental skill allows for variability and innovation in methods of execution, [but] learning cultural conventions requires close conformity to the way other group members perform the actions through high fidelity imitation (ibid.: 9).

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<sup>15</sup> This kind of contrastive approach is important because when we examine many other types of theories of change, they can often seem quite insightful or empirically sound; however, approaches such as systems theory can be applied to almost any time period with an entire range of results that are *not* major watersheds in sociopolitical development. Therefore, a good model of change should be contextualized and identify what is distinctive (or even unique) about the society it is explaining.

More telling, though, is that human children can be conditioned *not* to innovate if they know that an instrumental function is related to a cultural convention:

Children also display higher levels of functional fixedness—the inability to override knowledge of an object's intended function in order to use it in novel ways—when using objects previously used in a conventional task than in an instrumental task (ibid.: 6).

This indicates that members of a society can govern cultural norms by the encoding of conventional cues, but also that instrumental behavior can be separate from those norms, allowing for ‘imitation flexibility.’ Finally, social cohesion is a product of conventional imitation and it can be increased through ritual behavior,<sup>16</sup> which reduces intra-group conflict (ibid.: 4).

Thus, the formulation of new instrumental concepts is unlikely to appear when there is particular sociocultural behavior associated with the standard tool. And so how does innovation occur, instrumentally but then especially conventionally (socioculturally)? Cultural neuroscience—or “the study of how cultural experience shapes the brain”—has become a recent research topic in the fields of neuroscience and cognitive studies, and provides a fresh look at—but also a scientifically grounded understanding of—the relationship between individual human experiences, society, and measurable agentic change (i.e., innovation). Whiten, et al. (2009) have conducted practical experiments researching the differences between human children and other primates, deriving the concept of ‘cumulative cultural learning’ as a fundamental element in what they term “cultural evolution.”

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<sup>16</sup> Wen, et al. define ‘ritual behavior’ as “conventional, causally opaque procedures, are uninterpretable from the perspective of physical causality because they lack an intuitive or observable causal connection between the specific action performed (e.g., synchronized dancing) and the desired outcome or effect (e.g., making it rain)” (2016: 55).

Imitation in instrumental behavior, thus, “allows for innovation and variability,” unlike conventional behavior (Legare & Nielsen 2015: 5), but “robust” imitation of innovative instrumental behavior is possible across time (though less so across materials; Beck et al. 2014; Chappell et al. 2013). Once the new behavior is imitated and transferred enough times (i.e., is useful to enough people in recurring situations), it becomes part of a society’s instrumental repertoire. Additionally, any non-conventional/purely instrumental behavior can *become* conventional by adding conventional language or, especially, through ritualization (Wen et al. 2016). This allows society members to govern not only sociocultural stability, but also change, particularly if that change is projected onto technological change.

This is an important aspect of social learning and cultural replication that is particularly relevant when looking at the archaeological record of societies or regions that underwent some kind of significant change. Being able to connect the process of behavioral learning to phenomena attested within a specific society eliminates a reliance on deterministic causal factors such as environmental circumscription, subsistence limits, climate change, or population growth (Stein 1998: 7). It also offers a possibility for interpreting the aggrandizement processes, as well as for the conditional pretext necessary in legitimation-based arguments.

Despite a reliance on cognitive science, the theoretical framework of this dissertation is not ‘cognitive archaeology,’ which is cognitive study relating to the exploration of the ancient mindset (e.g., Flannery & Marcus 1993). Nor is it the same as more recent and scientific pursuits in cognitive archaeology, such as the ‘Material Engagement Theory’ of Malafouris (2013), which concern the interplay between mind, body, and mundane materiality but ultimately still use the archaeological record to explain

humanity. Instead, the model I propose here uses information gained from study of the human mindset in general (through modern experimental studies) to understand, through abductive inference, the connection between materially-attested changes in ancient society (what decisions might have led to changes), which seems to have been:

stable social structure → transferable instrumental innovations → less stable social structure (social reflexivity & augmented opportunity) → sociocultural & sociopolitical (or “ideological”) innovations mapped onto new instrumental behaviors → new social structure.

Or, distilled further:

Stability → Instrumental Innovations → Variability → Sociopolitical Innovation → New Society.

This model of change, devised through abductive reasoning, may seem to relate to Practice Theory or Structural Marxism in that ‘innovation’ could be seen as a means of praxis in societal development, but the connection is indirect and the agency of change rests with individual innovators, adopters, and appropriators. Significantly, instead of overemphasizing the role of commodity production (e.g., Kennedy 2012), or the direct impact of technology or materiality on individuals (e.g., Baldi 2015; Campbell 2010; Nissen 1999), the importance of the human learning and decision-making processes is emphasized and the structural concept that ‘society’ itself has considerable influence on the individual is rejected. Rather, ‘society’ is a heuristic term, and neither society nor material technology are agentic entities; the constraints that promote sociocultural stability are directly related to the social learning process, as are the abilities to cause change.

This theory, then, is more closely related to the Actor-System Dialectic model, which stresses “the role of human agency, institutional, cultural and power factors, interactions (conflict, exchange and struggle), as well as innovation and sociopolitical

mobilization and transformation” (Burns 2013: 7). The Innovation & Variability Model, particularly in this dissertation, does not address such a broad range of issues, but stays focused on how innovation occurred and its broader impact on material culture. One similarity, and key element, however, is its opposition to Agent-Network Theory. For example, it does not place equal emphasis on the agency of man and materiality, avoiding methodological semiotics (see Latour 2005), thereby allowing human members of any given society to give meaning themselves to their material surroundings, and not the other way around.

And so, to reiterate the Innovation & Variability Model of Societal Change (as summarized in Section 3.1):

- Human behavior inclines toward low levels of sociocultural innovation and high levels of sociocultural imitation, which enables social cohesion and sociocultural stability;
- Instrumental innovations are still possible, though, and create the opportunity for new instrumental behavior and variability;
- New behavioral variability can foster lower degrees of social cohesion and a higher amount of social reflexivity as well as augmented behavioral opportunity;
- High degrees of social reflexivity allow for individuals to have greater-than-normal influence on the development or redirection of social learning processes, and augmented opportunity allows for new and dynamic socioeconomic strategies;
- A combination of high variability relative to previous social norms and high social reflexivity is an excellent precipitating condition for sociocultural innovation, creating the potential for new modes of sociopolitical organization.

In its totality, this is a new approach to theorizing sociopolitical change in 5<sup>th</sup>-millennium northern Mesopotamia, but the individual components of the model are not new. Technology as a prime factor in explanatory theories of development is a fairly old and well-tread idea (e.g., Nissen 1999; Blanton et al. 1996; Clark 1972; Adams 1958; cf. Warburton 2003), and the Innovation & Variability Model I offer is somewhat reminiscent

of V. Gordon Childe's mid-century explanation of urban development in Mesopotamia, which claims that "metallurgy, the wheel, the ox-cart, the pack-ass, and the sailing ship" provided the conditions on which revolutionary advances could be made (1942: 89).<sup>17</sup> However, the influential value of such perspectives notwithstanding, there are key differences, particularly in the sense that technology here is not the prime mover of societal change but simply a strong tool with which aggrandizers can alter the status quo.<sup>18</sup> This dissertation builds off of those early, broad ideas by reframing the basic concept with more detailed data relating to both human behavior/cognition and the processes through which ancient societies adopted material innovations and developed technological domains. Ultimately, it establishes the 'precipitating conditions' for structural change, rather than arguing for one specific technological cause of change.

Technology has gone in and out of fashion as a central concept in anthropology and discussions of sociopolitical development, but over time has continued to be a research topic. Pfaffenberger (1992) assembles a review of scholarship on the matter, which identifies lingering questions such as how technological innovation affects culture (and vice versa). It goes on to question the Standard View of Technology<sup>19</sup> and its New Archaeology adherents and then asserts the futility of attempting to correlate levels of technology with socioeconomic organization. Ultimately, it highlights the relationship between successfully-adopted technological innovations and the corresponding

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<sup>17</sup> See also Childe 1972 for his account of how metallurgy in prehistory initiated the process of craft specialization, which then "emancipated" specialists from the kinship system thereby requiring a much more complexly-organized society to accommodate them.

<sup>18</sup> For example, the model devised here for change and transition in prehistoric Mesopotamia is pillared on instrumental innovations, surely, but it places equal emphasis on sociocultural adoption, adaptation, and conventionalization of those instruments, addressing Braidwood's concern for changes in the "moral order" (Braidwood & Howe 1960: 7).

<sup>19</sup> Essentially, the Standard View states that technology is survival adaptation, that form follows function in material culture, that inventors are individuals who are able to look beyond culture to create utilitarian tools, and that "necessity is the mother of invention" (Pfaffenberger 1992: 494).

development of a ‘sociotechnical system,’ which is by its nature heterogeneous in that it requires a variety of materials and techniques, coordination of labor, and some kind of broader sociocultural context (ibid.: 499-500). Lemonnier poses the questions of whether there are “domains of material culture more prone to arbitrary variability than others” and to what degree style impacts or constrains the development of technology (1989: 161).

Pfaffenberger’s view stresses the necessity of scholarly impartiality with respect to the utilitarian value of cultural aspects of the sociotechnical system (such as “ritual”), as well as the acknowledgement that sociotechnical systems produce “power and meaning as well as goods” (ibid.: 502). “Sociotechnical systems and nonverbal cognition” are important correlates of the “evolutionary significance of technological activity” as much as the tools themselves (ibid.: 514). Blanton et al. consider technological development to be a correlate of increasing and sustaining power within a ‘network system’ (1996: 12), as certain technologies can promote and augment wealth-finance strategies within the political economy.

Warburton, however, assesses that ‘technology’ as the answer to the question of sociopolitical development is a product of western-mindedness, and he critiques scholarship that sees technological advancements as evidence for cognitive advancements in the hominid mind. His dismissal of technology-centric approaches as anachronistic and, therefore, invalid is contrasted with his insistence that technological development requires “demand stimulus” (2003: 102), a resoundingly “western-minded” point-of-view. Overall, Warburton is overly concerned with arguments that rest on some kind of ‘human cognitive development’ or presuppose the tyranny of ‘economic man’ (ibid.: 100-101). While these are useful to keep in mind, they are ultimately addressing subsets of issues rather than how to view the relationship between technological change and societal change. In general, the

anthropology of technology poses interesting questions that examine the relationship between technology, culture, variability, and change.

The role of variability in explanations of both societal development (e.g., Swenson 2007; Stein 1998) and the material trajectory of 5<sup>th</sup> millennium Mesopotamia (e.g., Stein 2010; Adams 1972, 1971) has also been well covered. It is important here because, as seen in Chapter 2 and Chapters 4-7, it is a much more productive way to frame the LC 1 period than attempting to define the period based on few and questionable material commonalities across a varied cultural landscape. Variability is also one of the key outcomes of instrumental innovation in the ubiquitous process of social learning (Legare & Nielsen 2015: 9), and helps underpin the theory that identifying levels of social reflexivity could play a role in understanding developmental change within a society. Finally, it informs the method I use of categorizing elements of similarity and variability and using them as markers of social cohesion to determine, inversely, levels of social reflexivity and susceptibility to structural change.

Finally, Earle (1991), among others, also took the route of linking behavioral learning to cultural change, but identified the main division as being between ‘individual learning’ and ‘social learning.’ He infers the model from ethnographic studies, but relies on the now somewhat discredited concept of universal human pragmatism. There are clear parallels between his model and my own, though, particularly in the method of comparing patterns of activity to understand the process of change. Where the two approaches diverge is in the nature of the inference connecting the model to human behavior (ethnography vs. cognitive science) and in the time period analyzed. Earle calls for evaluation of periods when “change is quite slow” in order to build a universal model of the archaeology of human behavior (1991: 91), whereas this dissertation examines a period just prior to a

major punctuated change in order to understand that change in particular. Thus, I view the model presented here as an outgrowth of early technology-focused theories, Stein's consideration of material culture variability and heterogeneity as prime lenses through which to examine archaeological phenomena in complex non-state societies, and Earle's behavioral archaeology.

### 3.2. Methodology

#### **3.2.1. Archaeology of the Ancient Near East within the Context of Modern Warfare**

“Our stories of the past must end with the present” (Moore 1995: 51).

The Oriental Institute of the University of Chicago began excavations of Tell Zeidan in 2008 under the direction of Prof. Gil Stein, who had intended to conduct research at that site for up to a decade. In 2010 I began my research program that was intended to target the LC 1 period occupation at the site. We had devised a three-year plan, beginning with a season of excavation to identify the depth of intact LC 1 levels and the exact locations of buildings. For the second season (fourth overall) we had planned to expand the exposure according to the location of well-preserved architectural levels so that we could excavate full buildings. In season three of the dissertation research we would have excavated the levels beneath those buildings to investigate the nature of development and change during the LC 1 period; this would have enabled diachronic comparisons of every day events within secure, systemic contexts.

In 2011 the Arab Spring movement spread to Syria, and the Syrian Civil War began. It immediately impacted the Tell Zeidan expedition, preventing us from even travelling to Syria let alone conducting a major excavation there. By spring of 2012, Raqqa had become a major locus of Daesh, or the Islamic State, and reports of rampant site looting and pillage

of the Raqqa Museum came from the front lines. Daesh had adopted the practice of *khums* (“one-fifth”), mentioned in the Quran, exacting a tax of 20% of all profits from the sale of artifacts unearthed from the ground. Thus, for the fledgling “state,” which needed capital, the looting of antiquities by villagers and other local nationals was a profitable and, thus, encouraged endeavor.

Finally, in winter of 2015, Daesh moved against both the antiquities stored in the Kirkuk Museum in Iraqi Kurdistan and the Neo Assyrian site of Nimrud, seat of the Assyrian Empire under Shalmaneser. These acts were not motivated by need or greed but were rooted in iconoclasm and fear of the value that the ancient cultural patrimony holds for the people of the Middle East.

And so the Syrian Civil War has had a three-pronged impact on archaeology of the ancient societies that once occupied that space. The first is that primary research of archaeological remains has stopped and the second is that looting of the archaeological sites and destruction of their contexts is ongoing. The third component is that destruction of the cultural heritage of the Syria and Iraq at large has begun. Thus, it is critical that as a discipline we continue to engage with the datasets that we do have and to publish them so that they may continue to engage future generations of archaeologists who wish to work on the ancient materials of the Middle East. This dissertation seeks to be one small contribution toward that end.

### **3.2.2. Data Collection**

The purpose and methodology of excavating the structural remains of the LC 1 period at Tell Zeidan changed between the onset of the project and our final field season. The first season, in 2008, produced evidence of LC 1 occupation in two 5 x 5 m operations (2 and 3) and in the step trench (Op. 1; see Pl. 3), and each yielded architectural remains.

Because of the vertical nature of these operations, primarily intended to establish the occupational sequence in each area of the site (Stein 2009), the recovery of entire buildings was not prioritized. In the subsequent 2009 field season, the focus changed from vertical exposure to horizontal, and thus most operations exposed 100 m<sup>2</sup>. The main aim in that season was to uncover substantial remains of the Ubaid period, and some of the most productive LC 1 contexts were excavated as a result of the attempt to reach wide exposures of earlier remains.

It was not until 2010, as the primary component of the research plan for this dissertation, that we developed a strategy to excavate LC 1 buildings in targeted areas of the site. As we reevaluated our field strategy and resources, we focused on LC 1 remains near the summit of the southernmost, largest mound, just downslope from where the 2009 extension of the step trench (Op. 6) exposed what we judged to be ruined mudbrick buildings from the LC 1 period. It was with the knowledge that archaeological recovery is always unpredictable that we hoped to uncover a large percentage of a building or complex, recognizing, of course, that more fieldwork might be necessary in the following season to widen the exposure to include any still-undiscovered parts of structures. A third and final season would have ideally focused on excavating the lower levels of the LC 1 occupation in that exposed space.

In 2010 we discovered parts of a building complex but not an entire, independent structure. As such, a further season of fieldwork on the South Mound seemed valuable in order to meet the goals of the original plan. However, the political situation in Syria and the broader Middle East has prevented our return to Tell Zeidan to finish that plan. Thus, the analysis of the structures and their contents, in this dissertation, is different from what I originally intended. The focus now has to be on statistically relevant artifactual

aggregation from examples of LC 1 contexts as they vary across the site, instead of on the economic functioning indicated by the finds from one or several buildings.

Despite the limited sample sizes, the total dataset is imperfect but informative for developing a model of change for the mid-5<sup>th</sup> millennium BC. One drawback, however, is that any description of the architecture is of *parts* of buildings and thus we cannot know useful things such as the sizes or overall shapes of residential, commercial, or institutional structures. It is still worthwhile, though, to describe the rooms and features that we did find, as they do intimate both the form and organizational structure of residential occupancy at LC 1 Zeidan.

We excavated in 10 x 10 m horizontal exposures where possible, though the extreme slope of the mounds, particularly the South Mound, caused by aeolian deflation (70 cm over the course of 60 years in some areas judging by what has been exposed of the pole beneath the benchmark), meant that most of the excavation took place at the upslope corners of the trenches. We designated loci by stratigraphic unit and then, when applicable, subdivided those loci into lots according to date, time, space, or other factor. For loci contained within an ancient pit, fire installation, grave, room, or other secure context we dry sieved using screens with a 1 mm<sup>2</sup> interval mesh wire. We also collected archaeobotanical samples from such loci for flotation. For human burials we collected palaeoparasitological samples from the gut, head, feet, and soil adjacent to the skeletal remains; we packed each skeletal part separately for further analysis. We retrieved radiocarbon samples, where possible, from floors of rooms, fire pits, and other secure contexts, using non-organic materials for retrieval, and we submitted select samples for Accelerator Mass Spectrometric analysis.

We divided the finds initially according to Artifact Class (Pottery, Lithics (including obsidian), Fauna, Human Remains, Samples, or Objects), and entered them and locus data into the Tell Zeidan Archaeological Field Database, designed by the author, on the FileMaker Pro platform. The ‘Objects,’ or “small finds,” were all individually weighed, measured, described, and classified simply according to type, sub-type, functional category, and function. It was our intention to draw the majority of the objects and to photograph all of them, although in the 2010 season there are many objects from the LC 1 period that have no visual recording, unfortunately.

### **3.2.3. Faunal Analysis<sup>20</sup>**

#### **Contexts Analyzed**

Dr. Kathryn Grossman analyzed faunal remains from LC1 contexts explicitly as a contribution to the research program of this dissertation, save for some select LC1 contexts that were also analyzed as part of the general diachronic study of faunal remains from the site (particularly from Operation 1). The sample size from each context was relatively low, with only 9 loci yielding more than 100 bone fragments.

#### **Methods of Analysis**

The field teams saved all faunal remains recovered in the course of excavations for analysis; most were collected by hand. Though many contexts at the site were screened and floated, few of the 24 contexts analyzed for the study of LC1 faunal remains were subjected to these collection practices. Once selected for analysis, the faunal remains were washed and dried. Analysis occurred entirely in the field; for source references regarding species

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<sup>20</sup> The material presented here is a summary of Dr. Grossman’s work. For an overview of faunal recording and preservation at Tell Zeidan and faunal analysis for the Halaf and Ubaid levels, see Grossman & Hinman 2014.

and element identifications and standard elements measurement, see Grossman & Hinman 2014. Zooarchaeological data were recorded using a spreadsheet system developed by Gil Stein for the excavations at Hacinebi Tepe<sup>21</sup> and modified slightly by Kathryn Grossman for the Tell Zeidan project. This system involves coding for archaeological context, taxonomic identification, body element, symmetry, fusion status, tooth wear, fragmentation (amount, origins, and planes), cultural modification (burning, working, butchering), sex, domestication, pathologies, measurements, and weight for each bone fragment.

### **Sample Reliability**

The sample size is relatively small (n=2553), with only 517 (about 20%) bone fragments identifiable to genus level or better. In addition, the sample is heavily fragmented, with 1,543 fragments consisting of less than a quarter of the original element (60.4%). Generally, zooarchaeological samples can be biased by three different factors: the manner of deposition, the state of preservation, and the methods of recovery.

### **Depositional Biases**

Depositional biases are those that govern differential deposition of animal remains based on context type (e.g. primary, secondary, tertiary) or context function (cooking space, grave, living space, etc.). The majority of zooarchaeological remains analyzed at Tell Zeidan come from primary deposits; for this study, however, secondary and even some tertiary deposits were also studied. The disturbed nature of these analyzed deposits, therefore, may be introducing significant bias into this sample.

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<sup>21</sup> Based on a coding system devised by Redding et al., 1978.

## **Preservational Biases**

Preservational biases govern the survivorship of bones post-depositionally. This includes taphonomic factors such as scavenging, weathering, and the work of microorganisms and soil processes. These kind of biases can be identified by looking for patterns in bone weathering and breakage. In this sample, the majority of the breakage is recent (during excavation, cleaning, or storage).<sup>22</sup> Only 6 bones are recorded as having butchery marks,<sup>23</sup> though burnt bone is more common, with 75 fragments exhibiting some degree of burning.<sup>24</sup> In addition, smaller and less robust elements (unfused epiphyses, bird and fish bones, etc.) are often poorly preserved, partially due to the work of carnivorous scavengers. In this sample, 15 gnawed and digested bones attest to the presence of village dogs that fed on the scraps of food remains, which may also be a source of bias in the sample.

## **Recovery Biases**

The most common bones recovered at Tell Zeidan are robust (large and adult) mammalian bones. However, fragments from young animals (unfused or fusing elements) were recovered in significant quantities. Of the 161 elements where the analysis could determine fusion status, 48 are unfused or are in the process of fusing. This suggests that the recovery of the sample is not biased against small and fragile elements (and that the more delicate bones have not been completely removed from the sample by scavengers). Non-mammalian bones (fish, bird, reptile, etc.) were not recovered in significant quantities,

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<sup>22</sup> This suggests that breakage is actually a bias introduced at the recovery stage.

<sup>23</sup> However, it is safe to assume that these bones are cultural materials, rather than the remains of large numbers of animals that died natural deaths in an LC 1 village.

<sup>24</sup> Burnt bone, however, is more often associated with burnt contexts (e.g., burnt garbage, or a burnt building), than than with cooking contexts. Table 17 (Chapter 7 Section 7.2) provides the context information for burnt bone.

but we cannot attribute their limited recovery to a bias in excavation strategies. In both dry- and wet-screened contexts at Tell Zeidan (which should recover the smaller elements), non-mammalian taxa are poorly represented. It seems likely that the lack of non-mammalian fauna reflects a cultural choice, as it does not seem to be a factor of either preservation or recovery. Despite the possibilities of depositional and preservational bias, even this small and heavily fragmented sample contributes to the LC 1 faunal assemblages and discussions of the LC 1 animal economy.

#### **3.2.4. Ceramic Analysis<sup>25</sup>**

The system of pottery recording and analysis was still in development during the 2010 field season, with the expectation that there would be further seasons to complete it. Thus, available ceramic data are somewhat limited. However, the recording process does capture key features of the LC 1 ceramic assemblage, having targeted the most secure excavated contexts during the 2010 field season.

Initially intending to create a ceramic sequence for Tell Zeidan, the ceramic analysis was interrupted early in its progress due to the political events that caused a cessation of access to Syria; as such, the results presented here are preliminary. The sources used were gross-count fabric-analysis sheets, ceramic illustrations, and notes written about sherd assemblages from specific contexts.<sup>26</sup>

Despite the limitations of the ceramic data, certain aspects of the assemblage—such as the frequency of ‘rapidly-made’ bowls or the frequency of decorated wares, grey wares, and red-slipped wares—are identifiable within a reasonable margin of error. However,

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<sup>25</sup> Khalid Abu Jayyab and Philip Karsgaard undertook the ceramic analysis at Tell Zeidan, with Abu Jayyab taking responsibility for the Late Chalcolithic sequence. The material presented here is a summary and paraphrasing of his work (Abu Jayyab n.d.) that will hopefully appear in published form in the future.

<sup>26</sup> The data source that the ceramic analysts would have preferred is a sherd-by-sherd recording of diagnostic ceramics, indicating form, dimension, surface treatment, firing, and inclusions.

while we know vessel-type presence/absence, type frequency is limited to specific types such as Coba Bowls. Also, a detailed fabric analysis was not conducted on diagnostic sherds at the site, and so general observations on fabrics distinguish between three categories of tempering: mineral, vegetal, and mixed.

The ceramic analysis uses four main categories of assessment to mark changes within the ceramic industry of Tell Zeidan from the end of the Ubaid into the Late Chalcolithic period:

1. The types present during each period, with an emphasis on three types of ‘rapidly-made’ bowls:<sup>27</sup>
  - a. Beaded-Lip Bottom-Scraped Bowls,
  - b. Coba Bowls, and
  - c. Wide Flower Pot Bowls;
2. The frequency of painted decoration;
3. The frequency of gray and red-slipped wares;
4. The type(s) of temper used according to period.

### **3.2.5. Notation**

The site of Tell Zeidan comprises three mounds, two northern and a high south mound, with a “lower town” connecting them in between (see Pl. 3). This kind of topographical variation leads to difficulty in defining coherent, stratigraphically-related site levels, but the radiocarbon dates obtained through Accelerator Mass Spectrometry (AMS) analysis in combination with basic pottery sequences help to anchor the different

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<sup>27</sup> The technical distinction of “Coba Bowls” as used by the Zeidan ceramicists is that they were made by hand-forming a small mass of clay into a bowl shape and then removing excess clay from the lower half by scraping with a blade (Abu Jayyab n.d., after van As & Jacobs 2004). The “Beaded-Lip Bottom-Scraped Bowls” were similarly made but feature a slightly more pronounced rim shape and seem to be shallower, cruder, larger, and thicker than Coba Bowls. “Wide Flower Pot Bowls” (also called Coarse Straight-sided Bowls) which are predominant in the Tigridian region of northern Mesopotamia in the early Late Chalcolithic period, are mold made as evidenced by their rough exterior and smoothed interior, similarly to the bevelled-rim bowls of the later Late Chalcolithic period (Abu Jayyab n.d.; cf. Baldi 2015; 2012). See Ch. 2 Section 2.3.2 for further discussion.

areas to an overall site periodization. The Site Levels used in the rest of this dissertation are both preliminary and general, and so we cannot rely on them for more than broad assessment. However, they help to frame the datasets across the site and offer a starting point from which to make site-wide and basic regional comparisons.

For ease of linking architecture and other strata across adjacent trenches, we have broken the site into ‘Areas,’ which are designated by capital letter (e.g., Area A), and each mound can comprise multiple areas (see Pl. 3). Area A covers the entire Northwest Mound, Area B covers the entire Northeast Mound, Areas F-H cover the Lower Town, and Areas C-E cover the South Mound. Trenches are designated by Operation Number (e.g., Operation 1, also referred to as Op. 1), and all loci<sup>28</sup> are numbers unique to the Operation; the combination of Op. and Locus is the Context Number (10,000 x Op. + Loc.; e.g., 50026 is Op. 5 Loc. 26), a formula devised by Site Director Gil Stein for use in the FileMaker Pro relational database. In the text I refer to Loci by their full Context Number (i.e., a 5- or 6-digit number with the Locus at the end) so that each one signifies a specific trench and locus. However, on the plans I note only the 1-, 2-, or 3-digit Locus Number for each feature, with the Operation Number indicated for the overall plan.

Excavators divided their Operations into Op. Phases based on stratigraphic grouping of loci using, which are referenced here, using alphabetical notation (e.g., Op. 1 Phase A or sometimes 1.A); these are sometimes further subdivided by number (e.g., Op. 1 Phase A2). In most cases, the higher the alphabetic value, the later the phase, with ‘A’ at the top of the trench; however, this is not universal, especially for the 2008 season, and so

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<sup>28</sup> And lots, which are rarely referenced here but are indicated by an ‘L.’

sometimes the higher alphabetical value is at a lower elevation. The artifactual finds each have a unique site-wide running number called a ZD Number (e.g., ZD999).

During post-excavation analysis we assigned Building Numbers, Room Numbers, Building Phases, and Room Phases. The basic designation is the Building, which always starts with an 'S.' (for "structure"), followed by the Area and then an arbitrarily assigned running number (e.g., S.A1). Rooms are designated by a further decimal and running number (e.g., S.A1.1), and any sub-phases are designated by a lowercase letter, typically starting at the latest level (e.g., Building Phase S.A1a or Room Phase S.A1.1a). A building or room can comprise loci from multiple Operations.

### **3.2.6. Site-Wide Phasing (Table 3)**

In order to compare the Zeidan dataset both internally and externally, it was necessary to link Operation Phases more broadly to Site Levels. Table 3 summarizes the Site Levels with respect to the various Operations. I based the Level divisions on a combination of absolute chronology, stratigraphy, and Abu Jayyab's (n.d.) ceramic analysis. The latter uses the sequences in Operations 2, 3, and 10 to define ceramic site levels, with ~10% rapidly-made bowls in Level Ubaid-LC 1; ~35% rapidly-made bowls in Levels LC 1a and LC 1b; and ~45% expediently produced bowls in Levels LC 1c and LC 1d (see also Chapter 1 Section 1.3).

BC Cal.	Period	Site Level	Northwest Mound/Area A	Northeast Mound/Area B	South Mound/Area C	South Mound/Area D	South Mound/Area E	South Mound/Step Trench	Lower Town/ Area H	Lower Town/ Area G
3850			Op. 10	Op. 3	Op. 9	Op. 17	Op. 15	Op. 1	Op. 6	Op. 20
4000	LC 2	LC 2b	Op. Phase 2.G2 Op. Phase 2.G1	Op. Phase 3.I S.B6			Op. Phase 15.B LC Burials		Op. 6 Burials	
4100		LC 2a	Op. Phase 2.F 4110 BC Cal. Op. Phase 2.E S.A7				Op. Phase 16.B LC Burials		Op. 6 Loc. 8 & 6	
4200		LC 1-2	Op. Phase 2.D S.A6 Op. Phase 2.C S.A5	Op. Phase 3.H 4195 BC Cal.						
4300	LC 1	LC 1d	Op. Phase 2.A 2.B-C 4290 BC	Op. Phase 3.G						
4400		LC 1c	Op. Phase 2.B S.A9	Op. Phase 3.F S.B5			Op. Phase 15.D1 S.E3a		Op. 6 Loc. 11-9 S.E9 Op. 6 Loc. 23	
4500		LC 1b	Op. Phase 10.D S.A1	Op. Phase 3.E S.B4 4570 BC Cal.			Op. Phase 15.D3 S.E4 Op. Phase 15.E S.E5-4625 BC	Steps 2-1 Step 3 S.E8	Op. Phase 19.B Op. Phase 19.C Op. Phase 19.D S.H1	Op. Phase 20.B Op. Phase 20.C Op. Phase 20.D
4600		LC 1a	Op. Phase 10.E S.A3 4670 BC Cal.	Op. Phase 3.D S.B3	Op. Phase 9.A			Step 4 S.E7		
4700	Uband-LC	Uband-LC 1	Op. Phase 10.F	Op. Phase 3.C S.B2 4790 BC Cal.	Op. Phase 9.B S.C4	Op. Phase 17.1 S.D1a Op. Phase 17.1la - S.D1b		Step 5	Op. Phase 19.E S.H2	Op. Phase 20.E
4800					Op. Phase 9.C					

Table 3: Site Levels and Internal Chronology of Tell Zeidan

### 3.3. Methodological Theory & Analytical Methods

The analytical categories of archaeologically attestable phenomena that this dissertation considers are: degree of economic variability by comparing evidence for LC 1 craft production and subsistence across the three mounds of Tell Zeidan; and degree of sociocultural cohesion by examining variation within the LC 1 architectural tradition at the site. The total synthetic picture that emerges should tell us about the levels of centralization, innovation, and social cohesion during and leading up to the LC 1 period at Tell Zeidan.

Although there are incredibly artifactually productive LC 1 sites in Mesopotamia, Tell Zeidan is not one of them, despite the artifactual richness of the Ubaid levels there (see Stein 2009; 2010). Even in well-preserved, sealed, primary contexts the number of complete or nearly complete Objects is typically quite low. This does not seem like a sampling issue, as the quality of contexts ranges from average or low to very high, and cover all areas of the site. Clearly, employing cluster analysis, multifactorial analysis, or nearest neighbor analysis would be beneficial in comparing groups of variables or assessing correspondences between variables across and between artifact classes (e.g., Cardillo & Alberti 2013; Redman 1978) or to measure relative patterning of artifact classes (e.g., Kintigh 1990). With only a maximum number of LC 1 Objects at n=224 (28 indeterminate, 196 classified by functional category, function, type, and sub-type) spread across six different levels, the possibilities for temporally-controlled statistical analysis are quite limited. Furthermore, the recorded locations of most objects is not according to point provenience but rather context or room, occasionally mapped by hand, and so the locational accuracy is not high.

However, there are limitations to the utility of nearest-neighbor coefficients, especially regarding the discrepancy with “intuitive notions for the spatial clustering of

artifacts” that is apparent with small numbers of data points (ibid.: 169). And so, despite that it is statistically unsophisticated, Chapter 7 uses an ‘intuitive’ approach to distributional analysis (better called ‘distributional assessment’) after grouping artifacts according to Site Level and other criteria such as Artifact Type or Functional Category. It then displays the object distributions according to Area logarithmically (with a base 20) to give a better intuitive sense of the correspondence between area of the site and functional activity (Pl. 39). Finally, it addresses architectural variation simply through observational assessment. While enumerating the architectural features and variables in a notation system might be helpful in quantifying degrees of variation (Coudart 1994), the LC 1 mudbrick dwellings are firstly not fully exposed and secondly do not generally have enough elaborations in order to justify quantifying them. Again, an intuitive/qualitative approach is both warranted and productive in identifying variability.

#### 3.4. Anchoring the Sequence: Stratigraphy & Periodization of the Step Trench (South Mound, Operations 1 & 6; Stratigraphic Sections: Pls. 4-5)

The Step Trench consists of Operations 1 and 6 (see Pl. 3) and forms a large part of the basis for the Site Levels, as the attention to ceramics during excavation presents a good picture of the change from the Ubaid into the LC 1 period. Operation 1, excavated primarily in 2008, is 2 m wide, was excavated by Dr. Abbas Alizadeh, runs east to west, and has a top elevation of 261.33 m above sea level.<sup>29</sup> The lowest sector, excavated in 2009 by the author, goes more than 4 m beneath the level of the plain into the Halaf levels, with

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<sup>29</sup> Our datum was an anchored point at the top of the South Mound, originally given the arbitrary elevation of 500 m but later determined using GPS to be 265 m above sea level.

a bottom elevation of 247.61 m above sea level, but does not reach virgin soil or the water table.

Operation 6 is an oblique extension of the upper end of Operation 1, excavated in 2009. It runs downslope to the southwest, joining the Step Trench, and though it was originally laid out to be a long trench, the actual excavated area is only 3 x 2 m. The deep sounding at the base of the Step Trench reached the Halaf-Ubaid transition; Steps 9 through 6 date to the Ubaid period; and Steps 5-1 date to the LC 1 period (Stein 2009). The upper section (Op. 6) uncovered LC 2 burials (Stein 2010a) and some potentially (late) LC 1 walls.

#### **Step 6 (Late Ubaid)**

Step 6 features a large, multi-course mudbrick wall (10015), dated by radiocarbon analysis to earlier than 5040-4840 BC cal. (mean of 4940 BC; *ibid.*: 135 Table 1). Beneath this wall is a deposit (10016) that contains 26 painted potsherds out of 35 total (74%) and dates to 5200-4910 BC cal., with a mean of 5055 BC (*ibid.*), clearly exemplifying chronologically and ceramically Ubaid deposits at Tell Zeidan.

#### **Step 5 (Level Ubaid-LC 1)**

No radiocarbon dates come from higher up in the Step Trench, but Step 5 would appear to consist of the very latest Ubaid or earliest LC 1 strata. Locus 10013 covers over the large Ubaid wall and is a meter of post-occupational accumulation including mudbrick detritus and trash. Wash deposit 10012 is similar to 10013 but has less cultural material. Locus 10008 is a 40-cm-deep trash deposit that covers 10012 and may relate to the earliest uses of the mudbrick features evident in Step 4. Its ceramic makeup features 30% flint-scraped bowls (both vegetal and mineral tempered), 22% painted pottery (13 out of 60 total), a high number of jars relative to the preceding levels, and Ubaid types such as tall

flaring rim bowls/bell-shaped bowls and LC 1 types such as internally-incised bowls. Painted motifs include hanging Xs, superimposed swags (along the interior rim), and lines-in-reserve (see Pl. 23).

#### **Step 4 (Level LC 1a)**

Locus 10005, which covers over a meter of depth, is above and upslope from 10008 and is a similarly trashy deposit. However, 50% of the sherds are flint-scraped bowls (n=40), both vegetal and mineral tempered, including a Beaded-Lip Bottom-Scraped Bowl (ZD0104) and a small proportion of painted sherds (2-3 out of 20, ~10%). Among the few painted decorations is the 'hanging Xs' motif (Pl. 31 w), which is particular to the LC 1 period. This locus envelops part of a large mudbrick wall (10009) and two fragmentary floors (10010-11; Feature S.E7, illustrated in section, Pl. 4), signifying a new occupation level following the localized abandonment evident in Step 5.

The mudbricks of Wall 10009 are compact, granular, light-brown bricks of a relatively standard size, 45-47 x 22-24 x 7-10 cm, with lots of fine chaff inclusions and soft, light-grey mortar 1-2 cm thick. Floor 10010/11 runs nearby the north side of Wall 10009 and consists of a row of mudbricks, approximately 8-cm thick. It does not interact with the wall, as preserved, but the bricks are the same. Both sets of bricks closely resemble the ones used in Area E Phase D in size and shape as well as composition (see Chapter 6 Section 6.3.3). The exact date of these features is uncertain, however, but based on stratigraphy, they seem to relate to the LC 1a or LC 1b occupation.

#### **Step 3 (LC 1b)**

Excavation of this step revealed several mudbrick floors (10035-37) and corresponding deposits of mudbrick detritus and occupational debris (10004). The earliest floor is Locus 10037, which lies on top of Locus 10005, while Floor 10036 is ~10 cm above

that and Floor 10035 is another ~40 cm above 10036. All of these were originally excavated as components of Locus 10004, which dates to the LC 1 period based on ceramics such as a scraped and smoothed, mineral-tempered Coba Bowl (ZD84) and a solid-field painted motif on a jar neck (ZD83; Pls. 23-24).

### **Steps 2-1 (LC 1b?)**

Locus 10002, in Step 2, is a trashy collapse deposit full of mudbrick fragments and flecks of ash. The pottery is largely plain buff wares with a mix of mineral and vegetal tempering, including a complete Coba Bowl (ZD47), slightly chaffy and flint-scraped on the exterior (Pl. 29 b).

The first step of the trench is shallow—only ~40 cm at its deepest, and it features a mudbrick wall (10003) preserved to three courses high (Feature S.E8, illustrated in section, Pl. 4). This wall appears just below the eroded mound surface, is one-meter long, and runs east-west from the baulk out to the eroded mound surface.

### **Operation 6/Upper Extension (LC 1c? – LC 2)**

Although the orientation of Operation 6 is at an angle to Operation 1 due to topographic and logistical issues, the lowest level of Op. 6, represented by Locus 60023, consists of occupational debris with abundant LC 1 pottery such as flint-scraped bowls and occasional painted sherds at a minimum elevation of 262.53 m above sea level. Above that is a series of arbitrarily-excavated layers that include floor levels, mudbrick detritus, and occupational debris until Locus 60015, all of which compose an LC 1 ceramic assemblage with a predominance of flint-scraped bowls (though some well-burnished, red-slipped ware does appear in 60016).

Above Locus 60015, Wall 60009/10/11 is two rows wide and three courses high, with a corresponding mudbrick floor and possible foundation (Structure S.E9), and 37 x

25 x 10 cm mudbricks with 1-cm-wide mortar lines. However, the exact relationship between these features is unclear due to the very limited exposure. They have been field-dated (ceramically) to the LC 1 period generally, and stratigraphically they would then correspond to Level LC 1c, although this assignment is tentative. Above these loci are layers disturbed by burials. Originally thought to date to the LC 2 period, the radiocarbon date obtained from one of the disturbed deposits has a 2-sigma mean of 2985 BC cal., which is similar to the 3<sup>rd</sup> millennium BC date of the uppermost architectural level in Operation 16 (2810 BC cal.).

A detailed analysis of the pottery does not exist for Operation 6, although the burials that cut into these levels seemingly date to the LC 2 period and contain grave goods such as bichrome stone labrets, unlike most of the graves in Area E. The loci that the burials cut into feature LC 2 diagnostics such as beaded-lip hole-mouth jars and beaded-lip carinated fine-ware bowls. There is, then, an LC 2 occupation level at this contour that is not evident downslope to the southeast in Operations 15 and 16. Despite that dissimilarity, the sequence in this part of the South Mound is otherwise similar to the sequence further downslope in Area E, where burials cut into 3<sup>rd</sup> millennium BC architecture that overlies LC 2 burials and LC 1 architecture (see Chapter 6). However, the disturbed nature and small exposure of Operation 6 limits definitive level associations, and the considerable wind erosion may have been uneven across the mound, leaving later LC 1 and LC 2 levels better preserved on the west face.

CHAPTER 4  
EXCAVATED REMAINS OF THE LC 1 PERIOD ON THE  
NORTHWEST MOUND AT TELL ZEIDAN

The Northwest Mound at Tell Zeidan is the second highest of the three mounds (see Pl. 3), with a height approximately 12 m above the plain. Area A is the only Excavation Area located on the Northwest Mound, and the Tell Zeidan Expedition opened three Operations there—2, 10, and 13. All three Operations uncovered architectural features, though only Operations 2 and 10 found substantial structural remains dating to the LC 1 occupation. Dr. Kathryn Grossman excavated Operation 2 in 2008 and Operation 10 in 2009 and 2010. This chapter will first present the stratigraphy, periodization, and main architectural discoveries of the mound in Section 4.1, and then will present the finds and consider spatial function of the most significant contexts in Section 4.2.

4.1. Architecture & Stratigraphy of the Northwest Mound in the LC 1 Period

Operation 10 includes five archaeological phases (A-E) dating to the LC 1 period (Pl. 7), one Ubaid-LC 1 phase (F), and one phase (G) reaching the Late Ubaid period (not shown in section). The discussion here will summarize the strata of architecturally fragmentary levels and then describe the main building level discovered (Phase D) in accordance with our site-wide naming conventions for structures (i.e., they are arbitrarily numbered within each Area; see Ch. 3 Section 3.2.5).

Operation 2 includes seven archaeological phases, including phases featuring structural remains that alternated with phases of collapse, erosion, and washy infilling (see Pl. 6). Operation 2 does not reach levels dating to the Ubaid period or the early LC 1 period, but demonstrates three phases (E-G) of LC 2 occupation, three phases of LC 1 occupation

(A-C), and one phase in between (D).<sup>1</sup> The exact phase divisions and elevation levels do not match perfectly with those from Operation 10, but a rough agreement is possible (see Table 3).

#### **4.1.1. Operation 10 (Stratigraphic Section: Pl. 7)**

Operation 10 provides the most informative LC 1 contexts on the Northwest Mound, although the architecture is poorly preserved in general (wall heights range from one to six courses of preserved brick). The deepest level reached in Operation 10, approximately 2.5 meters below the surface of the mound (252.98 m above sea level), is Op. 10 Phase G (Late Ubaid; not shown in section). It is composed primarily of alternating trash and silty wash deposits (100108-100114). Based on rough sherd counts, the painted pottery outnumbers the unpainted pottery from these loci, and so Phase G appears to date to the Late Ubaid period.

The earliest structural remains of Operation 10 (S.A4) appear in Op. Phase F (not illustrated), following on top of the very poorly preserved and incompletely defined Phase G. They date to either the very end of the Ubaid period or very early in the LC 1 period and include *pisé*-and-mudbrick architecture (100099) and a domed oven (100081). The oven has an approximate interior volume of 0.7 m<sup>3</sup>, is made of packed-clay slabs, oriented vertically, and has several thick interior layers of burnt orange plaster. Other architecture from this phase (e.g., Walls 100055 & 100056) is fragmentary and difficult to define.

The contents of the ashy fill found within the oven include a fragment of a sling pellet (ZD7684), a clay sealing (ZD7685) with six stamp seal impressions featuring a geometric, linear motif on the obverse and a rope impression on the reverse (no image

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<sup>1</sup> The Operation Phase notation used on the Northwest Mound in the 2009 season started alphabetically from the highest elevation, and so it appears as the reverse order from the later excavations.

available), and bulk finds such as potsherds and shell fragments. The density of the finds suggests a secondary deposition after the oven went out of use.

In Op. 10 Phase E, a toilet and trash pit, Locus 100057, produced a radiocarbon sample with a 2-sigma calibrated mean of 4670 BC (Stein 2011: Table 1). This date provides an approximate *terminus post quem* for the succeeding levels in Operation 10, and places Pit 100057 at around the time of Site Level LC 1a. Overall, this phase is mostly wash layers and pits, but Pit 100057 yielded an array of cultural materials amidst charcoal and ash. The pottery deposited there mostly consists of large pieces of Coba Bowls with almost no painted pottery. Faunal remains from the pit are generally large bones, including an abundance of pig bones and cow and caproid mandibles. The appearance of coprolites indicates that it was used as a receptacle for organic human (or animal) waste. The general lack of pottery other than Coba Bowls in this discard context does seem to corroborate some of the evidence from Kenan Tepe, where Coba Bowls had their own contexts and patterns of usage and discard relative to other types of pottery (Kennedy 2012).

Pit 100067 also produced large fragments of Coba Bowls and organic, green soils, but also a clay sealing fragment (ZD3041; Pl. 35 d). This fragment includes no impression from a stamp seal or other motif, but it is made of levigated clay and its reverse displays the impressions of braided rope and three folds of a wrinkled bag. This is the only evidence for sealing during the LC 1 period on the Northwest Mound.

The latest layers of Op. 10 Phase E likely represent an open-air area adjacent to residential buildings (Stein 2010a: 112-114). They include a wash layer (100056) a trashy deposit consisting of discarded pottery (whole and broken), tools, and faunal remains (100055; 100043). The pottery contains mix-tempered, internally-incised bowls and

painted potsherds with motifs such as the bowtie pattern (Pl. 25 l), all indicating an LC 1 occupation for this phase.

**Op. 10 Phase D; Building S.A1 (Level LC 1b; Plan: Pl. 8)**

Building S.A1, dating to the early LC 1 period, has the highest degree of preservation in Operation 10 and the excavation team uncovered four rooms from whose contents we can infer that they are the remains of a mixed-use domestic building with a particular focus on food storage and cooking (see below). Pottery from this phase includes abundant flint-scraped Coba Bowls, internally-incised bowls, and the bowtie pattern and hanging-Xs painted motifs (see Pl. 25 a-l, cc). These diagnostics generally typify LC 1 assemblages, and the preliminary pottery analysis indicates that approximately 40% of the sherds are flint-scraped Coba Bowls (Abu Jayyab n.d.).

The walls of Building S.A1 are oriented N x NW and E x NE and have a general thickness of about 25 cm. There are four areas demarcated by walls, the southern and eastern of which are interior rooms, while the west area (Room S.A1.1) can be thought of as a courtyard and the north area (Room S.A1.2) is likely a room, outdoor area, or portico but whose preservation is lacking due to slope-forming mound erosion. Little survives of the wall (100035) between Rooms S.A1.1 and S.A.1.2, due, also, to the eroding slope of the mound.

If the southern wall of Room S.A1.1 (1000031) represents a continuous boundary, then the room is approximately 6 x 2.5 m, or 15 m<sup>2</sup>, which is significantly smaller than the typical central hall of an Ubaid tripartite building (Roaf 1984: 96) but is closer to the size of the central halls of the Chogha Sefid buildings on the Deh Luran Plain (Hole 1973: Fig. 1).

Fire Installation 100014, half covered by the south baulk on the west side of Room S.A1.1, is a seemingly domed oven made of crumbly red mudbrick laid vertically in a circular shape on top of densely laid sherds set into a base of layered clay, lined on the interior with white plaster. The total preserved height of the oven is 55 cm, with an approximate diameter of 1.25 m.<sup>2</sup> A parallel for the construction techniques of Oven 100014 comes from Tepe Gawra Level X (LC 2; Tobler 1950: Pl. XXXI), as this mudbrick oven is round and domed but in good enough preservation to demonstrate that the top was not open like a *tannur* or *tabun* of modern times (see Tkáčova 2016).<sup>3</sup> Instead, these two ancient examples are ‘domed ovens,’ accessed from the front.<sup>4</sup> Hearths and ovens in domestic spaces are expected in the center of the room or built against one or more walls, respectively,<sup>5</sup> and so the interpretation of Room S.A1.1 here favors a rectilinear design, probably of a single room or court.

Locus 100040 is the surface of Room S.A1.1, from which pits for storage jars were cut (see Section 4.2.1). The finds from this room include cooking debris such as an andiron

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<sup>2</sup> Parker has suggested that the purpose of plaster lining in ovens may have been to facilitate dough sticking to the oven surface, as uneven interior surfaces do not permit sufficient suction (2011: 621). This oven, though, is not a *tannur*, and so the dough would not have been stuck onto the sides but instead probably placed at the bottom. It may not have been a bread oven at all, though, and may have been used for brewing (heating the mash); unfortunately, we have no solid evidence for this (M. Gibson, pers. comm.).

<sup>3</sup> Other examples from Tepe Gawra, such as the horseshoe-shaped oven from Level IX (late LC 2), do demonstrate *tannur*-like features such as the beehive-shaped upper portion that has a hole in the top (Rothman 2002: 126). This larger Gawra example measures ca. 2.5 m across.

<sup>4</sup> Tobler offers that the domed or hemispherical oven type may have been used for firing pottery (1950: 12), though lack of evidence for this association, such as pot wasters, casts doubt on such an explanation, and kilns require much more substantial architecture in order to achieve temperatures far beyond those needed for food, as seen at Tell Abada and Tell al-‘Abr (see Jasim 1985: 53 and Hammade and Yamazaki 1995: 7). Instead, an association with food-based activities in S.A1.1 links this oven type to food preparation (see Section 4.3).

<sup>5</sup> For example, the *tannur* in the White Room of Tepe Gawra Level XII is in the corner of the room, against two walls (Tobler 1950: 28), and the hearth of the Tell Madhhur house is near the center of the central room (Roaf 1989: Fig. 1). In an Ubaid tripartite house, an oven and storage jars might suggest a side room (Pollock 2010: Fig. 7.3; Roaf 1989: Fig. 1), but in the LC 1 period it could be in the central room (Rothman 2002: Fig. 5.4).

fragment (ZD2642; Pl. 34 j) and food remains such as bone and shell, but also craft-production debris such as an awl and a muller (ZD2619; Pl. 33 a; see Table 4, Section 4.2.1).

Room S.A1.2 is north of Room S.A1.1 and seems to have been rectangular and oriented somewhat parallel to S.A1.1. The preserved, excavated area of Room S.A1.2 is 3.3 x 1.1 m, although much of it is eroded. Wall 100020, which separates this room from Room S.A1.3 to the south, has an abutting, perpendicular wall running to the northwest (100038) that could be part of defining a room or passageway between Rooms S.A1.3 and S.A1.2.<sup>6</sup> Wall 100035 was difficult to define amidst dense mudbrick detritus; just one course and row of brick survives, but its alignment and orientation suggest that it is the westward continuation of Wall 100020. We did not recover a well-built floor in Room S.A1.2, but the compact, ashy Deposit 100036 is the lowest stratum within the room's walls. It contains large potsherds lodged into it and it supported a loose, ashy layer (100024) of domestic detritus that includes finds such as a clay scraper, a loom weight, and a broken jar (see Table 4, Section 4.2.1).

Room S.A1.3 is another long room, oriented perpendicularly to S.A1.1 and largely still-undiscovered to the east and possibly south of Operation 10. The interior measurements of the room are at least 3.5 m along the western wall and probably longer than 1.1 m along the northern wall, providing a minimum of 3.85 m<sup>2</sup> of space but more likely resembling 7-10 m<sup>2</sup>. Again, this room does not feature a well-constructed floor surface, but rather an ashy, compact layer (100049) with large pieces of pottery (primarily

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<sup>6</sup> A multi-course wall that appears in the eastern section (Pl. 7) looks like it could be Wall 100020, but as it was excavated, it is not. The best explanation currently is that it could have been an earlier wall that was superseded by 100020 to the west, or that the space was slightly reconfigured, but the excavators identified a corner at the eastern end of 100020 before what is probably a doorway.

Coba Bowl fragments) embedded. Like S.A1.2, Room S.A1.3 includes a loose, ashy fill (100022) above the compacted layer and that contains a stone celt and another andiron fragment (see Table 4).

In the southeastern corner of the trench, bordering Room S.A1.1 to the southeast and S.A1.3 to the southwest, is Room S.A1.4, with an excavated area of approximately 2.5 x 1.7 m (4.25 m<sup>2</sup>). Floor 100039 runs up against all four surrounding walls and has a pivot stone (ZD2801; Pl. 34 i) near the doorway. Yellowish in color, the floor is hard packed and contains several small finds buried in it including an animal figurine, another large storage jar (not sunken), and an intact Coba Bowl (see Table 4, Section 4.2.1).

The entrance points of the building are generally unclear, although there are two doorways providing access to Room S.A1.3; one leads to Room S.A1.4, near the southeast corner of S.A1.1, and the other is in the northeastern corner of the room, leading to S.A1.2. A complete reconstruction of the whole structure would be merely guesswork, as the excavated space of none of the rooms has the size to suggest that it would have been the *mittelsaal* of a tripartite building. In fact, the lack of constructed floors in many of the rooms and the varying thickness and quality of the mudbrick walls suggests that parts of the building were added or modified over time.

#### **Abandonment of Building S.A1 & Later Phases in Op. 10**

A layer of mudbrick collapse (100013) may represent the abandonment and disintegration of the architecture in Op. 10 Phase D (see section, Pl. 7). To the north of the architectural complex is approximately 80 cm of trashy buildup (Loci 100024, 100027, & 100036). An adult human jar burial (100017; Pl. 8) cuts into Oven 100014 from an undefined later phase.

On the whole, the Phase D remains have a few unsubstantial and perhaps impoverished buildings succeeding them. There is little coherence apparent in the Op. 10 Phase C architecture (not illustrated)—the latest LC 1 structures found in the trench—due to its proximity to the eroded mound surface. This fragmentary architecture consists of two walls (100015; 100016) and a floor (100025), although the exact relationships are unclear. Wash 100012 features a matrix of mudbrick detritus, likely representing the abandonment and collapse of the Phase C architecture. More wash layers (100011, 100010, & 100008) succeed the Phase C washy collapse, though Op. Phase B is largely damaged by a later pit. On top of some of the wash (100008), but generally surrounded by it, the excavation team discovered a single course of mudbricks (Wall 100005) running along the East Baulk into the cut of the slope, indicating the likely presence of architecture dating to this phase that is otherwise indeterminate. Phase A, which seems to correspond to the end of the LC 1 period (possibly Site Level LC 1-2), consists entirely of a three-meter-wide clay levigation pit (100004), 50-cm deep, with two layers that contains dense clay pellets. Above that is the mound surface.

#### **4.1.2. Operation 2 (Stratigraphic Section: Pl. 6)**

Operation 2 is a 4 x 4 m sounding with a 50-cm baulk on each side, providing 9 m<sup>2</sup> of excavated surface space. Ceramic evidence provides an early LC 1 date for the lowest level, indicating almost two meters of LC 1 occupational strata in this operation. Several plastered floors found approximately one meter below the surface of the mound (256.20 m top elevation), cover the entire exposure, thus providing floor levels but otherwise limited knowledge of the presumably enclosing structures. Mudbrick architecture in Op. 2 comes primarily from the upper three phases, dating to the LC 2 period, though traces appear

earlier in the LC 1 period as well. Description will proceed from earliest to latest, where possible.

The lowest level reached in Op. 2—Phase A, Level LC 1b—at a bottom elevation of 254.48 m, features LC 1 ceramic types such as chaff-tempered, internally-incised bowls and abundant flint-scraped Coba Bowls (Pl. 25 a-l, cc). The extent of this Phase is limited to a 3 m<sup>2</sup> exposure but provides a glimpse of a wall (20046; not illustrated) that seems to have enclosed a room with multiple floor levels visible in the section (Pl. 6). Beneath the wall is a foundation deposit of a broken jar containing an ovi-caprid mandible, which was probably a votive offering.<sup>7</sup> However, the architecture of this level is otherwise unknown.

Operation 2 Phases B-D consist of a dense, 40-cm deep sherd deposit (20032-20036) followed by two later LC 1 floor levels (20030 & 20026). The lower layers of the sherd deposit (20034-20036) seem to represent a series of work surfaces, as seen in the early Late Chalcolithic occupation at Khirbat al-Fakhar (Al-Quntar, Khalidi, & Ur 2011), though there are no associated remains of production debris here to support such an interpretation.<sup>8</sup> Little can be said of the following floor (20030) other than that is made of compacted red clay, but the later LC 1 floor, 20026, is made of white clay or plaster, varying between 4 and 8 cm thick. The plaster is laid on a bed of pebbles, perhaps to create a level surface or for hydrological management. A clay *tuyere* (ZD719; Stein 2009: Fig. 13) comes from directly on top of Floor 20026.

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<sup>7</sup> A similar mandible-in-vessel foundation deposit comes from Operation 3 Level LC 1a (see Ch. 5 Section 5.1.3), and using distinctive animal parts (particularly from the head) as votive offerings at the opening or closing of a building is a fairly frequent phenomenon in Mesopotamia from the Halaf through the historical periods (Munchaev 1997; Ellis 1968).

<sup>8</sup> It is also possible that the sherd & ash deposit was a kind of pit-like fire installation (Tkáčova 2016).

Operation 2 Phases E-G, which contain a series of architectural levels, date to the LC 2 period. Diagnostic ceramic types include beaded-lip hole mouth jars<sup>9</sup> that initially appear in Phase E in mixed tempered fine ware and then in Phases F and G in black-burnished ware, though Coba Bowls continue to appear into Phase E. Ashy Deposit 20008 (Phase F) produced a <sup>14</sup>C sample (ZD381) with a mean of 4110 BC cal., providing a date that fits within the expected range for the LC 2 period.

One of the most beautiful finds from Tell Zeidan, a gabled stamp seal made of a non-locally sourced red stone (ZD585; Pl. 34 h), comes from near one of the walls of Op. Phase 2.G, though from the side of the baulk. The iconography features a stylized cervid, shown in profile with four legs, each with split hooves, and a single antler extending backwards across the full length of the animal, all surrounded by a toothed border. This type has parallels at Tepe Gawra (e.g., Tobler 1950: Pl. CLXVI no. 124), as far west as Gözlü Kule (Goldman 1956: Pl. 392 Figs. 1-2), and as far east as Tepe Giyan (Caldwell 1976: no. 119). The more stylized design and exotic material may signify the existence of class-based social identity in which elites related to each other as much as their localities (Stein 2009: 135; see also Stein et al. 1998: 174 and Stein 2001: 275). The iconography also confirms the LC 2 dating of the phase. This discovery not only ties Tell Zeidan into the broader stylistic sphere of the Late Chalcolithic, but also indicates a return to clearly attested administration activity after many LC 1 layers that produced little or no evidence for administrative control of goods.

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<sup>9</sup> Beaded-lip hole mouth jars are good chronological indicators of the LC 2 period, unlike the plain-rim versions which appear earlier.

## 4.2. Artifacts & Spatial-Functional Analysis

In this section I will consider the distribution of finds and the function of the main architectural level in Operation 10, Phase D (Level LC 1b), and then discuss the functional implications of the *tuyere* and constructed floor discovered in Operation 2 Phase D (Level LC 1-2).

### **4.2.1. Building S.A1 (Operation 10 Phase D, Level LC 1b)**

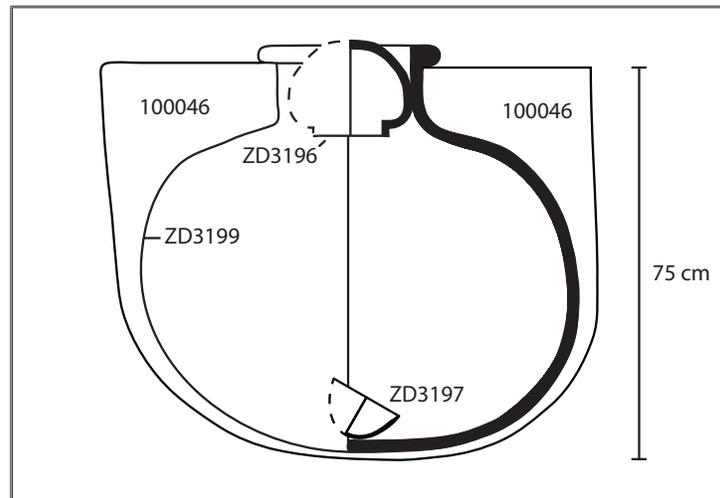
Twenty-five small finds (approximately 10% of all small finds found in LC 1 levels) come from Building S.A1 as a whole (Table 4), plus 32 bags of chipped stone fragments, 4 ground-stone fragments, 40 bags of potsherds, and 13 bags of shell. The object types range from craft-production implements such as awls, loom weights, and celts, to food-serving and -storage vessels, as well as a crosshatch-incised baked-clay muller.

Room S.A1.1 has the fullest exposure and yields the majority of artifacts in the building: 18 small finds, 17 bags of chipped stone fragments, two ground-stone fragments, 25 bags of potsherds, and 13 bags of shell. The oven (100019), andiron fragment (ZD2642; Pl. 34 j), and three large storage jars (ZD3199; ZD3392; ZD3369) indicate a food storage and cooking context.

The three large, sunken storage jars are among the more notable finds in this room. Jar ZD3199, in Pit 100046, features an upside-down jar that functioned as a lid or jar stopper (ZD3196) and contains a Coba dispensing bowl or scoop (ZD3197) inside, found *in situ* (see Fig. 1 & Pl. 8). The lid is a collared, lentoid jar missing its rim (Pl. 29 g). The bowl is mineral-tempered with a plain rim and flint-scraped lower half but in a finer ware more than is typical for Coba Bowls (Pl. 29 d). Jars ZD3369 and ZD3392 are not immediately accompanied by lids, although three worked sherds found in this room exhibit characteristics of jar lids, including their size, roundness, and lack of substantial retouched

edges.<sup>10</sup> These storage jars also contain large sherds of Coba Bowls, further establishing the relationship between the Coba Bowls as grain dispensers and storage jars as grain containers (as at Tell Feres Level 9 and Tepe Gawra Level XII; Baldi 2012b: 401; Rothman 2002: Fig. 5.2).

Jar ZD3369, in Pit 100044,<sup>11</sup> is broken above the shoulders and missing its neck but had been repaired in antiquity with a second neck. It also contains a flat, reed-impressed piece of bitumen (ZD3373) that measures 4.2 x 3.6 x 1.8 cm. This could have been part of matting, roofing, storage,<sup>12</sup> or some other function, but its placement inside the jar and the jar's broken neck raise the possibility that the jar was repurposed as a bin (for storage or trash) and that not all of the storage jars were used to store grain simultaneously.



*Fig. 1: Schematic drawing of storage jar ZD3199 in Pit 100046 containing scraped-bottom bowl ZD3197, sealed by smaller jar ZD3196. Comparanda: Hammam IVD (Akkermans 1988b: Pl. 94 no. 283).*

<sup>10</sup> One artifact type that occurs across the Ancient Near East but which has had little attention paid to it, presumably due to its confusing range of obscure functions and lack of aesthetic quality, is the “worked sherd” (also called “sherd discs”). These small objects are generally made from the fragments of broken pottery and are then “worked” into an approximately round shape. They sometimes appear to have been used as bottle lids (when two or more rough grooves across the face of a sherd indicate attachment by twine), sometimes as scrapers or burnishers used by potters (likely when smoothed or retouched edges are apparent; see Sudo 2003: 213, 225, Fig. 15.1), and sometimes as spindle whorls (when the sherd has a central piercing; *ibid.*: 227). Other times there is no apparent function whatsoever, but this building contains four examples.

<sup>11</sup> Pits 100044 and 100051 are actually one pit, cut to hold both jars (which touch one another).

<sup>12</sup> Since the Ubaid tripartite houses at Tell Abada produced no obvious storage facilities, Jasim proposed that evidence for mats may indicate a type of storage (1989: 86).

The location of these storage jars in a house-like building is quite common for the early Late Chalcolithic period in Upper Mesopotamia. The Arslantepe Period VIII house (LC 1-2) features a partially preserved standing *pithos* (Balossi-Restelli 2012: 244). Tell al-‘Abr Level 2 features a large, chaff-tempered storage jar “installed” in the NE corner of room R2-5 (LC 2; Hammade & Yamazaki 2006).<sup>13</sup> Room 5 in Burnt House 1 at Kenan Tepe features a similarly sunken storage jar (“Terminal Ubaid”/LC 1; Parker 2012: 295), although depositional contexts of the jars in the Burnt House are typically categorized as exterior space.<sup>14</sup> This example raises the question of whether S.A1.1 was a covered room, as in Tell al-‘Abr, Arslantepe, Değirmentepe and elsewhere, or exterior or unroofed space. The general layout of the adjacent rooms and walls, however, indicates that it was completely or virtually enclosed (see Pl. 8). It is probable that it was an open-air courtyard.

The location of the flint-scraped Coba Bowls, directly inside of the jars in Room S.A1.1, helps to clarify what we already know about their systemic context through depositional data from other LC 1 sites. For example, Tepe Gawra Level XII provides two examples of Coba Bowls found in association with storage jars or facilities (Rothman 2002: 79, Fig. 5.4). Although not sunken, storage jars also appeared *in situ* in Room S.B2.1, in Zeidan Area B, in close proximity to flint-scraped bowls (see Ch. 5). The Tell Feres Level 9 example is located in a communal building, but also features Coba Bowl sherds inside of the jar (Baldi 2012b: 401).

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<sup>13</sup> At Tell al-‘Abr, Level 3, many “thickened-rim, pseudo-necked” jars occurred in the domestic quarter, their diameters typically greater than 40 cm.

<sup>14</sup> At Kenan Tepe, “Terminal Ubaid” (LC 1) houses often featured storage jars external to the structure, along with hearths and ovens (Kennedy 2012: 140). It is not impossible that Room S.A1.1 was an open-air courtyard or only partially roofed (see also Balossi-Restelli 2012b for brief discussion of roofless courtyard rooms).

Room	ZD No.	Obj. Material	Obj. Type	Obj. Sub Type	Functional Category	Function
S.A1.1	2644	Clay (unbaked)	Sealing clay?	Indeterminate	Admin	Indet.
S.A1.1	3373	Bitumen	Bitumen	Reed Impressed	Craft Manufacture	Reed Matting
S.A1.1	9099	Bone	Awl	Worked bone	Craft Manufacture	Textile Production/Sewing
S.A1.1	2642	Baked clay	Andiron	Fragment	Food Preparation	Cooking
S.A1.1	2619	Baked clay	Muller	Crosshatch-incised	Food Preparation	Threshing
S.A1.1	3197	Ceramic	Bowl	Coba	Food Serving/Storage	Dispensing
S.A1.1	3371	Ceramic	Bowl	Coba	Food Serving/Storage	Dispensing
S.A1.1	3199	Ceramic	Jar	Large	Food Serving/Storage	Storage
S.A1.1	3369	Ceramic	Jar	Large	Food Serving/Storage	Storage
S.A1.1	3392	Ceramic	Jar	Large	Food Serving/Storage	Storage
S.A1.1	3196	Ceramic	Jar (stopper)	Lenticular Jar	Food Serving/Storage	Storage/Jar Stopper
S.A1.1	2959	Ceramic	Jar lid	Worked sherd	Food Serving/Storage	Storage
S.A1.1	3366	Ceramic	Jar lid	Worked sherd	Food Serving/Storage	Storage
S.A1.1	2636	Ceramic	Jar lid	Worked sherd	Food Serving/Storage	Storage
S.A1.1	3368	Ceramic	Repaired pottery	Jar rim	Food Serving/Storage	Storage
S.A1.1	3386	Shell	Bead	Worked shell	Ornament	Jewelry
S.A1.2	3281	Ceramic	Scraper	Worked sherd	Craft Manufacture	General Purpose
S.A1.2	2632	Clay	Loom Weight	Biconical	Craft Manufacture	Textile Production/Weaving
S.A1.2	2279	Ceramic	Jar	Globular with everted collared rim	Food Serving/Storage	Storage
S.A1.3	2842	Stone	Axe	Celt	Craft Manufacture	Wood Working
S.A1.3	2843	Baked clay	Andiron	Fragment	Food Preparation	Cooking
S.A1.4	2801	Stone (basalt)	Pivot stone	Ground stone	Architecture	Door socket
S.A1.4	2649	Ceramic	Bowl	Coba	Food Serving/Storage	Serving
S.A1.4	2638	Ceramic	Jar	Large	Food Serving/Storage	Storage
S.A1.4	2826	Baked clay	Figurine	Animal	Representational	Representation

Table 4: Small finds from Tell Zeidan Building S.A1 (Op. 10 Phase D; Level LC 1b)

Other finds in Room S.A1.1 such as a bone awl (ZD9099), a shell bead (ZD3386), a loom weight (ZD2632), a baked-clay muller (ZD2619; Pl. 33 a), and 19 bags of faunal remains (out of 33 bags from the whole building: 57.5%) suggest a multi-functional context similar to many of the central rooms of the ancient Near East, especially from the Ubaid period (e.g., Roaf 1984) and LC 1 period (e.g., Gurdil 2010; Tobler 1950: 28). However, Ubaid-period tripartite houses typically have cooking areas in functionally more specific side rooms (Pollock 2010: Fig. 7.3; Roaf 1989: Fig. 1), while central rooms of tripartite houses in the LC 1 period do not follow this strictly and can mix cooking and storage with other general activities (e.g., Tobler 1950: 28). This room, then, may have provided the main space for household activity in the building, or its use may have been limited to subsistence and craft production; the latter seems more likely. The room, however, does intercommunicate with the adjacent residential space. The *in situ* location of the Coba Bowls inside of the jars is pertinent to the question of whether the typically domestic nature of their depositional context (region-wide) represents their systemic context (Balossi-Restelli 2012a: 54) or a discard context; in this case, the answer is the systemic context.

The muller (ZD2619; Pl. 33 a) discovered in Room S.A1.1 is an interesting specimen. It has the typically domed head and curved shaft of standard Ubaidian “bent-nail” baked-clay mullers that appeared initially in the Ubaid heartland in southern Mesopotamia, but which also occur in central Mesopotamia (e.g., Tell Madhhur; Roaf 1989: Fig. 16 no. 11) and northern Mesopotamia (e.g., Tepe Gawra; Tobler 1950: Pl. LXXXIII f-g). However, this version, typical of LC 1 mullers at Zeidan, has a crosshatched, incised pattern on the head, it is thicker, and its terminal is at more of an oblique angle to the shaft than the standard Ubaid form. Thus, the two types may not share a function.

The crosshatching of baked-clay mullers at Tell Zeidan seems to be a chronologically sensitive morphological feature, dating specifically to the LC 1 period, while the more typical, plain-headed forms come from Ubaid-period levels (Stein 2011: 130-131, Fig. 11; here Pl. 32 c). This crosshatch-incised, LC 1 variant of the Ubaid muller does not seem to appear outside of Tell Zeidan, though the standard, un-incised clay mullers do continue to appear at some sites during the LC 1 period,<sup>15</sup> and so the Zeidan examples represent a localized derivation of standard Ubaid material culture.

Roaf discusses the possible function of these vaguely nail-shaped objects; between their form, the wear and abrasion evident on the convex heads, and their depositional contexts, he concludes that they must be mullers for grinding something less coarse than cereals—they are too slight to be effective for grinding grain or other heavy food product (1989: 125). While this may be the case for the Ubaid-style mullers, the LC 1 examples from Zeidan are much more substantial in their makeup and could have certainly been used in preparation of bread dough or other semi-solid substances.

The wear patterning of the Zeidan mullers does not indicate the grinding of any material in particular, though on ZD2619 there is a patina and mottling around the “handle” where the thumb and forefinger would have gripped it tightest, and there are impact scars at the edges of the head where it would have been most vulnerable (see Pl. 33 a). There is also a “square” missing from the crosshatching on the head where it would have received the greatest impact from a pounding motion. Grinding fine powders may not have been enough force to cause collision scars on the edges of the head (the areas that would receive

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<sup>15</sup> For example, at Tepe Gawra, where they reach a peak count of 17 in Level XIII but decrease to two in Level XII before they disappear completely (Tobler 1950: 169); it is in XII that they appear with painted designs (e.g., *ibid.*: Pl. CLVI no. 54).

the least amount of pressure from grinding). And so it seems as if this example attests to a higher-impact activity such as kneading dough or grinding grains into flour.

The crosshatched marks are still unexplained, but they do resemble a miniature version of the incised pattern on the internally-incised bowls that are heavily attested on the Northwest Mound in this period (e.g., Pl. 31 a). Though they are quite speculative, I can offer three possible explanations as to the function of the incised lines on the inside of these common LC 1 bowls. The first is that they were miniature, personal beer bowls intended to collect the calcium oxalate (beerstone) at the bottom of the bowl by trapping it in the grooves, just as the larger examples of internally crosshatched jars from LC 5 Godin Tepe did (McGovern 2009: 57).<sup>16</sup> Indeed, it has been suggested before that the Beveled-Rim Bowls ubiquitous in LC 3-5 periods might have held beer (e.g., Pollock 2012: 161), and that beer was generally consumed directly from bowls in the Late Chalcolithic period (Bernbeck & Costello 2011: 682), and so having a beer-specific bowl in the LC 1 period is plausible.

Another possibility is that the incised crosshatching of the mullers (and possibly the bowls) relate to the threshing process, which includes either pounding or milling. Perhaps the incised lines serve to create additional friction or function as retaining crevices

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<sup>16</sup> Unfortunately, we did not export any vessel residue samples for analysis, but it is visibly noticeable in photographs that a whitish-yellow residue is trapped inside the grooves of one of these bowls, which looks very much like calcium oxalate (or 'beerstone;' see Pl. 31). While Damerow questions why the early Sumerian cuneiform sign for 'beer' was KASKAL (read  $kaš^2$ ), which looks like crosshatching, when later versions are quite different (2011: 6), the crosshatched, incised grooves of the LC 5 Tepe Godin V jar contained residual traces of calcium oxalate (which is very bitter and can be mildly poisonous; McGovern 2009: 57). Thus, the grooves served to entrap the beerstone in the interest of better-tasting, less poisonous beer. There is no definitive connection between the crosshatch-incised bowls of the LC 1 period and beer consumption, but it certainly could be a productive line of further research. For example, internally crosshatch-incised jar shoulders also occur in Level 12 at Tell Geser, roughly dating to the late LC 1 or early LC 2 period (Alizadeh 2014: Fig. 58 E).

that capture certain elements of the grain.<sup>17</sup> The crosshatch-incised bowls may relate to this function, either in partnership with the muller or as two separate but similarly-purposed instruments.

From an archaeobotanical perspective, grain processing may have been a two step procedure, the second of which occurred domestically. Alexia Smith performed the archaeobotanical analysis at Zeidan in 2009 and notes that:

The complete absence of culm (stem) fragments [in the archaeobotanical assemblage] is interesting. It is possible that stems were removed post harvest and that small batches of ears of grains were processed within individual households (A. Smith, pers. comm.).

A third option is that both the mullers and crosshatch-incised bowls were used to crush grain, turning it into flour for bread. The context of the muller from House S.A1 (ZD2619) favors a bread-related interpretation, as the storage and cooking of cereals is one of the main activities evidenced in Room S.A1.1, and Area A is also heavily populated with crosshatch-incised bowls. Feature 100014, is a large, domed oven that is seemingly the final stage in the chain of bread production. The preceding steps would include the acquisition and processing of grains, their storage in the room's sunken jars, and then their requisition using the enclosed and/or nearby Coba Bowls.

The northern room, S.A1.2, is accessible from the main room through what appears to be a wide doorway at the eastern end of Room S.A1.1. Its discovered contents include a ground-stone fragment (ZD2643), a small globular jar (ZD2279), and a loom weight (ZD2632). Most of the finds from this room are bulk fragments of pottery, lithics, and

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<sup>17</sup> The increased reliance on chaff tempering in northern Mesopotamia during the Late Chalcolithic period (Akkermans 1988a) is roughly concomitant with the appearance of the incised, LC 1 variant of muller at Zeidan, and so it is tempting to see a presumed correlation between the two as support for the theory that they aided in the threshing process that produced chaff. However, it is also important to point out that this form so far appears only at Zeidan and that, idiosyncratically, chaff was not as heavily used in the LC 1 period at Zeidan as at other LC 1 sites.

fauna, and come from trashy buildup. It seems to be another general purpose, domestic room, though mound erosion at the northern slope limits observation.

The east room, S.A1.3, on the other side of the main wall from Room S.A1.1, is also much less fully exposed than the main room. Again, the finds are mostly bulk collections of fragments such as chipped stone pieces and potsherds, with some faunal remains and shell fragments, plus two less-common objects: a stone celt (ZD2842; Pl. 33 e) and a fragment of an andiron (ZD2843). The limited exposure again obscures the size and full nature of the room; however, if the deposition of its two small finds are representative of the systemic context, it could be an auxiliary production and food preparation area.

The southern room, S.A1.4, has only one discovered access way, which leads north into S.A1.1 and is marked by a pivot stone (ZD2801; Pl. 34 i). This room is the second-most artifactually dense in the building, containing a ground-stone fragment, shell fragments, and bulk finds such as potsherds, chipped stone fragments, and fragments of animal bone, plus a broken but nearly complete, (fourth) large storage jar (ZD2638), a flint-scraped, “mini” Coba Bowl (ZD2649; Pl. 25 f), and a zoomorphic figurine fragment (ZD2826).

The proximity of the flint-scraped bowl to the storage jar in Room S.A1.4 is revealing for two reasons. Firstly, it adds further support to the interpretation that there was a direct connection between storage and dispensing of cereals during the LC 1 period at Tell Zeidan. In fact, it demonstrates that *all* known storage jars in primary LC 1 contexts on the Northwest Mound either contain or are colocated with Coba Bowls. Secondly, whatever the exact meaning of that relationship, it is a characterizing component of more than one room in the S.A1 house.

With respect to the significance of rapidly-made bowls in Mesopotamia in general, the variability of form of the Coba Bowls across these rooms further highlights their characteristic irregularity at Zeidan, rather than a system of standardized production (cf. Baldi 2015: 461; 2012: 143). Coba Bowl ZD2649 is a small, shallow, flint-scraped bowl tempered with commonly occurring medium-sized chaff (Pl. 29 d), while Coba Bowl ZD3197 (Pl. 29 c) has a scraped bottom and a smoothed interior but is thinner and deeper, with abundant fine dark grit, common fine sand/mica, occasional fine lime, and rare fine-medium chaff tempering. Despite the variation in form and firing technology, these different sub-types of the Coba Bowl appear to serve essentially the same function within this building, corroborating Baldi's view (2015: 466).

Generally, the objects contained in House S.A1 imply most of the full range of domestic activities relating to household-based production (see Earle 2002: 6). These include woodworking, textile manufacture, (hide?) scraping, grain storage, cooking, and meat and shellfish consumption, and the beads and figurines complete the picture. Though the grain storage facilities are generous, there is no convincing evidence for organized control of goods (unlike at contemporary sites such as the Layer 7 tripartite buildings at Değirmentepe; Gurdil 2010). Find Number ZD2644 was collected as a fragment of "sealing clay," though it is unlevigated and bears no impression. The complete absence of clay sealings, which are the hallmarks of administration of goods, parallels only one building from Tepe Gawra Level XII, the tripartite house in square 4K (Rothman 2002: 82, Fig.

5.7). Sealings are generally absent from most domestic spaces in the LC 1 period at Zeidan (with rare exceptions), and so, contrary to Gawra, this is the pattern rather than the outlier.<sup>18</sup>

The volumetric capacity of the storage jars should help understand the economy of the S.A1 household. At over 70 cm high, with a circumference of 215 cm, Jar ZD3369, has an approximate useable volume<sup>19</sup> of 268 liters (0.268 m<sup>3</sup>). Paulette estimates that there would have been between 1 and 2.7 daily rations per liter of grain (2016: Table 4.1), and so each storage jar could hold a maximum of 723 daily rations (almost enough for two people for an entire year). However, the lower end of the range is a more likely estimate and is similar to Gelb's figures (based on readings of 3<sup>rd</sup> and 2<sup>nd</sup> millennium BC cuneiform texts), which calculate to approximately 4.5 liters of barley per day for a family of four.<sup>20</sup> A single jar from Building S.A1, then, would provide about two months' worth of grain for a small household.

If more than one out of the four S.A1 storage vessels (three sunken in S.A1.1, one standing in S.A1.4) were in use at a time, then the amount doubles, triples, or quadruples, to a maximum of around 1,100 liters, or around 1,000 daily rations (accounting for individual consumption variation) and as much as 3,000 daily rations (8 years' worth for a single individual). Taking the conservative estimate, this would be enough grain for a small

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<sup>18</sup> Though there are several individual examples of stamp seals and clay sealings, the niched-and-buttressed building in Area C, dating to the very end of the Ubaid or the very beginning of the LC 1 period, provides the main exception to the dearth of administrative debris at Tell Zeidan in the form of dozens of "pre-form" clay sealings. These are levigated handfuls of clay with finger impressions that imply the preparation of sealing materials, and also appear in a well in Tepe Gawra Level XIII (Tobler 1950: Pl. LXXXVib). Other evidence for administration seems to come from either earlier or later than the LC 1 period, suggesting that the political economy changed substantially during that time.

<sup>19</sup> Total useable volume was arrived at by dividing the vessel into standard geometric components such as hemispheres and cylinders, calculating the volume of each component, and then adding the individual volumes. The neck was left out of the calculations as a "non-useable" storage space within the vessel; thus, the calculation is conservative.

<sup>20</sup> The standard amount of grain allotted per person per day in 3<sup>rd</sup> millennium BC Mesopotamia would change according to time period and individual. Men would receive 1-2 liters per day, women ~1 liter, and children 0.5-1 liter (Gelb 1965: 232-233).

family through one winter. However, the large amount of meat-remains discovered in the same room indicates that the quantity of food potentially available to this small building exposure—that in other ways does not seem particularly wealthy—was substantial.

Faunal analysis, undertaken by Tell Zeidan faunal expert Kathryn Grossman, helps clarify the distinction between food preparation and food consumption. This distinction can act as a proxy as to whether Room S.A1.1 is strictly a kitchen and workshop or an all-purpose domestic room. The room deposit locus of S.A1.1, 100029, has produced a much larger fragment count than either of the other rooms in S.A1, and the trashy buildup above the S.A1.1 floor has produced even more, totaling 589 fragments out of a total of 2,553 (23%) from all analyzed LC 1 contexts at Zeidan (n=24). Relative to the remainder of the building, the S.A1.1 faunal fragments make up 78.3% of the total. As survivorship curves and age-at-death analysis have demonstrated that the vast majority of the animals at Zeidan during the LC 1 period were raised for meat production (Grossman n.d.; see Ch. 7.2), the area of Room S.A1.1 looks like a context involving both meat preparation and bread production. Due to a lack of consumption-related vessels discovered in this room,<sup>21</sup> it does not appear to have housed consumption activities, or many other activities at all.

A better understanding of Oven 100014 can also help clarify the nature of Room S.A1.1. A traditional *tannur* (with a conical upper part) for a modern Middle Eastern household measures between 60 and 80 cm in base diameter and 80 cm in height (Parker 2011: 606), and can hold around six pieces of bread (Ebeling & Rogel 2015: 337). The location of ovens in modern Middle Eastern villages can be separate from houses, often

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<sup>21</sup> Other than Coba Bowls, but, as above, in this room those almost certainly relate to dispensing rather than consumption.

shared by several families (ibid.: 335; Parker 2011: 611). This simple ethnographic analogy actually tells us more about the distinction between LC 1 and modern examples, though, than the similarities.<sup>22</sup> The association of 100014 with domestic contexts contrasts the communal and detached nature of some modern village examples, and its size (approximately 1.2 m in diameter) and domed shape further separate it from the modern *tannur*-type.

Additional evidence for Late Chalcolithic cooking technology in northern Mesopotamia comes from the sites of Kenan Tepe and Tepe Gawra. The LC 3 examples from the site of Kenan Tepe measure around 1.4 m in diameter (Parker 2011: 627 endnote 19), which is similar to the Zeidan oven. A larger oven means higher capacity for food production, and these would be in the range of approximately double the modern village version. However, the LC 3 Kenan Tepe ovens do occur primarily in specialized contexts cut into the existing mound slope (for protection from winds; Parker et al. 2006: 77-78).

The White Room building of Tepe Gawra—the largest of the tripartite, mixed-use houses in Level XII (LC 1 period)—contains a circular oven-like feature, what Rothman calls a *tannur* (2002: Fig. 5.4). Though recent scholarship has drawn attention to the variability in modern Middle Eastern oven types and has cautioned against uncritical associations between commonly used modern terminology and ancient features (Ebeling & Rogel 2015; Tkáčova 2016; Parker 2011), the White Room fire installation does appear to be a *tannur*-like oven based on several characteristics, namely its beehive-shaped (conical) upper portion. However, its placement inside of the house again contrasts with the modern village case according to Parker's examples. While variability is evident in the

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<sup>22</sup> Though in the Ubaid period at Tell Abada the ovens are seemingly communal, located outside of the houses (Jasim 1985).

food preparation apparatuses of the Late Chalcolithic period, the strongest parallels with modern village examples seem to be in the shapes of the ovens and not in their socioeconomic context.

For commercial-scale bakeries, good examples come from the Old Babylonian period in southern Mesopotamia. The “Bakers’ House” of Nippur Area WB has provided both archaeological evidence for larger-scale bread production and textual evidence from cuneiform tablets that support the archaeological interpretations. The bakers, the texts show, were a family unit, and were responsible for providing 1600 liters’ worth of bread every two weeks to a variety of recipients including canal workers and temple-attached silversmiths (Gibson et al. 1978: 65). Three different (conically-shaped) bread-baking and (domed) meat-roasting ovens were located outside of the house, which had a public shop and office in front and domestic living quarters, including a fourth oven (for bread), in back. The amounts of bread produced exceeded household-level consumption, as indicated by the textual evidence and suggested by the number of ovens and the excessive accumulation of ash nearby (Gibson 1993: 8).

Although House S.A1 in general is a domestic building according to the finds associated with the other rooms, the carrying capacity of the permanent storage facilities, the proximity and size of the oven, the abundant meat remains, and the lack of domestic-related debris attested in Room S.A1.1 raise the possibility that it was a functionally-specialized space within a mixed-use residential building. While some parallels with later examples are apparent, this mode of food preparation is not directly analogous to the commercial bakeries of Bronze Age Mesopotamia but is also quite different from the communal bread ovens of modern Syrian villages and Ubaid-period cooking practices (see Pollock 2010). LC 1 grain storage facilities at Tell Feres present a third option, the

“*modalité hybride*,” in which storage occurred in both communal magazines and private houses (Baldi 2015: 484). The magazines of Tell Feres are explicitly non-domestic spaces that are associated with groups of houses whereas Room S.A1.1 is directly connected to domestic spaces (Rooms S.A1.3 and S.A1.4), and so Building S.A1 represents a fourth, household-based mode of storage and grain-based food production.

#### **4.2.2. Structure S.A6 (Op. 2 Phase D; LC 1-2)**

Structure S.A6 only consists of a floor laid over what looks like a pebble drainage system or other kind of floor preparation in Operation 2 Phase D (see above). The floor locus 20026, otherwise largely devoid of cultural debris, includes one of the site’s only clear examples of metallurgy (Stein 2009; 2011), a clay *tuyere* (ZD719). It is also one of the earliest pieces of evidence for metallurgy in northern Mesopotamia and especially in Syrian Mesopotamia, though it is predated by several examples from Greater Mesopotamia such as Değirmentepe (Gurdil 2010; Esin & Harmankaya 1986) and Yümüktepe (Caneva et al. 2012). A pierced worked-herd disc (ZD718)—possibly used as a spindle whorl—also came from the floor of this building, allowing the possibility that the room or area housed a more generalized range of craft activities.

The physical aspects of S.A6 add information to the interpretation. It is at a minimum of 3 m<sup>2</sup> large, but possibly much larger. The pebbles beneath the floor, likely a drainage system or method of stabilizing the floor base on uneven ground, and the thick plaster floor itself, are hallmarks of an open-air courtyard in a well-constructed building. The pebble bed for drainage or stabilization of the floor attests to a pre-conceived building plan, likely designed for a specific function.

In comparison to other contexts at Zeidan, S.A6 stands alone in its clear evidence for metallurgical technology, but intimates that by the end of the LC 1 period, the site was

a center for the importation of copper in raw form, likely from the Ergani Maden source in Diyarbakir Province, Turkey (Stein 2009: 134). The open-air nature of the space, the constant accumulation of ash layers attested in Area A (see above), the accommodation for excessive water intake, and the *tuyere* itself all suggest that the space may have been a locus of copper smelting. Without other direct evidence for metallurgy, though, it is possible that the inhabitants performed smelting elsewhere and that the *tuyere* is out of its systemic context, but the implications for on-site metal working remain the same.

#### 4.3. Chapter Summary

To summarize the stratigraphy of Operation 10, there are three architectural phases that are generally separated from one another by the familiar cycle of abandonment, decay, occasional repurposing of the area for garbage or toilets, and wash. While this is a fairly typical pattern of residential occupation, abandonment, reuse, and reoccupation, no structural remains indicate immediate reuse or secondary phases within them—all four building phases feature just one floor level and one architectural layout. Operation 2 also demonstrates a cycle, albeit less definitively, of occupation, abandonment, decay, and reoccupation. The separation of the phases by up to a meter of wash suggests either a considerable rearrangement of the occupation area on the Northeast Mound every few generations, or periodic, temporary abandonment.

The most thoroughly investigated LC 1 occupation level on the Northwest Mound comes from Level LC 1b. The high density of food-related remains in the largest excavated room, S.A1.1, including the domed oven, storage vessels for grains, and a disproportionate amount of faunal remains from meat-producing animals, illustrates an LC 1 food-production context. The remainder of the finds in House S.A1, including a figurine, a

worked-shell bead, leatherworking debris (bone awl), and textile manufacturing debris (loom weight), indicate a domestic, non-public building that supported the full range of economic requirements of the inhabitants, much like the kitchen-like courtyards of Değirmentepe, Arslantepe, Tepe Gawra, and elsewhere during the LC 1 period. This indicates a major change from Ubaid-period oven contexts, which tend to be detached from houses (Balossi-Restelli 2010: 194). Overall, the evidence from the Northwest Mound is indicative of a society that began to function quite differently by the middle of the LC 1 period, adopting new modes of subsistence activity.

CHAPTER 5  
EXCAVATED REMAINS OF THE LC 1 PERIOD ON THE  
NORTHEAST MOUND AND LOWER TOWN AT TELL ZEIDAN

The Northeast Mound is the lowest of the three mounds that compose Tell Zeidan, reaching a height of approximately 10 m above the plain (top elevation: 259.72 m above sea level). Area B is the only excavation area on the Northeast Mound, where Operation 3 uncovered later Ubaid-period, LC 1, and LC 2 levels in a 12 m<sup>2</sup> (4 x 3 m) exposure. Operation 7, dug into a slope protected on three sides by converging mound crests (see Pl. 3), uncovered LC 1 bulk artifactual remains such as small and well-worn potsherds from among multiple layers of aeolian deposit and slope wash, but little else and so will not factor into the description and analysis. Khalid Abu Jayyab was the primary excavator of both Operations 3 and 7.

Four architectural phases date to the LC 1 Period from Operation 3. The walls found in this Operation are generally thicker than those in the Northwest Mound, and the finds are correspondingly richer in some ways. In addition, ceramic analysis is more fine-tuned for this mound compared to the LC 1 assemblages from the Northwest and South mounds. Thus, Operation 3 provides an important sequence for changes seen between the Late Ubaid, LC 1, and LC 2 occupations at Tell Zeidan.

This chapter will also include a description of the excavated remains of the LC 1 period in the Lower Town of Tell Zeidan. Excavation of the Lower Town—the lower-elevation space at the convergence of the three mounds—has been limited to three operations, two of which were small soundings that reached LC 1 levels. Operation 19 is a 2 x 2 m sounding placed in the cut that had been made by a bulldozer prior to excavations in between the South Mound and the Northeast Mound. Op. 19 is on the south side of the

cut, placing it closer to the South Mound. Operation 20 is a 2 x 2 m sounding on the north side of the cut, locating it closer to the Northeast Mound. These soundings, excavated by Dr. Katharyn Hanson, were intended to investigate the viability of obtaining archaeological data in contexts heavily disturbed by modern development (see Hanson 2012).

### 5.1. Architecture & Stratigraphy of Operation 3, Area B, Northeast Mound (Stratigraphic Section: Pl. 9)

Three main architectural phases of the LC 1 Period (Op. 3 Phases D, E, and F) feature in this excavation area, and these follow immediately from a building dating chronometrically to the Ubaid Period (ca. 4800 BC) but to what, ceramically, looks like a very early LC 1 or very Late Ubaid occupation level (see Pl. 9 for phasing). The structure of this building, in turn, was built directly on top of the architectural remains of the previous, Late Ubaid level. Thus, architectural continuity prevents clear identification of the periodological boundary between building levels of the Late Ubaid phases, though a dearth of architectural remains in Op. 3 Phases G-H corresponds to the division between LC 1 and LC 2 levels. Op. 3 Phase I is an architectural level that dates to the LC 2 period.

#### **5.1.1. Operation 3 Late Ubaid Levels (Phases A-B)**

The earliest levels that Operation 3 reached, Op. 3 Phases A and B, occur approximately 3.7 m below the surface of the mound in a 1 x 2 m subordinate sounding. They feature a majority (approximately two-thirds) of painted potsherds in the Late Ubaid style exemplified at Hammam et-Turkman IVA-B (Akkermans 1988a: Figs. 3-4). However, 30074, a collapse layer in the room-space created by two walls of Op. 3 Phase B, is sealed by the Phase C floor 30063 but contains three flint-scraped Coba Bowls (out of nine diagnostics) and no painted sherds. With Phase C providing a radiocarbon date of

approximately 4800 BC (see below), the flint-scraping technology used in expedient bowl production does appear significantly earlier than the traditional dates for the beginning of the Late Chalcolithic period (ca. 4500 BC).

#### **5.1.2. Op. 3 Phase C; Building S.B2 (Ubaid-LC 1; Pl. 10)**

The subsequent level, Op. Phase 3.C, excavated across the entire 3 x 4 m sounding, features intact architecture that began immediately on top of the Ubaid-period architectural remains and collapse layers. The deposits continued to produce a significant percentage of Ubaid-style painted wares such as straight high-necked storage jars (Pl. 24 f, h) and unpainted bell-shaped bowls (Pl. 23 i). This suggests an Ubaid-related occupation, but the increased number (~35%) of scraped-bottom bowls demonstrates a much heavier reliance on the rapid-production technology associated with Late Chalcolithic societies. Beaded-Lip Bottom-Scraped Bowl fragments occur in a primary context on the floor of Building S.B2 (Pl. 10). Thus, Op. 3 Phase C demonstrates a ceramic assemblage characteristic of both the Late Ubaid and LC 1 periods.

Building S.B2—the Burnt Building—consists of two walls of a room (30070 & 71), traces of a third wall (30072), one or two interior surfaces (30063 & 73), and an exterior surface (30066) immediately east of the building (see Pl. 10). Wall 30070 runs N x NW – S x SE, 0.5 m in width. The remains of Wall 30071 are partially covered by the baulk, though it does clearly form nearly right angles with Wall 30070 and the mudbrick formation of 30072, which is 0.22 m wide and 0.4 m long. All of these walls have dark brown or grayish-brown mudbricks, with some blackening from a burning episode, giving Building S.B2 its name. Exterior Surface 30066 is a hard, pale-brown sediment interspersed with mudbrick fragments that underlies Wall 30057 of the following building phase and is cut by Pit 30068.

The interior floor, 30063/73, does not evidence particular construction methods, but rather seems to have come into existence through casual tamping or incidental activities. Floor deposit 30063/69 (two halves of the same room) features mostly dense concentrations of large potsherds, ground stone, and animal bone, but also includes carbonized wood, representing a room assemblage smashed by wall collapse.

The floor deposit of 30063 yielded a  $^{14}\text{C}$  date with a  $2\sigma$  calibrated mean of 4790 BC.<sup>1</sup> The pottery includes both Ubaid and LC 1 forms, and the Coba Bowls found on Floor 30063/69 suggest that the changes associated with the Late Chalcolithic period had begun to happen already by Op. 3 Phase C, ca. 4800 BC. Flint scraping is attested on four out of 18 drawn diagnostic sherds while four sherds are painted in early LC 1 motifs such as the ‘X pattern’ (Parker et al. 2006: Fig. 19 C; here Pl. 23 dd), ‘solid-field’ (see Akkermans 1988a: Fig. 5 nos. 59-60; here Pl. 23 aa), and ‘lines-in-reserve’ (Akkermans 1988a: no 62; here Pl. 23 cc).

On top of Floor 30069 is a layer of bricks (30065), 5-courses tall, fallen from the wall. Covering the fallen wall and Floor 30063 is Collapse Layer 30060, which consists of pieces of mudbrick and burnt-red mud, and Ash Layer 30055. These two layers represent a burning episode that evidently occurred after the building started to collapse, though whether they are related to a single destruction event or if there was substantial time lapse in between is unknown.

The ash layer indicates that the wood beams burned before they decomposed, limiting the maximum time interval between collapse and burning to roughly several decades, depending on the species of wood, but probably within 15 years (Highley 1995).<sup>2</sup>

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<sup>1</sup> Beta number 248981: 5910±40 BP, 4824-4727 BC cal.

<sup>2</sup> Analysis of the archaeobotanical remains recovered from Tell Zeidan is ongoing and has not yet determined the exact wood species used in the 5<sup>th</sup> millennium at the site (Smith et al. 2015: 59).

Thus, it seems that the wall collapsed during a destruction event and perhaps fire broke out, spread to, or was set in this locus shortly afterward. Given that the inhabitants of the Burnt Building seemed to have left their pottery behind—whether on the floor directly or on now-incinerated wooden racks or shelves—there may have been an emergency evacuation.<sup>3</sup>

### **5.1.3. Op. 3 Phase D; Building S.B3 (Level LC 1a; Pl. 11)**

Following the use period of Building S.B2, one of the bricks from Wall 30070 was reused in Wall 30052, indicating that a leveling event either did not occur before construction of Building S.B3 or was cursory (see section drawing, Pl. 9). The full stratigraphic relationship between the Phase C architecture and the succeeding Phase D architecture is not perfectly clear but the floor (30054) and walls (30052 & 30057) of Building S.B3<sup>4</sup> appear immediately on top of the collapse debris and ashy remains of S.B2 (30060 & 30055). A shattered bowl containing a cow mandible (30061) overlies Collapse Debris 30063 and underlies Wall 30052, suggesting that the inhabitants of Building S.B3 performed this votive offering just prior to the construction of the building. Floor 30054 may have been laid after Wall 30052 but before Wall 30057, though it is not certain.

The east wall, 30057, represented by only a few mudbricks, was at least 91-cm wide and runs N x NW – S x SE. It abuts 30052, and was possibly laid in header-stretcher formation. The north wall of the structure, Locus 30052, was preserved to two courses high and several bricks thick (perhaps five or more); it runs W x SW – E x NE. The wall terminates before it reaches a cross wall or the baulks, or even the large intrusive pit-like

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<sup>3</sup> Another possible interpretation, taken from Early Dynastic Mesopotamia, is that the ashes represent the ritual closing of a temple (see Ellis 1968: 10). See Section 4.3, below, for further consideration of this possibility.

<sup>4</sup> Building S.B3 is also called the Black Building on account of the black, crumbly mudbricks used in its construction.

feature (30048) that cuts the surrounding, contemporary loci, suggesting a doorway or hallway leading into another room to the north. Wall 30058 is approximately 0.4 m wide, using a single row of mudbricks, preserved to three courses high, and is cut by Gravel Deposit 30048 of the next phase.

Floor 30054 is a 4 cm-thick compacted-mud surface, bounded by Walls 30052 and 30057 and the south and west baulks, covering approximately 7.5 m<sup>2</sup>, though the original interior space was probably larger and part of a multi-room building.<sup>5</sup> The floor assemblage occurring on top of the floor primarily consists of faunal, lithic, and ceramic fragments, but also a polished, green stone celt. Also lying on top of Floor 30054 is a large, mounded deposit of bitumen (Locus 30053) with an approximate volume of 0.20 m<sup>3</sup>.

#### **5.1.4. Op. 3 Phase E; Building S.B4 (LC 1b; Pl. 12)**

The walls (30027 & 30035) and floor (30047) of Op. 3 Phase E follow on top of the relatively flat Phase D strata, though with a new, cardinal orientation, suggesting a leveling event to conclude the occupation of Building S.B3 and prepare for the construction of S.B4 (also called the Plastered Building). Wall 30027 was built on top of both the flattened remains of Wall 30052 and a gravel-filled negative feature (30048).

The walls of Building S.B4 are preserved to about a half-meter in height and feature square, 12-cm thick pale-gray mudbricks, a thick (4-5 cm) coating of mud plaster on the interior surface, and a thin second coating of lime or gypsum plaster (see insert on Pl. 12);<sup>6</sup> such thinness suggests that the purpose of this second coating was aesthetic. The walls meet one another near the southwest corner of the trench, with the southern wall seemingly

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<sup>5</sup> For comparison, cruciform halls and *mittelsaals* in typical Ubaid tripartite buildings are sized in the 40—50 m<sup>2</sup> range, with auxiliary rooms ranging in size from much smaller to around 10 m<sup>2</sup> (see, e.g., Roaf 1989: Table 2).

<sup>6</sup> Identifying lime plaster from gypsum plaster by visual inspection alone is quite difficult, and gypsum was the more widely attested for the prehistoric periods in Mesopotamia (see Moorey 1994: 331).

abutting the western. The southern wall is two-bricks thick, and the full width of the western wall is unknown since it goes under the west baulk of the trench.

Floor 30047, made of hard, compact orange mud, touches the north and west baulks and both plastered walls. Gravel Feature 30048 is 30-cm deep, cuts into the floor at its western edge, and runs under both Wall 30027 and the west baulk. This gravel- and river cobble-filled negative feature either merged with the wall's gravel base or they were one and the same to form a fairly complex drainage system. This design would have allowed liquid from inside the room out to the area beyond, west of the wall. If this was the case, then the exposed room was at the southwestern corner of, or juttied out from, the overall building, assuming the liquid was headed for the building exterior.

The three-way stratigraphic relationship between the floor, the drainage pit, and the wall is complex, and it seems as if the floor may have been laid and/or tamped down first, then the pit was cut and filled, and, finally, the wall was built. Since Wall 30027 also partially covers the earlier wall (30052), this hypothesis is not certain, but it does seem clear that the design of the drainage system was deliberate and that its construction was concurrent with that of the building.

While the excavations did not discover an intact room assemblage in Building S.B4, Locus 30049 is a secondary dumping of artifacts within a grayish-brown matrix and was deposited against the south face of Wall 30035 (i.e., the exterior of the building), presumably prior to the abandonment, crumbling, and collapse of the architecture. Due to the depth (ca. 30 cm) and richness of the deposit, it is also presumable that this stratum represents repeated, periodic cleaning of the interior space of Building S.B4 and dumping of its debris. Tertiary deposit 30039, which, along with 30046, represents the collapse phase of Building S.B4, yielded carbonized reed remains (ZD278; beta number 248791)

that produced a <sup>14</sup>C date of 5710±40 BP. The calibrated range is 4460-4680 BC, with a calibrated mean of 4570 BC (Stein 2009: 135 Table 1).

Thus, the exposed portions of the Plastered Building evidence a fairly sophisticated structure featuring two coatings of plaster—the inner for function and the outer for form—and a drainage system designed for heavy use. Again due to the limitations of discovery, we cannot identify the overall shape or nature of the structure, but the floored interior space is at a minimum 4 m<sup>2</sup>, and likely much larger. The disposition of the building—it was in direct contact with the remains of Building S.B3 but oriented much differently (see Pls. 11-12)—suggests an abrupt change in occupation, perhaps paralleling the localized violence toward the White Room in Tepe Gawra Level XII (Rothman 2002: 27) or the ritual closing of a building such as the FS temple at Tell Brak (Oates et al. 2001: 389).

#### **5.1.5. Op. 3 Phase F; Building S.B5 (LC 1c; Pl. 13)**

The earliest stratum of Op. 3 Phase F is Wall 30029, which runs east-west and leans up against the earlier Wall 30035. The base, at an elevation of 258.13 m, is about 5 cm higher than the base of 30035, resting on the secondary deposit 30049. All of the other Phase F walls and the floor (30032/30028) were founded on top of the Phase E collapse and remains. This phase, though featuring a high degree of architectural elaboration, is badly damaged by pits from the following level and the remains are not well preserved.

Structure S.B5 is known as the T-Shaped Hall Building due to the intersecting of two perpendicular rectangles of interior space. Six walls and two floor areas compose the excavated part of the structure. The walls running N-S are all several rows of mudbrick thick, while the walls running E-W are 1-2 rows thick. The bricks typically measure 40 x 20-25 x 12 cm and are various shades of orange. Most of the walls were built directly on top of the remains of the earlier walls, but Wall 30029, running E-W, features long,

stretcher mudbricks and was built on a lower exterior deposit (30049) against the south face of the earlier wall. Thus, Wall 30029 could represent an attempt to use the standing remains of Building S.B4 as a support or guide in the construction of Building S.B5. Floor 30032 is a whitish-gray surface of compacted mud that covers the entire interior space of Building S.B5.

The name “T-Shaped Hall Building” indicates a particular spatial attribute that is a hallmark of 6<sup>th</sup> and 5<sup>th</sup> millennium architecture (see, e.g., Jasim 1985: Fig. 13). Given the limited extent of the exposure, such a connection is not certain, but the spatial character of the structure is noticeably more complex than the basic rectangular spaces that typify the earlier LC 1 architecture.<sup>7</sup>

The T-shaped-hall building type, though, predates the Late Chalcolithic period considerably, having originated during the Samaran period (ca. 5500-5200 BC) and its earliest arguable attestation is at Tell es-Sawwan, Level III, in central Iraq (al-Wailly & al-Soof 1965: Pl. 20). During the Ubaid period, the T-shaped-, or cruciform-, hall design occurred in large residences such as at Tell Madhhur Level 2 (Roaf 1989: Fig. 1; 1984: 123-7), Tell Abada (multiple examples; Jasim 1985: 80, Fig. 2), Tepe Gawra XV Room 27 (Tobler 1950: Pl. XV), and Kheit Qasim III (Forest 1980: 222 Fig. 1).

The Abada houses provide a useful architectural parallel for the portion of structure from Op. 3, as the wings of their cruciform halls often border the exterior rather than share an interior wall with an adjacent room. It is easy to imagine, then, Room S.B5.2 as one wing of a cruciform room and room S.B5.1 as the central component. Although the pottery, stratigraphy, and radiometry all clearly indicate a mid-late LC 1 date for this Op. level (see

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<sup>7</sup> The most thoroughly exposed and coherent domestic building of the Ubaid period at Tell Zeidan, located on the Northeast Mound to the southeast of Op. 3 in Ops. 11, 14, & 18, does feature a rectangular courtyard surrounded by auxiliary rooms, though does not appear to include cruciform halls (Stein 2011: Fig. 4).

below), the continuity of architectural style from the Ubaid period indicates that some of the visible elements of Ubaid culture persisted for centuries after the period ended.

## 5.2. Architecture & Stratigraphy of the Lower Town (Areas G and H)

### **5.2.1 Area G, Operation 20<sup>8</sup>**

Operation 20, a sounding dug in the northeastern portion of the Lower Town, produced a series of strata that demonstrate occupation in this area during the LC 1 period. The uppermost layers right beneath the surface date to the LC 1, “characterized by high percentages of beaded lip flint-scraped bowls (37 out of 49 examined diagnostic ceramics in locus 2)” (Stein 2011: 133). At a depth of 1.2 m Ubaid-style wares start to become prevalent, and by a depth of 2 m the pottery is almost entirely in the Ubaid style (ibid.).

Approximately one meter below the surface, at an elevation of 251.10 m above sea level, the earliest flint-scraped bowls are visible, along with Ubaid-style painted pottery, associating this locus (200006) with Level Ubaid-LC 1. It contains part of an oven along with ashy refuse, greenish clay, and a black, loamy soil. Above that, in Locus 200005(LC 1a), flint-scraped bowls dominate the assemblage. Loci 200004 and 200003 represent Level LC 1b in this area. There is dense faunal accumulation in one corner and the pottery continues to largely consist of flint-scraped bowls; thus, it seems likely that this was a pit or discard area in antiquity. Upper deposits (Loci 200002 and 200001) are somewhat disturbed by the bulldozer cut and other surface-level activity.

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<sup>8</sup> For stratigraphic section, see Hanson 2012: 254.

### 5.2.2. Area H, Operation 19<sup>9</sup>

Operation 19 is located north of the base of the South Mound, in the nadir of the three mounds, across the bulldozer cut from Op. 20 (see Pl. 3). The ceramics of the upper meter of this sounding, Op. 19 Phases A and B, include abundant beaded-lip flint-scraped bowls, suggesting an LC 1 date. The sequence reaches the Ubaid as determined by the high percentage of painted pottery from these trash deposits (Stein 2011: 133-4). The consistency of the stratigraphic sequence at a lower elevation than the Ubaid-LC 1 levels on the mounded areas indicates that there was a lower town in both the Ubaid and early LC 1 periods at Tell Zeidan.

Operation 19 Phase E (Ubaid-LC 1) begins at an elevation of ca. 251.40 m in Locus 1900013 and features a mix of painted pottery and flint-scraped bowls but is otherwise nondescript. Immediately on top is Wall 190009 (S.H2; see Hanson 2012: 248-49), which is two mudbricks wide and runs north-south across the edge of the trench. The bricks are reddish-tan with thick, gray mortar joins, and measure 30 x 20-30 x 10 cm and 15 x 15 x 10 cm. The occupational accumulation and collapse layers running up against it continue to feature a prevalence of painted pottery but also flint-scraped bowl sherds.

The Op. 19 Phase D architecture (S.H1, LC 1a; see Hanson 2012: 250-51) directly succeeds Feature S.H2, covering the wall and associated mudbrick collapse. Two walls compose the excavated remains of S.H1, 190005 and 190008. Both walls are one-brick wide with thick gray mortar joins and oriented cardinally, while the former consists of reddish-tan, large mudbricks sized 30 x 60 x 10 cm. The latter features grayish, smaller mudbricks sized 30 x 30 x 10 cm. The two walls meet at a corner join that uses half-bricks

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<sup>9</sup> For stratigraphic section, see Hanson 2012: 246.

(30 x 30 x 10 cm and 15 x 15 x 10 cm), a construction method not attested elsewhere at Zeidan. Ash lenses and mudbrick detritus (190006-7) run up against these walls, which are superseded by more mudbrick collapse (190004; LC 1b?) and mixed soil/detritus (190003; LC 1c?). A disturbed and mixed deposit (190002) covers the mudbrick collapse layers and approximately 80% of its pottery consists of flint-scraped bowls, which may be a contextual indicator as much as a temporal one.

### 5.3. Spatial-Functional Analysis of LC 1 Contexts on the Northeast Mound

#### **5.3.1. The Burnt Building – S.B2 (Op. 3 Phase C; Ubaid-LC 1; Pl. 10)**

Floor 30063/69 supported a room assemblage that includes storage vessels and rapidly-made, flint-scraped bowls. The proximity of the rapidly-made bowls to storage vessels is similar to the subterranean storage jars found in Building S.A1.1, one of which (ZD3199) contained a straight-sided Coba Bowl (ZD3197; Pl. 29 c) while other storage jars were found with or near to fragmentary Coba Bowls (see Ch. 4 Section 4.2.1).

Not many small finds are associated with Building S.B2, but the outdoor surface (30066) to the east of S.B2 supported an exterior artifact assemblage featuring a stockpile of 17 clay projectiles (biconical, ovoid, and one spherical; e.g., Pl. 34 g). These “sling pellets” occur much more readily in Ubaid levels at Zeidan (n=560) but are fairly rare in the excavated contexts of the LC 1 period (n=22), only five of which come from elsewhere on the mound. Thus, this is the only LC 1 stockpile discovered and the amount goes down over time. The proposal that they are ammunition used in warfare based on the evidence from the LC 3 period at Tell Hamoukar (Reichel 2006: 9) would contradict the theory that the amount of competition and organized violence increased in the LC 1 period. However, the decreasing amount of sling pellets would also match with the concomitant decline in

wild fauna (see Ch. 7 Section 7.2) if they were used exclusively for hunting (as Fukai et al. have proposed for Telul eth-Thalathat in the Upper Tigris region; 1970: 78-79).<sup>10</sup> Either way, this collection of 17 sling pellets is the only significant number to occur in the LC 1 levels of Tell Zeidan and it is associated with the Burnt Building. There does not seem to be any evidence for a violent episode, however, and wild taxa are certainly part of the Area B diet at this time (see Chapter 7 Section 7.2).

### **5.3.2. The Black Building – S.B3 (Op. 3 Phase D; LC 1a; Pl. 11)**

The room assemblage of Floor 30054 is limited to sparse bulk finds (potsherds, faunal remains, and chipped stone fragments) except for a finely polished green stone axe or celt (ZD776). Signs of wear on the working edge indicate that it was not purely ceremonial and did function as a tool at some point. More telling, perhaps, is the stockpiled bitumen inside of the room. The domed mass has an approximate volume of .020 cubic meters (200 L).

Bitumen is a multipurpose, petroleum-based substance that naturally occurred in seepages, springs, and even within certain rocks in ancient Mesopotamia and Persia. The best and most widely sought bitumen came from Hit, ancient *Id* in Akkadian, located along the middle Euphrates, and was exported to both the north and the south. Knowledge of its uses comes primarily from Sumerian and Akkadian texts of the 3<sup>rd</sup> millennium BC and later, but archaeological evidence from Warka, dating to the Uruk period, from Tell al-‘Oueili, dating to the Ubaid period, and from other prehistoric sites, indicates a variety of

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<sup>10</sup> Arsebük & Kormann present in thorough format the cache of 63 sling pellets found carefully laid in 51-I, II/g-h (Late Chalcolithic period) in Bin AH, identifying several important details. Firstly, none of the clay is tempered, likely to increase density and mass without increasing size, and as a result they could not be fired. However, this cache and another one were found in bins next to hearths, indicating the drying-by-proximity method. Secondly, flat pebbles were also found in the bin along with an obsidian flake, tying the three object types together. Thirdly, they consider them to be ammunition for slings (i.e., a weapon), but typically for hunting (Esin 1976: 163-172).

uses including as jar stoppers, impressed sealings, hafting for blades and other tools, and waterproofing for boats, jars, and buildings (Potts 1997: 100). In the Samarran period at Tell as-Sawwan it occurs as a flooring component in-between layers of gypsum (al-Wailly & al-Soof 1965: 21). Jasim has also associated it with reed bundling used for grain storage at Tell Abada (1989: 86). The impressions of a reed mat preserved in bitumen used in a mortuary context comes from Tepe Gawra XI, Tomb 34 (Tobler 1950: Pl. XLVII). Rarely, it has been found as fuel in hearths, as at Nuzi (Starr 1939: 44). Finally, the example of the potter's wheel that Wooley discovered in the "kiln level" of Pit F at Ur, dating to the Early Uruk period, has a bitumen-coated perforation (Wooley 1955: 28).

Ninety-six bitumen finds come from Tell Zeidan, many of which feature reed impressions (e.g., Pl. 33 d). The functional contexts of two in particular suggest that one local use for bitumen was in preparation of a work area. Discard Deposit 150058, in Area E on the South Mound, dating to the early LC 1 period, contains a flat, rectilinear piece of reed-impressed bitumen alongside a polished hammerstone, chert cores, and lithic debitage (see Ch. 6 Section 6.3). An earlier, Ubaid-period workshop in Area B of the Northeast Mound (Op. 18) also produced evidence of a reed-mat impressed piece of bitumen in the context of a chipped-stone tool workshop (Stein 2011: 128). There are a variety of other uses for bitumen attested at Zeidan, such as hafting, pottery repair, water sealant, etc., but the relatively large volume of the 30053 deposit supports an interpretation that its usage in that context was sustained over time and probably repetitive.

Perhaps the most characterizing *in situ* find from the Black Building is a cow mandible placed inside of a smashed bowl, found in Locus 30061 beneath Wall 30052 (see Pl. 11). It appears that this could have been a votive offering made during the construction of the building as part of the building rites. Evidence for votive offerings in Mesopotamia

can come from a variety of context types (Van Buren 1952: 79), but often appear in foundation deposits (Ellis 1968: 31). Later examples from Mesopotamia include the 3<sup>rd</sup> millennium BC FS Temple at Tell Brak, which includes two buried equids and ritual burning evidenced by an externally-sourced, green ash layer (Oates et al. 2001: 90, 389). A layer of ashes also occurred beneath the Old Babylonian (2<sup>nd</sup> millennium BC) Ištar Kititum Temple at Ishchali (Ellis 1968: 10). An animal sacrifice is attested at the Halaf site of Tell Aswad (7<sup>th</sup> – 6<sup>th</sup> millennium BC), nearby in the Balikh Valley, in the form of an ox skull on the floor of a threshold to an otherwise inaccessible room within a building that featured elements of religious practice such as pedestals and offering tables (Mallowan 1946: 124, Fig. 2). Yarim Tepe II also provides an example of a “ritual act” from the Halaf period, in this case the burying of a copper stamp seal, a richly painted vessel, and obsidian microliths beneath the floor of Tholos 67. Munchaev resultantly interprets this tholos as a “special cult structure” and an antecedent of the later Mesopotamian practice of “placing non-ordinary articles beneath walls and floors of temples” (1997: 71).

Examples closer in time to Building S.B3 30061 come from Phases A and B1 (LC 2-3) at Hacinebi Tepe, on the Turkish Upper Euphrates, which feature sheep mandibles buried under the walls of buildings in Area C Operation 16 (G. Stein, pers. comm.). Closer still is the ritual closing of Well D0012 at Horum Höyük in the Karababa Basin on the Upper Euphrates, which features a deposit consisting of deer antlers, a pig skull, and a pierced stone at the bottom (Fletcher 2007: 198) and dates to the LC 1 period (see Appendix A, V.18). Finally, Level LC 1b in Operation 2 on the Northwest Mound (see Ch. 4 Section 4.2.1) features a sheep mandible in a vessel beneath the wall of a building, though we only exposed one wall of the building and so we do not know the full context of this deposit.

An elaborate votive offering may signify a building of relative importance, or may simply represent a material expression of ritualistic behavior manifested in spatial terms. The polished stone axe and the large pile of bitumen imply craft manufacture,<sup>11</sup> but the Black Building is an otherwise domestic space with circumstantial evidence for ritual or ceremonial activity, much like the Değirmentepe Layer 7 tripartite houses (Gurdil 2010).

### **5.3.3. The Plastered Building – S.B4 (Op. 3 Phase E; LC 1b; Pl. 12)**

Excavation of Building S.B4—the Plastered Building—produced a wealth of artifactual material. Locus 30049 is a grayish-brown deposit (built up against the exterior of Wall 30035) that contains a rich assemblage of jewelry, potsherds, chipped-stone tools, basalt grinding stones including a rotary quern, fresh-water shell fragments, lithic-manufacturing debris, a zoomorphic figurine fragment, a crosshatch-incised baked-clay muller, and faunal remains (including bird bones; see Ch. 7.2.1 for further discussion). The chipped-stone finds include a chert sickle blade hafted with bitumen (ZD293; Pl. 36 d), obsidian blades and debitage (ZD753; Pl. 36 a), an obsidian core (ZD291; Pl. 36 b-c), and a chert hammer stone (ZD767). Locus 30049 could represent a dumping following cleaning, probably repeatedly, of the interior space designated by Floor 30047. The similarity between the non-artifactual composition of the “build-up” deposit inside the room and outside the room further supports this interpretation.

Thus, Discard Deposit 30049 and other loci tell us several things about the activities of the Plastered Building. Firstly, a wide range of domestic and economic activity is represented. Secondly, the building interior was cleaned, possibly with regularity, since the

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<sup>11</sup> There is no evidence that this bitumen was used for sealings, and so its use must have been industrial in some way, though it could have been obtained for construction purposes (repairs to roofing, etc.), though there is also no direct evidence for such a function at Zeidan.

amount of potsherds, animal bones, and chipped stone fragments from above Floor 30047 is minimal and far less abundant than other, comparably-sized contexts.

Secondly, the discarded finds themselves indicate a complex series of activities that included acquisition and working of raw obsidian for tool manufacture and the use and/or production of stone tools hafted with bitumen for farming (Pl. 36). They also include food preparation (quern and grinding stones), food consumption or offering (fauna and shell remains), and wearing, working, and/or offering of jewelry (a bead and pendant; ZD296; Pl. 34 d). The freshwater shell coming from 30049 could represent food consumption, ornamentation (though the pieces are unmodified), or possibly a role in religious practice (Moorey 1994: 129).

Finally, the construction of the building itself helps contextualize the space. The double-coated plastering of the walls, consisting of a functional, mud coating and a decorative, white coating of either gypsum or lime suggests an interior context that was intended for non-residents to experience. According to Moorey, whitewashing of walls was fairly common in prehistoric Mesopotamia but nearly ubiquitous among public buildings (*ibid.*: 331). No evidence indicates that this building was public, but there does seem to be a distinguished in its construction.

The drainage system consisting of a cobble-and-gravel-lined pit (30048) running from the edge of the room, beneath the western wall, and, presumably, to the outside, suggests that the inhabitants of the Plastered Building were concerned from the time of the building's construction with adequate removal of liquids from the interior. The room is certainly not a washroom, given the size and associated artifacts. That this room was not central within the building decreases the likelihood that it was a courtyard (*i.e.*, open-air)

from which rain water would need to be drained (see also Gurdil 2010 that Ubaid central halls were typically roofed).

Thus, Drain 30048 probably represents the final step of a liquid-based activity or in a hydro-management system. Since no textile-manufacturing equipment is associated with the room, either libations or ablutions seem to be the most likely possible functions. Later temples from the historic periods in Mesopotamia sometimes had dedicated rooms for ablutions,<sup>12</sup> and temple libations are evident in the texts and decorative art of later periods.<sup>13</sup> There is no evidence—such as a cella, podium, or shrine—that this building was religious center, but it may have been a multi-functional space whose main purposes included craft manufacture, harvesting, and perhaps ritual activity.

#### **5.3.4. The T-Shaped-Hall Building – S.B5 (Op. 3 Phase F; LC 1c)**

Unfortunately, the most interesting architecture of Operation 3 is also the least well preserved, as Building S.B5 may have been cleaned prior to its abandonment, leaving little trace as to the activities housed within. Thus, meaningful spatial-functional analysis based on the associated finds assemblage is not possible for the T-Shaped-Hall Building. Its architectural layout and the preceding stratigraphic sequence, however, help characterize this building as another in a succession of substantial domestic structures.

#### 5.4. Chapter Summary

Operation 3 in Area B on the Northeast Mound of Tell Zeidan contains a sequence of architecture that demonstrates one major fact above all: that *during* the LC 1 period major changes occurred, not simply before and after. There are several clearly visible

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<sup>12</sup> For example, the Abu Temple from Early Dynastic Eshnunna (Delougaz & Lloyd 1942: 176-179).

<sup>13</sup> For example, the famous wall plaque from Ur that depicts priests pouring liquid before the god and temple (Wooley 1955: Pl. 39 C).

aspects of continuity between Ubaid Phase B and early LC 1 Phase C (Level Ubaid-LC 1), but in Phase D (Level LC 1a). This complicates the idea that architecture and pottery might change concomitantly in any given area of a site. In conjunction with the ceramic sequence, it appears as though features of the Late Chalcolithic period began to exist during the Op. Phase C occupation (Building S.B2), ca. 4700-4800 BC, and continued to develop throughout the later phases. The abandonment of the area attested in Phase G (Level LC 1-2) also signifies a shift that occurred during the LC 1 sequence. In between, several levels of well-built houses characterize the area as a multi-purpose locus of craft production, ritual activity, and food consumption.

CHAPTER 6  
EXCAVATED REMAINS OF THE LC 1 PERIOD ON THE SOUTH MOUND AT TELL ZEIDAN

The South Mound is the highest and largest of the three mounds at Tell Zeidan, reaching a height of approximately 14 m above the plain (top elevation 265 m above sea level). The Tell Zeidan Expedition operated within three excavation Areas on the South Mound: C, D, E, plus the Step Trench (see site map on Pl. 3). The majority of the remains exposed on the South Mound date to the late Ubaid period (ca. 5200-4650 BC) and the early LC 1 period (ca. 4650-4400 BC). Although several Operations were opened near the top of the *tell*, we did not encounter remains of either the later LC 1 period or early LC 2 period other than surface potsherds, and so either the mound was not (fully) occupied then, or those levels had been removed by the intense winds that create a severe sloping effect. The latest architectural phase dates to the Early Bronze Age (ca. 2800 BC), without much depositional accumulation or standing preservation in between the latest Late Chalcolithic layers and the Bronze Age, and so aeolian activity may have been impacting the formation of the mound since antiquity.

The other occupational feature of the top of the South Mound is a series of largely undatable adult and child burials. Some contain pottery or other grave goods that indicate a likely LC 2 date, and one contains a bronze bead that signifies a much later date, but most of the over forty burials contain no artifacts. Furthermore, the intense deflation of the mound has in most cases destroyed the original surfaces from which the burials were cut, and so we can only say that most of the burials, which cut deeply into the LC 1 architectural layers, postdate the LC 1b occupation level.

Dr. Tate Paulette excavated Operation 9 in Area C, on the north face of the South Mound, intending to explore architecture of the Late Ubaid period. Operation 17, excavated

by Dr. Jean Evans, is another 10 x 10 m trench intended to expand the Area D evidence for Ubaid-period occupation on the South Mound. The uppermost levels of both of these trenches include very early LC 1 contexts. Operations 15 and 16, excavated by the author and Dr. Stephanie Selover, respectively, were opened adjacent to one another. We intended them to specifically target the LC 1 period on the South Mound, placing them at the elevation where the Step Trench evidences LC 1 architecture (see Pl. 4).

#### 6.1. Architecture & Stratigraphy of Area C (Operation 9; Stratigraphic Section: Pl. 14)

Due to a variety of factors including abandonment, later disturbances, and mound erosion, the LC 1 architecture discovered in Area C is limited to a single building. Later pits cut down into a sizable, niched mudbrick wall that corresponds to Site Level Ubaid-LC 1. This section will start by briefly describing the Ubaid-period strata, though they are outside of the scope of this dissertation, as they will help characterize the architectural development of Area C.

##### **6.1.1. Op. 9 Late Ubaid Levels (Phases F-D)**

Excavation of Op. 9 Phase F produced building remains that could easily be considered “monumental,” represented by two mudbrick walls (900074 & 900076; see Stein 2011: Fig. 9). Three-bricks thick, with a niche and two buttresses exposed, these walls likely represent the northern edge of a substantial building extending beyond the excavation area. Building S.C1 is oriented approximately along the ordinal axis, with its corners roughly at the cardinal points. Op. 9 Phase E separates two architectural levels and produced no defined architecture.

The Phase D architecture (see Stein 2010a: Fig. 12) represents a change in nature and style, but not orientation, from Phase F, though the limited exposure due to mound

erosion makes any assessment tenuous. While niched-and-buttressed construction is not apparent, the interior space of Building S.C2 could be a T-Shaped Hall, similar to the Op. 3 LC 1b room (S.B4; Pl. 13) and the Tell Abada tripartite-building halls (Jasim 1985: Fig. 13). Op. 3 Phase C is a series of hard-packed loci (90034 & 90041-42) comprising a grayish-brown, 30-cm deep outdoor surface that covered the Phase D architecture and provided a smooth, if sloping, surface on top of which the next phase's walls were built.

Radiocarbon dates from Operation 9 include two from a room context within the Phase D architectural remains whose 2-sigma BC cal. means are 4940 and 4898 (Stein 2011: Table 1), suggesting a ca. 4900 BC date for the latest Late Ubaid occupation in Phase D. This matches the mean date of 4890 BC cal. for the *terminus ante quem* of the final Late Ubaid level of the Step Trench (Locus 10015; see Chapter 3 Section 3.4 and also Pl. 4), and fits within the chronological framework outlined for 5<sup>th</sup> millennium Zeidan here in which the Ubaid-LC 1 Site Level dates to ca. 4800-4700 BC and the LC 1 period starts at around 4600 (see Table 3).

#### **6.1.2. Op. 9 Phase B; Building S.C4 (Ubaid-LC 1; Pl. 15)**

The two walls of Building S.C4, 90032 and 90033, occur immediately on top of the hard-packed Deposit 90041/34/35 (Phase C) at around an elevation of 256.3 m. Wall 90033 features a double-recessed niche on its east face,<sup>1</sup> runs NW-SE (perpendicular to 90032), and is three mudbricks wide. Both walls are preserved to a height of 6-7 courses of brick. Most of the bricks fall within the size ranges of 46-48 x 30-32 x 10 cm, though several of the bricks forming the double-recession are smaller at approximately 30 x 15 x 10 cm. The first recession is 95 cm long, and the second recession is 60 cm wide.

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<sup>1</sup> This building is not exposed enough to determine if the recessions were buttressed also (what Sievertsen (2010) calls "buttress-recessed" architecture), but they may have been; see Ch. 7 Section 7.3 for further discussion.

Both Walls 90032 and 90033 extend into the south baulk and beyond the excavation area, though 900033, and presumably other associated walls and architectural features, would have composed a substantial structure further to the north were it not for erosive environmental and mound-formation processes. The interior space of Building S.C4 includes a mudbrick collapse layer (90029) that also rests directly on top of 90034. On top of and surrounding these deposits is a mixed locus (90027) that contains mudbricks from the upper course of the walls plus collapsed mudbrick from around and inside of Building S.C4.

The pottery from Phase B is made up of 30% Coba-Bowl sherds (n=20), though painted potsherds are also common. Painted motifs include standard LC 1 designs such as hanging Xs and superimposed swags (see Pl. 30). Thus, this level seems to be roughly equivalent to Locus 10008 of the Step Trench and Op. 3 Phase C (ca. 4800 BC; see Ch. 5), dating to the time immediately following definitively Ubaid deposits but not yet exhibiting the 95-98% amount of unpainted pottery and 40-50% amount of rapidly-made bowls typical of definitive LC 1 levels at Zeidan. Though not from a primary context, a sizable number of hand-formed pieces of sealing preparation clay (Pl. 35 a) from Locus 90027 hint at administrative activity in or around Building S.C4.

Building S.C4 is the latest preserved architecture in Area C, though later occupation is attested by pits and hints of other, heavily eroded layers above. The large pit 90022/23 cuts down into the Phase B architecture and contains predominantly LC 1 pottery, but its stratigraphic origins are unclear due to the substantial aeolian erosion that is more pronounced on the northern (Area C) and southern (Area E) faces of the mound compared to the western face (Step Trench). The pit contains a stamp seal (ZD1798; Pl. 34 f) with a pattern of concentric circles on the obverse and a loop handle on the reverse. It is clearly

Halaf in origin, but is worn enough to suggest that it was used as an heirloom in the LC 1 period (G. Stein, pers. comm.).

## 6.2. Architecture & Stratigraphy of Area D (Operation 17; Stratigraphic Sections: Pl. 16)

The Tell Zeidan Expedition opened two trenches in Area D on the southeast side of the South Mound, the upper one being Operation 17. It is located below the 260 m elevation mark in order to investigate the Ubaid Period remains on the South Mound, and so only the uppermost strata in Op. 17 contained LC 1 material. The entirety of the lower trench, Operation 8, dates to the Ubaid period (see Stein 2009: 108).

The archaeological sequence in Operation 17 is broken into two main phases, Phase I (the later) and Phase IIa-f (the earlier), the former of which is associated with the early LC 1 period. The temporal relationship between Phase II and Phase I is not entirely clear, as the earliest walls of II, 170006 and 170014, are preserved up to the eroded mound surface—a height that encompasses much of the Phase I strata. It certainly appears that the entire sequence of Op. 17 is associated with these walls, with significant changes occurring through time in and around them.

### **6.2.1. Op. 17 Phase II; Building S.D1 (Late Ubaid; Pl. 17)**

Phase IIb, the second-latest sub-phase of Phase II, produced a radiocarbon date of 5880±40 BP with a 2-sigma BC cal. range of 4846-4619 and a mean of 4732 BC, providing a *terminus post quem* for the Phases IIa and I. The mean date would align with the “Ubaid-LC 1” levels (ca. 4800-4700 BC) at the rest of the site. In terms of pottery, Phase IIa Surface 170012 has yielded a small number of diagnostic sherds and four out of nine are painted (45%), though with the broad geometrical designs typical of the Ubaid-LC 1 period (see Pls. 31-32). All nine sherds are either mix-tempered (chaff and grit) or mineral tempered,

with the majority containing grit. Thus, Phase IIa very much seems to match with the latest Ubaid levels elsewhere at Zeidan.

Walls 170006 and 170014 were originally founded at or below the deepest-excavated level of Operation 17 (Phase II<sub>f</sub>), but are preserved to a height of 15 courses, up to the erosion level of the mound, continuing to define this section of the building over the course of perhaps a century or more. Thus, each of the six sub-phases of Phase II in Op. 17 corresponds to a reiteration of the original building, with Building Phase S.D1a representing the latest, Ubaid-LC 1 version in Phase I (ca. 4700 BC).

Wall 170006 is two-bricks wide, containing 45 x 30 x 6.5 cm mudbricks of a grayish-brown color; bits of plaster are visible on the wall face. Wall 170014 is made of similar mudbricks but is constructed using one row of full bricks and a second row of half-width bricks on the interior side; a thick layer of plaster covers the brick face. Wall 170007 is much less well preserved—eroded away at its south end—but is a north-south running crosswall that abuts Wall 170006 on its south side. Similarly to Wall 170014, its construction includes a row of full-sized bricks (60 x 30 cm) and a row of half-width bricks (53 x 15 cm), and about 2 cm of mortar is visible between the bricks. The extreme erosion of the South Mound limited the preservation of this building toward the south and east, but Wall 170007 and several walls running east-west (only present at the lowest level of the trench; not shown on plan) suggest that this building would have had more rooms spreading outward from the visible remains, perhaps in concentric rectangles.

#### **6.2.2. Op. 17 Phase I; Building Phase S.D1a (Ubaid-LC 1; Pl. 17)**

Surface 170012 (Phase IIa) is sealed by Phase I Surface 170015, while associated features of Phase IIa such as Pyrotechnic Feature 170022 and Sherd-lined Pit 170017 underlie Phase I walls 170008 and 170005, respectively. Surface 170015 is a compacted,

4-cm thick, brown-colored floor flecked with gypsum and charcoal interspersed with some ashy patches. It rests immediately on top of 170012, and with no collapse deposit apparent. This lack of accumulated debris, both between Wall 170008 and Floor 170012 and in between floors 170012 and 170015, does imply the possibility that little time elapsed between Phase IIa and Phase I.

Building Phase S.D1a comprises several rooms. Room S.D1.1, located in the northwest corner of the trench, is a small, 1.75 x 2.4+ m room with three excavated walls and their enclosed surface, 170015. The walls—170005, 170008, and 170020—feature courses of gray mudbricks and brown mudbricks, in alternation, with a light-brownish grey mortar. The bricks appear in fairly standard sizes of 53 x 26 x 7 cm, 53 x 12 x 7 cm, and 40 x 26 x 7 cm. Walls 170005 and 170008 are bonded to one another at the southeast corner of the structure, running north-south and east-west, respectively, and include the half-brick-row construction of 170014 and 170007. Wall 170020, running parallel to Wall 170005, features a similar mudbrick construction but is only minimally evident within the limits of the trench.

Room Deposit/Collapse 170009 is a brown, loose accumulation of broken and deteriorated mudbrick and covers Surface 170015. It produced nine ceramic diagnostics, six of which are flint-scraped Coba or Beaded-Lip Bottom-Scraped Bowls, and only one is a painted sherd (with a motif of two broad, uneven bands; Pl. 31 s). While the sample size is too small for site-wide comparison, 66% flint-scraped bowls was noted in the field to be much more than in Phase II (exact numbers unavailable). However, given the relatively unsealed context of 170009, it is possible that these sherds represent a later, eroded level and that Phase I is not much later than Phase IIa. The ceramics of 170002 (n=39) comprise 30% painted ware, 8-9 beaded-lip bowls with smoothed surfaces (but no

flint scraping), and one Beaded-Lip Bottom-Scraped Bowl. The overall lack of substantial ceramic finds from the later levels of Op. 17 makes an internal dating quite challenging, but the stratigraphy seems to more clearly indicate that the building was continuously occupied in the last few centuries of the Ubaid period (ca. 4900-4700 BC) and probably somewhat beyond.

Room S.D1.2 is the nearly L-shaped space surrounding S.D1.1, bounded on the east and south by Walls 170014 and 170006, respectively. It is unclear what composes the floor of this space, as the Phase IIa floor (170012) was not superseded by a later surface and seems to have gone out of use with the building of the interior Room S.D1.1 since the new walls cover over subterranean, functional features built into the earlier floor (e.g., Sherd-lined Pit 170017). The three main possibilities are that: Floor 170012 continued to be in use despite the awkward construction of having half of a sherd-lined pit covered by a wall; that a floor level above 170012 eroded or otherwise disappeared at some point; or that this interior space went out of use entirely. The second possibility seems the least likely, since the bottom of this room is not near the surface of the mound and the walls are preserved above it.

Wall 170019 runs north-south across the short space between walls 170006 and 170008. The brick of this wall is a medium gray, different than the S.D1.1 bricks in color, but the brick dimensions are similar. Wall 170019 abuts both 170008 and 170006, the long-standing walls originally built prior to Phase IIc. This supports the interpretation that 170006 and 170014 were maintained over successive reiterations of the same building through time. Wall 170019, thus, appears to be a later addition, slightly post-dating the construction of Room S.D1.1 based on accumulation of debris beneath it, and it would have subdivided S.D1.2 into two rooms, creating Room S.D1.3 out of the space to its west.

Again, the features of the earlier floor 170012 are covered over in this small space by the S.D1.1 wall, and so the subdivision of a room no longer in use would be a slightly curious thing. Thus, with regard to the lack of an evident Phase I floor outside of 170005 and 170008, it seems most likely that the space continued in use, to a certain degree, but not in important enough capacity that it required a new floor to be constructed. But the Floor, 170012, then, would have been reused, or at least present, in Phase I.

The space south of Wall 170006, bordered on the east by north-south wall 170007, is room whose phasing is unclear. The field reports estimate that Floor 170018 and Walls 170024 and 170028, which subdivide the room into narrow spaces, date to late Phase II or possibly Phase I based on the orientation of the walls. However, as is evident from the top plan (Pl. 17), this is probably incorrect and the Phase I walls are much less closely aligned with the cardinal points than these walls. Furthermore, the supposition herein is that there was a smooth transition over a short time between Phase IIa and I, and the average elevation of the top of Floor 170018 is 258.5 m, a half-meter lower than 170015. Thus, it seems highly unlikely that the half-meter of deposition, generally noted to contain high percentages of Ubaid painted pottery, would have accumulated *after* the construction of Room S.D1.1.

A good sense of the time depth is not available since there is only one radiocarbon date from this sequence, but it seems likely that the entire building dates to quite late in the Ubaid period, around 4800 BC, and the latest preserved level (Phase I) dates to around 4700 BC. The shape of the exposed building interior at this point is interesting as the concentric rectangles do not resemble any other architecture discovered at Tell Zeidan.

### 6.3. Architecture & Stratigraphy of Area E (Operations 15 & 16; Stratigraphic Section: Pls. 18-19)

Generally, Operations 15 and 16, which are adjacent, share a stratigraphic sequence that is divided into six Phases, E-A, earliest to latest. Operation 15 reached lower levels than 16 (Op. Phase E) but was more substantially disturbed throughout, whereas Op. 16 had well-preserved architecture and so took more time to excavate. Phase D is divided into three sub-phases, D3-1, only the uppermost of which (D1) is architecturally attested in the Op. 15 sequence due, partially, to the differences in preservation between the two adjacent trenches.<sup>2</sup> Description will proceed from earliest levels to latest.

#### **6.3.1. Op. 15 Phase E; Building S.E5 (LC 1a; Pl. 20)**

Operation Phase E in Op. 15 (shown in green on the plan in Pl. 20) primarily consists of parts of a building complex (S.E5) that may have contained two or more separately-accessed buildings, though limits of excavation prevent a complete understanding of the relationships between the different rooms. The walls of this phase are slightly irregular in that they are rarely linear and vary as to their thickness, construction, and level of preservation, but they are, in general, cardinally oriented. Building S.E5 went through several discernable modifications of its interior, while the exterior is almost impossible to discuss due to it presumably lying beyond the limits of the trench (to the north and west) and to its erosion at the surface of the mound (to the south and east).

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<sup>2</sup> What looks somewhat like a graveyard near the top of the South Mound is actually an accumulation of mortuary activity across several millennia. Some burials date to the LC 2 period, some to the 3<sup>rd</sup> millennium, and others are of unclear date but perhaps modern (or Byzantine; M. Gibson, pers. comm.).

The overall exposure, though badly damaged by later pits and burials, includes at least four rooms.<sup>3</sup> The northwestern room (S.E5.1) is represented by Floor 150110 and its walls are oriented approximately cardinally, are one-brick wide, and all mudbricks are laid as headers. The excavated extent of Wall 150082 is approximately a meter long, from north to south, and its bricks are quite standardized, varying from 8 to 10 cm in width and with lengths of 40 cm and heights of 25 cm, with 2-3 cm of whitish mortar between each brick. Wall 150087 is approximately 2.8 m long, abuts 150082, and has bricks that vary from 8 to 15 cm wide and are approximately 20 cm high; the intact bricks are approximately 30 cm long. Wall 150072 runs N-S, has bricks that range from 20 to 24 cm in length, 16 to 18 cm in width, and are 10 cm in height, and has one coat of whitish-brown plastering 2-3 cm thick. The abutting or joining relationship between 150072 and 150087 is obscured by a burial cut from above. The room contains a few hammerstones (ZD9348 & ZD9506) and chipped-stone debris, along with shell remains and a piece of bitumen (see Section 6.4.3).

Room S.E5.2 is represented mainly by Floor 150093, which continues into the west baulk and likely to the south where it is eroded by the slope of the mound. The floor is a grey and whitish-brown mud-plaster construction flecked with calcium carbonate, and it slopes severely downward to the northeast (i.e., against the southward slope of the tell), and slopes upward to the fragmentary remains of Wall 150101. The room shares Wall 150087 with S.E5.1 to the north, and is partially bounded in the south by Wall 150101 and in the east by Wall 150102. Neither of these walls is well preserved, but they do provide a sense of the divisions between the three discernible rooms in this Phase. Wall 150102 is also laid with headers, 24-28 x 10 x 20 cm in size, bonded with mortar. The single-row,

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<sup>3</sup> It is possible that the northwestern room was part of a separate building, as it shows no clear access point. If that were the case, though, it would have meant that the buildings shared a wall and had interlocking rooms. Thus, all of the rooms of S.E5 are structurally related and so I treat them as a single building.

header construction further supports the likelihood that Rooms S.E5.1 and S.E5.2 are structurally related, though 150102 seems to curve and/or is too damaged to understand its exact relationship with Walls 150087 and 150072. Wall 150101 was also poorly preserved, having been cut off in the west by both Burial 150018 and 150013, but it seems to abut 150102 at the southeast corner of Room S.E5.2 and it divides Rooms S.E5.2 and S.E5.3. Due to the continuity between Floor 150096, to the south, and Floor 150093, to the north, and some easily removed mudbricks over what appears to be a defined/threshold, a 70-cm-wide doorway (150109) existed at some point to provide access between the two rooms but was later blocked.

While the overall shape and size of Room S.E5.2 is indeterminate due to the limits of both excavation and preservation, we do know that it underwent several modifications over time, including the placement of an adult burial (150095) underneath Floor 150093 (Pl. 21). The mud-plaster floor shows a 1-2 cm gap tracing the form of a rectangular line. Upon removal of the flooring inside of this rectangle, an articulated, flexed adult burial appeared. It seems as if the floor was laid, then eventually cut for the rectangular burial, and then filled and re-laid over the cut area. Perhaps concomitantly, but definitely at some point, Doorway 150109 was filled with hastily-made mudbricks, sealing off the only access point to Room S.E5.2 discovered within the excavated area. The room did not contain many finds, excepting a chert core, a piece of pot slag, and a fragment of a quartz bowl (see Section 6.4.3).

Room S.E5.3 is immediately south of S.E5.2 and could be either an open-air court or an outdoor area that is partially bounded by walls. Surface 150096 is medium grey with whitish patches and a few flecks of calcium carbonate and is topographically varied but hard-packed with a smooth sheen. It slopes up slightly to the barely-preserved remains of

Wall 150105. Near the northwest corner of the room is a small, circular sherd-lined pit (150099), which would have been immediately in front of Doorway 150109. The floor slopes downward into the shallow pit, which is approximately 24 cm deep and 46 cm in diameter, producing a total volume of .013 m<sup>3</sup>, or 13 L. The sherds are medium and coarse wares, and are the only contents of the pit other than a clean, finely textured fill. Overlying the features of Room S.E5.3 is a layer of mudbrick collapse (150097) containing a piece of charcoal that produced a radiocarbon date with a 2-sigma range of 4720-4530 BC cal. (mean of 4625 BC cal.; Stein 2011: Table 1).

In terms of building phasing, we did not discover earlier floor levels in any room due to time constraints, and so in general these are the latest floors of the building. The architectural modifications that we did uncover seem to correspond to the placement of the burial in Room S.E5.2. This is a speculative assessment, but it seems logical that Sherd-lined Pit 150099 would not have been right in front of an active doorway, and that the doorway might have been sealed off once Room S.E5.2 became a burial locus.

Collapse Deposit 150068 is the remaining mudbrick collapse above the features of Room S.E5.2, which is covered over by a layer of mudbrick detritus (150069). 150068-69 do not touch the north baulk, where two whitish-gray, ashy layers (150075 and 70) cover over the room fill and collapsed remains of S.E5.1. To the east, Detritus Layer 150081 (not shown on plan) is similar and equivalent to deposit 150069. The pottery of 150081 includes a heavy majority of flint-scraped bowl sherds and other undecorated, coarse ware, but some finer wares as well. This helps to confirm an LC 1 dating for Op. 15 Phase E. Above all of these is a layer of trashy wash (150066) that covers most of the northern half of the trench at this level (263.30 – 263.50 m).

### **6.3.2. Op. 15 Phase D3; Building S.E4 (LC 1a-b; Pl. 20)**

Building S.E4, which is not well understood due to its proximity to the *tell* surface, was built on top of or into the layer of mudbrick detritus (150081). It is unclear if the walls of S.E4 were founded below this accumulation layer, but since excavations did not reach the base of 150111, it seems likely that they were and that there is some continuity between late Phase E and early Phase D in this section. On top of Locus 150081, at its lowest excavated level, Building S.E4 includes the fragmentary remains of a floor (150086), upon which some larger potsherds lay flat. It is followed by Mudbrick Collapse 150014, which also covers the western wall of Building S.E4 (150111).

Due to slope erosion, it is unclear if 150014 covered the fragmentary Wall 150083 at any point (see section, Pl. 18), and so the exact stratigraphic placement of 150083 is unknown. Its preservation, which is limited to a stub near the baulk, and orientation, N x NW, suggest a Phase D1 association, but the depth of its base (at least 263.0 m) is almost half of a meter below the base of Wall 150061. Thus, it may have been part of a now indeterminate feature, or perhaps the foundation for a D1 wall that has been otherwise eroded according to the slope of the *tell*. Either way, the construction of Building S.E4 seems to date to a time slightly later than that of Building S.E5 but earlier than the Phase D buildings in Operation 16 and possibly to the same time as an extended usage of Building S.E5.

### **6.3.3. Op. 16 Phases D3-2; Structures S.E1, S.E2, & S.E3 (LC 1b; Pl. 20)**

The Operation 16 Phase D architecture (Buildings S.E1, S.E2, & S.E3) occurs at a slightly higher level than Building S.E4 in Operation 15. This group of rooms does not fall neatly into any of the categories of a single building, a building complex, or an agglomeration of buildings. Arranged in almost linear fashion along a street or alleyway

from west to east, they may have been part of a larger building or building complex. More likely, they may have been different parts of several distinct buildings. What is clear is that these room clusters were all adjacent but generally did not intercommunicate and instead were separately accessible, arranged along a linear open space, and were oriented approximately to the cardinal points.

Room S.E1.1 is the western-most room that relates to Area E Phase D and its interior measures 3.5 m, north to south. Two floor levels were excavated in Room S.E1.1 (160073 and 160098), and they anchor the Room Phases S.E1.1b and S.E1.1c, respectively, Room Phase S.E1.1c being the earlier of the two. Wall 160063, preserved to seven courses high in some places, forms the room's eastern boundary and is two rows of mudbrick thick, though the western row is 40 x 20 x 9 cm while the eastern is 40 x 15 x 9 cm. The bricks are laid as stretchers, though the eastern row is laid vertically.<sup>4</sup> The northern (160070) and southern (160096) walls are one-brick thick, but made of much longer and larger mudbricks with an approximate average of 50 x 30 x 9. Wall 160070 runs east from the west baulk and abuts 160063, while parallel Wall 160096 is abutted by 160063 and seems to continue eastward (as Locus 160059) as the southern boundary of the adjacent room (S.E3.1). Floor 160098 is the earliest floor discovered in Room S.E1.1, is made of packed clay, and runs up against all three visible walls. Room Phase S.E1.1b follows S.E1.1c and is mainly represented by Floor 160073, which is a hard, compacted, medium-brown clay with flecks of lime. This phase is otherwise an architectural continuation from Room Phase S.E1.1c.

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<sup>4</sup> This style of brick laying, with a vertical layer, is attested at Hacmebi Tepe in the LC 2 period (G. Stein, pers. comm.) and at Tell Surezha in the Late Ubaid/Early LC 1 period in Operation 2.

No entranceway into Room S.E1.1 is apparent within the excavated space, though the disposition of the walls indicates that several of the adjacent rooms are structurally related. Room S.E1.2 is immediately to the north of S.E1.1 and is bound by Wall 160070 on the south and Wall 160063, which runs north into the baulk, on the east, thus sharing a dividing wall and an external wall with S.E1.1. Floor 160099 is a hard, compacted, medium grayish-brown clay, with flecks of lime and charcoal. It is the earliest floor discovered in this room and corresponds to Op. 16 Phase D3. The S.E1.2b floor, 160076, is a hard, compacted medium-brown clay with flecks of lime. This floor is cut by Bin 160069, a mudbrick-lined depression, 32 cm deep.

Immediately to the east of Room S.E1.1 is an open court in its earliest phase (D3). Surface 160100, is a hard, compacted clay surface measuring 3.6 x 2.3 m that was bordered by shared Walls 160063 and 160094 on its east and west and west sides, respectively, but neither a northern nor southern wall. In the subsequent phase (D2), Walls 160060 and 160058 were built directly on top of Surface 160100 and then Floor 160072 was laid, on top of which is a bone awl, a clay muller, and potter (see Section 6.4.3). Wall 160060 divides this area into two spaces: a narrow alley (S.E2.3) and an indoor room or enclosed court (S.E2.1).

Alley S.E2.3 looks like an outdoor space but features a hard packed, medium brown surface (160075) flecked with lime and ash inclusions that in most respects resembles the nearby indoor surfaces. Cut into it toward the northern end is a shallow, sherd-lined pit (160078) that resembles Sherd-lined Pit 150099 from LC 1a Building S.E5 in Op. 15. Although access to this pit was possibly achievable from the north end, which runs beyond the limits of the trench, it is in a peculiar position—so close to the walls—to be used for

any kind of continuous, craft-related function. The pit is nearly 10 cm deep with a 28 cm diameter and contains only potsherds and fairly clean wash.

Immediately adjacent to Building S.E2, but structurally unincorporated with it (within the excavated area), is S.E3, which consists of two or three rooms. We cannot definitively say if S.E3.3 is part of S.E2, S.E3, or another structure, but it shares a one-brick-wide wall with S.E3.1 and demonstrates no intercommunication elsewhere and so it is included here with S.E3.

Room S.E3.1 is 2.9 x 3.9 m, surrounded by Wall 160084 to the north, Wall 160094 to the west, Wall 160085 to the east, and Wall 160086 to the south. Wall 160086 features an approximately 80-cm-wide doorway that provides access to the building. The mudbricks are large slabs, at 40 x 20 x 9 cm. This room contains a greater number of finds than the adjacent buildings, including grinding slabs, pestles, a sieve, Coba Bowls, and a hammerstone (see Section 6.4.3).

Wall 160085 is an interior wall that divides Room S.E3.1 from S.E3.2, with a ca. 80 cm space for intercommunication at the north end, between Walls 160084 and 160085. The mudbricks are similar to those of 160086 but thinner, at 30 x 22 x 9 cm. The mudbricks of Wall 160094, which is abutted by 160084 and 160086, are the same size as 160086 (40 x 20 x 9) but are turned on their side so that the wall is only 9-10 cm thick. Wall 160084 also uses bricks of that size, as best as we can tell since the wall is partially covered by the north baulk, but they are laid flat like those of 160086. Within Room S.E3.2 only, Walls 160085 and 160086 were painted on their east and north sides, respectively, with a pale red pigment on top of a white plastering (see inset on Pl. 20).

Wall 160086 almost certainly continued eastward into the general location of Op. 15, although LC 2 Adult Jar Burial 150018 cut right through the area due east of it. The

space further to the east of Building S.E3, in Op. 15, is so badly disturbed by later burials that any architecture that might have once been there is entirely missing, though the immediately adjacent area may have been an open space indicated by the slightly later outdoor surface 150074 L.200 (not shown on plan), below which we did not excavate. Along the northern baulk of Op. 15 is a series of pits (150060, 62, & 64) whose top elevations (~263.50 m) are approximately the same as the D2 floors and features in Operation 16. Locus 150060 is actually a pit or basin with plaster lining and a repurposed(?) granite grinding stone as the base. The contents of pits 150062 & 64 are essentially the same, primarily consisting of larger fragments of flint-scraped bowls but also sherds of a red-slipped, carinated bowl and a dark-on-buff-painted collared-rim jar.

Overall, the architectural development of this area in Phases E-D2 does not seem to be in terms of discreet levels, but more as a continuously evolving process where one building continued in use as a new one was built (or rebuilt) adjacently over old remains.

#### **6.3.4. Ops. 15 & 16 Phase D1 (LC 1b-c; Pl. 20)**

##### **Structure S.E1a (Op. 16 Phase D1; LC 1b-c)**

The latest Op. 16 LC 1 Phase, D1, is barely preserved in Structure S.E1a, but hints of a phase succeeding Building Phase S.E1b are evident in Sherd-lined Pit 160048 that occurs at roughly the same elevation (263.5 m) as D1 walls in the eastern part of the trench (S.E3a). Pit 160048, at a diameter of approximately 40 cm and a depth of approximately 14 cm, is very similar to the 46-cm diameter, Sherd-lined Pit 150099 dating to the earlier, LC 1a level (see above), especially in that neither produced any cultural material other than the arranged potsherds. These features occurred within either the persisting walls of Phases D3-2 or its standing ruins.

### **Structure S.E3a (Ops. 16 & 15 Phase D1; LC 1b-c)**

Although two walls in the northwest corner of Op. 15 (150061 & 150052) are part of the Op. 16 Phase D1 building phase, the severe disturbance caused by later burial activity (to the west) and the slope of the mound (to the east and south) prevents much discussion. Nevertheless, the stratigraphy, elevation, and disposition of Walls 150052 and 150061 indicate that they are likely part of Building S.E3a in Phase D1, bounding it on the north and east side.

The walls consist of mudbricks quite similar to that of the D3-2 phase, but are much shallower in depositional preservation (likely owing to the proximity to the mound surface and to the much later construction of the Phase A (3<sup>rd</sup> millennium BC) architecture. The D1 bricks are made of dark purplish-brown, crumbly mudbrick with a few faint traces of 1-3 cm thick mortar joins.

Locus 150058 is a discard deposit up against Wall 150052, at approximately the same level as the base of walls 160051-53, whose contents are similar to the Phase D2 floor assemblage (see below). Thus, an exterior dumping ground is immediately east of Building S.E3a, which represents the easternmost excavated extent of Phase D1 due to mound erosion and later disturbances. The character of the D1 constructions seems to be a reuse but substantial interior modification of the D3-2 spaces, especially in Building S.E3. In this case, the new walls seem to wind through the interior space, subdividing it; the north wall (160084) was likely cut back in the trench corner to accommodate this subdivision, as seen by the triangular shape of its eastern-most brick (see Pl. 20).

The deposits that might have composed the interior space of the barely preserved Room S.E3.2a are 150065 and 150057/160066. The former is a well-defined accumulation of trash, light-medium gray densely packed with charcoal flecks, larger-sized animal

bones, and large potsherds. Trash Deposit 150057/160066 follows above 150065 and also contains larger-sized potsherds, with an abundance of LC 1 diagnostics such as internally-incised bowls and Beaded-Lip Bottom-Scraped Bowls. Immediately east of an adjacent to Wall 150052 is another trash deposit (150058), light-medium brown and silty with a slightly ashy quality. This layer, however, is densely populated with larger-sized artifacts such as a hand axe, a hammerstone, and lithic cores, and so looks like a deliberate dumping episode (or series of recurrent episodes). Like 150052 and 150061, it rests directly on top of 150066.

At about the same elevation (263.57 m) as the D1 walls but about 2 m south is a jar burial of a hyper-flexed adult (see west section, Pl. 18). The majority of the burial is west of the west baulk but our excavations cut into the baulk to uncover, record, and remove it. Two large pots were put together to contain the adult skeleton. The upper vessel (ZD8946) is a U-shaped pot with a ledge rim and a rounded base, tempered with medium to large chaff and grit. There is a potter's mark incised near the rim in the shape of a horizontal line met by a diagonal line. The exterior appears to have a light tan/cream slip over an over-fired greenish paste. The lower vessel (ZD8947/9504/9524/9526) is a broken, fragmentary jar with a pointed base and a bunghole near the rim; temper is grit, mica, and small chaff and clay is a pinkish buff.

The exact time when this burial was cut is unclear, but the top of the cut and fill partially underlie Locus 150057 and then the walls of Phase B (3<sup>rd</sup> millennium BC). Furthermore, the burial is cut itself by later burials of Phase A (date unknown). The stratigraphy of 150057, which follows on top of the latest LC 1 architecture in Op. 15, gives the burial a *terminus post quem* of the mid-late LC 1 period. The pottery itself is clearly Late Chalcolithic and finds a parallel in both Tell Feres Level 6 (LC 2) and the Erbil

plain (Baldi 2015: 1040 Fig. V.37). While the Zeidan U-shaped pot does not have the double rim feature of the others, which Baldi believes is related to distillation (ibid.: 488), its overall form has a clear comparandum from the LC 2 period.

The time gap in between Phase D3/2 and D1 is uncertain, but there is greater accumulation (ca. 45 cm) between Phases D2 and D1 than between Phases E and D3 (ca. 30 cm)—which tallies approximately 45 years according to rough radiocarbon estimates. That would place Phase D1, by great approximation, 67.5 years later than D2, at around 4450 BC. In terms of Zeidan site levels, this would be the time of the early LC 1c Level, just slightly earlier than, but likely overlapping with, the T-Shaped Hall Building (S.B5) on the Northeast Mound (Pl. 13) and the bottom of Operation 6 (Pl. 5).

#### 6.4. Spatial-functional Analysis of the LC 1 Period on the South Mound

This section examines building contexts with particular attention to the “small finds” assemblages of each building and room in Areas C, D, and E, and will then consider small finds from the Step Trench area (for stratigraphy and architecture of the Step Trench see Chapter 3 Section 3.4).

##### **6.4.1. Spatial-Functional Analysis of LC 1 Contexts in Area C (Table 5)**

To complement the double-recessed architecture of Building S.C4 (Pl. 15), the small finds from this Ubaid-LC 1 level (n=23) are predominantly administration-related (see Table 5). No seals or impressed sealings come from this building, but it does contain an abundance of handful-sized pieces of levigated clay, each impressed with four human fingers in the shape of a fist, which are probably clay prepared to be used as sealings (Pl. 35 a). Seventeen whole or nearly whole pieces of this sealing clay come from the mudbrick collapse layer (90027) inside of S.C4, along with 3 large bags of sealing-clay fragments.

<b>ZD No.</b>	<b>Object Material</b>	<b>Object Type</b>	<b>Object Sub Type</b>	<b>Functional Category</b>	<b>Function</b>	<b>Context No.</b>
1793	Dried/Baked Clay	Sling Pellet	Biconical	Weaponry	Hunting/Warfare	90027
1797	Levigated Clay	Sealing Clay	Fragment	Admin	Sealing Preparation	90027
2158	Levigated Clay	Sealing Clay-Bulk	Fragment	Admin	Sealing Preparation	90027
2168	Bone	Worked Bone	Fragment	Craft Manufacture?	Indet.	90030
2184	Levigated Clay	Sealing Clay-Bulk	Fragment	Admin	Sealing Preparation	90027
2178	Levigated Clay	Sealing Clay-Bulk	Fragment	Admin	Sealing Preparation	90027
2151	Baked Clay	Loom Weight	Biconical	Craft Manufacture	Weaving	90027
2551	Levigated Clay	Sealing Clay	Hand-formed	Admin	Sealing Preparation	90027
2552	Levigated Clay	Sealing Clay	Hand-formed	Admin	Sealing Preparation	90027
2553	Levigated Clay	Sealing Clay	Hand-formed	Admin	Sealing Preparation	90027
2554	Levigated Clay	Sealing Clay	Hand-formed	Admin	Sealing Preparation	90027
2556	Levigated Clay	Sealing Clay	Hand-formed	Admin	Sealing Preparation	90027
2557	Levigated Clay	Sealing Clay	Hand-formed	Admin	Sealing Preparation	90027
2558	Levigated Clay	Sealing Clay	Hand-formed	Admin	Sealing Preparation	90027
2559	Levigated Clay	Sealing Clay	Hand-formed	Admin	Sealing Preparation	90027
2560	Levigated Clay	Sealing Clay	Hand-formed	Admin	Sealing Preparation	90027
2561	Levigated Clay	Sealing Clay	Hand-formed	Admin	Sealing Preparation	90027
2562	Levigated Clay	Sealing Clay	Hand-formed	Admin	Sealing Preparation	90027
2563	Levigated Clay	Sealing Clay	Hand-formed	Admin	Sealing Preparation	90027
2564	Levigated Clay	Sealing Clay	Hand-formed	Admin	Sealing Preparation	90027
2565	Levigated Clay	Sealing clay	Hand-formed	Admin	Sealing Preparation	90027
2566	Levigated Clay	Sealing Clay	Hand-formed	Admin	Sealing Preparation	90027
2567	Levigated Clay	Sealing Clay	Hand-formed	Admin	Sealing Preparation	90027
2572	Ceramic (Vitrified)	Kiln Waster	Plain Ware	Craft Manufacture	Pottery Firing	90042
2573	Baked Clay	Token?	Spherical	Admin/Leisure?	Accounting/Gaming? <sup>5</sup>	90042
2574	Stone	Scraper/Pounder	Ovoid	Craft Manufacture	General Purpose	90042

Table 5: Small finds from Tell Zeidan Area C Building S.C4 and Its Foundation, Level Ubaid-LC 1

<sup>5</sup> See Rothman 2002: 88 for discussion; he sees these small objects as game pieces rather than administrative tokens.

Other finds from S.C4 include a sling pellet, a loom weight, and a fragment of worked bone, indicating the multi-functionality of the space. In the buildup of outdoor surfaces that compose the foundation of the building is a heavily vitrified potsherd—likely a kiln waster—a multi-purpose stone tool, and a small clay ball that could have been used for gaming or counting.

Despite the limited exposure of the probably-public Building S.C4 and the mixed nature of its interior deposits, it is fairly certain that this area supported an administrative system for which Building S.C4 was likely a hub. While there is an earlier niched-and-buttressed building in Area C (Phase F; not illustrated), between these phases is an entire architectural level (Phase D; not illustrated) that does not appear to be monumental. Above Building S.C4 is collapsed mudbrick cut by an early LC 1 pit, bespeaking yet another disruption in monumentality, which does not reappear in later levels at Zeidan as far as has been excavated. It seems as if elites at the end of the Ubaid period could not maintain continuity, giving way to the new, decentralized political economy of the LC 1 period.

#### **6.4.2. Spatial-Functional Analysis of LC 1 Contexts in Area D**

Without any unique artifacts, dense accumulations of fragmentary finds, or functional stationary features, the Ubaid-LC 1 level of Op. 17 (Op. Phase I; see Pl. 16) is difficult to characterize from finds alone. The strongest hints to the building come from the architecture, including the perplexing concentric rectangles.<sup>6</sup>

Comparison with the preceding levels can at least help to clarify what is *not* apparent, though. In Operation 8, immediately downslope from Op. 17, excavation of earlier Ubaid levels produced a functionally specialized area of fire installations (not

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<sup>6</sup> More precisely, they are not exactly concentric, as the axis of Room S.D1.1 is askew relative to the long-standing walls around it.

illustrated). Of the ten pyrotechnic features, dating to ca. 5100 BC (Stein 2011: Table 1), none produced evidence for industrial use (such as smelting or pottery production), and the distinct nature of this level was replaced with an Ubaid house above it (Stein 2010a: 108).

The Ubaid levels of Op. 17, slightly later than the Op. 8 finds, feature two domed ovens, burnt surfaces, ash pits, and, just before the LC 1 level, a sherd-lined pit. The area is further characterized by five baked-clay mullers (*ibid.*: Fig. 11) and three loom weights found there throughout the sequence. While both the LC 1 type, with crosshatching on the “head” (a feature unique to Tell Zeidan examples), and the common, plain-headed Ubaid type appear, only the Ubaid type appears in stratigraphically sound contexts; the LC 1 types come from the surface and wash layers. A bitumen-hafted chipped-stone blade helps to complete the picture of a multi-functional, domestic dwelling in the later part of the Ubaid period.

By the time flint-scraped bowls become prevalent and painted pottery infrequent in the ceramic assemblage—i.e., the beginning of the LC 1 period—this area lost any sign of ovens and any other particularly evident function. However, it is clearly not quick change, as the specialized nature of the area is lost at an early point during the Ubaid period, and upper LC 1 architectural levels are eroded away, leaving us with only the picture of gradual change leading up to the beginning of the LC 1. The appearance of hand-smoothed ceramics alongside infrequent flint-scraping is suggestive of partial or gradual adoption of ceramic innovations. And so, the Area D remains do not produce an abundance of evidence for activity in the LC 1 period, but the entire sequence provides an interesting look at the gradual changes that precipitated the onset of the Late Chalcolithic period.

### **6.4.3 Spatial-Functional Analysis of LC 1 Contexts in Area E (Operations 15 & 16)**

Area E provides the broadest exposure of early LC 1 remains at Tell Zeidan, and the “small finds” (n=81) help to contextualize the series of architectural levels that largely overlapped with one another between ca. 4650 and 4450 BC (Zeidan LC 1a-1c). This section will begin by examining the Area E Phase E contexts, roughly equivalent to Site Level LC 1a, and then move forward through time.

#### **Phase E/LC 1a (n=9; Table 6)**

This level is primarily represented by a single, poorly preserved building, S.E5 (Pl. 20). Room S.E5.1, though only exposed at its southern end, produced a room assemblage (150085) above Floor 150110 that includes two hammerstones (ZD9348 & ZD9506), a piece of bitumen (ZD9345), and an abundance of chipped-stone debris, along with shell and faunal fragments. Without detailed analysis of the lithics it is impossible to say definitively (Stein 1998: 20), but the function of this space seems to resemble craft manufacture of lithic tools, some of which may have been intended for hafting to handles using bitumen.

In Room S.E5.2, along with Adult Inhumation 150095 (Pl. 21), is a room assemblage (150094) above the reconstructed floor (150093). This assemblage was not particularly rich, and likely represents discard or trashy accumulation rather than a systemic context, but does include a large chipped-stone core made of chert (ZD9653). The core weighs over 520g and has a pyramidal end and a lenticular end, with large flakes removed from the bottom and side. The lack of reduction and the impact scars on the pyramidal end suggest that it was a failed core turned into a temporary pecking stone, further implying that it was used by a non-specialist. In the brick collapse (150068) of S.E5.2 are a piece of vitrified clay (pottery slag) and a fragment of a bowl made out of quartz.

The only finds associated with Room S.E5.3 are fragments of bone, shell, pottery, and chipped stone. The southeastern extent of the surface of Room S.E5.3 (150091) supports a sherd-scatter (150092) that includes fauna, chipped stone, and shell, both embedded in and on top of the floor. This would seem to be a direct discard area, helping to characterize it as external space used for dumping routine occupational debris from Building S.E5. Negative feature 150104, cut from 150096, may have also been a discard deposit; the finds include very little pottery and chipped stone and no bone, but another piece of vitrified clay (ZD9522), an oblong piece of polished, tan metamorphic stone (ZD9521), and a fragment of a clay, sub-spherical token or gaming piece (ZD9541).

ZD No.	Object Material	Object Type	Object Sub-Type	Functional Category	Function	Context No.
8421	Stone	Bead	Cylindrical	Ornament	Jewelry	150069
8411	Stone (quartz)	Vessel	Worked stone	Food Serving	Serving/ Prestige	150068
8929	Bone	Awl	Worked bone	Craft Manufacture	Textile Production/ Sewing	150078
9348	Stone	Hammer- stone	Cylindrical	Craft Manufacture	Lithic Tool Production	150085
9521	Stone (metamorphic)	Worked Stone	Oblong	Craft Manufacture	Lithic Tool Production?	150104
9506	Stone (flint)	Hammer- stone	Ovoid	Craft Manufacture	Lithic Tool Production	150085
9533	Stone (granite)	Hand axe	Ovoid	Food Preparation/ Farming	Cutting/ Chopping	150106
9653	Stone (flint)	Core	Pyramidal and Lenticular	Craft Manufacture	Lithic Tool Production	150094
9541	Baked clay	Token	Sub-spherical	Admin/ Leisure	Accounting/ Gaming	150104

Table 6: Small finds from Tell Zeidan Area E Level LC 1a

There seems to have been a later phase of this building (S.E5a), though it is highly damaged and obfuscated. Locus 150107 is the floor level that covers over some of the collapsed architecture of S.E5b but reuses other walls. Pyrotechnic Feature 150078 (not illustrated) would correspond to this phase and was found in conjunction with obsidian

blades and also contained a worked-bone awl (ZD8929). In the mudbrick collapse (150106) directly on top of 150107 is a granite hand axe, indicating that the area was multi-purpose and not just used for lithic working. In the rubble on top of everything (150069) is a cylindrical stone bead, and the approximately-equivalent layer to the east (150081), which underlies the earliest Phase D architecture, contains a bead made of polished shell (ZD9534), a spherical baked-clay token or gaming piece (ZD8930), and part of a polished triangular stone tool (ZD8936). These finds grouped together imply the likely domestic nature of the area, despite the craft production debris.

The general assessment of Building S.E5 is that it is a mixed-function domestic space. Craft manufacture is the activity primarily apparent from the finds, but this is likely due to the limited exposure of the building, and this household seems to have participated in a variety of craft and economic activities. The intramural burial of an adult (Pl. 21) is interesting in consideration of traditional Ubaid burial practices in which infants are buried beneath floors of houses but adults less so. In Tepe Gawra Level XII, however, nearly 20% of those buried on site are adults (Hole 1989: 160). Some have speculated that the abundance of intramural child burials compared to intramural adult burials reflects the existence of extramural adult cemeteries (e.g., Merpert & Munchaev 1993a: 208; Akkermans 1989: 356), but this could simply be a product of the infant mortality rate. More likely, the burial of adults inside of houses, as in the White Room of Gawra XII, could reflect one type of change in the funerary practices from the Ubaid period to the LC 1.<sup>7</sup> Either way, there must have been a sense of personal attachment associated with this

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<sup>7</sup> For other shifts in funerary practice, see Ch. 2 and Akkermans 1989.

building, and so it seems likely that it was a household rather than a specialized craft building.

**Area E (Ops. 15 & 16) Phase D/LC 1b (n=37)**

Phase D in Area E is the most extensively investigated and, correspondingly, yields the richest assemblage of small finds (n=37). The general character of this level is one of agglomerated but loosely related rooms lined along the north side of a street or open space. None stand out as specialized activity areas, but there is evidence that specific activities took place in distinctive contexts. Three different occupational sub-phases are attestable but share architectural features between them, and the earliest structures of this phase may have overlapped in time with the latest usage of the Phase E/LC 1a building (see Section 6.3.3). There is no destruction level evident, and so it appears as though the space of Area E was a semi-urban neighborhood in which the early LC 1 inhabitants built and rebuilt densely grouped, small buildings over a largely uninterrupted period of around a century or more.

The stratigraphically deepest building related to Ops. 15/16 Phase D is S.E4, in the northeastern corner of Operation 15. The finds from inside of Building S.E4 are limited to fragmentary pottery, fauna, and chipped stone, though some of the larger pieces were lying flat on top of Floor 150086, presumably representing the general-purpose/residential function of this structure.

Stratigraphically slightly later than S.E4, Building S.E1 is located in the northwest quadrant of Operation 16 and persists through three excavated phases. While the latest phases have negative features sunk into the floors, there are no finds except for bulk collections of potsherds, chipped-stone fragments, and faunal remains. Sherd-lined Pit 160048 and Bin 160069 both correspond to late Phase D2 and/or Phase D1, but the

earliest level (D3) has neither features nor small finds to imply a function beyond general domestic activities.

In its earliest-discovered level, Building S.E2c is a court that seems to have been largely cleared of objects and debris before the construction of the later walls. The room built on top contains a baked-clay muller/bent clay nail in the Zeidan LC 1 style with incised crosshatching on the head (ZD7910; Pl. 33 a), lying on Floor 160062. Also on that floor is an awl made of worked bone (ZD9100) along with numerous potsherds, fauna, chipped stone, and shell. Many of the potsherds are large and lying flat, suggesting that their excavated disposition is related to their systemic context.

Sunk into the floor in the northeast corner of the room is another sherd-lined pit (160067). Another one (160078) is sunk into the surface (160075) of the narrow room between Buildings S.E1 and S.E2. Unlike in Area D Ubaid levels, these sherd-lined pits are not associated with pyrotechnic features, as there are none in this series of structures. They seem to appear in a wide variety of contexts, but are typically sunk into constructed floor (or outdoor) surfaces and none seem to contain any *in situ* artifacts. It may be the case that they generally occur in open-air spaces and provided a resting space for storage jars, were drainage features, or were subterranean basins that collected rain water for later use (for further discussion see Ch. 8). Overall, Building S.E2b provides evidence for both domestic (muller) and craft (awl) activities, and may have been a contained open-air space.

Near the center of Room S.E3.1 is a semi-ovoid pit (160090) cut into the floor (160089). The pit is shallow but with well-defined walls and filled only with ash. No pyrotechnic feature is evident among the excavated remains at this level, nor is any burning area, and this pit has a distinctive shape and conspicuous location within the room. As S.E3.1 and S.E3.2 intercommunicate, the purpose of the ash pit could relate to the

significance of the painted room. To speculate grandiosely, since its function is not clear, this shallow ash pit does bear some resemblance in room position and condition to the podiums of later Mesopotamian temples, such as the LC 2 example in Tepe Gawra Level XI. That podium is centrally located within the room, and features evidence of burning (Rothman 2002: 93).

The activities implied by the small finds assemblage of Room S.E3.1 (see Table 7) include food preparation (grinding slabs, pestles, a sieve), food serving/consumption (flint-scraped Coba Bowls), and craft manufacture (a hammerstone and possible crucible). The Coba Bowls and other vessels were preserved nearly whole or in large pieces, right-side-up, and directly on the floor, suggesting that they were not discarded but rather simply left in place. The life cycle of the Coba Bowl, especially in its food-related functionality (see Rothman 2009: 23; Baldi 2015; Kennedy 2012), typically included the activities of food serving/distribution, food consumption, and then quick discard of the vessel.<sup>8</sup> The bowls in Room S.E3.1 seem to have been left in the early stage of that cycle rather than in a discard context, and so may represent serving or dispensing but not consumption.

There are roughly contemporaneous discard contexts nearby in Operation 15, however. Trash Pit 150062, just to the east of S.E3.2, contains a large proportion of flint-scraped bowl sherds and probably represents the discard stage of the Coba Bowl usage cycle, and so the consumption stage is also indirectly attested in the immediate vicinity. Whether these bowls were used in this location by outsiders in a feasting context is not certain, but it seems unlikely given the small number recovered and the lack of large food-

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<sup>8</sup> See Kennedy's use-alteration analysis of Coba bowls at Kenan Tepe, which demonstrates that Coba bowls were produced more rapidly and in greater quantities and used less than other ceramic types before discard (2012: 146-7).

waste deposits in the area.<sup>9</sup> That multiple—but not numerous—examples of Coba Bowls come from a (likely domestic) food preparation context conveys the restricted range of circulation for these particular Coba Bowls. That is, they were likely filled by a household for a household, and not by a household for a population any larger than the family or immediate community.

ZD No.	Object Material	Object Type	Object Sub Type	Functional Category	Function	Context No.
7919	Unbaked Clay	Sealing Clay	Hand-formed Preform	Admin	Storage/ Movement of Goods	150066
7946	Stone (Chert)	Hand Axe	Hemi-spherical	Food Prep/Craft Manufacture	Cutting/ Chopping	150066
8124	Ceramic	Sherd Disc	Circular	Indet.	Indet.	160079
9101	Stone	Pestle	Worked Stone	Food Preparation	Grinding	160079
9105	Ceramic	Sherd Disc	Retouched	Indet.	Indet.	160079
9106	Stone	Worked Stone Slab	Drilled	Food Preparation	Indet.	160079
9123	Ceramic	Sieve	Drilled	Food Preparation	Cooking	160079
9133	Stone	Crucible (?)	Carved Ground Stone	Craft Manufacture	Smelting(?)	160079
9142	Stone	Worked Stone	Irregular Disk	Indet.	Indet.	160079
9149	Ceramic	Coba Bowl	Crude Bowl; Flint-scraped	Food Serving	Serving/ Consumption	160079
9150	Ceramic	Coba Bowl	Flint-scraped	Food Serving	Serving/ Consumption	160079
9401	Ceramic	Coba Bowl	Flint-scraped	Food Serving	Serving/ Consumption	160079
9402	Stone (Meta-morphic)	Hammer-stone	Ovoid	Craft Manufacture	Lithic Tool Production	160079
9403	Ceramic	Jar	Collar-necked	Storage/ Serving	Liquid Dispensing	160079
9406	Ceramic	Coba Bowl	Flint-scraped	Food Serving	Serving/ Consumption	160079
9407	Stone (Basalt)	Worked Stone Slab	Hemi-spherical	Indet.	Grinding	160079
9408	Stone (Basalt)	Worked Stone	Triangular	Food Preparation	Grinding	160079
9409	Ceramic	Jar lid	Circular	Storage/ Serving	Liquid Preservation	160079

Table 7: Small finds from Tell Zeidan Area E Phase D3-2 Room S.E3.1c-b (Level LC 1b)

<sup>9</sup> The fauna recovered from on top of the floor in S.E3.1 included large-sized bones that suggest a food preparation area but had no *in situ* deposits of smaller bones that might be associated with a food consumption context.

In Operation 15, adjacent to the upper layers of room fill in Phase D2 Room S.E3.1, is a dense trash deposit. In addition to a chert hand axe (ZD7946), this stratum contains the only evidence for administration in either Operation 15 or 16—a handful-sized piece of levigated clay impressed with four human fingers in the shape of a fist, exactly the same as the sealing clay preforms found in Ubaid-LC 1 Area C (also seen at Gawra XIII and Feres Level 10; Tobler 1950; Forest 2009; cf. Baldi 2015).

#### **Area E Phase D1 (LC 1b-c)**

The latest level of occupation related to the Phase D structures saw a significant change in the space of Room S.E3. The newly built walls seem to have been built according to the interior space created by the earlier walls, restricting access to the painted room (S.E3.2). Unlike at earlier levels, the continuation of these walls is apparent in Operation 15, and though the preservation is quite minimal, the wall fragments there extend visibility of the building remains eastward and associate adjacent discard deposit 150058 with Building S.E3a.

The interior of S.E3a, now partitioned by the new walls, contains some evidence for craft manufacture (pieces of bitumen and slag and a stone cylinder dipped in bitumen<sup>10</sup>) and food preparation (pestle). The discard deposit (150058) immediately adjacent to Wall 150052, however, is one of the artifactually richer contexts from the LC 1 period at Tell Zeidan. The granite macehead (or perforated hammerstone; ZD7819; Pls. 32 d & 33 c) occurs alongside evidence for textile working (abrader), craft activity (two lithic cores; a pecking stone; a hand axe; and bitumen-coated reed matting),<sup>11</sup> food serving (Coba Bowl

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<sup>10</sup> This artifact (ZD7155) was not heavily modified from the raw material but the placement of bitumen on the end suggested that it might have been used to apply bitumen to other objects for manufacture or repair.

<sup>11</sup> Bitumen had plethoric uses in ancient Mesopotamia, but See Ch. 5 Section 5.3 for a discussion of the uses of bitumen in craft-production contexts, particularly to coat reed matting.

sherds), and personal ornamentation (gypsum bead). These cores, made of chocolate chert with a pebble cortex, are among only five lithic cores found at Tell Zeidan across all periods, and of only four dating to the LC 1 period. That they occur together in a deliberate discard deposit with other stone tools confirms that lithic production took place in or around Building S.E3. The pebble cortex indicates that these were pebble stones and so were locally sourced.

<b>ZD No.</b>	<b>Object Material</b>	<b>Object Type</b>	<b>Object Sub Type</b>	<b>Functional Category</b>	<b>Function</b>	<b>Context No.</b>
7155	Stone	Stone Cylinder	w/Bitumen	Craft Manufacture	Application/Repair	160054
7162	Ceramic	Sherd Disc/Scraper	Retouched	Craft Manufacture	Scraping	160054
7813	Gypsum	Bead	Cylindrical	Jewelry	Ornament	150058
7819	Stone (Igneous)	Macehead/Hammer-stone	Sub-rectangular	Prestige/Craft Manufacture	Smiting/Tool Production (Pl. 33 c)	150058
7820	Stone	Abrader	Ground Stone	Craft Manufacture/Textile	Textile Abrading	150058
7821a	Stone (Chert)	Lithic Core	Pebble Cortex	Craft Manufacture	Lithic Tool Production	150058
7823	Ceramic	Sherd Disc	Plain	Indet.	Indet.	150058
7824	Bitumen	Bitumen	Reed Impressed	Craft Manufacture	Reed Matting	150058
7927	Stone (Igneous)	Pecking stone	Sphere	Craft Manufacture	Lithic Tool Production	150058
7928	Stone (Chert)	Hand Axe	Oblong Wedge	Food Preparation/Craft Manufacture	Cutting/Chopping	150058
7929	Bitumen	Bitumen	Reed Impressed	Craft Manufacture	Matting	150058
8116	Ceramic	Pestle	Cylindrical	Food Preparation	Grinding	160066
8369	Ceramic	Sherd Disc/Scraper	Retouched	Craft Manufacture	Scraping	160054
9807	Stone (Chert)	Lithic Core	Pebble Cortex	Craft Manufacture	Lithic Tool Production	150058

*Table 8: Small finds from Tell Zeidan Area E Phase D1 Building S.E3a (LC 1b-c). 150058 is an adjacent exterior discard deposit*

The macehead is fairly rectangular and bears remote resemblance to the “boat-shaped hammerstone” from Tepe Gawra Level XIII (Tobler 1950: P. 204, Figs. 42-43) and, somewhat, to the pierced axe from Khanijdal East (Wilkinson et al. 1996: Fig. 14:5). Thus, it may not have been a ceremonial object, and indeed it displays pecking scars on one end while the rest was well polished. However, it certainly refutes any idea that the latest level of S.E3 was completely impoverished, despite the secondary nature of its depositional context and the terribly-preserved architecture. To the contrary, such deliberate dumping contexts often provide a better sense of the building’s interior activities than the often somewhat-randomly preserved selection of finds within (see Shaffer 1971: 98).

#### **6.4.4. Small Finds from the Step Trench Area (n=14)**

The small finds from Operations 1 and 6 convey a functional overlap between all of these Operations (see Table 9 and Pl. 37). The functional classes range from administration of goods to craft manufacture to figurines, with a slight focus on textile production and a notable absence of lithic tool production and food preparation. The most significant finds may be the stamp-seal impressed clay sealings—a jar sealing (ZD0041 and a basket sealing (ZD1925; Pl. 35 b)—which are among the few identifiably administrative artifacts from Zeidan that had been used as such (for discussion of the motifs in their stylistic context, see Ch. 8.6).

These sealing fragments complement the unused sealing clays found in Operation 9 and Operation 15 (Pl. 35 a), evidencing at least the movement of controlled goods, and perhaps local storage of them. It is interesting to note that while there is no clear evidence for economic specialization in the LC 1 period at Zeidan, Area E just to the east has a fair concentration of hammerstones and hand axes, whereas the Step Trench features a higher

concentration of textile production relative to the small area exposed, raising the possibility of nascent economic differentiation.

ZD No.	Object Material	Object Type	Object Sub Type	Functional Category	Function	Context No.
41	Clay (unbaked)	Sealing	Stamp Impressed	Admin	Jar Sealing	10002
46	Clay	Clay (Indet.)	Pedestal-shaped	Indet.	Indet.	10002
47	Ceramic	Coba Bowl	Flint-scraped	Vessel	Serving/Consumption	10002
83	Ceramic	Jar	Miniature	Vessel	Liquid Container	10004
85	Bitumen	Bitumen	Reed-impressed	Craft Manufacture	Reed Matting	10004
86	Clay (unbaked)	Loom Weight	Biconical	Craft Manufacture	Textiles/Weaving	10004
87	Stone	Bead	Pierced	Ornament	Jewelry	10004
95	Clay (Unbaked)	Disc	Indet.	Indet.	Indet.	10006
103	Clay (Unbaked)	Token	Spherical	Admin/Leisure	Counting/Gaming	10005
106	Clay (Unbaked)	Clay Piece	Pedestal-shaped	Indet.	Indet.	10005
111	Ceramic	Sherd Disc/Scraper	Retouched	Craft Manufacture	Scraping	10005
117	Clay	Clay Piece	Pedestal-shaped	Indet.	Indet.	10005
1887	Stone	Labret	Mushroom-shaped	Ornament	Jewelry	60008
1917	Stone	Bead	Unfinished	Ornament	Jewelry	60020
1921	Bone	Awl	Worked Bone	Craft Manufacture	Textiles/Sewing	60022
1922	Baked clay	Indet.	Fragment	Indet.	Indet.	60022
1923	Clay (Unbaked)	Figurine	Animal	Statues & Figurines	Figurine	60022
1924	Clay (Unbaked)	Figurine	Animal	Statues & Figurines	Figurine	60022
1925	Clay (Unbaked)	Sealing	Stamp-seal Impressed	Admin	Basket Sealing	60022
2136	Ceramic	Spindle Whorl	Worked Sherd	Craft Manufacture	Textiles/Spinning	10005

Table 9: Small finds from Tell Zeidan Step Trench Area (Ubaid-LC 1 through LC 1-2 levels)

## 6.5. Chapter Summary

The South Mound is the tallest mound with the largest footprint at Tell Zeidan, and the discoveries made there attest to its stature. Though archaeologically-rich LC 1 contexts exist across all three mounds, the buttress-recessed wall (Pl. 15), further contextualized by

the abundant evidence for support of administrative activity, suggests monumentality—unique at Zeidan—at the time when the Ubaid period was ending. While the changes of the LC 1 period may (or may not) have precluded the continuation of monumental construction, administrative activity seems to have continued but to a much lesser degree, and nascent functional specialization at the neighborhood/community level may have been (re)emerging. This would contrast the specialized workshops and areas evident in the Ubaid levels at Zeidan (Stein 2009; Stein 2011), but it offers a view of an economy in flux, where some actors engaged in what was likely cross-group interactions and economic relations with limited impact on the overall economy.

What we can say definitively is that a) the LC 1 period lasted for at least several hundred years on the South Mound and that substantial changes occurred *during* that time period, not just before and after it; and that b) craft production generally occurred at the household level in the LC 1 period at Zeidan, likely by non-specialists, but that households may have been economically differentiated to a minor degree. Furthermore, the evidence from the depositional contexts of Coba Bowls and Beaded-Lip Bottom-Scraped Bowls suggests that food distribution was highly localized, rather than institutional or otherwise redistributive, but that the contexts could include rooms ascribed special status shown through wall fresco decoration (see, e.g., Gurdil 2010).

CHAPTER 7  
INTRASITE ASSESSMENT OF THE LC 1 PERIOD AT TELL ZEIDAN

The goal of this chapter is to use distributional and comparative assessments across the three different mounds to understand how the ancient society of Tell Zeidan functioned during the LC 1 period. The main questions addressed are ‘what is the degree of economic interdependence’ and ‘what is the degree of sociocultural cohesion between the different areas of the site.’<sup>1</sup> The first part—economy—compares evidence for various industries and subsistence activities across the site in the following categories: small finds (textile manufacturing, lithic manufacturing, food processing, and administration); fauna; and ceramics.

In order to determine the level of sociocultural cohesion and, thus, inversely, the potential for sociopolitical transformation, residential architecture acts as a proxy, since it is the most reliably attested category of evidence at Zeidan that reflects social norms;<sup>2</sup> diet and other preferences will also be considered. Following the assessment of economic interdependence and intrasite sociocultural cohesion, Chapter 8 will conclude this study by situating Tell Zeidan in the macro-regional developmental context of Greater Mesopotamia in the LC 1 period.

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<sup>1</sup> Berkman & Kawachi define ‘social cohesion,’ based on Durkheimian principles, as “the extent of connectedness and solidarity among groups in society” (2000: 175). I opt here for the variant “sociocultural cohesion” due to the heavy reliance prehistorical studies have on (material) culture to formulate social explanations; inevitably, since the data are culturally based, the explanation will be, too, but linked through material culture back to the social modality.

<sup>2</sup> Coudart, in studying Neolithic Danubian and Anga Papa New Guinean houses, has shown that archaeological studies can use evidence for degree of architectural variation “to investigate the relationship between sustainability and resilience ... of a cultural system” (1994: 9). She argues that durability of architectural form has an inverse relationship with possibility for transformation (ibid.: 10; 2015: 321).

## 7.1. Distributional Assessment of Selected Small Finds (n=82)

This section considers distributional patterns across the three mounds of the site within the five different artifact classes mentioned above and discusses the implications of those patterns as they pertain to the site's economy in the LC 1 period. In many cases sampling biases prevent categorical conclusions, but the overlapping patterns produce a fairly evident picture of the LC 1 economy at Tell Zeidan as having an overall low level of interdependency between mounds (see charts on Pls. 37-39). While the sample sizes and exposures are too small to conduct intra-mound analyses, there is also a sense that neighborhoods or localized communities within the site may have had a greater level of economic intra-connectedness than the overall site.

### **7.1.1. Textile Manufacturing (n=16)**

Textile-manufacturing and leather-working artifacts include awls, loom weights, scrapers, abraders, and spindle whorls. Sixteen total pieces come from LC 1 levels at Tell Zeidan (Pl. 39). Ten are from Areas E, C, and the Step Trench, on the South Mound, and 6 are from Area A, on the Northwest Mound. None come from Area B, on the Northeast Mound, nor any from the Lower Town area. Absence of textile implements in the latter two areas might relate to a volumetric bias, as Operation 3 is a 4 x 3 m trench, Operations 19 and 20 are 2 x 2 m soundings, and no other excavation of those areas targeted LC 1 levels. However, contextually speaking, Operation 3 was not unlikely to produce evidence of craft manufacturing in general, and a textile/leather working object appears in Operation 3 LC 2 levels. In particular, the discard deposit (30049) outside of the Plastered Building produced evidence for lithic working and other craft activities (see Ch. 5 Section 5.3.4 and Pl. 12), and so it is plausible that the inhabitants of those buildings outsourced their textile

work, but this is far from certain. As for the rest of the site, Area A (NW Mound) nearly consistently demonstrates evidence for textile manufacturing, while on the South Mound textile work is also consistently apparent but more sporadically attested within each locality.

Site Level	Area	ZD No.	Object Material	Object Type	Object Sub Type	Context No.
Ubaid-LC 1	A	3717	Bone	Loom Weight	Worked Bone	100070
Ubaid-LC 1	A	7146	Baked Clay	Spool		100095
Ubaid-LC 1	C	2151	Clay	Loom Weight	Biconical	90027
Ubaid-LC 1	C	2574	Stone	Scraper/ Pecking Stone	Ovoid	90042
Ubaid-LC 1	Step Trench	213	Clay	Loom Weight	Biconical	10013
LC 1a	A	3620	Ceramic	Scraper	Worked Sherd	100062
LC 1a	E	8929	Bone	Awl	Worked Bone	150078
LC 1a	E	2136	Ceramic	Spindle Whorl	Pierced Sherd	10005
LC 1b	A	9099	Bone	Awl	Worked Bone	100033
LC 1b	A	2632	Clay	Loom Weight	Biconical	100036
LC 1b	E	9100	Bone	Awl	Worked Bone	160062
LC 1b	Step Trench	1921	Bone	Awl	Worked Bone	60022
LC 1b	Step Trench	86	Clay	Loom Weight	Biconical	10004
LC 1b-c	E	7820	Stone	Abrader	Ground Stone	150058
LC 1c	A	2137	Bone	Awl	Worked Bone/ Fragment	20035
LC 1-2	E	9530	Baked Clay	Loom Weight	Conical	150018

*Table 10: Textile production and leather working objects from Tell Zeidan grouped by Site Level*

Because of the general scarcity of objects in the category of textile production and leather working, their value lies primarily in contextual and correlative analyses, and not in typology. For instance, comparing perforation sizes over time or across space, which would give a sense of the size of the spindle and, thereby, a hint as to the kind of fiber being manipulated, is impossible to carry out with only one LC 1 spindle whorl discovered.

However, what can be gleaned from the distributional pattern is that not every multifunctional locus of craft activity was necessarily pan-functional and self-sufficient.

### **7.1.2. Lithic Manufacturing (n=12)**

Evidence from the LC 1 period for lithic manipulation at Zeidan is even scarcer than it is for textile manufacture, and once again the few artifacts that there are in this category are more effective for contextualization than for examining intrasite trends. But again, the trends are noticeable; 64% of the artifacts evidencing lithic manufacture come from Area E (South Mound), and all from either Operation 15 or 16 (Pl. 39). While two examples come from Area A (Northwest Mound) and one tentatively from Area C, they bookend the LC 1 period, and none come from the levels in between. Again, this is probably not wholly representative of each mound, but more so the excavated households (e.g., S.A1).

The extreme ratio of (imported) obsidian cores to (locally sourced) chert cores seems to reflect an ancient trend in which obsidian makes up 4-7% of the chipped stone assemblage, though the number of specifically LC 1 contexts analyzed in the formal analysis is relatively few (Khalidi et al. 2016: 747). Along with the obsidian core (ZD291), obsidian flake debitage also comes from Level LC 1b in Area B—though is recorded as bulk chipped-stone and so does not appear as small finds—but it does indicate (along with hammerstones) that Area B was a center of obsidian working in the LC 1 period.

We do know from Ubaid levels at Zeidan that lithic workshops produced obsidian blades onsite (Stein 2011: 129 Fig. 7)<sup>3</sup> and that the Ubaid-period inhabitants imported obsidian from the widest variety of sources demonstrated to date, from the western

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<sup>3</sup> Though it is important to keep in mind that “on-site production [of obsidian] was on a small scale and existed alongside exchanged obsidian finished products” (Khalidi et al. 2016: 755).

Caucasus to eastern Anatolia (Khalidi et al. 2016: 748). In the LC 1 period, that appears to have changed to only a few sources (though the sample size caveat remains; *ibid.*). Furthermore, site-wide, obsidian cores of the Ubaid period come from the South and Northeast mounds but not the Northwest Mound (*ibid.*: Table 3), and with the greatest concentration of obsidian finds coming from the Northeast Mound (*ibid.*: 747). In the LC 1 period this pattern changes slightly and the South Mound seems to revert to a reliance on local chert for production. Thus, the LC 1 inhabitants of Zeidan continued to import and manipulate obsidian, but from different and fewer sources (Bingöl A, Nemrut Dağ, and Bingöl B), to different parts of the site, and in domestic contexts rather than specialized workshops.

Site Level	Area	ZD No.	Object Material	Object Type	Object Sub Type	Context No.
Ubaid-LC 1	A	7149	Stone (igneous)	Hammer-stone	Cubic	100095
Ubaid-LC 1	C	2574	Stone	Scraper/Pecking Stone	Ovoid	90042
LC 1a	E	9653	Stone (chert)	Core	Pyramidal/Lenticular	150094
LC 1a	E	9348	Stone	Hammer-stone	Cylindrical	150085
LC 1a	E	9506	Stone (chert)	Worked Stone	Ovoid	150085
LC 1b	B	291	Obsidian	Core	Crested Blade Core <sup>4</sup>	30049
LC 1b	B	767	Stone (chert)	Pecking stone	Spherical	30049
LC 1b	E	7821	Stone (chert)	Core	Pebble Cortex	150058
LC 1b	E	9807	Stone (chert)	Core	Pebble Cortex	150058
LC 1b	E	9402	Stone (metamorphic)	Hammer-stone	Ovoid	160079
LC 1b-c	E	7927	Stone (igneous)	Pecking Stone	Spherical	150058
LC 1d	A	1550	Stone (chert)	Hammer-stone	Cubic	100010

Table 11: Lithic manufacturing objects from Tell Zeidan grouped by Site Level

<sup>4</sup> Khalidi et al. describe this core as a “large blade core measuring 12.4 cm in length and weighing 81.9 g featuring a crested back and an obliquely set striking platform,” and sources from Bingöl A (2016: 747); however, it is worth noting that in that analysis the context for this object is cited as dating to the Ubaid-LC 1 transition, which differs considerably from the stratigraphic analysis here and Abu Jayyab’s ceramic analysis.

# Obs per periods	Source							Total
	Nemrut Dağ	Meydan Dağ	Bingöl A	Bingöl B	3D	Pasinler	Arteni 2	
Halaf-Ubaid transition	1							1
Ubaid	9	1	5	6	1	2	1	25
Ubaid/LC1			2					1
LC1	2			1				3
LC2	3							3
Unknown						1		1
Total	15	1	7	7	1	3	1	35

Table 12: Breakdown of obsidian objects analyzed per source/period at Tell Zeidan (Khalidi et al. 2016: Table 4)

### 7.1.3. Food Processing & Preparation Equipment (n=15)

Unsurprisingly, the greatest concentration of food processing instruments<sup>5</sup> comes from Level LC 1b on all mounds, as that is the level with the broadest domestic exposures. Within LC 1b the majority come from Area E on the South Mound, and there they largely cluster inside of Room S.E3.1. Given that the only substantial evidence for grain storage and cooking in Level LC 1b comes from S.A1, this is an interesting result. However, it is possible that the large, subterranean storage jars of Room S.A1.1 (see Ch. 4 Section 4.2.1) contained grain that had already been processed, perhaps to the point of being ground flour, and that this processing partially took place elsewhere in the vicinity. The muller does come from the “kitchen” room, though, unlike in Area E, where it occurs in the room/building adjacent to the cooking locus. Despite the overall concentration of food-processing instruments in Area E Level LC 1b, mullers occur consistently throughout the sequence of Operation 10, from the Ubaid levels until the penultimate phase, indicating some kind of functional consistency. This is also true of Area D in some sense, although

<sup>5</sup> Though the function of the baked-clay “mullers” is debated, I consider them to be related to cereals processing somehow, either for grinding grain to make flour, threshing grain to remove chaff, as a kneading tool for preparing dough, or possibly serving another bread- or beer-related purpose (for complete discussion, see Ch. 4 Section 4.3). I have also included cooking apparatuses within the ‘food processing’ category because in a broad sense, they are part of the middle segment of the *chaîne opératoire* of food (in between collecting the raw materials and serving/consumption).

the only LC 1-style muller found there is a surface find, and none come from secure LC 1 contexts.

Site Level	Area	ZD No.	Object Material	Object Type	Object Sub Type	Context No.
Ubaid-LC 1?	D	7453	Baked Clay	Muller	Crosshatch Incised	17001
LC 1a	C	1783	Baked Clay	Muller	Fragment	90022
LC 1b	A	2642	Baked Clay	Andiron	Fragment	100029
LC 1b	A	2843	Baked Clay	Andiron	Fragment	100041
LC 1b	A	2619	Baked Clay	Muller	Crosshatch Incised	100029
LC 1b	B	298	Stone (basalt)	Grinding Stone	Fragment	30049
LC 1b	B	798	Baked clay	Muller	Crosshatch Incised	30049
LC 1b	E	9133	Stone (basalt)	Grinding Stone	Fragment	160079
LC 1b	E	9123	Ceramic	Colander	Perforated	160079
LC 1b	E	7924	Ceramic	Colander	Perforated	150056
LC 1b	E	8449	Stone (granite)	Grinding Stone	Irregular	150060
LC 1b	E	7190	Baked clay	Muller	Crosshatch Incised	160062
LC 1b	E	9101	Stone	Pestle	Worked Stone	160079
LC 1b	E	9408	Stone (basalt)	Worked Stone	Triangular	160079
LC 1c?	A	1525	Baked Clay	Muller	Crosshatch Incised	100006

Table 13: Food Preparation and Processing Objects from Tell Zeidan LC 1 Levels

#### 7.1.4. Food Serving Objects (n=12)

This category of small finds is somewhat less useful than the others because rapidly-made bowl sherds and other types of serving vessels are recorded as bulk pottery, and so do not appear as ‘objects’ and are not individually registered. However, it is interesting to note that none come from the Northeast Mound (Area B) in any level of the LC 1 period. Once again, this is probably partially due to the volumetric and contextual bias caused by the limited exposure there. In fact, the Northeast Mound has the widest repertoire of rapidly-made bowls, albeit none fully intact (see section 7.3.2 below). One possible explanation is that the Area B buildings represent consumption contexts more than

serving/dispensing contexts, and so the bowls appear as sherds in trash deposits rather than whole vessels on the floors of food-processing/preparation/dispensing contexts. This would point to a contrast with both the Northwest and South mounds, in which there is evidence for food preparation, dispensing, and consumption all associated with the same building. However, this does not match the faunal data (see below), and instead the difference is more likely on account of both sample size and the fact that the Area B buildings were generally well cleaned.

Site Level	Area	ZD No.	Object Material	Object Type	Object Sub Type	Context No.
LC 1a	A	3159	Ceramic	Bowl	Sinuuous Sided; Mineral Tempered	100055
LC 1a	A	3160	Ceramic	Jar	Miniature	100055
LC 1a	E	8411	Stone (quartz)	Bowl	Fragment; Decorative Incising	150068
LC 1b	A	3197	Ceramic	Bowl	Coba Bowl	100046
LC 1b	A	3371	Ceramic	Bowl	Coba Bowl	100044
LC 1b	A	2649	Ceramic	Bowl	Coba Bowl	100030
LC 1b	A	2279	Ceramic	Jar	Globular w/ Everted Collared Rim	100024
LC 1b	E	47	Ceramic	Bowl	Coba Bowl	10002
LC 1b	E	83	Ceramic	Jar	Miniature	10004
LC 1b	E	9149	Ceramic	Bowl	Coba Bowl	160079
LC 1b	E	9403	Ceramic	Jar	Undecorated; Mixed Temper	160079
LC 1c	A	2074	Ceramic	Jar Stand	Painted	100012

Table 14: Food Serving/Consumption Objects from Tell Zeidan

#### 7.1.5. Administration Debris (n=27)

The majority of the LC 1 administrative finds (68%; Pl. 38 a) come from a single context in Area C (north side of South Mound) that is located inside of the niched-and-buttressed building of the Ubaid-LC 1 level, and they are all sealing preforms (hand-formed

pieces of levigated clay; Pl. 35 a).<sup>6</sup> Only two stamp seals have been discovered at Tell Zeidan, one of which dates to the LC 2 period (Pl. 34 h; Stein 2009: 133-134, Fig. 14), and the other is from a pit above the niched-and-buttressed building that stratigraphically dates to the early LC 1 period (Pl. 34 f). The latter, however, must have been an heirloom based on its particular geometric style of iconography, which dates to Halaf period (Stein 2010a: 109, Fig. 9).

Otherwise, the majority of the scanty evidence for administrative activity in the LC 1 levels comes from Area E on the South Mound. Once again, volumetric bias may have impacted the recovery of specific categories of finds from the Northeast Mound and the Lower Town, though the wealth of the contexts on the Northeast Mound would not imply a contextual bias. Two notable absences from LC 1 Zeidan in this category are 1) door sealings and 2) any hint of sealing practice associated with the large storage jars sunken into the floor of Building S.A1. There is, therefore, no evidence for local control of large quantities of commodities such as grain. Other than the single sealing preform in Area E Level LC 1a, there is no evidence that the LC 1 inhabitants sealed their own goods at all, raising the possibility that the few sealings found were the result of exchange from other sites.

Despite the paucity of iconographic evidence in the administrative finds, Chapter 8 will consider the iconography of the single clearly-impressed sealing (Pl. 35 b) in a regional and art-historical context.

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<sup>6</sup> These fist-impressed pieces of levigated clay are also known from Tepe Gawra XIII, found in a “well” in or under the northern temple (Tobler 1950: Pl. LXXXVIb), along with seals, sealings, and a *saluki* skull (ibid.: 32). These are also attested at Tell Feres al-Sharqi in Level 10 (Forest 2009).

Site Level	Area	ZD No.	Object Material	Object Type	Object Sub Type	Context No.
Ubaid-LC 1	A	3723	Clay (unbaked)	Sealing Clay	Fragment	100072
Ubaid-LC 1	A	7685	Clay (unbaked)	Sealing	Jar or Bag Sealing	100089
Ubaid-LC 1	C	2184	Clay (unbaked)	Sealing Clay	Fragments	90027
Ubaid-LC 1	C	2178	Clay (unbaked)	Sealing clay (bulk)	Preforms	90027
Ubaid-LC 1	C	2158	Clay (unbaked)	Sealing clay (bulk)	Fragments	90027
Ubaid-LC 1	C	1797	Clay (unbaked)	Sealing clay	Preform	90027
Ubaid-LC 1	C	2551	Clay (unbaked)	Sealing clay	Preform	90027
Ubaid-LC 1	C	2554	Clay (unbaked)	Sealing clay	Preform	90027
Ubaid-LC 1	C	2556	Clay (unbaked)	Sealing clay	Preform	90027
Ubaid-LC 1	C	2557	Clay (unbaked)	Sealing clay	Preform	90027
Ubaid-LC 1	C	2558	Clay (unbaked)	Sealing clay	Preform	90027
Ubaid-LC 1	C	2559	Clay (unbaked)	Sealing clay	Preform	90027
Ubaid-LC 1	C	2560	Clay (unbaked)	Sealing clay	Preform	90027
Ubaid-LC 1	C	2561	Clay (unbaked)	Sealing clay	Preform	90027
Ubaid-LC 1	C	2562	Clay (unbaked)	Sealing clay	Preform	90027
Ubaid-LC 1	C	2563	Clay (unbaked)	Sealing clay	Preform	90027
Ubaid-LC 1	C	2564	Clay (unbaked)	Sealing clay	Preform	90027
Ubaid-LC 1	C	2565	Clay (unbaked)	Sealing clay	Preform	90027
Ubaid-LC 1	C	2566	Clay (unbaked)	Sealing clay	Preform	90027
Ubaid-LC 1	C	2567	Clay (unbaked)	Sealing clay	Preform	90027
Ubaid-LC 1	C	2552	Clay (unbaked)	Sealing clay	Preform	90027
Ubaid-LC 1	C	2553	Clay (unbaked)	Sealing clay	Preform	90027
LC 1a	A	3041	Clay (unbaked)	Sealing	Bag Sealing	100067
LC 1a	C	1798	Stone (steatite)	Seal	Stamp Seal	90023
LC 1b	Step Trench	41	Clay (unbaked)	Sealing	Bag or Jar Sealing	10002
LC 1b	Step Trench	1925	Clay (unbaked)	Sealing	Basket Sealing w/ Stamp Impression	60022
LC 1b	E	7919	Clay (unbaked)	Sealing clay	Preform	150066
LC 1d	A	1530	Clay (unbaked)	Sealing clay	Fragment	100008
LC 1-2	A	709	Clay (unbaked)	Sealing	Bag Sealing?	20025

Table 15: Administrative small finds from LC 1 levels at Tell Zeidan

## 7.2. Faunal Analysis<sup>7</sup>

The faunal record of the LC 1 period at Tell Zeidan is not extensive (n=2,553), with 517 examples identifiable to the genus level or lower, but is sufficient to identify some trends in the LC 1 animal economy. In general, the LC 1 inhabitants continued patterns that had begun in the Ubaid period, including intensification of meat production (Fig. 3), an increasing ratio of sheep herding to goat herding, and less reliance on wild resources. However, the NISP ranking does indicate some changing preferences. Grossman and Hinman (2014) have suggested that the focus on meat consumption in the Ubaid and LC 1 periods might be related to population increase, but the evidence is tangential and at some point in the early LC period, the population of Zeidan appears to shrink dramatically. Another trend from the Ubaid period into the LC 1 is a slight increase in medium mammals and a drop by half in large mammals (see Table 16).

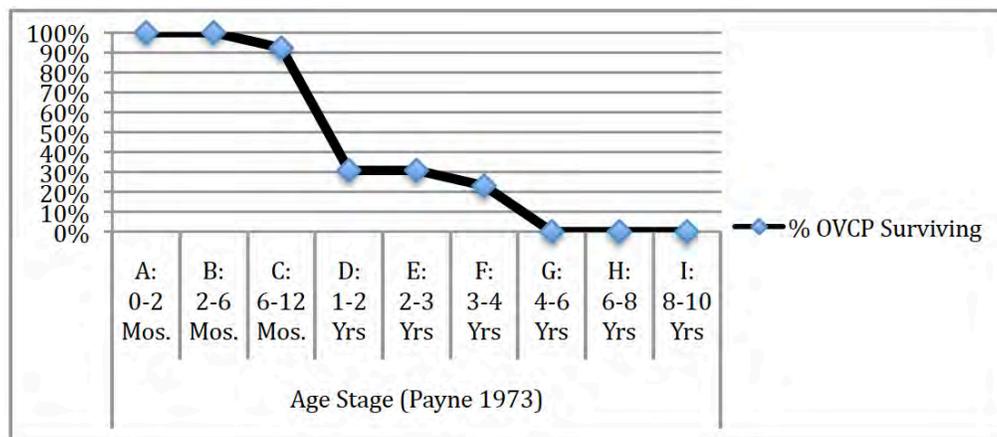


Fig. 2: Survivorship Curve for Ovis/Capra (n=13) at Tell Zeidan (Grossman n.d.)

<sup>7</sup> Kathryn Grossman performed the analysis of the LC 1 faunal remains; the material presented here is a summary and interpretation of her work. For an overview of faunal recording and preservation at Tell Zeidan and faunal analysis for the Halaf and Ubaid levels see Grossman & Hinman 2014. For description of the methodology employed, see Chapter 3, Section 3.2.2.

Identification	Halaf Fragment Count	% of Total Halaf Fragments	Ubaid Fragme nt	% of Total Ubaid	LC 1 Tota	% of Total LC 1
Bos taurus or primigenius	39	3.00%	410	3.00%	34	1.34%
Ovis aries or orientalis	8	0.60%	181	1.30%	53	2.09%
Capra hircus or aegagrus	10	0.80%	71	0.50%	12	0.47%
Sus domesticus or scrofa	7	0.50%	238	1.70%	50	1.97%
Ovis or Capra	55	4.20%	1272	9.30%	263	10.35%
Canis sp.	5	0.40%	17	0.10%	1	0.04%
Equus asinus	0	0.00%	2	0.00%		0.00%
Equus hemionus	13	1.00%	28	0.20%		0.00%
Equus sp.	88	6.70%	70	0.50%	8	0.31%
Capreolus sp.	2	0.20%	5	0.00%	1	0.04%
Cervus sp.	1	0.10%	12	0.10%	1	0.04%
Gazella sp.	29	2.20%	83	0.60%	19	0.75%
Capreolus or Gazella	0	0.00%	8	0.10%	2	0.08%
Dama mesopotamica	3	0.20%	34	0.20%	7	0.28%
Lepus sp.	0	0.00%	2	0.00%	7	0.28%
Vulpes sp.	1	0.10%	0	0.00%		0.00%
Nesokia sp.	0	0.00%	5	0.00%		0.00%
Rodent	0	0.00%	5	0.00%	2	0.08%
Ovis/Capra/Gazella	13	1.00%	180	1.30%	59	2.32%
Small Canid	0	0.00%	1	0.00%	1	0.04%
Small Carnivore	0	0.00%	1	0.00%		0.00%
Medium Carniovre	0	0.00%	1	0.00%		0.00%
Small Artiodactyl	0	0.00%	2	0.00%	1	0.04%
Medium Artiodactyl	3	0.20%	30	0.20%	2	0.08%
Large Artiodactyl	0	0.00%	9	0.10%	3	0.12%
Bovid	0	0.00%	74	0.50%	16	0.63%
Small Mammal	24	1.80%	294	2.10%	104	4.09%
Medium Mammal	318	24.10%	4307	31.40%	909	35.79%
Large Mammal	234	17.70%	2059	15.00%	183	7.20%
Mammal, Size Indt.	247	18.70%	0	0.00%		0.00%
Fish	0	0.00%	2	0.00%		0.00%
Tortoise	0	0.00%	7	0.10%		0.00%
Indeterminate	221	16.70%	4294	31.30%	802	31.57%
<b>Total</b>	<b>1321</b>	<b>100.00%</b>	<b>13704</b>	<b>100.00%</b>	<b>2540</b>	<b>100.00%</b>

Table 16: Fragment Counts by Period at Zeidan (Grossman n.d.)

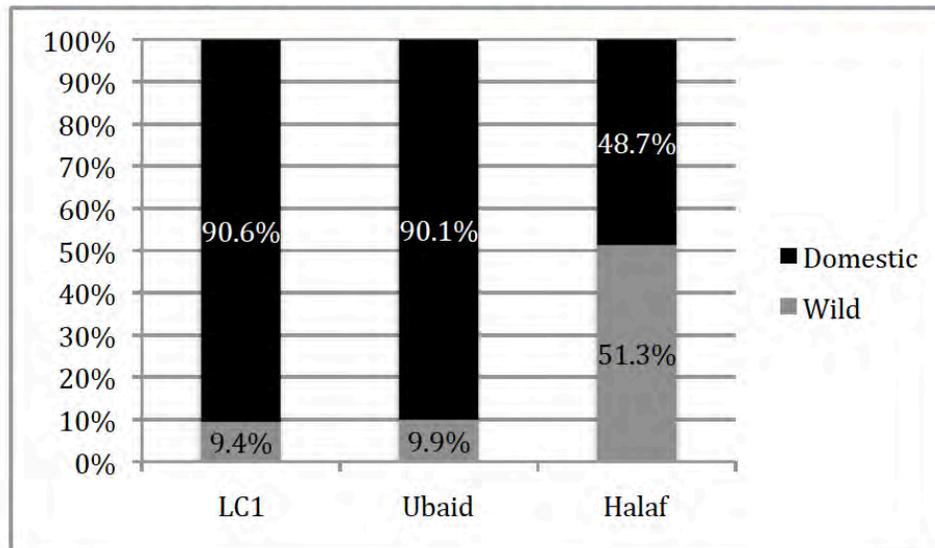


Fig. 3: Proportions of Wild and Domestic Genera at Zeidan by Period (Grossman n.d.)

When the faunal data is broken down by mound, some intrasite trends emerge (see Tables 17-18). Firstly, the faunal profile of the Northeast Mound stands out as having the least diverse animal economy, but it is also the only mound to produce evidence for inclusion of *lepus* (rabbits and hares). It also has by far the highest relative amount of bird bones, at 2% of its fauna (compared to .25% and 0%), and gazelle bones (1.7%), though the latter figure probably corresponds directly to the greater relative abundance in the Ovis/Capra/Gazella category on the Northwest and South mounds.

Many of the bird bones from the Northeast Mound come from a direct discard context (30049), alongside freshwater shell remains and discarded food processing and craft manufacturing debris. Their contextual disposition, which also includes a high degree of burnt bones but no other burning, implies that they were part of a systemic usage pattern, one which turns out to be nearly unique among the excavated remains at Zeidan. The otherwise-lacking faunal diversity attested for the Northeast Mound is interesting in consideration of the fact that it also produced the lowest percentage of indeterminate species among the three mounds (22.2%), somewhat corroborating the apparent lack of variation within its animal diet.

	MOUND		
	Northwest	Northeast	South
Bird		0.3%	
<b>bos (cow)</b>	<b>1.25%</b>	<b>1.7%</b>	<b>1.95%</b>
<i>bovid</i>	0.55%		0.70%
<i>canis</i> (dog/wolf)	0.05%		
<b>capra (goat)</b>	<b>0.60%</b>		<b>0.20%</b>
<i>cervid</i> (deer)	0.05%		
<i>cervis</i> (red deer)	0.05%		
<i>dama</i> (fallow deer)	0.10%		0.50%
<b>equus asinus/hemionus (donkey/onager)</b>	<b>0.50%</b>		
<i>gazella/capriolous</i> (gazelle/roe) deer)	0.10%		
<b>gazella (gazelle)</b>	<b>0.70%</b>	<b>1.7%</b>	<b>0.20%</b>
<i>homo</i>			0.20%
Indeterminate	27.20%	22.2%	25.70%
Large Artiodactyl	0.05%		0.900%
Lepus (rabbit/hare)		2.4%	
Large Mammal	6.40%	8.7%	7.70%
Medium Artiodactyl	0.10%		
Medium Bird	0.05%	1.7%	
Medium Mammal	37.15%	40.3%	33.75%
MMAM	0.100%		
<i>Ovis/Capra/Gazella</i> (sheep/goat/gazelle)	2.35%		2.45%
<b>ovis/capra (sheep/goat)</b>	<b>9.05%</b>	<b>11.8%</b>	<b>20.20%</b>
<b>ovis (sheep)</b>	<b>1.50%</b>	<b>4.5%</b>	<b>1.80%</b>
Rodent	0.10%		
Small Artiodactyl	0.05%		
Small Bird	0.20%		
Small Canid	0.05%		
Small Mammal	4.45%	1.4%	2.70%
<b>sus (pig)</b>	<b>2.30%</b>	<b>2.4%</b>	<b>1.00%</b>
	100.0%	100.0%	100.0%

Table 17: Relative Taxonomic Abundance by Mound, Main Genera in Bold (after Grossman n.d.)

The South Mound has the second lowest number of species attested, but seems to favor ovi-caprids, at 20% of its faunal assemblage. It also has the highest percentage of burnt bones, at 5.6%, which somewhat counterbalances the lack of evidence for ovens. While there is certainly evidence for pig consumption, it has the lowest relative amount of the three mounds (1% of its total fauna compared to 2.3-2.4%). The South Mound is also completely deficient in bird bones but has the greatest relative abundance in *dama Mesopotamica* (Persian fallow deer).

<b>Mound</b>	<b>Context No.</b>	<b>Burnt</b>	<b>Partial</b>	<b>None</b>	<b>Grand Total</b>
<b>NE Mound</b>					
	30044			9	9
	30049	3		116	119
	30063	8		152	160
<b>NE Total</b>		<b>11</b>	<b>0</b>	<b>277</b>	<b>288</b>
<b>% of Total</b>		<b>3.8%</b>			
<b>NW Mound</b>					
	20033	1		89	90
	20034	4		242	246
	20035	2	1	361	364
	20036	10	1	96	107
	100024	1		44	45
	100029	5		118	123
	100030	1		53	54
	100032	1	1	444	446
	100033			81	81
	100036	2	1	61	64
	100040			20	20
<b>NW Total</b>		<b>27</b>	<b>4</b>	<b>1609</b>	<b>1640</b>
<b>% of Total</b>		<b>1.6%</b>			
<b>South Mound</b>					
	10004	3		110	113
	90029	3		25	28
	150058			24	24
	150085			96	96
	150094			9	9
	160062	1		45	46
	160064			1	1
	160079	25		228	253
	160091	1		37	38
	160097			17	17
<b>South Total</b>		<b>33</b>	<b>0</b>	<b>677</b>	<b>625</b>
<b>% of Total</b>		<b>5.3%</b>			
<b>Grand Total</b>		<b>71</b>	<b>4</b>	<b>2478</b>	<b>2553</b>
<b>% of Total</b>		<b>2.8%</b>	<b>0.1%</b>	<b>97.1%</b>	

Table 18: Numbers of Burnt Bones by Mound and Context No. (after Grossman n.d.)

	15/16	10	3	2	1
<i>bos</i>	8.2%	7.6%	7.0%	10.9%	2.6%
<i>ovis</i>	17.8%	3.8%	18.3%	13.8%	2.6%
<i>capra</i>	2.7%			7.2%	
<i>ovis/capra</i>	60.3%	48.5%	47.9%	60.9%	89.7%
<i>sus</i>	1.4%	28.0%	9.9%	1.4%	5.1%
<i>canis</i>		0.8%			
<i>equus</i>		0.8%		5.1%	
<i>cervus</i>		0.8%			
<i>gazella</i>	2.7%	9.1%	7.0%		
<i>dama</i>	6.8%	0.8%		0.7%	
<i>lepus</i>			9.9%		

Table 19: Relative Abundances of the Main Genera by Operation, LC 1 Period (Grossman n.d.)

The Northwest Mound has the most diverse animal economy, though the primary distinction is the inclusion of multiple deer-like species, and each generally appears in small amounts. Broken down by trench (Table 19), the space excavated by Operation 10 has a heavy concentration of pig bones, so much so that without the Op. 10 pig bones, the trend of increasing amounts of pig begun in the Ubaid period would have gone down instead of up.

Although contextual biases and smaller than ideal sample sizes might make it difficult to rely on mound-wide data, what becomes apparent is that individual households and/or neighborhoods seem to have employed much different subsistence strategies. The patterns do not seem to reflect specialization, but rather preferential differentiation or perhaps competition between groups and diverse market shares. Seasonality does not seem to be the only governing factor of evidence for wild species (cf. Grossman & Hinman 2014); community or household is just as much the determinant as seasonality.

Overall, the LC 1 animal economy at Zeidan continues trends of the Ubaid, in which the meat of domesticated species became an increasingly important component. Part of this trend was a growing preference for pig meat, at least on the Northwest Mound.<sup>8</sup>

<sup>8</sup> Within the small sample size (n=7), ~50% of the *sus* fauna demonstrate an age at death of 2.5 years.

Despite the overall preference for sheep/goat and the dominance of *ovis* (n=53) over *capra* (n=12), there is little evidence for pastoralism. With a survivorship curve indicating the common age of death at 1-2 years of age and a maximum age of 4 years (Fig. 2), most of the sheep were killed off in accordance with a meat production strategy rather than being herded for secondary products such as wool. Either way, the importance of ovi-caprids for Zeidan is attested in the fact that it is one of the few categories of faunal remains that is distributed heavily across all three mounds, with the qualification that within each mound there seem to have been diverse subsistence strategies at play even with respect to use of ovi-caprids (see Tables 17-18). Analysis of body part representation of ovi-caprids indicates that butchery practices across the site were relatively similar (Table 19), further supporting the concept that a site-wide culinary culture and praxis did exist for this particular aspect of the animal economy, though not necessarily others.

	Op 1		Op 2		Op 3		Op 10		Ops 15/16	
	n=	%	n=	%	n=	%	n=	%	n=	%
<b>Lower Forelimb</b>	0	0.0%	1	0.9%	2	4.3%	1	1.4%	1	1.6%
<b>Upper Forelimb</b>	2	5.4%	10	9.2%	2	4.3%	1	1.4%	8	12.7%
<b>Lower Hindlimb</b>	1	2.7%	10	9.2%	4	8.7%	2	2.7%	15	23.8%
<b>Upper Hindlimb</b>	3	8.1%	5	4.6%	0	0.0%	2	2.7%	1	1.6%
<b>Indeterminate Lower Limb</b>	0	0.0%	9	8.3%	6	13.0%	6	8.1%	9	14.3%
<b>Axial</b>	1	2.7%	8	7.3%	4	8.7%	1	1.4%	0	0.0%
<b>Cranial</b>	3	81.1	64	58.7	2	60.9%	61	82.4%	28	44.4%
<b>Antler/Horn</b>	0	0.0%	2	1.8%	0	0.0%	0	0.0%	1	1.6%

Table 20: Body Part Distributions of *ovis/capra*, *capra*, and *ovis* (Count and %) (Grossman n.d.)

### 7.3. Ceramics of the LC 1 Period at Tell Zeidan<sup>9</sup>

The general assemblage of the LC 1 period at Tell Zeidan largely comprises different types of bowls, especially rapidly-made bowls (Coba Bowls, Beaded-Lip Bottom-Scraped Bowls, and Wide Flower Pot Bowls), but also jars and cooking pots. The main

<sup>9</sup> Khalid Abu Jayyab and Philip Karsgaard undertook the ceramic analysis at Tell Zeidan, with Abu Jayyab taking responsibility for the Late Chalcolithic sequence. The material presented here is a summary of his work that will hopefully appear more completely in published form in the future.

open forms, other than rapidly-made bowls, are internally crosshatch-incised bowls with internally beaded lips (i.e., internally-incised bowls; Pl. 25 c-e, s, x; Pl. 27 d-e), club-rimmed pots (Pl. 24 k-l; Pl. 26 d), inverted bowls with out-turned lips (Pl. 27 b), and grooved-rim bowls (Pl. 27 c). Open types appearing in early LC 1 levels are sinuous-sided bowls (bell-shaped bowls; Pl. 23 h-i, cc), inverted-rim bowls or pots (Pl. 23 d-f), and fine simple-rim bowls (Pl. 23 t-u); all three can be either plain or painted. By Level LC 1b, the internally-incised bowl is the most common type after the rapidly-made types, and a new painted motif appears: the sail pattern (seen exclusively on incurved-rim globular bowls/pots; Pl. 25 w, z). At the end of the LC 1 period (Level LC 1d and/or LC 1-2), new forms include inwardly beveled-rim bowls (Pl. 28 l), collar-rim (short-necked) globular pots (Pl. 26 i), and extended ledge-rim bowls, preempting components of the LC 2 assemblage.

Typical closed forms found in LC 1 levels at Zeidan include the flaring rim jar, which tends to have three rim variations—plain, beaded, and triangular, though only the first two appear in abundance—and is the most common type (Pls. 24, 26), along with its variant the flaring rim jar with an interior ledge (Pl. 24 c). Also found are coarse cooking pots (Pl. 24 i-n; Pl. 26 d, k) and globular pots with heavy rounded rims (Pl. 24 g).

### **7.3.1. Northwest Mound**

The Northwest Mound has its own ceramic character in the LC 1 period. The most common types found there are Coba Bowls and internally-incised bowls, along with Wide Flower Pot Bowls. Operation 10 features an early occurrence of Red Ware in the LC 1a-b levels, which is extremely rare elsewhere on the mound at that time (it is more typical of the LC 2 period in general). The tempering continues to be largely mineral and mixed, with a low number of purely chaff-tempered ceramics. The Ubaid-style painted tradition also

continues, but not in high quantities. The most notable characteristics are the absence of Beaded-Lip Bottom-Scraped Bowls, the relative abundance of internally-incised bowls, the early incidence of Red Ware, and the low diversity of types identified.

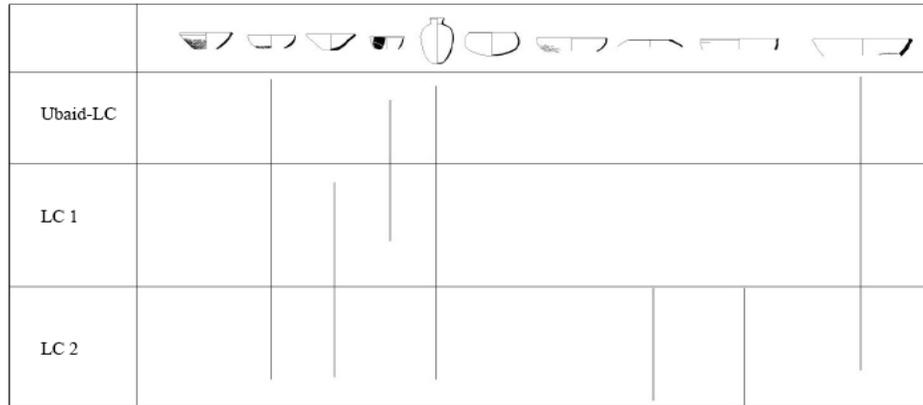


Fig. 4: Pottery Profiles through Time on the Northwest Mound, Tell Zeidan (Abu Jayyab n.d.)

### 7.3.2. Northeast Mound

The ceramic assemblage of the Northeast Mound in the LC 1 period includes more types than the Northwest Mound, and in particular has all three types of rapidly-made bowls—Coba Bowls, Wide Flower Pot Bowls, and Beaded-Lip Bottom-Scraped Bowls. The predominance of mineral tempering and the infrequency of painted decoration are similar to the Northwest Mound assemblage. However, no internally-incised bowls have been recovered.

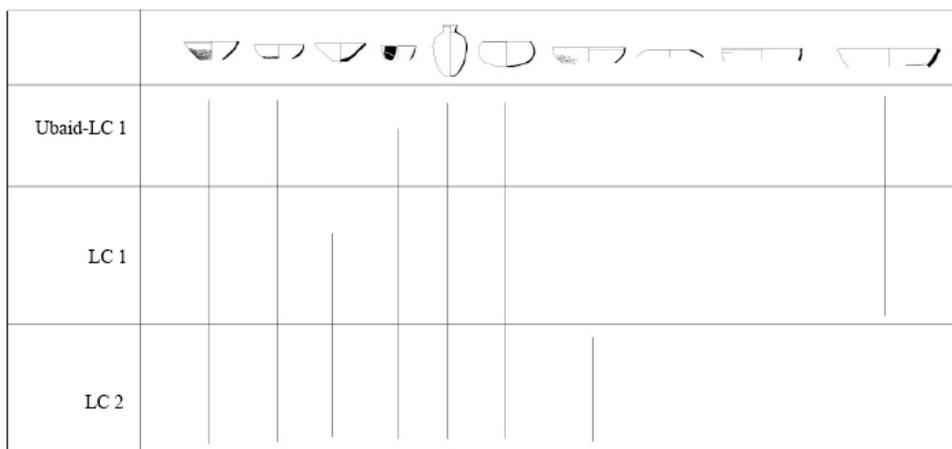


Fig. 5: Pottery Profiles through Time on the Northeast Mound, Tell Zeidan (Abu Jayyab n.d.)

### **7.3.3. South Mound**

Although the ceramic analysis did not include quantification of the South Mound assemblage to the same degree of detail as the northern mounds, some basic observations can help make an assessment relative to the rest of the site. Like the Northeast Mound, Beaded-Lip Bottom-Scraped Bowls are present, but like the Northwest Mound, internally-incised bowls are common. Wide Flower Pot Bowls may not be present on the South Mound. In the Level LC 1b houses, vegetal tempering occurs at approximately double the rate (34%) of that from the rest of the site (16%) at that time.<sup>10</sup> In general, jars and pots tend to feature vegetal tempering more heavily at an earlier stage (Ubaid-LC 1) than bowls, but among bowls in the LC 1a-d levels, expediently bowls are the most commonly chaff-tempered forms.

### **7.3.4. Ceramics Summary**

Each mound tends to have its own ceramic profile, though the main functional distinction is that the Northeast Mound is without internally-incised bowls but is the only mound where Wide Flower Pot Bowls are present in significant numbers. As above, this could relate to the contextual bias caused by the limited exposure there, but the analysis of the 2008 ceramics included surface collection data, on which the presence-absence tallies are based, and so these broad ceramic trends can be thought of as somewhat mound-characterizing. The preference for Coba Bowls and Wide Flower Pot Bowls over Beaded-Lip Bottom-Scraped Bowls seems to be one of form and manufacture rather than function, and so perhaps pottery production was localized to the neighborhood level.

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<sup>10</sup> The high percentage of vegetal-tempered sherds is consistent across 10 pottery bags representing various loci (n=1,498 sherds).

There is some evidence for pottery manufacture in Ubaid levels at Zeidan, such as kiln wasters and the pyrotechnic features of Area D, and some comes from the LC 1 period as well. The two small finds that attest to pottery manufacture are a vitrified potsherd (likely a kiln waster) and a pair of diamond-shaped kiln spacers, and both come from Area C on the South Mound. In terms of otherwise unidentifiable lumps of vitrified clay, there are 6 examples from LC 1 levels that are recorded as pot slag under the Artifact Class ‘Samples.’ These come from most areas of the site, but do seem to favor the South Mound. Thus, it is unclear how localized the ceramic techniques would have been, but at least minimal evidence for firing of vessels in each of the main excavation areas suggests that it could have been neighborhood-based.

Site Level	Area	ZD No.	Building	Room	Context No.	Type
Ubaid-LC 1	C	2572	S.C4	S.C4.1	90042	Kiln Waster
LC 1a	E	99			10005	Pot Slag
LC 1a	E	107			10005	Pot Slag
LC 1a	C	2154			90023	Kiln Spacers (2)
LC 1b	B	295	S.B4	S.B4.1	30049	Pot Slag
LC 1b	E	7811	S.E3	S.E3.2	150057	Pot Slag
LC 1b	E	9414	S.E2	S.E2.1	160093	Pot Slag
LC 1-2	A	723	S.A5	S.A5.1	20027	Pot Slag

Table 21: Pottery Manufacturing Debris at Tell Zeidan

#### 7.4. Architecture

Analysis of dwellings is an important component for understanding the transformative capabilities of a society (Coudart 2015; 1994), and while the artifactual record of the LC 1 period at Tell Zeidan is informative but not voluminous, the architectural record is fairly extensive compared to other LC 1 exposures in northern Mesopotamia.

The tripartite form appears consistently in the architectural record of Ubaid-period dwellings in both central (Jasim 1985; Roaf 1989) and northern Mesopotamia (Parker 2012; Stein 2011; Thuessen 2000; Breniquet 1995; Esin 1989). The LC 1 period, however,

evidences a wider variety of house types (see Ch. 8 Section 8.5 for trans-regional comparison) that are often described in binary terms: tripartite or agglutinant (e.g., Balossi-Restelli 2010). As a result, the data from Tell Zeidan are important for gaining a more complete and nuanced picture of an architecturally-diverse time period. This section will list and compare architectural construction methods, form, and function across Tell Zeidan (see Tables 21-24). I define ‘agglutinant’ architecture as structures that do not appear to have a clearly pre-determined blueprint but instead appear as if the rooms—or even independent structures—are glommed onto or into one another. The walls are rarely linear and can even be somewhat sinuous, and the rooms tend to be in the 10-20 m<sup>2</sup> range, in contrast with large central halls of traditional tripartite architecture. Thus, I make a distinction between ‘agglutinant’ and ‘rectilinear,’ as the ‘rectilinear’ rooms are similarly sized, and have a similar tendency to fit into crowded spaces, but evidence an attempt at orthogonal planning.

#### **7.4.1. Building Types**

Most of the excavated structures at Tell Zeidan are domestic buildings, even where some level of focused craft production is apparent, with the possible exception of the niched-and-buttressed building (S.C4) on the South Mound (see Ch. 6 Section 6.1.2). This niched-and-buttressed building may be an administrative structure dating the to the Ubaid-LC 1 level, though not enough is exposed to make a certain determination. Otherwise, all of the LC 1 buildings demonstrate evidence of domestic occupation, usually in the form of occupational debris such as figurines, beads, cooking vessels, and overall multiplicity of function. But beyond that commonality, few of the house plans appear very similar. The relatively small exposures, especially in some cases, limit what we can say definitively about the nature of these houses, but there several definite observations emerge. Firstly,

most of the houses appear not to be based on the tripartite plan popular in the Ubaid period (but continuing in many cases into the Late Chalcolithic repertoire of dwellings; e.g., Tepe Gawra Level XII; Tobler 1950). However, the T-shaped or cruciform hall of Level LC 1c on the Northeast Mound (S.B5) does appear to follow the tripartite plan of T-shaped houses at the Ubaid site of Tell Abada (Jasim 1985). Furthermore, this house is surrounded by enough open space to suggest that it is not immediately adjacent to another building, differentiating it from the densely clustered, Değirmentepe mode of tripartite house design.

Contrastingly, in Area E on the South Mound, in levels LC 1b-c the buildings are all immediately adjacent to one another, and the individual structures are either rectilinear or agglomerated one onto the other (see Pl. 20). In some of the buildings (e.g., S.E3), including those of Level LC 1a, structures seem to be built following almost no plan at all, some rooms tucked inside of others. In other cases (e.g., Building S.E1), the structures are rectilinear and appear more regularly planned but still demonstrate an almost urban density of dwelling space. In fact, the relatively well-defined house plans of Level LC 1b supplant the much more chaotic nature of the LC 1a building, S.E5.

In Area D, just east of Area E (but downslope), the rectilinear plan of the Late Ubaid structure (Building S.D1; Pl. 17) is augmented at the beginning of the LC 1 period with a final rectangular room placed in the center, creating a design of concentric rectangles. While the overall blueprint of S.D1 cannot be attributed to the LC 1 period, the practice of adding room within rooms can, and that in itself seems to defy the sensibility of architectural planning.

The best-preserved building in Area A on the Northwest Mound, S.A1, also does not appear as though it would conform to the tripartite blueprint, though due to limitations of exposure it is not certain. The houses beneath Building S.B5 on the Northeast Mound

are similarly not exposed enough to make a certain determination, but they also do not appear to be tripartite buildings. It also appears that, where enough data exists to ascertain, the main rooms of the LC 1 buildings at Zeidan are considerably smaller (ca. 15 m<sup>2</sup>) than the standard Ubaid tripartite house (ca. 50 m<sup>2</sup>), although the data is somewhat limited.

#### **7.4.2. Construction Techniques & Materials**

Along with the varying approaches to architectural layout and house style, techniques of construction and building materials vary widely during the LC 1 period at Tell Zeidan. Among the most notable construction techniques are the different ways that mudbricks are aligned within the wall. For instance, in Level Ubaid-LC 1 in Area D, there is a distinct method of using a full-width brick and a half-width brick to make a slightly wider wall. This style of wall is consistent through time in Building S.D1, dating to the earliest excavated level (Ubaid period), but it is utilized most heavily in the latest level of the building (Ubaid-LC 1). Another particularity of this building sequence is the use of alternating rows of alternating gray and brown brick courses, which also spans the life of the building. Neither of these traits are attestable elsewhere on the mound.

In Area A Level Ubaid-LC 1, the walls of Building S.A4 (not illustrated) are mixed construction, including *pisé* and mudbrick as well as levigated *pisé* (*tauf*) and crumbly mudbrick. Area B at this time features a building (S.B2) with both a two-row-wide mudbrick wall and single-row walls (see Pl. 10). In Area C, meanwhile, the exterior wall of Building S.C4 is three-rows wide but uses half-width bricks to effect the double-recessed niche. While there may be functional/contextual differences between some of these buildings—and the one most likely to have been public or official has the thickest wall—most of the buildings are domestic, especially Building S.B2, which has the second-most number of brick rows.

In Level LC 1a, again there is variation from building to building, including a possibly 5-row wall in Building S.B3 that uses black, crumbly mudbricks and a middle course of longer bricks laid on their side (see Pl. 11). The size of the wall and the style of brick are unique at Zeidan, while the side-lying row of brick is attested elsewhere later on. The bricks' consistency contrasts with the compact, granular, heavily chaff-tempered bricks found in the Step Trench. In Area E Level LC 1a, Building S.E5 uses header-oriented mudbricks for multiple walls, which is unique at Zeidan (Pl. 20). Two of these walls also feature alternating colors of mudbrick (gray, brown, and white), but not vertically in courses as in Building S.D1.

In Level LC 1b, Area A features sherd-tempered bricks in single rows of multiple colors in Building S.A1 (see Pl. 8), while in Area B Building S.B4 has pale gray mudbricks, a double-coat of plastering (one thick, functional layer and one thin, white, aesthetic layer), and double-row brick walls (see Pl. 12). The architecture on the South Mound (Pl. 20) includes the 'agglutinant' style of rooms glommed onto one another, and the transformation of Structure S.E2 from a presumably outdoor court in building phase S.E2c to an enclosed space in building phase S.E2b. Building S.E4, though harder to interpret, seems to also have gone through an agglomerative process, with the orange wall abutting up against the parallel brown one. Also on the South Mound in level LC 1b is the triple-row mudbrick wall of Building S.E8 in the Step Trench.

Level LC 1c contains the T-shaped Hall Building (S.B5), and while there are few remains from this level preserved or exposed to the same extent, it is still apparent that the construction methods of houses vary across the site at this level as well. In Area E the LC 1c (or possibly late LC 1b) level is primarily distinguished by the partition of the main space in S.E3a across the northern sections of rooms S.E3.1 and S.E3.2, creating a more

secluded space out of the painted room (S.E3.2). The new walls wind their way through the space in accordance with the pathway designated by the earlier walls, and it even seems as if the northern wall was cut diagonally to accommodate the new, shoddily made partition wall (see Pl. 20). Thus, while Building S.B5 on the Northeast Mound is a planned and newly-built structure in accordance with the age-old tripartite architectural tradition, Building Phase S.E3a features a shoddy reworking of the preceding structural form.

### **7.4.3. Functional Features**

The functional features of the architectural remains—i.e., the immovable features that have low structural value but high functional value—are also helpful in understanding the total building tradition. The most recurring feature of this sort is the ‘sherd-lined pit,’ although good terminology for these is lacking as a result of their disclarity of purpose. I use “sherd-lined pit” because it is the most basic and least interpretative description available, since it is unclear if they were used as sumps to collect rainwater for later use, drainage features for hydro-management, sinks, holding pits for round-based jars (M. Gibson, pers. comm.), or something else entirely.<sup>11</sup> The dimensions range from 15 to 46 cm in diameter and 10 to 25 cm in depth, with the majority of the LC 1 examples falling into the 40-46 cm diam. range.

At Tell Zeidan, the earliest-excavated examples date to the lower Ubaid levels in Areas B and D and both (Loci 140013 & 170043) are associated with ovens; the Area D example is actually set inside of an oven, which may be part of a method to retain heat (Balossi-Restelli 2012: 48). Another Ubaid example of this kind of construction from Zeidan is a sherd-lined hearth (110028), and one pit is raised off of a floor by being set into

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<sup>11</sup> Similar pits are seen at Sakce Gözü (Coba Höyük) Period IVC in the small sounding, but lined with stones or clay (du Plat Taylor et al. 1950: 77). Given the small exposure, their function there is unknown.

a mudbrick (170035). In a few cases, post-holes have sherd-and-gravel linings. One of the latest Ubaid levels (possibly related to the Ubaid-LC 1 Building S.D1) presents a sherd-lined pit (170017) in the floor of an enclosed, presumably domestic space, and this is the most common context in which these pits are attested from that point forward. None come from LC 1 levels in Area B, and the only example from the LC 1 period in Area A is both plaster- and sherd-lined and is set into a poorly defined deposit of trashy accumulation.

The greatest concentration of these pits at Zeidan is in the LC 1 levels of Area E (Pl. 20), where there are four plus a fifth that is similar but lined with a kind of baked clay. All of them are either set into built floors or otherwise inside of a room, though some occur in what were possibly open-air spaces (courtyards or alleyways). The construction is similar in each case, with small, abraded, usually coarse-ware potsherds arranged along the side of shallow, funnel-shaped pits no more than a half-meter across. The content of these pits is also fairly uniform: a kind of silty, earthen matrix devoid of artifacts. The silty nature of the fill might be hinting at a water-related function (sump or basin?), but there is no definitive proof of such an interpretation. The most information that can come at present from these curious features is that there is a change from their typical context in the Ubaid period (ovens) to their typical context in the LC 1 period (floors).

The other interesting recurring feature associated with Zeidan architecture is the animal-mandible foundation deposit. It occurs only twice at Zeidan. Chapter 8 will discuss these kinds of contexts for Mesopotamia in general, but it is notable that in two separate instances a building wall was founded directly on top of a vessel with an animal mandible inside of it. One comes from the Northeast Mound in Level LC 1a (see Pl. 11), and one from the Northwest Mound in Level LC 1b, though the latter discovery comes from a sounding and so we do not have a fully informative picture of the building that it underlies.

The LC 1a example comes from what is certainly a domestic context, however elaborate. Ultimately, it does bespeak a shared cultural, probably religiously-oriented, practice across the site (and, indeed, northern Mesopotamia).

Site Level	Area	No.	Building Type Orientation	No. of Rms. Fnd.	Construction Techniques	Features	Activities	RMBs Found? <sup>12</sup>
Ubaid-LC 1	A	S.A3		1				
Ubaid-LC 1	A	S.A4	Rectilinear	1	<i>Pisé</i> & mudbrick; Levigated <i>Pisé</i> ( <i>tauf</i> ); crumbly mudbrick	domed oven	Cooking; Craft Manufacture (Textile, Lithic)	
Ubaid-LC 1	B	S.B2	Rectilinear Ordinal	1	Double-wide mb walls; single-wide mb walls		Weaponry	Yes, on floor
Ubaid-LC 1	C	S.C4	Niched Ordinal	1	Three-rows-wide;	double-recessed niche	Admin; Textiles; Weaponry	Yes
Ubaid-LC 1	D	S.D1	Concentric Rectangles Cardinal/ Ordinal	1	Width-and-a-half mb walls; alternating gray and brown rows	sherd-lined pit		Yes
Ubaid-LC 1	H	S.H1	Single Wall Cardinal		Double-wide mb			Nearby

Table 22: Structural Remains of Level Ubaid-LC 1

Site Level	Area	No.	Building Type Orientation	No. of Rms. Fnd.	Construction Techniques	Features	Activities	RMBs Found?
LC 1a	B	S.B3	Rectilinear Ordinal	1	Black mb; vertical row; 5-brick wide wall; header-stretcher	Foundation Deposit	Ritual?	Yes
LC 1a	E	S.E5	Agglutinant Cardinal	4	Densely packed, header mb	Sherd-lined Pit; Adult Burial	Lithic, Textile Manufacture	Yes, collapse
LC 1a	Step Trench	S.E7	Single Wall and Floor Found		Compact, granular, light-brown, 45 cm bricks; heavy chaff			Yes, trash
LC 1a	H	S.H1	Rectilinear Cardinal		30x60x10 reddish and grayish mb; half-brick corner join		Ornamentation (bead)	Yes, collapse

Table 23: Structural Remains of Level LC 1a

<sup>12</sup> ‘RMB’ stands for ‘rapidly-made bowl,’ the vessel category that comprises Coba Bowls, Beaded-Lip Bottom-Scraped Bowls, and Wide Flower Pot Bowls.

Site Level	Area	No.	Building Type	No. of Rms. Fnd.	Construction Techniques	Features	Activities	RMBs Found ?
LC 1b	A	S.A1	Agglutinant? Ordinal	4	Single-row mb walls; yellow mudbricks; reddish-brown mudbricks; sherd-tempered bricks	Sunken storage jars; domed oven	Grain Storage; Cooking; Food Processing; Textile Making; Personal Adornment	yes; two rooms
LC 1b	A	S.A8	Single Wall Found Ordinal			Foundation deposit: ovi-caprid mandible		yes; nearby
LC 1b	B	S.B4	Rectilinear Cardinal	1	Pale gray mudbricks; double-coat plastering; double-wide mb wall	Stone and Gravel Drainage	Farming; Craft Manufacture (Lithics); Personal Adornment	Yes; nearby
LC 1b	E	S.E1 c-b	Rectilinear Cardinal	2	Stretcher mudbricks; vertical row of bricks			Yes; tertiary
LC 1b	E	S.E2 c-b	Agglutinant Cardinal	2	Single-course wide, laid on top of floor	Sherd-lined Pits (2)	Textile Making; Food Preparation	Yes; tertiary
LC 1b	E	S.E3 c-b	Agglutinant Cardinal	3	40 cm bricks; side-lying and flat stretchers	Semi-ovular Ash Pit; Red-Painted Walls	Craft Manufacture (Lithics); Food Prep; Food Dispensing	Yes, one room
LC 1b	E	S.E4	Rectilinear Cardinal	1	Double-wide wall; grayish-brown and orange-brown mudbrick			Yes
LC 1b	Step Trench	S.E8	Single Wall Found		Three rows wide; 45 cm bricks; dark brown, crumbly mb			Yes

Table 24: Structural Remains of Level LC 1b

Site Level	Area	No.	Building Type Orientation	No. of Rms. Fnd.	Construction Techniques	Features	Activities	RMBs Found ?
LC 1b-c	E	S.E1 a	Rectilinear Cardinal	2		Sherd-Lined Pit; Bin		Yes; tertiary
LC 1b-c	E	S.E2 a	Agglutinant Cardinal	2				Yes; tertiary
LC 1b-c	E	S.E3 a	Agglutinant Cardinal	3	Dark brown, crumbly mudbricks	Non-structural Partition Wall		Yes, trash
LC 1c	Step Trench	S.E9	Single Wall Found		Double-wide mudbrick; 40 cm bricks			
LC 1c	A	S.A2	Limited Discovery		Single-coarse mb walls; yellow mudbricks; reddish-brown mudbricks		Personal Adornment	
LC 1c	B	S.B5	Tripartite/T-shaped Hall Cardinal	1	40 cm bricks; 10 cm bricks			

Table 25: Structural Remains of Level LC 1b-c and LC 1c

Site Level	Area	No.	Building Type	No. of Rms. Fnd.	Construction Techniques	Features	Activities	RMBs Found ?
LC 1d	A	S.A5	Single Floor Found					
LC 1d	E	S.E6	Single Wall Found		Three rows-wide mb wall			Yes; nearby
LC 1-2	A	S.A6	Single Floor Found				Craft Manufacture: Metallurgy, Textiles	

Table 26: Structural Remains of Level LC 1d and LC 1-2

## 7.5. Chapter Summary

The most apparent outcome of this brief intrasite study is that a high degree of variability is a characterizing element of the LC 1 period at Tell Zeidan. In some cases, the individual mounds demonstrate their own cultural patterns, but in general the site itself has a low level of interdependence based on evidence for mixed-craft production domestic

contexts and lack of evidence for formal specialization. It also has a low degree of sociocultural cohesion, as shown by the wide variation in diet preferences, architectural form, architectural expression of function, and even choices in ceramic forms for similar functions. Based on the tentative results from the intrasite comparison of craft manufacturing debris, it appears that neighborhoods or localized communities could have had some level of interdependence with one another, but self-sufficiency at this level of locality is reasonably well attested in the data.

That Building S.C4 combines the only potential evidence for monumentality from LC 1 Zeidan with the highest concentration of administration-related artifacts raises the possibility that it was an administrative center. Whether or not this supposition is correct, S.C4 is associated with Level Ubaid-LC 1, and may be more related to the higher degree of economic specialization/interdependency—and the correspondingly more centralized political economy—of Ubaid levels at Tell Zeidan than to the LC 1. What followed was a period of widespread individuality, where communities made localized choices that defy broadly symbolic cultural identifiers.

CHAPTER 8  
SUMMARY & CONCLUSION:  
LC 1 TELL ZEIDAN IN MACRO-REGIONAL CONTEXT

This chapter concludes the dissertation by reconsidering the themes of Chapter 2 and incorporating the evidence from Tell Zeidan in the categories of Settlement, Ceramics, Economy, Mortuary, Architecture, and Glyptic Art. Its ultimate goal is to offer a regional narrative of societal transformation from the Ubaid period into the Late Chalcolithic, viewing it from the perspective that sociopolitical change requires ideological change, and that ideological change is more likely to occur when sociocultural conventions break down in the wake of instrumental innovations (see Chapter 3 Section 3.1.2).

### 8.1. Settlement

At Tell Zeidan, and certain other LC 1 sites, the Late Chalcolithic occupation sequence ends abruptly at some point in the second half of the 5<sup>th</sup> millennium BC, and settlement in the Balikh Valley overall declined markedly in the LC 2 period (Trentin 2010). Yet just at that time, in some parts of northern Mesopotamia, sites began to urbanize, polities coalesced, and site hierarchies started to grow larger (Wilkinson 2003). Other locations demonstrate a gap in occupation during the late LC 1 or early LC 2 period (e.g., Kenan Tepe, Parker et al. 2006: 106-107; Tell Brak, Oates 2012: 75), while some contracted in the LC 1 but continued to be occupied into the later Late Chalcolithic period (e.g., Tell Helawa; Peyronel & Vacca 2015). Despite the varied settlement trajectories, though, one main aspect of Late Chalcolithic culture and society in Mesopotamia is the enduring but gradually diminishing influence of Ubaid-related material culture (Oates 2012: 75).

At Zeidan, the tri-mounded site settlement pattern continued from the Ubaid to the LC 1 period, but the way in which the occupation of each mound related to the others appears to have changed. For instance, in the Ubaid levels there are data indicating specialized workshops and pyrotechnic areas (Stein 2009; 2011), implying at least some level of interdependence across areas of the site. In the LC 1 period, contrastingly, there is no evidence for dependent specialization and there seem to have been multiple foci of domestic, ritual, and economic activity (see Ch. 7). Thus, spatial continuity masks major structural and organizational changes.

Eventually, though, the settlement trend at Zeidan did change and the occupation contracted substantially. Due to the presence of LC 2 types on all three mounds but attestation of only burials for the LC 2 period on the South Mound, it has been proposed that the contraction occurred then, alongside a repurposing of the unoccupied South Mound as a cemetery (see Pl. 2). As the site was fully abandoned during or after the LC 2 period, this interpretation is plausible, although looking at the stratigraphic history of each mound (Table 3), the LC 1c-d levels (ca. 4450-4200 BC) are not well represented architecturally anywhere on the site. In the wide exposures on the South Mound (Ops. 15 & 16) and the Northwest Mound (Ops. 10 & 13), the matter is indeterminate since wind erosion and other slope-formation processes likely denuded those areas of any upper occupation layers. However, where the trenches are closer to the summits and the sequences are more continuous, as in Operations 2 and 3 and the Step Trench, there is very little mudbrick architecture attested at all in Level LC 1d save for *possibly* a few walls in Operation 6, though their dating is uncertain. On all three mounds, though, there is evidence for activity during the LC 2 period, even if on the south face of the South Mound it is only burials. Following Trentin's (2010) assessment of contraction in the Balikh Valley in between the

Hammam IVD and VA periods (Zeidan LC 1b-LC 1c), it looks likely that Zeidan may have begun to contract or lose population in the mid-late LC 1 period as well.

These local settlement changes are more difficult to see trans-regionally, since few LC 1 sites are both as large, topographically varied, and archaeologically well exposed as Zeidan. Going back to the regional settlement summary in Chapter 2, there is no single definitive characterization of LC 1 settlement patterns other than that in many cases a shift is evident either at a sub-regional scale or localized scale. Such shifts occurred at the end of the Ubaid just prior to the LC 1 occupation (Susiana Plain, Amuq Plain), during the LC 1 occupation (Balikh Valley, Seyhan Valley, North Jezirah Plain), or after the LC 1 period (Mahi Dasht Plain, Kangavar Valley, Solduz Valley). In most cases, though, Ubaid material culture declined in influence gradually across a broad landscape, rather than in a punctuated fashion more in accordance with local vicissitudes.

## 8.2. Ceramics

One of the most abundant categories of archaeological discovery in the prehistoric ancient Near East is ceramics, and evidence from the Late Chalcolithic period in Mesopotamia demonstrates a substantial change in the technology (Baldi 2015; Petrie 2012; Abu Jayyab 2012; Akkermans 1989), aesthetics (Yamazaki 2012), and perhaps even symbolic value of pottery (Wengrow 2001: 181). What scholars have hinted at for over a decade but have yet to thoroughly address is that, yes this change was a gradual process, but also that this process is actually somewhat more transparent and expeditious in the LC 1 period than is typical for ceramic style, which often changes slowly (Gibson & McMahon 1997; Rice 1984). This relative transparency is due to the wide variability in form and technique seen in the rapidly-made bowls and their distribution pattern across space but

also time in northern Mesopotamia. In Chapter 2 I summarize Baldi's (2015; 2012; 2010) identification of four main types of rapidly-made bowls but note that there actually at least nine (or ten) variants evident in Greater Mesopotamia, if not many more. While the "regional circuits" interpretative framework of the LC 1 period (Marro 2012; Mazzoni 2000; Frangipane 1993) has been extremely valuable as a starting point for making sense of the diverse LC 1 assemblages, it also simplifies the somewhat disorderly inter-regional connections of the period, thereby masking the depth of variability and processes of change.<sup>1</sup>

"A wider range of more irregular contacts in LC 1" (Baldi 2012: 145) is a better assessment of the nature of LC 1 interactions, addressing both the variability and inconsistency rather than implying a certain level of regional or sub-regional internal homogeneity. While the porous circulation pattern of Sprig Ware (Blackman & Rothman 2003; Ball 1997) attests to this phenomenon in a highly visible way, as Sprig Ware is an easily recognizable painted style (Pl. 30), the distribution of different rapidly-made bowl types is even more telling since as a supra-type they are ubiquitous in the LC 1 (Trufelli 1997; Brown 1967).

Both the Tell Zeidan and Tell Feres ceramic repertoires can help address this issue. Coba Bowls supposedly reflect the "western" tradition of rapidly-made bowls in northern Mesopotamia, while Wide Flower Pot Bowls represent the "eastern" (Marro 2012: 20; Oates 2012: 68). Scholars have also noted that Wide Flower Pot Bowls tend to appear later, chronologically, in the western zone (Oates 2012: 75; Abu Janyab 2012: 89).

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<sup>1</sup> Indeed, Marro acknowledges the lack of "regional clusters" in inter-site analyses of lithics and ceramics (2012: 22).

However, at Tell Zeidan the Wide Flower Pot type appears in Level LC 1a in small quantities (1% of diagnostics), and jump up to 3.5% of diagnostics in Level LC 1b. They continue to increase relative to the rest of the assemblage in the LC 1c-d levels (5% of diagnostics), and become 27% of the total diagnostic assemblage in the LC 2 period (and make up 57% of the rapidly-made bowls; Abu Jayyab n.d.). Zeidan, then, would have the earliest-reported occurrence of this type, including nearby Hammam et-Turkman, where it occurs in VA (Akkermans 1988c), which is roughly equivalent to Zeidan LC 1c-d; and distant Tepe Gawra, where it occurs in Level XII and later (Tobler 1950), roughly equivalent to Zeidan LC 1b (see Table 1). While the Wide Flower Pot Bowl is attested at “western” sites such as Coba Höyük (Du Plat Taylor et al. 1950), Coba Bowls tend not to appear further east than Tell Brak (Oates 2012: 75). This assessment, though, may be another case of over-grouping, as Baldi points out exceptions that include a type of Coba Bowl (his Type I) occurring in Gawra XII (2012: 402).

At Tell Feres, which geographically speaking should be fully within the “eastern” zone, Wide Flower Pot Bowls are extremely rare whereas Coba Bowls of various sorts (particularly the “Anatolian” or “true” Coba type) are abundant (Baldi 2015; 2012). Norşuntepe Layer 10 features Wide Flower Pot Bowls that are nearly identical to early Zeidan examples (Pl. 25 m), but also includes a red-on-orange type of painted ware that does not occur at Zeidan but does at Tell Feres and select other, more westerly sites (Baldi 2012: 134). This type of red-painted ware recalls Sprig Ware but is different and demonstrates pathways of interaction that are distinct from the Sprig Ware zone. Additionally, the ‘bulging eyes’ motif (Pl. 30) is rare in general but appears at Tell Feres (Baldi 2015: 1036 Fig. V.33) and Tell Brak (Oates 1987: Fig. 2) in the Upper Khabur, Tell

Ziyadeh in the Middle Khabur zone (Ubaid level; Hole 2001: Fig. 5 no. 1), and also at LC 1 Kenan Tepe, in the Upper Tigris region (Parker 2010: Fig. 21.12 A).

Tell Zeidan is a 12.5 ha regional center in the Balikh Valley while Tell Feres is a 4 ha rural settlement in the Khabur Triangle, but both show unexpected ceramic traits (i.e., Wide Flower Pot Bowls appear early at Zeidan, a “western” site, but very few at Feres, an “eastern” site), and so site class is not necessarily the governing factor. The upshot of the glimpse of LC 1 interaction pathways afforded by these two sites and Norşuntepe is that there is no clear pattern determining what site should display which pottery repertoire. Instead, two sites of different sizes and regions could share a ceramic technical tradition but not necessarily the same stylistic tradition, and vice-versa, while a third site could overlap with each but in different ways, or with neither.

The Zeidan LC 1 ceramic assemblage overall (see Pls. 31-35), though, is closer in general to those of the Euphratian sites, particularly Hammam et-Turkman at the northern end of the Balikh, but also Middle Euphrates sites such as Tell al-'Abr (Levels 3-2; Hammade & Yamazaki 2006). In fact, there are several notable differences between the Zeidan and Hammam LC 1 assemblages, especially the lack of ‘X-pattern’ and ‘line-in-reserve’ painted motifs, though the latter does appear at Hammam rarely in later levels (Akkermans 1988c). Another particularity of the Zeidan assemblage is in the firing of Coba Bowls, which are expected to be incompletely oxidized (Schwartz 2001: 236). At Zeidan, however, many examples of flint-scraped bowls are thoroughly fired, suggesting higher temperatures and manufacture in a kiln. It is also worth noting again that the earliest flint-scraped bowls, though not Coba Bowls exactly, appear quite early at Zeidan, ca. 5000 BC, in Ubaid levels (Pl. 22).

The LC 2 ceramic assemblage of Tell Zeidan, featuring inwardly-beveled-rim bowls, (evenly-) channeled-rim jars, beaded-lip hole-mouth pots, Wide Flower Pot Bowls, black-polished carinated ledge-rim bowls, and an abundance of grey wares, finds broader parallels across northern Mesopotamia. These include Norşuntepe Level III (Gülçur 2000), Umm Qseir (Tsuneki & Miyake eds. 1998), Hamoukar Levels 3-1 (Abu Jarryab 2012), Telul eth-Thalathat II (Egami 1959), Grai Resh II-III (Lloyd 1938), Nineveh 3 (Gut 2002), Qalinj Agha level IV (al-Soof 1969), Tepe Gawra Levels X-VIII (Tobler 1950), and Tell Feres Levels 8-7 (Baldi 2015).

Thus, the LC 2 ceramic record demonstrates several main changes to Mesopotamian society. The first is that, compared to the LC 1 period, the LC 2 shows much greater regional cohesion exhibited by a more uniform macro-assemblage (that still has regional affinities and local quirks; see Marro 2012). The second is the change seen in rapidly-made bowl production and usage. The Wide Flower Pot Bowl became the dominant—though not the only—type in the LC 2 period, from western sites such as Coba Höyük and Tell Zeidan to eastern sites such as Tell Brak and Tepe Gawra. Another LC 2 type, not typically associated with the Coba Bowl range, is the inwardly-beveled-rim bowl, which can be wheel-made but is flint-scraped on the base (Pl. 28 I). This combination technique indicates yet another material innovation and divergent instrumental strategy, one which began in the LC 1 period at Zeidan (also seen at Tell Hamoukar) but is more commonly attested in LC 2 levels (Abu Jarryab n.d.; Abu Jarryab 2012).

Finally, the ceramic change most relevant to the discussion of emergent elites and instrumental innovations, is the change in the depositional context of rapidly-made bowls over the course of the LC 1 and LC 2 periods, attested at select sites. Firstly, the tripartite building in Hammam et-Turkman Level VA strata 2a-b, which dates to the end of the LC

1 period (see Table 2) and which the excavators have thought of as a tripartite temple based on the rear internal niche and “temple model” found inside (Akkermans 1988bc: 312), contains abundant Coba Bowls. The lack of further excavated buildings in this level precludes an argument that they were exclusively used in an institutional context, though. Baldi (2015: 473) has traced the distributional patterns of rapidly-made bowls through time at several sites, identifying a shift at Tepe Gawra from their deposition in mixed/domestic contexts in LC 1 Level XII to public buildings in LC 2 Level XI (Rothman 2002: 100-105). By the LC 3 period (Level VIII), Wide Flower Pot Bowls appear stacked inside of public/religious architecture such as the western double-niched-and-buttressed building (ibid.: Fig. 5.73). Baldi has also identified the clustering of Wide Flower Pot Bowls in specialized craft and ritual contexts in the tripartite buildings of Level 10 (LC 1-2) at Norşuntepe (2012b: 401).

Viewed in terms of the Innovation & Variability Model (see Ch. 3 Section 3.1.2), this shift in context would reflect appropriation of the rapid-production technologies by aggrandizers who may have provided the technologies with new functional and social meaning through association with ‘conventionalizing’ behaviors (see Wen et al. 2016; Legare & Nielsen 2015), possibly by using rapidly-made (and quickly discarded) bowls to manipulate the relationship between grain production and consumption practices (see, e.g., Kennedy 2012). This process would eventually lead to their usage in institutional or otherwise specialized contexts in a political economy where elites disproportionately influenced and benefited from technological domains such as ceramic manufacture (Baldi 2015) and socioeconomic spheres such as food production and distribution.

The other technological development in ceramic manufacture dating to the Ubaid period—which had far greater long-term impact than flint-scraping the bases of bowls—is

the *tournette*, or slow potters' wheel. The earliest attestation is from Ubaid levels at Ur (Wooley 1955: 28), though Nissen believes that changes in the form of painted decoration at the end of the Halaf period indicate a much earlier date for its invention (2001: 169; but cf. Nissen 1989: 248-9). This seems unlikely, given the lack of manufacturing evidence in early northern Ubaid ceramics. The remains of the potter's wheel (fast wheel) that Wooley found at Ur<sup>2</sup> come from the Kiln Level, dated to the Uruk period above the Ubaid graves in Pit F (Wooley 1955: 29), though Wooley sees *tournette*-made pottery appearing from the al 'Ubaid II (Ubaid 4) onward, and fully wheel-made pottery already in the al 'Ubaid III (Ubaid-Uruk transitional) graves. Thus, it is possible that the fast wheel was introduced in the south at around the time of the LC 1 period, though it is still uncertain.

While we do not have data detailing the relative amounts of (slow-) wheel-made or wheel-finished vessels in the Zeidan assemblage, we do know that its usage in forming the body of vessels was not widespread at Zeidan in the LC 1 period, like at Hamoukar (Al Quntar & Abu Jayyab 2014: 95) and many other sites (Akkermans & Schwartz 2003: 169).<sup>3</sup> However, we can say that the wheel was used for a wide range of types, including the occasional Coba Bowl<sup>4</sup> and, later, the flint-scraped inwardly-beveled-rim bowl (Pl. 28 I), and it may have been used to apply the “continuous” geometric motifs of the LC 1 period such as undulating bands and superimposed swags.

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<sup>2</sup> Wooley gives the measurements of the baked-clay disc as .075 m thick and .75 m in diameter, with bitumen coating the central perforation (1955: 28).

<sup>3</sup> However, explanations of the *tournettes*'s utility include as a means of painting different kinds of bands onto the vessels, rather than forming the clay body (e.g., Baldi & Roux 2016; Nissen 1989). The simple bands popular at the end of the Ubaid and beginning of the Late Chalcolithic period—and the decline in amount of non-rotary-based motifs—would seem to support this explanation.

<sup>4</sup> Other examples of possibly wheel-made Coba Bowls include one from Değirmentepe Layer 7 (Esin 1983: Taf. 36 no. 8), which shows horizontal striations on the lower half that are likely from scraping but have such a well-defined linear, horizontal pattern that it seems as if it was scraped while turned on a wheel (or board).

Baldi and Roux (2016) make the argument that the transferability of the (fast-) potter's wheel invention (in the LC 2 period) was based on the demand by elites for high-value, prestige ceramics, in contrast with the simple, quickly-made (but standardized) bowls used to serve the masses. Indeed, elite appropriation of the wheel technology may have become the case over time, but at least during the LC 1 period, this instrumental behavior began with quite low levels of conventional/sociocultural association, used to “produce standard shapes more quickly” (Nissen 2001: 168; see also Arnold 1985: 202-210). Baldi and Roux's argument is based on the *social* context of production—rather than the depositional context—which they infer from the archaeological context of *usage* (in elite buildings). Based on sound archaeological analysis, it may well have been the case that elites eventually co-opted the wheel-coiling industry to their own ends, which would certainly fit the model of Innovation & Variability (particularly the later stages that happen after ‘variability;’ see Ch. 3 Section 3.1.2). But as Gibson (2010) reminds us, by the time a phenomenon is archaeological visible, it has likely been there for a while. Thus, we really do not know the circumstances or impetuses behind adoption of the fast wheel innovation, but we can say that unlike the slow wheel, there is evidence that it was more quickly incorporated into specific conventional patterns of behavior.

Chaff tempering is another technique in ceramic manufacturing that became widespread in the early Late Chalcolithic period in northern Mesopotamia, as it was probably used to reduce fuel costs in firing (Al Quntar & Abu Jarryab 2014: 95). At Zeidan, however, mineral and mixed tempering predominates in the LC 1 assemblage. Solely vegetal-tempered ceramics are the minority in the LC 1 period (16-17%), and while they increase in number substantially in the LC 2 levels to 34%, mineral (13.5%) and mixed tempering (52.5%) continue to appear (Abu Jarryab n.d.). For comparison, Hammam et-

Turkman has ratios similar to Zeidan's in Phase IVC, but by IVD (roughly contemporaneous with Zeidan LC 1b) the assemblage quickly reaches Zeidan LC 2 levels of vegetal tempering: 87.5% either mixed- or vegetal-tempered (Akkermans 1988: Table 21). Thus, even within the limited area of the Balikh River, different populations chose different instrumental behaviors during the LC 1 period.

What is also interesting is that in between the introduction of chaff tempering in the LC 1 period and its zenith in the LC 2-3 periods, related aesthetic values seemed to change concomitantly with wider usage. Initially, as chaff tempering was introduced slowly in the late Ubaid and LC 1 periods, it appears often mixed with mineral tempering as at Zeidan (Abu Jayyab n.d.) or occurs in slipped or burnished vessels as in Gawra XII-XA (Al Quntar & Abu Jayyab 2014: 106). In the earlier LC 2 levels at Tell Brak (TW 21), this practice of "hiding" the pitted chaff face continues, but by TW 20 the chaff vacancies are no longer hidden. Al Quntar and Abu Jayyab attribute this to an initial distaste for the scarred look that the new, resource-saving technology delivered, but which eventually became accepted as production intensified further (ibid.). I would interpret this phenomenon as part of the process of conventionalizing the instrumental innovation of chaff tempering ceramics (see Ch. 3 Section 3.1.2).

### 8.3. Economy

#### **Specialization**

Evidence from Ubaid-period sites such as Tell Kurdu (Amuq E) reveals emergent specialization in ceramic manufacture (Özbal 2010: 301), and other sites like Tell al-'Abr (Hammade & Yamazaki 2006) and Tell Zeidan (Stein 2009) bear similar hints (see also Stein 1996). The landscape of the LC 1 economy, however, presents an interesting but

mixed picture, where specialization seems to be rare and, at best, unevenly distributed. Shelgiyya is an LC 1 4-5 ha, specialized ceramic-manufacture site (Ball 1997: 95) that produced the arguably-prestigious Sprig Ware for regional export to sites such as Tell Brak and Tepe Gawra (Rothman & Blackman 2003). Perhaps attesting to a similar mode of organization, Değirmentepe Layer 7 features copper smelting furnaces and slag clustering around Building BC, but no metal objects were recovered from the 2.5 ha site (Gurdil 2010), suggesting specialized industry and export. Both of these examples highlight the economic interconnectedness of certain settlement zones.

In some cases, though, there is a regression in specialized industry following the Ubaid period, especially at sites such as Yümüktepe, where copper smelting went from a centralized industry in Level XVI to unattested in Level XV (Caneva et al. 2012: 366). LC 1 Tell Zeidan seems to follow in that mold, demonstrating a household-centric economy with little to no specialization, even though workshops and industrial areas characterize the Ubaid levels (Stein 2009; 2011). The LC 1 houses are all multi-functional, and only in rare cases is anything missing from the repertoire of necessary activities, despite slight craft-production preferences attested (see Chapter 7).

Kerner notes that “...it is not clear whether social complexity is a precondition for specialisation or specialisation furthers the development of social and political complexity, or if their relationship is dialectical” (2010: 180).<sup>5</sup> Although the third option seems easiest to accept, the answer might not be universal (i.e., there might not be single model that governs the development of specialization). However, it would seem that in a specialized economy there would be a higher level of convention associated with the tasks of

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<sup>5</sup> For an explanation of the “dialectical relationship between social constraints and economic movement,” see Flannery & Marcus 1993: 353-355.

production than in a non-specialized economy (or a non-specialized industry). Thus, the assumption, based on the results of cognitive science studies (see Ch. 3 Section 3.1.2), is that specialization and innovation are somewhat antithetical but yet related. This would seem to contradict the model I have proposed to explain change, but instrumental innovation precedes sociocultural innovation and socioeconomic reorganization. Thus, specialization would come toward the middle or end of the process, as new conventions are eventually mapped onto the new technologies. Instrumental innovation could also possibly disrupt an industry, breaking down the conventions of specialization.

At Zeidan, evidence for specialized activity is only prevalent in the earlier Ubaid levels, ca. 5000 BC, and that in the time around 4800-4600 BC, a less interdependent economy developed. Indeed, Adams saw a fairly fixed directionality, in that “rapid technological progress and greatly increased consumption of craft products seem to have occurred successively rather than contemporaneously” (1958: 30). Childe, similarly, was certain that the sequence began with craft specialization (metallurgy, specifically), which then led to reorganization of society along non-kinship lines (1972: 46). These are old ideas but I believe that the core concepts have explanatory potency, especially when reconsidered within the framework of innovation and variability (see also Steel 2010: 108-110).

Along with metallurgy, use of both the *tournette* and chaff tempering in pottery manufacture have implications for craft specialization. The *tournette* was an instrument that aided in the coiling of pots in order to accelerate their manufacture, but one that required specific skills beyond the level of many simple household producers (Al Quntar & Abu Jayyab 2014: 95). Using chaff tempering is a fuel-conserving strategy that typically relates to the heavy fuel consumption of kilns as opposed to the cheaper, open-firing method (ibid.: 98, 106). The varying adoption rates of these technologies at Hammam and

Zeidan (see above) demonstrate different paths and speeds toward more specialized ceramic industries. In the LC 2 period at Tepe Gawra, there is stronger evidence for not only specialized workshops (e.g., the “weaving shop” in Level XI; Rothman 2002: Fig. 5.28), but also production facilities attached to public institutions such as the Level XI temple with its adjacent kilns and ovens (Tobler 1950: 16).<sup>6</sup> Thus, variability and inconsistency characterize the development of specialized economies in northern Mesopotamia, but the role of specialized industries changed through time as well.

### **Obsidian**

The obsidian exchange between Anatolian locales and northern Mesopotamian sites, according to the analysis of Khalidi et al. (2016), was quite intricate in the Ubaid period, featuring a broad range of sources that diminished from 10 to 7 in the LC 1. Three important points are evident with respect to the LC 1 obsidian trade. Firstly, not only did the number of attested sources decline, but the overall sourcing profile changed considerably, with some new sources (particularly Sarikamiş North and South) and a somewhat more balanced reliance on each one (ibid.: Fig. 9). Secondly, the variability of and possible competition over obsidian is greatest in the Ubaid period, but this condition is heavily influenced by the data from Tell Zeidan, which has the most differentiated range of sources ever observed for an Ubaid site (ibid.: 748). Finally, the shift in the pattern of obsidian exchange from the LC 1 to the LC 2 period is dramatic in its clear streamlining of sourcing, but the source-location profile is much closer to that of the LC 1 than of the Ubaid.

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<sup>6</sup> cf. Rothman 2002: 93, who sees it as a bread-making facility only.

Without the variety of obsidian sources accessed by Ubaid Zeidanites, the number of sources actually increases in the LC 1 period, which is expected, given the generally haphazard patterns of interaction as seen in the ceramic record (see above). Obsidian seems to have been another industry that incurred variability (of sources) followed by a coalescence. Just as the internal spatial segregation of Zeidan and resultant intrasite variability began in the Ubaid period—and flint scraping and Wide Flower Pot Bowls appear quite early there as well—it seems as if the inhabitants of Zeidan were early adopters of what would become inter-regionally characterizing trends of the LC 1 period. Indeed, as Grossman and Hinman suggest, the large size of the site relative to other centers of the Ubaid period might correspond to its unique or precocious trajectory (2014: 213).

### **Zooarchaeology**

The Zeidan faunal record shows not only a continuing trend toward domesticated animals, but also a growing preference for sheep over goat (Grossman n.d.; see Ch. 7). Normally, this would imply that the inhabitants started to practice herding strategies for secondary products, but the survivorship curve (Fig. 2) indicates a meat-production strategy instead. Evidence from other LC 1 sites such as Tepe Gawra and Kosak Shamali, though, does suggest a growing reliance on pastoralism and secondary products such as wool (Warburton 2015: 162; Sudo 2010: 174; Schmid 2009). It may have been the case that small sites could be specialized in orbit of larger centers that had more functionally-general economies (Grossman & Hinman 2014: 213). Reliance on sheep for textile production, then, may have been a localized strategy but one that influenced the cultural dimension of the animal economy, creating a broad cultural preference for sheep over goat even where pastoralism was not heavily practiced.

Generally, the ancient Near East sees an overall shift toward domesticated species and pastoralism at around this time, and Alizadeh (2003) considers this to be an integral part of the development of social complexity in the highland Fars region. Wright (2004), concerning “transegalitarian” societies developing into stratified ones in the Aegean region, has also highlighted the role of animal husbandry as an important strategy for accumulating wealth.

### **Grain Storage & Bread Production**

Evidence for grain storage at Tell Zeidan comes from two locations, Building S.A1 in Level LC 1b on the Northwest Mound and Building S.B2 (the Burnt Building) in Level Ubaid-LC 1 on the Northeast Mound. Where the S.B2 example is not deeply informative, Building S.A1 features multiple sunken, complete storage jars and give us approximate carrying capacities of ca. 270 liters each. The Arslantepe VIII *pithos* has an estimated capacity of just 113 liters (Balossi-Restelli 2012: 244), by comparison, while an example from Tell Madhhur Level 2 example has an approximate circumference of 180 cm (Roaf 1989: Fig. 6), likely yielding a volume of around 225 liters. If only one storage jar was used at a time in Room S.A1.1, the storage capacity in the Zeidan house was more than double that of the Late Chalcolithic Arslantepe house but is similar to the Ubaid Maddhur house.

We do not know the total size or layout of Building S.A1, though it does not seem to conform to the tripartite plan. Its layout or overall building strategy vaguely recalls Ubaid Structure 4 in at Kenan Tepe (Kennedy 2012: Fig. 10), whose main room has a very approximate area of 24 m<sup>2</sup>. This is approximately half the size of the central room of the Maddhur tripartite house, which would have housed roughly ten non-infant humans (Roaf 1984: 96). Thus, in a best-guestimate sense, several degrees removed from actual data, the

S.A1 house might have held around five non-infant individuals. The known grain-storage capacity of S.A1 is greater per jar and with more jars than any of the Ubaid or LC 1 houses cited above (including the much larger Ubaid tripartite house; see Ch. 4 Section 4.2.1). There is no evidence from LC 1 Zeidan for a centralized or otherwise institutional system of food production and redistribution, but the remains of Building S.A1 represent a robust food-storage profile for such a small building. This contrasts the more-centralized commodity-surplus accumulation strategies evident in the Ubaid period such as those necessary for a much larger, tripartite-style household (e.g., Tell Abada; Jasim 1989) or institutional storage (e.g., Oueili; Huot 1989). With a total capacity to feed a small family through a single winter, the house's known grain stores were not surplus-oriented, but may represent more household-centric subsistence strategies compared to the Ubaid period.

Other than the plurality of storage jars, Building S.A1 strikes similarities with other Late Chalcolithic sites. Both Tell al-‘Abr Level 2 (Hammade & Yamazaki 2006) and Kenan Tepe Burnt House 1 (Parker 2012: 295) feature a sunken or installed storage jar alongside other houses at those sites with less permanent storage accommodation (i.e., jar sherds but no installations). At Feres and Gawra, Baldi (2015) and Rothman and Fiandra (2016), respectively, identify a combination strategy of mixed private and communal grain storage. Both of these sites also demonstrate the functional relatedness between rapidly-made bowls and storage jars, the former featuring one inside the other (Tell Feres; Baldi & Abu Jarryab 2012: 165), and the latter showing close proximity (Rothman 2002: Fig. 5.2). Additionally, the concentration of internally-incised bowls in Zeidan Area A parallels their spatial correlation with grain storage facilities at Tell Feres (Baldi 2015: 484), implying that this bowl type does seem to have a specialized function relating to grain or bread processing (see Ch. 4 Section 4.2.1).

It is also worth noting that in terms of food preparation, there is an apparent shift from the Ubaid period into the Late Chalcolithic. The domed type of oven construction in Building S.A1 (see plan, Pl. 8) is fairly typical of the mid-late 5<sup>th</sup> millennium in northern Mesopotamia, as evidenced at Tell Feres Level 8 (Baldi 2015: 1077, Fig. VI.33), Arslantepe Period VIII Phase 2 (Marro 2012: 238), Tepe Gawra Levels XII-IX (Tobler 1950: Pl. 42; Pl. 8, etc.), Tülintepe Late Chalcolithic (Esin 2001: 73), and Değirmentepe Layer 7 (Esin 1989: Pl. 33 no. 1).<sup>7</sup> Balossi-Restelli has observed that ovens, especially the domed type, are not well-attested in Ubaid-period houses in central and southern Mesopotamia, but do appear on the Malatya Plain in the Ubaid period and in the LC 1-2 periods elsewhere (2010: 194). The total culture of food storage, production, and preparation seems to have changed in the LC 1 period to one in which medium-scale grain storage and cooking became, in some cases, the provenance of much smaller architectural spaces.

Thus, three different patterns of grain management are apparent for the LC 1 period. One pattern, attested at Zeidan, connects household mode of grain storage with use of Coba Bowls (and internally-incised bowls). Another pattern demonstrates parallel or competing strategies between household and larger-scale storage (e.g., Gawra XII), while a third shows the emergence of hybrid strategies (e.g., Tell Feres). In most cases, the first pattern (Coba Bowls and grain storage) overlaps with either of the other two.

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<sup>7</sup> Balossi-Restelli has observed that ovens, especially the domed type, are not well-attested in Ubaid-period houses in central and southern Mesopotamia, but do appear on the Malatya Plain in the Ubaid period and in the LC 1-2 periods elsewhere (2010: 194).

#### 8.4. Mortuary Practices

The Tell Zeidan excavations do not introduce a plethora of information about mortuary practices of the LC 1 period,<sup>8</sup> as few of the numerous adult burials discovered on the South Mound have the stratigraphic disposition or grave goods that would connect them with a particular level or time period. However, one adult burial comes from underneath the floor inside of a room in House S.E5 in Level LC 1a, located on the South Mound (Pls. 20-21). While this burial contains no grave goods, its stratigraphic disposition is certain and it does tell us a little bit about how burial practices in the LC 1 period differ from those of the Ubaid.

Scholars have argued that in the Ubaid period, supra-local cemeteries contained burials of adults, sometimes in supposedly kin-based pairs or triplets, and were differentiated in their grave goods and burial conditions only by age and possibly gender (Akkermans 1989; Wright & Pollock 1987). There is a relative uniformity and emphasis on egalitarianism or community identification seen in these cemetery graves (Stein 2010b: 37; 1994). As discussed in Chapter 2, following the Ubaid period, much of this changed and burial practices began to include wealth-based ranking (e.g., see Marro et al. 2011; Pollock 1989; for an example from southern Mesopotamia, see Wooley 1955). The hyper-flexed burial in Room S.E5.2 cannot tell us about standard funerary practices or extra-mural burial arrangements, but it does indicate that an adult could be buried with no grave goods at all, including pottery, under a floor in (presumably) their own house. This arrangement is entirely lacking in community affiliation, and could testify to one major ideological change from the mortuary conventions of the Ubaid period.

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<sup>8</sup> For a more thorough review of LC 1 mortuary practices, please see Chapter 2 Section 2.2.6.

## 8.5. Architecture

To continue the theme of variability, architecture at Zeidan finds many different kinds of parallels across the 5<sup>th</sup> millennium landscape. The most elaborated design—the double-recessed wall exterior (Pl. 15)—dates to the Ubaid-LC 1 period, and may represent the last vestiges of centralized, public architecture seen in the Ubaid period.

“Buttress-recessed” architecture, as Sievertsen calls the niche-and-buttress elaboration, dates in Mesopotamia to at least as early as the Samarran period (ca. 6500 BC), as seen at Tell es-Sawwan in Level IIIA. He points out, however, that double-recessed (and triple-recessed) niches first appeared during the Ubaid 4 period at Warka in the Anu Temple I and at Tepe Gawra in Stratum XIII, and that their distribution became much less egalitarian at time, generally reserved for public, monumental buildings (Sievertsen 2010: 203). By the Uruk Period, external buttressing was the provenance of semi-official and official buildings only, he argues (*ibid.*: 218).

One question, then, is whether Sievertsen’s interpretive schematic is more broadly applicable so as to include the mid-upper Euphrates Valley, the Balikh Valley, and/or Tell Zeidan specifically. Excavations at Hammam et-Turkman produced evidence for internally niched-and-buttressed architecture from Level VA 2a-b (Meijer 1988: Pl. 24), dating to the later LC 1 period (see Baldi 2015: 1092, Fig. VI.48). However, because of the limited exposure of the LC 1 period at Hammam, it is difficult to address the comparative aspect of Sievertsen’s theory. The context according to Meijer, indicated by excavated finds such as a ‘Temple Model,’ seems to be a public building with possible religious functions, although this is highly speculative and based on a small exposure.

Contextualizing the Building S.C4 has helped answer this question for Zeidan. To begin with, the building’s position on the largest mound, its external double-recessed niche

construction, and its general wall size all suggest that it had been a structure of reasonable stature. It is unique among excavated buildings at Zeidan, and so it is tempting to see it as a structure of particular significance, and the associated finds suggest either mixed domestic and administrative functions or a public building with craft-production functions (see Ch. 6 Section 6.4.1 and Ch. 7 Section 7.1.5).

The external niche and buttress of S.C4, though, is quite different from the internal niches seen in the Hammam VA 2a-b building and the Değirmentepe Layer 7 tripartite houses; it is closer to the external buttresses on the Ubaid public buildings at Tepe Gawra Level XIII (Tobler 1950: XI) or LC 3 Level VIII (Rothman 2002: Fig. 5.73), Eridu Level VII (Safar & Lloyd 1981), or perhaps the largest tripartite house in Tell Abada Level II (Jasim 1985: Fig. 13).

After Level Ubaid-LC 1, monumental architecture is unattested at Zeidan. The majority of the buildings are dwellings that recall the agglutinant style described by Balossi-Restelli for Arslantepe VIII (2010; 2008), though some are quite well-planned and rectilinear while others seem to have a more haphazard design. In Area E, with the limitations of exposure in mind, one possible analog to the LC 1b architectural levels in terms of layout and design may be the administrative quarter at Tall-e Bakun A (Alizadeh 1988: 20, Fig. 3), which has a date range within the LC 1 period (ca. 4450-4350; Alizadeh 2006: Table 9). The agglutinative nature of Rooms VII, VIII, and IX from Tall-e Bakun A is reminiscent of the Area E Phase D complex at Tell Zeidan: small, adjacent rooms that loosely interconnect but which also access an exterior space directly. The lack of extensive administrative materials from Area E ends the comparison to the Bakun A administrative quarter, but the architectural similarity suggests a similar process of quasi-urban development near to the center of the largest mound at Tell Zeidan. Another related area

plan is the curving strip of rooms along the northeastern street in Tepe Gawra XII (Tobler 1950: Pl. VIII), though these may be storage rooms or workshops (Rothman 2002).

Other analogs include the architecture from the Level XVI domestic residences at Yümüktepe (see Bréniquet 1995: Figs. 7-8 and Appendix A, I.1) that feature a tripartite building but also a gallery of adjacent two-room units to the northeast. Zeidan Area E is also reminiscent of the “architectural density” evident in Norşuntepe Level 8 (LC 2), where rooms with niches feature red and black paint on white plaster (Hauptmann 1976: Pl. 42 no. 3).

Wall painting, which is rarely attested but evident in the Ubaid and early Late Chalcolithic periods (as well as earlier), occurs in the domestic house of Arslantepe VIII (late LC 1; Balossi-Restelli 2008), the domestic tripartite houses of Değirmentepe Layer 7 (Gurdil 2010: 366), the largest residential house of Tepe Gawra XVI (painted in geometric designs; Ubaid; Tobler 1950), and in the central public building of Tepe Gawra XIII where the entrance rooms have a coating of red paint (Ubaid-LC 1; *ibid.*). This practice is probably more widespread in the 5<sup>th</sup> millennium than the archaeological evidence indicates, given the fragility and fugitive nature of the material, but as the comparative contexts demonstrate, in the Ubaid and LC 2 periods (Gawra and Norşuntepe), paint often decorates rooms with special or ceremonial functions. In the LC 1 period (Değirmentepe, Arslantepe, and Zeidan), however, paint was used to decorate rooms in otherwise fairly mundane, likely residential buildings. Gurdil, though, identifies wall paintings as “direct indications of ritual behavior” in Building I at Değirmentepe (2010: 370). There are five other buildings in Layer 7 that produced some kind of evidence for religious activity, typically a raised mudbrick pedestal in the center of the central room (*ibid.*). Gurdil sees these otherwise domestic spaces as “shrine-houses,” indicating a plurality of religious foci (*ibid.*:

372; see also Esin 1994: 91). The shallow, well-defined, and specifically-shaped ash pit in Room S.E3.1 at Zeidan, adjacent to the fresco-painted walls of Room S.E3.2, could be another manifestation of religious practices within a (likely) domestic setting.

Balossi-Restelli (2010) proposes that Ubaid residences at Değirmentepe, Maddhur, and Abada evidence tripartite domestic architecture housing extended/stem families while “post-Ubaid” residences at Arslantepe VIII follow an “agglutinant” dwelling design for housing nuclear families (see also Akkermans 1989: 346). The evidence from Tell Zeidan in some ways does fit this picture, in that the size of the courts and hall rooms in LC 1 Zeidan are generally much smaller than a typical Ubaid tripartite *mittelsaal*. For example, the largest excavated space in Building S.A1 is 16 m<sup>2</sup> (Pl. 8), compared to Ubaid-period structures that feature central halls measuring around 50 m<sup>2</sup>.<sup>9</sup> Bréniquet has identified a similar shift from larger tripartite houses to smaller, nuclear-family dwellings, but as a localized phenomenon at Yümüktepe between Level XVI and XV (1995: 23). The dwelling spaces at Zeidan in Area E, particularly Building S.E5 in Level LC 1a (Pl. 20), also resemble the Arslantepe VIII house in the size of the rooms and the curvilinear nature of the walls. And in general, over the course of the Late Chalcolithic period the tripartite form becomes reserved for public buildings and houses become smaller. However, there are a number of problems with Balossi-Restelli’s interpretation when viewed across the LC 1 landscape and across an entire LC 1 site.<sup>10</sup>

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<sup>9</sup> For example, the tripartite Level 2 house at Tell Madhhur measuring 50 m<sup>2</sup> (Roaf 1984: 96) or the T-shaped central hall from Gawra Level XV that measures ca. 40 m<sup>2</sup> (Tobler 1950: Pl. XV). These sizes contrast with, for example, “Pre-Sabz” phase structures at Chogha Sefid, on the Deh Luran Plain in Southwestern Iran, dating to approximately the Samarran or Chogha Mami Transitional period, which produced central halls with ca. 16 m<sup>2</sup> of floor space (Hole 1973: Fig. 1).

<sup>10</sup> Indeed, as mentioned above, even in Level XVI, which by radiometry (4610-4360 BC cal.) seems to date to the LC 1 period, there is a mixed architectural strategy of tripartite and agglomerated buildings (Bréniquet 1995: Figs. 7-8).

Firstly, although detailed ceramic analysis is not available, Değirmentepe Layer 7 almost certainly dates to the early LC 1 period on the basis that Coba Bowl remains are prevalent in every house and on the thermoluminescence date of 4492 BC (Gurdil 2010: 362; see Appendix A, V.17). Layer 7 is very similar in nature to Tepe Gawra Level XII, which also features a predominance of tripartite domestic architecture. Sites such as Kenan Tepe, on the other hand, have produced no tripartite dwellings from either the Ubaid or LC 1 levels (Parker 2010), and the Ziyadeh Level 14 (early LC 1) dwellings are “trapezoidal” in nature (Hole 2000: 612), adding one more style to the range of possibilities.

The second issue is sample size. While excavation strategies at Zeidan generally avoided the central mound cores, the approach of excavating all three mounds in accordance with geo-cultural contours enables a view of contemporaneous architecture in a variety of contexts across a single site (see also Ch. 7 Section 7.4). Domestic dwellings in the LC 1 period include smaller, agglutinant-style houses (S.A1, S.E3, S.E5; Pls. 8, 20), but also well-planned, rectilinear domestic spaces (of unknown total size; S.E1, S.B3, S.B4; Pls. 20, 11-12), and a T-Shaped Hall Building (S.B5; Pl. 13) that resembles the Abada style with subsidiary T-shaped rooms (Jasim 1985: Fig. 13).

Thus, the LC 1 period has no definitive architectural style at all, with house types including standard tripartite and Abada-style tripartite; agglutinant; rectilinear; and trapezoidal. In this sense, Tell Zeidan epitomizes the LC 1 architecturally, although that may be a result of the site-wide coverage of the excavations; if other sites had broader exposures, as at Zeidan and Yümüktepe, it seems likely that they, too, would produce a variety of dwelling strategies as well. Finally, in terms of implications, house sizes overall appear to be smaller during and, especially, after the LC 1 period, but if we grant that this relates to a change in household size and social organization, this process seems to be a

gradual one that progresses at different rates in different locations, and it is almost certainly a response to other underlying changes in social structure—probably, that a burgeoning but decentralized wealth-accumulation economy minimized dependency on traditional extended-family bonds.

### 8.6. Glyptic

Only three clay sealings impressed with visible motifs come from the LC 1 levels at Tell Zeidan (see Pl. 35), which is not dissimilar from the single stamp-seal impression (and one blank sealing) found at Hammam et-Turkman (Van Loon 1988: 661). The earliest Zeidan sealing (ZD7685; no image available) comes from the Ubaid-LC 1 level in Area A and is a bag or jar sealing impressed on the obverse by a stamp seal with a geometric motif and on the reverse with a rope or string impression. The motif features six circles and lines radiating out from the center.

The other two sealings depict figures in two different types of scenes. ZD1925, from Level LC 1c in Operation 6 (Step Trench area), depicts a human striding to the right next to at least one quadruped (and possibly two stacked on top of each other; Pl. 35 b). This resembles a number of figural motifs from Gawra XIII and XII, and so the element in the upper left-hand corner could be a second quadruped (e.g., Pl. 35 h) or an object floating in the field around the human (e.g., Pl. 35 i). The legs of the human are spread but with both feet pointing forward, indicating forward ambulation, and the head is pointing in the same direction, while the lower-left quadruped faces in the opposite direction. Many of these elements appear in the Gawra glyptic (and, to a lesser degree, the glyptic from Değirmentepe and Tepe Giyan; see Esin 1994 and Hole 2010), but the exact combination of elements and directions is not attested perfectly. Nevertheless, the motif features a so-

called “bird-headed” (or bird-masked) man, whom Hole sees as a *namash*, or shaman-like figure<sup>11</sup> who has a degree of spiritual capability (see also Pittman 2001: 412), and combines this figure with a quadruped resembling what Hole identifies as *saluki* dogs in what he refers to as a “domestic scene” (2010: 234).

Clay Sealing ZD3041 comes from Level LC 1a in Area A (Northwest Mound) that bears no visible motif, but its reverse shows the impression of twine and the folds of a bag (Pl. 35 d). While the few sealings there are display little evidence for a glyptic art tradition, the motif visible in Sealing ZD1925 ties Zeidan directly into the artistic sphere of mid-5<sup>th</sup> millennium Greater Mesopotamia that stretches across western Iran, Iraq, Syria, and southeastern Turkey.

Hole (2010) sees the figural motifs as representing ritualistic ceremony, typically centered around a semi-specialized individual whose spiritual power gives them dominion over certain animals such as *saluki*, snakes, or gazelles. Due to the greater elaboration of more elements in the Susa A glyptic than at Giyan or Gawra, Hole considers that the ritual practices of Susa were themselves more elaborate (ibid.: 237), though some of those impressions are unprovenienced (Pittman 2001: 414 Fig. 11.4), and so the total picture is somewhat questionable. Since the Zeidan glyptic, from what little we can gather, is much closer in style and content to the stratified Gawra material, I will consider those.

In most of the seals from Gawra Levels XIII and XII, the human or humans are depicted with an elongated head, sometimes referred to as a “bird head” or a mask.<sup>12</sup> Two

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<sup>11</sup> Rowan and Ilan define ‘shamans’ as religious specialists whose power comes from inspiration. They intercede between the community and the supernatural and typically perform healing and sorcery, exerting power over natural and manmade forces. ‘Shamans’ contrast with ‘priests,’ who perform public rites and hold more formal offices, deriving their power from often-codified ritual knowledge (2007: 251).

<sup>12</sup> It seems unlikely that it was actually a bird being represented in every case, since one seal from Gawra (here, Pl. 35 f) shows a human figure with an elongated head but also long, trailing ears and (possibly) horns.

examples show humans with simple abstract representations of heads, one of which (Pl. 31 d) depicts persons performing labor—what I would argue is brewing or preparing another kind of semi-liquid consumable.<sup>13</sup> The upshot is that the shape of the elongated heads—possibly portraying a mask or other adornment—is probably representative of a special role or position held by someone who presumed to intervene in natural phenomena, given that there are other humans shown who do not have this trait.

The Gawra seals in some cases feature a single human leading or controlling animals, with his or her arms in motion, but in a few examples there are multiple humans represented. Seal no. 92 shows three nearly identical figures with elongated heads in a line holding or touching hands (Tobler 1950: Pl. CLXIII). Hole believes that this illustrates a particular ritual behavior (a “line dance;” *ibid.*: 234). One example (Pl. 35 i) shows two of these figures who are unequal height, whereas another seal (Pl. 35 e) shows all three at the same height. Thus, the worldview that the Gawra glyptic art represents, I submit, is one in which the most religiously-specialized individuals performed a ceremonial function relating to intercession with the spiritual/natural world, but that the hierarchy was not fixed and in some cases allowed for a multiplicity of these individuals. Other respected individuals, who may not have been involved in religious intercession, were in charge of brewing (Pl. 31 d), herding (Pl. 35 b, h), or performing other tasks, perhaps relating to the development of specialized roles.

The LC 2 gabled stamp seal tradition (Pl. 34 h) that occurred across a broad expanse (from the Zagros Mountains to Cilicia) removes the anthropomorphic figures from these

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Van Loon considers this motif to be “a horned genie dominating a goat,” which is seen on a fragmentary stamp seal at Hammam as well as in Level XIII at Gawra (1988: 661).

<sup>13</sup> This seems unlikely to be a drinking scene, as I argue in Chapter 2 Section 2.2.8, though McGovern (2009) considers that it could be drinking or brewing, but it almost certainly relating to the brewing process.

prestige objects made of usually exotic stone but focusses on the zoomorphic element. If elites of the LC 2 period used these objects to express not just ownership of goods, but also a trans-regional class identity (Stein 2009), perhaps the wide distribution of these seals demonstrates affiliation with a wider network, independent of local religious practice.

### 8.7. Discussion & Conclusion

Archaeologists will sometimes speak casually of a vague progression from “simpler” societies featuring highly decorated painted pottery to complex, urban, and, ultimately, state-dominated societies with efficiently-produced, less-often decorated ceramics (see, e.g., Wengrow 2001). This informal understanding is not an entirely unreasonable depiction of Mesopotamia in the 6<sup>th</sup>-4<sup>th</sup> millennia BC, given that the “classic” Halaf period produced highly decorated painted designs followed by simpler painted motifs of the Ubaid and early LC periods (Abu Jarryab n.d.).<sup>14</sup> The artistic style gradually moved closer to line drawings, alongside a gradual increase in the relative quantity of rapidly-produced, aesthetically less-appealing forms such as the Coba Bowl, Wide Flower Pot Bowl, and (later) Beveled-Rim Bowl.

Wengrow sees a relationship between stylistic changes and underlying socioeconomic paradigm shifts (1998: 790-91). For example, he posits that labor dedicated to extensive pottery decoration ceased to exist in the Ubaid period, as economic evidence from Ubaid societies demonstrates other applications for labor (2001: 170, 182). These labor outputs include intensified production of subsistence goods (Kennedy 2012; Stein 1994; Hole 1994) and construction and maintenance of monumental buildings (Sievertsen

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<sup>14</sup> Termed the “evolution of simplicity” by Wengrow (2001); see also Nissen 2001: 168-69 for a description of this “evolution,” as well as Hammade & Yamazaki 1995.

2010). But in the LC 1 period, evidence for intensive labor output such as monumental architecture or specialized industry is restricted to a handful of sites in southwestern Iran and southern Mesopotamia.

However, mid-5<sup>th</sup> millennium BC occupations across the ancient Near East demonstrate that communities began and continued to manifest shared elements of material culture such as rapidly-made pottery (Baldi 2010; Trufelli 1997; Brown 1967). The process of “culture making” that occurs at, near, or across any discernable period boundary is often obscure. Rather than being seen as “the result of parallel responses to changing social practices” (Carter & Phillips 2010: 12) as if each community reacted monolithically to external forces of change, it is perhaps better to think of it as a series of choices made by individuals and/or groups in different places, chosen from the range of possible material options. That range of options includes: a) create a new meme, from scratch (invention); b) combine, rearrange, or subtract from existing memes to form a new one (innovation); c) use an existing meme known from the individual’s or group’s experience (imitation).<sup>15</sup>

Whatever the original intent of the inventor and the early adopters, rapidly-made ceramics served a valuable-enough purpose (or purposes) toward the end of the Ubaid period that they became highly transferable and a widely available option across large sections of the ancient Near East in the LC 1 period. The functional reality of that adoption was different in many cases, separated by both space and time, but also by a continuing process of instrumental innovation. Innovation continued throughout the LC 1 likely because it took a while before society members (potential aggrandizers) infused this

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<sup>15</sup> This is similar to the Actor-System Dialectic model in which agents engage in one of “reproduction, elaboration, [or] transformation through their interactions” (Burns 2013: 7), but is also based on the Innovation & Variability Model of Societal Change, as laid out in Chapter 3. It is also similar to the range of options Blanton et al. ascribe to political actors in terms of sociocultural norms (1996: 2).

material technology with rigid conventionality and social meaning (e.g., seen in the contextual shift in the LC 1 to LC 2 periods of rapidly-made bowls from households to public or institutional buildings). As shown above and in the preceding chapters, over the course of the LC 1 period, communities and individuals altered their preferences, continued to innovate instrumentally, and adopted some of those innovations at a relatively rapid rate. By the LC 2 period, certain innovations—primarily rapid pottery production, but perhaps also the potter’s wheel—had been given conventional/sociocultural meaning within the ceramic technological domain of the political economy.

Discussions of social complexity tend to focus on the role of ‘systems’ and levels of integration, implicitly or explicitly stressing the underlying importance of variation, particularly in terms of differentiation and specialization (see, e.g., Verhoeven 2010: 12; Rothman 1994: 4). Variability as a prime factor of development (Feinman et al. 2000; Blanton et al. 1996), though, tends to get overlooked in Mesopotamian cases perhaps due to the supposed emergence of ‘mass production’ in the formative societies there, implying the concomitant development of standardization and homogeneity. However, recent work has reconsidered the implications and relevance of the term ‘mass production’ for the LC 1 period (e.g., Baldi 2015; Kennedy 2012). Although ‘mass-production’ suggests uniformity (Petrie 2012: 291), among the LC 1 ceramic assemblages, variation is one of the most defining elements, as shown above (cf. Baldi 2015).

Stanish and Haley state that one of the few constraints on aggrandizing individuals in successfully reorganizing a society’s production systems is the “sociocultural context” (2004: 55). We know that the sociocultural context changed over the course of the mid-5<sup>th</sup> millennium BC in northern Mesopotamia, and in this dissertation I argue that cognitive science can help identify ‘instrumental innovations’ as conduits for the considerable

behavioral variability attested in the LC 1 period. The questions then arise whether and how aggrandizers capitalized on (relatively) new technologies such as expedient ceramic production and the ‘augmented opportunity’ afforded by the increased variability. For instance, did adoption of expedient ceramic production help to dismember long-standing organizational strategies such as Rothman’s “corporate or system-sustaining organization” (2004: 86)?

Baldi ties the increased prevalence of Coba Bowls in the LC 1 period to a response to a growing “social need,” particularly the social practice of redistribution (2012b: 357). This explanation, I would argue, diminishes the agency of the potters. However, it is also lacking as a basic explanation, as the concept of “social need” has low levels of specificity and causality. Baldi (2015) also sees the change in types of depositional contexts of rapidly-made bowls from domestic to public between the LC 1 and LC 2 periods as a correlate of the increasing influence of institutions on the ceramic producers.

Baldi’s view seems to be an extended inference based on the increasing uniformity of Coba Bowls through time at Tell Feres, and does not reflect the general lack of evidence for institutions in the LC 1 period. I would offer a slightly alternative perspective on this contextual shift from LC 1 households to LC 2 public buildings (Baldi 2012b) and would argue that (at some sites) evidence for increased serialization (Baldi 2015) could have been due to aggrandizers co-opting the technologies and partially repurposing them in the service of wealth-accumulation systems or other modes of aggrandizement. Such systems could have included the further development of Kennedy’s (2012) ad hoc labor pool, or the growth of individual wealth based on herding practices, which were prevalent at that time (see Ch. 7 Section 7.2). Aggrandizing actors might have turned the part-time, extra-familial labor of the LC 1 period into a more rigid system of economic specialization in

which the repurposed pottery-mold technology of the Wide Flower Pot Bowl facilitated nodal and then centralized food distribution. Specialized laborers, in turn, could then create value-added, convertible goods that engendered wealth differentials and, ultimately, class-based differentiation. There were, of course, numerous avenues of aggrandizement tied to advances in the economy such as herding or metallurgy, but the most visible and ubiquitous aspect of material culture in the LC 1 and 2 periods is pottery.

Somewhat similarly, Pollock sees a gradual contextual shift of food consumption from the Late Chalcolithic period into the Early Dynastic Period in Mesopotamia, with the introduction of “ration” vessels such as Beveled-Rim Bowls, as an attempt to “intentionally disrupt old patterns of commensality and social relations through the creation of new ones. The new ties were those of dependency rather than of intimacy or kinship” (2003: 32). While I have several reservations about this view, including the direct correlation of Beveled-Rim Bowls with ‘ration containers,’ there is potency in the theory that some members of society may have used new material technologies to alter sociopolitical conventions, potentially interrupting any ‘system-sustaining’ elements.

The Blackfoot Native Americans used the introduction of horses to both accumulate wealth unevenly and to disrupt their socio-organizational conventions of egalitarian distribution of meat, exogamy, and polygyny, whereas other Plains groups adopted use of the horse but did not use it to alter their basic mode of socioeconomic organization (LaBounty 2008; see also Ch. 1 Section 1.2). Thus, we can see throughout time that aggrandizers can create a technological domain out of an instrumental variation, and by assigning new sociocultural conventions to the instrumental behavior within that domain, they can reify those conventions and gradually realign social structure to their advantage. In 5<sup>th</sup>-millennium northern Mesopotamia, though, it is in no way certain that new pottery

technologies were the main means of establishing new ideological norms, and the issue remains open as to what the main factors were or how they were synergized. However, these technologies did play a major role in allowing for greater variability than had existed in the Ubaid period, and they seem to have been involved in grain storage and dispensing during the LC 1 period (see Chapter 4 Section 4.2.1) and then more centralized redistribution in the LC 2 period (Baldi 2012b).

Alongside the initial rise in prevalence of the rapidly-made bowls, changes occurred in the LC 1 period across a variety of material categories (see above and Ch. 2 Section 2.2), with the most pronounced differences seen in foodways, glyptic, and architecture. The occurrence of domed, interior ovens in the LC 1 period (Pl. 8; Balossi-Restelli 2010: 194) represents one of the strongest macro-regional patterns attestable, along with representational art in the glyptic tradition.

The architectural form is still quite heterogeneous across space in the LC 1 period, indicating multivariate housing strategies, but buildings on the whole are smaller than in the Ubaid period. Thus, the shift in socioeconomic organization that Balossi-Restelli (2010) posits for the change from Ubaid to Late Chalcolithic society—stem families to nuclear families—is not implausible. While we cannot know the actual nature of relations between ancient persons, the appearance of a new mode of dwelling in the LC 1 exhibits considerably less formal planning and design—and space—than before. Whatever message the processes of building and living in a tripartite house sent to one's family and community (Stein & Özbal 2007), it was either no longer as relevant or as achievable in some LC 1 societies.

The general lack of evidence for specifically religious architectural contexts in the LC 1 period (excepting Susa) has significant implications for those theories that place

religious authority at the crux of sociopolitical dynamics in the Ubaid period (e.g., Rothman 2001b: 359; Adams 1972, 1971). However, the glyptic repertoire began to focus increasingly on “shamanistic” bird-headed figures (Rothman 2009; Pittman 2001) engaged in religiously-imbued activities (Hole 2010). This is highly suggestive that material expression of religious activity did not die out at the end of the Ubaid period only to resurface later. Rather, the mode of religious practice may have changed, and it may have changed differently at different sites. Değirmentepe and Tepe Gawra both exhibit multiple spatial foci of religious practice (Gurdil 2010; Rothman 2002), Zeidan demonstrates household-centric, decentralized ritualistic behavior, and the pairs and triads of “shamans” seen in the Gawra XII glyptic motifs certainly seem to dispel any notion that in the general conception only one religious specialist could operate at a time. Apparently, dispersed multiplicity was favored over centrality of practice.

Rothman has argued that the tripartite public buildings of Gawra XIII were general-function community centers rather than strictly religious buildings. If this is the case, and since very little evidence for organized religious practice is attested outside of southern Mesopotamia for the Ubaid period, a better interpretation might be that religious leadership, represented by the “shamanistic” sealing imagery, becomes *more* evident going into the Late Chalcolithic period in northern Mesopotamia.<sup>16</sup> This could be a hint that toward the end of the Ubaid period, communities in northern Mesopotamia were placing more emphasis on overt religious symbolism, perhaps as a means of localizing the process of in-group cohesion that was diminishing on a regional scale as seen in the declining prevalence of the Ubaid painted-pottery style.

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<sup>16</sup> This cycles back to Gibson’s (2010) point about legitimation of rulership using religiously specialized figures; see Chapter 2 Section 2.3.

An alternative explanation for these concomitant changes focusses on the shift from pottery to glyptic as the primary medium for representational art. While the presumed social cohesion of the Ubaid period may have been based on a fictional homogeneity (Stein 1994), painted pottery was one of the main vehicles for that fictional story. As Stein (2010b) has argued, many geoculturally-specific factors helped to mold localized versions of that story, and in northern Mesopotamia, where humans relied on the compliance of natural forces for subsistence, both zoomorphic and vegetal motifs appeared on the ceramics. As the Ubaid period was ending, the glyptic-art tradition began to incorporate the human figure as an intermediary between society and natural forces such as animals, stars, and lightning. Circumstantially, there may have been a connection between the decline of painted pottery and the appearance of figural and natural iconography in the glyptic technological domain, which is a more personalized medium than pottery. Speculatively, this progression could represent the how independent religious offices gradually developed in the mid-5<sup>th</sup> millennium during which sacral power was diffuse but perhaps coalescing around individual households rather than a central institution.

Overall, the architectural, spatial-functional, administrative, and artistic evidence gathered from Zeidan (Chs. 4-7) and other sites in Greater Mesopotamia (Ch. 2) does show a diffusion of religious contexts that supports a theory of variability, quasi-heterarchical relations between loosely interrelated groups, and the development of new strategies for organization, domination, and interaction during the LC 1 period. Because variability is evident at so many levels of analysis in the LC 1 period, successfully theorizing the genesis of sociopolitical stratification in the later 5<sup>th</sup> millennium has to prioritize variability as a theoretical principle rather than simply an empirical (and vexing) fact. From this perspective, the key dynamic element in explaining change could well be the integration

of different forms of regional variability in the transition to fully stratified, highly complex societies by corralling populations through management of labor and subsistence systems, religious leadership, or possibly, in some cases, coercion. It is also important to remember that the settlement patterns of the LC 2 and 3 periods demonstrate multi-tier site hierarchies across much more integrated landscapes (Brustolon & Rova 2007; Lupton 1996), and that the development of a trans-regional elite culture, spanning from Cilicia to Tepe Gawra, is evidenced in the LC 2 period (Stein 2009), necessitating a theory of structural change that goes beyond the scale of the site or even sub-region.

The Innovation & Variability Model of Societal Change outlined in Chapter 3 could be effective in this regard because by its nature it encompasses entire, or multiple, interaction spheres, incorporating changes at both the local and regional scales. The process of transferring instrumental behavior from one site to others is largely invisible archaeologically, but it is mapped directly on to the process of material culture adoption as we already study it. According to ethnographic studies, transferring (as opposed to invention) of technological skills is a both difficult and uncommon phenomenon (Loney 2000), as motor skills specific to production methods are learned through copying during childhood (Maguire 2010: 165). When such a transfer does occur, it is often in conjunction with “economic transformation” and “changing social practices” (Steel 2010: 109).

We cannot know the individual reasons that Ubaid-period Mesopotamians invented and then adopted and repurposed new techniques in pottery production. However, we do know from experimental studies in cognitive science that developing new instrumental techniques can have the two-fold effect of assisting individuals in eschewing cultural conventions (Wen et al. 2016; Legare et al. 2015) and allowing for greater variability (Legare & Nielsen 2015); both of these create good precipitating conditions for ideological

shifts and sociopolitical reorganization. Following the invention of a successful instrumental innovation would be transfer of the innovation, variable behavioral strategies, diminished social convention/cohesion, and then the development of new conventions and modes of social cohesion, possibly tied to the emergent technologies. This is where a previously unknown (or previously unsuccessful) integration strategy could have been gradually deployed.

Across Greater Mesopotamia, changes in foodways (e.g., trends in increasing domestication) and material expression of religion (i.e., “shamanistic” glyptic motifs) are evident and uniform slightly earlier (in Late Ubaid levels) than adoptions of changes in categories such as pottery and architecture. Perhaps subsistence (agriculture, herding) and religion were among the earliest socioeconomic spheres to be co-opted into an integrating political strategy, as suggested by Adams (1966) and Stein (1994),<sup>17</sup> though using the interpretive framework proposed here to identify the specific means by which elites integrated separate groups could be a productive path for future research.

As for Zeidan in particular, there is early evidence for both flint-scraped and mold-pressed bowls, subsistence trends (e.g., the shift to domesticated animals), and intrasite variability (e.g., the tri-mounded character of the site in the Ubaid period), but is lacking in terms of wide-spread usage of religious iconography in the LC 1 period. The central, public building (S.C4) of Level Ubaid-LC 1 (Pl. 15), associated with administrative technology (Pl. 35 a; cf. Baldi 2015: 385 ff), may have been the last gasp of a centralized religio-economic system that was replaced in the LC 1 period by dispersed religious practice and scant administration of goods. Elites (or others) ultimately failed to co-opt this

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<sup>17</sup> This accords with Wen et al. (2016) who identify ‘ritual’ as the strongest conventionalizing behavior, and also with later Mesopotamian mythology that connects the first supreme deity (Enki, god of water) to fertilization of the land (Cooper 1989).

practice into a successful, local reintegration strategy (unlike at Tepe Gawra, for example), leading to the site's contraction in the early LC 2 period and abandonment not long after.

To summarize, this dissertation has attempted to do several main things. Firstly, it has shown that by examining the archaeology of LC 1 levels at the site of Tell Zeidan and reexamining the data from other sites, we can recast the broader LC 1 period in northern Mesopotamia as a time of incredible variability rather than linear change or decline following the Ubaid period. Secondly, it has offered a new framework in which to view the macro-process of societal change in the 5<sup>th</sup> millennium BC, providing a perspective based on cognitive science research in which instrumental innovation can enable material and behavioral variation, while data from Tell Zeidan and elsewhere shows that both instrumental and sociocultural variation characterize the LC 1 period. It has discussed how the total process of change was non-linear and occurred over at least hundreds of years—if not half of a millennium—and that the details from those centuries produce a picture of variability in innovation transfers, material-culture adoptions, and socioeconomic strategies.

It was in the centuries following the LC 1 period, toward the end of the 5<sup>th</sup> millennium BC, that the most successful of the new modes of sociopolitical organization became ascendant, integrating the dispersed hierarchies, and likely employing newly conventionalized social behavior that the population could imitate and replicate. Direct attestation of a single integrating strategy at the end of the LC 1 period is not yet available, but we now know that, so far, the most obvious and characterizing precipitating condition of social complexity in the LC 2 period was the preceding variability.

As Baldi and others have assessed, the changes of the early Late Chalcolithic period have to do not only with sociopolitical considerations, but also “changes in the economic

life of people” (2012), including specialization, utilitarian manufacturing, foodways, and far-flung exchange systems. These changes can be traced back to innovative ideas in the Ubaid period, such as copper smelting, the *tournette*, rapid pottery manufacture, and intrepid obsidian sourcing, all of which became standard avenues of instrumental behavior in the LC 1 and LC 2 periods (see, e.g, Tobler 1950: 146).

We thus have strong evidence for the invention and gradual adoption of new technologies (particularly ceramic) in the Ubaid period, the gradual diminishing of the highly prevalent convention of Ubaid-style painted pottery at the end of the Ubaid period and into the LC 1 period, and the concomitant increase of variability across multiple dimensions of material culture. While we do not have clear evidence that the later emergence of sociopolitical stratification is the direct result of any single innovation, the implied changes to the function and meaning of these innovations over time suggests that they continued to have a role in the ongoing sociopolitical changes beyond the variability and opportunity that they enabled. However, given the susceptibility of new instrumental behavior to become a conduit for new sociocultural convention, it is plausible that by co-opting and repurposing new technologies, aggrandizers reified new ideologies in support of productive and disproportionately beneficial political economies.

And so, the model of change that I have proposed to explain the highly varied datasets of the LC 1 period goes beyond a single attestable aspect of early Late Chalcolithic society but instead views the instrumental innovations of the 5<sup>th</sup> millennium as precursors to an augmentation of opportunity and conduits for the multiplicity of sociopolitical strategies available to aggrandizing actors in the socially-reflexive LC 1 period. An atmosphere of ‘social reflexivity’—or the ability of individuals to reshape cultural norms—became a precipitating condition for sociocultural innovation and “radical ideological

change,” as seen in the conspicuous consumption, centralized and multi-tier political economies, and formal leadership of the later Late Chalcolithic period, upon which the subsequent phenomena of urbanism and then statehood and empire developed down through the ages in Mesopotamia.

## 8.8. Epilogue

The original hypothesis of this project, to be tested through field excavation of LC 1 archaeological remains at Tell Zeidan, was that Ubaid sociopolitical systems in northern Mesopotamia collapsed even where Ubaid sites continued in occupation and painted pottery traditions persisted, and that competing, vaguely heterarchically-related, internally-conical groups filled the power vacuum during the LC 1 period, only to be reconsolidated into more complex, singular, and centralized hierarchies in the LC 2 period. It was a vague theory, with little explanatory power, but it left a lot of room for data to fill in key, then-unknown pieces. Fairly unintentionally, after stepping back from the data for several years due to the interruption of the Syrian military conflict, many of those pieces fell into place around a couple of themes that the hypothesis did not address: major technological innovations of the Ubaid period, and fairly rampant, pervasive variability in the material culture of the LC 1.

The scholarship describing important elements of the change from the Ubaid period to the Late Chalcolithic contributes many theories and valid points of view along with critical data and analysis. What I hope that this dissertation has shown is that the discrepancies between different theories are at least partially—if not largely—connected to material, subsistence, religious, and sociopolitical variation. The data certainly seem to demonstrate a plethora of not just material-culture variants, but instrumental techniques

and approaches to that material culture in categories such as obsidian source, expedient bowl manufacture, standard and fine-ware pottery production, dwelling style and size, food source, religious leader, mortuary practice, and so forth.

It was a complementary and affirming exercise to see through the eyes of cognitive science that there is strong precedent for humans to tend to manufacture or adopt instrumental innovations more readily than cultural innovations, that instrumental innovations can induce variability, and that one type of innovation could be parlayed into the other. Thus, the thesis—which aims to explain why and how change in human sociopolitical organization occurred at the beginning of the Late Chalcolithic period—grew from a simple and somewhat skeletal formula into a model that reimagines the nearly pattern-less datasets of the LC 1 period as a principle component in a long chain of human choices.

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## APPENDIX A: GAZETTEER OF LATE CHALCOLITHIC 1 SITES IN GREATER MESOPOTAMIA

The interaction sphere known as Ubaid (Stein 2010; Nissen 2001) covered a substantial portion of the ancient Near Eastern landscape during the late 6<sup>th</sup> millennium and first half of the 5<sup>th</sup> millennium BC. The dark-on-buff painted ware featuring primarily geometric patterns of linear designs, but also including linear representations of various figures, along with other markers of Ubaid identity such as bent clay mullers (Stein 2012: 128), has been archaeologically recovered at sites from eastern Anatolia and the northern Levant, across Upper Mesopotamia, and into northwestern and southwestern Iran. Components of material culture and archaeological trends associated with the following LC 1 period occur across a similar, and similarly broad, geographical area (Pl. 40).

Along with material indications of cultural affinity such as specific pottery types (see Ch. 1 Section 1.3), interpretations of sociopolitical organization and subsistence strategies that archaeologists have attributed to the Late Chalcolithic period are apparent in regionally disparate societies in the mid-late 5<sup>th</sup> millennium. While this large expanse does not share the same level of material homogeneity as had been the case for the preceding Ubaid period (Huot 1989: 21; Oates 1987b: 473) or the succeeding LC 2 period (Rothman 2002; Stein 2012), a large zone of technological advancements, stylistic overlaps, and shifts in socio-political organizing principles is attested.

This appendix lists and locates sites from Greater Mesopotamia and the surrounding regions at which material cultural and/or socio-political hallmarks of the Mesopotamian Late Chalcolithic 1 period can be identified. Each site is an entry, and each entry then summarizes the evidence for an LC 1 occupation and makes note of remarkable features. Sites are organized by region, which are listed roughly from west to east and/or north to

south, and occasionally sub-regions are noted. Sites with no numbers are noted as possibly having an LC 1 occupation, but the connection is uncertain and would improve with further research. All sites (with several exceptions) are identified through ArcGIS using satellite imagery and are shown on the map on Pl. 40.

## A.I. Cilicia

### **1. Yümüktepe (Mersin) ([36°48'5"N 34°36'14"E](#))**

Scholars have recognized Yümüktepe as one of the earliest fortified sites in the world, as well as the westernmost outpost associated with material culture of the Ubaid (Bréniquet 1995; Caneva & Sevins 2004) or Halaf (Caneva 2000). The British Institute at Ankara, under the direction of John Garstang of the University of Liverpool, excavated the site in the 1930s and 1940s and employed archaeologists such as V. Gordon Childe and W. Seton Lloyd. In recent years a more concerted emphasis on the levels superseding those occupations has demonstrated definitive LC 1 levels (Caneva et al. 2012). The site is composed of a high mound, featuring the ancient citadel, and a lower town. Garstang discovered Ubaid-related painted ceramics, a fortification wall, remains of a tripartite building, radially-organized adjacent structures, and evidence for an intensive metallurgy operation, all found inside of the citadel in Level XVI (Garstang 1953). The Ubaid-period lower town appeared no different in material culture from the fortified area other than the presence of metal and metallurgical objects (Caneva et al. 2012).

Excavation of Level XV, the first level of Bréniquet's "époque d'Obeid finale," expanded by a recent expedition of the Sapienza University of Rome, produced evidence for occupational continuity but a stark change in material culture. Painted pottery went from making up 11% of the assemblage in Level XVI to 2% of the ceramics discovered

from Level XV (Caneva et al. 2012: 356-57), but included at least one sherd of Sprig Ware (Garstang 1953: Fig. 102 no. 3). Flint-scraped Coba Bowls not only appear for the first time in the finds from XV but also become immediately predominant (composing 63% of the assemblage; Caneva et al. 2012: 356-57: 363). Cream-slipped ware disappears, after making up 51% of the assemblage in XVI, and mixed-temper ware appears and becomes 22% of the assemblage (ibid.: Fig. 6).

The radiocarbon dates processed from Yümüktepe corroborate the relative chronology gleaned from ceramic.<sup>1</sup> Level XVI produced a calibrated date range of 4610-4360 BC (Caneva et al. 2012: 356), while the following Level XV yielded a calibrated date range of 4680-4335 BC (ibid.: 357). Both seem to fall within the LC-1 timespan; however, considering that radiometry is only accurate within about three centuries, it is entirely plausible that the Level XVI occupation dates to the end of the Ubaid Period and the Level XV occupation dates to the LC 1 Period.

One major defining feature of the transition from the Ubaid period to the Late Chalcolithic is the building of a stone-and-mudbrick fortification wall in Level XVI (Bréniquet 1995: 5; Caneva 2000: 167). Bréniquet argues for a brief demographic shift toward extended family dwellings during Level XVII, represented by the tripartite house, which was then replaced not long after with nuclear family homes (1995: 23). While no stratigraphic break is reported between Levels XVI and XV, the nature of the occupation changes again, from small workshops organized in a radial pattern to a general blanket of residency (Caneva et al. 2012: 367), with more complex architecture featuring stone foundations and the continuation of nuclear family-sized habitation (Bréniquet 1995: 25).

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<sup>1</sup> Contra Balossi-Restelli & Helwing, who consider the entire citadel sequence at Yümüktepe to have been related to the Ubaid Period (2012: 297); both the relative and absolute chronology do, in fact, match well with the sequence discovered at Tell Zeidan, however (see Table 2 and Stein 2009).

One clay sealing was found from Yümüktepe, in Level XV, suggesting at least interaction with a system of administration, either local or remote. Thus, over two architectural levels, the adoption of mass ceramic production seems to have happened alongside the abandonment of intensive metallurgy at Yümüktepe (Caneva et al. 2012: 370) and an evolving architectural tradition, after a transitional period which saw the erection of a major fortification and the development of a preference for smaller-sized domestic units.

## **2. Gözlü Kule (Tarsus) (36°54'30"N 34°53'24"E)**

Near Yümüktepe is the site of Gözlü Kule, excavated first by Bryn Mawr College in the 1930s under Hetty Goldman, again in the late 1940s, and finally by Boğaziçi University since 2007. Though current scholarship holds that the site falls outside of the Ubaid material culture *oikumene* (Caneva et al. 2012), excavations did produce dark-on-light matt-painted geometric motifs such as net-filled triangles and undulating lines (Goldman 1956: Pls. 222-223), with painted wares making up 5% of the “Ubaid” phase assemblage (ibid.: 75). The range of painted motifs, though, is quite limited compared to Upper Mesopotamia or even nearby Yümüktepe. Coba Bowls, light chaff-faced wares, and potters’ marks, alongside more common grit-tempered wares, also appeared in the “Ubaid” phase (ibid.: Pl. 224), an occupational level thought to be roughly contemporary with the LC levels of the Yümüktepe citadel (Caneva et al. 2012).

In the “Late Chalcolithic” phase, chaff-faced wares replaced the grit-tempered and painted wares of the previous levels, though the red-painted chevron and striped painted motifs became popular. Thus, it appears that the “Ubaid” phase may actually be closer in time and type to the LC 1, with the “Late Chalcolithic” phase corresponding to the LC 2-4 periods.

Goldman discovered a Late Chalcolithic cemetery near the southeastern edge of the mound, in trenches 8 and 9. The physical anthropologist (Ehrich) identified a high rate of dolichocephalism (cranial elongation) among the skeletal remains and connected it with the Ubaid practice from Upper Mesopotamia (1956: 8). Dating the graves more precisely is rather challenging, however.

Two stamp seals come from unstratified contexts at Gözlü Kule though they bear strong resemblance to Late Chalcolithic examples from Upper Mesopotamia. A gabled seal with an ibex and a small three-leafed plant in the field and a fragment of a seal with an ibex (Goldman 1956: Pl. 392 Figs. 1-2) parallel a discovery dating to the LC 2 period at Tell Zeidan (Stein 2009: Fig. 14) and motifs from Tepe Gawra (e.g., Tobler 1950: Pl. CLXVI no. 124).

## A.II. Amuq Valley

The Amuq Valley is a rain-fed settlement plain that lies to the east of the Amanus Mountains in southern Turkey, north and west of the Syro-Turkish border. Leonard Wooley, Robert Braidwood, and C. MacEwan of the University of Chicago's Oriental Institute first undertook excavations and survey there in the 1930s, demonstrating an occupation history of dense settlement stretching from at least the early 6<sup>th</sup> millennium BC until the modern day, with 237 sites dating to all periods.

Of the twenty-two occupation phases attributed to the sites of the Amuq Valley (A-V), four (C-F) date to the Chalcolithic period that is represented at over 50 sites (Yener & Wilkinson 1997: 12). Although there had originally been speculation that the Amuq Valley was largely abandoned in between the Ubaid period (Phase E and the Bronze Age (Phase G), Phase F (Chaff-Faced Ware/LC 2-3) has since been shown to have produced an

abundance of material culture. Mazzoni even sees an intensification of cross-regional relations via trade, and more universal settlement of the region (Mazzoni 1999: 112-113). The question remains, however, as to what extent the region was abandoned at the end of Phase E<sup>2</sup> in the mid-late 5<sup>th</sup> millennium (e.g., Schwartz 1988: Table 15; Balossi-Restelli 2008).

The abandonment of large, centrally located sites such as Tell Kurdu at the end of the Ubaid-related Phase E occupation (Yener & Wilkinson 1997: 12) supports the general idea of a localized settlement shift. However, since the 1930s knowledge of both Ubaid-related and Late Chalcolithic ceramics has changed views on the relative chronology, and several sites in the Amuq Valley have produced remains of Coba Bowls and other suggestions of an Amuq E-F “transitional” occupation (ibid: 13) that would be contemporaneous with and related to the Upper Mesopotamian LC 1 period.

### **3. Tell ‘Imar al-Jadid al-Sharqi (36°19’50”N 36°26’41”E)**

Situated in the center of the Amuq Valley, the 17.5 ha Tell ‘Imar al-Jadid al-Sharqi, Amuq Regional Survey site no. 101, could represent the “long-lost” Amuq E-F transition (Yener 2005: 195). It may have replaced the 17 ha Ubaid-period site of Tell Kurdu (Casana & Wilkinson 2005b: 221), 2 km to the north, and anticipated the major changes seen following the Amuq Phase E across the valley (Casana & Wilkinson 2005a: 36). However, the site is badly damaged from modern terracing and has not been excavated, thereby limiting an understanding of the LC 1 period in the Amuq Valley. This is unfortunate as

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<sup>2</sup> The excavators of Hammam et-Turkman correlate Amuq E with Hammam Phase IVA, which would date to the Late Ubaid period (Van Loon 1988: 582); they also posit a gap in the Amuq occupation sequence that corresponds to Hammam IVB-D, which would be the early LC 1 Period (Meijer 1988: 218). Braidwood & Braidwood had also posited at least a gap in knowledge concerning the Phase E-F transition, but considered that some site occupations may indeed fill that gap with further research (Braidwood & Braidwood 1960: 204).

Tell ‘Imar al-Jadid al-Sharqi may have been the major center of the period, providing key evidence for the developmental changes of Amuq Valley settlement and society in the mid-late 5<sup>th</sup> millennium.

#### **4. Karaça Khirbet ‘Ali<sup>3</sup> (36°18’13”N 36°32’59”E)**

Karaça Khirbet ‘Ali is site no. 168 in the Amuq Valley Regional Survey. Originally designated as a periodological curiosity but possibly a “post-Kurdu” manifestation of Phase E pottery (Braidwood & Braidwood 1960: 201-204), Giannessi has since reconsidered the pottery from surface survey and confirmed a date “slightly later” than the Amuq E horizon (2012: 269).<sup>4</sup> The pottery available is primarily of the Ubaid-related painted variety, mainly bowls featuring *tete-a-beche* triangles, swags, and net and chain pattern fills (ibid.), but also the undulating line between two horizontal bands near the rim and loops hanging from the rim (Braidwood & Braidwood 1960: Fig. 159 nos. 230, 200). These types and motifs correspond to the *tete-a-beche* and ‘undulating line between two bands’ painted motifs found at Tell Afis (Giannessi 2000: Fig. 3), as well as LC 1 Mesopotamian sites such as Tell Leilan VIb (Schwartz 1988) and Hammam et-Turkman IVD (Akkermans 1988b), and so an early LC date is plausible. However, more material needs to become available from Karaça Khirbet ‘Ali in order to make a definite pronouncement.

#### **5. Tell es-Sheikh<sup>5</sup> (36°14’57”N 36°19’57”E)**

Tell es-Sheikh, a “medium-sized” site that had also been leveled for agricultural expansion, was excavated by Sir Leonard Wooley who identified Halaf and Ubaid-related levels (1953; 1955). David French has more recently revisited the periodization of the site,

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<sup>3</sup> Also spelled “Karaça Khirbat Ali.”

<sup>4</sup> Akkermans (1988b) sees the site corresponding to Hammam IVC, which would be around the time of the Amuq E-F transition.

<sup>5</sup> Also known as Tell es-Seyh.

identifying Levels XII-XI as Halaf (Amuq C) and X-I as Ubaid-related. The later Ubaid levels (II-I), though, show parallels to Tabara al-Akrad Level VII such as a trend toward simpler painted designs on the pottery (French 1990: 437, 441; Hood 1951: fig. 7) and simple, crude bowls (Hood 1951: Fig. 6 nos. 3-3b).

Even French's reconsideration of the ceramic sequence at Tell esh-Sheikh, though, has not produced a satisfactory periodization, given the other evidence. For example, 18 stamp seals were excavated from Levels VII-I at Tell esh-Sheikh and generally exhibit similarities with Upper Mesopotamian glyptic from the 5<sup>th</sup> and 4<sup>th</sup> millennia (Aruz 1992: 16 ff.). There is a diachronic morphology evident, as geometric designs dominate the excavated assemblage until level IV, when figural motifs appear. Certain designs parallel those found in LC Levels XII-XIA at Tepe Gawra, such as the "attenuated figures of horned animals" (ibid.: 18), a bone "gable with a cross-hatched pattern from XII" (ibid.: 16), and "horned animal protomes" (ibid.: 19).

Thus, from the sigilographical evidence, the later levels in the "Ubaid" sequence at Tell esh-Sheikh seem to find a better fit within the early Late Chalcolithic period.<sup>6</sup> Since it is an unbroken sequence of occupation from the Ubaid into the early Late Chalcolithic, we can surmise that at least some of the occupational sequence dates to the LC 1 period. The change from geometric designs to more complex concepts such as hunting or domesticated animal scenes occurs in Level IV and parallels similar changes that began to take hold in Tepe Gawra Levels XIII and XII. Thus, perhaps we should think of Tell esh-Sheikh Level IV as an early LC 1 or Ubaid-LC 1 level followed by further Late Chalcolithic occupation.

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<sup>6</sup> Even Aruz questions whether Tell esh-Sheikh levels X-I should be considered contemporaneous with the Amuq E-F transition, rather than with Amuq Phase E (1992: 20)

## **6. Tabara al-Akrad (36°14'22"N 36°24'7"E)**

Near Alalakh and Tell es-Sheikh, Tabara al-Akrad was originally excavated by Sir Leonard Wooley and Sinclair Hood. Their early interpretations of Tabara al-Akrad identified limited points of similarity with Mesopotamian Northern Ubaid or Early Uruk (the "Copper Age;" Hood 1951: 119), such as painted hole-mouth jars and neckless jars with flaring rims (ibid.: Fig. 6). More recent publication by the University of Chicago's Amuq Valley Project has suggested that the earliest occupation levels (VII-VI) fit better into the Chaff-Faced-Ware Horizon of the Late Chalcolithic 2-4 Periods (Yener 2005). However, the co-occurrence of Ubaid-related painted pottery and "local flint-scraped Coba bowls" in Levels VII and VI (ibid.: 195; Hood 1951), suggests the contemporaneity of those levels with the LC 1-2 horizon in Upper Mesopotamia.<sup>7</sup>

Excavation of Level VII remains produced evidence of a substantial building containing several rooms filled with layers of debris. What appears to be the central room, perhaps of a tripartite building, contained a succession of stone-slab hearths for cooking (Yener 2005).

### A.III. Orontes Valley

## **7. Tell 'Abd al-Aziz (35°52'38"N 36°29'58"E)**

Tell 'Abd al-Aziz is a 1.1 ha site, 3 m in height, located in the al-Rouj Basin of northwest Syria. The site was excavated by the University of Tsukuba Archaeological Missions to Syria who dug a 5 x 5 m test trench and uncovered 18 layers of archaeological material before hitting virgin soil 5.1 m below the surface of the mound.

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<sup>7</sup> Though Balossi-Restelli & Helwing point out the challenge of assigning a particular period to the early levels at Tabara al-Akrad (2012: 294).

Mazzoni has pointed out that the Tell ‘Abd al-Aziz sequence parallels that of the Amuq Valley and nearby sites such as Tell Afis and Sakçe Gözü, dating to the Late Ubaid or early LC 1 period (1999: 112). According to the excavators, at ‘Abd al-Aziz, Ubaid-related pottery began to appear in Layer 14 but was mixed with Halaf styles until Layer 8. Layers 8-5 featured Ubaid-related painted motifs such as cross hatching, while Layers 4-1 produced “simple motifs in red paints” and unpainted pottery.<sup>8</sup>

The architectural sequence seems to go through similar stages, where Layers 8-5 feature “many storage bins and ash pits,” but Layers 4-1 show building foundations consisting of rows of stones (*ibid.*). In terms of artifactual finds, flint sickles occurred in the Halaf-Ubaid transitional levels but not after Layer 9, and stone sling balls were found in large quantities in Layers 4-1 (*ibid.*; see also Maeda 2003 for obsidian analysis).

The small size of the excavation area prohibits broad-scale interpretation about Tell ‘Abd al-Aziz, but at the very least it is possible to see localized shifts in function that correspond to changes in pottery styles. These parallel changes could be indicative of an overall shift from Ubaid-related dynamics to early LC dynamics.

### **8. Tell Afis (35°54’14”N 36°47’59”E)**

Excavations at Tell Afis conducted from 1991-1999 identified a continuous occupation sequence from the Bronze Age to the Stone Age and an earlier city wall dating to the Late Chalcolithic Period (Mazzoni 1998). The fortification system consisted of a massive, two-meter tall stone wall and a constructed moat. Though this has come to define the Late Chalcolithic occupation of the site, such fortifications were built during the LC 3 period (ca. 3500-3300 BC; Gianessi 2000; Mazzoni 1999).

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<sup>8</sup> Web reference: <http://www.histanth.tsukuba.ac.jp/tap/elrouj/WWW/rouj/Abd/index.html>.

However, locally made chaff-tempered wares and a decreasing percentage of painted pottery across mid-5<sup>th</sup> millennium strata indicate a site that, ceramically, transitions from an occupation associated with the Northern Ubaid tradition to a stratified, fortified town of the Late Chalcolithic period (Mazzoni 1999). An assessment of the Chalcolithic pottery identified three chronologically distinctive groups: an Ubaid-related assemblage, an early LC assemblage, and the LC-3 equivalent “city wall” assemblage (Mazzoni 2002).

For the Fosseuse “Post-Ubaid” conference, Giannessi reevaluated part of the LC group (LC GIII), dating it to the LC 2 period (Giannessi 2012: 263).<sup>9</sup> Flint scraping occurs on Coba Bowls at Tell Afis (Mazzoni 1999); however, this method of manufacture was apparently not heavily attested in LC GIII but much more so in later LC levels (Giannessi 2012: 264). “A sort of local decadent Ubaid” series of painted motifs occurs on a greenish and gritty fabric (Mazzoni 1999: 104), attributed by Giannessi to the Amuq E horizon (Giannessi 2012: 264, 266). Thus, if Giannessi’s periodization is acceptable, some of the hallmarks of LC 1 material culture from Upper Mesopotamia and Anatolia became substantial components of the Afis assemblages several hundred years afterward. However, Mazzoni dates the LC GIII pottery to the Amuq E-F transition (2000: 99), which is, essentially, the LC 1 period in the Amuq valley. It would seem that the latter is more accurate.

The upshot of the research done on the Afis sequence and its ceramics is that the site was continually occupied during the mid-to-late 5<sup>th</sup> millennium and that it displays at least limited evidence of engagement with Mesopotamian sites during the Ubaid and early Late Chalcolithic periods, including the LC 1. Adoption of rapidly-made pottery may have

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<sup>9</sup> Giannessi bases this dating on the occurrence of the “fringe decoration” painted motif at Afis and Ras Shamra IIIB (2012: 267; see de Contenson 1992: Pl. CLIV, 1-2).

happened more slowly, but does seem to be part of the process of development that culminated in the fortified Late Chalcolithic town.

### **9. Ras Shamra (35°36'7"N 35°47'6"E)**

Ancient Ugarit was occupied since the pre-pottery Neolithic period (Schaeffer 1961)<sup>10</sup> and finds from the Level IV A occupation share affinities with material culture from Halaf-related sites (Schaeffer 1962: 182). Level III B displays at least limited evidence of interaction with Mesopotamian societies of the Ubaid and Late Chalcolithic periods. Painted, Ubaid-like pottery appears in late Level IV and then III B i, while coarse-ware bowls with scraped surfaces, carinated bowls, and painted collared jars from III B h-f (Courtois 1962: 194, 395) show connections with the LC 1-2 periods in Mesopotamia. Thus, it does appear that the technological development of expedient ceramic production also occurred at Ras Shamra in the mid-5<sup>th</sup> millennium. Architectural evidence includes a grill foundation in III B c (De Contenson 1992: 45), implying the occurrence of an Ubaid granary. In III B g, two grain silos are evident (De Contenson 1973: 47).

### **10. Qalat al-Mudiq (Ancient Apamea) (35°25'6"N 36°24'16"E)**

Discovered in soundings A1-3, Levels IV and IIIc are likely contemporaneous with Hama K, Ras Shamra III B, Yumuktepe XVI-XV, and Arjoune VI (Mazzoni 2000: 99). Chaff-faced ware occurs alongside flint-scraped bowls and dark-on-light painted pottery (Collon et al. 1975: 34-47).

### **11. Hama ([35°8'10"N 36°44'58"E](#))**

Hama (ancient Hamath) lies at the boundary between the Syrian desert and the Mediterranean highlands, excavated by the Danish expedition under Harold Ingholt from

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<sup>10</sup> *Syria* 38: 7-22, 221-242.

1931 to 1938. Occupied from the Neolithic to the Iron Age, the deep sounding (G11x) reached as deep as Period M, a level characterized by Dark-Faced Burnished Ware pottery, roughly contemporary with Amuq Phase A (Thuesen 1988: 19). Thuesen, tasked with final publication of the prehistoric remains, associates Period L generally with Amuq Phase E, citing the abundance of dark-on-light painted geometric motifs (*ibid.*: 91), but also more specifically connects it to the early end of that phase (*ibid.*: 93) while seeing Period K10-8 as relating to the E-F transition (LC 1 period). More recently, Giannessi has reconsidered the periodization and correlates Hama L2-1 with Hammam IVC-D, the early part of the LC 1 period (Giannessi 2002: 88).

Ubaid-related wares include a limited range of geometric motifs, especially wavy bands and lozenges (Thuesen 1988: Pls. IV-XXXIII), but also zoomorphic designs, particularly in L3a-b (*ibid.*: Pl. XVI no. 4). The motifs also include specifically LC 1 patterns such as the bowtie interspersed with bands and crosshatched squares (*ibid.*: Pl. XXVI no. 1) and lines-in-reserve (*ibid.*: Pl. XIII no. 4), occurring in Period L1-3 (the end of Period L). Flint-scraped bowls (some with beaded or banded rims) appear toward the end of the Period L sequence as well. K8 likely corresponds to the LC 2 period or later, as a Beveled-Rim Bowl is attested (*ibid.*: Pl. XL no. 7), though the dark-on-light painted geometric tradition continues. K10 features a so-called “hut symbol” (*ibid.*: Pl. XXXIV no. 9).

## **12. Arjoune (34°32'50"N 36°31'10"E)**

Arjoune is an Orontes Valley site that produced evidence for a 5<sup>th</sup> millennium occupation in three trenches, V, VI, and VII. Trench VI yielded five radiocarbon dates, four of which produced BC calibrated ranges (95% accuracy) that overlap with LC 1 dates: 4932-4519, 4843-4464, 4721-4331, and 4501-3997; the fifth is lower (Gowlett 2003: 28).

Though the archaeological are “highly disturbed,” the site is datable to the LC 1 period (“probably slightly later” than the Ubaid; Marfoe et al. 1981: 5).

The pottery assemblage, especially from Trench VI, includes a small amount of Ubaid-related painted ceramics (ca. 5%), whereas Trenches V and VII feature mostly Halaf- and Amuq C-related wares (Campbell et al. 2003: 37). The Trench VI pottery, though much is unstratified, includes LC 1 painted motifs such as solid fields (Marfoe et al. 1981: Fig. 5 no. 2), lines-in-reserve (ibid.: no. 10), and parallel wavy bands (ibid.: Fig. 6 no. 33). The shapes from Phases II-IV include beaded-rim straight-sided pots (ibid.: Fig. 7 no. 40), short-necked collar-rim jars (ibid.: no. 41), and incurved-rim bowls (ibid.: no. 43). Temper is often mixed chaff and grit, and traces of wheel manufacture are apparent on some of the painted pottery (see, e.g., ibid.: 7).

#### A.IV. Chaff-Faced-Ware Sites along the Syro-Turkish Border (Queiq Region, Eastern Taurus Piedmont)

The term ‘Chaff-Faced Ware’ dates back to the Braidwoods’ initial survey of the Amuq region (Braidwood & Braidwood 1960: 232) and has come to represent a material culture horizon that manifested approximately during the LC 2 period (ca. 4300-3700 BC) from the Mediterranean in the west (Amuq Phase F; Yener 2005b: 195), to the Northern Caucasus in the north (Lyonnet 2007), and to the Zagros in the east (Marro 2011). Many of the Chaff-Faced Ware sites demonstrate a development from earlier local traditions into later Late Chalcolithic traditions, passing through a phase that could either be contemporary or structurally parallel with Mesopotamian LC 1 societies.

### **13. Gedikli-Karahöyük (37°13'11"N 36°49'56"E)**

20 km north of Islahiya at the western edge of the plain is the 4.5 ha site of Karahöyük, excavated by Istanbul University under the direction of Bahadır Alkım. Period IV represents the Late Chalcolithic period, subdivided into Levels IVf-IVa. Coba Bowls and “Ubaid-like” painted pottery are attested throughout Period IV, which culminates in Level IVa with the scanty remains of a possibly wooden building (as indicated by postholes) with a sherd-paved floor (Duru 2001: 127).

### **14. Sakçe Gözü (Coba Höyük) (37°11'12"N 36°53'29" E)**

The original type site of the Coba Bowl, Sakçe Gözü is a 1.3 ha, 9 m-high mound also located in the Islahiya plain in southeastern Turkey. John Garstang initially excavated the mound in the early 20<sup>th</sup> century in Trench A, identifying Syro-Hittite remains as well as prehistoric. In 1949 a team led by J. Waechter and Joan du Plat Taylor resumed excavations, reaching the Chalcolithic levels (du Plat Taylor et al. 1950: 53-54). Phases IVA-C (and early V) of Sakçe Gözü feature vessel types that indicate an occupation spanning the Late Ubaid, LC 1, and LC 2 periods. Flint-scraped Coba Bowls, hole-mouth pots, and incised and impressed wares begin to appear in Phase IVA alongside Ubaid-like painted wares (ibid.: 56, Fig. 17). Özbal, among others, identifies Level IVC as “post-Ubaid” (2011: 185), though the exact periodological boundary between the Ubaid and LC 1 levels is not truly clear as a result of Coba Bowl usage from IVA and the distance of the site from the northern Ubaid core region. Period VA is characterized by Wide Flower Pot Bowls and gray and red wares, all of which could be either late LC 1 or early LC 2 indicators.

Period IV features a sequence of plaster floors, stubs of *pisé* walls, and a domestic surface assemblage that includes pounders, a saddle quern, and Coba Bowls. The poorly-

preserved house of IVB shows evidence of a burning episode, likely from a domestically-related fire. From the latest phase, IVC, clay-lined, stone-lined, and sherd-filled pits cut down into the IVA-B levels (du Plat Taylor et al. 1950: 77). Period VA features an ash and mudbrick collapse layer, possibly related to the Period IV occupation (ibid.: 78), though its uncertain.

### **15. Oylum Höyük ([36°41'57"N 37°10'42"E](#))**

Excavated by Engin Özgen from 1988 and then Barbara Helwing and Özgen from 1995 onward, Oylum Höyük is a “large, multi-period” site located in southeastern Turkey on the Kilis Plain (Helwing 2012: 206). It was originally interpreted to have had two phases, an “earlier” and a “later” (Özgen et al. 1999), and publications of Arslantepe (see no. 15, below) in the last 15 years have associated the earlier phase with the LC 1 Period and the later phase with the LC 2 (Frangipane 2012b; Balossi-Restelli 2008). The co-occurrence of mineral-tempered pottery (“Feinkeramik”) and light-colored, chaff-tempered ware (Özgen et al. 1999: 40) matches the ceramic horizon of Arslantepe early Level VIII in every respect save for the painted, Ubaid-style decoration of the mineral-tempered pottery that does not appear on the West Mound (Balossi-Restelli 2008) except in tertiary deposits (Özgen et al. 1999: 35). The East Mound does have some stratified Ubaid-related material (ibid.: 23).

The excavators’ periodization of the West Mound is as follows. Phase 3 dates to the LC 3 Period and later, Phase 4 probably to the LC 2 Period, and Phases 6-5 possibly to the LC 1 Period. In Western Trench Square J-31c, nine strata (9-1) date to the LC 1 (Özgen et al. 1999: 36 Table 1). Their dating partially depends on the Coba Bowls found in these levels, particularly in Stratum 8, above a large platform found in the preceding Stratum 9 (ibid.: Abb. 2), but all the way up to J-31c stratum 1 (ibid.: 35-36). Aside from Coba Bowls

and a limited amount of Ubaid-like painted pottery, other ceramic types correspond to the LC 1 period such as simple flaring rim jars (ibid.: Abb. 33 no. 2), necked globular thickened-rim jars (ibid.: Abb. 22), and medium-fine ware bowls with slightly inturned walls and low carination (ibid.: Abb. 32).

The “monumental” architecture discovered at the bottom of Square J-31c in stratum 9a-b is a large, 3.5 m-high stone retaining wall filled with layers of stones, potsherds, reused grinding stones and mortars, and clay, thus creating a platform. The potsherds are mainly Ubaid-style painted pieces, having been dug up from the eastern part of the site and transported for the construction of this possibly early LC 1 platform. Most of the layers above contain architecture, exposed in limited amounts, showing more basic stone-and-mudbrick constructions (ibid.: 23-25).

#### A.V. Turkish Upper Euphrates (Malyata Plain, Karababa Basin, and Altnova Plain)

The Turkish Upper Euphrates region has recently become a rich source contributing to the archaeological study of developing social complexity in the 5<sup>th</sup> millennium BC of Greater Mesopotamia. Occupations there have provided evidence of material culture associated with the Late Ubaid, LC 1, and LC 2 periods before a hiatus at the end of the 5<sup>th</sup> millennium (Helwing 2000: Fig. 1).

#### Malyata Plain

##### **16. Arslantepe (38°22'55"N 38°21'40"E)**

Archaeological work at the site of Arslantepe, on the Melitene/Malyata Plain, has produced excellent results for its Period VII “early middle northern Uruk” occupation, better termed LC 3-4. Period VII evidence for administrative control of goods that featured

a complex system of seals and sealings indicates a paradigm shift in the economic organization of the site and surrounding region (Frangipane 2000: 441).

The earliest attested settlement at Arslantepe, however, dates to the Late Ubaid period, and the Italian team exposed 100 horizontal square meters of remains dating to Period VIII, representing the time in between the Ubaid Period and Period VII (i.e., LC 1-2; Frangipane 1994: 216; Matthews 2003: 35). Balossi-Restelli has called these levels “transitional” between the Ubaid and the LC 3-4 periods (2008: 21) and she associates the later, functionally diversified phase of Period VIII with Hammam VA-B and Koruçutepe Phase B (ibid.: 25). The earlier phase, which could be contemporaneous with LC 1 sites in Upper Mesopotamia, contrastively, evidences functionally non-specific domestic structures (ibid.: 23).

Eight radiocarbon dates from the later (“kitchen”) phase (Phase 2 in Balossi-Restelli 2012) of Period VIII provide a range of 4300-4000 BC, calibrated. Although no radiocarbon dates have come from the earlier Period VIII level (Phase 3 in Balossi-Restelli 2012), Arslantepe nevertheless provides a chronological sequence of occupation from the 6<sup>th</sup> millennium through the end of the 5<sup>th</sup> millennium (and beyond) and therefore was occupied across the entire LC 1 range of dates.

In terms of material culture, the white-burnished painted ware of Period VIII Phase 2 fits neatly into the Greater Mesopotamian LC 2 horizon style seen at Oylum Höyük (Özgen et al. 1999), Hammam et-Turkman VB (Akkermans 1988: 109), and Koruçutepe (Brandt 1978: 58). This is similar to “drop-painted” ware from Tepe Gawra XI-IX (Tobler 1950: 398) and Norşuntepe (Hauptmann 1976). Light-colored chaff ware begins to appear in VIII’s earlier phase, where it is complimented by mineral-tempered, dark-on-light painted pottery with dark cores. These types are reminiscent of Oylum’s “*Feinkeramik*”

(Özgen et al. 1999: 40), though they are painted with motifs similar to the Ubaid style (Balossi-Restelli 2008: 23). There is not an abundance of clearly Ubaid-related pottery, though crosshatched triangles do appear as a painted motif (Balossi-Restelli 2012: Fig. 9 h).

In terms of architectural decoration, two rooms from Period VIII feature walls with plastered and painted “internal and external surfaces,” (Balossi-Restelli 2008: 24) similarly to Norşuntepe J-K 18-19 level 8 (LC 2 Period; Hauptmann 1976: 85).<sup>11</sup>

### **17. Değirmentepe (38°28’54”N 38°28’48”E)**

Once thought of as an Ubaid trade colony across the Taurus Mountains (Esin 1989), there are now several indications that the 2.5 ha mound was occupied in both the Late Ubaid and the LC 1 periods, in addition to the Iron Age. The site was excavated from 1978 to 1986 under the International Lower Euphrates Salvage Project by the University of Istanbul and Middle East Technical University. The excavators made the initial relative dating to the Ubaid period based on the occurrence of Ubaid-related painted motifs and labrets, though neither exclude an LC 1 dating, especially as the painted geometric motifs are typically in the simpler style of the early Late Chalcolithic period. Furthermore, Esin realized that there were problems with most of the radiocarbon dates obtained from tripartite building BC (Room BM) in Layer 7, but a thermoluminescence sample provides a date of 4492 BC (Esin 1989: fn. 40), placing it in the early-mid LC 1 period (see Ch. 1 and Table 1).

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<sup>11</sup> We also discovered a plastered and painted interior wall in LC 1 deposits at Tell Zeidan (see Ch. 5, herein). Although the nature of this kind of decoration is such that it does not always survive depositional or excavation processes, we can tentatively see a trans-regional characteristic of Chalcolithic material culture in the occasional painting of plastered walls that perhaps culminated in the late LC periods as the complex motifs exemplified in the Arslantepe Level VII palace.

Coba Bowls occurred in most of the buildings, including BC, FC, I, and BY1 (Esin 1983: 115 Res. 34), and were flint-scraped with plain rims (Esin 1985: 254) but also beaded rims (e.g., Esin 1983: Abb. 5 no. 6). Layers 6-11 had been identified as Ubaid 3-4 (Esin 1994: 59; Esin 1983: 182), though the later levels, Layer 7 in particular (the most exposed layer), should more accurately be thought of as early Late Chalcolithic (Sievertsen 2010: 206), particularly based on the high density of Coba Bowls (over 100 potsherds in the main room of Building I) and the radiocarbon date of ~4500 BC.<sup>12</sup>

Evidence for administration and glyptic art at Değirmentepe comes primarily from Building I in Layer 7, and generally the figural and geometric motifs find parallels from Late Chalcolithic levels XII-XI from Tepe Gawra (Azoz 1992: 20; Matthews 2003; see also Esin 1985: 255 and Esin 1994). Seals and sealings appear in Building I in the same rooms as Coba Bowls, leading some (e.g., Marro 2012) to the conclusion that dispensing of food was related to a controlled redistribution system.

The agglomerated building layout, featuring both tripartite houses and multi-cellular constructions, is notably atypical of Ubaid-period architecture in northern Mesopotamia (Esin 1985: 254; Balossi-Restelli 2010), but does parallel LC 1 sites such as Gawra XII.<sup>13</sup> Five different buildings contained walls painted with “symbolic representations” in red and black pigments (Gurdil 2010: 365).

### Karababa Basin

The Karababa drainage basin, northernmost drainage of the Euphrates river in the Mesopotamian plain, sits at the foot of the Anti-Taurus Mountains (Evins 1989: 281). Sites

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<sup>12</sup> Algaze has termed this level “transitional,” noting features of both the Middle Chalcolithic and Late Chalcolithic assemblages (1990b: fn 51).

<sup>13</sup> While the majority of the occupation featured tripartite buildings, they were all adjacent to one another with no alleys or space between (Gurdil 2010: 364).

such as the 17 ha Samsat provide good Ubaid and Late Chalcolithic occupation sequences, and medium and smaller sites such as Kurban Höyük (8 ha) and Hayaz Höyük help contextualize the occupational landscape. Since much of the fieldwork happened over thirty years ago, the periodization of sites occurred before a detailed enough understanding of the pottery could clarify the matter (Stein & Wattenmaker 1989: 283) and is restricted to broad distinctions such as Uruk vs. “local.” The question now, though, is whether the area was occupied during the Late Chalcolithic 1 period and, if so, to what extent those occupations show evidence of interaction with northern Mesopotamia. For example, Kurban Höyük Level VII, only discovered within a limited area in C01 (Marfoe et al. 1986: 49), has produced evidence for a roughly Ubaid-contemporary occupation, with Halaf-like types and motifs (Mottram 2015: 433) and mixed-tempering (ibid.: 437). Level VI features a later Late Chalcolithic occupation (Algaze 1990b), though there is a likely a gap in between (i.e., during LC 1-2 periods; ibid.: 261).

### **18. Hayaz Höyük (37°27'56N 38°21'36"E)**

Though damage to the site from looters, clay-mining, fluvial erosion, and other factors prohibited clear stratigraphic analysis (Thissen 1985: 76), the Netherlands Historical Archaeological Institute excavations, directed by J. Roodenberg in the late 1970s and early 1980s, have produced ceramic evidence for occupation in the mid-5<sup>th</sup> millennium BC.

The earliest level, 6, is an aceramic Neolithic flint scatter on top of virgin soil (see Roodenberg 1982), but levels 5-4 feature a mixture of Chaff-Faced Simple Ware (CFSW) and Plain Simple Ware (PSW). Both groups include simple bowls similar in shape to Coba Bowls (e.g., Thissen 1985: Fig. 1 nos. 2-11, Fig. 3 nos. 1-3), but the flint-scraped type is always chaff-faced and coil-made (ibid.: 82-83). Thus, though there was no Ubaid-related

occupation at Hayaz Höyük, the presence of Coba Bowls places its earliest ceramic occupation levels in the early Late Chalcolithic period.

### **19. Horum Höyük (37°28'10N 38°21'9"E)**

Horum Höyük is another site whose prehistoric remains were damaged by fluvial activity, but Context D0012, a deep pit or well, remained intact and provided a continuous sequence from the Halaf or Ubaid period into the early Late Chalcolithic (Fletcher 2007). The pottery assemblage contains mineral-tempered, Ubaid-related (and Halaf) painted pottery in the earlier levels and then chaff-faced wares higher up, with strata in between that feature both styles (ibid.: 192-3). The chaff-faced wares comprised 86% of the overall assemblage, and include Coba Bowls with flint scraping (ibid.: Fig. 3) and internally-incised bowls (ibid.: Fig. 5).

Fletcher gives the in-filling of the well a *terminus post quem* of the LC 1 period based on the *tell*-based soils and pottery, and hypothesizes that the deer antlers, pig skull, and pierced stone deposit found at the bottom of the well may represent its ritual closing after the Euphrates changed course (ibid.: 198).

### Altinova Plain (Keban Dam Region):

### **20. Norşuntepe (38°36'6"N 39°24'19"E)**

Excavations at Norşuntepe, an 8.2 ha mound located in the former Altinova Plain and situated on the eastern branch of the Upper Euphrates, produced substantial finds dating to the LC 1 and LC 2 Periods in operations J/K 18-19 and J/K 17. The early LC remains include a large LC 2 tripartite, public building in J/K 18-19 Level 10 (Schmidt 1996; Hauptmann 1982: Pl. 35) and other structures featuring wall paintings (Hauptmann 1976: 85). Recent syntheses have divided the stratigraphy into three phases, with the

earliest (Phase I) dating to the “Middle Chalcolithic” or “post-Halaf” period<sup>14</sup> and the latest (Phase III) to the LC 2-3 periods (Gülçur 2000; Marro 2011). That places Phase II into the time between, which should roughly correspond to the LC 1 period. Only operation J/K 17 produced enough depth to reach “Middle Chalcolithic” remains, which occur in Levels 28-12. The operation yielded an unbroken sequence from the Middle Chalcolithic into the Late Chalcolithic (Gülçur & Marro 2012: 310), which starts at around Level 11 (Schmidt 1996).

The LC 2-3 occupation of Phase III can be seen in J/K 17 Levels 10-8 and J/K 18-19 Levels 10-8, based on ceramics such as open bowls with internally beveled, blob-painted rims (Gülçur & Marro 2012: Fig. 13:4), such as at LC 2 Gawra (Tobler 1950: CXLIV no. 383). Large open bowls with internally beveled rims and a type of corrugated bowl (Hauptmann 1979 Pl. 42 no. 3) demonstrate links with Hamman et-Turkman VB (Akkermans 1988a: Fig. 9), while the pedestalled brazier (Hauptmann 1979 Pl. 42 no. 5) is similar to those in Gawra XII. “Architectural density,” aesthetic variation between structures, and administrative artifacts such as stamp seals and a clay bulla characterize the LC 2-3 occupation (Thomalsky 2012: 27).

Flint-scraped bowls similar to the Coba Bowl appear in Phase II from Level 11 onward (Schmidt 1996; see also Hauptmann 1972: 115). A light-colored chaff ware, sometimes painted with large geometric lines in reddish brown or black paint over a whitish, light slip is similar to unpainted *Feinkeramik* at Öylum Höyük and the painted, light-colored chaff ware from Arslantepe VIII (Ballosi-Restelli 2008: 23). A kind of Sprig Ware variant occurs at the end of Phase II and in early Phase III (Gülçur & Marro 2012: Fig. 14:4).<sup>15</sup>

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<sup>14</sup> But see Whallon 1979: 266 for a reference to Halaf sherds found 35 m below the surface at Norşuntepe.

<sup>15</sup> Though it occurs at other sites earlier; e.g., Tepe Gawra Stratum XII (Tobler 1950: Figs. 243-245).

The radiocarbon sample from J-K 17 Level 10 provides a date range of 4361-3985 BC cal. (di Nocera 2000: Table 2), which places it in between the end of the LC 1 and the middle of the LC 2 Period, roughly equivalent to Gawra XI. A radiocarbon date from K 18 Level 11 gives the 2-sigma BC cal. range of 4467-3803 (di Nocera 2000: Table 2). Thus, we can date later Phase II to the LC 1 period, and this phase is characterized by evidence for metallurgy, a monumental building (Gülçur & Marro 2012), and intensified exploitation of the local obsidian and flint sources (Thomalsky 2012).

### **21. Koruçutepe (38°37'51"N 39°31'54"E)**

The final report on the University of Chicago/University of Amsterdam expedition to Koruçutepe provides a date range for Phase B of 4331-4045 BC cal. (Van Loon 1978: 8),<sup>16</sup> contemporary with the late LC 1 and LC 2 Period (see Table 1). In more recent research on the Chaff-Faced Ware cultures of eastern Anatolia, Marro has given an approximate date for Koruçutepe Phase A of 4400 BC cal., and has associated Phase B with Gawra Levels XIIA-XA (2011: Table 1). These estimates would place Phase A and early Phase B in the LC 1 Period (see Fig. 1.1), although in looking at both the pottery and the stratigraphy of Chalcolithic Koruçutepe it seems that early Phase B coincides with the beginning of the LC 2 Period while late Phase A strata should be associated with the Upper Mesopotamian LC 1 period.

The excavators assigned Phase A, consisting of Strata I-XXIX, to the “Early Chalcolithic Age,” referencing its handmade grit-tempered and burnished wares, and Phase B, consisting of Strata XXX-XLIV, to the “Late Chalcolithic Age,” referencing the slow-wheel-made chaff-faced ware prevalent in those strata (Van Loon 1978: 6, Table 1). Such

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<sup>16</sup> Recalibration of 5370±40 – 5330±40 BP using OxCal Version 4.2 IntCal 09 Curve; see also di Nocera 2000: Table 3.

periodization, however, is based on pottery alone rather than incorporating stratigraphy (see Brandt 1978: 58). The strata considered to be “transitional” between these two phases are XXII-XXIX, though recovery of finds from these was extremely limited (*ibid.*).

Despite the paucity of material remains associated with the Phase A-B transitional strata, the excavators identify a gradual change in the ceramic tradition based on the overlap of wares associated with each phase individually (*ibid.*). Thus, the co-occurrence of grit-tempered and chaff-faced wares throughout strata XXII-XXIX suggests continuity of material culture between the Middle Chalcolithic levels and the Late Chalcolithic 2-3 levels. Unfortunately, neither photos nor drawings of the potsherds collected from the transitional strata are published in the final report, though it is interesting to note that flint-scraped bowls appear in Stratum XX, and flint-scraped jars appear even earlier in Stratum XII (Van Loon 1978: 120).

Stratigraphically, the section of the step trench baulk shows a sequence of substantial mudbrick walls occurring across strata XXII-XXIX. Further, these levels are separated from the earlier Phase A strata by about 50 cm of accumulated soil and from Phase B by an ashy layer (*ibid.*: Pl. 6). These transitional strata at the end of Phase A thusly form a coherent period within the Chalcolithic sequence, bookended by stratigraphic phenomena.

## **22. Tepecik (Makaraz Tepe)**

Tepecik is a 6 ha, multi-period site excavated by salvage expedition before being flooded in 1974. The Chalcolithic and Neolithic levels were reached in the deep sounding in Square 8-O, discovering Ubaid and Late Chalcolithic remains in Levels 14-20 (Esin 1972: Table 88). Though these levels were immersed in groundwater, the pottery sequence includes a small number of Ubaid-like painted sherds, abundant “coarse simple ware”

(precursor to the Chaff-Faced Ware), and continuous strata of flint-scraped Coba Bowls (Esin 1982: Pl. 72). The chaffy wares were finished on a (slow) wheel, according to Esin (2001b: 104).

### **Tülintepe**

The Tepecik team of Istanbul University conducted salvage excavations at Tülintepe from 1971 to 1974, led by Güven Arsebük, uncovering occupation from the Halaf period to the Iron Age (with Medieval Islamic remains, as well). The site covers 5 ha and the latest Late Chalcolithic levels (LC IV-I) feature unpainted, chaff-faced ware, followed by level EC I, featuring dark-faced burnished ware and Ubaid-like painted wares, (Esin 2001a: 75; Esin 1982: 129, Pls. 92-93). The simple painted motifs of the later, chaff-faced ware includes single-bands on bowl rims bowls. There could be a gap in the stratigraphic sequence between LC IV and EC I (Esin 1976: 150), making an LC 1 level at Tülintepe uncertain.

## A.VII. Middle (Syrian Upper) Euphrates

### **23. Tell al-‘Abr (36°40’56"N 38°05’15"E)**

Excavated by the Department of Antiquities of the Republic of Syria under the direction of Hamido Hammade and Yayoi Yamazaki, Tell al-‘Abr is located on the main branch of Euphrates at the “junction between hinterland and tributary” (Hammade & Yamazaki 2006), south of the Tishreen Dam. The periodization of Tell al-‘Abr in the excavation report suggests that the entire 5<sup>th</sup> millennium sequence, Levels 7-2, falls within the Ubaid period (ibid.: 88). However, use of the term “Ubaid” here is fairly loose and it obscures the major changes seen in the ceramic and architectural sequences evident in the excavation results. Scraped-bottom bowls begin to appear alongside painted, Ubaid-style

pottery in Level 5, when the painted pottery composes 70% of the assemblage, down from 90% in the previous level (*ibid.*: 73).<sup>17 18</sup>

Yamazaki groups these levels into four stages, the earliest containing Levels 7-6, the second, Level 5, the third, Levels 4-3, and the latest, Level 2. Stage I corresponds to the local “Ubaid-related” material culture, whereas stages II and III evidence transformations in the ceramic assemblage (Yamazaki 2012). Just as at Hammam et-Turkman (Akkermans 1998: 288; Meijer 1988: 217), Mashnaqa (Thuessen 2000), Tell Afis (Mazzoni 1999: 106), and most other LC 1 sites, there is a continuum of ceramic change rather than a series of ceramically distinct periods. Radiocarbon analysis for samples from Level 5 provides a date range of 4800-4500, with a mean of 4650 BC cal., aligning with the beginning of Zeidan Level LC 1a but also possibly with Zeidan Level Ubaid-LC 1 (see Table 2). Ceramically, it seems to fit a little bit earlier, related more to the Ubaid-LC 1 time.

While retaining a majority of painted pottery, the ceramic assemblage of Level 5 displays significant departures from previous levels. Complex painted motifs decrease in number relative to simple designs such as the “long wavy lines.” This happens concomitantly with an increase in the ratio of “simple” bowl forms to more complex types such as carinated bowls<sup>19</sup> (Yamazaki 2012: 190; Fig. 3 no. 22). Other new types such as the pointed-bottom, cup-like vessel appear for the first time in Level 5 (*ibid.*: 189), which also occur at LC 1 Tell Feres (Baldi & Abu Jayyab 2012: Fig. 2) and elsewhere in the eastern Jezirah. The scraped-bottom bowls that begin to appear in Level 5 are not quite

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<sup>17</sup> See Yamazaki 2012 for an explanation of the “Ubaid-related” designation of the early Late Chalcolithic levels.

<sup>18</sup> Contra Parker et al., who note that “only 15% of the excavated Ubaid assemblage was painted” (2006: 91), but give no reference for such a figure.

<sup>19</sup> Seen at Tell Brak HS6 Level 8 (Matthews 2003).

Coba Bowls, Yamazaki points out, but are often mineral tempered and wet-smoothed (2010: 325), and sometimes wheel made (2012). Thus, ‘Abr Level 5 (Stage II) seems to fit in between the Late Ubaid and early LC 1 periods; however, a fine-tuned relative dating of this sequence is challenging.

The Tell al-‘Abr sequence moves gradually from an Ubaid-related material culture in Stage I to a clearly Late Chalcolithic type of material culture in Stage IV. Scraped-bottom bowls become abundant in Stage III Level 4 (Yamazaki 2012: 191). By Level 2, more than 80% of the pottery is unpainted, and chaff-tempering becomes more apparent (Hammade & Yamazaki 2006: 88). The painted motifs that persist, however, are hallmarks of the LC 1 period: the bowtie design (“band of lozenges”) interspersed with horizontal lines (or “panel pattern;” Yamazaki 2012: Fig. 6 no. 17) and the band of superimposed swoops beneath the rim exterior (*ibid.*: Fig. 6 no. 3). Large storage jars in domestic units, sometimes sunk into the floor (e.g., NE corner of R2-5; see Ch. 4.3 for Zeidan example), appear in Levels 3 and 2.

While identifying select levels as LC 1, and excluding others from this designation, is challenging for Tell al-‘Abr, it is also perhaps less relevant to our task than examining the changes in socio-economic configuration that correspond to changes in the ceramic assemblage over the course of these levels.<sup>20</sup> For instance, Levels 5-4 show a particularly industrial function, featuring kilns and workshops but no domestic space. The subsequent Level 3 features kiln complexes alongside domestic buildings, and the excavators determined the houses to have been “less well built in terms of both plan and execution” than in Ubaid levels 7-6 (Hammade & Yamazaki 2006). In Level 2, however, there is a

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<sup>20</sup> However, it does seem as though some time span represented by Levels 4, 3, and perhaps 2 can be associated with the LC 1 Period; the LC 2 period must have begun somewhere in Level 2, and an Ubaid-LC transitional (“Terminal Ubaid”) phase can be seen in the remains from Level 5.

carefully constructed *mittelsaal* building that is functionally segregated into domestic and ceremonial parts and contains both scraped-bottom bowls and solid-made necked jars (Yamazaki 2012: 189).<sup>21</sup> The industrial component of the area continued with a leather-working building, though Level 2 is the first to have produced no evidence for pottery production (Hammade & Yamazaki 2006). Thus, the excavated area shows significant changes in function through time.

The artifactual record at Tell al-‘Abr also undergoes changes during this time period. For instance, ground stone artifacts decrease dramatically in number after Level 5 (Hammade & Yamazaki 2006: 356, Table 8.1), coinciding with the appearance of the new pottery types and techniques such as the scraped-bottom bowls and necked jars (Yamazaki 2012).

#### **24. Tell Kosak Shamali (36°33’35”N 38°16’41”E)**

Tell Kosak Shamali is an approximately 0.56 ha site situated on a terrace overlooking the Euphrates where it meets the remnant Sarine river bed in northern Syria. The University of Tokyo excavations of the tell, lead by Toshio Matsutani and Yoshihiro Nishiaki, took place from 1994 to 1997 and identified ancient occupations dating from the 7<sup>th</sup> millennium to the 4<sup>th</sup> millennium BC. These include lengthy Ubaid (including “Terminal Northern Ubaid”) and “post-Ubaid” occupations, according to the excavators, but using both material culture and radiocarbon dates Levels 5 and 6 in Sector B date to the LC 1 Period specifically.

The <sup>14</sup>C dates for the fifth millennium levels are as follows: 4637±137 BC cal., Sector A, Level 1; 4746±194 BC cal., Sector B, Level 6; 4377±119 BC cal., Sector B,

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<sup>21</sup> They are called “solid-made” necked jars in the final publication but simply “necked jars” thereafter.

Level 5 (Nishiaki & 2001: 154 Table 5.1). Thus, Level 5 in Sector B falls within the range of dates for the LC 1 Period (ca. 4600-4200), with Sector A Level 1 dating to the early LC 1 or late Ubaid, and Sector B Level 6 seemingly dating to the end of the Ubaid period (see Table 1). Excavation of Levels 5 and 6 produced evidence for pottery manufacture, including kilns and pottery production tools such as clay scrapers and polishers made out of repurposed, plain and Ubaid-like, painted potsherds (Sudo 2003: 213-214). Not much Chalcolithic pottery is published from the excavations, but necked beaded-rim globular jars found *in situ* (e.g., Koizumi & Sudo 2001: Fig. 4.14 no. 9) relate to LC 1 storage jars at Zeidan (Pl. 27) and elsewhere.

### Balikh River Valley

#### **25. Hammam et-Turkman (36°39'33"N 38°57'8"E)**

The 6 ha site of Hammam et-Turkman, situated on the upper Balikh River, was excavated by the University of Leipzig in the 1970s and 1980s and produced a substantially lengthy occupation sequence ranging in time from the 5<sup>th</sup> millennium to the 3<sup>rd</sup> millennium BC. The 5<sup>th</sup> millennium finds come primarily from the Eastern Trench (AK-AF 16), a two-meter wide test trench. They feature an Ubaid-to-Late Chalcolithic pottery sequence, and the Period IV Phase D strata correspond to Gawra XII-A and XII and to Leilan late Period VIb (Van Loon 1988).<sup>22</sup> Though ceramics of the 5<sup>th</sup> millennium occupation levels developed very gradually, without major breaks, excavators Peter Akkermans and Mauritus Van Loon make a distinction between the “Ubaid-related” Period IV pottery and the “chaff-faced” Period V pottery that heavily features Coba Bowls (Akkermans 1998:

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<sup>22</sup> Based on parallel ceramic types such as “undecorated and roughly-shaped flat-base bowls” (Van Loon 1988), describing Coba bowls and the variants.

288; 1988c: Pl. 99). However, this distinction comes with caveats, including the development or initial appearance of some standard Period V attributes in Period IV. These include the use of vegetal tempering<sup>23</sup> and low-firing/rapid combustion<sup>24</sup> that produced what the excavators noted as more cheaply made pottery on a larger scale (Van Loon 1988: 582).

In fact, the pottery from Phase IVD (Strata 9-12), especially the latest two strata (11-12), compares well with both Gawra XII and Leilan VIb (Akkermans 1988b: 226). Akkermans points out that “both in stratigraphical and cultural terms no major break can be observed” between late Period IV and early Period V (ibid.: 311), and this helps refine the periodization to include an LC 1 occupation that spans both IVD and VA, with a kind of Ubaid-LC transitional level in IVC.

While changes in the pottery tradition at Hammam start to occur in IVB, such as the move away from the more elaborate painted geometric designs toward bold, “coarsely executed” and solid-painted motifs (ibid.: 223), forms such as the internally beaded-rim bowl (ibid: Pl. 86 no. 218-219), bowls with sharply incurved walls/outrolled rims/low carinations (ibid.), Beaded-Lip Bottom-Scraped Bowl (ibid.: Pl. 86 no. 215), and internally-incised bowl begin in IVC (ibid.: Pl. 87 no. 226). Thus, Akkermans relates Phase IVC to Gawra XIII and early Leilan VIb (ibid.: 227 Table 36).

Many of the types that began to appear in Phase IVC continue into Phase IVD; these include the interior-incised bowl (Akkermans 1988b: Pl. 91 no. 258),<sup>25</sup> beaded-lip & low-carinated bowls (ibid.: Pl. 93 no. 281), and a fair degree of scraped-bottom bowls

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<sup>23</sup> 2.2% in IVA-B, 52.6% in IVC, but 83.5% in IVD; from Stratum 11 forward, diversity of tempering effectively comes to an end after reaching its peak in IVC (Meijer 1988: 186).

<sup>24</sup> 88.6% in Stratum 11 of Phase IVD (Meijer 1988: 186).

<sup>25</sup> The internally-incised bowl first appears in IVC (Akkermans 1988b: Pl. 87 nos. 226).

(ibid.: Pls. 92-93). The range of painted motifs is quite limited in both IVC and IVD, mainly featuring wavy bands. These include undulating lines bounded by two thin horizontal bands set within two larger horizontal stripes on jar necks (ibid.: Pl. 90 no. 248),<sup>26</sup> and nearly solid geometric motifs that use negative space (ibid.: Pl. 82 nos. 176-177), also seen at Zeidan and further west (line-in-reserve motif), in a manner vaguely akin to the negative circle design common further north and east in the upper Tigris region.

Paint-decorated pottery never featured heavily in the Period IV assemblage, with a maximum of 17.6% in IVA down to 2.4% in IVD (Akkermans 1988b: 199 Table 33). Vegetal tempering increased from Hammam IVC to IVD, from 12% to 23.2%, with an expected decline in mineral temper in the Hammam IVD assemblage to 12.4% from 42.6% (Akkermans 1988b: 188 Table 21), plus an increase in scraping from 15.9% in phase IVC to 27% in IVD (Akkermans 1988b: 194 Table 25). The prevalence of darkened cores begins in IVC and increases in IVD and VA, indicating a preference for lower firing temperatures (Akkermans 1988c: 294).

Other changes that occurred during the Phase IVD occupation include a departure in the architectural form of Stratum 14 from the previous strata. Despite the obfuscation of a later, intrusive pit, the excavators identified the white-plastered Wall B and two adjoining surfaces as oriented differently from the preceding strata before a meter's worth of abandonment precedes the VA Stratum 1 architecture (Meijer 1988: 73). Thus, while the ceramic styles and techniques changed gradually over time, there were at least localized fits and starts in the architectural occupation of the two-meter-wide excavated space.

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<sup>26</sup> Also seen in Leilan VIb (Schwartz 1988: 77 Table 16), and also on jar necks (as opposed to bowls, where they occur earlier in the sequence; ibid.: 59-60).

The inhabitants of the Hammam VA occupation continued and built upon ceramic traditions seen in IVD, especially flint-scraping, vegetal tempering, and low firing. Potters' marks appear (Akkermans 1988c: Pl. 98 no. 17), along with a vegetal motif that looks close to Sprig Ware without identically copying it (ibid.: Pl. 98 no. 16). Beaded-lip hole mouth jars appear as well (ibid.: Pl. 101 nos. 44-46), while Ubaid-related motifs such as hatched triangles continue to appear into the VB strata. Thus, the end point of the LC 1 period at Hammam is not entirely fixed, though Baldi includes VA 2a-b, including the potentially tripartite building, in the LC 1 period (Baldi 2015: 471), and Stratum 3 looks like a break before the LC 2 period of VB Stratum 4.

#### **26. Tell Zeidan (35°56'58"N 39°5'43"E)**

Tell Zeidan is located where the Balikh River joins the Euphrates, approximately 80 km downstream from Hammam et-Turkman, and the material culture of its ancient inhabitants exhibits many similarities with that of Hammam, with notable differences. Excavations and surface survey undertaken by the Oriental Institute of the University of Chicago under the direction of Gil Stein from 2008-2010 demonstrate a continuous or nearly continuous occupation sequence from the Halaf period into the LC 2 period, plus small 3<sup>rd</sup> millennium BC, Islamic, and modern occupations (Stein 2009; 2010; 2011). The site consists of three mounds (Northwest, Northeast, and South) and while settlement appears to contract in the late LC 1 or LC 2 period, it features a substantial, 12.5 ha occupation in both the Ubaid and early LC 1 periods (ibid.). Architectural, stratigraphic, and artifactual remains of the LC 1 Period at Zeidan are detailed in Chapters 4-7, herein.

Analysis of the Chalcolithic pottery, conducted by Khalid Abu Jayyab but halted prematurely due to the Syrian conflict that began in 2011, demonstrates a lengthy "Terminal Ubaid" period, which he further breaks down into Terminal Ubaid A and

Terminal Ubaid B, that begins between 4700 and 4600 BC. Like at Hammam et-Turkman, ceramic hallmarks of the LC 1 Period initially appear in levels that scholars have dated both stratigraphically and radiometrically to the Ubaid Period (Abu Jarryab n.d.). These markers include painted motifs such as large swoops beneath the rims of bowls and the hanging Xs and diagonal lines of X patterns, and types such as the internally-incised bowl and various kinds of rapidly-made bowls (Beaded-Lip Bottom-Scraped Bowls, Wide Flower Pot Bowls, and Coba Bowls). Regional affinity with Hammam et-Turkman can be seen in painted motifs such as solid-field bowl exteriors and lines-in-reserve (Akkermans 1988a: Figs. 5-6), but also in the basic forms of undecorated pottery (see Pls. 31-35).

The main distinction between the “Terminal Ubaid” and LC 1 assemblages is absolute dating, using the arbitrary range of 4400-4200 BC for the latter. However, another the main element of the ceramic assemblage that helps to corroborate this arbitrary division is the decreasing percentage of painted pottery, the “Terminal Ubaid” levels producing around 4% and the LC 1 around 1%. There is a concomitant increase in Coba Bowls (up to ~45% from 35%), and Wide Flower Pot Bowls (up to 5% from 2%). Another key change is the presumed contraction of the site, which begins in the LC 1 period according to Abu Jarryab (n.d.). Radiocarbon dates place the “Terminal Ubaid” levels in the 4600-4400 BC range, and the LC 1 levels in the 4400-4200 BC range. In accordance with the main arguments of this dissertation, though, the LC 1 period typically starts between 4700 and 4600 BC, and the gradual nature of the changes in the assemblage do not justify arbitrary subdivisions. The internal archaeological and stratigraphic sequences should determine periodological boundaries in conjunction with major changes in the ceramic assemblage. For the purposes of this dissertation, all of these levels date to the LC 1 period (Table 2).

See Ch. 1 for a refutation of the utility of the term “Terminal Ubaid,” and Chs. 4-7 for detailed discussion concerning the LC 1 archaeological levels of Tell Zeidan.

#### A.VIII. Turkish Upper Tigris, Diyarbakir Province

##### **27. Yenice Yani (~37°46'49"N 40°42'34"E)**

Yenice Yani is a 1.2 ha site identified as having had Ubaid, Late Chalcolithic, and Iron Age occupations (Algaze et al. 1991), though the excavations did not reach virgin soil and could have been settled earlier (Bernbeck & Costello 2011). The radiometric data provides a possible date range of 4500-4340 BC cal. for Phase YY5 (ibid.: 677, 683 Table 3), placing that level directly within the time range of LC 1 Period (see Fig. 1.1).

The pottery types from the Late Chalcolithic levels also help delineate the periods of occupation at Yenice Yani. YY5, Levels IV-III in Unit A and VII-VI in Unit B, produced numerous flint-scraped Coba bowls, which continue into YY4 but decrease in number. The earlier levels of YY5, A IV and BVII, feature mineral tempered wares and dark-painted motifs (Bernbeck & Costello 2011: 683 Tables 1 & 2). Bowls with “interior ledge rims,” which are very similar in same shape to ‘internally beveled rims’ found at other sites, occur in a greyish ware in AIII and BVI, paralleling Tell Brak HS6 Levels 9-6 (Matthews 2003: Fig. 3). The painted designs include less-“Mesopotamian” motifs such as filled-circle (“negative circle”) and concentric circles, as these occur primarily at nearer-by sites such as Kenan Tepe (Parker et al. 2006: Fig. 16) and Salat Tepe (Ökse & Gormuş 2013: Fig. 4). The negative-circle motif does appear at Tell Feres, though (Baldi 2012).

Coba Bowls decrease in relative number in YY4, and, like elsewhere during the LC 2 period, the prevalence of painted ware decreases sharply. Coarse, brittle ware in types such as casseroles and open bowls become prevalent in YY 4. Shallow bowls with flat

rims, interpreted as early versions of LC 3 hammerhead bowls, also appear. Phase YY4 evidences possible contraction of the site in the LC 2 Period, as Unit B is occupied but not Unit A, though the amount of obsidian relative to flint approximately doubles from YY5 to YY4, from 4.2% to 10.1% (Bernbeck & Costello 2011).

### **28. Kenan Tepe (37°49'51"N 40°48'44"E)**

From 2000 to 2008 the Upper Tigris Archaeological Research Project (UTARP), under the direction of Bradley Parker, excavated the multi-period site of Kenan Tepe, which is a 4.4 ha mound located in Diyarbakir, Turkey. The main, eastern mound rises to a height of 32 m and the high, western mound has produced evidence of non-continuous occupation from the Ubaid Period until the Middle Bronze Age, with other occupations dating to the Iron Age. The research agendas of UTARP for the prehistoric levels of Kenan Tepe focused on the Ubaid Period as well as the interaction between southern Mesopotamian peoples and the local inhabitants during the later Late Chalcolithic Period (LC 3-5).

The total extent of the Ubaid/LC 1 occupation is 1 ha, restricted to the eastern part of the high mound (Parker et al. 2006: 106). There is evidence from Area F that the site shifted eastward in the LC 3 Period (Parker et al. 2003, 2006), but the western, high mound was continuously occupied from the Late Ubaid/LC 1 period until around 4300 BC (Parker & Kennedy 2010). Thus, Kenan Tepe may have undergone population decline, settlement-shift, and/or abandonment during the late LC 1, but seemingly not before (cf. Parker et al. 2006).

While the issue of transition between the Ubaid occupation and the early Late Chalcolithic occupation is not addressed in the UTARP research publications, there is certainly material excavated from the site that dates to the LC 1 period. In many cases,

however, the publications identify the LC 1 remains as “Late Ubaid” (e.g., Parker 2011: 613 ff.) or Ubaid Phase 4 (Parker et al. 2009). Kennedy rectifies this and clarifies the periodization by equating the “Ubaid Phase 4” at Kenan Tepe with the LC 1 occupation (2012: 137).

LC 1 finds come from trenches D4 and E2 (Kennedy 2012). One of the more interesting and well-investigated structures, Ubaid Burnt House 1,<sup>27</sup> produced radiocarbon dates of 4700-4480 BC cal. (Parker 2012: 295), placing its occupancy in the early LC 1 period (See Table 1.1). Sprig Ware is absent from Kenan Tepe, though such lacuna is typically due to regional or local particularities and is not a chronological determinant (Blackman & Rothman 2003). The excavators note painted motifs found at Kenan Tepe such as Oueili-like crosshatching and “purple-brown to deep black hard, matte paints,” as well as a few types of crosshatching that parallel Hammam IVA-B (Parker et al. 2006: 92), but these are problematic characteristics to use for relative dating.

Other aspects of the ceramic assemblage warrant the consideration that Ubaid Phase 3 contexts at Kenan Tepe should actually be associated with the early LC 1 period. These include the predominance of unpainted wares versus painted (Parker & Foster 2009: 507) and mixed tempering of pots (i.e., mineral and vegetal) in “Ubaid” coarse, medium, and fine wares (Parker et al. 2006: 86). Specific forms such as hole-mouth jars (ibid.: Fig. 22 I), flint-scraped bowls, and painted motifs such as “pendant loops hanging from a line at the rim” (ibid.: 92), diamonds in-filled with dots (ibid.: Fig. 21 E), “undulating lines bounded by two thin horizontal bands set within two larger horizontal stripes” (ibid.: 92,

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<sup>27</sup> The Ubaid Burnt House 1 was “likely an autonomous economic unit” with signs of integration into a complex socio-economy. These include surplus textile production, extramural pottery production, and importation of raw obsidian on a limited scale (Parker 2012: 314).

Fig. 19 A), the negative circle motif (ibid.: Fig. 16 F-H), and hanging Xs (ibid.: Fig. 19 C) all suggest a date closer to that of Gawra XII/Hammam IVD/Zeidan LC 1b.

Kennedy dates Ubaid Structure 3 (in Trench E2) to the LC 1 period—Kenan Tepe’s Ubaid Phase 4—but generally refers to it as “Terminal Ubaid” (Kennedy 2012; Parker et al. 2009), so to preserve the distinction with the later Late Chalcolithic remains. Significant quantities of flint-scraped bowls occurred there, and the excavations exposed both indoor and outdoor spaces related to this building, enabling fairly thorough spatial-functional and use-alteration analyses for Coba Bowls (see Ch. 2).

### **29. Salat Tepe (37°49’40”N 40°57’58”E)**

The Tigris-Euphrates Reconnaissance Project, led by Guillermo Algaze, first identified Salat Tepe in 1990 (Algaze et al. 1991), and it was further surveyed and excavated under a salvage operation carried out by TAÇDAM from 1999-2001 (Ökse 2004) and then joined by Kokushikan University in 2010 (Koizumi et al. 2016). The excavations produced evidence of occupation from the Ubaid period into the Late Chalcolithic period, though the latest levels were damaged by medieval-period pits (Ökse & Oğuz Alp 2002: 662-665) and only discovered in the northern part of the site (Ökse & Gormuş 2013: 133).

The “earlier Ubaid” levels are separated from the “later Ubaid” or “Terminal Ubaid” (LC 1) levels by “thick ash deposits,” up to 90 cm deep (ibid.: 134, 136). Koizumi et al. (2016) date the remains of Trench H12 to the “Terminal Ubaid” period, citing an increase in straw inclusions, scraped-bottom bowls, evidence for use of the slow turning wheel, and a low frequency of painted decoration within the ceramic assemblage (ca. 33%). Painted motifs include an undulating line between bands beneath the rim, and the “filled-circle” (negative circle), which correspond to other LC 1 occupations such as Yenice Yani

YY5 (Bernbeck & Costello 2002: Fig. 7b). Radiocarbon dates from H12 show a range from 4655-4582 BC cal. (Koizumi et al. 2016: 160).

Trench I12, in the northern part of the site, dates to the “Post-Ubaid” period, which the excavators have equated with LC 2-3 (Ökse & Gormuş 2013: 135), based on types such as “Grey burnished ware, bowl with inner-everted rim, and shallow bowl with hammerhead rim” (ibid.), but also bowls painted with interior swags (Koizumi et al. 2016: 157).

LC 1 architectural remains in H12 include a mud-plastered floor with “three plastered storage pits” sunk into it (ibid.: 134). Trench H12 also contained a burial (Grave 64/G) that features a shaft and mudbrick side wall construction, similar to Kashkashok II (Matsutani 1991). Beads of steatite and heated talc, which were likely imported, demonstrate the funerary display of luxury goods in this occupation.

Salat Tepe provides evidence for a change in economic production modes between the Ubaid and early Late Chalcolithic periods. Discovery of pigment remains (from pottery painting) from a household context in the Late Ubaid Period contrasts with the workshop context of discovery of similar pigment remains from the early LC level (Koizumi 2016: 152).

## A.IX. Upper Khabur

### Khabur Triangle

#### **30. Tell Kashkashok II (36°38'32"N 40°39'0"E)**

Kashkashok Tell no. II, a 0.8 ha site, was not residentially occupied following the Hassuna period, but does feature a 5<sup>th</sup> millennium BC (“Ubaid-Uruk”) cemetery (Matsutani 1991: 103). The 100-or-more graves discovered have produced unclear stratigraphy but groups of pottery vessels. This pottery, dated by comparanda to the Ubaid and “Gawra”

periods, enables a contextually sound analysis of corresponding vessel types. Coba Bowls, sometimes coil-made and scraped (ibid.: Pls. 38-39), Beaded-Lip Bottom-Scraped Bowls (ibid.: Pl. 40 no. 1), bowls with sharply incurved vessel walls (ibid.: Pl. 48 no. 1), and painted motifs such as negative-circle (ibid.: Pl. 37 nos. 1, 3), sail pattern (ibid.: Pl. 65 nos. 6-12), and solid field (ibid.: nos. 19-30) are examples of the “Terminal Ubaid” or early LC 1 assemblage (see also Koizumi 1993). Also present are Sprig Ware variations with double-row “sprigs” (Matsustani 1991: Pl. 64 no. 37).

### **31. Tell Kashkashok III (36°38'12"N 40°38'14"E)**

Excavated by the Aleppo Museum under the direction of Antoine Souleiman, Kashkashok III is a small, 2 ha site near to the Kashkashok II cemetery and could have been the settlement site associated with the graves, as it demonstrates a similar occupational time range based on the material culture. There is so far no general publication of the excavations, though the Russian expedition to Tell Khazna was able to examine and publish small amounts of the Kashkashok III material in the *festschrift* for Souleiman.

The site was founded during the Late Ubaid period, which the excavators discovered primarily in soundings, and comes from Souleiman’s Layer XI (stratigraphic horizons 81-53). The 600 m<sup>2</sup> excavations that started at the top of the *tell* reached as far as Layer IX, the Ninevite V period, while the south and east soundings discovered a two-meter-thick wall preserved to over 5 m high that dates to the “Late Uruk” (LC 3-5)<sup>28</sup> period in Layer Xb (Munchaev & Amirov 2012: 96-97). The Late Chalcolithic pottery includes neckless flaring rim jars, internally beveled rims on bowls, Wide Flower Pot Bowls, four-lugged jars, and the motif of the undulating line between two bands on jars and pots (ibid.:

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<sup>28</sup> The publication makes the distinction only between “early” and “late” Uruk, but a concordance with the LC schematic (Rothman 2001) is currently impossible based on the scant material published for Kashkashok III.

Fig. 7b). It is unclear exactly what the stratigraphic distribution of these ceramics is, but they do seem to cover the LC 1 and LC 2 periods.

### **32. Tell Khazna I (36°39'40"N 40°53'43"E)**

Russian excavations from 1988-2010, under Rauf Munchaev and Shahmardan Amirov, explored the three *telul* of Khazna, which are 25 km north of Hassekeh and almost midway between Tell Khashkashok and Tell Brak. Tell Khazna II has Hassuna, Halaf, and “Uruk” occupations but is not reported to have any Ubaid or early LC remains. Tell Khazna I, though, is a 2 ha site that features occupations of the Ubaid, Late Chalcolithic, and Early Bronze periods, with little or no interruption (Munchaev & Amirov 2012: 93-94). Ceramic types include angle-necked jars, with both plain and beaded rims, often painted with simple motifs such as undulating lines or solid fields (Munchaev & Amirov 2014: Fig. 10.12).

### **33. Tell Feres al-Sharqi (36°44'31"N 41°4'5"E)**

Tell Feres is a 4 ha site reaching a height of 7 m above the plain and is located in the Upper Khabur Triangle, 8 km north of Tell Brak. The University of Paris conducted excavations, directed by Jean Daniel Forrest and Regis Vallet, on the northern slope of the mound and uncovered 800 m<sup>2</sup> of cultural material dating from the Ubaid Period to the LC 5 Period. Initial publications designated Level 9 a/b as belonging to the LC 1 Period (Forest 2009), but more recent research has placed Levels 9b-7 into the LC 1 range, identifying 9a as the latest Ubaid level, or Ubaid-LC 1 transitional (Baldi 2015).

While Baldi’s detailed study identifies a local LC 1 assemblage as the overlap of presence of types that otherwise continue from or into the Ubaid and LC 2 periods, the prevalence of Coba Bowls is perhaps the most distinctive factor of the LC 1 levels (Baldi 2015: Fig. V.19). Other LC 1 types include the plain-rim internally-incised bowl (Baldi 2012a: Pl. 8 no. 1, though a bit late in this example), deeply-corrugated shoulder decoration

(ibid.: Pl. 6 no. 4), high-necked flaring beaded-rim jars (ibid.: no. 5), the pointed cup (ibid.: Pl. 7 no. 5), and Wide Flower Pot Bowls (ibid.: no. 6). Painted motifs include the “bulging eye” (ibid.: no. 4) and simple bands and lines (ibid.: nos. 1-3). The ratio of mineral-tempered pottery to vegetal tempered is around 40% in the LC 1 levels but declines to less than 5% in the LC 2 period (Baldi 2012a: Pl. 3).

A large Level 10 building featuring both industrial (four workshops) and administrative (unbaked preform sealing clays) finds preceded another monumental construction in Level 9. Two separate structures, a red and a white building, formed a single monumental compound of 250 m<sup>2</sup>. The west side of the compound features a large fireplace, and portions of the red building underwent some passageway changes, but the building contained no finds other than potsherds. Due to the “hypostyle” type placement of the discovered postholes and the size and layout of the buildings, the excavators suggest that it may have been an administrative compound (Forest 2009).

Level 8, originally interpreted as representing the LC 1-2 transition, shows evidence of kilns that replaced the large structures of Level 9 (Forest et al. 2012: 36). Later LC levels at Tell Feres display evidence of tripartite residential architecture, a boundary wall between the commercial/industrial and residential areas, administrative activity, and substantial storage facilities (Forest et al. 2012). Thus, within the excavated space there appears to have been a progression from a well-organized and spatially-integrated administrative and industrial facility in the Late Ubaid Period to a large, seemingly non-industrial compound in the early LC 1 Period, to semi-specialized space in the late LC 1, to a fully-specialized, diverse, and fully segregated society in the LC 2 period.

#### 34. Tell Brak ([36°40'03"N 41°03'31"E](#))

Tell Brak might have one of the most important mid-5<sup>th</sup> millennium sequences of the Jezirah region, although much of it is either unexcavated (Area TW; Oates 2012: 68), unpublished (e.g., the lithic assemblages; Thomalsky 2012: 419), or disturbed (e.g., Area CH; Oates 2012: 66). Early LC levels were first discovered in Area CH soundings in the 1980s, where the excavators had originally dated the “lower leveling fill” of Levels 15-16 to the LC 1 period (Oates & Oates 1994: 170), while Levels 17-20 composed the rest of the Late Chalcolithic occupation (Oates 1987a). The given name of the strata, though, reflects the disturbed nature of the deposit. This layer includes black-on-red Sprig Ware, red-slipped ware, Coba Bowls, and hole-mouth jars (Oates & Oates 1994: 170; Oates 1987a: 194).

The disturbed nature of the Area CH early Late Chalcolithic sequence sheds light on the occurrence of what one can consider LC 1 types in LC 2 levels. For instance, in the earlier stratigraphic assessment, Level 13 (the “overlying fill”) compared well with Gawra XI (LC 2; Oates 1987a: 194-195), but contained the panel-pattern black-on-red jars and “bowls with interior criss-cross patterns” (internally-incised bowls; Oates 1986: Pl. 7) that are hallmarks of the LC 1 period, but at the same time included Wide Flower Pot Bowls (“flat-based open bowls,” which replace the earlier Coba Bowls at Brak)<sup>29</sup> and stamp-impressed ware (more typical for LC 2 levels, but also seen in late LC 1 levels). The excavators have since revised the stratigraphy, level associations, and periodization, linking former Area CH Level 14, now Level 19, with the LC 1 (Oates & Oates 1994; Oates 2012: footnote 12), and in the process have re-associated many standard LC 1 types

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<sup>29</sup> Wide Flower Pot Bowls occur in both eastern Mesopotamian LC 1 occupations such as Tepe Gawra Level XII (Tobler 1950: Fig. 260) and Tell Leilan VIb (Akkermans 1988a: 226), and further west such as Zeidan (Pl. 27 j).

with the LC 1 level. The new stratigraphy of the operation indicates a slight gap between the LC 1 and 2 occupations in CH but with a quick reclamation of the space (Oates 2012: 74, Fig. 3a) date by LC 2 types such as (evenly) double-rimmed jars (Oates 1987: 194). Other LC 1 types include what Oates calls “U-shaped bowls,” which are flint-scraped, poorly fired, and closely resemble the flint-scraped bowls of Zeidan. Painted motifs seen in CH are diamonds in-filled with dots (*ibid.*: Fig. 3.4), bulging eye (*ibid.*: Fig. 2), and undulating bands (*ibid.*: Fig. 3.15).

Matthews’ work in Area HS, Operation 6, has provided an alternative stratigraphic sequence for the mid-late 5<sup>th</sup> millennium, although chronological problems persist, and the excavated area in Levels 7-9 was just 2 x 2 m. Level 9, the earliest reached, features mostly mineral tempering and contains at least one Coba Bowl. Level 8 has a slight increase in vegetal tempering, but also includes stamp-impressed ware (Matthews 2003: Fig. 3.12). Carinated bowls also appear in Level 8. Bowls with interior ledge rims (internally beveled rims), common to the late LC 1 and LC 2 periods, occur in HS6 levels 9-6 (*ibid.*: Fig. 3.12: nos. 3, 9). Level 6 features Coba Bowls along with Sprig Ware and interior-incised bowls (*ibid.*: Fig. 3.13). Matthews notes that painted pottery ceases to appear after Level 7 (*ibid.*: 28), with the exception of Sprig Ware in Level 6. Thus, it seems that the entire sequence of HS6 is demonstrative of the challenges involved in producing a mid-5<sup>th</sup> millennium relative chronology—the standard forms of three different periods (Ubaid, LC, and LC 2) appear alongside one another.

Excavation of Level 8 yielded a radiocarbon date of 5285±60 BP (4311-3975 BC cal.; Matthews 2003: 26). Level 6 has two radiocarbon dates: 5250±50 BP (4232-3970 BC cal.) and 5235±60 BP (4236-3956 BC cal.; *ibid.*: 28). These dates suggest that Level 9 almost certainly predates the LC 2 time period, and that both Level 8 and Level 6 could to

date to either the LC 1 or LC 2 period, with the former likely dating to the late LC 1 and the latter to the early LC 2. Overall, this small, contextually undefined operation in Area HS seems to reach the LC 1 period but the periodological boundaries are not entirely clear.

Despite the stratigraphic, ceramic, and chronological uncertainties raised by the as-of-yet published Brak sequences, what they do impart is that Sprig Ware, which is clearly anchored to the LC 1 period at eastern piedmont sites such as Tepe Gawra (Tobler 1950: 147), overlaps chronologically with both internally-incised bowls and the black-on-red “panel pattern” painted motif. This links the western sites of the Balikh with these types to the LC 1 period as it is defined at Tepe Gawra Level XII, and is thusly crucial for understanding both approximate equivalencies across culturally distinct regions within Upper Mesopotamia and how macro-regional interaction persisted but changed in nature after the Ubaid period.

### **35. Tell Leilan (36°57'26"N 41°30'19"E)**

The step trench (Operation 1) at Tell Leilan, a large multi-period site located near Qamishli in the Syrian Jazireh, provides a well-documented ceramic and chronological sequence for Upper Mesopotamia. The 6<sup>th</sup> and 5<sup>th</sup> millennia strata are grouped, largely according to pottery types and their frequency, into Periods VI and V. These roughly represent the Ubaid-related and Late Chalcolithic periods.

In the ceramic analysis, painted pottery makes up 43% of the assemblage in Period VI but drops to 6% in Period V. Though there are other markers of dissimilarity, this is the most apparent difference between the material culture of the two periods (Schwartz 1988: 55; Mazzoni 1999: 106-110). The ceramic assemblages of both periods feature chaff-tempered vessels and include types such as hammerhead-rim bowls and inverted, beaded-rim jars (Schwartz 1988: 55-58).

Period VI is further subdivided into VIa and VIb, and the distinctions include changes such as the movement of the painted undulating band from bowls to the necks of tall-necked jars (ibid.: 59-60). Certain painted motifs such as chains, ‘bands of crosses between horizontal lines,’ and ‘lozenges interspersed with horizontal lines’ (Tomita’s “panel pattern”) occur only at the end of sub-period VIb, in Stratum 52a (ibid.: 57 & Fig. 62 nos. 7-8). It is this stratum in particular that best fits into the LC 1 ceramic milieu (cf. Matthews 2003), though the ‘straw tempered bowls with pinched rims and scraped bottoms’ (i.e., a Coba bowl Variant, similar to the Beaded-Lip Bottom-Scraped Bowl or possibly Baldi’s Type I; Baldi 2015: 463) begin to appear earlier in Period VIb, and straw-tempered wares begin in Stratum 60, Period VIa.

Stratum 58, Period VIa, provides a radiometric date range of 5673-5640 BC cal., while Stratum 44, Period IV dates to 3685-3136 BC cal. (Schwartz 1988: Table 3).<sup>30</sup> Unfortunately, no <sup>14</sup>C dates come from any strata in between, and so only relative dating of the mid-late 5<sup>th</sup> millennium strata is possible to place the Tell Leilan material in time. The painted motif of ‘lozenges between bands’ (ibid.: Fig. 62 nos. 7 & 8) is similar to the ‘panel pattern’ (‘bowtie’ motif) that Tomita has associated specifically with the LC 1 Period (1998: 200 & Fig. 84), having been excavated from Gawra Level XII (Tobler 1950: Pl. CXXXVI no. 278). The “checkerboard design” motif occurs across Strata 56-53 (Schwartz 1988: Fig. 64 no. 2) and also appears in Gawra Level XII (Tobler 1950: Pl. CXXXVII no. 276; Schwartz 1988: 77 Table 16). Thus, we can positively identify Stratum 52a as an LC 1 occupation, and think of the strata immediately preceding it (56-53) as

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<sup>30</sup> Recalibrated using OxCal Version 4.2 IntCal 09 Curve.

belonging to the Ubaid-LC horizon. An interesting painted and incised sherd also comes from Stratum 52a (Schwartz 1988: 77 Table 16).

The nature of the LC 1 occupation, beyond pottery, at Tell Leilan is difficult to characterize due largely to its limited exposure. All of the excavated material from the 5<sup>th</sup> millennium comes from Operation 1, and so the only context from Stratum 52a is the large pit that provided all of the potsherds for analysis. What we do know is that the rate of change in pottery types between VIb and V is greater than between most other periods at Leilan (Schwartz 1988: 164), suggesting a considerable break of some kind. Else wise, that a large refuse pit replaced architectural contexts only indicates a break in the architectural sequence of those exact loci and cannot characterize the LC 1 occupation in general.

### **36. Tell Hamoukar (36°48'43"N 41°57'19"E)**

Excavated by the Oriental Institute of the University of Chicago, from 1999 until 2003 under the direction of McGuire Gibson and from 2005 until 2010 under the direction of Clemens Reichel and Salam al-Quntar, Hamoukar is located in the Jezirah region of northeastern Syria in between the Upper Khabur and Middle Tigris drainage basins. The ca. 30 ha main and high mounds are skirted to the south by the sprawling, ca. 300 ha expanse of early Late Chalcolithic occupation called Khirbat al-Fakhar (THS site no. 25), that primarily dates to the mid-late 5<sup>th</sup> millennium (Al-Quntar, Khalidi, & Ur 2011; Ur 2010a; Wilkinson 2002; Al-Quntar & Abu Janyab 2014; Gibson et al. 2002).<sup>31</sup>

The earliest level reached at Khirbat al-Fakhar was Level 4 in a 2 x 2.5 m sounding within Area ZD3/4 and the excavators date it to the LC 1 Period (Abu Janyab 2012). 18.6% of all sherds (27.5% of all diagnostics) from this level are decorated (ibid.). The more

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<sup>31</sup> Though excavations of Khirbat al-Fakhar also produced evidence for smaller Halaf- and Ubaid-period occupations (Al-Quntar, Khalidi, & Ur 2011).

widely exposed, upper levels of Khirbat al-Fakhar have a date range of 4400-3800 and the excavators characterize them as belonging to the LC 1-2 horizon (Al-Quntar, Khalidi, & Ur 2011).

The pottery from the small exposure of Level 4 includes five main types that dominate the assemblage: Wide Flower Pot Bowl, hole-mouth jars (with slightly beaded rims), flaring rim jars, simple rim bowls, and inverted-rim globular bowls (Abu Jayyab 2012: 2, Fig. 1). Other discovered types include grey ware beaded-rim bowls, U-shaped pots (occasionally decorated in the Sprig Ware motif), inwardly beveled rim bowls (hard fired, green, and with scraped bottoms), fine-ware carinated bowls, double-mouth jars, and sinuous sided bowls (*ibid.*: 3, Figs. 1-2).

Level 3 ceramic types include U-shaped pots, double-mouthed jars, even-rim double-rimmed jars,<sup>32</sup> and simple-rimmed hole-mouthed jars,<sup>33</sup> suggesting an LC 1-2 date (Al-Quntar, Khalidi, & Ur 2011: 157-8), or an early LC 2 date (Abu Jayyab 2012).<sup>34</sup> Level 2, featuring beaded-rim hole-mouthed jars, uneven-rim double-rimmed jars, and blister ware, would then date to the later LC 2 Period (Al-Quntar, Khalidi, & Ur 2011: 157-8).

The excavators have posited that the large occupation area represents either a seasonal habitation, or a sedentary population trading with a semi-transhumant population (Al-Quntar, Khalidi, & Ur 2011). THS site 26 can also be dated to the LC 1 period (Ur 2010a: 96) and represents another spatial component of Khirbat al-Fakhar (*ibid.*: 186). The

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<sup>32</sup> The variant of the double-rimmed jar with an even level between the two rims is reported to occur more commonly in the earlier Level 3 than the uneven-rimmed version common to Area ZD3/4 Levels 2-1 (Al-Quntar, Khalidi, & Ur 2011: 157; Abu Jayyab 2012: 9).

<sup>33</sup> The beaded-rim hole-mouthed jars occur more commonly in Area ZD3/4 Levels 2-1 (Al-Quntar, Khalidi, & Ur 2011: 157), further corroborating the theory that this rim morphology is chronologically significant for the LC 1-2 transition.

<sup>34</sup> Abu Jayyab does note that “there does not seem to be too much change in terms of the forms from phase 4 to phase 3, where the four main types of phase 4 continue into phase 3; the simple rim bowl (n=104, 5%), flaring rim jars (n=60, 3%), globular inverted bowls (n=42, 2%), and hole mouth jars (n=59, 2.9%);” however, he also notes that neither do the forms change very much from phase 3 to 2 (2012: 9-10).

Level 3 occupation features a large industrial complex in Area ZD3/4 (Trench ID) but unsubstantial architectural remains in Levels 2 and 1 (ibid.).

**37. al-Maisha (36°50'14"N 41°59'31E)**

Locally known as al-Maisha, Tell Hamoukar Survey site. no. 17 is a 2 ha site that dates to THS Period 4 (LC 1-2), but the ceramic assemblage demonstrates an LC 1 occupation with motifs such as Sprig Ware and the panel/bowtie pattern (Ur 2010a: 180 & Fig. C.6).

Eastern Jezirah/Sinjar Plain

**38. Tell el-Hawa (36°44'49"N 42°18'2"E)**

Tell al-Hawa is a large, multi-period site in the Iraqi Jezirah that was excavated by the British School of Archaeology in Iraq from 1986-1988 under the direction of Warwick Ball (Ball 1990a; 1990b). Based on surface collection of ceramic sherds the site was occupied in both the Ubaid period and the "Earlier Uruk" period, boasting a relatively massive 18 ha settlement size during the former. Although the excavations did not reach Ubaid occupation levels, excavations in Area D produced Ubaid pottery, providing at least minimal ground confirmation of an Ubaid occupation (Ball 1990b: 12 & Fig. 3).

The survey assemblage includes standard northern-Ubaid dark-on-buff painted motifs such as window panes and chevrons, and many types such as the beaded-rim hole-mouth jars, carinated round-bottom bowls, and beveled-rim bowls indicate an LC 2-3 occupation (Ball et al. 1989: Figs. 17-20; see also Lloyd 1938: 136). But the pottery also features motifs that typically extend into the LC 1 period such as the undulating line between bands beneath the rim (ibid: Fig. 17 nos. 4-21). Furthermore, amongst the survey

collection labeled by the excavators as “Northern Uruk”<sup>35</sup> is Sprig Ware (ibid.: Fig. 18 nos. 5-8), a Wide Flower Pot Bowl (ibid.: Fig. 19 no. 3), and an internally-beveled rim bowl with thick painted band (ibid.: Fig. 20 no. 7) appear. These types, without stratigraphic confirmation, do not guarantee a continual occupation between the Ubaid and the LC 2 periods, but they do indicate a likely LC 1 presence at the site.

### **39. Khanijdal East (36°40'46"N 42°17'16"E)**

Khanijdal East is site no. 66 in the North Jazireh Survey and a 1 ha settlement, subordinate during the Ubaid period to the much larger site of Tell al-Hawa. The excavators associated the absence of Sprig Ware with a Late Ubaid terminus (Wilkinson et al. 1996: 44). However, we now know that Sprig Ware had, in addition to a limited temporal distribution, a select spatial distribution; i.e., even within the Jezirah, where it was manufactured (Rothman & Blackman 2003), it is noticeably absent at several sites occupied during the LC 1-2 Periods and especially smaller settlements (e.g., Tell Feres; Forest & Vallet 2008).

Other types that help situate Khanijdal East in time include open bowl forms similar to Coba Bowls and Wide Flower Pot bowls (Wilkinson et al. 1996: Fig. 8: nos. 24-26), everted-rim pots (ibid.: Figs. 9-10 nos. 46-48), double-mouthed jars (ibid.: Fig. 10 no. 50), and corrugated jars (ibid.: Fig. 10 no. 57). LC 1 painted motifs discovered include the undulating line between two bands under the rim. These types and motifs occurred in cultural deposits of the latest strata at the site (Level 3 and late Level 2) in Areas B, D, and E. Furthermore, the recovery of “micaceous sandy wares” (3% of the assemblage) suggests

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<sup>35</sup> “Northern Uruk” is now considered a misnomer for the Late Chalcolithic period in northern Mesopotamia; see Chapter 1.

an LC 1 *terminus ante quem*, as Wilkinson reports that this tempering is not known in the Jezirah prior to the appearance of Sprig Ware (ibid.: 1996: 44).

Small finds include an abundance of spindle whorls, of which the majority were decorated (ibid.: 39), paralleling Tepe Gawra Level XII (Tobler 1950: 168 & Pl. LXXXV), sling pellets (Wilkinson et al. 1996: Fig. 14 nos. 1-4), and the fragment of a baked clay muller with a rounded, plain terminal (Wilkinson et al. 1996: Fig. 13 no. 14). Faunal analysis has demonstrated a prevalence for domesticated species but only 25% sheep/goat, while cattle and pig each make up around 35% (ibid.: 43).

#### **40. Grai Resh (36°19'7"N 41°55'7"E)**

The 32 ha site of Grai Resh is just south of the Jebel Sinjar in northern Iraq. Originally excavated by Seton Lloyd briefly in the 1930s, a French team from CNRS and the University of Paris 1 conducted a survey season and two excavation seasons there from 2001-2003. Lloyd had discovered a sequence from the Ubaid period to the Ninevite V period (Lloyd 1938: 140), and the recent archaeological work has reached the early LC 2 period (Kempinski 2011: 29-30, 49), or possibly the late LC 1. These excavations produced an assemblage that features LC 2 types such as flange-rim pots (ibid.: Pl. 15 no. 17), beaded-lip (or even banded-lip) hole-mouth pots (ibid.: no. 4), and bowls with internally-beveled rims (ibid.: Pl. 14 nos. 1-4). However, the prevalence of necked, flaring rim jars (with a variety of rim sub-types; ibid.: Pl. 10 nos. 1-16), simple-rim bowls, bowls with sharply-incurved walls (ibid.: Pl. 4 nos. 27-29), and globular bowls/pots (ibid.: no. 25) also relates the assemblage to the LC 1 period.

Broken down stratigraphically, Levels VI-I produced “pottery of the Uruk period proper,” including red-slipped ware and Uruk straw-tempered grey ware, as well as eye idols. Levels IX-VI, however, feature Coba Bowls, some with beaded (or pinched) rims,

as in Leilan VIb, Hammam IVD-VA, Zeidan LC 1a-d, etc. (Abu al-Soof 1975: 21). One painted and incised sherd comes from these levels as well (Lloyd 1940: Fig. 5 no. 34), similarly to Leilan Stratum 52a (Schwartz 1988: 77 Table 16).

The French expedition provides a date range of 4250-3600 BC, calculated according to the stratigraphic analysis, but the actual 2-sigma calibration ranges are from 4330-3510 BC (Kempinski 2011: 31, Figs. 5-8). While Ubaid-like dark-on-buff painted sherds (some with chaff tempering) turned up in modern levelling pits during the surface survey (*ibid.*: 30, Fig. 3), the French expedition did not reach a level that produced Ubaid pottery (*ibid.*: 31), and the LC 2 period seems to have persisted through 4.5 m of continual occupation (*ibid.*: Fig. 9).<sup>36</sup> Thus, while the LC 1 period seems to be attested at Grai Resh, likely in the levels preceding IV, the recent and more illuminating archaeological work there has not produced any new information on that particular time.

### **Mullah Barut**

Mullah Barut is a mounded site almost due south of Grai Resh by about 8 km. It is reported by Seton Lloyd to have pottery from the Ubaid and Early Uruk periods, including his Group V which, though unillustrated, purportedly corresponds to Gawra Level XII (Lloyd 1938: 140). It is a good candidate to have an LC 1 level, but with no excavated materials and no illustrated LC 1 types, it remains uncertain.

### **41. Tell Shelgiyya**

Shelgiyya is a 4-5 ha site with a 1 ha, 22 m-tall main mound located at the top of the Mosul Dam. The British Archaeological Expedition to Iraq excavated the site in 1986,

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<sup>36</sup> Level IV, only discovered in a 5 x 5 m test trench, features a slightly higher percentage of buff ware, as well as mixed and mineral tempering (Kempinski 2011: 40), but no Coba Bowls. The overall assemblage, which includes internally beveled-rim bowls, hollowed-neck jars, beaded-lip hole mouth jars, and carinated goblets (*ibid.*: Pl. 15) does appear to look closer to the LC 2 period. The sub-adult pit burial found there contained beads made of lapis lazuli, carnelian, and gold (*ibid.*: Fig. 11).

followed by the University of Edinburgh later in 1986 and the Iraq Department of Antiquities in 1987 and 1988.

The main purpose of the British excavations was to uncover Sprig Ware *in situ*, and although they found 4,600 diagnostic potsherds<sup>37</sup> and opened five trenches in search of it, only one 2 x 2 m trench (PS) in Area C, far from the main mound, produced stratified evidence for it (Ball 1997: 93-95). However, the amounts found and the amount of slag, wasters, and over-fired sherds (ibid.: 95) indicate the specialized production of it on site.

The excavations did not produce earlier Ubaid (or Halaf) pottery, and though using the nomenclature of the time they designated the earliest ceramics as “Early Uruk,” Shelgiyya is clearly an LC 1 site (Oates 2012). Neckless flaring rim jars, plain-rim hole-mouth pots, uneven double-rimmed jars, and incurved-rim bowls are included among the forms of Sprig Ware (Ball 1997: 96, Figs. 3-4). The medium-ware fabric is sandy grit-tempered, sometimes in red and sometimes in buff, occasionally with a gray core (ibid.: 96). Since no chaff-faced wares are present in the assemblage of Shelgiyya (ibid.: 96), it is datable to the LC 1 period in particular (rather than the LC 2 period).

### **Shaikh Humsi Cemetery**

Sprig Ware is evident from the surface collection (Ball 1997: 96-99), though lack of excavated remains prevents a definitive understanding of the chronology.

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<sup>37</sup> Ball includes other Ubaid-like, line-painted pottery within the category of Sprig Ware, including crosshatched diamond and checkerboard motifs (e.g., 1997: Figs. 3-4).

## A.X. Middle Khabur

### **42. Tell Zaghan (36°32'57N 40°45'6"E)**

Excavated by AUB and the IFEAD (Khabur Village Project) in 1986 and 1987, this 0.65 ha village is located near the confluence of the Jaghjagh and the Khabur rivers, just east of the modern town of Hassekeh and is reported to have Ubaid and "Gawra" occupations within an ancient sequence that spans from the Samara to Neo-Assyrian periods (Anastasio et al. 2004: 344; Weiss 1991; Seeden & Wilson 1989).

The limitations of the excavations combined with the scarce publication of the results prevents a full assessment of the mid-5<sup>th</sup> millennium levels. The rare appearance of Ubaid-like ceramics (Seeden & Wilson 1989: Fig. 7 no. 23) plus the common occurrence of chaff-tempered, coarse-ware bowls (ibid.: Fig. 7 nos. 28-31) indicate the likelihood of an LC 1 occupation, however.

### **43. Tell Mulla Matar (36°27'2"N 40°49'59"E)**

At the northern end of the Middle Khabur Reservoir area is Mulla Matar, where the step trench shows occupation levels dating from the Halaf and Ubaid periods into the Late Chalcolithic and then 3<sup>rd</sup> millennium remains (Monchambert 1984). The Ubaid-like, dark-on-light painted pottery is generally fairly chaffy, featuring crosshatched triangles, wavy bands, swoops, and other simple designs (Sürenhagen 1990: Abb. 6); the Late Chalcolithic pottery continues the vegetal tempering and limited painted design but includes flint-scraped bowls, sometimes of the beaded-lip variety (ibid.: Abb. 8).

### **44. Tell Kuran (36°35'45"N 40°24'33"E)**

Tell Kuran, located on the right bank of the Khabur River, is a small, .25 ha site with a height of 7 m whose occupation dates to the Late Ubaid and Late Chalcolithic periods (Weiss 1991: 688). Kuran E includes southern Uruk ceramic types such as

Beveled-Rim Bowls and spouted jugs (Hole 1994), and Kuran D features LC 1 regional types such as bowls with incurved-walls with interior ledge rims (Tomita 1998a). A niched-and-buttressed mudbrick wall dates to the Late Ubaid period (Weiss 1991: 688 Fig. 4), but little other information is available, as the publication of Tell Kuran is limited to brief summary reports.

#### **45. Tell Ziyadeh (36°24'40"N 40°50'38"E)**

Initial archaeological work at Tell Ziyadeh, located downstream of Hassekeh, Syria, on the Khabur River, was undertaken by the International Institute of Mesopotamian Area Studies and overseen by Giorgio Buccellati from 1988 to 1990, exploring the Halaf-Ubaid transitional, Ubaid (“LNU”—late northern Ubaid), “post-‘Ubaid,” and 3<sup>rd</sup> millennium BC levels (Buccellati et al 1991). Yale University began excavations in 1996, uncovering a significant amount of “post-‘Ubaid” occupational remains—as much as 5.5 m of deposition (Hole 2000: 611). The stratigraphy and occupation history exposed by Operations A and J indicate a break between the “LNU” levels and the “post-‘Ubaid” buildings, and these correspond to a change in the nature of the painted styles that Hole attributes to a possible temporal gap (Hole 2000: 611).

Phase III Levels 13 and 14 dates to the LC 1 period according to the excavators (Arzt 2001), while Baldi places 13-14 in the Ubaid-LC 1 range (contemporary with Feres 9B-9A and Hammam IVC-D) and includes the subsequent Levels 15 and 16 in the LC 1 occupation as well, associating them with Feres 8-7 and Hammam VA (2015: 1090). The summed calibrated radiocarbon dates of the “early post-‘Ubaid” occupation (loci X009, X012, & X019) are 4500-4250 (with a combined range of 4480-4330) BC cal. (Wright & Rupley 2001: 98), indicating a date in the middle of the LC 1 period (see Table 1). Dates from later in the sequence (between Buildings 4 and 3, later than X030) produce a range

of 4362-4356 BC cal., while the latest Ubaid-period date is ca. 4710 BC cal. (Hole 2000: 612-613), suggesting either a long LC 1 occupation or the Ubaid-LC 1 break that Hole has posited.

Ceramically, “the painted Ubaid changed gradually into a non-painted assemblage” between the Ubaid and LC levels (Hole et al. 1998: 61), while rapidly-made bowls such as Wide Flower Pot Bowls (Arzt 2001) and flint-scraped Coba Bowls (Hole 2000: 611) appear from Level 13 forward. Internally-incised bowls and red ware apparently appear only in the later “post-‘Ubaid” levels (after midden deposit X030; *ibid.*: 612). Based on the radiocarbon data and known comparanda, it appears that these types entered the Ziyadeh assemblage in the middle-late LC 1 period.

Remains of LC 1 architecture at Ziyadeh primarily come from Operations J and X, with some domestic remains from Operation A and Operation C producing nothing from this period. Operation A shows that the Late Chalcolithic architecture had been terraced into the side of an existing Ubaid mound surface. That Operation C produced no remains dated to later than the Ubaid period (Hole et al. 1998) suggests contraction and/or shift in occupation at Ziyadeh before or during the LC 1 period. Hole notes a difference between the trapezoidal nature of the architecture of the early LC 1 period (Buildings 7 and 5) and the earlier Ubaid period, before a broadly scattered layer of greenish-gray ash and then a series of large casemate constructions took their place (Buildings 4-1; Hole 2000: 612).

In terms of the animal economy, even though there is continued use of a hunting/herding combination, there is a shift in the faunal assemblage evident between the Ubaid and LC 1 levels. By the latter, 65% come from domesticated animals (domesticated caprines makeup half of the remains, and cattle 20%; Hole 2000: 612).

#### **46. Tell Umm Qseir (36°24'32"N 40°50'56"E)**

Located in the flood plain of the Middle Khabur River, across and southeast from Tell Ziyadeh (Akahane 1998), occupation at Tell Umm Qseir dates from the Middle-Late Halaf period (Miyake 1998: 19) to the Middle Uruk period, including a level with pottery comparable to that of the “Early Uruk” in southern Mesopotamia (Tsuneki 1998a: 25).

Tomita dates the earliest Late Chalcolithic level at Umm Qseir to the LC 2 period based largely on comparisons with the “upper leveling fill” of Area CH at Tell Brak (1998a: 198). However, the confused and re-examined stratigraphy of that sequence (Oates 2012: footnote 12; see also “Tell Brak,” here) supports a reconsideration of the relative chronology of Umm Qseir. Ceramic types from Phase 2 such as internally-incised bowls (ibid.: Fig. 63 no. 7), Sprig Ware (ibid.: Fig. 64 no. 7), and Coba Bowls (ibid.: Fig. 64 no. 10), indicate an LC 1 date. Also, round-walled, shallow bowls with interior ledge rim in grayish ware (Tomita 1998a: Fig. 63 no. 5) appear at Brak HS 6 Levels 9-6 (Matthews 2003: Fig. 3: 12, nos. 3, 9), Yenice Yani YY5 (Bernbeck & Costello 2005: Fig. 8 a-c), and in the Kenan Tepe “Ubaid” Burnt House (Parker et al. 2006). Other forms such as the beaded-lip hole mouth jars (Tomita 1988a: Fig. 64 no. 8) and uneven-rimmed channel-rim jars (ibid.: Fig. 64 no. 1) indicate that there was an LC 2 occupation as well.

Excavation of the Late Chalcolithic level at Umm Qseir produced evidence primarily for seven pits, interpreted as storage units (including a “silo”) and clay quarries (Tsuneki 1998b: 123). The following layer was inundated by the flooding of the Khabur and dates to the “Middle Uruk,” or LC 3, period (Tsuneki 1998a: 25).

#### **47. Tell Mashnaqa (36°17'27"N 40°47'34"E)**

Tell Mashnaqa was located at the south end of the Middle Khabur Reservoir area, and is now submerged. The site was excavated both by French teams (Monchambert 1984;

Beyer 1996) and by Danish (Theusen 2000), demonstrating an occupation sequence from the Ubaid period to the Late Uruk period.

The percentage of the ceramic assemblage displaying painted surface treatment is 36% in Stratum II and declines to 7% in Stratum V (Theusen 2000: Figs. 2-3). Theusen has suggested that Strata IV-VI, “covering the second half of the 5th millennium BC,” represent the Terminal Ubaid Period (ibid.: 76). The French excavations identified one tripartite structure from these strata, Building 1536, and Beyer has suggested a “post-Ubaid” Gawra XII date for it (1996: 57, Photo 3), while Thuesen relates Strata IV-VI with Hammam IVC-D and Leilan 52a-57 (2000: 75). The continuous occupation of the site following the Ubaid levels (Strata I-III) and the steep decline in painted pottery indicate a likely LC 1 occupation at some point within Levels IV-VI, but the stratigraphic gap between III and IV, and lack of published attention to these levels, makes precisely demarcating the LC 1 uncertain.

#### A.XI. Middle Tigris Piedmont<sup>38</sup>

##### **48. Khirbet Derak (~36°38'6"N 42°57'33"E)**

Khirbet Derak, Saddam/Eski Mosul Dam Salvage Project site no. 2, is located at the southern end of the dam, near the villages of Kharkhosh and Ronak. CNRS performed salvage excavations at the site for two seasons under the direction of Jean-Daniel Forest, though mound erosion deprived the expedition of architectural discoveries (Forest 1987: 82-83). The ceramics include Halaf sherds and “painted designs reminiscent of ‘Ubaid

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<sup>38</sup> Other sites to consider in the region, for which published material is generally unavailable, are Tell Mushrifa, and Tell Karrana 1; as such, these sites will be omitted here. The possible Sprig Ware suggested for Abu Dhalhir is promising.

pottery” (N.A. 1985: 230). The glyptic art features both geometric and “naturalistic designs” (ibid.).

A reexamination of the ceramics suggests that the site was occupied into the Late Chalcolithic period. Catherine Bréniquet has published a selection of the pottery profiles from Khirbet Derak, correctly identifying a link to the Tepe Gawra sequence, though incorrectly associating Gawra Level XII-A with the Ubaid 3 period and Level XII as “*postérieure à ‘Obeid 3’*” (but earlier than Ubaid 4; 1996: 52). Double-mouthed jars, Sprig Ware, and the ‘panel pattern’ painted motif (Bréniquet 1996: Pls. 23-27; Forest 1987: Fig. 2 rows 4-5), plus chaff-tempered painted ware (ibid.: Fig. 2 row 5), all fit within the LC 1 repertoire for this region.

The seal impressions, also published by Breniquet, mainly feature geometric motifs but also include gazelles (Bréniquet 1996: Pl. 210) and “shamanistic” human figures (ibid.: Pl. 62 nos. 8-9), similar to those discovered in Tepe Gawra Levels XIII-XII (Tobler 1950).

#### **49. Telul eth-Thalathat (36°34’N 42°32’E)**

Telul eth-Thalathat, excavated by the University of Tokyo in the 1950s, 60s, and in 1976, consists of four *telul*, is located 50-60 km west of Mosul in northern Iraq, and dates from the Ubaid to the Uruk periods with a later Middle Assyrian level. Tell no. II, the smallest at approximately 0.6 ha, has been the most extensively excavated. Level XVI rests on virgin soil and features mostly unpainted pottery (Egami et al. 1966: 5), while the excavators dated XIV-XII to the Ubaid period (Fukai et al. 1970: 5). Levels VII-IV feature LC 1-2 types alongside painted motifs typical of the Late Ubaid and LC 1 periods. These types include a double-mouthed jar (Egami et al. 1958: Fig. 34 no. 5), corrugated jars (Nishiaki 2000: Pl. 43.2), U-shaped bowls (Egami et al. 1958: Fig. 52 no. 5), and flint-scraped Coba Bowls (ibid.: Fig. 53 no. 6). Ribbed and incised (deeply corrugated) jars,

Akkermans has pointed out (1988c: 121), appear in IX and VIIb (Egami 1959: Fig. 53 no. 3 & 54 no. 10) and also in Gawra XIII (Tobler 1950: Pl. CXXXI nos. 217-218).

Painted motifs such as the undulating line between bands under the rim and bowties alternating with vertical lines also occur in Level VIIb (Egami et al. 1958: Fig. 54 no. 1). The ‘cross motif,’ seen in Leilan VIb (Schwartz 1988: Fig. 62 nos. 6, 9), appears in Level IV (Egami 1959: 106, Figs. 36, 25), and the ‘panel pattern’ motif also appears in Level IV (ibid.: Fig. 35). Sprig Ware is attested from Level Xb to Level IVb (Egami et al. 1958: Fig. 20), indicating a long life for this motif at Telul eth-Thalathat, as well as a lengthy LC 1 occupation.

Layer IVc provides a glimpse of Late Chalcolithic mortuary practice in the form of a “side-walled grave” (Egami 1959: 193, Fig. 67), which parallels some of the burials from Kashkashok II (Matsustani 1991; Nishiaki 1990) and one from Salat Tepe (Koizumi 2014). Sling pellets are attested as well (Fukai et al.: 78-79 & Pl. LX no. 1).

### **50. Tepe Gawra ([36°29'45"N 43°15'37"E](#))**

Austin Henry Layard first broke ground at Tepe Gawra in the mid 19<sup>th</sup> century, digging test pits as an offshoot of his work at Nineveh, and the University of Pennsylvania undertook full excavations under the direction of Ephraim Speiser in 1927 and 1931-32. They discovered arguably the best archaeological sequence for Chalcolithic northern Mesopotamia, exposing broad architectural levels that each house a wide variety of *in situ* artifacts, in nearly continuous succession from the Halaf period to the LC 3 and beyond.<sup>39</sup> Thus, it has been a key site for addressing issues such as relative chronology, development

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<sup>39</sup> Level VIII-A has been compared to the beginning of the Early Dynastic period in southern Mesopotamia (Oates & Oates 1976: 129).

of social complexity, and economic relations, despite the stratigraphic and provenience problems that have loomed (Rothman 2002).

Stratum (now commonly referred to as “Level”) XII has long been considered a “transitional stage between ‘Ubaid and Uruk periods” (Abu al-Soof 1974: 3),<sup>40</sup> and in the 1980s Moorey mentioned of Level XII that it is “placed by some at the end of the northern ‘Ubaid period, though it may be later” (1982: 19), somewhat preempting the Santa Fe Late Chalcolithic chronology (Rothman ed. 2001). Gawra XII is now typically seen as a definitive LC 1 level, contemporary with late Hammam IVD and Leilan VIb, due to several distinguishing factors. Mitchell Rothman, among others, has considered, reevaluated, and published the LC Tepe Gawra material thoroughly enough over the past two decades (1995; 2001; 2002; 2004; 2009) that extensive data need not be provided here. However, a review of the chronological indicators and highlights relevant to the topic of LC 1 socio-political dynamics is useful.

Level XII has a recalibrated radiocarbon date of 4550±150 BC (Rothman 2002).<sup>41</sup> The pottery of Levels XIIA and XII generally features a continuation of Ubaid-style painted motifs, “though in shapes and patterns very different from... the preceding ‘Ubaid and Halaf styles” (Oates & Oates 1976: 129). These include Sprig Ware, an abstracted vegetal motif distinctively applied to globular bowls and U-shaped pots and all of whose

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<sup>40</sup> Though, as a reference point for how far Late Chalcolithic studies have advanced in the past thirty years, Joan Oates once commented that “the precise attribution of Gawra XII within the Mesopotamian sequence is a matter for debate” (1983: 262). Not that the matter is fully fixed, as XII can still be attributed to the Ubaid period while Level XIII is occasionally dated to the LC 1 (e.g., Hole 2010: 234). In my view, XIII is roughly equivalent to early Hammam IVC (Zeidan Ubaid-LC 1), XIIA to late Hammam IVC (Zeidan LC 1a), XII to Hammam IVD-VA (Zeidan LC b-c), and XIA/B to late Hammam VA (LC 1d or LC 1-2).

<sup>41</sup> Rothman has also given 4300 BC as an approximate date for Level XII (2004: 86), though Aurenche & Hours (1987) had previously given the wider, but higher, range of 4685±235 BC cal., and Lawn shows a range of 4794 – 4463 BC cal. (1973: 371-372). Thus a working date of ca. 4550 seems reasonable and accurate, dating to the time of Zeidan LC 1b.

examples come from Level XII and XIIA save for one sherd from XIII (Tobler 1950: 142) that is likely out of place (Ball 1997: 99).

Stratigraphically, Level XII immediately succeeds XIIA, which seems to be a partial re-occupation of the site after the abandonment of Level XIII at the end of the Ubaid period. Many ceramics styles (such as Sprig Ware) are shared between them and so these two levels, though the earlier is meagerly occupied compared to the later, are a continuous occupation according to Tobler (1950: 25), but distinct according to Rothman (2002). Because of the fairly clear stratification and substantial architectural exposure of these levels relative to the rest of excavated material LC 1 Upper Mesopotamia, the pottery from XIIA and XII form the basis for comparison, especially for northeastern Mesopotamia.

Ceramic comparanda cover a wide geographical area, cross-cutting the Tigridian and Euphratian boundaries, tying the Gawra sequence into points westward (Hammam et-Turkman, Coba Höyük) and southward (e.g., Nuzi; see Schwartz 1988: Table 16 ff.). Types such as short-necked globular vessels with round-bases (Tobler 1950: 149), double-mouthed jars (ibid.: 1950: 153), combed (or corrugated) flaring-neck jars (ibid.: Pl. CXXXVIII nos. 300, 302), and painted motifs such as the panel pattern/bowtie motif (ibid.: Pls. CXXXV no. 262, CXXXVI no. 278, CXXXVIII no. 296), the checkerboard (ibid.: Pl. CXXXVII no. 286), and Sprig Ware all characterize the LC 1 period at Tepe Gawra. Although most of the pottery collected and saved by the excavations was either painted or whole, Rothman was able to show, in a re-evaluation of the whole vessels, that 88% were not painted (Rothman 2002: 55). Though stamped and impressed ware is more typical of the LC 2 period (Trufelli 1997: 13), stamp-decorated and appliqué beakers start to appear in XII (e.g., Tobler 1950: Pl. LXXIX a-d). Gray ware, seen in types such as the high-walled

carinated bowls, is another style that is abundant in LC 2 levels but is present in Level XII (e.g., *ibid.*: Pl. CXLII 343-344).

Other indicators of the LC 1 period at Gawra Level XII include the major changes apparent beginning in Level XIII in administrative material culture (e.g., the focus on figural motifs; *ibid.*: 182), pottery manufacture (e.g., the occurrence of ring bases; see Akkermans 1988: 128), textile production (e.g., the decoration of spindlewhorls; Tobler 1950: 168), architecture and town layout (e.g., the shift back to tripartite residences; Rothman 2002), etc. Figurines are an important component of the Ubaid material culture, and while the abundant animal figurines from Tepe Gawra Level XIII appear to have been crudely made, the ones from Level XII are seemingly of a higher quality (Tobler 1950: 166 & Figs. 18-19).

The main structural features of Level XII, as Rothman interprets them, include a central storehouse, a processing and/or exchange center, and tripartite, “extended family” houses (2004: 86). One house was considerably larger and richer than the others and is referenced as the “White Room building” (Tobler 1950: 25). Artifactual finds from Levels XIII-XII include goods imported over long distances such as gold beads, obsidian, lapis lazuli, copper, and Sprig Ware, indicating a far-reaching exchange network (Rothman 2001: 380; 2002: 81). The clay sealings discovered across the level demonstrate a dispersed distribution pattern of control over goods and, therefore, a “corporate or system-sustaining organization” rather than a centralized administrative hierarchy in Rothman’s view (2004: 86).

The exceptional LC 1 discoveries at Tepe Gawra are both representative, due to the quality and extent of the excavations, and unique, due to the level of preservation and perhaps location along major trans-regional trade routes (Henrickson 1989). The incredible

amount of metal objects, for example, seems to indicate an early exchange network and craft specialization, though these developments are often particular to piedmont zones (Avilova 2008: 73), and reflect less on the exchange potential of contemporaneous occupations in other areas. Thus, the remains of Tepe Gawra cannot not characterize the Late Chalcolithic period across Mesopotamia (Oates & Oates 1976: 129), but they do play an important role in understanding the range of variability.

### **51. Tell Arpachiyah ([36°29'N 42°57'E](#))**

Tell Arpachiyah is a Halaf and Ubaid-period mound with an adjacent Ubaid cemetery that was initially excavated in the 1930s by Max Mallowan and John Cruikshank Rose for the British School of Archaeology in Iraq and then by Ismail Hijara in the 1970s. The 70s excavations primarily focused on the Halaf occupation (Hijara 1980), but the upper levels dug by Mallowan and Rose (TT 1-4) contain “both ‘Ubaid and Uruk material,” including gray- and red-burnished wares (Abu al-Soof 1974: 3).

Excavations of the TT 1-4 levels on the main mound produced the remains of what Mallowan and Rose called “miserable dwellings,” with ca. 2 m-wide rooms, and “miserable alleys” between them. They compare the excavated area to slums, figuring that they existed over the course of a century or so (Mallowan & Rose 1935: 11). A copper chisel occurs in the surface collection, identified by the excavators as relating to the Susa I (Susa A) period (ibid.: 24). Based on the pottery, they date the TT 1-4 levels to the ‘Ubaid III period (ibid.), which is roughly contemporaneous with the “Terminal Ubaid” or LC 1 period (see Wooley 1955). The painted style attested certainly seems to range from typical northern-Ubaid motifs to more LC 1-style motifs such as the bowtie pattern (ibid.: Fig. 33 no. 10) and lines- or shapes-in-reserve (ibid.: Fig. 31 nos. 5-6, Fig. 36). Furthermore, the types—often chaff tempered—include Wide Flower Pot Bowls (ibid.:

Fig. 39 nos. 5-6), groove-rim bowls (ibid.: Fig. 29 no. 7), flaring simple-rim jars (ibid.: Fig. 40), and simple-rim bowls that have a Coba-like shape to them (ibid.: Fig. 39 nos. 7-10).

## **52. Nineveh (36°21'34"N 43°09'10"E)**

Campbell Thompson and Max Mallowan's deep sounding into the Kuyunjik mound at Nineveh has produced a ceramic sequence across millennia, from the Hassuna and Samarra periods to the 3rd millennium BC. Ninevite 2, L:65-63, is generally considered to cover the Late Ubaid period with abandonments (or stratigraphic gaps) before and after the Ubaid period. Gut's reanalysis, though, relates the Ninevite 2c-3 level (L:63-60) to the "Terminal Ubaid" period (i.e., Gawra XIA-XII) based on painted pottery motifs such as the braided-stream pattern, undulating lines beneath the rim, and swoops hanging from the rim interior (Gut 2002: 19, Fig. 8).

Ninevite 3 then incurs a brief stratigraphic gap in the sounding sequence, resuming occupation slightly later in the Late Chalcolithic period based on the appearance of burnished hole-mouth jars and Wide Flower Pot Bowls (ibid.: Fig. 11 nos. 19-20), though those could fit into a late LC 1 assemblage. The drop-painted motif occurs on bowls and jars in the "Lower Ninevite 3" level (ibid.: nos. 10-13), along with internally beveled-rim bowls (ibid.: nos. 8-11), while Beveled-Rim Bowls and "Uruk" grey wares appear toward the end of Ninevite 3 (Abu al-Soof 1974: 1-2), providing a later LC 2 date. However, the exact sequence of the small sounding is not perfectly clear beyond that it includes the Ubaid-LC 1 transition, early LC 1, and then late LC 1 or LC 2 after a gap in the stratigraphy.

## A.XII. Erbil Plain

Late Chalcolithic settlement of the Erbil Plain is largely a continuation of Halaf and Ubaid occupation, and is related, in terms of material culture, to the nearby Tigris Piedmont

zone and, less so, to the Jezirah. The LC 1 period featured a continuation of site growth in most cases, with peak settlement sizes occurring in the LC 2 period and contraction in the LC 3 (Peyronel & Vacca 2015: 117-119).

### **53. Qalinj Agha (36°11'2"N 44°0'50"E)**

Qalinj Agha is a 3.5 ha site in Erbil, Kurdistan, east of the Greater Zab River. The Step Trench excavated in the 1960s uncovered sixteen levels identified by the excavators, the earliest handful of which they dated to the Ubaid period (al-Soof & es-Siwwani 1967). The upper levels correspond to the Late Chalcolithic period (called "Uruk" in the reports), though determining a more specific periodization from the original excavation reports is challenging due to an outdated descriptive terminology,<sup>42</sup> lack of radiocarbon dates, and limited visual publication of finds (see al-Soof & es-Sawwani 1967, al-Soof 1968, al-Soof 1969). Nevertheless, there appears to be a complete sequence from the earlier Late Ubaid period into at least the LC 2 period.

Levels II, III, and IV of the Step Trench feature double-rimmed bowls, stamped and impressed decoration, as well as Wide Flower Pot Bowls<sup>43</sup> (al-Soof & es-Siwwani 1967: 71). Internally-beveled rims on bowls, typically occurring in late LC 1 and LC 2 levels (e.g., Gawra XA), appear in Qalinj Agha Level IV (ibid.). Thus, an early LC 2 date is appropriate for Level IV and possibly later levels. Excavation of Levels V and VI produced squat-spouted deep bowls, black burnished ware, deep carinated pots, and globular neckless jars with flaring rims (ibid.: 72).

In Sounding I, Level VIII is the latest Ubaid level, featuring predominantly painted pottery as well as two baked-clay mullers (al-Soof 1966: fn. 8), while Level VII continues

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<sup>42</sup> The excavation reports tend to use terms such as "pre-Ninevite V" and "pre-Uruk" in reference to local pottery assemblages whose evaluations could benefit from updated descriptors and references.

<sup>43</sup> Called "crude flaring bowls" in the excavation reports.

to have an abundance of painted wares but less so, and Level VI features some Ubaid-painted sherds but also Wide Flower Pot Bowls, globular neckless flaring-rim jars, and high-necked carinated bowls (ibid.: Pl. IV). Level V continues the gradual change in pottery by continuing the forms of VI such as Wide Flower Pot Bowls and flaring-rim jars, but introduces red-burnished ware (ibid.: 80, Pl. IV). Thus, it appears that Levels VII-V would date roughly to the LC 1 period, while IV and later date to the LC 2 period.

Though Sounding I did not produce any clear mudbrick architecture, Level VI of the Step Trench features “heavy mudbrick walls, buttressed in places,” while Level V features thinner but bifacially-plastered walls and an ash layer over a well-defined floor (ibid.: 72). VI is disturbed by several “Uruk” burials, of both adults and sub-adults, including an infant buried in a jar with a shell necklace, and an adult female, flexed, cut into a Level VI wall with a pot containing a necklace of gold, silver, lapis lazuli, carnelian, and shell (al-Soof & es-Siwwani 1967: 72), though the exact date of these burials is uncertain. The layout of Qalinj Agha changes between Level V and IV to feature a possible mudbrick platform (al-Soof & es-Siwwani 1967: 71).

#### **54. Tell Surezha (35°59'54"N 43°53'8"E)**

Tell Surezha is site no. 27 in the Erbil Plain Archaeological Survey, directed by Jason Ur at Harvard University. Located to the southwest of the city of Erbil, the Oriental Institute of the University of Chicago has excavated at Tell Surezha since 2013, under the direction of Gil Stein. The ca. 25 ha site (ca. 3 ha mound) features a primarily prehistoric archaeological sequence; surface collection indicates occupation dating to the Halaf period, but the excavations have so far reached the LC 1 period. Radiometry, in conjunction with relative chronology, has provided a very long sequence for the LC 1 period at Surezha, which begins ca. 4800 BC and continues until ca. 4300 BC (Stein & Alizadeh 2014: 149).

The ceramic assemblage shows affinities with nearby sites such as Qalinj Agha and Tepe Gawra, especially for the LC 2 period, but the LC 1 occupation also produced substantial evidence for a localized substrate in the material culture. The overall ceramic analysis has produced the following percentages for the LC 1 levels: 15% painted wares; 11% local incised wares; and 69% unpainted/undecorated wares (Stein pers. comm.).

#### **55. Tell Nader (36°10'24"N 44°4'29"E)**

Tell Nader is a small, 1 ha site located in suburban Erbil, 6.3 km east-northeast of the citadel, rising 5 m above the plain (Kopanias et al. 2012: 2). The ceramic sequence demonstrates occupation from the proto-Hassuna period until the Iron Age, and excavations uncovered remains from the Late Ubaid and LC 1-2 periods (Beuger 2016: 19).

Wide Flower Pot Bowls, double-mouthed jars, neckless flaring rim jars, cut-away or double-rimmed jars, hemispherical bowls, and grooved-rim coarse bowls make up the “post-Ubaid” assemblage (ibid.: 21 Fig. 3). The excavators consider one example of (unevenly) double-rimmed jar to have a Sprig Ware variant design (Kopanias et al. 2014: 186 Fig. 9e), while a groove-rimmed bowl features hanging loops from the rim on the interior (ibid.: 186 Fig. 9b), both dating to the “LC 1-2” period.

Small finds from the site, not specified by level or period, include a clay muller, a hand-formed piece of unimpressed sealing clay, a ram figurine, and clay sling pellets (ibid.: 182 Fig. 5).

#### **56. Tell Helawa (36°1'17"N 43°45'14"E)**

Located 28 km southwest of Erbil, the Italian Archaeological Expedition in the Erbil Plain (MAIPE) excavated Helawa in 2013. It is a 6.5 ha mound rising 22 m above the plain, with a high mound and two lower protrusive areas to the north and east, and the

entire occupation area might be as large as 10 ha. The founding of the site dates back to the Hassuna period, while the Ubaid and LC 1-2 occupation were the largest, and it was abandoned in the LC 3 or 4 period (Peyronel et. al 2016: 309-313). The site seems to have contracted or somehow shifted during the LC 1 period based on localized abandonments (Peyronel & Vacca 2015).

The “Northern Ubaid” pottery published includes types for which even the excavators cite comparanda from Gawra XII and Hammam VA, including hemispherical bowls with incurved walls (ibid.: 314 Fig. 5 no. 7) and “bell-shaped” bowls (or bowls with thinned lips, or bowls with thickened walls beneath the rims) with pendant loops hanging from a band on the rim of the interior (ibid.: 314 Fig. 5 no. 9). Cross-hatched triangles beneath the rim appear on neckless flaring rim jars (ibid.: 315 Fig. 6 no. 1), and chaff-tempered Wide Flower Pot Bowls are numerous (ibid.: 315 Fig. 6 no. 2). LC 2-3 types include blob-painted ware, internally cut-away rims, and internally-beveled-rim bowls (ibid.: 315 Fig. 6 nos. 3-8). Small finds discovered at Helawa, though published without reference to level or period, include a baked-clay muller (ibid.: 319 Fig. 10).

### **57. Tell Ibrahim Bayis (35°46'25"N 43°33'19"E)**

Max Mallowan and Mahmud el-Amin conducted brief excavations in the area of Makhmur in the 1940s, and identified a prehistoric occupation and “Old Makhmur” (Tell Ibrahim Bayis) that they dated to the “end rather than to the beginning of” the Ubaid period (Mallowan & el-Amin 1950: 65) on the basis of the ‘panel pattern’ (or ‘lozenges between bands’/bowtie) motif on beaker shapes that occur readily in the Susa A assemblage and deeply corrugated jar shoulders (ibid.: Fig. 1, Pl. X nos. 23, 25, 32). Schwartz has indicated that there are Coba Bowls from Ibrahim Bayis (1988: Table 16), but the published account features only painted pottery from the prehistoric levels. There is no later occupation

attested before the Assyrian levels, and so to understand the Chalcolithic occupation based on the available material, it seems as if it spanned the end of the Ubaid and the beginning of the LC 1.

#### A.XIII. Ranya Plain (Dukan Dam Salvage Project, 1956)

The Dukan Dam Salvage Project identified numerous sites in northeastern Iraq, eleven of which had been dated to the 5<sup>th</sup> and 4<sup>th</sup> millennia BC. Very few sites were excavated or published beyond the description of the survey. However, Tell ed-Dem received brief publication demonstrating an Ubaid-related occupation and succeeding levels (al-Tikriti 1960). The globular, neckless jars with flaring rims ties into expected LC 1-2 ceramics, as does shoulder incisions (though the patterns seem to vary from by site).

The other sites that demonstrated the possibility of mid-5<sup>th</sup> millennium occupation sequences are Kirdi Bir (“Pre-Uruk,” “Uruk”), Kamarian (“Ubaid,” “Uruk”), Kullah Kawi (“Ubaid,” “Uruk”), Qarashina (“Ubaid,” “Uruk”), Kirdel (“Ubaid,” “Uruk”), Buskain (“Ubaid,” “Uruk”), Kullan (“Ubaid”), Kundu (“Ubaid”), and Quralla (“Ubaid,” “Uruk”). Tell Bazmusian is reported to have Uruk levels and indications of Samarran material culture (Abu al-Soof 1970).

#### A.XIV. Shahrizor Plain (Southeastern Iraqi Kurdistan)

##### **58. Ghird-i Pasha**

Site SSP-71 in the Survey of the Shahrizor Plain, the Ghird-i Pasha ceramic assemblage includes incised and punctured bowls but lacks typical “Gawra” comparisons. The occurrence of coarse-ware bowls increases in the Late Chalcolithic period, along with the number of wasters found.

### **59. Tell Begum (35°17'16"N 45°51'22"E)**

Tell Begum is a 5 ha site with continuous occupation throughout the Halaf, Ubaid, and Late Chalcolithic periods, with a medieval occupation as well. The recent University of Leiden excavations make a ceramic distinction between the Ubaid occupation, reflected by painted, incised, or impressed wares, and the LC occupation, recognized by coarse chaff-faced pottery that could be plain, painted, or red-slipped (Niewenhuyse et al. 2016: 110). Iraqi excavations of the 1960s in the Lower Mound area produced evidence for the Halaf, Ubaid, and “Uruk” periods (ibid.; Hijara 1997), confirmed by the recent Leiden excavations. The Upper Mound area has over two meters of Late Chalcolithic occupation (Levels IV-I) and possible Ubaid occupation beneath that (Level V; Niewenhuyse et al. 2016: 119 Table 3).

The excavators date the LC occupation to ca. 4300-3600 BC and have delineated LC 1, LC 2, and possibly LC 3 levels on the Upper Mound, though “poor quality of the sampled pottery” inhibits a definitive periodization (ibid.: 120). The chaff-faced ware appears in forms generally reminiscent of the Upper Khabur region, such as sinuous-sided bowls and globular bowls with incurved rims (ibid.: 130 Fig. 27), can be painted in the simple LC 1 style with undulating and straight bands beneath the rim (ibid.: 129 Fig. 26 no. 11). There are no Coba Bowls in the assemblage and no southern Mesopotamian (Uruk) forms attested. The Sharhizor Survey Project (SSP) has identified other Ubaid-LC sites, though they are not individual published nor listed here, as the internal sequences are unclear (ibid.: 105 Fig. 3).

#### **60. Gurga Chiya & Tepe Marani (35°12'48"N, 45°55'16"E)**

Approximately 10 km southeast of Tell Begum are the adjacent prehistoric sites of Gurga Chiya and Tepe Marani. Halaf, Ubaid, Late Chalcolithic (including “southern Middle Uruk”), and Late Bronze Age periods are attested. Late Ubaid and LC 1 remains come from Trench E at Gurga Chiya period and feature familiar northern Mesopotamian types such as the angle-necked jar (Wengrow et al. 2016: 267 Fig. 12 nos. 4-7) and U-shaped pots (ibid.: nos. 17-18). Diagonal punctate incised lines appear, as does an internally crosshatch-incised bowl in “Late Neolithic,” chaff-tempered coarse ware (ibid.: 273 Fig. 19 no. 6). Flat-topped/grooved rim bowls are extant, tying the Shahrizor Plain sites into the Erbil Plain sequence (Stein et al. 2015). There are no clearly identified Coba Bowls present, but open forms do match in profile to Coba-like bowls further west such as the Beaded-Lip variant in the Balikh (Wengrow et al. 2016: 167 Fig. 12 no. 13) and the Coba Bowl (ibid.: no. 12).

#### **61. Yorgan Tepa (Nuzi) (35°22'12"N 44°15'18"E)**

Excavations of the ca. 4 ha site of Yorgan Tepa (ancient Gasur (Akk.) or Nuzi (Hur.)) include a deep sounding (Pit L4) that reached Ubaid-like material in Level XII, founded on top of virgin soil (Starr 1939: 11-17). Levels XA and X feature “crude bowls” alongside ledge-rim constrained-mouth pots (ibid.: Pl. 43 S), flaring rim jars (ibid.: Pl. 43 L-P), sharply incurved (or slightly carinated) rim bowls (ibid.: Pl. 42 H-M), and deeply-incised comb-decorated (“raked”) jars (ibid.: Pl. 43 A). The main difference between XA and X is that painted pottery nearly disappears in Level X (ibid.: 601). Internally crosshatch-incised bowls appear, also, much in the same style as at sites further west, including the light-colored residue trapped in the incised grooves (ibid.: Pl. 45 B-C), as

seen at Zeidan (see Pl. 31). The “crude bowls” continue into Level IX (*ibid.*: 601), perhaps marking the LC 2 phase.

#### A.XV. Southern Caucasus

The Late Chalcolithic period of the Southern Caucasus, as seen at sites such as Leyla Tepe, Mentesh Tepe, and Ovçular Tepesi, generally garner an LC 2-3 dating, perhaps based on the prevalence of the Chaff-Faced Ware (CFW) pottery and material culture complex. However, recent research at Ovçular has raised the possibility that the early CFW culture may have overlapped with the late LC 1 period in terms of both absolute chronology and relative dating based on some ceramic parallels.

#### **62. Ovçular Tepesi (39°35'23"N 44°56'22"E)**

Ovçular Tepesi is a small, 1.3 ha, likely seasonally-occupied site situated on a small hill in the Araxes Basin (Marro et al. 2011). Marro has made an intriguing case arguing for an LC 1 datation of Phase I of Ovçular (Marro 2011: 42-46), despite the slightly later absolute date range of 4350-4000 BC cal. (*ibid.*: 42).

Marro associates the material culture assemblage of Ovçular with the “early CFW” horizon, positing it as a predecessor to the “Leyla Tepe/Amuq F” tradition (*ibid.*). This argument is based on the developments apparent in the CFW ceramic types, such as burnishing, that the excavators associate with the Norşuntepe Dark-Faced Burnished Ware of Phase II-III (Marro et al. 2009: 54) and the presence in Ovçular Phase I of sometimes paint-decorated Coba-like bowls (Marro et al. 2011: 67 Photo 12) and the appearance of the bowtie or panel-pattern painted motif (Gülçür & Marro 2012: 346 Fig. 8 no. 8).

However, the overall assemblage also resembles one from the LC 2 period: the presence of potters’ marks (as at Arslantepe VII; Frangipane 1993: Fig. 11.7), the

predominance of chaff-faced and chaff-tempered ware, paucity of mineral tempering and painted decorations (Marro 2011: 42-46), and blob-painted and comb-stamped ware (Marro et al. 2011: 75). Considering the absolute date range, which at its earliest possible value could be placed toward the middle of the LC 1 period (ca. 4350), and the LC 2-like features of the assemblage, the initial fifth millennium occupation at Ovçular looks like it dates to the later half of the LC 1 period and/or early LC 2 period. Another perspective is that CFW appears earlier in the Caucasus area and that sites such as Ovçular adopted it before the Upper Euphrates sites did in the LC 2 period.

The material culture of Ovçular Phase I provides an interesting complement to the broader LC 1 period, as it demonstrates some parallels but also clear distinctions. These include the manner of manufacturing “expediently-produced” bowls that resemble Coba Bowls in some ways. At Ovçular, the bowls (and some jars) are scraped along the bottom to remove clay before firing, but the implement of removal seems to have been made of flat stone or wood, rather than flint (*ibid.*: Figs. 6-7). The painted decorations are simplistic geometric designs such as simple bands along bowl rims and undulating or festooned bands, not dissimilar from Mesopotamian LC 1 motifs (*ibid.*: Fig. 9). Additionally, simple incised motifs (*ibid.*: Fig. 10) and appliqué coils and rows of knobs (*ibid.*: Fig. 8) appear, as well as an incised animal frieze (*ibid.*: Fig. 12).

Perhaps the most interesting contribution from Ovçular is the infant burial containing three copper axes, in stark contrast to contemporaneous, simply adorned burials from the rest of the site (Marro et al. 2011: 80).

## A.XVI. Northwestern Zagros: Lake Urmia Basin

Though the Chalcolithic Period in northwestern Iran is poorly understood (Dyson & Young 1960; Voight 1983), this “incompletely known” region includes some of the eastern-most manifestations of Ubaid influence as seen in the painted pottery (Voight 1987). The relative chronology of the Chalcolithic Period in this region, however, seems to be in flux, as late Middle Chalcolithic levels and early Late Chalcolithic levels appear to overlap (Marro et al. 2011: 59; see Henrickson 2011 for an example).<sup>44</sup> Generally, scholars have identified the “Pisdeli” cultural complex with the Middle Chalcolithic—Late Chalcolithic transition (Helwing 2004; Abedi et al. 2015), which is followed by the Chaff-Faced Ware cultural complex of the LC 2-3 periods, and then the “Kura-Araxes” cultural complex of the Caucasus (locally the “Yanik” cultural complex) that corresponds to the end of the Late Chalcolithic period (Abedi et al. 2015: 323, Table 2). The relationship between this region and Upper Mesopotamia is primarily materially manifested in the adoption (in the Dalma period) and continuation (in the Pisdeli period) of Ubaid-type, black-on-buff painted styles such as the net-filled triangles and rows of simple geometric shapes such as crosshatched diamonds. In the LC 2-3 periods, the predominance of chaff-faced wares also seems to parallel developments further north and west. This section will review evidence for regional LC 1-related levels as a starting point for future research into their role in the development of Late Chalcolithic society in Greater Mesopotamia.

### **63. Pisdeli Tepe (36°58'43"N 45°28'30"E)**

Pisdeli Tepe is the type site for the LC 1 period in the northern Zagros region east of Lake Urmia, where Young and Dyson first discovered this “late Middle Chalcolithic”

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<sup>44</sup> The absolute chronology can also be problematic; e.g., the radiocarbon dates from nearby Ovçular Tepesi for both Middle and Late Chalcolithic levels are nearly the same range (ca. 4350-4000 BC; Marro et al. 2009: Fig. 8).

(or early Late Chalcolithic) style, considering it similar to Gawra XIII-XII (Dyson & Young 1960: 23; see also Helwing 2005: 15; Henrickson 2011; Voight 1987: 621). This comparison is based on the appearance of ring bases and dark-on-light painted forms such as the simple-rim globular bowl (a.k.a. “squat beaker” or “plain-rim hemispherical bowl;” e.g., Dyson & Young 1960: Fig. 1 no. 3) that appears in Hammam et-Turkman IVD-VA (Akkermans 1988b: Pl. 89 nos. 244-245), Gawra XII (Tobler 1950), Zeidan LC 1a-b (Pl. 33 l, z), Hama L1-3 (Thuesen 1988: Pl. XXVI.1), and elsewhere (Helwing 2005: 13).

Through Multi-Dimensional Scaling analysis, Henrickson (1989) was able to show that there are ceramic affinities in the Ubaid 4 and LC 1 (“Terminal Ubaid”) material cultures of the lowlands and highlands, particularly along E-W routes, and that the strongest is along the northern route (i.e., between Tepe Gawra and Pisdeli Tepe). The correspondences are between painted motifs of the Gawra XIA-XII and Pisdeli assemblages, further helping to situate Pisdeli Tepe in both time and interaction network.

#### **64. Geoy Tepe (37°31'6"N 45°8'42"E)**

Period N is the earliest level reached at Geoy Tepe, yielding only scant remains. Though Rothman sees the succeeding Geoy M assemblage as dating in between Gawra XII and XI/XA (2002: 57), the occurrence of the drop-paint motif suggests a date closer to the latter (LC 2). Aside from dark-on-light Ubaid-ish painted motifs, Geoy N features ring bases and the distinctive beaded-lip carinated pots or bowls (Burton-Brown 1951: Fig. 4, 11, 31; 433), which are similar to examples from Zeidan Ubaid-LC 1 (Pl. 23 g), Hammam IVD (Akkermans 1988b: Pl. 93 no. 281), and ‘Abr Stages II-IV (Yamazaki 2012: Fig. 3 nos. 20-21, Fig. 6 no. 5).

**65. Kül Tepe (Jolfa) (38°50'19"N 45°39'43"E)**

Excavators uncovered 3 m of Pisdeli-period deposit from Kül Tepe, and identify it as Level VII. Both painted and unpainted pottery make up the assemblage, and <sup>14</sup>C analysis provides dates of ca. 4500-4200 BC cal. (Abedi et al. 2014).

**66. Tepe Dava Göz (Khoy) (38°31'21"N 45°1'46"E)**

Recent excavations at Tepe Dava Göz date Level II to the Pisdeli period, with the radiocarbon dates of ca. 4500-4200 BC (Abedi & Omrani 2013). The Dalma level at Dava Göz features geometric dark-painted motifs on a sometimes burnished, reddish ware, while the pottery from the following Pisdeli (LC 1) phase looks even closer to the Ubaid-related style of dark-on-buff painted bands of cross-hatched triangles and other geometric shapes (ibid.: Figs. 9-10).<sup>45</sup>

**67. Yanik Tepe (37°58'50"N 46°0'12"E)**

Yanik Tepe gives its name to the latest phase of the Late Chalcolithic period, the "Yanik Culture," but also has levels that date to the Pisdeli phase (see Burney 1962: 137-8; Voight & Dyson 1960). Ceramic features of the Pisdeli levels include ring-based vessels, globular bowls, dark-on-light painted open bowls with pinched or incurved rims, and neckless flaring rim jars paint-decorated with bands of crosshatched triangles on the shoulder (Trufelli 1997: Fig. 4).

**68. Hasanlu (37°0'17"N 45°27'32"E)**

Hasanlu, excavated by Robert Dyson, Jr. for U. Penn, the Metropolitan Museum of Art, and the Archaeological Service of Iran from 1956 until 1977, is perhaps most famous

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<sup>45</sup> See Dyson & Young 1960: 26 for an early, similar view on the "pure 'Ubaid' style" of the Pisdeli; they link Pisdeli wares with Gawra XVIII-XVII, and Geoy Tepe M with Gawra XIII-XII (when ring bases begin to appear) and Tepe Sialk III. This older view has been supplanted by new data from better stratigraphic sequences with radiocarbon dating, but there is certainly room for conjecture as to date of the spread of the Ubaid-style to western Iran.

for its Iron Age burnt city and gold bowl. However, the excavations also provide evidence for Neolithic, Chalcolithic, and Bronze Age occupations, with the Chalcolithic present in the “Well Sounding.” The excavators date Level VIII to the Pisdeli phase (Danti et al. 2004; see above).

### **69. Dalma Tepe (36°59'2"N 45°25'36"E)**

Dalma is known for being the type site of the eponymous cultural period (ca. 5000-4600 BC) that falls between the Hajji Firuz and Pisdeli periods. Dalma levels feature local highland styles but also matte-black painted geometric motifs related to Halaf and Ubaid styles of Mesopotamia. There is, however, a Pisdeli occupation at Dalma Tepe (Henrickson & Vitali 1987: 39), which relates to the later Ubaid and LC 1 periods.

## A.XVII. Kangavar Valley/Kermanshah

This region of the western Zagros borders the Kurdish regions in modern Iraq and Iran and became an important conduit for trade across Iran into Afghanistan and elsewhere (particularly for lapis lazuli), incurring the visits of peoples from all over. However, its topographical isolation contributed to stability in many ways, too, especially in terms of population, when other parts of the Zagros were becoming depopulated (Wright & Johnson 1975). The stratigraphy and relative dating of the levels is a bit challenging to unpack, as differing opinions and the range of published material leave some question as to the chronological relationship between the so-called Dalma, Seh Gabi, Pisdeli, and Godin IX-VI phases (e.g., Young & Levine 1974; Levine 1975; Alizadeh 2003b; Rothman & Badler 2010), as well as the distinction between “Late Middle Chalcolithic” and early “Late Chalcolithic.”

Recent research in Iran has produced a revised relative chronology, though, (Binandeh et al. 2012: Fig. 6), identifying a long Pisdeli Period in the Solduz and Zab regions that succeeds the Dalma Period (Godin X) and whose early levels (Middle Chalcolithic) are contemporaneous with the Seh Gabi Period, Godin IX, and Late Susisana 1-2. The later Pisdeli Period (Late Middle Chalcolithic) corresponds to Godin VIII-VII and Susa A. The absolute chronology is still not updated, though, and the exact placement of the Seh Gabi phase relative to the Godin sequence is still somewhat unsatisfying based on the dissimilarity in the painted ceramic styles.

#### **70. Seh Gabi (34°35'18"N 48°5'38"E)**

The excavation of Seh Gabi, comprising seven small mounds over ca. 15 ha, happened over two seasons as an offshoot of the Royal Ontario Museum expedition to Godin Tepe in order to better explore earlier phases that were minimally exposed at Godin. Mound C is the earliest, featuring a pre-Dalma material culture, and Mound B succeeds it with Dalma-period material followed by the Seh Gabi phase. This eponymous phase relates to Tepe Giyan VC (see A.XIX, below), based on the appearance of similar dark-on-light painted geometric and naturalistic motifs (Levine 1975: 31-34). Levine relates the Seh Gabi phase ("Upper Mound B") to Godin Level IX (*ibid.*: Fig. 1), but also to VIII and VII (Young & Levine 1974: 14-15). The plain wares of the Seh Gabi phase include globular, simple-rim bowls, flat-based simple-rim bowls (profile of a Wide Flower Pot Bowl), and hemispherical simple-rim bowls (profile of a Coba Bowl; *ibid.*: Fig. 12). Bowtie, crosshatched diamond, and braided-stream motifs (*ibid.*: Fig. 11) do bear resemblance to late Ubaid and LC 1 painted designs in lowland Mesopotamia.

## **71. Godin Tepe (34°31'7"N 48°4'6"E)**

The Royal Ontario Museum excavations of Godin Tepe, in the Kangavar Valley, first led by T. Cuyler Young Jr. from 1965-1973, resumed archaeological study of the site in the 21<sup>st</sup> century. While broad exposures of the site only reached the mid-late 4<sup>th</sup> millennium levels (Periods VI:2-VI:1), two of Cuyler's soundings (Operations A and B) and a recent test trench (Operation XYZ) reached Early Chalcolithic levels (Period XI; Rothman & Badler 2010: Table 4.1). The soundings produced only fragmentary remains of Level VIII, the "Middle Chalcolithic" level, approximately datable to the LC 1 period (Rothman & Badler 2010; cf. Alizadeh 2003b: Table 3, indicating Godin VI as equivalent with Terminal Susa A and Gawra XII). The pottery bears only vague relation to the Late Ubaid and LC 1 painted types popular elsewhere in Greater Mesopotamia, but there are correspondences, particularly in the substantial shift from the dense geometrical grammar of the Dalma-period motifs to the more basic geometric and (sometimes) naturalistic motifs of Godin VII-VI alongside a marked increase in plain wares (see Young & Levine 1974: Figs. 9-14). It seems as though Godin VIII corresponds to Seh Gabi "Upper Mound B" (Seh Gabi phase) more so than Godin IX does, and that Seh Gabi/Godin VIII fall within the early LC 1 date range (ca. 4600-4400 BC; Susa A) while early Godin VII corresponds to the later LC 1 period (ca. 4400-4200 BC; Terminal Susa A), although more comparative research needs to be done with respect to this issue.

### A.XVIII. Hamrin Valley

Excavations in the Hamrin Valley at Tell Abada and Tell Madhhur have provided key data for understanding the political economy and society of the Ubaid period in Central Mesopotamia. Scholars have long thought that the Hamrin was abandoned after the Ubaid

4 period, and this may be so. However, revisiting what has been published from the Tell Madhhur excavations reveals that the famous Level II house, may date to around the time of Gawra XIII, the Ubaid-LC 1 transition level, based on the appearance of incised chevrons and deeply incised corrugated bands on jar shoulders and U-shaped pots (Roaf 1989: Figs. 5-8). This would indicate that the Hamrin Valley was not immediately abandoned after the Ubaid period ended, though it is preliminary to read into this too far, as no positively-identified LC 1 sites occur.

#### A.XIX. Luristan

Luristan Province, situated in the Zagros Mountains of western Iran, features its own material culture complex during the 5<sup>th</sup> millennium BC that relates to the “Ubaidish” Dalma phase of the Solduz Valley and the Bayat phase of Deh Luran. The following phase, featuring red slipped wares relating to Warka XIII-XII and forms akin to Terminal Susa A, also includes a local polychrome painted tradition (Goff 1971: 143).

#### **72. Tepe Giyan<sup>46</sup> (34°10'54"N 48°14'36"E)**

The French *Musées Nationaux* and the *École du Louvre* supported excavations at Tepe Giyan that George Contenau and Roman Ghirshman carried out in 1931 and 1932. The mound is 350 m long and rises 19 m above the plain, with occupation levels dating from the Chalcolithic period to the Iron Age (Negahban 2001). Slightly problematic stratigraphy prohibits a clear understanding of the relative chronology, though the appearance of Ubaid-like black-on-buff painted wares, with exclusively geometric motifs,

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<sup>46</sup> Also called Žiān Tappa.

in Levels VB-C (Goff 1971: 134) helps anchor the sequence, as VB seems to correspond to Susiana c and Ubaid 3 (ibid.: 137).

Levels VC-D, which Dyson & Young consider to be similar to but a little later than the Pisdeli phase of the Lake Urmia region (Dyson & Young 1960: 26), continue to produce black-on-buff painted, vaguely Ubaid-like pottery, but it “degenerates” into simpler geometric designs while adding naturalistic motifs (Goff 1971: 137) and is joined by buff wares (Negahban 2001). Giyan phase VD likely corresponds to Sialk III 5-6, when the spotted leopard appears, equating it with the Early or Middle Uruk period (ibid.: 138), placing VC in between the Ubaid and Uruk periods (and, thus, around the time of the LC 1 period.

Glyptic motifs from Late Chalcolithic Giyan include Luristan crosses (series of chevrons making up the intersecting lines), hunting scenes, and representations of animals whose bodies are filled with hatching (Caldwell 1976: 233). Caldwell makes the argument that in VC, Giyan becomes a major trade center and an innovator in glyptic design based on the occurrence of Luristan style seals at Bakun A, Susa, Warka, Gawra, and Brak, generally of a later date than their earliest occurrence at Giyan. Its geographical position placed it at the juncture in the lapis lazuli trade route from Badakhshan where the lapis could go to either northern Mesopotamia or south to Susa and southern Mesopotamia (ibid.: 234).

#### A.XX. Khuzestan/Susiana

Alizadeh has identified the early Middle Susiana phase (contemporary with Ubaid 2, ca. 5500 BC) as the height of cultural affinity between Susiana and southern Mesopotamia, with each region forming greater connections to its adjacent highlands than

with each other from the 5<sup>th</sup> millennium forward (2010: 361). However, despite the shift in regional affinities of material culture, there are correspondences between Mesopotamia and western Iran dating to the LC 1 period. For example, Joan Oates has noted that some occurrences of ceramic styles at sites such as Tall-i Geser and Susa “reveal the presence of a transitional stage between Susa A and Early Uruk as defined by the very inadequate material recovered from Eanna Levels XIII-XII” (Oates 1982: 262).

### **73. Susa (32°13'2"N 48°13'55"E)**

The Susa Acropole, excavated by many different teams over several decades, provides one of the most iconic representations of the Ubaid-related culture from western Iran. Excavation of the “*necropole*” has produced one of the handful of known cemeteries that have helped to characterize mortuary practices during the Ubaid period in Greater Mesopotamia (Hole 1989), although these graves more accurately correspond to the Terminal Susa A period, which considerably postdates the Ubaid. The Susa B levels are typically dated to the Uruk period, and so the late (or “Terminal”) Susa A occupation has been sometimes noted as “Terminal Ubaid” (e.g., Alizadeh 2010: Table 1).

Dating of the Susa A occupation has varied over the decades, but red ware and Sprig Ware discovered in its later levels indicates a correlation with LC 1 levels in Mesopotamia such as Gawra XII (Abu al-Soof 1972: 5). Vertesalji, thusly, has associated Levels 23-24 in Dyson’s sounding with his Chalcolithic III B 1, which is essentially contemporary with the LC 1 period (1989; 1984), though others include Levels 25-27 as well (e.g., Pittman 2001: 412; Alizadeh 2003b: Table 3). A radiocarbon date with a mean of 4395 BC cal. comes from near the beginning of the Susa A period (Potts 1999: 46), further demonstrating the contemporaneity between Susa A and the LC 1 period. The

Terminal Susa A period came to an end with a burning episode, suggesting violent conflict (Alizadeh 2010: 363).

#### **74. Tall-e Geser<sup>47</sup> (31°21'37"N 49°24'44"E)**

Tall-e Geser is located toward the southern end of the plain stretching to the south of Susa, in the Ram Hormuz plain. Levels 8-15 of the step trench date to Vertesalji's Chalcolithic III B 1 (1989: 183, Fig. 1), though in Alizadeh's reassessment of Caldwell's interpretation the Late Susa II phase occurs in Levels 15-11 and the "Terminal Susa" phase occurs in Levels 10-8 (Geser Phase IV; Alizadeh 2014: 32). Forms such as flaring neck jars (Alizadeh 2014: Fig. 56 G) and bottom-scraped simple bowls (ibid.: Fig. 56 D) compare with forms from Susa Terminal A and the LC 1 period in general.

#### A.XXI. Southern Mesopotamian Ubaid-Uruk "Transitional" Levels

In general, the Early Uruk period in southern Mesopotamia is largely under-represented in the archaeological record, relying all too heavily on debated stratigraphy from the deep sounding in the Eanna Complex at Warka (Gibson 2014: 190), the Temple Sounding at Eridu (Wright 2014), survey data (e.g., Adams & Nissen 1972<sup>48</sup>), and mere glimpses from a handful of large-site excavations (Pollock 2001: 186). Even more so, the levels that seem to postdate the Ubaid period but predate the Early Uruk are rarely well defined. Thus, due to the lack of excavated contexts, there is less to contribute from the south in terms of sociopolitical organization (ibid.), and trying to tease out occupational levels in that region that correspond to the LC 1 period specifically is even more challenging. However, it is valuable to review the relative chronology of the levels that fall

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<sup>47</sup> Also called Tall-i Ghazir.

<sup>48</sup> The Warka Survey combines Ubaid 4 and "Ubaid 5"/LC 1 pottery into one category; see Oates 1976.

between the Late Ubaid and the Early Uruk layers, where possible. As Joan Oates phrased it forty years ago, "...there *is* undoubtedly an archaeologically recognizable phase between the end of the 'Ubaid sequence identified at Eridu and the more conventionally defined early Uruk materials..." (1976: 28).<sup>49</sup>

#### **75. Tell Uqair (32°46'54"N 44°39'53"E)**

Uqair is a double-mounded site, approximately 50 miles south of Baghdad, and Mound A features occupations of the Late Ubaid, Uruk, and Jemdet Nasr periods. The Ubaid levels were mainly discovered in Sounding IV. The pottery is generally unrelated to the northern Mesopotamian LC 1 repertoire, except for tall necked jars (Lloyd, Safar, & Frankfort 1943: Pl. XXI nos. 5-6) and flint-scraped simple bowls (ibid.: 153, Pl. XXII no. 4) that appear in Levels VII-V (Pl. XVII no. 7). J. Oates identifies these as Coba Bowls, as they look very much like their northern counterparts (2012b: 479).

#### **76. Nippur (32°7'35"N 45°14'0"E)**

Nippur, a 150 ha site with a 24 m rise above the plain, was one of the most important religious centers in southern Mesopotamia, especially from the 2<sup>nd</sup> Millennium BC forward, as it is located at the heart of an ethno-linguistically dimorphic zone at the juncture of ancient Sumer and Akkad and had been occupied from at least the Hajji Muhammad (Ubaid 2) period onward. Its excavation and publication history prior to the late 20<sup>th</sup> century are notorious, centering around the controversy and internal and external disputes over tablets, dating, urban geography, and significance. In the 1950s the Oriental Institute and U. Penn began a joint expedition, and then in the 1960s and 1970s the OI started new excavation program under the direction of McGuire Gibson that systematically explored

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<sup>49</sup> WS (Warka Survey) no. 460 (Oates 1978: 28) and Tell Tello East (Vertesalji 1989: Fig. 1) may turn out to overlap with the LC 1 period, as well, suggesting that the development from the Ubaid into the Uruk period in the south was continuous, widespread, and probably very interesting.

issues of occupation and function across the site. The first Gulf War interrupted that program before it could further examine the lowest levels, and so knowledge of the Ubaid and Early Uruk occupations comes primarily from surface collection, recycled potsherds found in Parthian mudbricks, and Donald Hansen's sounding of the Inanna Temple.

Vértessalji equates Level XXI of the Inanna sounding with his Chalcolithic III B 1 (1989: 183 Fig. 1). C.S. Fisher published this sounding which claims to have reached virgin soil beneath Level XXI, in a 2.5 x 4 m sounding, at an elevation of 78.30 m elevation, which is 10 m below the plain and 22 m below the corner of the *ziggurat*. The sounding also reached the Ubaid and Uruk periods in immediate succession along the way. While the discovered remains are limited, the upshot is that Nippur, like Warka and other major Sumerian sites, was continuously occupied from the Ubaid period into the Uruk.

#### **77. Warka (Eanna Precinct) (31°19'29"N 45°38'18"E)**

The "Archaic" levels of the deep sounding beneath Archaic Level V (LC 5) of the Limestone Temple within the Eanna complex at Warka (ancient Uruk) produced evidence for occupation as early as the Ubaid period (Nissen 2001: 150). Scholars have generally identified levels XVI-XIII as dating to a time between the end of the Ubaid 4 and the beginning of the Uruk period (e.g., Vertessalji 1984; Sürenhagen 1986, 1993, 1999). The earlier view of Seton Lloyd, Pinhas Delougaz, and others saw Eanna XIV as the beginning of the "Early Uruk" levels (Abu Al-Soof 1972: 3-4), while in the 1930s von Haller had recognized Level XIV as demonstrating the gradual end of the Ubaid period (1932: 37). Wright has made a recent reanalysis that identifies Eanna Layer XII as the sole "Early Uruk" level (2014: 110).<sup>50</sup>

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<sup>50</sup> Contradicting the earlier assertion that Eanna XIII presents the "type assemblage" of the Early Uruk period (Wright, Neely, Johnson, & Speth 1975: 131).

Finkbeiner (2001) reconsiders the nature and material cultural significance of these “transitional” levels, recognizing both Ubaid-like and Uruk-like elements in the pottery assemblage. The former includes black-painted motifs; the latter, beveled-rim bowls. When compared to LC 1-2 assemblages from Upper Mesopotamia, there are at least minimal affinities in both the decorative painted motifs and the pottery forms. These include painted bands of crosshatched diamonds, carinated bowls, inwardly beveled-rim bowls, sinuous-sided bowls, and neckless everted rim globular jars (*ibid.*: Figs. 1-2).

Such styles and types overlap with LC 1 and LC 2 assemblages in northern Mesopotamia, but also Late Ubaid levels, to some extent. For example, pottery from Warka XIV, such as round-bottomed carinated bowls (Abu al-Soof 1974: 8; von Haller 1932: Taf. 17D), parallels Gawra LC 2 Level XIA/B (Tobler 1950: Pl. CXXI nos. 333-336). Warka XVI and XV, however, have produced hollow cones, the painted scallop motif, and other “simplified” Late Ubaid motifs (von Haller 1932: Taf. 17C) that suggest a material culture that follows the Ubaid but precedes the Early Uruk. As well, Joan Oates has pointed out the paucity of painted pottery in these levels relative to the Ubaid phase (1983: 262).

One challenge to understanding the nature of the change from the Late Ubaid to the Early Uruk at Warka, Vertesalji reminds us, is that these materials come from a sounding, and that intrusions such as pits, dumping, or clay extraction could have easily disturbed the sequence without detection (1987: 485).

**78. Ur ([30°57'45"N 46°06'11"E](#))**

Sir Leonard Wooley’s indefatigable excavations at the Royal Cemetery of Ur produced results from the Ubaid period to the Early Dynastic period, and Wooley himself

noted that the “...decadent sub-period al-‘Ubaid III”<sup>51</sup> does not match well with the Uruk material from Warka (1955: 22) and considered it a transitional assemblage (1956). Abu al-Soof also recognized the “transitional” nature of the al-‘Ubaid III material culture, identifying an overlap of painted Ubaid and plain Uruk wares, and “simplified motifs” decorating the wheel-made Ubaid-type wares (1972: 5). The mortuary evidence, reexamined by Akkermans, also suggests a break from the Ubaid-period practices based on the change from supine to flexed body positions and from relatively undifferentiated to differentiated burial assemblages (1989: 359).<sup>52</sup>

The al-’Ubaid III burial stratum, toward the bottom of Wooley’s “Pit” F (or trench F), beneath the “factory”/kiln level, occurs at the 5-6 m mark (from the bottom), compared to the earlier, al-’Ubaid I-II burials that occur between the 2 and 4 m marks. The generally plain pottery of the al-’Ubaid III graves mainly features pedestal-base bowls (Wooley’s aU.9a), plain-rim rounded-base bowls (Wooley’s aU.3a), and ring-base beakers (aU.24); rare examples of paint decoration indeed resemble simplified variants of Ubaid geometric patterns, often in the form of two black, horizontal bands (e.g., U.15335; Wooley 1955: Pl. 18), not dissimilar to the northern Mesopotamian LC 1 painted pattern of one or two black bands beneath the rim.

While the decoration of the pottery suffers in the al-’Ubaid III graves, three of the twenty-plus skeletons buried in this stratum were accompanied by more prestigious items than were found in the earlier Ubaid burials. Burial PFG/E contains a steatite macehead

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<sup>51</sup> “al-‘Ubaid III” was Wooley’s own designation for the latest of the Ubaid phases, not to be confused with the more standard relative chronology of the Ubaid period that includes an Ubaid 3 phase, which is earlier and unrelated and closer in time to Wooley’s al-’Ubaid I. See also Oates 1976: 28 for discussion of the overlapping terminology for this “ill-defined phase,” such as “early-Uruk” and “post-Ubaid.”

<sup>52</sup> Vertesalji has dated the Pit F grave group 5 to the later portion of his Chalcolithic III B 1 period (1989: 183 Fig. 1), which would place it in the late LC 1 period, though precision in this respect is difficult.

(U.14974) found near the hands and a limestone bowl (U.14975) placed under the head; burial PFG/F contains a polished stone axehead (U.14990) near the right arm; PFG/G features a copper spearhead at the upper part of the body (U.14992; *ibid.*: Pl. 30). A double burial (PFG/M) features an ox skull beneath one of the heads. In the graves beneath the 4 m mark, the only marks of distinction other than varying sizes of pottery assemblages are occasional clay, anthropomorphic figurines and several examples of hematite-painted bodies (*ibid.*: 87 ff.). Thus, the Ur al-'Ubaid III burials convey a breakdown of the Ubaid mortuary tradition of socioeconomic homogeneity in southern Mesopotamia at around the time of the LC 1 period in the north.

#### **79. Abu Shahrain (Eridu) (30°49'1"N 45°59'46"E)**

The first archaeological explorations of Abu Shahrain (ancient Eridu) date to the mid-19<sup>th</sup> century, under John George Taylor, followed by Campbell Thompson and Henry R.H. Hall in the early 20<sup>th</sup> century for the British Museum. In the 1940s the Iraqi Directorate General of Antiquities and Heritage began a new program under Fuad Safar and Seyton Lloyd, who saw the southern Ubaid sequence as a revolving door of peoples migrating in and out as evidenced by the changes from Eridu ware to Hajji Muhammad, and then to al-'Ubaid pottery (Safar et al. 1981).

Joan Oates, who originally coined the quad-partite terminology (1-4) to clearly delineate the subdivisions of the Ubaid period in southern Mesopotamia, identified Levels I-II of the Hut Sounding as "Terminal Ubaid" (i.e., following Ubaid 4). The ceramics that typify this designation include cone-shaped vessels (Eridu HS type 1), bowls with interior

incised combing (Eridu HS Types 6-7), and inverted-rim, wide bands of interior decoration<sup>53</sup> (HS Type 8; Oates 1987b: 479 Chart 1).

Vértésalji has equated Temple Sounding Level VI with his Chalcolithic III B 1 period (1989: 183 Fig. 1; see also Safar et al. 1981: figs. 129-130), and most scholars consider Level V to represent the Early Uruk period there. In Level VI, the Abzu Temple takes on a decidedly new size compared to the Late Ubaid predecessors, going from 17-18 x 11-12 m to 22 x 9 m.

#### **80. Tell al-‘Oueili (31°13’20”N 45°53’23”E)**

Excavated by the Center Nationale du Réserche Scientfique in the 1980s, Tell al-‘Oueili is the most southerly excavated site in Mesopotamia and provides a nearly unbroken occupational sequence from Ubaid 0 to Late Uruk (Huot 1989: 21). In Sounding X 36, investigating the later levels, Calvet had identified a “Terminal Ubaid” occupation in Levels G-C and an “Uruk *récent*” occupation in Levels B-A (1991: 159-161). Vertésalji had associated B-A with his Chalcolithic III B 1 (contemporary with Gawra XII) and C-G with Chalcolithic III A 3 (contemporary with Gawra IV-XIII; 1989: 183 Fig. 1). The ceramics and small finds, though, suggest a slightly different interpretation.

While Levels G-C contained painted pottery designs (Calvet 1991: Pl. XVI-XVIII) similar to the “simplified” Ubaid motifs prevalent in Levels XIIA and XII at Tepe Gawra (Tobler 1950: CXXXIII-CXL), excavation of Levels B-A also produced material culture associated with the Ubaid or LC 1 period such as bent clay nails or mullers (Calvet 1991: Pl. XIX no. x) and hollow cones (ibid.: Pl. IV no. 43). Level C has carinated bowls with thick bands of paint (ibid.: Pl. IX nos. 88-89), a motif that looks vaguely akin to Sprig Ware

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<sup>53</sup> Oates notes that it is also seen at Warka (Boehmer 1972: Pl. 57 nos. 602-603).

(ibid.: Pl. IX nos. 95-96),<sup>54</sup> hollow cones (ibid.: Pl. XV nos. 156-157), and bent clay nails (ibid.: Pl. XV no. 158). Beveled-Rim Bowls first appear in Level B (ibid.: Pl. VII) and then become prevalent in Level A (ibid.: Pl. I), though alongside some painted wares, suggesting an Early Uruk date for those levels. While the Ubaid-Uruk transition in the south is never going to match the northern Late Chalcolithic relative chronology perfectly (cf. Gut 1995), at Oueili it seems as though Levels G-C roughly correspond to the LC 1 period and B-A to the LC 2/Early Uruk period.

#### A.XXII. Northeastern Arabia

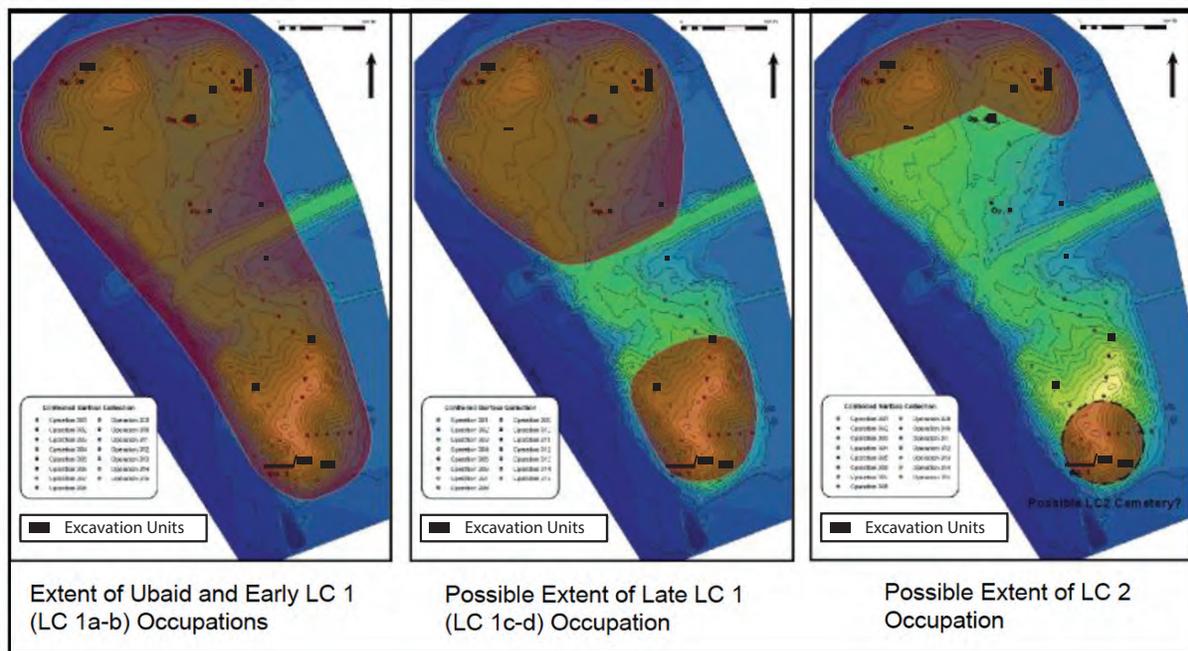
Though outside of the geographical scope of this appendix, it is worth mentioning the sites of Ras Abaruk and al Markh, in Bahrain. Their ceramic assemblages are reported to feature mainly unpainted wares but also a small number of distinctively Ubaid-like painted types in addition to some Early Uruk types (Oates 1978: 26), and so would likely be of interest for further pursuit of understanding this time period at Mesopotamian off-shoot sites in the Persian Gulf.

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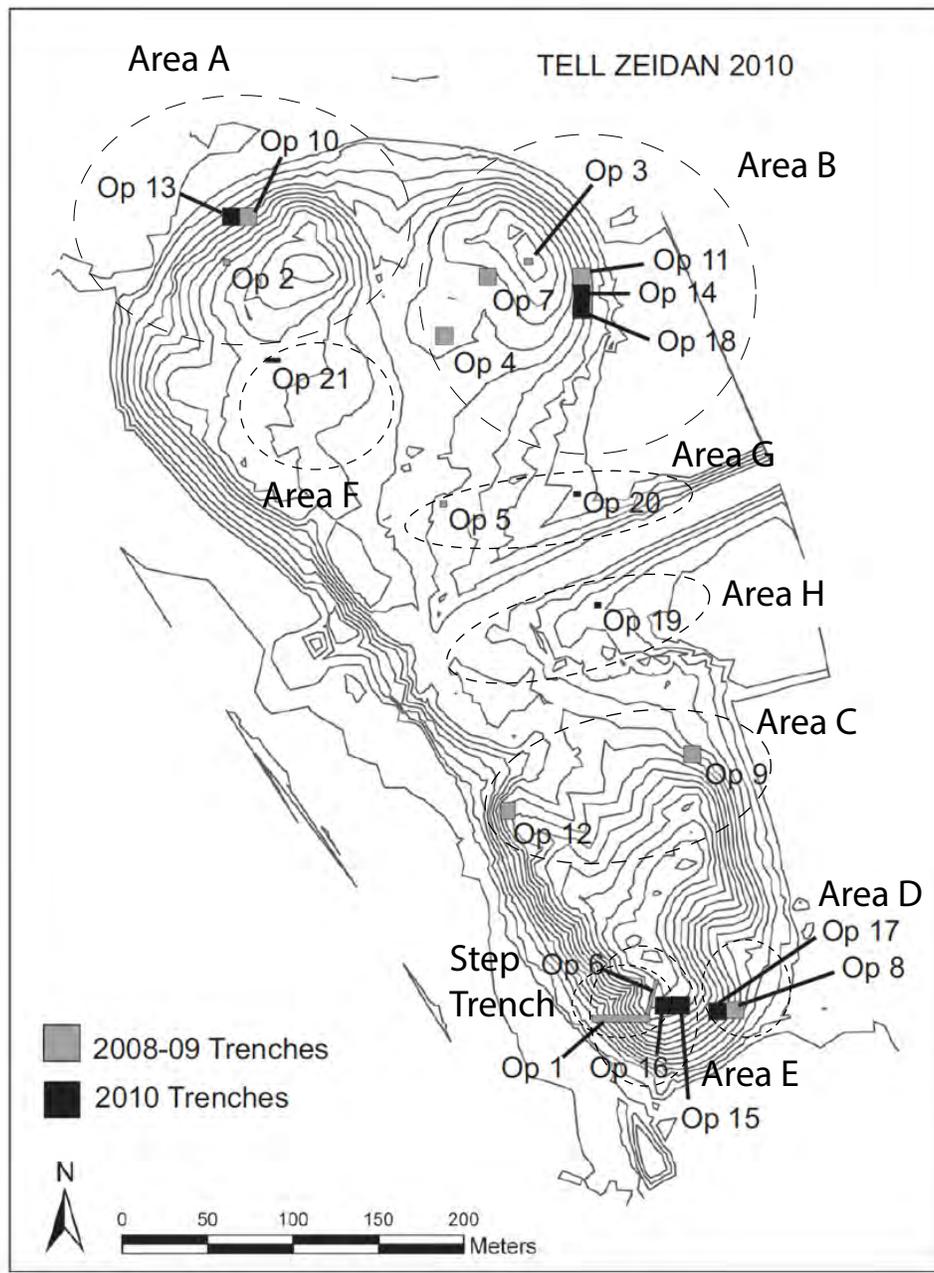
<sup>54</sup> Which also occurs in Uruk K XVII:IV/I (Boehmer 1972: Pl. 57:645).



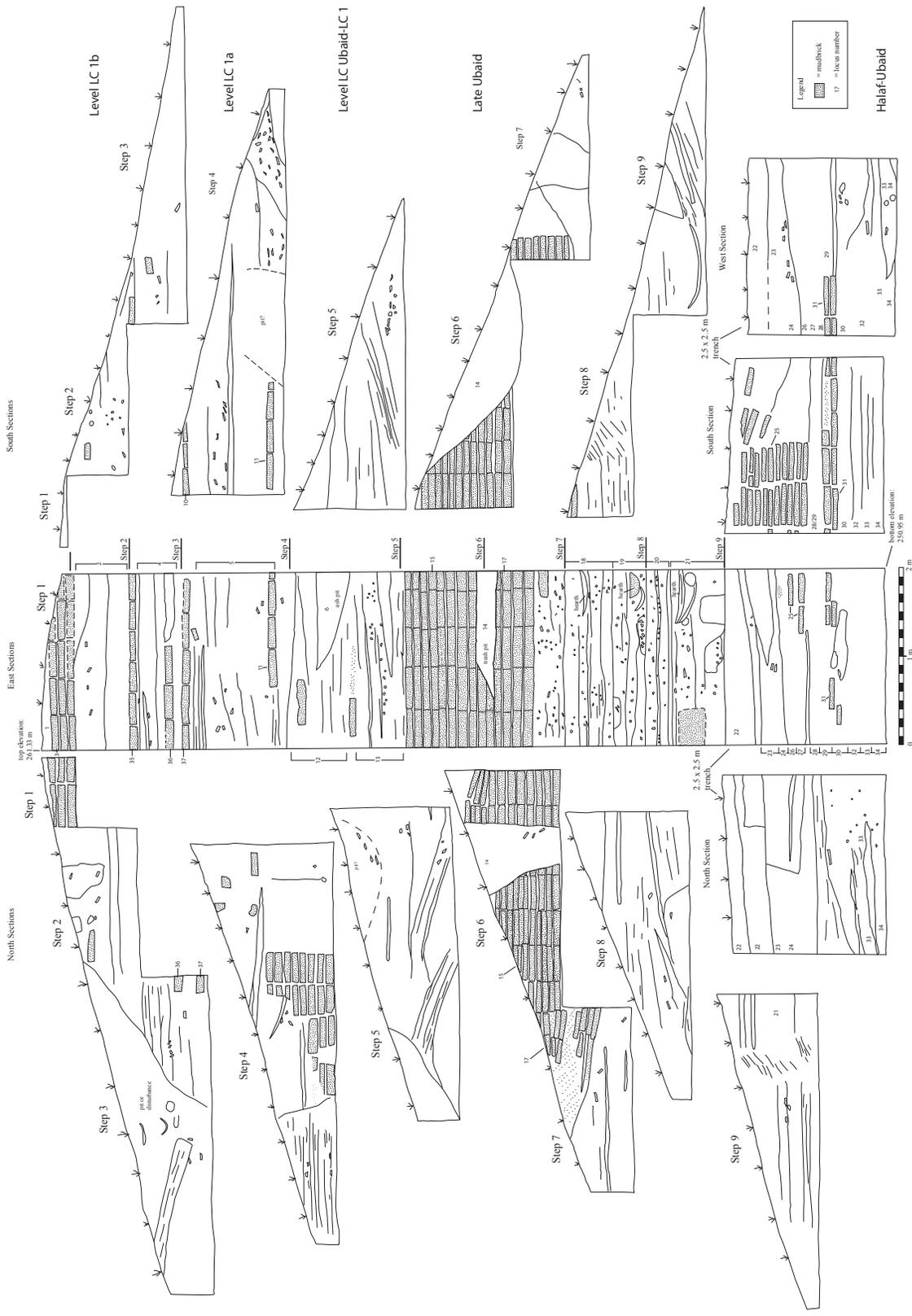
Map of the Near East in the mid-5th Millennium BC (Ubaid & LC 1 Periods), Showing the Location of Tell Zeidan (after Stein 2009: Fig. 1)



Extent of Occupation at Tell Zeidan in the Ubaid/Early LC 1, Late LC 1, and LC 2 Periods (after Abu Jayyab n.d.)

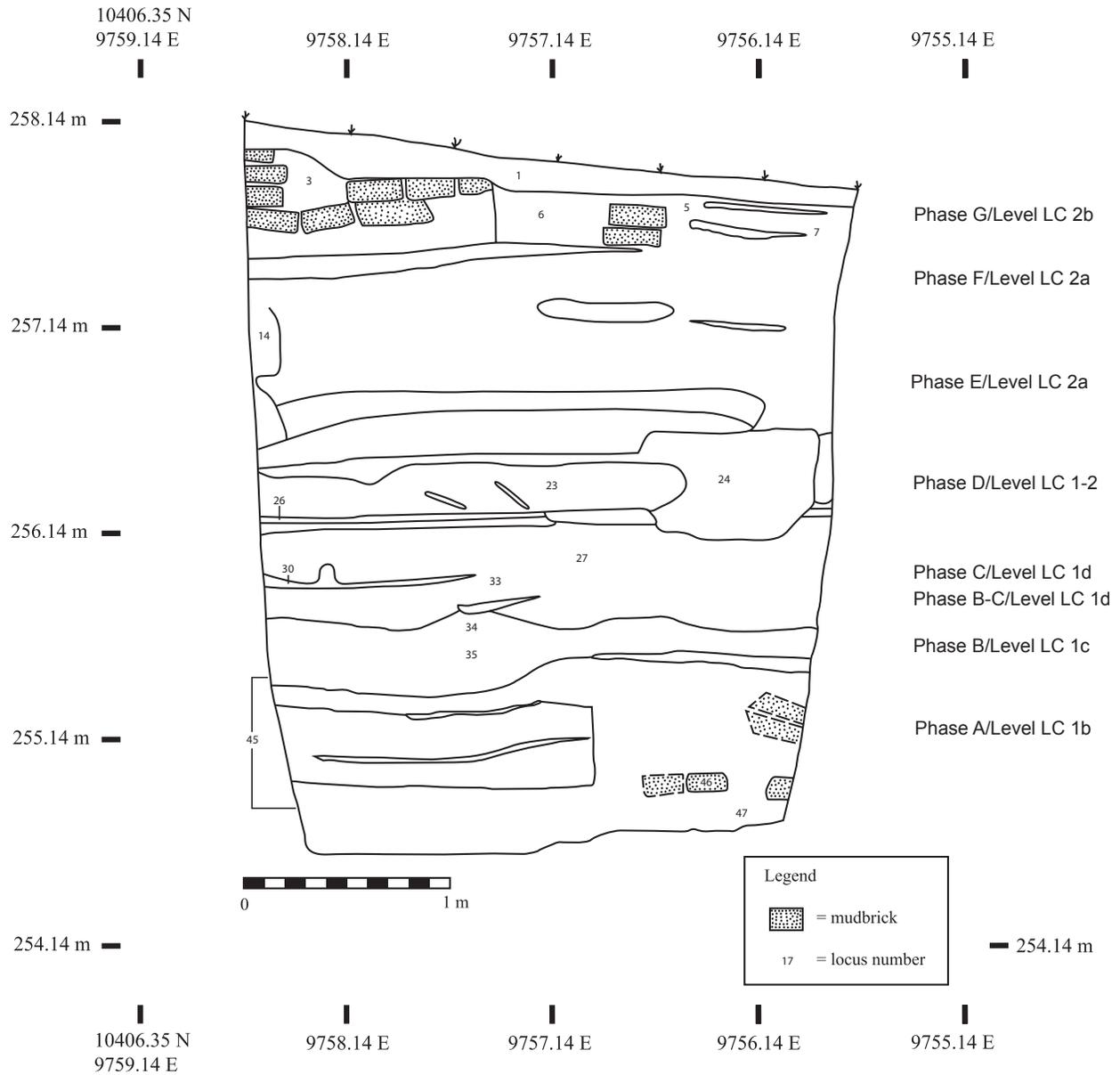


Tell Zeidan Site Plan with Trench and Area Locations (after Stein 2011: Fig. 2)

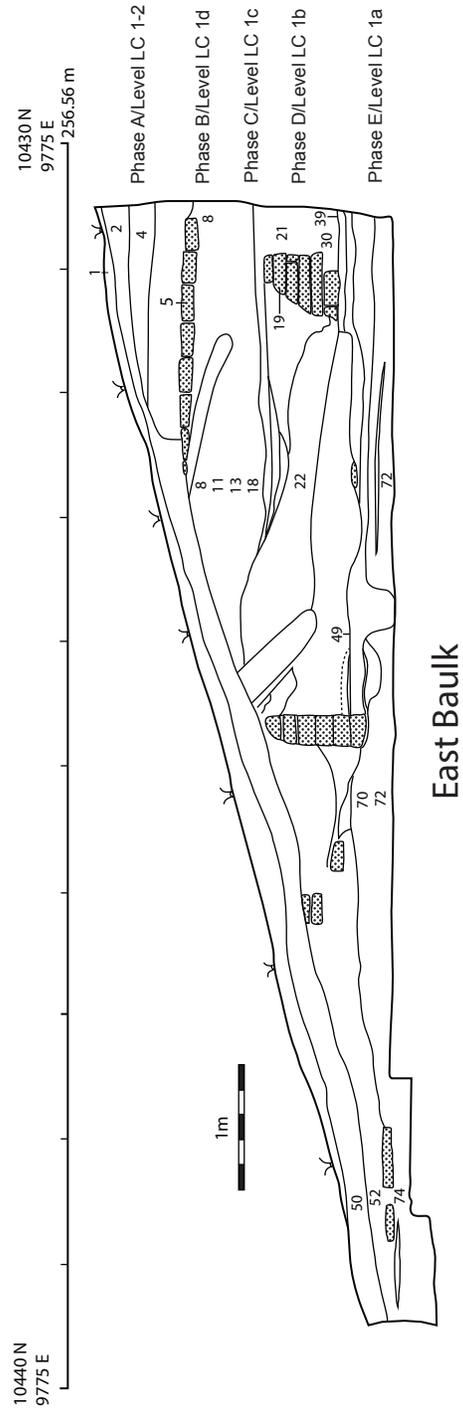
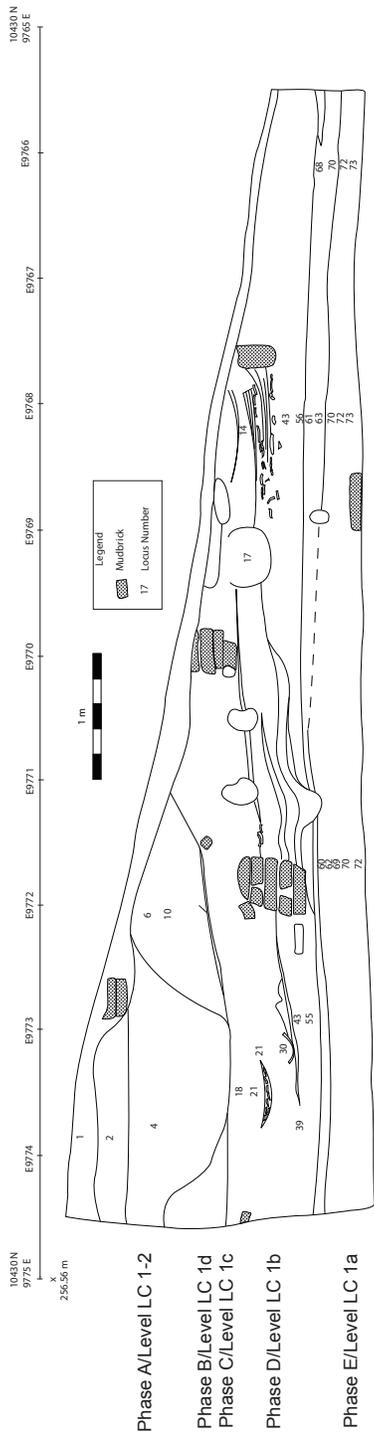


Stratigraphic Section of Operation 1 (Step Trench), Tell Zeidan

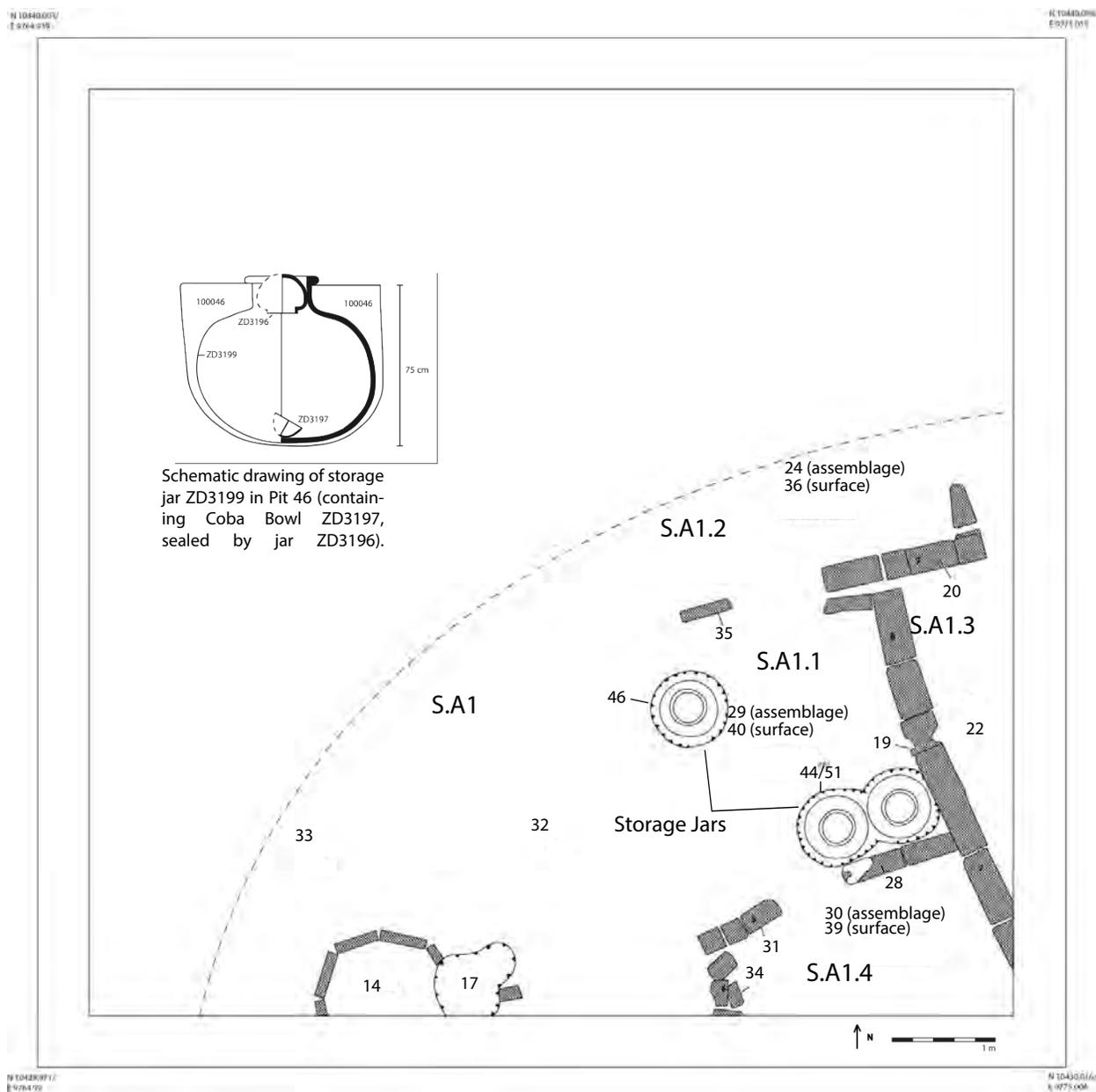




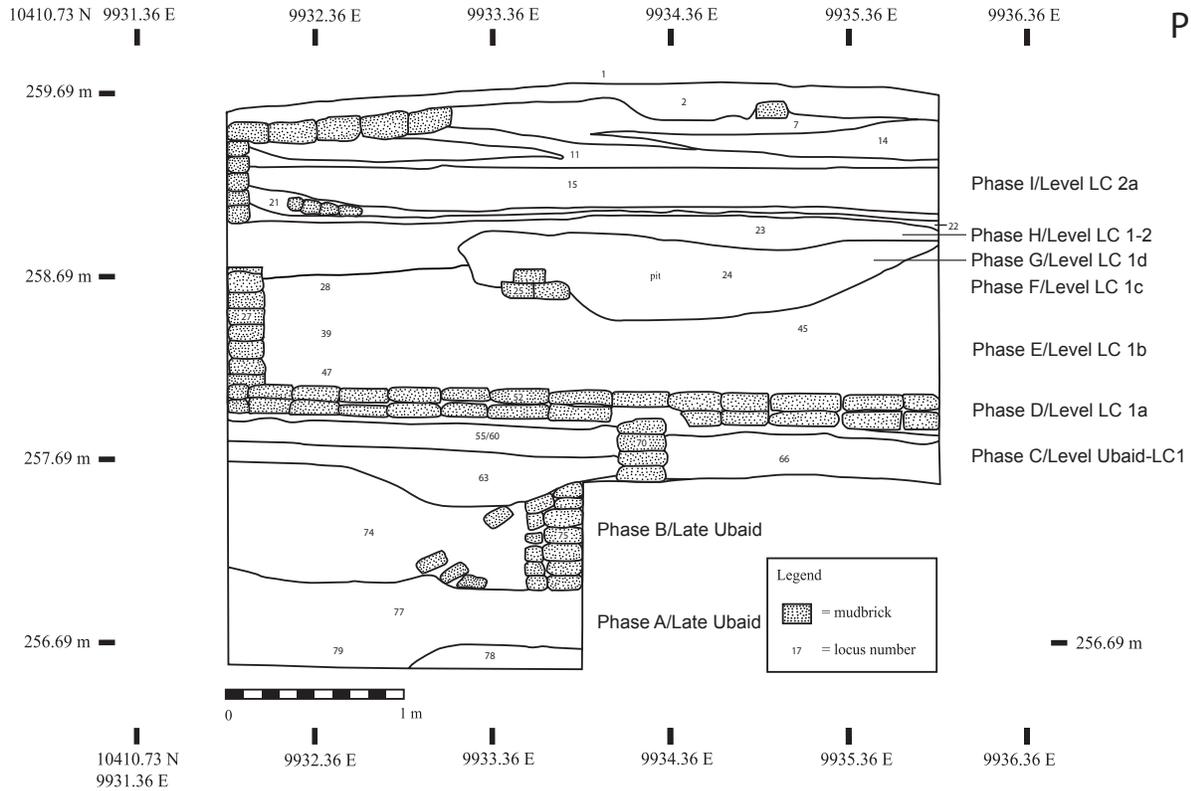
South Stratigraphic Section, Operation 2, Area A, Northwest Mound, Tell Zeidan



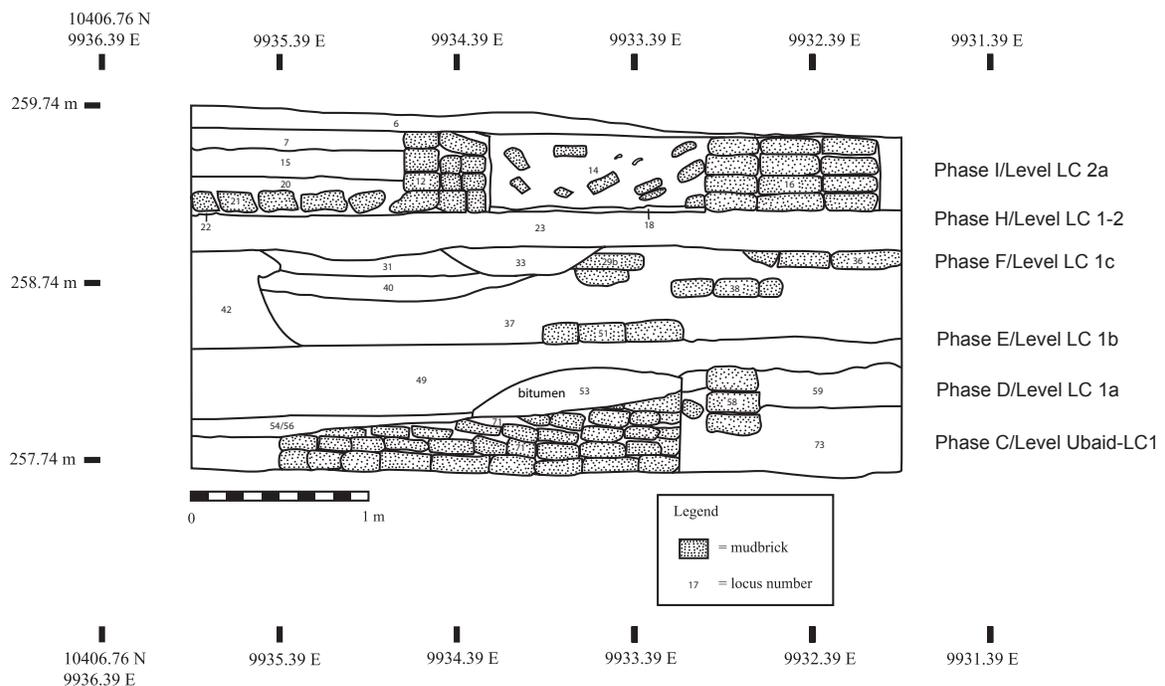
Stratigraphic Sections, Operation 10, Area A, Northwest Mound, Tell Zeidan



Building S.A1, Operation 10, Phase D, Area A, Level LC 1b, Tell Zeidan



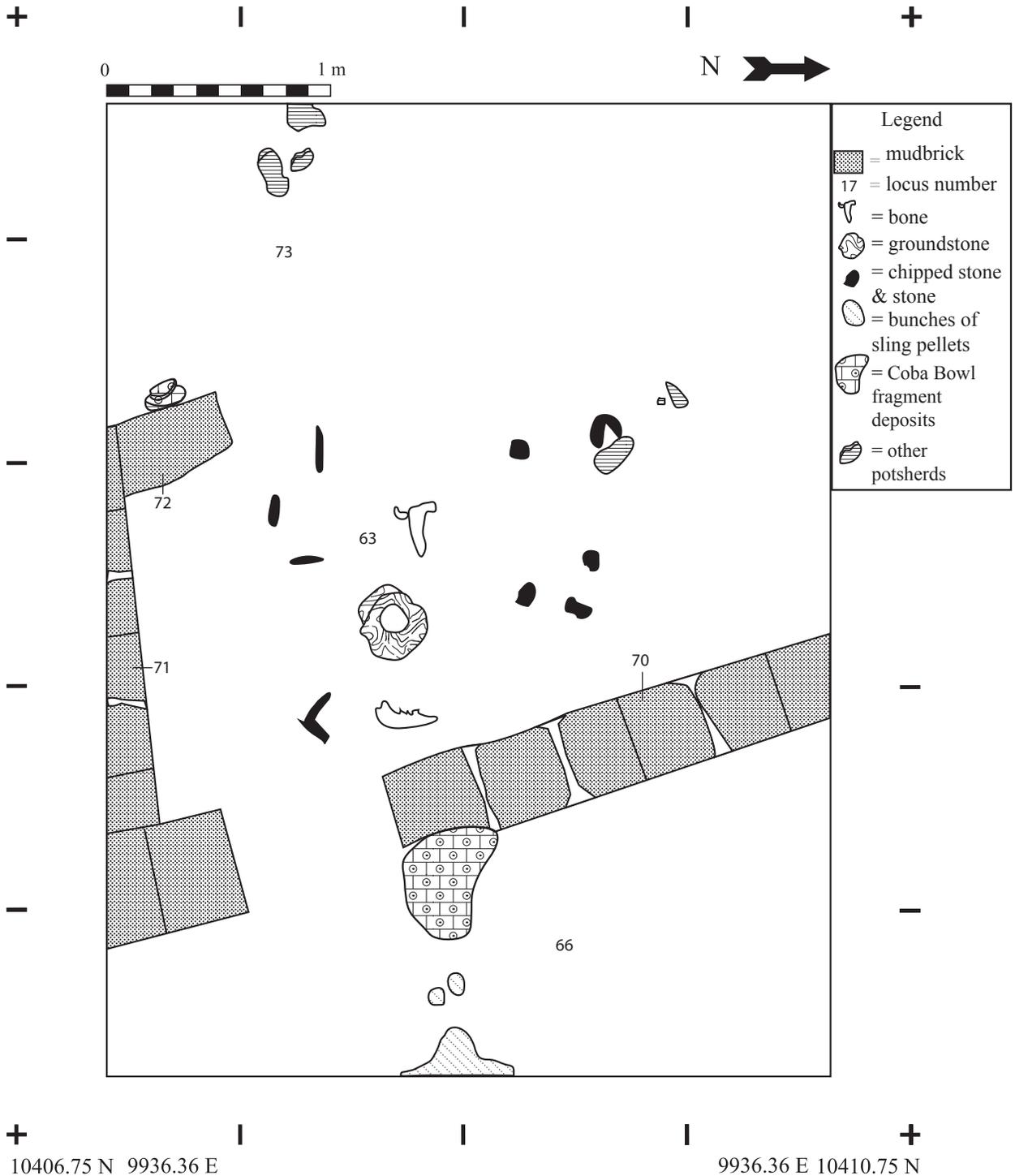
North Stratigraphic Section, Operation 3, Area B, Tell Zeidan



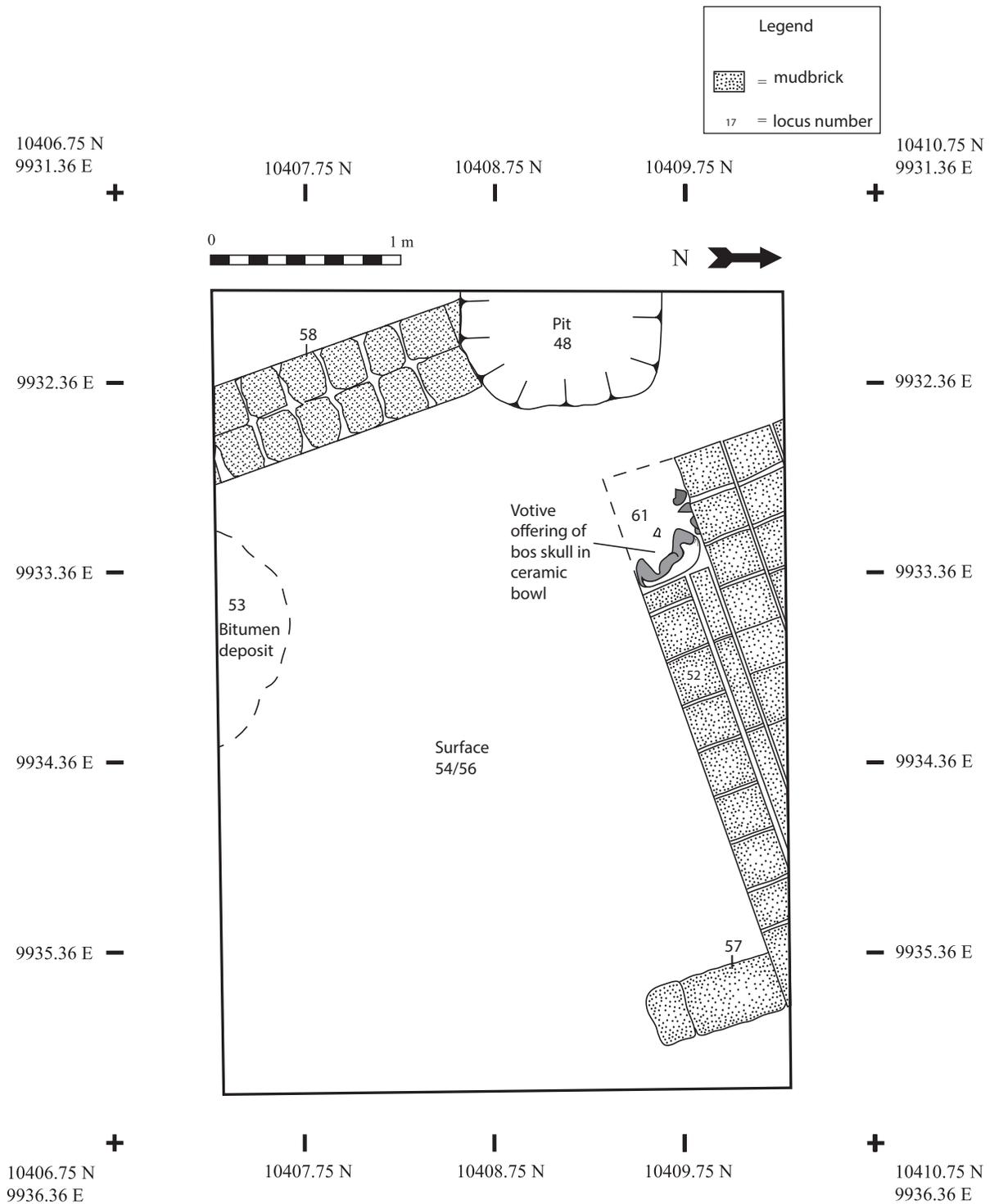
South Stratigraphic Section, Operation 3, Area B,  
Northeast Mound, Tell Zeidan

10406.75 N  
9931.36 E

10410.75 N  
9931.36 E



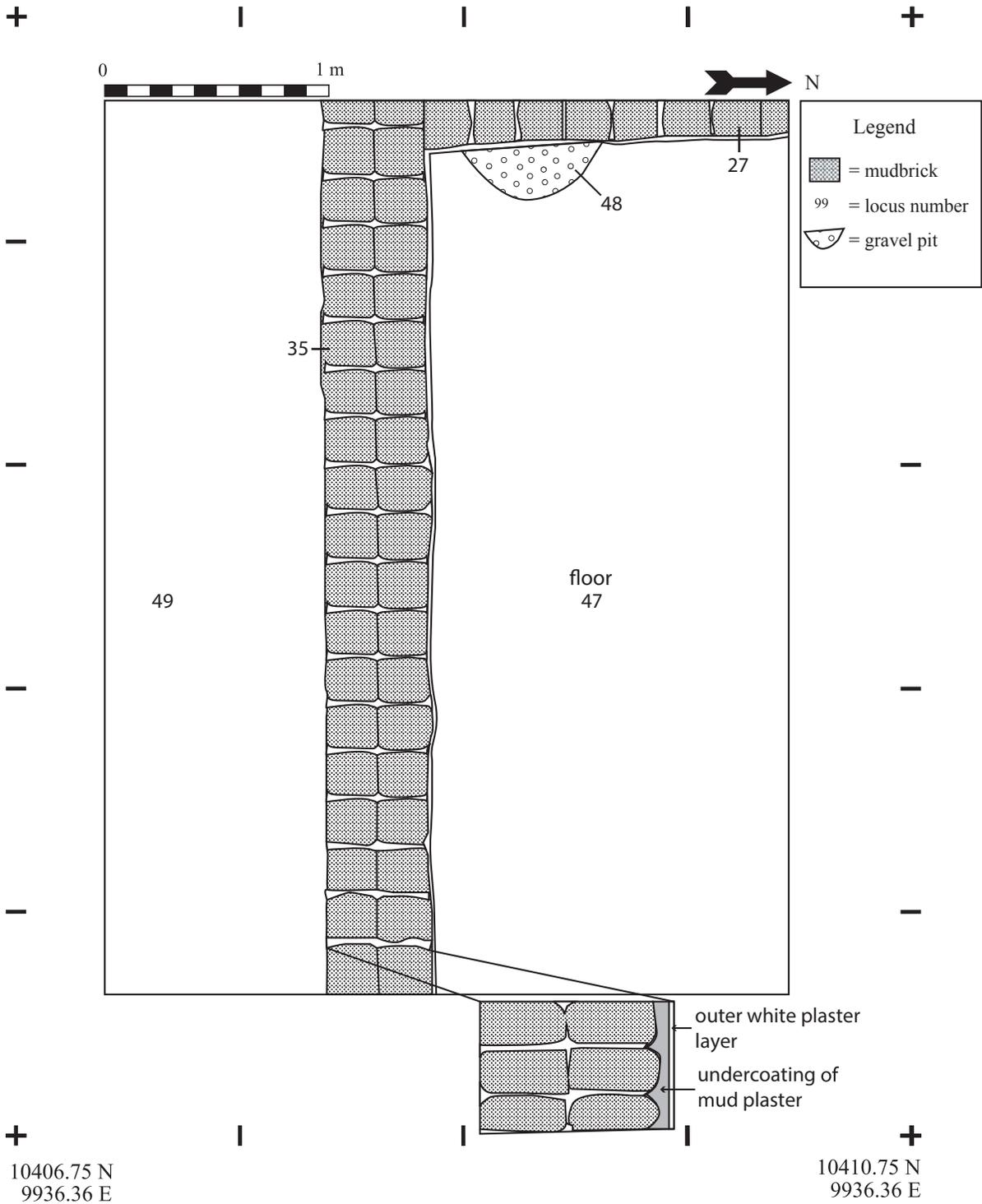
Building S.B2, Operation 3 Phase C, Area B, Level Ubaid-LC 1, Tell Zeidan  
The Burnt Building



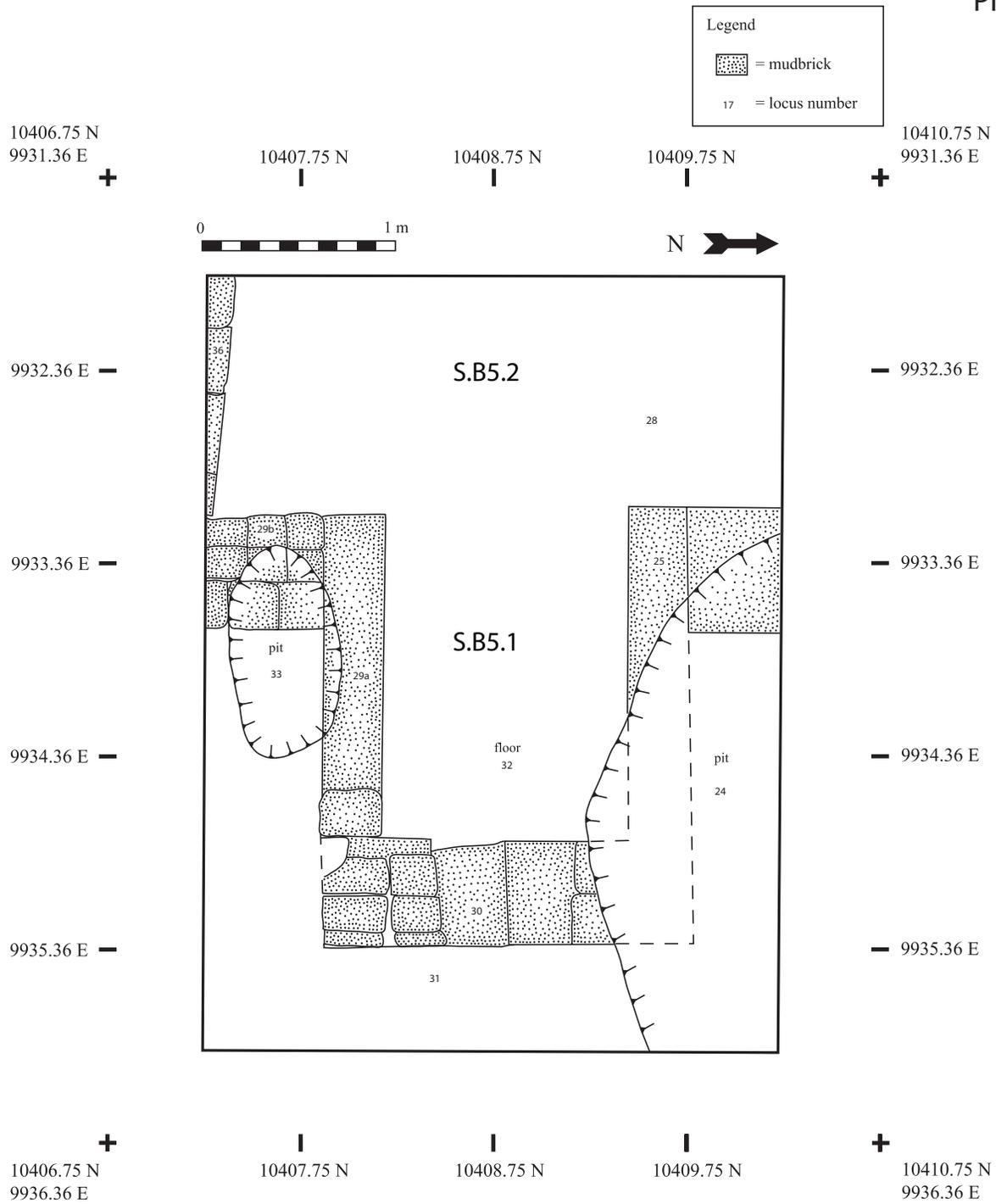
Building S.B3, Area B, Operation 3 Phase D, Level LC 1a, Tell Zeidan  
The Black Building

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9931.36 E

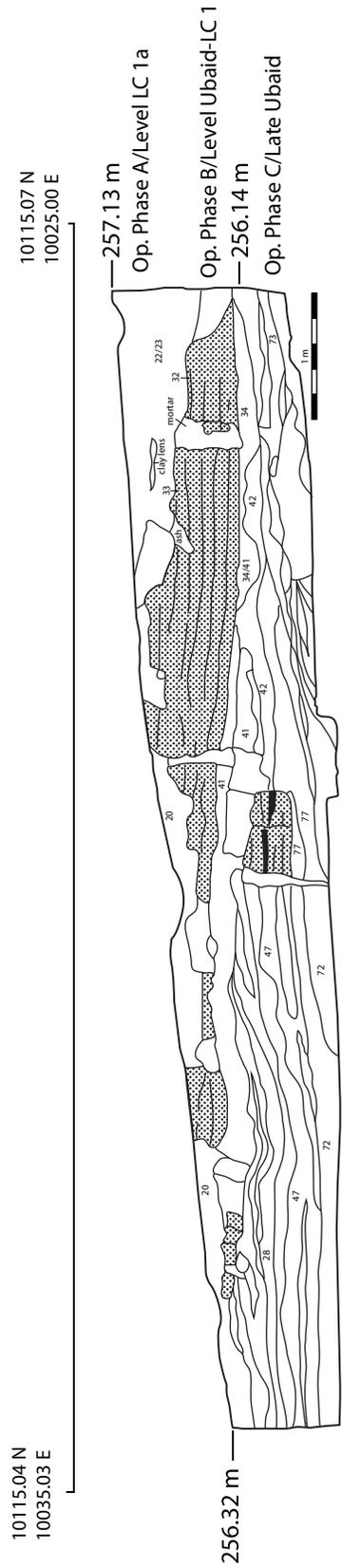
10410.75 N  
9931.36 E



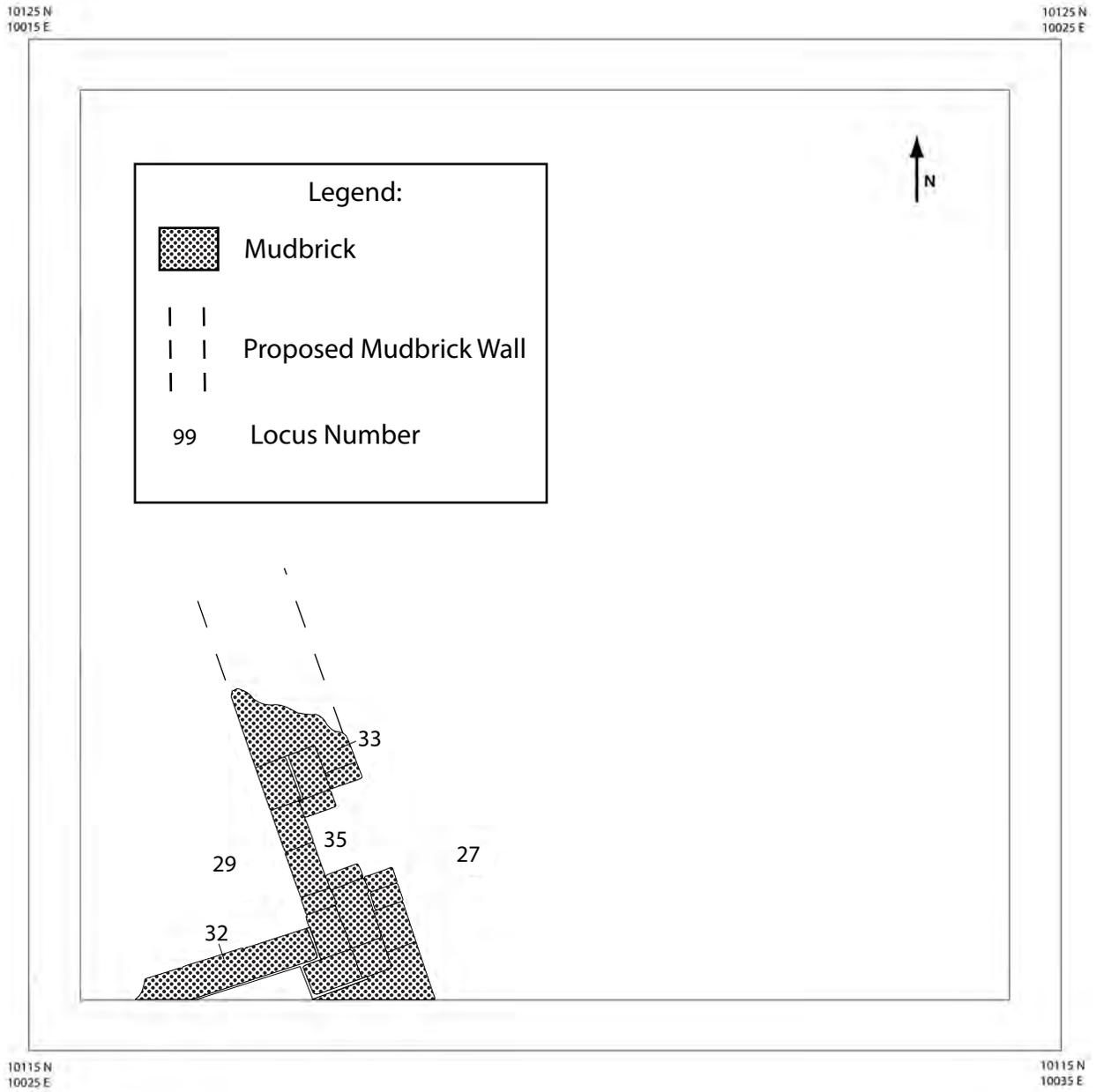
Building S.B4, Operation 3 Phase E, Area B, Level LC 1b, Tell Zeidan  
The Plastered Building



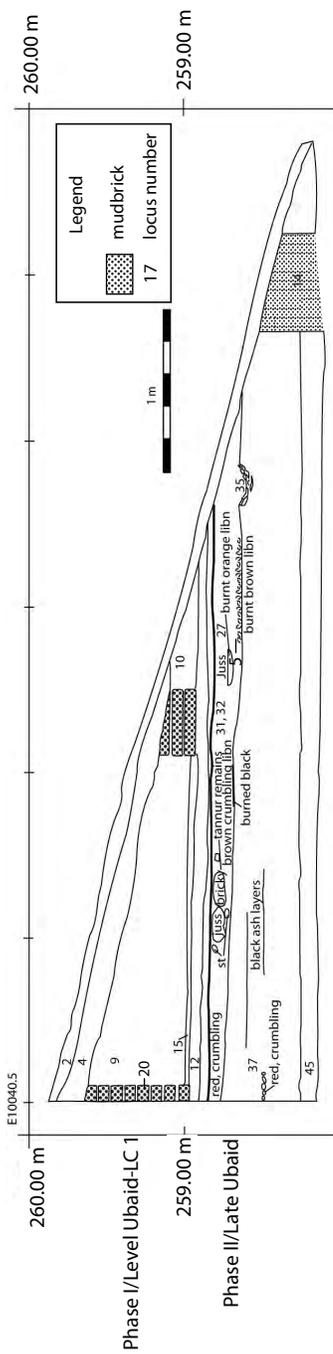
Building S.B5, Operation 3 Phase F, Area B, Level LC 1c, Tell Zeidan  
The T-Hall Shaped Building



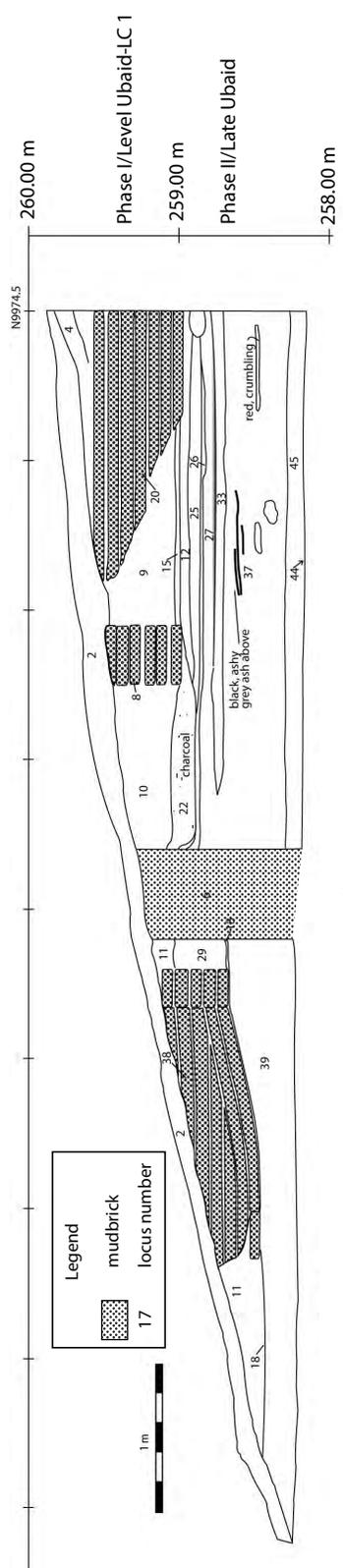
South Stratigraphic Section, Operation 9, Area C, South Mound, Tell Zeidan



Building S.C4, Level Ubaid-LC 1, Operation 9, Area C, Tell Zeidan

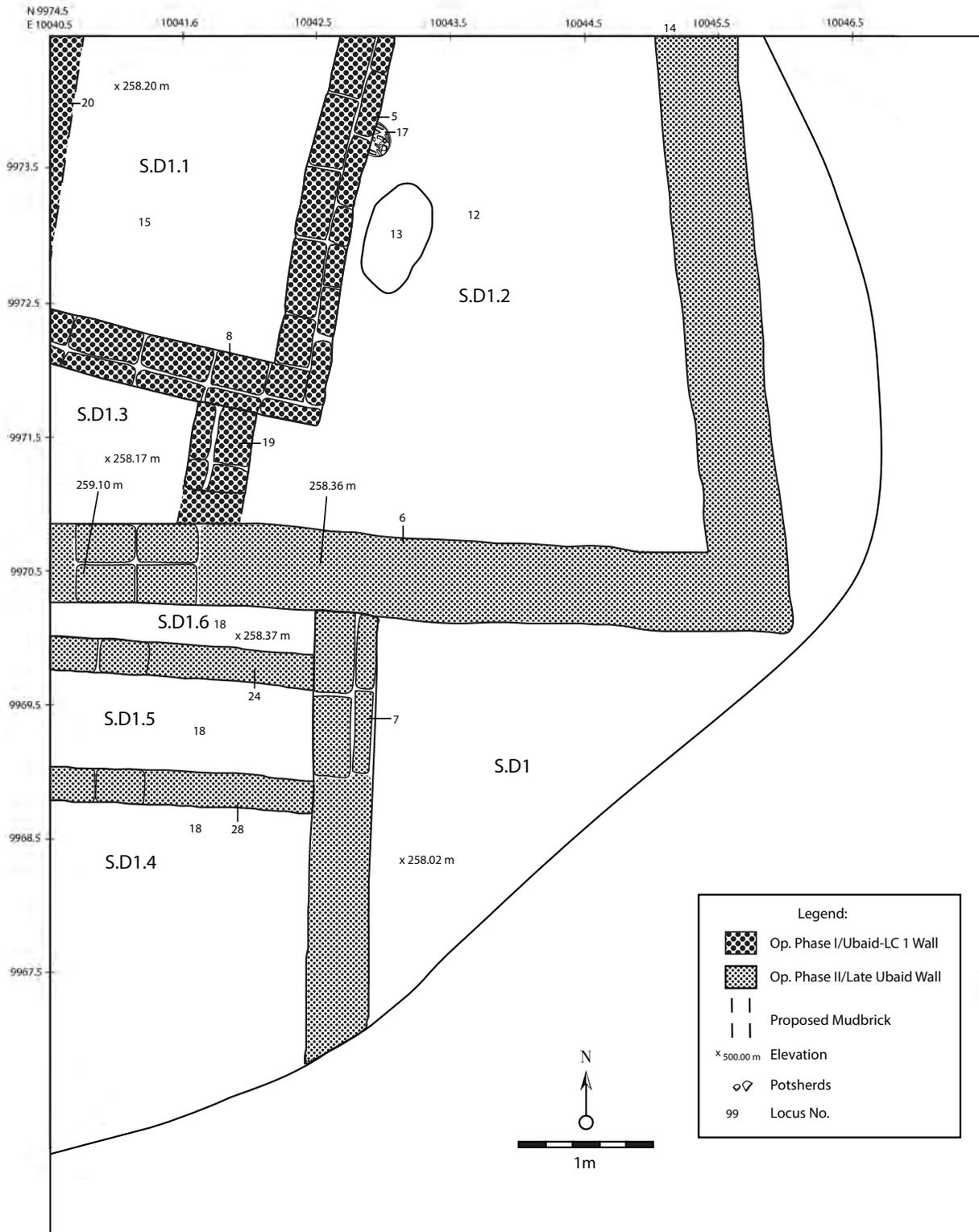


North Baulk

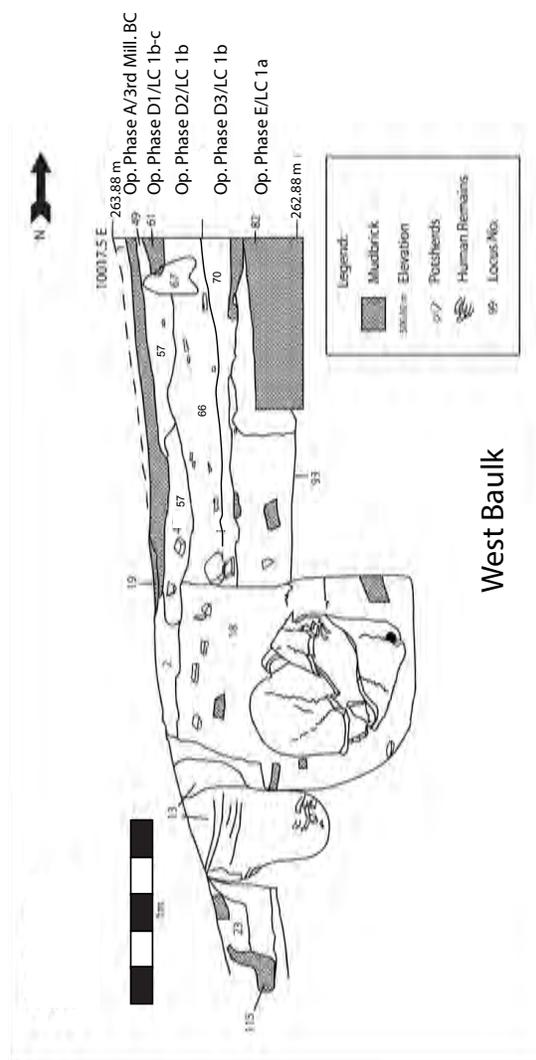
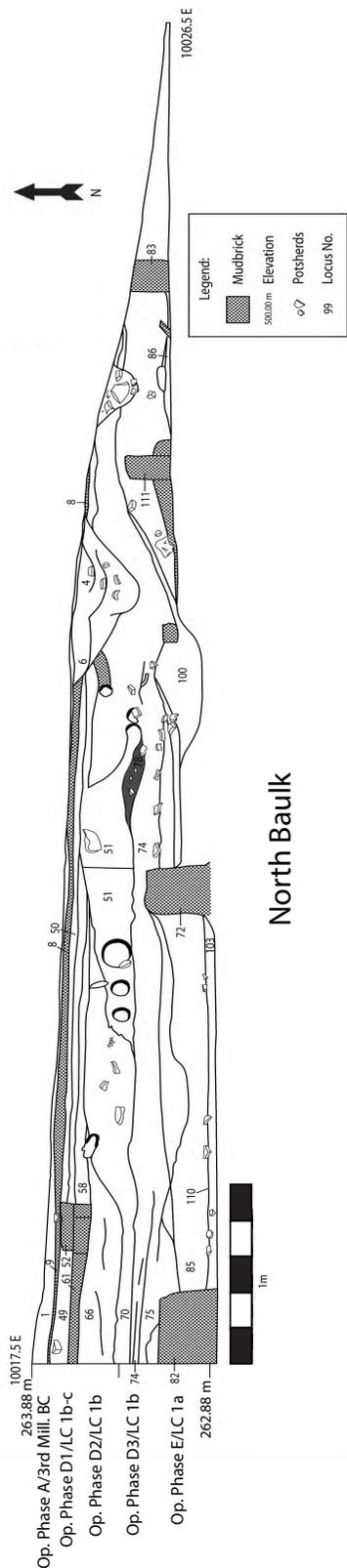


West Baulk

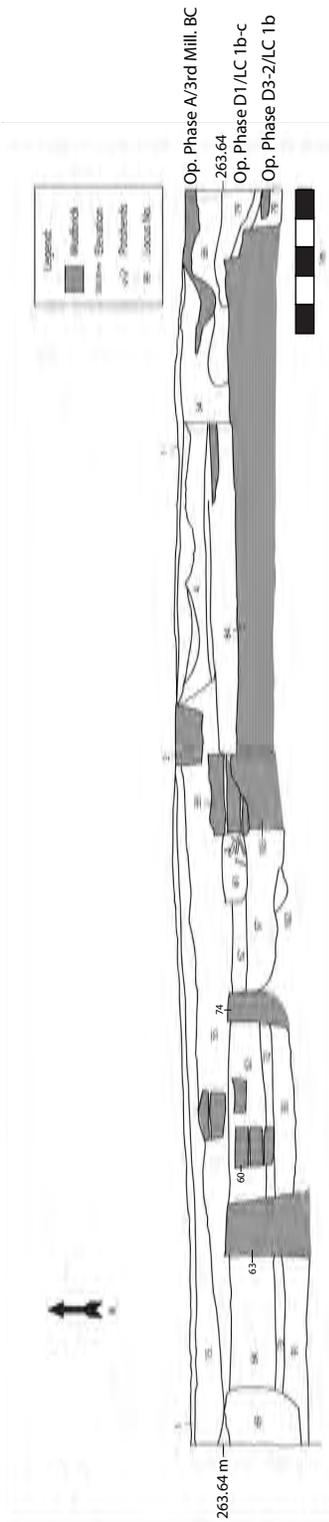
North and West Stratigraphic Sections, Operation 17, Area D, South Mound, Tell Zeidan



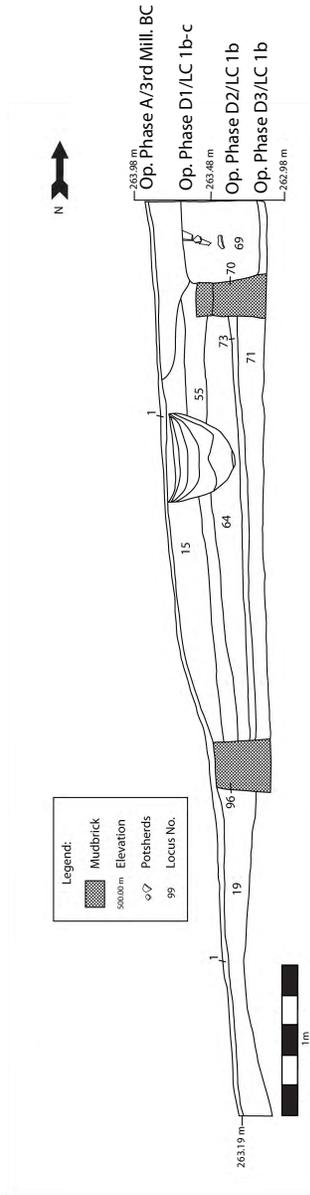
Building S.D1, Late Ubaid & Ubaid-LC 1, Op. 17, Area D, Tell Zeidan



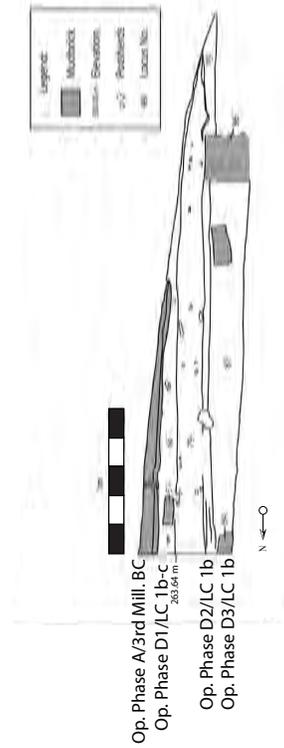
North and West Stratigraphic Sections, Operation 15, Area E, South Mound Tell Zeidan



North Baulk



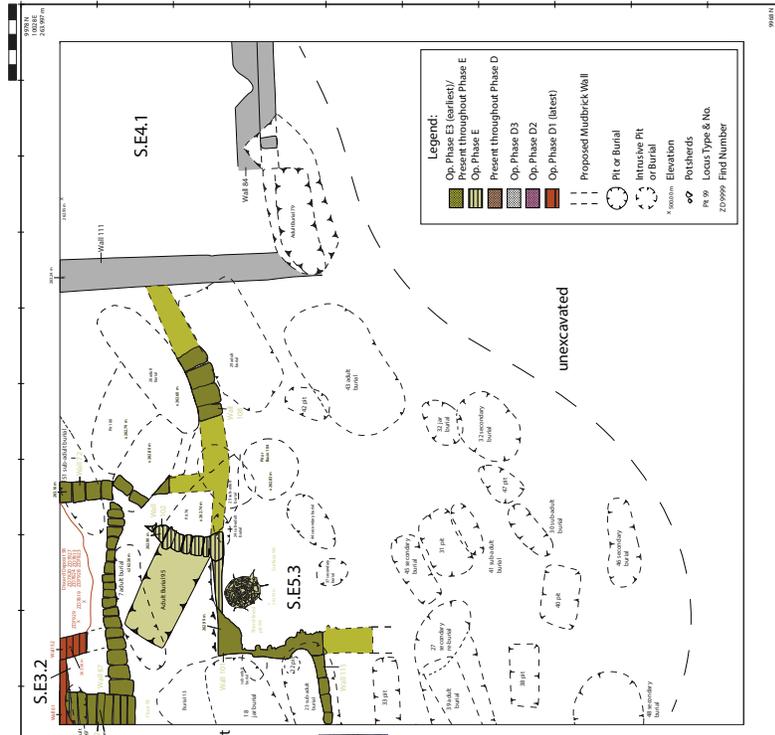
West Baulk



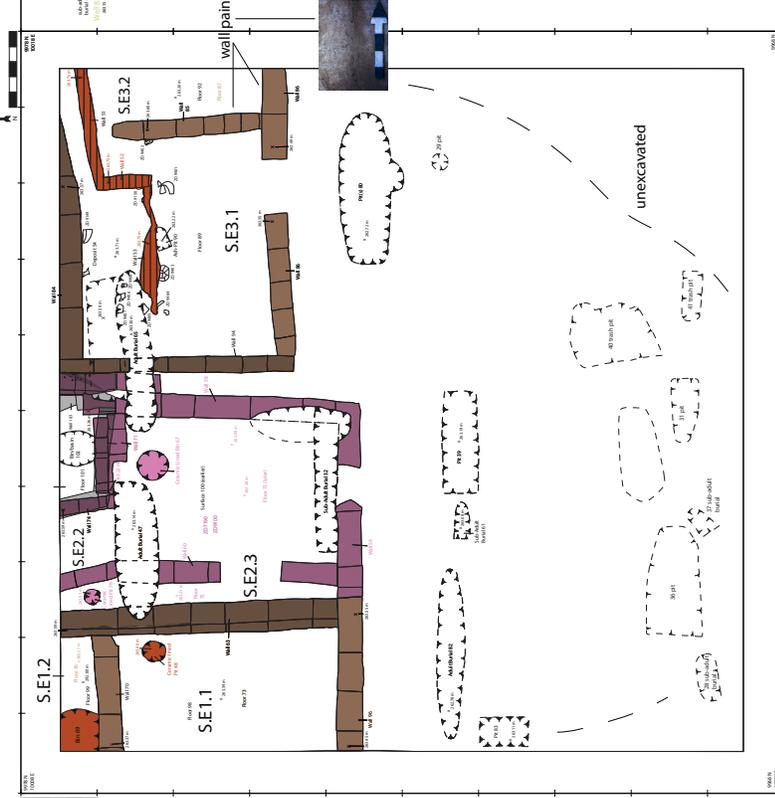
East Baulk

North, East, and West Stratigraphic Sections, Operation 16, Area E, South Mound, Tell Zeidan

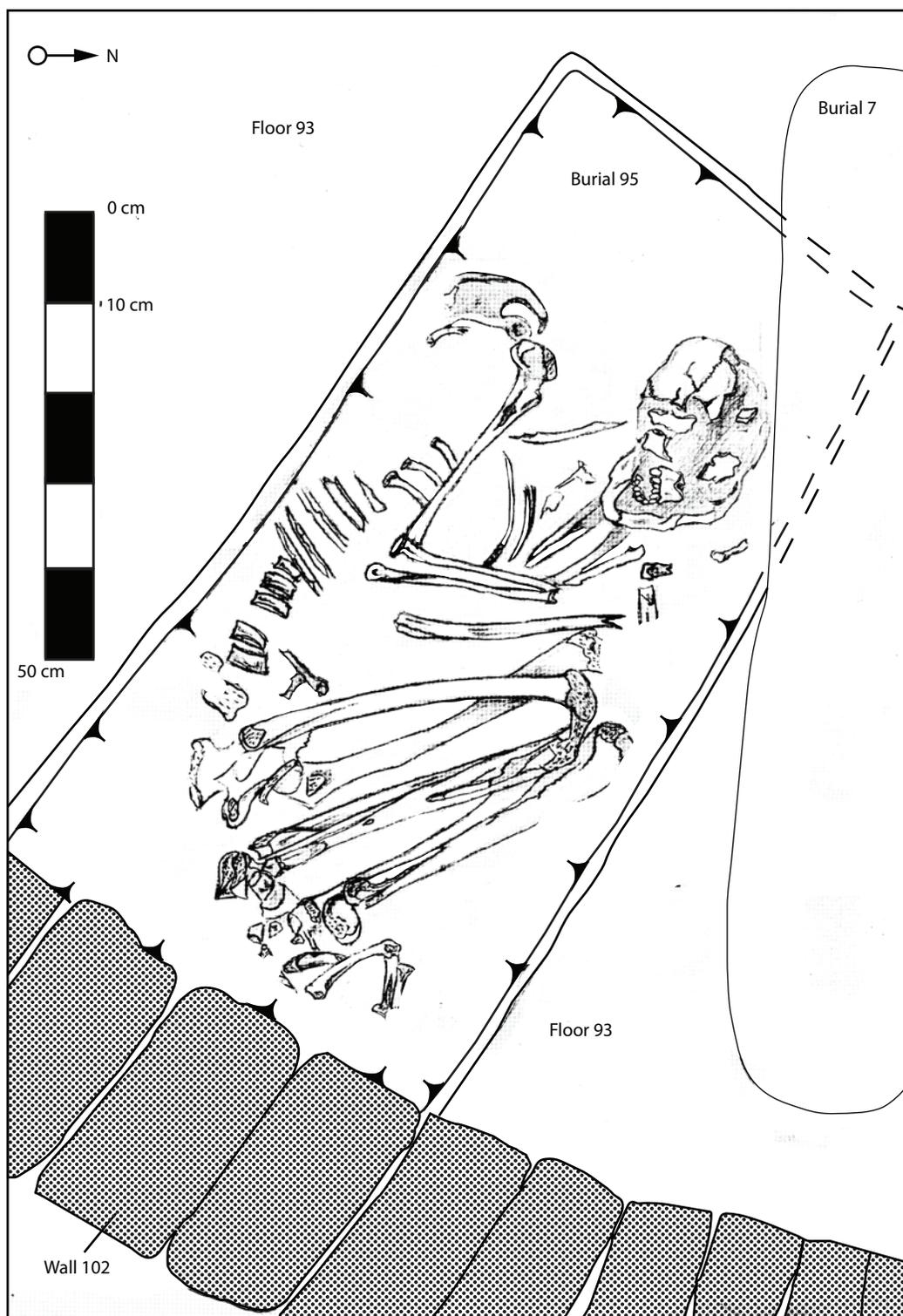
Operation 15



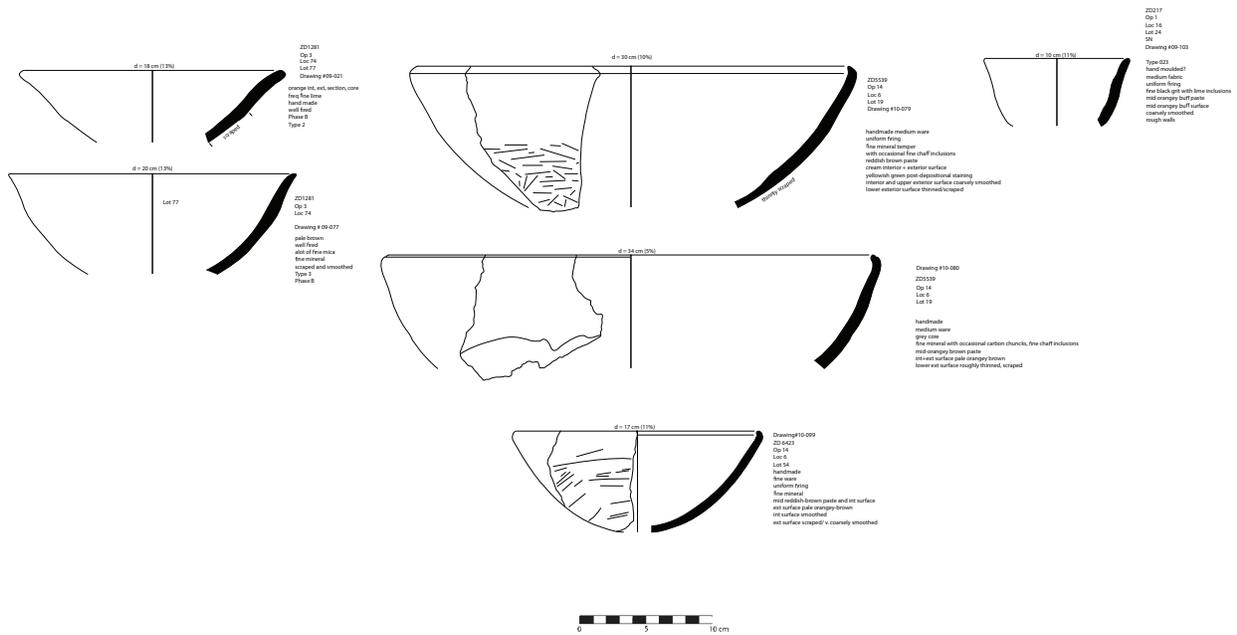
Operation 16



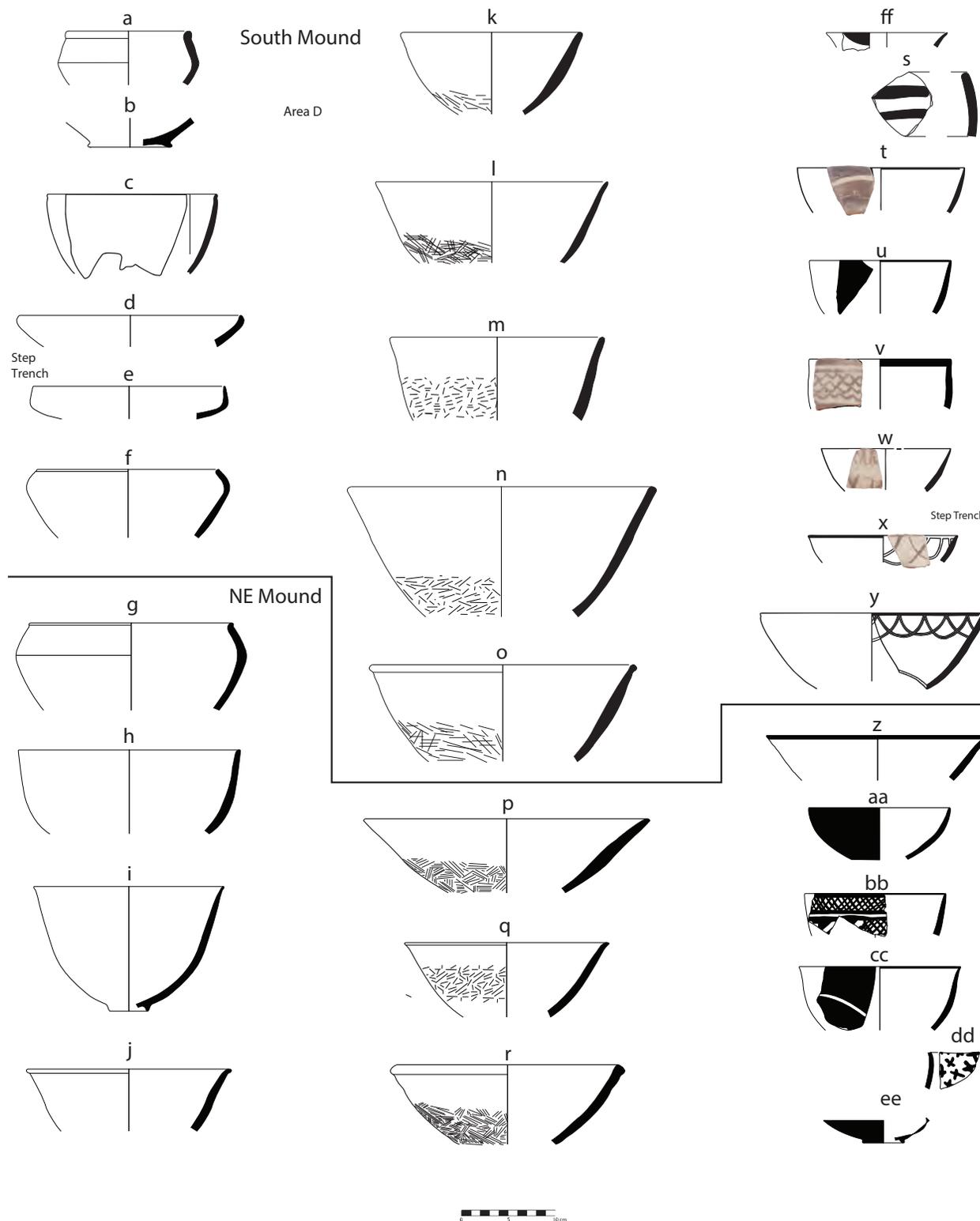
LC 1a (in green) and LC 1b Buildings in Area E, Tell Zeidan



Adult Burial 95, Building S.E5.2, Level LC 1a, Operation 15, Area E, Tell Zeidan

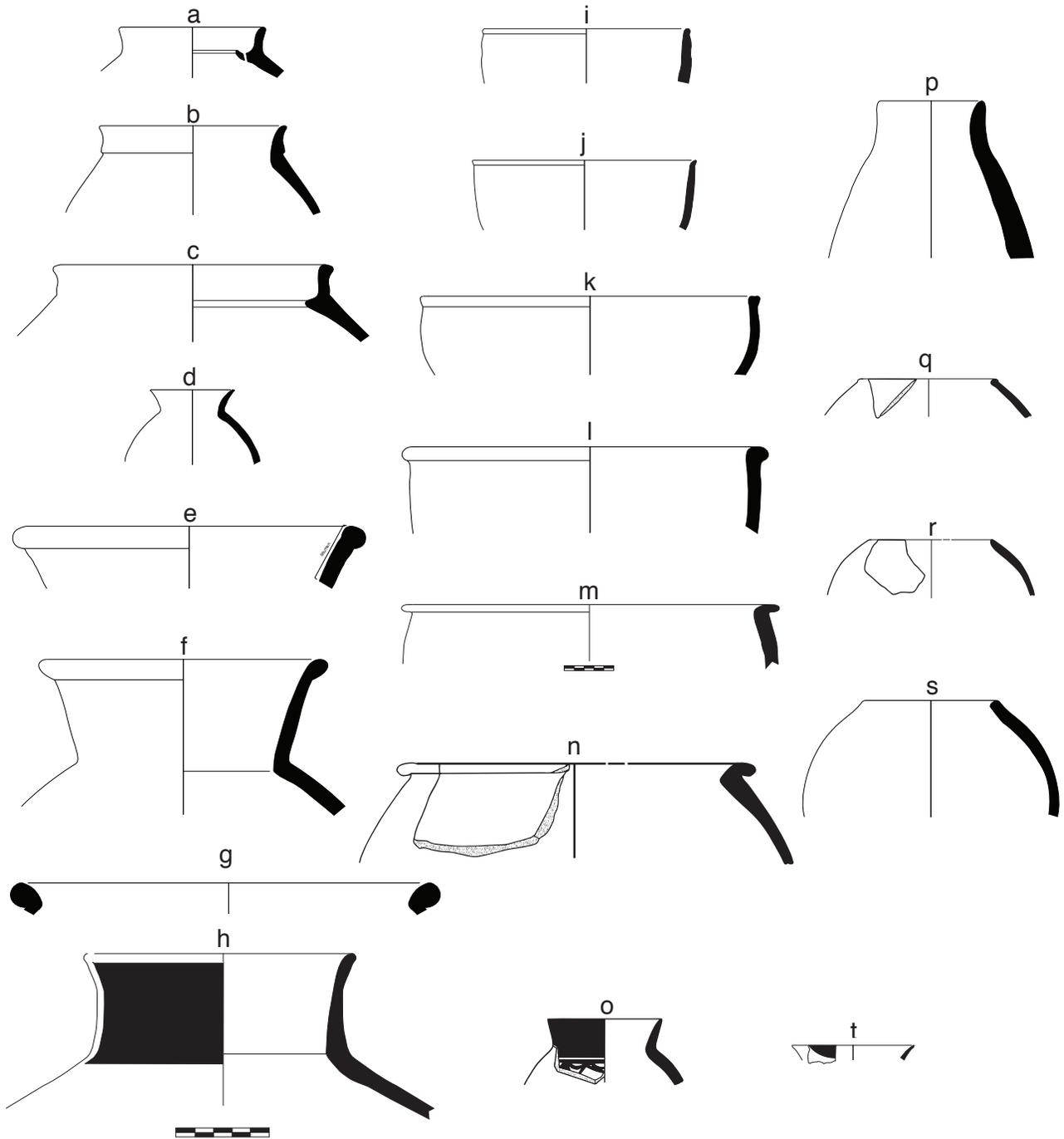


Ubaid-Period Scraped-Bottom & Mold-Made Bowls, Tell Zeidan



Ubaid-LC 1 Bowls & Bases, Tell Zeidan

Ref.	Name	Color	Temper	Ware	Firing	Techniques	Diam. (cm)	Contexts	Comparanda	Pl. 23 T
a	Carinated pot with thick-beaded everted rim	yellow-green	mixed	medium	even		12	170012	Hammam IVC (Akkermans 1988b: Pl. 86.208)	
b	Ring base sherd	buff	mineral		even	coarse smoothed	8	10008	Hammam IVD (Akkermans 1988b: Pl. 96.300, 302); IVC (Akkermans 1988b: Pl. 87.222-3)	
c	Lipped-rim deep bowl	red	mixed	medium	gray core	smoothed	18	10008	Hammam IVC (Akkermans 1988b: Pl. 85.209)	
d	Inverted-rim dish	buff	vegetal	medium	even	wiped	22	10008	Hammam IVA (Akkermans 1988b: Pl. 72.61)	
e	Carinated dish	brown	mineral	med-fine	well-fired		19	10008	Hammam IVA (Akkermans 1988b: Pl. 72.63); Hammam VB (Akkermans 1988c: Pl. 104.73); Oylum (Özgen et al. 1999: Abb. 32.6)	
f	Beaded-lip carinated pot	orange	mixed	med-fine	even		18	10008	Hammam IVD (Akkermans 1988b: Pl. 93.282); Hammam IVA (Akkermans 1988b: Pl. 73.73-74)	
g	Beaded-lip carinated pot	yellow-green	mineral	medium	even	coil-made	20	30063	Hammam IVD (Akkermans 1988b: Pl. 93.281); Abr Stage IV (Yamazaki 2012: Fig. 6 no. 5); Abr Stage II (Yamazaki 2012: Fig. 3 nos. 20-21)	
h	Deep simple rim bowl	buff	mineral	medium	even	smoothed	22	30063	Hammam IVC (Akkermans 1988b: Pl. 85.206)	
i	Sinuuous-sided ring-based bowl (bell-shaped bowl)	brown	mineral	med-fine	well-fired	handmade	19	30063	Hammam IVD (Akkermans 1988b: Pl. 91.264); Leilan Vla.60 (Schwartz 1988: Fig. 67.9, but painted)	
j	Beaded-lip bowl	buff	mixed	med-fine	even	handmade	21	30063	Hammam IVD (Akkermans 1988b: Pl. 92.274); Oylum (Özgen et al. 1999: Abb. 32.1)	
k	Coba Bowl	buff brown and creamy pinkish	mineral	medium	even	handmade, lightly scraped	19	170009	Hammam VA (Akkermans 1988b: Pl. 99.27)	
l	Coba Bowl	buff reddish-brown	mineral	medium	even	handmade, scraped	23	170009	Hammam VA (Akkermans 1988b: Pl. 99.25)	
m	Coba Bowl	and orange buff	mineral	medium	even	handmade, lightly scraped	21	170009	Hammam VA (Akkermans 1988b: Pl. 99.25)	
n	Coba Bowl	buff	mineral	medium	even	handmade, scraped	30	170009	Hammam VA (Akkermans 1988b: Pl. 99.25)	
o	Beaded-Lip Bottom-Scraped Bowl	orange-brown	mineral	medium	even	handmade, finely scraped	26	170009	Hammam IVD (Akkermans 1988b: Pl. 92.268);	
p	Coba Bowl	brown		medium		handmade, smoothed	28	30063	Hammam VA (Akkermans 1988b: Pl. 99.24-5)	
q	Beaded-Lip Bottom-Scraped Bowl	brown	mixed	medium		handmade, scraped	20	30063	Hammam IVD (Akkermans 1988b: Pl. 92.268);	
r	Beaded-Lip Bottom-Scraped Bowl	buff	mineral	medium		handmade in two parts, scraped	22	30063	Hammam IVD (Akkermans 1988b: Pl. 93.275)	
s	Wavy-band painted sherd	buff and cream	mineral	medium	even	handmade, dark-brown painted, coarse-smoothed		170009	Hammam IVC (Akkermans 1988b: Pl. 81.167); Thalathat II (Egami 1958: Pl. LXXVI.19)	
t	Simple-rim fine bowl	yellow-green	mineral	med-fine	even	brown painted	18	10008	Hammam IVC (Akkermans 1988b: Pl. 82.176); Norsuntepe (Gulçur & Marro 2012: Fig. 1.3-4, 6; unpainted)	
u	Simple-rim fine bowl	brown	mineral	med-fine	well-fired	handmade, brown painted	14	10008	Hammam IVC (Akkermans 1988b: Pl. 80.163; Pl. 82.172); Leilan Vla.58 (Schwartz 1988: Fig. 67.4)	
v	Sinuuous-sided pot	cream and reddish-brown	mineral	fine	even	handmade, self-slipped, smoothed, thin-matte painted	14	10008	Motif Afis 18c (Gianessi 2012: Fig. 6.7); Karaça Khirbet Ali (Gianessi 2012: Fig. 9.3); Shape: Hammam IVC (Akkermans 1988b: Pl. 81.166)	
w	Pinched-rim bowl	greenis-yellow and buff	mineral/none	medium	even	handmade, light-brown painted		10008	Hammam IVC (Akkermans 1988b: Pl. 82.176, different motif);	
x	Pinched-rim bowl	yellowish-buff	mineral/none	medium	even	handmade, brown painted	16	10008	Gawra XII (Tobler 1950: Pl. CXXXIII.238); Hammam IVA (Akkermans 1988b: Pl. 71.46); Abr Stage IV (Yamazaki 2012: Fig. 6 no. 3) Gawra XII (Tobler 1950: Pl. CXXXIII.238); Hammam IVA (Akkermans 1988b: Pl. 71.46); Abr Stage IV (Yamazaki 2012: Fig. 6 no. 3) Hammam IVB (Akkermans 1988b: Pl. 77.134, but less angular);	
y	Pinched-rim bowl			medium		brown painted	23.5	10008	Hammam IVC (Akkermans 1988b: Pl. 84.188, but unpainted)	
z	V-shaped bowl	greenish-buff	mineral	medium		handmade, brown painted	22	30063	Hammam IVC (Akkermans 1988b: Pl. 82.173);	
aa	Simple-rim bowl	green	mineral	medium	even	handmade, brown painted	14	30074	Hammam IVB (Akkermans 1988b: Pl. 77.129)	
bb	Simple-rim bowl	brown brown and	mineral	medium		handmade, dark-brown painted	14	30063	Hammam IVB (Akkermans 1988b: Pl. 77.131)	
cc	Sinuuous-sided bowl	green	mineral	fine		handmade, brown painted	16	30063		
dd	Fine-ware painted sherd	green	mineral	fine	well-fired	painted		30063		
ee	Fine-ware painted base		mineral	fine		painted	4	30063	Hammam IVC (Akkermans 1988b: Pl. 84.188, but unpainted); Leilan Vla.58 (Schwartz 1988: Fig. 67.4)	
ff	Wide simple-rim bowl	orange-brown	mineral	fine	even	fugitive black paint	12	170012		

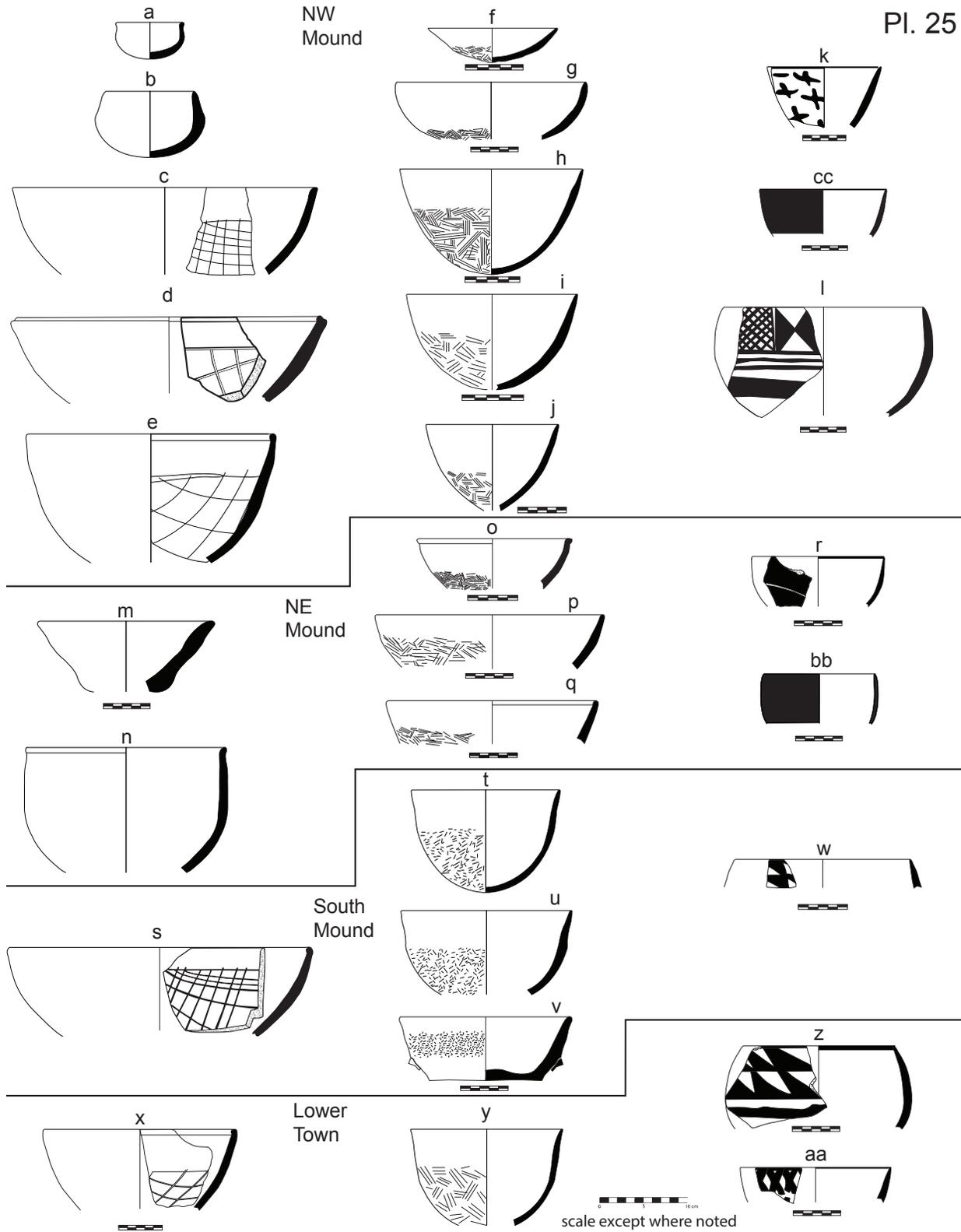


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scale except where noted

Ubaid-LC 1 Jars & Pots, Tell Zeidan

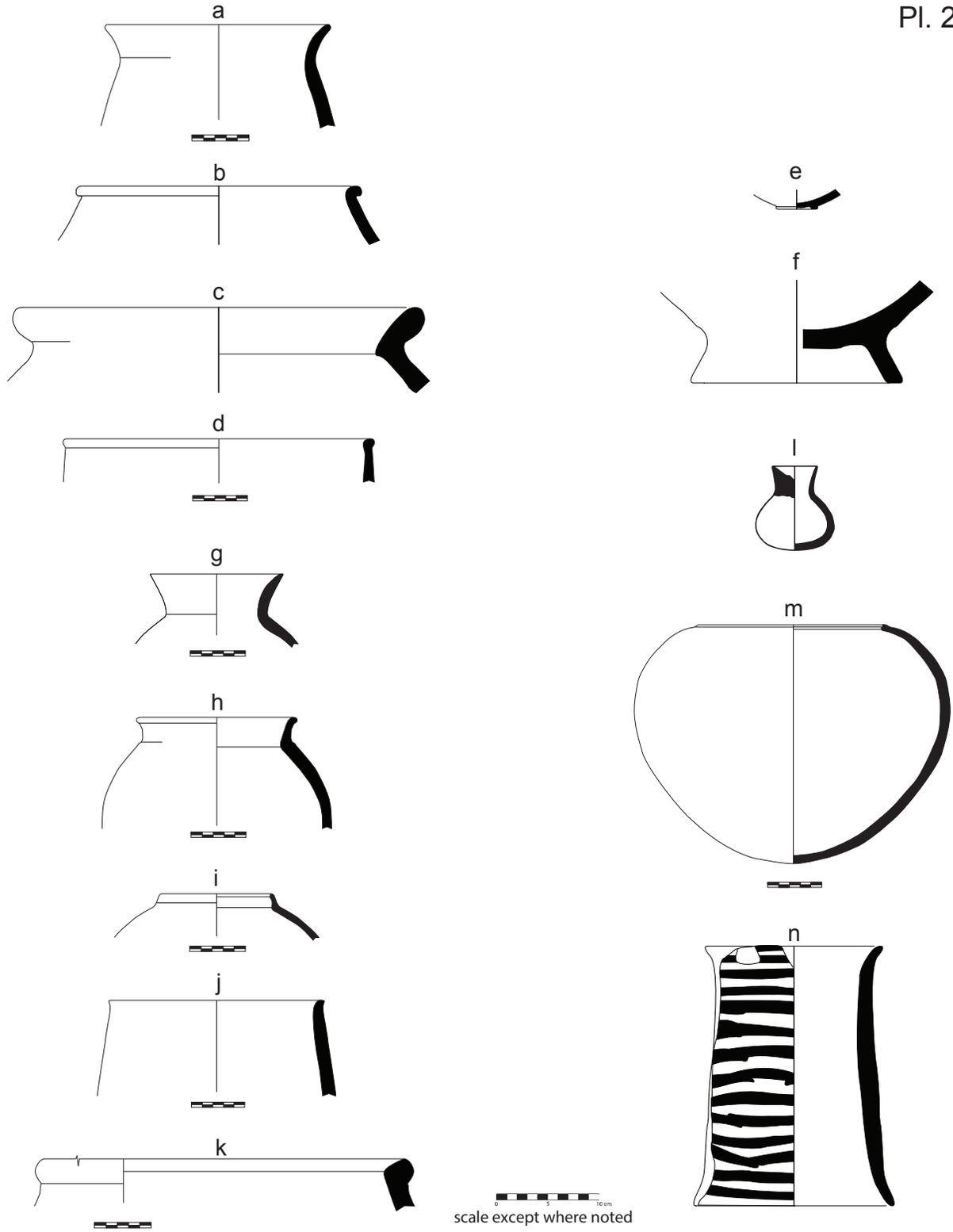
Ubaid-LC 1 Jars and Pots

Ref.	Type	Color	Temper	Ware	Firing	Techniques	Diam. (cm)	Context	Comparanda
a	Channel-rim jar	green and buff	mineral	medium			14	10008	Hamoukar Level 2 (LC 2; Abu Jayyab 2012: Fig. 7.13-14); Feres Level 6 (LC 2; Baldi 2012a: Pl. 8.6)
b	Band-rim jar	buff	mixed	medium			18	30063	Hamoukar Level 2 (LC 2; Abu Jayyab 2012: Fig. 7.12); Brak "post-Ubaid ditch" (Hole 2001: Fig. 8.7)
c	Interior-ledge rim jar	brown	mixed	medium			26	30075	
d	Flaring simple-rim jar	brown	mixed	medium		rim smoothed	8	30063	
e	Beaded flaring-rim jar	brown	vegetal	med-coarse		handmade; bitumen-coated interior	32	10008	Afis 18a-b (Gianessi 2012: Fig. 5.14) Hammam IVD (Akkermans 1988b: Pl. 94.285); Hammam VA (Akkermans 1988c: Pl. 103.64); Kosak Shamali Sector B Level 5 (Koizumi & Sudo 2001: Fig. 4.14.9)
f	Beaded flaring-rim jar	brown	mixed	coarse			27	30063	Leilan Vlb.57 (Schwartz 1988: Fig. 66.6, 8)
g	Heavy rolled-rim jar	green	vegetal	coarse			44	30063	
h	Flaring-rim jar					painting	16		Leilan Vlb.58 (Schwartz 1988: Fig. 68.2); Abr Stage IV (Yamazaki 2012: Fig. 6.12-13) Hammam IVC (Akkermans 1988b: Pl. 86.209); Arjoune II-IV (Marfoe et al.: Fig. 7.51)
i	Beaded-rim pot	cream and pinkish brown	mixed	coarse		handmade (coiled?)	20	170012	Hammam IVC (Akkermans 1988b: Pl. 86.209); Arjoune II-IV (Marfoe et al.: Fig. 7.40)
j	Beaded-rim pot	reddish-brown	mineral	medium	even	handmade, smoothed	22	170012	Öylum (Helwing 2012: Fig. 16.6 & 15); Afis Lv. 18a-b (Gianessi 2012: Fig. 5 no. 10); Qalinj Agha IV (al-Soof 1966: Pl. 2)
k	Grooved-rim globular pot	red	mixed				32	30063	Hammam IVC (Akkermans 1988b: Pl. 87.221)
l	Club-rimmed pot	green				handmade	35	30063	Hammam IVC (Akkermans 1988b: Pl. 87.220); Leilan Vlb.58 (Schwartz 1988: Fig. 69.7); Gawra XII (Tobler 1950: Pl. CXXXVII.283)
m	Ledge-rim pot		mixed						Leilan Vlb.57 (Schwartz 1988: Fig. 66.4); Nuzi L4 XA (Starr 1939: Pl. 43.5)
n	Ledge-rim constrained mouth pot	green	vegetal		oxidized	smoothed	40	10008	Leilan Vlb.52a (Schwartz 1988: Fig. 62.9); Hammam IVD (Akkermans 1988b: Pl. 93.275); Hamoukar Level 4 (Abu Jayyab 2012: Fig. 1.13)
o	Flaring-rim jar	brown	mineral			dark painting	12	10008	Norşuntepe (Gulçur & Marro 2012: Fig. 4.3)
p	Collar-necked bottle	gray-black	vegetal	coarse		handmade (coiled?)	10	10008	Norşuntepe & Ovçular (Gulçur & Marro 2012: Fig. 2.5-6)
q	Hole-mouth pot with heavy beaded rim	grayish buff	vegetal	medium	oxidized		14	10008	Norşuntepe & Ovçular (Gulçur & Marro 2012: Fig. 2.5-6)
r	Hole-mouth pot with plain rim							10008	Nor şuntepe & Ovçular (Gulçur & Marro 2012: Fig. 2.5-6)
s	Hole-mouth pot with flat inverted rim	gray	mixed	med-coarse		burnished	13	30063	Nor şuntepe & Ovçular (Gulçur & Marro 2012: Fig. 2.5-6); Leilan Vlb.57 (Schwartz 1988: Fig. 66.5)



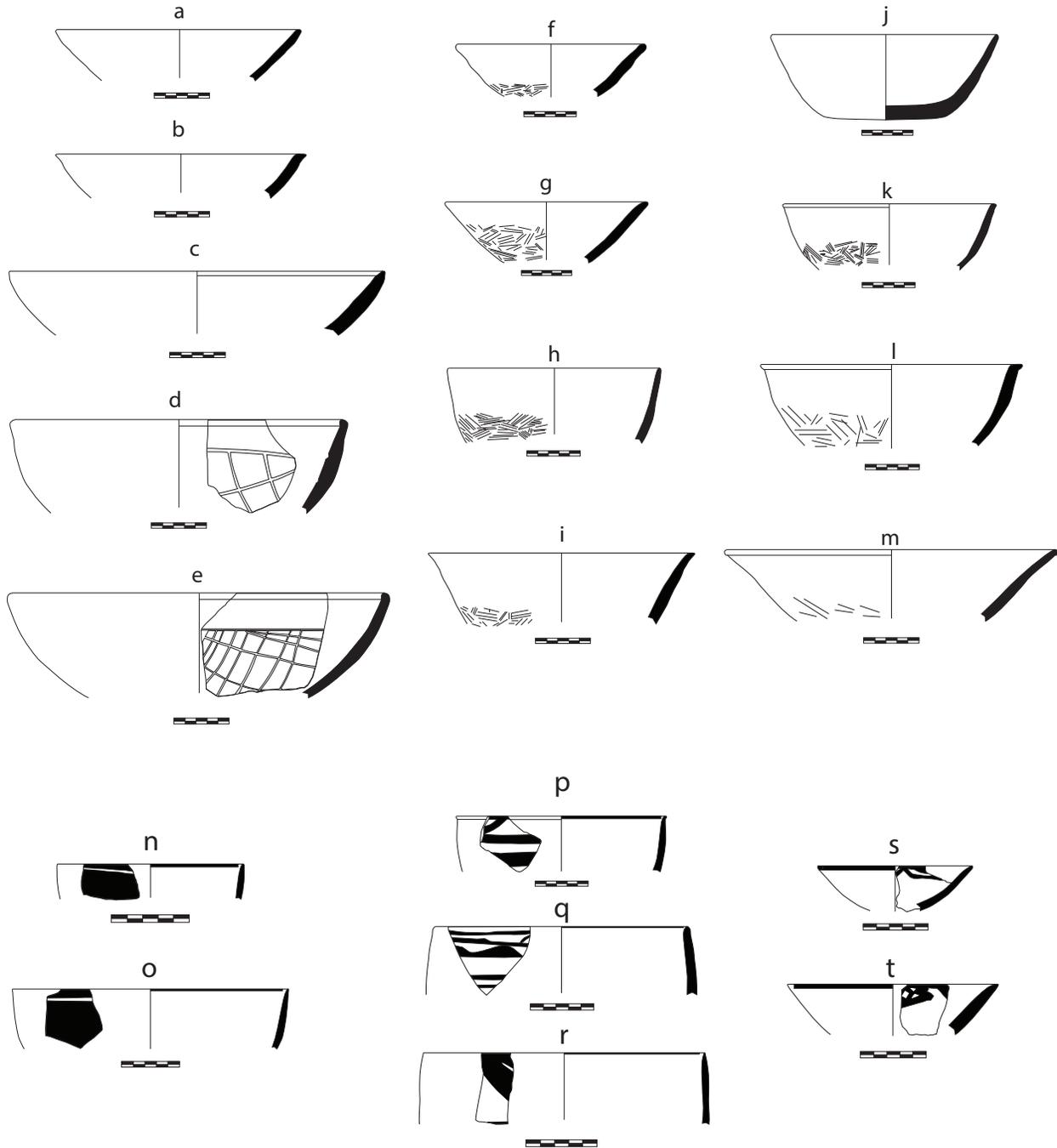
LC 1a-b Bowls: a-b) cups; c-d, s, x) internally-incised bowls; m) Wide Flower Pot Bowl; n) U-shaped pot; f-j, p, t-u, y) Coba Bowls; o, q) Beaded-Lip Bottom-Scraped Bowls; k-l, r, w, z-cc) painted bowls, Tell Zeidan

Ref.	Type	Color	Temper	Ware	Firing	Techniques	Diam. (cm)	Contexts	Comparanda
a	Everted pinched-rim cup	brown	mineral	med-fine		handmade	7	100055	Hammam IVD (Akkermans 1988b: Pl. 91.262)
b	Pinched-rim cup	brown and orange	mineral	medium	well-fired	handmade	7	100055	Gawra XII (Tobler 1950: CXXXIII.237) Brak HS6 Lv. 6 (Matthews 2003a: Fig. 13.11-13); Nuzi Kh. 16 (Starr 1939: Pl. 45.B)
c	Internally-incised bowl	buff green	mixed	medium		incised	32	100032	Hammam IVD (Akkermans 1988b: Pl. 91.258)
d	Internally-incised bowl with internally beaded rim								Hammam IVD (Akkermans 1988b: Pl. 91.258)
e	Internally-incised bowl with internally beaded rim	brown	mixed			incised	26	100043	Hammam IVD (Akkermans 1988b: Pl. 91.258)
f	Mini Coba Bowl	buff	vegetal	med-coarse	well-fired	scraped	13	100030	
g	Cobal Bowl	brown	mixed		well-fired	scraped	20		Hammam VA (Akkermans 1988c: Pl. 99.20)
h	Cobal Bowl	brown	mineral	fine	well-fired	scraped, smoothed interior	17	100046	Afis 18d (Gianessi 2012: Fig. 7.8)
i	Cobal Bowl	brown	vegetal	medium	well-fired	scraped, smoothed interior	18	100044	Hama L3a (Gianessi 2012: Fig. 15.4)
j	Cobal Bowl	buff	vegetal		well-fired	scraped, reddish-brown interior	14	100044	Hammam VA (Akkermans 1988c: Pl. 99.20)
k	Simple-rim bowl	buff			well-fired	scraped, painted	12	100042	Leilan Vib.57 (Schwartz 1988: Fig. 65.4) Hama L1 (Thuesen 1988: Pl. XXVI.1); Motif: Brak CH 19-20 (Oates 2012: Fig. 5.48, but not exact); Karaça Khirbet Ali (Gianessi 2012: Fig. 9.15?); Hama L3a (Gianessi 2012: Fig. 15.4?); Leilan Vib.57 (Schwartz 1988: Fig. 65.4)
l	Simple-rim globular bowl	brown and green	mineral	medium		scraped, painted	21	100043	
m	Wide Flower Pot Bowl	brown	vegetal	coarse		scraped	18	30049	Abr Stage II (Yamazaki 2012: Fig. 3 no. 19)
n	U-shaped pot	brown	mineral	med-coarse	well-fired	smoothed	21	30061	Hammam IVD (Akkermans 1988b: Pl. 93.275)
o	Beaded-Lip Bottom Scraped Bowl			medium		scraped, handmade,	15		Leilan Vib.57 (Schwartz 1988: Fig. 65.1)
p	Cobal Bowl	brown	mixed	medium		scraped, handmade,	24	30049	
q	(Internally) Beaded-Lip Bottom-Scraped Bowl	brown	vegetal	med-coarse		scraped, handmade,	24	30049	
r	Simple-rim bowl			med-fine		scraped, dark painted	14	30049	Hammam IVC (Akkermans 1988b: P. 82.176)
s	Internally-incised bowl with internally beaded rim			medium		incised			Hammam IVD (Akkermans 1988b: Pl. 91.258)
t	Cobal Bowl	buff and brown	mixed	medium		scraped	16	160079	Hammam VA (Akkermans 1988c: Pl. 99.20)
u	Cobal Bowl	orange and brown	mixed	medium		scraped	18	160079	Hammam VA (Akkermans 1988c: Pl. 99.20)
v	Flat-based crude bowl	buff	mixed	coarse		scraped	18	160079	
w	Incurving simple-rim globular bowl			medium		scraped, dark painted			Leilan Via.58 (Schwartz 1988: Fig. 67.6)
x	Internally-incised bowl with internally beaded rim	green	mixed	medium		incised	20	200004	Hammam IVD (Akkermans 1988b: Pl. 91.258)
y	Cobal Bowl	buff and orange	mixed	medium		scraped, dark	16	200004	Hammam VA (Akkermans 1988c: Pl. 99.20)
z	Incurving simple-rim globular bowl	buff	mixed	coarse		scraped, dark painted	18	200002	Leilan Vib.57 (Schwartz 1988: Fig. 64 no. 3; Pl. 16.e)
aa	Simple-rim bowl	green	vegetal	medium		scraped, dark painted	16	200004	Kenan Tepe (Parker et al. 2006: Fig. 19 C)
bb	Incurving simple-rim bowl					scraped, dark painted	12		Leilan Via.58 (Schwartz 1988: Fig. 67.7)
cc	Simple-rim bowl			med-fine		scraped, brown painted	13		Hammam IVC (Akkermans 1988b: P. 82.174)



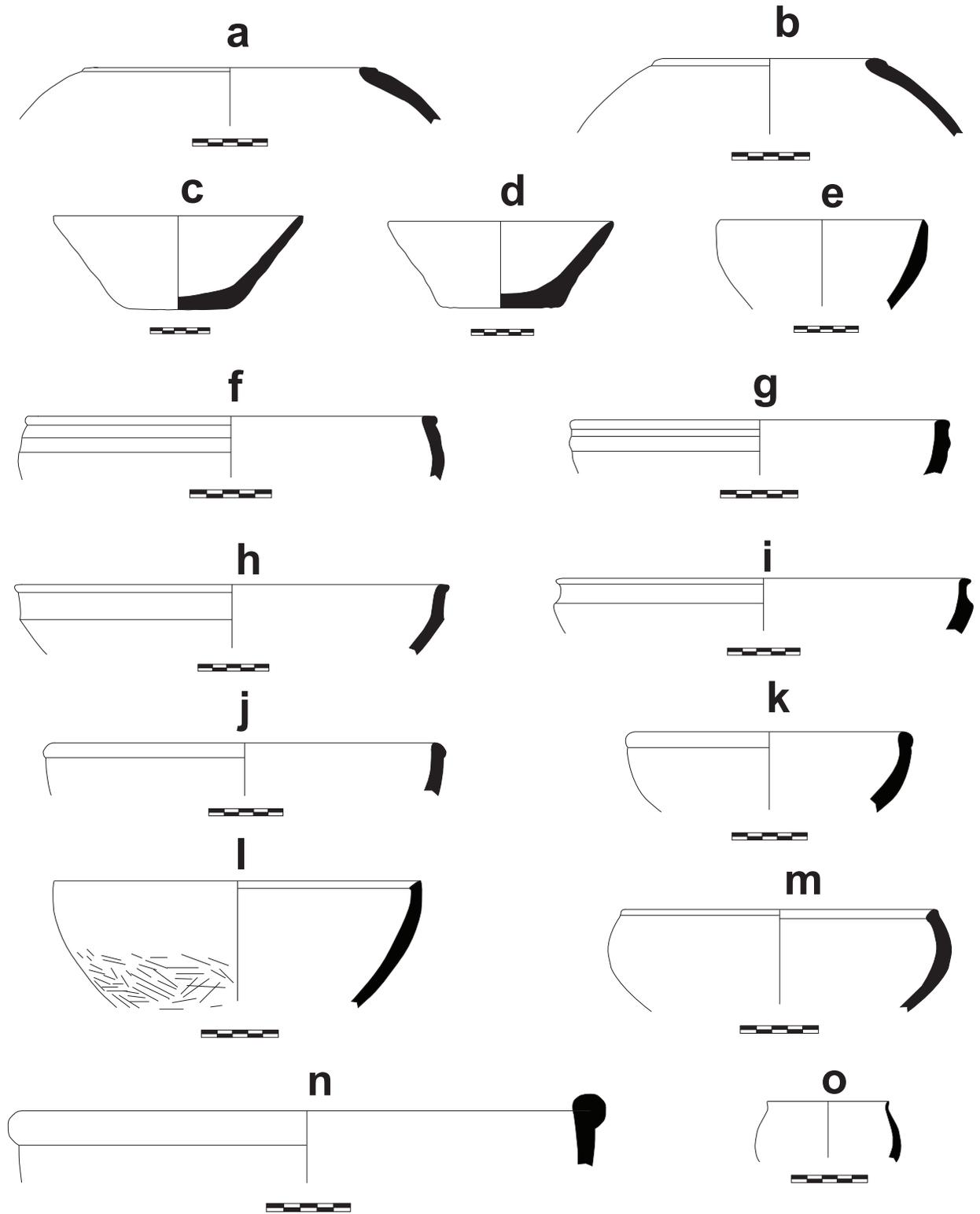
LC 1 Jars, Pots, & Bases - a-f) LC 1a-b; g-m) LC 1c-d; n) painted jar stand, Tell Zeidan

Ref.	Type	Color	Temper	Ware	Firing	Techniques	Diam. (cm)	Contexts	Comparanda
a	Flaring simple-rim jar	brown	vegetal and shell	coarse	dark core		20	200004	Leilan Vib.57 (Schwartz 1988: Fig. 66.6, 8); Oylum (Özgen et al. 1999: Abb. 32.2)
b	Ledge-rim jar with sloping shoulders	buff green and pink	vegetal	med-coarse		wiped surface	25	100032	Leilan Vib.52a (Schwartz 1988: Fig. 66.1, possibly a low-carinated pot) Brak "post-Ubaid ditch" (Hole 2001: Fig. 8.3); Hammam IVD (Akkermans 1988b: Pl. 95.294)
c	Everted rolled-rim jar with interior angle	buff green	mixed			wiped surface	36	100032	
d	Club-rim pot		mixed				28	150065	
e	Ring base sherd	gray and yellow	mineral	fine	even	handmade	3	10005	
f	Pedestal base sherd	gray and yellow	mixed	coarse	reduced core	handmade	17	10005	Madhur II (Roaf 1989: Fig. 3 G) Hammam IVD (Akkermans 1988b: Pl. 95.292); Hamoukar Level 3 (Abu Jayyab 2012: Fig. 5.6)
g	Flaring-rim jar						13		Hammam IVD (Akkermans 1988b: Pl. 95.290)
h	Cutaway collar-neck rolled-rim jar								Hamoukar Level 2 (LC 2; Abu Jayyab 2012: Fig. 7.11); Brak "post-Ubaid ditch" (Hole 2001: Fig. 8.10);
i	Interior-ledge collar-rim jar								Oylum (Özgen et al. 1999: Abb. 33.1)
j	Everted lip beaker						21		Hammam IVD (Akkermans 1988b: Pl. 95.295)
k	Internally-beveled club rim pot						32		
l	Miniature flaring-rim globular jar					dark painted			Nuzi XI (Starr 1939: Pl. 39.V)
m	Piriform internally-grooved beaded rim jar						20		Gawra XIA/B (Rothman 2002: Pl. 14.775)
n	Stand	greenish buff	vegetal		well-fired	coil made		100012	Gawra XIA/B (Rothman 2002: Pl. 9.824, but unpainted)



LC 1c-d Bowls - a-c) simple rim bowls; d-e) internally-incised bowls;  
 f-i) Coba Bowls; j) Wide Flower Pot Bowl;  
 k-m) Beaded-Lip Bottom-Scraped Bowls; n-o) lines in reserve;  
 p-q, s) wavy lines; r, t) unidentified patterns, Tell Zeidan

Ref.	Type	Color	Temper	Ware	Firing	Techniques	Diam. (cm)	Context	Comparanda
a	Wide simple-rim bowl						22		Norsuntepe (Gulçur & Marro 2012: Fig. 1.5)
b	Wide simple-rim bowl with extended lip						21		Leilan Via.58 (Schwartz 1988: Fig. 67.3, but painted)
c	Wide simple-rim bowl with internal groove						29		
d	Internally-incised bowl					incised	32		Hamam IVD (Akkermans 1988b: Pl. 91.258)
e	Internally-incised bowl	buff	vegetal		even	incised, smoothed	34	20043	Hamam IVD (Akkermans 1988b: Pl. 91.258)
f	Coba Bowl					scraped	16		Hamam VA (Akkermans 1988c: Pl. 99.20)
g	Coba Bowl					scraped	18		Hamam VA (Akkermans 1988c: Pl. 99.20)
h	Coba Bowl					scraped	20		Hamam VA (Akkermans 1988c: Pl. 99.20)
i	Coba Bowl					scraped	23		Hamam VA (Akkermans 1988c: Pl. 99.20)
j	Wide Flower Pot Bowl					mold-made	22		Gawra XI-A (Tobler 1950: Pl. CXLI.330); Coba Hoyuk IVC (du Plat Taylor et al. 1950: Fig. 18.5)
k	Beaded-Lip Bottom-Scraped Bowl					scraped	21		Hamam IVD (Akkermans 1988b: Pl. 93.277-8)
l	Beaded-Lip Bottom-Scraped Bowl					scraped	24		Hamam IVD (Akkermans 1988b: Pl. 93.277-8)
m	Beaded-Lip Bottom-Scraped Bowl					lightly scraped	29		Hamam IVD (Akkermans 1988b: Pl. 93.277-8)
n	Simple-rim bowl					dark painted	12		Hamam IVC (Akkermans 1988b: Pl. 82.176)
o	Simple-rim bowl					dark painted	24		Hama L3b (Thuesen 1988: Pl. XIII.4)
p	Beaded-rim bowl					dark painted	20		Leilan Vib.57 (Schwartz 1988: Fig. 63.5) Hamam IVC (Akkermans 1988b: Pl. 82.176)
q	Simple-rim pot					dark painted	20		
r	Simple-rim pot					dark painted	22		Motif: Hama L3b (Thuesen 1988: Pl. X.5)
s	Wide sinuous-sided bowl					dark painted	12		Leilan Vib.57 (Schwartz 1988: Fig. 63.6) Leilan Vib.52a (Schwartz 1988: Fig. 62.11)
t	Wide simple-rim bowl					dark painted	18		



LC 2 Vessels from Tell Zeidan (Abu Jayyab n.d.)



LC 1 Pottery from Tell Zeidan: a) Beaded-Lip Bottom Scraped Bowls; b-d) Coba Bowls; e-f) cups; g) lentoid jar used as storage jar stopper

**Bulging Eye**



Brak CH (Oates 1987: Fig. 2)

**Diamonds In-filled with Dots**



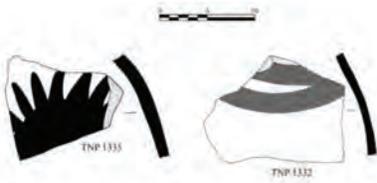
Brak CH (Oates 1987: Fig. 3.4)

**Panel Pattern/Bowtie**



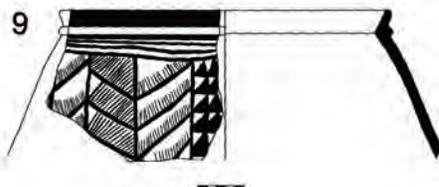
Brak CH (Oates 1987: Fig. 3.5)

**Sunburst**



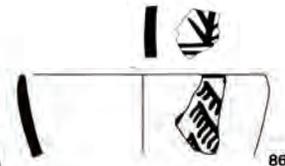
Tol-e Nurabad Bakun Phase (Weeks et al. 2010: Fig. 16.6)

**Sprig Ware with Sail Pattern**



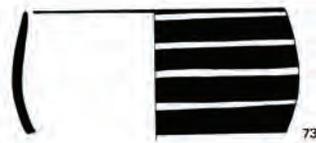
Hamoukar Lv. 4 (Abu Jayyab 2012: Fig. 3.9)

**Sprig-like Vegetal Motifs**



Hammam VA (Akkermans 1988a: Fig. 6.86, 89)

**Lines-in-Reserve**



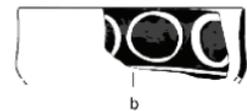
Hammam IVD (Akkermans 1988a: Fig. 6.73)

**Solid Field**



Hammam IVC (Akkermans 1988a: Fig. 5.60)

**Negative Circle**



Yenice Yani YY5 (Bernbeck & Costello 2002: Fig. 7b)

**Undulating Line between Two Bands beneath the Rim**



Hammam IVD (Akkermans 1988a: Fig. 6.80)

**Solid Band on Interior Rim**



Hammam IVD (Akkermans 1988a: Fig. 6.79)

**Superimposed Swags on Interior Rim**



'Abr Stage IV (Yamazaki 2012: Fig. 6.3)

**Band of Slitted Lozenges**



'Abr Stage IV (Yamazaki 2012: Fig. 6.17)

**Hanging Xs**



Zeidan LC 1a-b

**X-pattern**



Zeidan LC 1a-b

**Crosshatched Triangles**



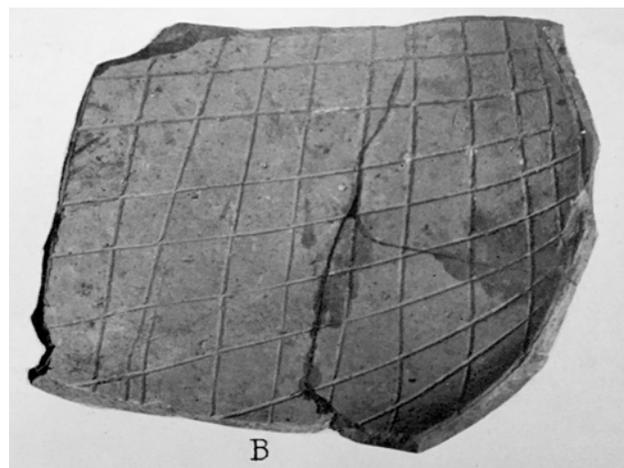
Arslantepe VIII (Balossi-Restelli 2012: Fig. 9.h)

Examples of Painted Motifs of the LC 1 Period across Northern Mesopotamia

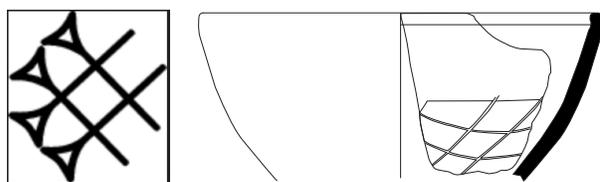
a



b



c

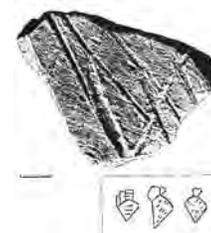


KASKAL (read kaš<sup>2</sup>):  
“beer” (Sumerian, ca. 2500 BC)

d

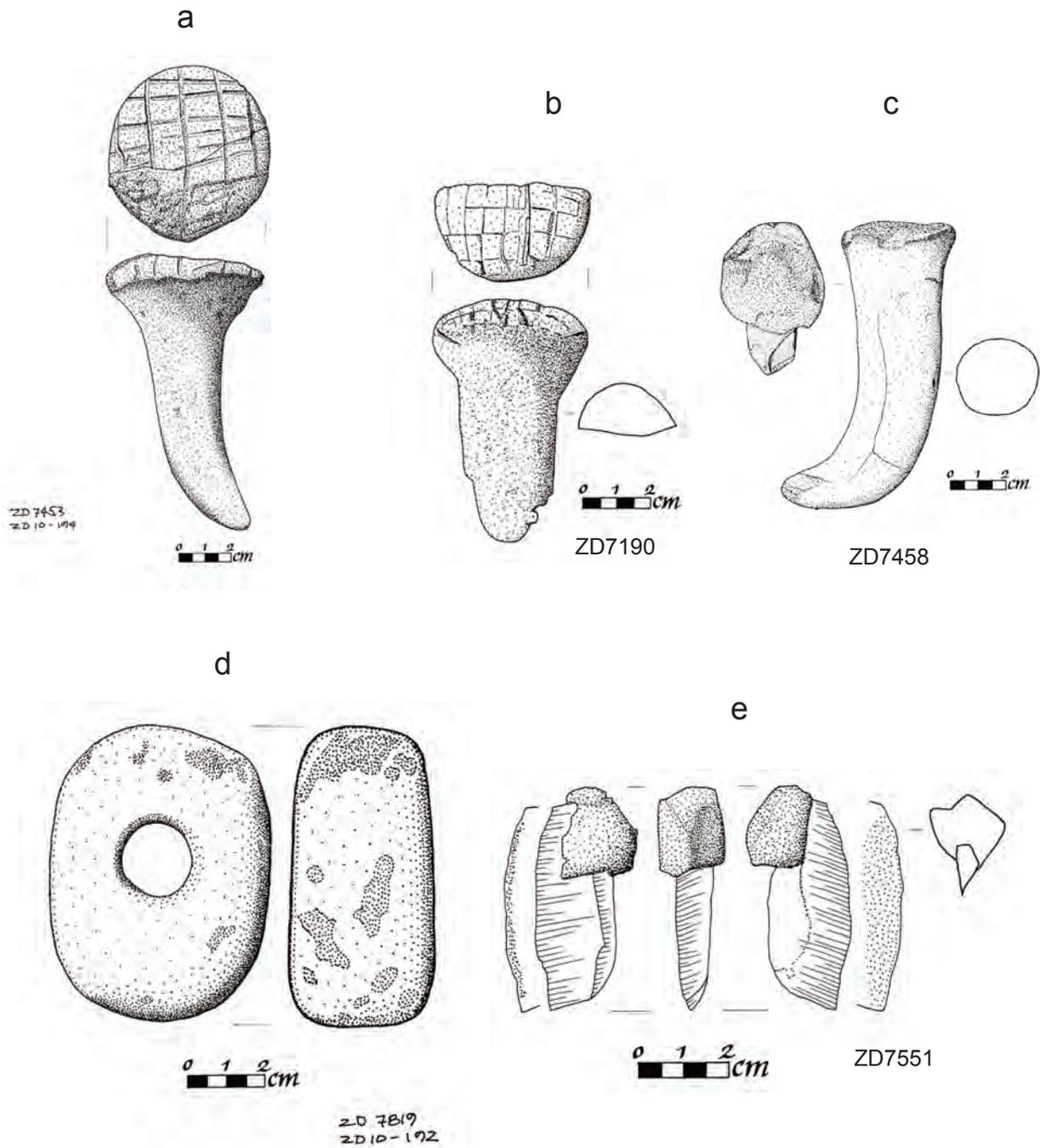


e



kaš:  
“beer” (Sumerian,  
ca. 3000 BC)

a: Potsherd from Zeidan of internally-incised bowl with residue trapped in the crosshatch grooves;  
 b: Potsherd from Nuzi of internally-incised bowl with residue trapped in the grooves (Starr 1939:PI. 45 B);  
 c: 3rd Millenium BC cuneiform sign for ‘beer’ in Sumerian next to illustrated potsherd; d: Seal from Tepe Gawra XII depicting two brewers (or drinkers; from Tobler 1950); e: Sherd of internally crosshatch-incised beer vat from Godin Tepe Period VI:1 with calcium oxalate residue (“beerstone”) trapped in the grooves (LC 5, ca. 3500 BC; Michel et al. 1992: 24)



Illustrated Small Finds From Tell Zeidan: a-b) LC 1 crosshatch-incised clay mullers; c) Ubaid "bent-nail" clay muller; d) LC 1 perforated hammerstone; e) LC 1 bitumen-hafted sickle blade



LC 1 Craft Production Small Finds from Tell Zeidan: a) baked-clay muller; b) bone spindle whorl; c) stone hammerhead; d) shaped bitumen remains of reed matting; e) stone celt; f) hammerstone; g) worked-sherd kiln spacers; h) baked clay loomweight



Small Finds from Tell Zeidan: a-e) LC 1 beads; f) LC 1 heirloom stamp seal; g) LC 1 clay sling pellet; h) LC 2 gabled stamp seal; i) LC 1 basalt pivot stone; j) LC 1 clay andiron fragment



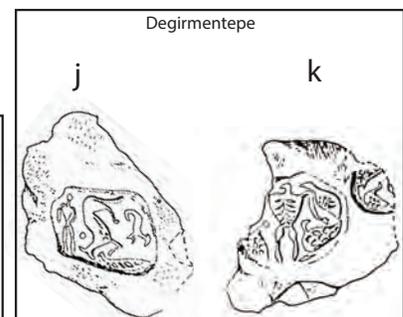
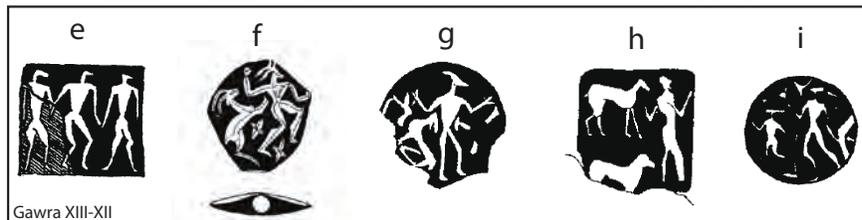
b



c



d



LC 1 administrative artifacts: a) hand-formed sealing preforms, Zeidan Ubaiç-LC 1; b) figural scene on clay basket sealing, Zeidan LC 1b; c-d) jar or bag sealings without clear impressions, Zeidan LC 1a-LC 1b; e-f) figural scenes on seals from Gawra XIII and (g-i) Gawra XII (Tobler 1950); j-k) figural scenes on sealings from Degirmentepe 7 (from Esin 1994)

a



b



c



d

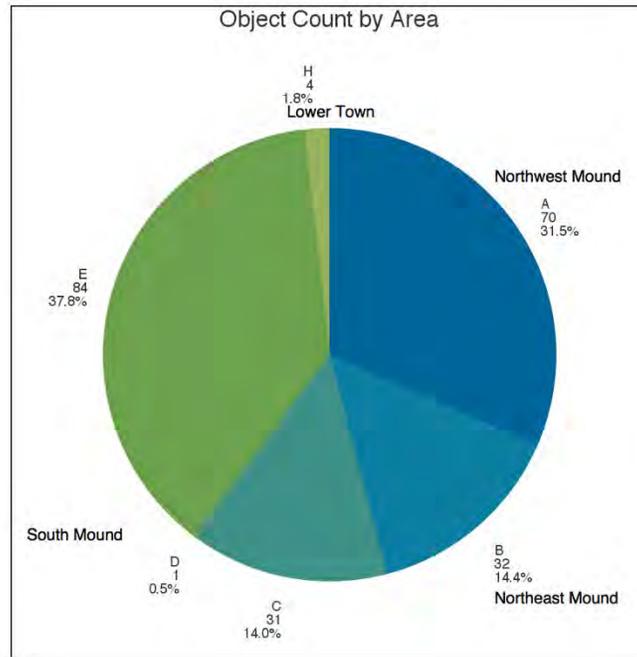


e



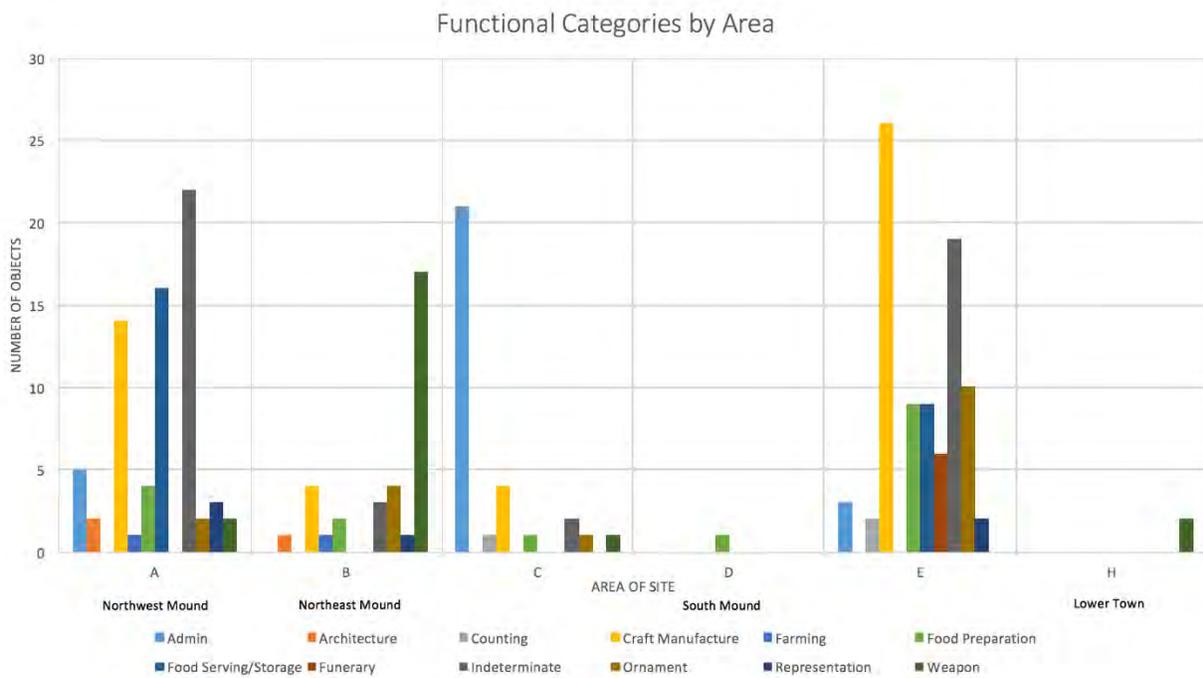
Obsidian and chipped-stone tools from Building S.B4 on the Northeast Mound, Level LC 1b, Tell Zeidan: a) obsidian blades and flakes, b-c) core, and d) bitumen-hafted chipped-stone sickle blade; e) translucent obsidian blade from Area A (Northwest Mound), Level LC 1c

a



Total Number of Small Finds by Area

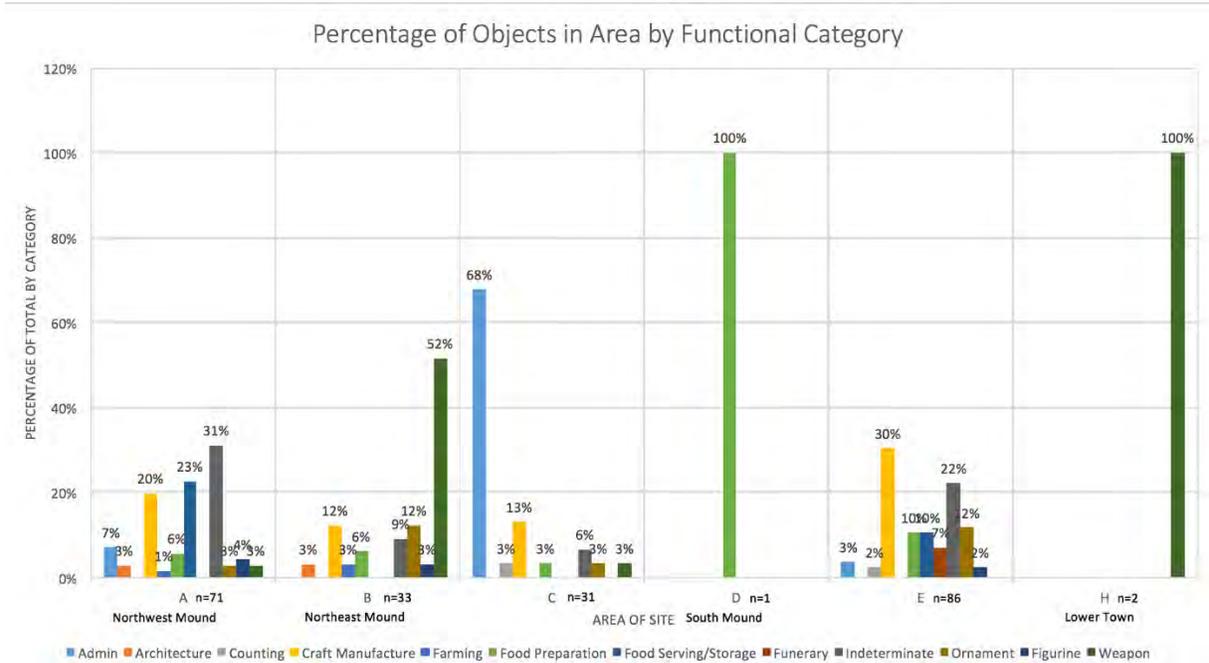
b



Object Count in Functional Category by Area

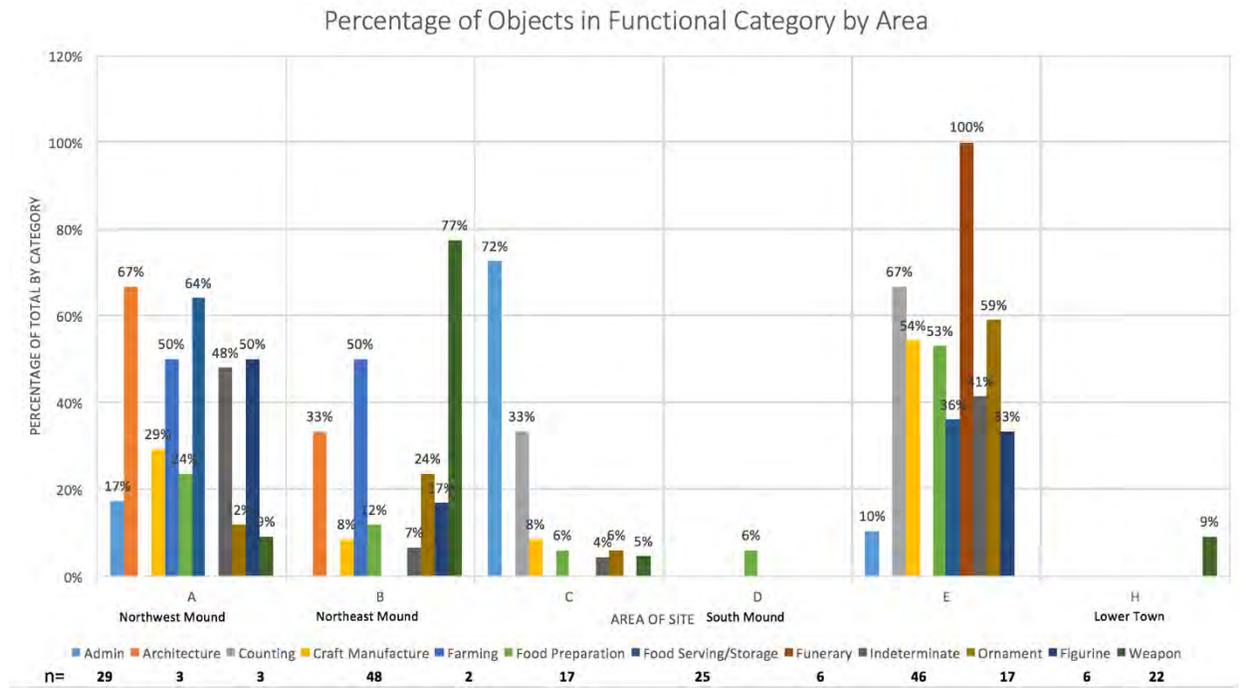
Count of Small Finds by Area at Tell Zeidan, LC 1 Period

a



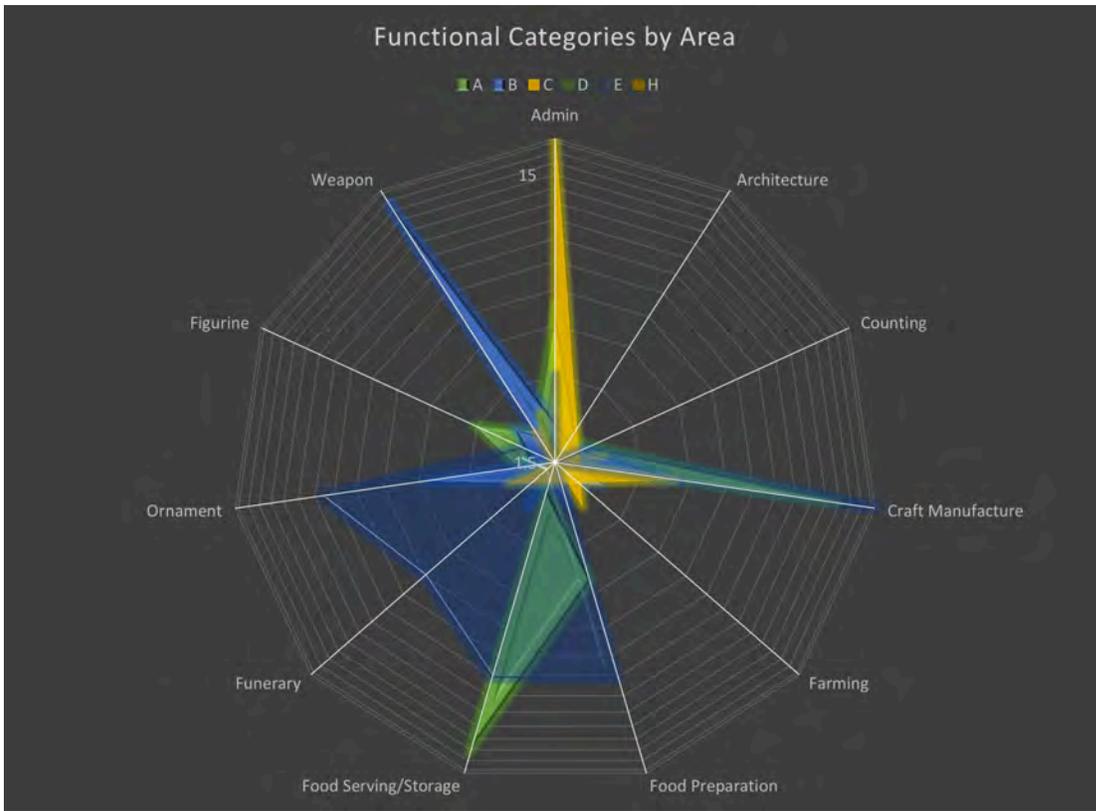
*Percentage of Objects in Area by Functional Category*

b

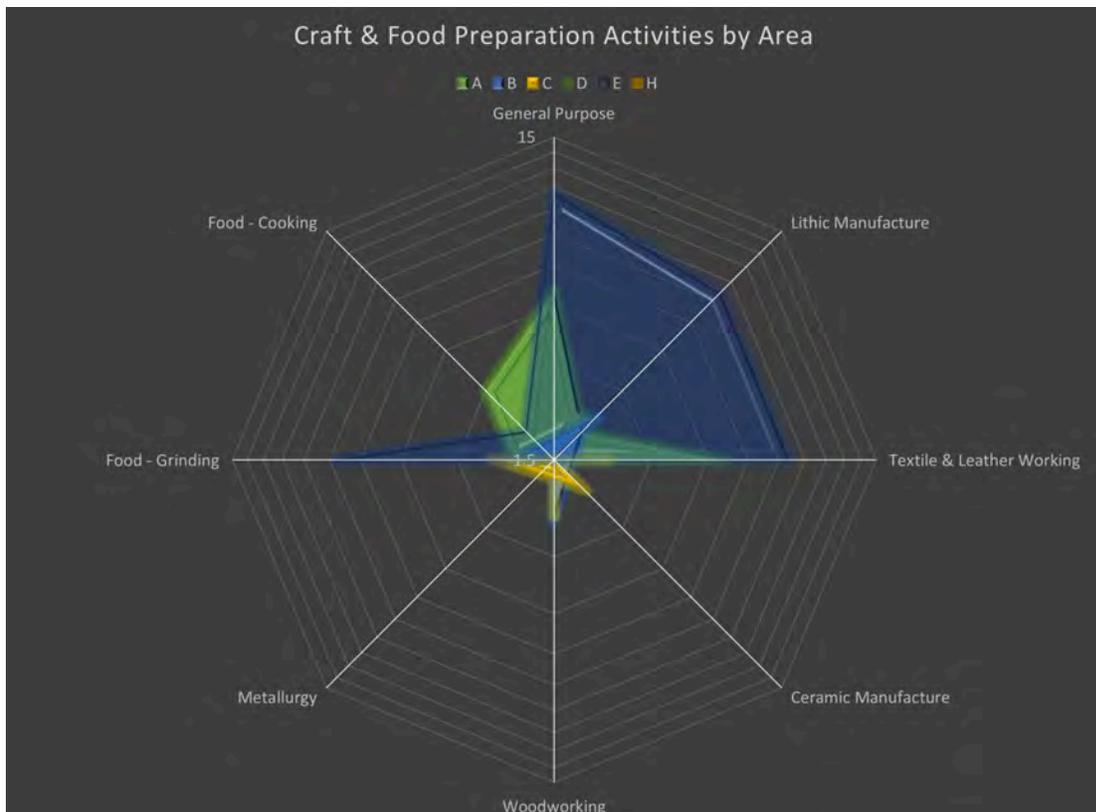


*Percentage of Objects in Functional Category by Area*

**Percentages of Small Finds at Tell Zeidan, LC 1 Period**



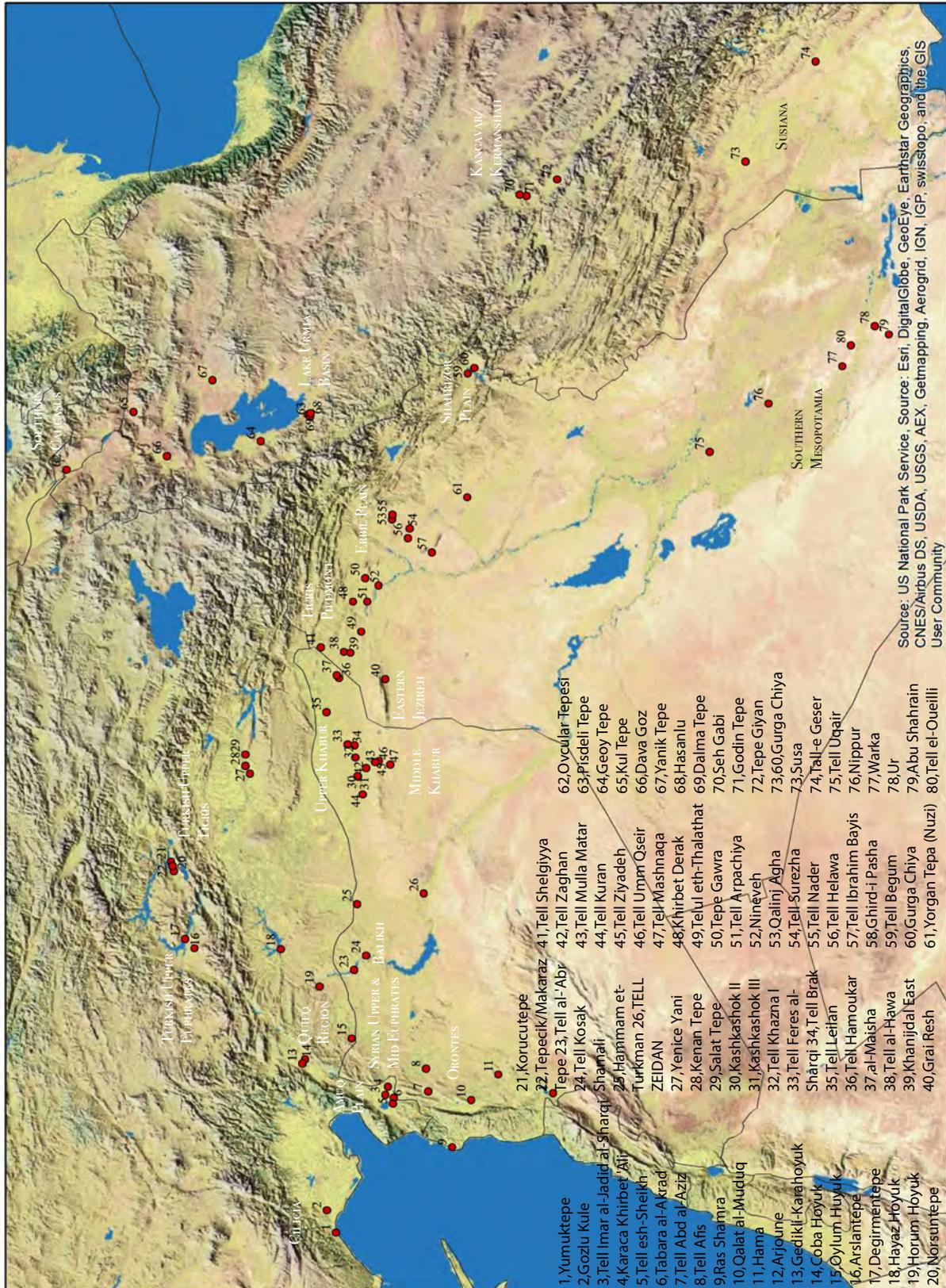
Radar Chart with Logarithmic Plotting (base 20) of Object Count in Functional Category by Area



Radar Chart with Logarithmic Plotting (base 20) of Object Count in Craft Function by Area

Distribution Pattern of Small Finds at Tell Zeidan, LC 1 Period

Map of LC 1 Sites in Greater Mesopotamia, Listed in Appendix A Pl. 40



- 1, Yumuktepe
- 2, Gozlu Kule
- 3, Tell Imar al-Jadid al-Sharqi, Shamali
- 4, Karaca Khirbet, Ali
- 5, Tell esh-Sheikh
- 6, Tabara al-Akrad
- 7, Tell Abd al-Aziz
- 8, Tell Afis
- 9, Ras Shamra
- 10, Qalat al-Mudluq
- 11, Hama
- 12, Arjouna
- 13, Gedikil-Karahoyuk
- 14, Coba Hoyuk
- 15, Oylum Hoyuk
- 16, Arslantepe
- 17, Degirmen-tepe
- 18, Hayaz Hoyuk
- 19, Horum Hoyuk
- 20, Norsuntepe
- 21, Korucutepe
- 22, Tepecik/Makaraz
- 23, Tell al-Abr
- 24, Tell Kosak
- 25, Hammam et-Turkman
- 26, TELL ZEIDAN
- 27, Yenice Yani
- 28, Kenan Tepe
- 29, Salat Tepe
- 30, Kashkashok II
- 31, Kashkashok III
- 32, Tell Khazna I
- 33, Tell Feres al-Sharqi
- 34, Tell Brak
- 35, Tell Leilan
- 36, Tell Hamoukar
- 37, al-Maisha
- 38, Tell al-Hawa
- 39, Khanijdat East
- 40, Grai Resh
- 41, Tell Shelgiyya
- 42, Tell Zaghana
- 43, Tell Mullia Matar
- 44, Tell Kuran
- 45, Tell Ziyadeh
- 46, Tell Umm Qseir
- 47, Tell Mashnaqa
- 48, Khirbet Derak
- 49, Telluth-Thalathat
- 50, Tepe Gawra
- 51, Tell Arpachiya
- 52, Nineveh
- 53, Qalini Agha
- 54, Tell Surezha
- 55, Tell Nader
- 56, Tell Helawa
- 57, Tell Ibrahim Bayis
- 58, Ghird-i Pasha
- 59, Tell Begum
- 60, Gurga Chiya
- 61, Yorgan Tepe (Nuzi)
- 62, Oycular Tepesi
- 63, Pisdeli Tepe
- 64, Geoy Tepe
- 65, Kul Tepe
- 66, Dava Goz
- 67, Yanik Tepe
- 68, Hasanlu
- 69, Dalma Tepe
- 70, Seh Gabi
- 71, Godin Tepe
- 72, Tepe Giyan
- 73, 60 Gurga Chiya
- 74, Susa
- 75, Tell-e Geser
- 76, Tell Dqair
- 77, Nippur
- 78, Warka
- 79, Abu Shahrain
- 80, Tell el-Oueili