# Urbanized Landscapes in Early Syro-Mesopotamia and Prehispanic Mesoamerica

## Papers of a Cross-Cultural Seminar held in Honor of Robert McCormick Adams

Edited by
Davide Domenici and Nicolò Marchetti

Harrassowitz Verlag

Urbanized Landscapes in Early Syro-Mesopotamia
and Prehispanic Mesoamerica




ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

# Urbanized Landscapes in Early Syro-Mesopotamia and Prehispanic Mesoamerica

Papers of a Cross-Cultural Seminar held in Honor of Robert McCormick Adams

Edited by
Davide Domenici and Nicolò Marchetti

2018

Harrassowitz Verlag · Wiesbaden


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Cover image: UAV's view taken in October 2016 of Tell Ruba'yat Al Torra, site Qd028/ Adams 1135 in the Delmej reservoir (Al Qadisiyah, Iraq), by courtesy of the QADIS project/Giampaolo Luglio.

This publication has been produced with the assistance of the European Union. The contents of this publication are the sole responsibility of the authors and implementing partners of the EDUU project (www.eduu.unibo.it) and can in no way be taken to reflect the views of the European Union.


This project is funded by the European Union

Bibliografische Information der Deutschen Nationalbibliothek
Die Deutsche Nationalbibliothek verzeichnet diese Publikation in der Deutschen Nationalbibliografie; detaillierte bibliografische Daten sind im Internet über http://dnb.dnb.de abrufbar.

Bibliographic information published by the Deutsche Nationalbibliothek
The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data are available in the Internet at http://dnb.dnb.de



For further information about our publishing program consult our website http://www.harrassowitz-verlag.de

© Otto Harrassowitz GmbH & Co. KG, Wiesbaden 2018
Printed on permanent/durable paper.
Printing and binding: Hubert & Co., Göttingen
Printed in Germany
ISBN 978-3-447-11086-0
e-ISBN 978-3-447-19782-3
DOI: 10.12878/2018HARRASSOWITZVERLAG


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

# Table of contents




ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

# Institutional Affiliations of the Authors

Giacomo Benati
*Alma Mater Studiorum – University of Bologna*
giacomo.benati2@unibo.it

Pascal Butterlin
*Universitè de Paris 1 – Panthéon-Sorbonne*
Pascal.Butterlin@univ-paris1.fr

Davide Domenici
*Alma Mater Studiorum – University of Bologna*
davide.domenici@unibo.it

Gary M. Feinman
*Field Museum of Natural History, Chicago*
gfeinman@fieldmuseum.org

Simone Mantellini
*Alma Mater Studiorum – University of Bologna*
simonemantellini@gmail.com

Nicolò Marchetti
*Alma Mater Studiorum – University of Bologna*
nicolo.marchetti@unibo.it

Norman Yoffee
*University of Michigan*
*Institute for the Study of the Ancient World, New York University*
nyoffee@gmail.com


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

# Preface

In the last ten years or so, the two of us have often been meeting in the corridors or in the cloister of the 16th century building of piazza San Giovanni in Monte, the seat of our Department of History and Cultures at the University of Bologna. When meeting, we usually talked about the results of our latest fieldwork season, Davide in Mexico or in the US, Nicolò in Turkey or Iraq. Apart from building a close friendship, those informal talks showed that our works, despite being carried out in so distant regions, often had something in common, or at least posed common problems in terms of methodology, research questions, and anthropological models. Such shared interests made that toward the end of 2013, we started thinking about co-organizing a conference where some specialists from the two areas could convene and discuss: the timing was almost perfect, since two years later it would have been the 50th anniversary of the publication of Bob Adams' seminal book *The Evolution of Urban Society: Early Mesopotamia and Prehispanic Mexico* (1966), a milestone in the history of comparative archaeology, precisely centered on our areas of expertise. Things went fast ahead and on February 9-10, 2015 the Seminar "Adams@50. Urbanized landscapes in early Syro-Mesopotamia and pre-Hispanic Mesoamerica" was held in Bologna, where a selected group of outstanding colleagues joined us from various countries of the world.

This book, containing the papers presented in Bologna, was originally meant to be published as a celebration of Bob Adams' pioneering work. Unfortunately, the preparation of the book was slower than expected, while life went forward faster: just a few days before sending the complete draft to the publisher, we received the news that Bob Adams had passed away. It is with great sadness that we had to acknowledge that our book would have become a commemoration of a giant rather than a celebration of a joyful anniversary.

Nevertheless, we decided not to change the content of the book to include more celebratory texts, because the best way to remember a scholar of the kind of Adams is probably to go on doing research that is shaped or inspired by his work, posing new questions around the same problems that he tackled in his academic life. Nobody of us attempted the awesome task to perform comparisons between Mesoamerican and Mesopotamian archaeological cases. Rather, the authors of the papers tackled the topics of "urbanism" and "landscape" – key terms in Bob Adams' work – according to different perspectives that could raise interesting points for a cross-cultural dialogue, and a thought-provoking cross-fertilization.[1]

---

1 The chapters of the book are in most cases reworked versions of the papers presented in Bologna. Unfortunately, Nikolai Grube and David Wengrow, who participated in the Bologna Seminar with papers dealing respectively with Classic Maya urbanism and Eurasian "megasites", were not able to prepare a text for this volume; on the other hand, we are glad to have been able to include a chapter by Pascal Butterlin, who was not present at the original Bologna Seminar but who attended one of its outcomes, which we termed *2nd Bologna Seminar on Cross-Cultural Archaeology*, devoted to the topic of "Empires in the Archaeological Record" and held on February 8th, 2016. We are grateful to the Department of History


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

A possible theoretical framework for such cross-cultural analyses is presented in the first chapter, where Gary Feinman advocates a middle-range comparative approach that can avoid both universalizing explanations of perceived commonalities and minute descriptions only aimed at charting cultural variability. The approach he proposes, based on theories concerning cooperation, collective action, and social networks, is obviously not the only possibility (and the fact that it opens the book doesn't mean that all the authors would agree with Feinman's proposal), but it is nevertheless an excellent example of an enduringly fruitful venue for cross-cultural comparison, searching explanations for parallel – not universal – cultural processes.

Davide Domenici, in his paper on Teotihuacan urban structure, contends that a new interpretation of the Central Mexican metropolis' corpus of mural paintings – where he sees a proper writing system at work – could reveal a not-so-centralized urban landscape, segmented in various palace-centered sociopolitical units that could have enjoyed a certain degree of autonomy rather than being subject to an all-encompassing central government. The comparison with other Mesoamerican political systems, and especially with those of the Late Postclassic Nahua, leads the author to reconsider the dichotomy often posited between Lowland Maya and Central Mexican political systems, stressing the importance in both areas of semi-autonomous subsystems or sociopolitical segments, whose relevance, for instance, has also been stressed by Mesopotamian scholars such as Bob Adams or Norman Yoffee.

The outreach of the Late Uruk culture outside southern Mesopotamia is discussed by Pascal Butterlin, which looks for a theoretical reframing of the underlying, vexed historical question about the nature of the presence of whole sets of southern cultural traits along the Middle Euphrates and elsewhere. The detailed analysis of some of the most elaborate tripartite houses at Habuba Kabira South results in a new thought-provoking explanatory model, which sees extended family households at the core of a productive organization which does not go beyond the needs of the social units, the structure of Habuba Kabira South/Qannas thus being parallel to that of Uruk Eanna last but one levels (leaving aside the problem of the precise synchronization of a phenomenon which we now understand has a greater chronological depth than previously assumed).

Giacomo Benati, in his contribution on early Mesopotamian political institutions, argues that by analyzing the modes of construction of large-scale resources distribution networks it is possible to shed more light on the strategies of emergent political elites in Late Chalcolithic Mesopotamia. The author maintains that this analysis can, in turn, be useful for better conceptualizing the overall changes occurring in the organizational structures of early urban communities in Mesopotamia. Developmental traits of large-scale networks, organized or manipulated by elites and, then, by proper political institutions, are outlined by the author on the basis of archaeological, textual and anthropological evidence and theories.

The structuring of archaeological surface surveys, the main field of contribution of Bob Adams together with the theoretical structuring of data so collected, is discussed by Nicolò Marchetti according to some research projects which he has recently designed both for the Northern Levant, at Ebla where surface collections had been carried out in previous decades, and for Southern Mesopotamia, in an area which had also been surveyed by Adams himself. What Adams had

---

and Cultures and to the Specialization School of Archaeological Heritage at the Alma Mater Studiorum – University of Bologna for funding the Seminar. Giacomo Benati took care of assembling the papers in their first stage and listed the e-resources of the Appendix, formatted by Giulia Roberto. Federica Proni set with the utmost care the layout of the camera-ready manuscript. At Harrassowitz Verlag we greatly appreciated the enthusiasm of Barbara Krauss, Jens Fetkenheuer and Robert Gietz.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

once envisaged is now increasingly turning out to be possible, meaning a fine-grained approach to survey data, which provides an ever more detailed historical understanding.

Simone Mantellini presents an overview on the development of irrigation systems in the Samarkand Oasis (ancient Sogdiana, modern Uzbekistan). Since the first multidisciplinary archaeological projects in Soviet times, water management has always been a crucial topic in studies on Central Asia. Basing himself upon a long-term program of field surveys and excavations, Mantellini was able to pinpoint the major development in irrigation infrastructures and settlements of the Samarkand region during the Post-Hellenistic period (3rd-2nd centuries BCE).

In the concluding chapter of this volume, Norman Yoffee provides a discussion of Bob Adams' contributions between 2000 and 2012, thus continuing a previous biographical work published in 1997. In his analysis, Yoffee identifies the main influences that Adams received from other scholars, also noting research programs that, "on the shoulder of the giant", future scholars could pursue, also in comparative terms. Yoffee's essay is the perfect concluding chapter for a book of this kind, trying to commemorate the maestro by showing how his work can still inspire that of younger and future scholars.

At the end of the volume a complete bibliography of Adams has been included with, wherever possible, the sources for its e-retrieval: this impressive overview spans the different phases of Adams' fieldwork and career, including the sharp as ever and stimulating essays from his last decade of scientific activity.

The Editors


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

# Chapter 1
# The Comparative Investigation of Early Urbanized Landscapes: An Interdisciplinary Reframing

Gary M. Feinman

*Abstract*

The emergence of cities was one of humanity's great transformations. As Robert McC. Adams recognized early in his career, the process of early urbanization was most profitably considered from a comparative perspective. Over subsequent decades scholars have significantly expanded our empirical knowledge of these ancient places and their hinterlands, yet they have reached surprisingly little consensus regarding where to focus their comparative as opposed to idiosyncratic lenses. Nor have general covering laws regarding early cities and their development been broadly accepted. In this essay I undertake a reconsideration of the comparative perspective on early urbanism, advocating the explanation of patterns of diversity or variation in the histories and characteristics of early cities, and a focus on fleshing out social mechanisms that link distinctive micro-patterns of behavior with macro-processes that characterize different sequences of urban development. The reframing of how we look for more general, comparative aspects of early urbanism provides new avenues to pursue and directs our rekindled attention to key insights advanced by Adams five decades ago.

## 1. Introduction

Ten years before the publication of *The Evolution of Urban Society* in 1966, Robert McCormick Adams (1956) laid out a comparative agenda for the investigation of processes leading to early urban landscapes and civilizations in *American Antiquity*. In each of these seminal works, Adams (1956: 227, 1966: 10–11) recognized his intellectual debt to V. Gordon Childe (1950). Yet, from the outset, Adams' path-defining frame focused on shifts in human networks, institutions, and the nature of their processual interconnections to understand these revolutionary human transitions. As he (Adams 1966: 2) put it 50 years ago:

> "(t)he independent emergence of stratified, politically organized societies based upon new and more complex divisions of labor clearly is one of the great transformations which have punctuated the human career…"

What precipitated the rise of urbanism and the emergence of new forms of governance was a central question in archaeology for Adams, and that theoretical stream continues to spur archaeological investigation and empirical advances at a global scale.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Nevertheless, as subsequently recognized by Henry Wright (1977: 215), Adams (2001: 346) himself, and others (e.g., Yoffee 2005), the development of synthetic and cross-cultural approaches for understanding these transformative episodes has not kept pace with the accumulation of masses of new data relevant to the research agenda outlined. In this paper I build on decades of painstaking empirical advances to offer paths for refocusing and reframing comparative questions concerning the emergence of early urban settlements and the new scales of human cooperation that were warranted in association with the establishment of these ancient aggregations. In accord with broader theoretical movements in the social sciences (e.g., Goldstone 1998; Hedström and Swedberg 1996; Smith 2011), I advocate that we redirect our attention from a hunt for universalizing explanations, a single prime mover, or a uniform path to focus more concertedly on middle-range comparative explanations of processual and institutional variation and diversity. At the same time, I propose that we finally cut the cord with the theoretical legacies of the culture history approach, long underpinned by Eric Wolf's metaphorical (1982: 6) "billiard balls", primordial bounded cultural (ethnic) units, and re-gird our analytical models and investigatory frames in the burgeoning interdisciplinary literatures concerning cooperation, collective action, and social networks (e.g., Blanton and Fargher 2008; Carballo ed. 2013; Knappett ed. 2013), perspectives more in conceptual accord with the emerging historical record of mobility and degrees of fluidity and permeability in human social affiliations indicated by recent research (e.g., Brubaker 2009; Jones 1997: 65–79; Kristiansen 2014: 19; Smith 2005, 2007).

I begin with an enumeration of the empirically demonstrable and multidimensional diversity evident in historical courses toward larger scales of human cooperation and aggregation. This empirical variability prompts questions regarding the explanatory frames that archaeologists have traditionally employed. To tackle variation, better conceptual tools are required to address the dyadic nature of leadership, its diverse forms, and the micro-macro problem (e.g., Ahlquist and Levi 2011; Schelling 2006). I discuss paths to conceptual reframing that draw on interdisciplinary theoretical approaches and then briefly outline how these provide new queries and perspectives for the comparative investigation of early urban landscapes and the cooperative arrangements they entailed.

## 2. Paths to early urbanism: dimensions of diversity

No one would dispute that every historical case of early urbanism is in certain respects unique (Wright 2009: 122); however, across global regions there clearly were parallel processes at work (Peregrine, Ember and Ember 2007: 77), and much can be learned regarding variability from systematic comparative analysis (e.g., Blanton and Fargher 2008; Trigger 2003). Nevertheless, until recently, most comparative efforts have looked most intensively for general processes or uniform conditions that undergird major evolutionary transitions. Robert Carneiro's (1970) circumscription model is a case in point, so likewise are attempts to link early urban developments with particular environments (river valleys) or water management (Steward 1955; Wittfogel 1957). Even when scholars agree that underlying conditions and causal chains may vary in different contexts, they have looked for cross-cultural regularities that crosscut distinct historical sequences.

For example, Norman Yoffee (2005: 44) has argued that when centers arise they tend to be small, ensconced in networks of city-states or peer polities. Out of these networks, a large, more dominant polity can eventually emerge. In contrast, Joyce Marcus (1998) has proposed


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

that early states tend to be large polities that oversaw expansive territories, and that only later did these entities sometimes break down into smaller states. Yet neither of these sequences has turned out to be universal when we consider a full suite of cases. In fact, in the two regions where I have investigated, the latter pattern fits the Valley of Oaxaca, Mexico (Fig. 1.1), where one center, first San José Mogote and later Monte Albán, dominated the region basically from the outset of sedentary villages (Blanton *et al.* 1999). In contrast, in coastal Shandong, China (Fig. 1.2), several roughly coequal and large centers arose and were rather evenly spaced across the landscape, more in line with the former expectation (Feinman, Nicholas and Fang 2010).

Cross-cultural variation also is apparent in a study of more than 30 settlement sequences of demographic change, village formation, and population nucleation (Fig. 1.3) reported by Matthew Bandy (2008), as well as in a similar analysis of 11 cases (a few of which overlap) analyzed by Christian Peterson and Robert Drennan (2012) (Fig. 1.4). Although space does not allow a full recounting of these important comparative investigations, the authors in each study are able to document significant temporal variation in regional demographic transitions from the beginnings of sedentary communities to times of marked differentiation in settlement sizes (within each area) to urban formations (for the eight sequences where the latter were established) (Bandy 2008: 344; see also Feinman 2013).

The timing of cross-cultural transitions from sedentary life to cities is only one aspect of marked variation in early urban formations. In a sample of early urban centers from different global regions for which empirically based population estimates could be derived (Fig. 1.5), the sizes of early urban agglomerations were far from uniform. Moreover, some early cities were compact (e.g., Teotihuacan) while others were highly dispersed, such as many Classic-period Maya centers (Feinman and Nicholas 2012; Fletcher 2012; Rice 2006: 267–268; Storey 1992: 110).

The governance of early cities and their hinterlands highlights another dimension of diversity. In some instances, political relations focused on the primacy of individual rulers; others exhibited more collective social formations, including greater degrees of power sharing and more equitable distributions of valued goods (e.g., Blanton *et al.* 1996; Feinman 2001). As early as his aforementioned article in *American Antiquity*, Adams (1956) noted a potentially parallel dimension of variability in governance practices with the differing significance of palaces as opposed to temples in distinct time-space contexts. I return in greater depth to this topic later in this paper.

## 3. Conceptual reflection and redress

The significant observed diversity in both the processes that led to early urbanism as well as the size and layouts of the cities and the institutions through which they were governed (see also Smith 2009) requires reconsideration of how we conceptually frame this comparative enterprise. I begin with a brief critique of extant frameworks and then move to the consideration of new transdisciplinary directions.

Over a decade ago, Bruce Trigger (2003: 3) wrote:

> "The most important issue confronting the social sciences is the extent to which human behavior is shaped by factors that operate cross-culturally as opposed to factors that are unique to particular cultures."


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

This statement reflects the uneasy tension that has characterized our discipline basically since its inception, the weighing of generalizable versus idiosyncratic factors and outcomes, process versus history, etc. From the outset, there have been two basic roadmaps to proceed (and I recognize this is a simplification). One looks principally at individual historical sequences, culturally specific factors, and endeavors mainly to understand diversity and single cases. The other focuses on more generalizable processes and works comparatively with the aim of defining cross-cultural parallels.

In the most widely applied approaches, these two analytical tacks have been intertwined in what might be glossed as "cultural evolutionary" or "processual" frames, broadly employed following the Marshall Sahlins-Elman Service (1960) mid-twentieth century effort to reconcile earlier theoretical approaches advanced by Leslie White (1949, 1959) and Julian Steward (1949). The reconciliation charted a two-tiered agenda that pursued both general and divergent patterning across historical sequences (e.g., Flannery 1983).

Limitations have arisen that are in part due to conceptual legacies retained from earlier culture history approaches as well as insufficient integration of the analytical tacks that generally have been taken toward explaining generalities and specificities. For the most part, archaeologists have explored two main axes of variation to account for long-term histories. They surmise more general processes and mechanisms to explain parallel developments in scale and complexity and more specific idiosyncratic and/or cultural bases to account for diversity. What often are lacking are explicitly cross-cultural analyses of process and social mechanisms (sensu Elster 1989, 1999; Hedström and Swedberg 1996; Smith 2011) involved in shifting human networks of cooperation that endeavor to explain why parallel as well as alternative pathways were taken (e.g., Adams 2001: 346; Feinman 2012). To paraphrase the above, a focus on social mechanisms examines recurring and recognizable, yet intermediary-level, causal patterns. Such analysis serves to flesh out a chain of links that details "the cogs and wheels of the causal process through which the outcome to be explained was brought about" (Hedström and Ylikoski 2010: 50).

A further but related issue is that the principal paradigms ascribed to by most archaeologists (Table 1) continue to rely either on functionalist logic, that people act for the good of the social whole — which we know often does not hold — or our paradigms proscribe agency only to the powerful, and then presume that elite desires are implemented by coercion or force. Yet agency has never been limited to the realm of the elite, and our models and conceptual frames ought to account for broader ascriptions of agency. At the same time, we must recognize that leadership by definition is a dyadic (two-way) relationship that can play out in different ways (Ahlquist and Levi 2011). Archaeological analysis needs to face its micro-macro problem (Schelling 2006), the micro-motives of macro-processes, as neither pure altruism nor pure despotism is a viable model for social relations.

Extant frameworks focused on cooperation and collective action offer potentially productive conceptual roadmaps out of these theoretical dilemmas. Here, I outline five behavioral tenets (Table 2) that I position at the core of future framework construction concerning human sociality. Not one of these is especially novel or controversial. Nevertheless, oddly, none of the principal paradigms that have been most influential in anthropological archaeology over the last five-to-six decades comfortably conforms to all of these tenets (Table 3). The first three frameworks tend to give little consideration to the "whys" and "hows" of human groups, often simply presuming their existence, continuity, and closure (e.g., Schortman and Urban 1992: 12).


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Strict sociobiological and other approaches reliant on methodological individualism do ascribe agency more broadly, particularly for small groups, but because they are reliant on narrow definitions of self-interest, they have not been able to account convincingly for large social formations or institutions and their diversity. Institutions, however, do matter, as was made clear by the recent, now famous images from space of the contemporary Korean Peninsula at night, which was widely distributed across the internet. On their own, extant approaches also fail to consider adequately any role for history with its path-dependent, but not always idiosyncratic, aspects (Goldstone 1998: 836).

What is needed is a framework that incorporates the reality that human networks and relations operate simultaneously at multiple scales and that even the nature of these relations may shift across scales (e.g., Anderson 1972; Levin 2010; Parkinson and Galaty 2009), for example, as individuals become part of institutions. Institutions, even governments, are, in a general sense, a set of rules that structure a specific suite of interactions and relations between individuals (North 1990). The rules and social understandings or contracts may be simple or highly elaborate. Institutions may be large or small, but ultimately they are composed of people, whose interpersonal relations take different forms (Blanton and Fargher 2008; Levi 1988; North 1990). Frameworks that focus on individuals and/or sets of individuals provide an analytical means to consider the micro-foundations of macro-processes. Such frames also are less likely to fall into the trap of conflating institutions with whole populations, as happens with the use of the term state in many archaeological analyses (Blanton *et al*. 1993: 17; Roscoe 1993).

Taken in concert, these constructs are intended as the broad-brush underpinnings for a middle-range theoretical frame (see also Smith 2011), in the sense of the sociologists Peter Hedström and Richard Swedberg (1996: 281):

> "attention is called to an intermediary level of analysis in-between pure description and storytelling on the one hand, and universal social laws on the other."

Richard Blanton and Lane Fargher (2009: 135) make a similar point when they advocate:

> "a productive middle path between a 'homo economicus' perspective of methodological individualism on the one hand, and normative determinism, on the other."

Recent philosophy of the social sciences also has pointed in this direction. For example, Lars Mjøset (2009) opines that the social sciences require theories that can account for variation and allow for the contingency of history (see also Kiser and Pfaff 2010: 573), calling for the decoupling of unilineality and uniformity from explanatory power. Similarly, Daniel Little (2000: 89) advocates "explanations that … highlight both the structural factors that govern change and the multiple pathways that change can take".

## 4. The governance of early cities and their hinterlands

The construction of this kind of mid-range theory (*sensu* Smith 2011) to reframe the rise and diversity of early urban formations and their associated hinterlands requires deep consideration of a number of issues, including how these aggregations were governed and the nature of cooperative arrangements in their respective regions prior to their establishments. I recognize that, in raising these questions, what follows continues in the vein of re-conceptualization rather than a sufficient explanation or answer. Yet, it allows me to return to a relevant theme on which I have


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

written before, although my own thinking on this question continues to evolve. At the same time, to understand the historical processes and regional sequences leading to early cities and their adjacent landscapes, one, if not the most crucial, question to address concerns the different ways that humans cooperated at larger and larger scales (e.g., Dunbar 2008; Nowak 2011) and in different social and environmental contexts. Here, it is important to recognize that while humans have great capabilities to cooperate (Nowak 2011), the nature and degrees of cooperation are contingent, context dependent, and this variation requires explanation.

During the mid-1990s, Richard Blanton and I along with colleagues (Blanton *et al*. 1996; Feinman 1995) outlined what we saw as important differences in the organization, in particular for the realms of rule and access, of different urban centers and their hinterlands. A main focus was to understand the diversity of early Mesoamerican cities and how they were ruled, with an eye toward the contrasts between Teotihuacan and the Classic Maya. In outlining these continuous parameters of diversity between what we termed corporate and network/exclusionary poles, we drew inspiration from other scholars, prominently Colin Renfrew (1974) who had previously contrasted group-oriented versus individualizing patterns of leadership. In a simple sense, corporate was characterized by more face-less forms of leadership, power sharing, and lower degrees of inequality, while network or exclusionary was linked to aggrandizing, highly centralized rule as well as higher degrees of inequity in access (Table 4).

Although my colleagues and I were critiqued for constructing yet another societal typology (e.g., Yoffee 2006: 400), taxonomic classification was never the intent, and we ourselves always employed these axes as continuous (Feinman, Lightfoot and Upham 2000) and with the intent of understanding distinctive modes of intrapolity relations and their consequences. Two other more justified questions also were raised. First, as with most archaeological analyses of urban societies, emphasis was situated too heavily on the strategies of elites; how were they effectuated. In essence, this is the macro-micro problem (Collins 1988). Second, no explanatory mechanism for why change in particular historical sequences from more corporate to more exclusionary or visa versa took place was identified.

Over time, across academic disciplines, historical eras, and societal scales, I have noted that a number of different analytical schemes (Table 5) with analogical parallels to the corporate-network/exclusionary axes (albeit with different labels) have been advanced (and these are only a selection). Why should some of these organizational properties regularly co-occur, and so be observed across a suite of academic disciplines by a highly diverse set of researchers? In the final sections of this essay, I turn to recent work drawing on collective action frames (Olson 1965) to help pull some of these loose threads and their implications together. My aim in using these conceptual ideas is to bridge the macro-micro problem by exploring the extent to which individuals who share common aims may find it in their personal interest to carry the costs of organizational effort, in essence cooperation (Levi 1988: 8).

To build from Thomas Hobbes' (2003) dilemma, a key question is what creates and holds together urban aggregations and landscapes given the tendency of individuals to pursue their self-interest? At its core, this is the basis of a collective action dilemma, one magnified by the reality that many early cities did not grow due to natural population increase alone and required in-migrants to opt in (Adams 2001; Feinman 1998). In an effort to account for variation in more modern urban societies, political scientist Margaret Levi's research (1988) examines the link between the ways that government are financed and the relative dispersal of power/voice. Levi's (1988: 2) focus is on ruling practices, political integration, revenues, and resources with an em-


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

phasis on the ways that the latter two finance power. In a sense, these factors productively unpack some of the characteristics that lay behind the corporate-exclusionary axis (see also Ember, Ember and Russet 1997). Basically, Levi's thesis is that the more rulers depend on the extraction of localized resources, the more checks and voice the ruled will have. Alternatively, the more external and monopolized a ruler's fund of power, the more concentrated power is apt to be.

Compiling a large global sample of preindustrial cases, Richard Blanton and Lane Fargher (2008) provide strong empirical support for Levi's model, while they also expand its temporal and geographic application. They illustrate that parallel politico-economic processes, involving the resources that finance governance, dispersal of public goods, and the scope of bureaucracy, arise in distinct historical contexts. More representative or collective forms of leadership are found where those with power are more directly dependent on the local populace for their economic underpinnings, whereas exclusionary/autocratic rule is apt to occur where leaders are less reliant on their immediate populace and acquire their funds of power from external sources, such as the monitoring of exchange routes, war booty, or the control of spot resources (Fig. 1.6). In the latter cases, leaders exact less from their immediate populace and so are freer to afford diminished representation and fewer public goods. In large human cooperative arrangements and institutions, the more rulers depend directly on their immediate sustaining population for their resource support, the more agency and voice that populace is likely to be able to assert and the more public goods are apt to be distributed (Fig. 1.7). To answer the earlier question why might we see shifts from relatively more to comparatively less collective political forms and vice versa, collective action approaches expect that key elements reside in the suite of factors associated with the financing of governance and the relative effectiveness in which those funds and resources are employed to serve urban dwellers and their hinterlands (Blanton and Fargher 2011: 506) and/or pay off clients.

## 5. Early urbanism: a reframing

If we employ these collective action perspectives to reframe comparative questions concerning early urbanism, we see that many early cities had features associated with more collective formations. In Southern Mesopotamia (e.g., Stein 1994), the Indus Valley (e.g., Smith 2006), central Mexico (e.g., Carballo 2016; Cowgill 2015), the Valley of Oaxaca (e.g., Blanton 1978), coastal Peru (e.g., Shady Solis 2006), highland Peru (e.g., Rick 2004), and the North China Central Plain (e.g., Liu and Chen 2006), monumental architectural precincts, plazas, or other large ritual/gathering spaces often were constructed at the heart of early cities, but there were few ostentatious central palaces at the cores of these early metropolises. In the above cases, elaborate residences could be present, but scholars have rarely been able to reach consensus on "the" ruler's palace. These early cities tended to be dense/compact with economies reliant on agrarian production. They were characterized by heavy and unprecedented expenditures on public goods (such as roads, gridded streets, defensive facilities), with limited evidence for flagrant accumulation or self-aggrandizing elites. For the most part, disparities in wealth and access generally were not markedly exaggerated. For example, using a prehispanic sample from central Mexico, Michael Smith and colleagues (2014) employed the Gini index, based on variability in archaeological house and room size, and other factors when available. Teotihuacan (ca. AD 100-600), one of the largest cities of the ancient Americas, ranked as the lowest Gini score, which infers that it had more muted inequality than any other city in that sample.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

The success and resilience of these unprecedentedly large settlements was linked to the maintenance and attraction of households, including in-migrants. Consequently, it appears that certain, parallel social relationships and mutual obligations must have arisen (at least for a time) between taxpayers, who provided the bulk of the revenues needed for governance, and leaders or principals, who allocated a portion of these revenues to public goods. In these cases, principal-commoner reciprocity implies that both of these sets of political actors could run up against cooperation dilemmas that stem from the opportunity for rational but selfish behavior (Blanton and Fargher 2011: 506). Taxpayers could reap the benefits of services without complying with tax obligations (free riding), while principals and their bureaucratic cadres could distribute resources away from collective benefit (the agency problem) (Blanton and Fargher 2011; Lichbach 1996). To achieve collective aims, the leaders of these collective polities frequently endeavored to reorganize rural social formations, solidify links between central institutions and the agrarian population, and encourage in-migration, thereby lessening the potential labor pool for outlying donor regions.

It is necessary and important to stress that not all early cities around the globe conformed to these patterns. Notable exceptions include the more dispersed cities of the Maya between 200 BC and AD 900, Predynastic and Old Kingdom Egyptian cities, which tend to be small, as well as many second, third, and later generation urban centers around the globe. In ancient Egypt (Bard 1997) and for many Classic Maya cities (e.g., Christie 2003; Harrison and Andrews 2004), elite burial monuments and palaces were the principal forms of nonresidential urban construction. For the lowland Classic Maya and Egypt, early centers were part of larger networks, and the ties between the leaders of the cities in these networks (as well as the goods that flowed through them) were key components of their funds of power. Interpersonal ties, trade routes, and foreign goods were susceptible to monopolization by principals, and so taxpayers likely were less central to the revenue streams that sustained governance in these contexts. For example in early Egypt, links to the Levant and Nubia were a key element of ruling power (Moreno García 2013), while elite patronage networks were long critical to the Classic period Maya (Martin and Grube 2008). Consequently, commoners were less well positioned to petition successfully for public goods allocations. More likely to be indifferent to the demands of commoners, principals would have had more leeway to gravitate toward autocratic, self-aggrandizing, ostentatious behaviors, such as the building of giant and well-stocked tomb monuments and elaborate palaces. In the same vein, in later-generation cities across the world, the opportunity for principals to find funds of power more susceptible to control and degrees of monopolization, such as trade links, patronage ties, war booty, spot resources, etc., would have expanded. As population and polity sizes grew through time, early cities often became part of larger networks or broke down into smaller petty states. Nevertheless, at the same time, strong elements of collective governance appeared and reappeared in many regions of the globe over time (e.g., Blanton and Fargher 2008), so clearly there was no one historical pathway.

## 6. Synthetic thoughts, conceptual implications

As decades of investigations now have documented diversity along a suite of dimensions, the focus of our comparative approaches to early urbanism and the associated means of governance should be redirected to cross-cultural explanations of variation, rather than continued quests for imagined uniformity. I have proposed that transdisciplinary cooperation and collective ac-


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

tion approaches offer fertile foundations to address this apparent diversity, and the scope of our cross-cultural analyses might be focused toward more middle-range probes of social mechanisms, relations between key processes, relations, and variables.

At a more specific interpretive level, if, as suggested, many, although not all, early cities had high degrees of collectivity (e.g., Froese, Gershenson and Manzanilla 2014), then we could consider some of the most broadly observed patterns of early city formation from new perspectives. For example, many early centers were associated with extremely rapid demographic growth and nucleation that cannot be explained by natural population increase alone (e.g., Feinman *et al*. 1985: 345–346). Likewise, it is not uncommon for early cities to be associated with massive episodes of non-residential construction, much of which seemingly generated the provisioning of public goods. Episodes of construction in early cities, often enhanced community protection, facilitated intra-community movement and aggregation, improved waste disposal, and/or yielded access to water. These new scales of human cooperation, often integral with primary episodes of urbanism, are highly unlikely to have been sustainable through heavy coercion. If in-migration, cooperative labor drafts, agrarian taxation, and investment in public goods were key components of early city formation, then that process was not strictly top-down, and had a significant bottom-up aspect as well. Yet, we also must avoid a return to simple functionalist models, which also discount agency. Whatever frameworks we move ahead with must do a better job of confronting the macro-micro problem.

Lastly, and as I opened with, we owe a great intellectual debt to Robert Adams. His early writings were a key driver in forging a comparative theoretical path that led to great increments in our empirical knowledge and still inspires so many of us today. His regional studies of ancient Mesopotamia (Adams 1965; Adams and Nissen 1972) helped make systematic regional archaeological surveys "normal science", thereby allowing us today to have the opportunity to examine the relations between cities and their hinterlands and elites and subalterns. At the same time, I also highlight another of Adams' (1956) more specific insights, his recognition of the architectural priority of temples in early city centers, only later followed by elaborate central palaces, an observation that has not received or stimulated the consideration that it might have. This sequential relationship clearly is not a universal pattern. Yet, nevertheless, when reframed from new theoretical prisms, it may become an important empirical thread that enhances our understanding of the nature of early cities, how they were governed, why they often grew and became monumental rapidly, and, most significantly, their variation across space and time.

**Acknowledgments**

I am profoundly grateful for the editors' invitation to participate in the 2015 conference that inspired this volume and for the chance to express my enormous admiration for the insights and contributions of Robert McC. Adams. The opportunity for dialogue at the meeting in enchanting Bologna helped clarify some of my thoughts. Linda M. Nicholas provided essential editorial guidance on several stages of this work, and she also drafted the maps, figures, and tables for which I am deeply appreciative.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

## BIBLIOGRAPHY


Acemoglu, D., and Robinson, J.A.
2012 *Why Nations Fail: The Origins of Power, Prosperity, and Poverty*, Crown, New York.

Adams, R. McC.
1956 Some Hypotheses on the Development of Early Civilizations, *American Antiquity* 21, pp. 227–232.
1965 *Land behind Baghdad: A History of Settlement on the Diyala Plains*, University of Chicago Press, Chicago.
1966 *The Evolution of Urban Society*, Aldine, Chicago.
2001 Complexity in Archaic States, *Journal of Anthropological Archaeology* 20, pp. 345–360.

Adams, R. McC., and Nissen, H.J.
1972 *The Uruk Countryside: The Natural Setting of Urban Societies,* University of Chicago Press, Chicago.

Ahlquist, J.S., and Levi, M.
2011 Leadership: What It Means, What It Does, and What We Want to Know about It, *Annual Review of Political Science* 14, pp. 1–24.

Anderson, P.W.
1972 More Is Different, *Science* 177, pp. 393–396.

Bandy, M.
2008 Global Patterns of Early Village Development, in J.-P. Bocquet-Appel and O. Bar-Yosef (eds.), *The Neolithic Demographic Transition*, Springer, Berlin, pp. 333–357.

Bard, K.A.
1997 Urbanism and the Rise of Complex Society and the Early State in Egypt, in L. Manzanilla (ed.), *Emergence and Change in Early Urban Societies*, Plenum Press, New York, pp. 59–86.

Blanton, R.
1978 *Monte Albán: Settlement Patterns at the Ancient Zapotec Capital*, Academic Press, New York.

Blanton, R., and Fargher, L.
2008 *Collective Action in the Evolution of Pre-Modern States*, Springer, New York.
2009 Collective Action in the Evolution of Pre-Modern States, *Social Evolution and History* 8, pp. 133–166.
2011 The Collective Logic of Pre-Modern Cities, *World Archaeology* 43, pp. 505–522.

Blanton, R.E., Feinman, G.M., Kowalewski, S.A., and Nicholas, L.M.
1999 *Ancient Oaxaca*, Cambridge University Press, Cambridge.

Blanton, R.E., Feinman, G.M., Kowalewski, S.A., and Peregrine, P.N.
1996 A Dual-Processual Theory for the Evolution of Mesoamerican Civilization, *Current Anthropology* 37, pp. 1–14.

Blanton, R.E., Kowalewski, S.A., Feinman, G.M., and Finsten, L.M.
1993 *Ancient Mesoamerica: A Comparison of Change in Three Regions*, second edition, Cambridge University Press, Cambridge.

Brubaker, R.
2009 Ethnicity, Race, and Nationalism, *Annual Review of Sociology* 35, pp. 21–42.

Carballo, D.M.
2016 *Urbanization and Religion in Ancient Central Mexico*, Oxford University Press, Oxford.



ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Carballo, D.M. (ed.)
2013 *Cooperation and Collective Action: Archaeological Perspectives*, University Press of Colorado, Boulder.
Carneiro, R.
1970 A Theory of the Origin of the State, *Science* 169, pp. 733–738.
Chandler, T.
1987 *Four Thousand Years of Urban Growth: An Historical Census*, St. David's University Press, Lewiston, New York.
Childe, V.G.
1950 The Urban Revolution, *Town Planning Review* 21, pp. 3–17.
Christie, J.J. (ed.)
2003 *Maya Palaces and Elite Residences: An Interdisciplinary Approach*, University of Texas Press, Austin.
Collins, R.
1988 The Micro Contributions to Macro Sociology, *Sociological Theory* 6, pp. 242–253.
Cowgill, G.L.
2015 *Ancient Teotihuacan: Early Urbanism in Central Mexico*, Cambridge University Press, Cambridge.
Culbert, T.P., Kosakowsky, L.J., Fry, R.E., and Haviland, W.A.
1990 The Population of Tikal, Guatemala, in T.P. Culbert and D.S. Rice (eds.), *Precolumbian Population History in the Maya Lowlands*, University of New Mexico Press, Albuquerque, pp. 103–121.
D'Altroy, T., and Earle, T.K.
1985 Staple Finance, Wealth Finance, and Storage in the Inka Political Economy, *Current Anthropology* 26, pp. 187–206.
Elster, J.
1989 *Nuts and Bolts for the Social Sciences*, Cambridge University Press, Cambridge.
1999 *Alchemies for the Mind: Rationality and the Emotions*, Cambridge University Press, Cambridge.
Ember, M., Ember, C.R., and Russett, B.
1997 Inequality and Democracy in the Anthropological Record, in M.I. Midlarsky (ed.), *Inequality, Democracy, and Economic Development*, Cambridge University Press, Cambridge, pp. 110–130.
Feinman, G.M.
1995 The Emergence of Inequality: A Focus on Strategies and Processes, in T.D. Price and G.M. Feinman (eds.), *Foundations of Social Inequality*, Plenum Press, New York, pp. 255–279.
1998 Scale and Social Organization: Perspectives on the Archaic State, in G.M. Feinman and J. Marcus (eds.), *Archaic States*, School of American Research Press, Santa Fe, New Mexico, pp. 95–134.
2001 Mesoamerican Political Complexity: The Corporate-Network Dimension, in J. Haas (ed.), *From Leaders to Rulers*, Kluwer/Plenum Publishers, New York, pp. 151–175.
2012 Comparative Frames for the Diachronic Analysis of Complex Societies: Next Steps, in M.E. Smith (ed.), *The Comparative Archaeology of Complex Societies*, Cambridge University Press, Cambridge, pp. 21–43.
2013 The Emergence of Social Complexity: Why More than Population Size Matters, in D.M. Carballo (ed.), *Cooperation and Collective Action: Archaeological Perspectives*, University Press of Colorado, Boulder, pp. 35–56.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Feinman, G.M., Kowalewski, S.A., Finsten, L., Blanton, R.E., and Nicholas, L.
1985 Long-Term Demographic Change: A Perspective from the Valley of Oaxaca, Mexico, *Journal of Field Archaeology* 12, pp. 333–362.
Feinman, G.M., Lightfoot, K.G., and Upham, S.
2000 Political Hierarchies and Organizational Strategies in the Puebloan Southwest, *American Antiquity* 65, pp. 449–470.
Feinman, G.M., and Nicholas, L.M.
2012 Compact versus Dispersed Settlement in Pre-Hispanic Mesoamerica: The Role of Neighborhood Organization and Collective Action, in M.C. Arnauld, L.R. Manzanilla and M.E. Smith (eds.), *The Neighborhood as a Social and Spatial Unit in Mesoamerican Cities*, University of Arizona Press, Tucson, pp. 132–155.
Feinman, G.M., Nicholas, L.M., and Fang, H.
2010 The Imprint of China's First Emperor on the Distant Realm of Eastern Shandong, *Proceedings of the National Academy of Sciences USA* 107, pp. 4851–4856.
Flannery, K.V.
1983 Divergent Evolution, in K.V. Flannery and J. Marcus (eds.), *The Cloud People: Divergent Evolution of the Zapotec and Mixtec Civilizations*, Academic Press, New York, pp. 1–4.
Fletcher, R.
2012 Low-Density, Agrarian-Based Urbanism: Scale, Power, and Ecology, in M.E. Smith (ed.), *The Comparative Archaeology of Complex Societies*, Cambridge University Press, Cambridge, pp. 285–320.
Froese, T., Gershenson, C., and Manzanilla, L.R.
2014 Can Government Be Self-organized? A Mathematical Model of Collective Social Organization of Ancient Teotihuacan, Central Mexico, *Plos One* 9 (10), pp. 1–14.
Goldstone, J.A.
1998 Initial Conditions, General Laws, Path Dependence, and Explanation in Historical Sociology, *American Journal of Sociology* 104, pp. 829–845.
Grinin, L.E.
2004 Democracy and Early State, *Social Evolution and History* 3, pp. 93–149.
Harrison, P.D., and Andrews, E.W.
2004 Palaces of Tikal and Copán, in S.T. Evans and J. Pillsbury (eds.), *Palaces of the Ancient New World*, Dumbarton Oaks Research Library and Collection, Washington, D.C., pp. 113–147.
Hedström, P., and Swedberg, R.
1996 Social Mechanisms, *Acta Sociologica* 39, pp. 281–308.
Hedström, P., and Ylikoski, P.
2010 Causal Mechanisms and the Social Sciences, *Annual Review of Sociology* 36, pp. 49–67.
Hobbes, T.
2003 *Leviathan* (eds. G.A.J. Rogers and K. Schuhmann), Thoemmes Continuum, Bristol.
Jones, S.
1997 *Constructing Identities in the Past and Present*, Routledge, London.
Kiser, E., and Pfaff, S.
2010 Comparative-Historical Methodology in Political Sociology, in K.T. Leight and J.C. Jenkins (eds.), *Handbook of Politics: State and Society in Global Perspective,* Springer, New York, pp. 571–587.
Knappett, C. (ed.)
2013 *Network Analysis in Archaeology: New Approaches to Regional Interaction*, Oxford University Press, Oxford.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Kowalewski, S.A., Feinman, G.M., Finsten, L., Blanton, R.E., and Nicholas, L.M.
1989 *Monte Albán's Hinterland, Part II: Prehispanic Settlement Patterns in Tlacolula, Etla, and Ocotlán, the Valley of Oaxaca, Mexico*, Memoirs No. 23, Museum of Anthropology, University of Michigan, Ann Arbor.

Kristiansen, K.
2014 Towards a New Paradigm? The Third Science Revolution and Its Possible Consequences in Archaeology, *Current Swedish Archaeology 22*, pp. 11–34.

Levi, M.
1988 *Of Revenue and Rule*, University of California Press, Berkeley.

Levin, S.
2010 Crossing Scales, Crossing Disciplines: Collective Motion and Collective Action in the Global Commons, *Philosophical Transactions of the Royal Society B* 365, pp. 13–18.

Lichbach, M.I.
1996 *The Cooperator's Dilemma*, University of Michigan Press, Ann Arbor.

Little, D.
2000 Explaining Large-Scale Historical Change, *Philosophy of the Social Sciences* 30, pp. 89–112.

Liu, L., and Chen, X.
2006 Sociopolitical Change from Neolithic to Bronze Age China, in M.T. Stark (ed.), *Archaeology of Asia*, Blackwell Publishing, Malden, Massachusetts, pp. 149-176.

MacSweeney, N.
2004 Social Complexity and Population: A Study in the Early Bronze Age Aegean, *Papers from the Institute of Archaeology* 15, pp. 52–65.

Marcus, J.
1998 The Peaks and Valleys of Ancient States: An Extension of the Dynamic Model, in G.M. Feinman and J. Marcus (eds.), *Archaic States*, School of American Research Press, Santa Fe, New Mexico, pp. 59–94.

Martin, S., and Grube, N.
2008 *Chronicle of the Maya Kings and Queens: Deciphering the Dynasties of the Ancient Maya*, second edition, Thames and Hudson, London.

Metcalfe, J.
2014 Astronaut's View of the North Korean Electricity Black Hole, *The Atlantic, Citylab*, February 25, 2014
http://www.citylab.com/work/2014/02/north-korea-night-looks-big-black-hole/8484/

Mjøset, L.
2009 Contextualist Approach to Social Science Methodology, in D.S. Byrne and C.C. Rogin (eds.), *The Sage Handbook of Case-Based Methods*, Sage, London, pp. 39–68.

Modelski, G.
1997 Cities of the Ancient World: An Inventory (-3500 to –1200),
https://Faculty.washington.edu/modelski/WCITI2.html.

Moreno García, J.C.
2013 Building the Pharaonic State: Territory, Elite, and Power in Ancient Egypt in the 3rd Millennium BCE, in J.A. Hill, P.Jones and A.J. Morales (eds.), *Experiencing Power – Generating Authority: Cosmos and Politics in the Ideology of Kingship in Ancient Egypt and Mesopotamia*, University of Pennsylvania Museum of Archaeology and Anthropology, Philadelphia, pp. 185–217.

Morris, I.
2010 Social Development, in http://www.ianmorries.org, October.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

North, D.C.
1990 *Institutions, Institutional Change, and Economic Performance*, Cambridge University Press, Cambridge.

Olson, M.
1965 *The Logic of Collective Action: Public Goods and the Theory of Groups*, Harvard University Press, Cambridge.

Parkinson, W.A., and Galaty, M.L.
2009 Introduction, in W.A. Parkinson and M.L. Galaty (eds.), *Archaic State Interaction: The Eastern Mediterranean in the Bronze Age*, School for Advanced Research Press, Santa Fe, New Mexico, pp. 3–28.

Peregrine, P.N., Ember, C.R., and Ember, M.
2007 Modeling State Origins Using Cross-Cultural Data, *Cross-Cultural Research* 41, pp. 75–86.

Peterson, C.E., and Drennan, R.D.
2012 Patterned Variation in Trajectories of Community Societies, in M.E. Smith (ed.), *The Comparative Archaeology of Complex Societies*, Cambridge University Press, Cambridge, pp. 88–137.

Renfrew, C.
1974 Beyond Subsistence Economy: The Evolution of Social Organization in Prehistoric Europe, in C.B. Moore (ed.), *Reconstructing Complex Societies: An Archaeological Colloquium*, Supplement to Bulletin of the American Schools of Oriental Research, No. 20, Massachusetts Institute of Technology, Cambridge, pp. 65–95.

Rice, D.S.
2006 Late Classic Maya Population: Characteristics and Implications, in G.R. Storey (ed.), *Urbanism and the Preindustrial World: Cross-Cultural Approaches*, University of Alabama Press, Tuscaloosa, pp. 252–276.

Rick, J.W.
2004 The Evolution of Authority and Power at Chavín de Huántar, Peru, in K.J. Vaughn, D. Ogburn and C.A. Conlee (eds.), *Foundations of Power in the Prehispanic Andes*, Archeological Papers No. 14, American Anthropological Association, University of California Press, Berkeley, pp. 71–89.

Roscoe, P.B.
1993 Practice and Political Centralization: A New Approach to Political Evolution, *Current Anthropology* 34, pp. 111–124.

Sahlins, M.D., and Service, E.R. (eds.)
1960 *Evolution and Culture*, University of Michigan Press, Ann Arbor.

Schelling, T.C.
2006 *Micromotives and Macrobehavior*, W. W. Norton, New York.

Schneider, P., Schneider, J., and Hansen, E.
1972 Modernization and Development: The Role of Regional Elites and Noncorporate Groups in the European Mediterranean, *Comparative Studies in Society and History* 14, pp. 328–350.

Schortman, E.M., and Urban, P.A.
1992 The Place of Interaction in Archaeological Thought, in E.M. Schortman and P.A. Urban (eds.), *Resources, Power, and Interregional Interaction*, Plenum Press, New York, pp. 3–15.

Shady Solis, R.
2006 America's First City? The Case of Late Archaic Caral, in W.H. Isbell and H. Silverman (eds.), *Andean Archaeology III*, Springer, New York, pp. 28–66.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Smith, M.E.
2009 Ancient Cities, in R. Hutchinson (ed.), *The Encyclopedia of Urban Studies*, Sage, London, pp. 24–28.
2011 Empirical Urban Theory for Archaeologists, *Journal of Archaeological Method and Theory* 18, pp. 167–192.
Smith, M.E., Dennehy, T., Kamp-Whittaker, A., Colon, E., and Harkness, R.
2014 Quantitative Measures of Wealth Inequality in Ancient Central Mexican Communities, *Advances in Archaeological Practice* 2, pp. 311–323.
Smith, M.L.
2005 Networks, Territories, and the Cartography of Ancient States, *Annals of the Association of American Geographers* 95, pp. 832–849.
2006 The Archaeology of South Asian Cities, *Journal of Archaeological Research* 14, pp. 97–142.
2007 Territories, Corridors, and Networks: A Biological Model for the Premodern State, *Complexity* 12, pp. 28–35.
Stanish, C.
2010 Labor Taxes, Market Systems, and Urbanization in the Prehispanic Andes: A Comparative Perspective, in C.P. Garraty and B.L. Stark (eds.), *Archaeological Approaches to Market Exchange in Ancient Societies*, University Press of Colorado, Boulder, pp. 185–205.
Stein, G.
1994 Economy, Ritual, and Power in Ubaid Mesopotamia, in G. Stein and M.S. Rothman (eds.), *Chiefdoms and Early States in The Near East*, Prehistory Press, Madison, Wisconsin, pp. 35–46.
Steward, J.H.
1949 Cultural Causality and Law: A Trial Formulation of the Development of Early Civilizations, *American Anthropologist* 51, pp. 1–27.
1955 *Theory of Culture Change*, University of Illinois Press, Urbana.
Storey, G.R.
1992 Preindustrial Urban Demography: The Ancient Roman Evidence, unpublished Ph.D. dissertation, Department of Anthropology, Pennsylvania State University, University Park.
Strathern, A.
1969 Finance and Production: Two Strategies in New Guinea Highlands Exchange Systems, *Oceania* 40, pp. 42–67.
Trigger, B.G.
2003 *Understanding Early Civilizations*, Cambridge University Press, Cambridge.
Underhill, A.P., Feinman, G.M., Nicholas, L.M., Fang, H., Luan, F., Yu, H., and Cai, F.
2008 Changes in Regional Settlement Patterns and the Development of Complex Societies in Southeastern Shandong, China, *Journal of Anthropological Archaeology* 27, pp. 1–29.
White, L.A.
1949 *The Science of Culture: A Study of Man and Civilization*, Grove, New York.
1959 *The Evolution of Culture: The Development of Civilization to the Fall of Rome*, McGraw-Hill, New York.
Wittfogel, K.A.
1957 *Oriental Despotism: A Comparative Study in Total Power*, Yale University Press, New Haven, Connecticut.
Wolf, E.R.
1982 *Europe and the People without History*, University of California Press, Berkeley.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Wright, H.T.
1977 Toward an Explanation of the Origin of the State, in J.N. Hill (ed.), *Explanation of Prehistoric Change*, University of New Mexico Press, Albuquerque, pp. 215–230.
2009 Past Action: Present and Future, *Native South* 2, pp. 121–125.
Yoffee, N.
2005 *Myths of the Archaic State*, Cambridge University Press, Cambridge.
2006 Afterword: Lenses on Mississippian Leadership, in B.M. Butler and P.D. Welch (eds.), *Leadership and Polity in Mississippian Society*, Center for Archaeological Investigations, Southern Illinois University, Carbondale, pp. 398–401.

## Tables

| Paradigms | Characteristics |
|---|---|
| Functionalist | All participants act in interest of society |
| Selectionist | Little consideration of social relationships and institutions |
| Marxist/culture history | Agency and action flow strictly from the top down |

Table 1. Principal paradigms and their characteristics

| |
|---|
| • The evolutionary legacy of our species has tendencies toward both dominance hierarchies and high degrees of sociality. |
| • Agency is universal but also constrained by structure and resources. |
| •Human groupings may be open and permeable to varying degrees, but they rarely are entirely closed for lengthy periods. |
| • Human social, political, and economic behaviors are relational, and the resultant networks of relations generally are not tightly bounded. The webs of these relations are more productively conceptualized/modeled as social networks rather than as discrete, closed groups (Misch 2011; Smith 2005). |
| • Multiscalar perspectives are essential for understanding human social relations. |

Table 2. Basic principles of human behavior


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

| Theoretical frame | Agency | Scalar focus | Boundedness |
|---|---|---|---|
| Culture history | Elite? | Culture | Closed |
| Cultural evolutionary systems | Elite | Society | Closed |
| Marxism/Marx influenced | Elite | Society, class (rarely) | Potentially open |
| Sociobiology (narrow Darwinian) | All | Individuals, kin | Not adequately considered |
| Postprocessual | Elite (situational for commoners) | Society | Mostly closed |
| Rational choice/ cooperation | All | Explicitly multiscalar | Open |

Table 3. Perspectives on the human past

| Exclusionary | Corporate |
|---|---|
| Concentrated wealth | More even wealth distribution |
| Individual power | Shared power arrangements |
| Ostentatious consumption | More balanced accumulation |
| Prestige goods | Control of knowledge, cognitive codes |
| Patron/client factions | Corporate labor systems |
| Attached specialization | Emphasis on food production |
| Wealth finance | Staple finance |
| Princely burials | Monumental space |

Table 4. Tendencies of exclusionary and corporate modes (adapted from Blanton *et al.* 1996)

| Less collective | More collective | Reference |
|---|---|---|
| Finance-based big-man | Production-based big-man | Strathern 1969 |
| Noncorporate | Corporate | Schneider, Schneider and Hansen 1972 |
| Individualizing chiefdom | Group-oriented chiefdom | Renfrew 1974 |
| Wealth finance | Staple finance | D'Altroy and Earle 1985 |
| Predatory rule | Quasi-voluntary compliance | Levi 1988 |
| Exclusionary/network | Corporate | Blanton *et al.* 1996 |
| Monarchic | Democratic | Grinin 2004 |
| Extractive | Inclusive | Acemoglu and Robinson 2012 |

Table 5. Analytical schemes with analogical parallels to the corporate-network/exclusionary axes


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

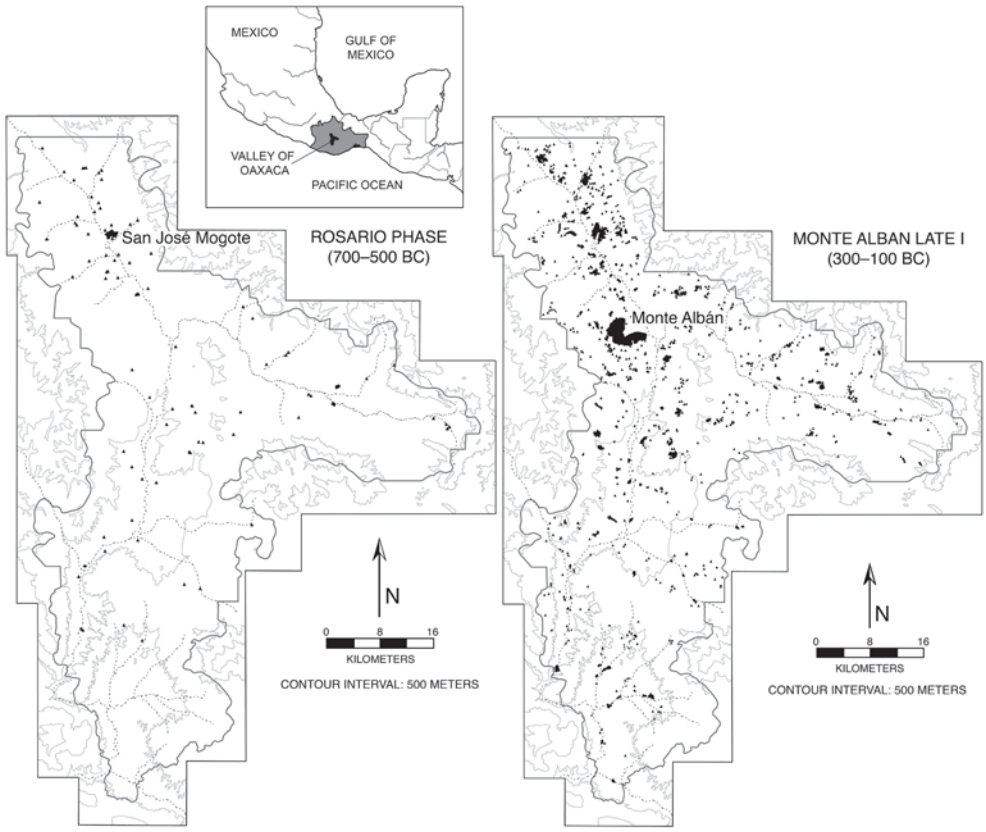



Fig 1.1. Early centers in the Valley of Oaxaca, Mexico


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

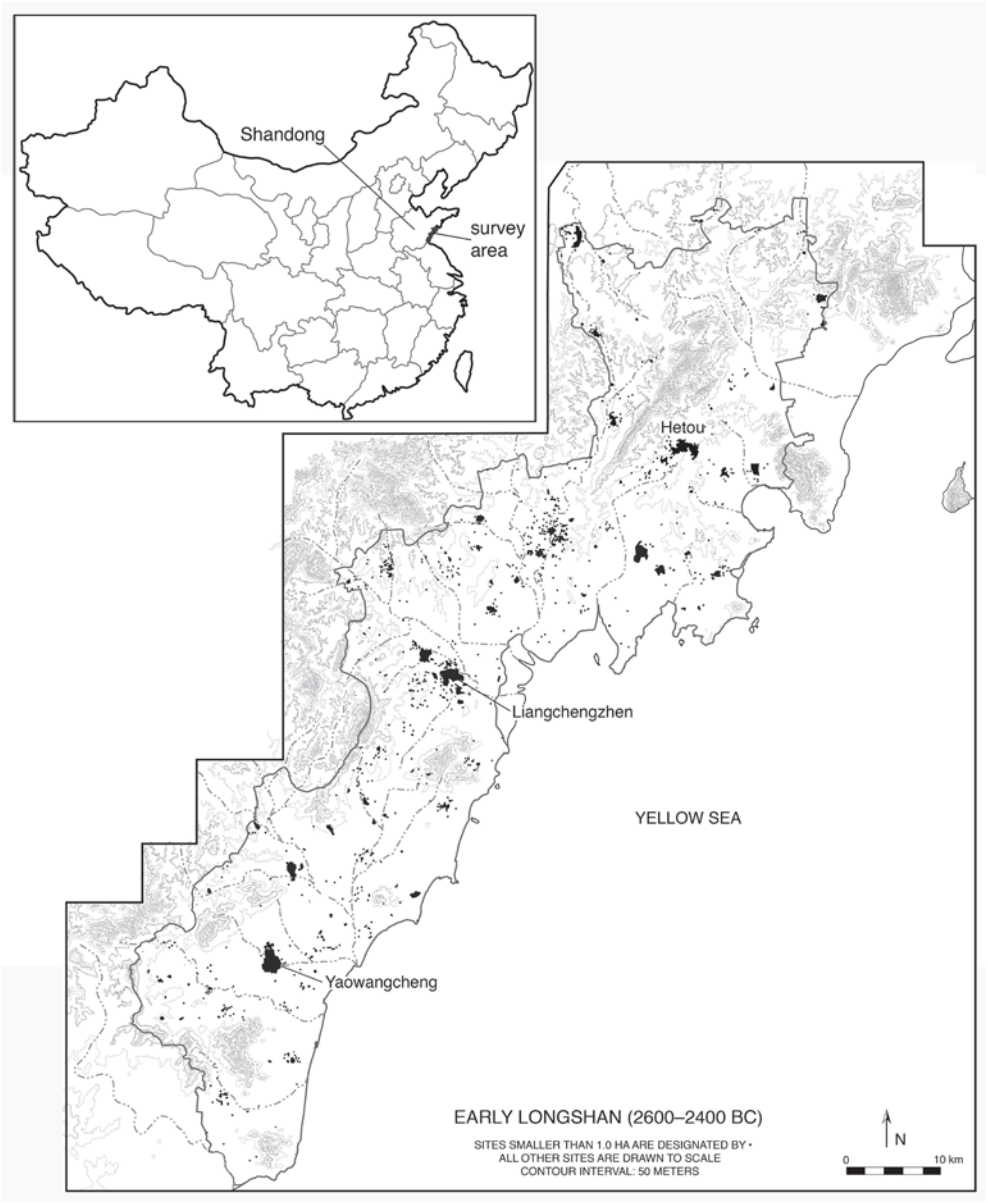



Fig 1.2. Early centers in coastal Shandong, China


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

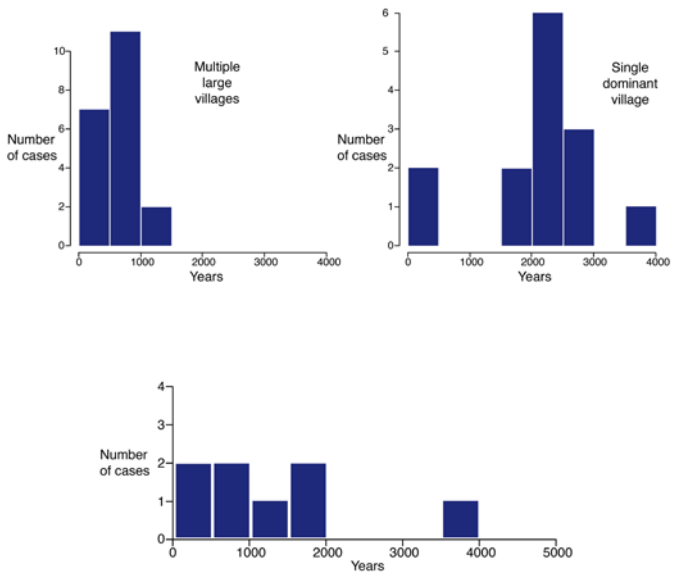



Fig 1.3. Sequences of regional change over time: top graphs show time from the first settled agricultural villages in a region to the presence of large villages for cases where multiple large villages formed versus those where a single village was dominant (adapted from Bandy 2008: fig. 3); bottom graph shows time from the advent of large villages to primary state formation in eight world areas where states ultimately developed (adapted from Bandy 2008: 336–337, figs. 5 and 6)

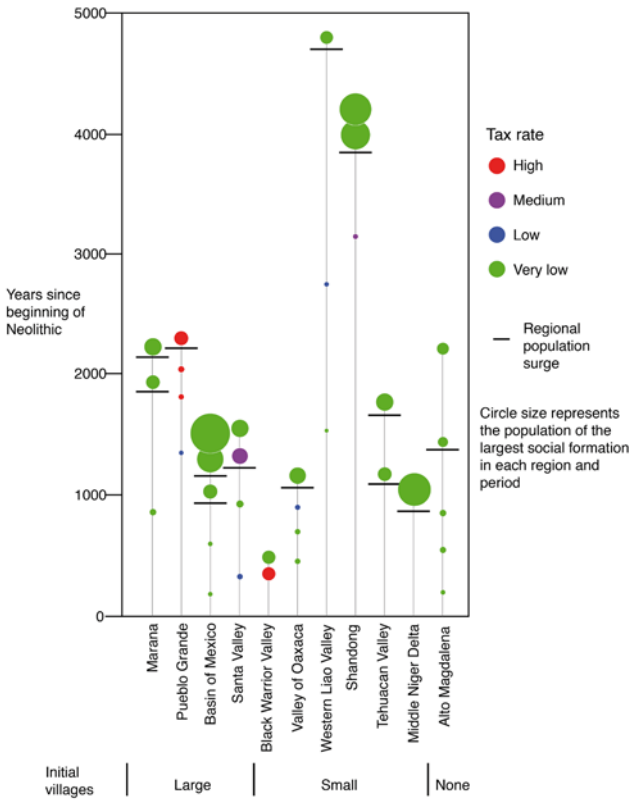



Fig 1.4. Eleven cases of settlement pattern change over time (adapted from Peterson and Drennan 2012: fig. 6.14)


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

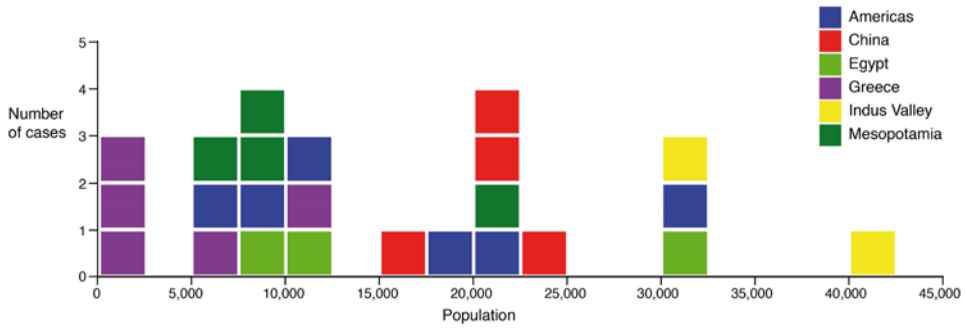



Fig 1.5. Sizes of largest cities in early states

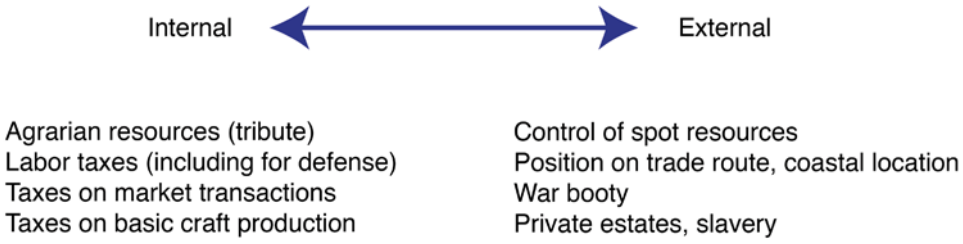



Fig 1.6. Financial underpinnings of governance (adapted from Blanton and Fargher 2008)

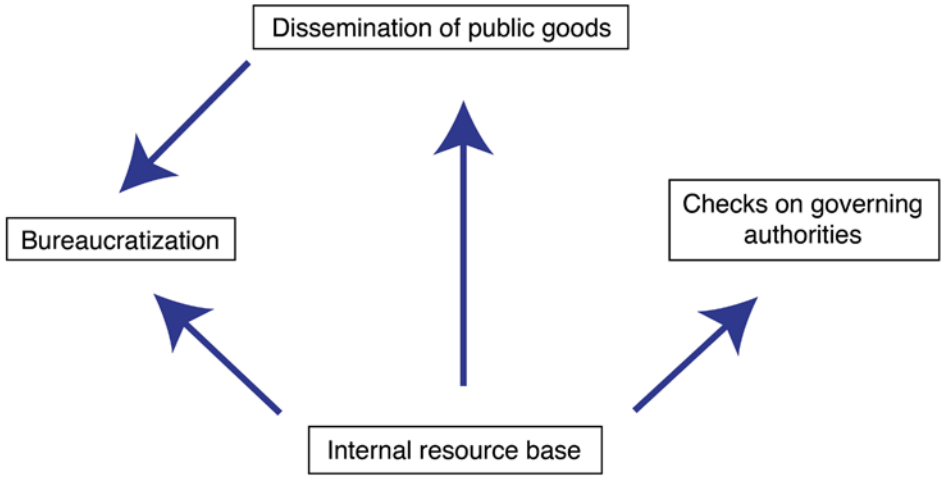



Fig 1.7. Fiscal model of collective action (adapted from Blanton and Fargher 2008: 254)


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

# Chapter 2
# Beyond Dichotomies: Teotihuacan and the Mesoamerican Urban Tradition

Davide Domenici

*Abstract*
The paper considers the position of Teotihuacan within the Mesoamerican urban tradition, trying to overcome a too strict dichotomy opposing Central Mexican large, nucleated, high-density cities and Lowland dispersed, low-density ones as urban manifestations of a similar dichotomy contrasting highly centralized vs. segmentary polities. The paper takes into examination Teotihuacan's mural paintings, the interpretive potential of which has been neglected in studies dealing with Mesoamerican urbanism. The new analysis aims at demonstrating that mural paintings provide interesting hints to understand a key aspect of the urban form: the function of intermediate political bodies within Teotihuacan institutional framework. This is achieved also through a comparison between Classic Teotihuacan pictorial imagery and Late Postclassic Nahua hieroglyphic writing and literary genres, which suggests the existence of shared forms of conceiving and expressing political relations. On this basis, the paper argue that Teotihuacan urban form could have expressed the inner articulation of a political system much less centralized than usually thought.

## 1. Introduction

Teotihuacan has been often described as an urban anomaly, as an extreme case within a Mesoamerican urban tradition perceived in highly dichotomic terms, with some Central Mexican large, nucleated, high-density cities – best represented by Teotihuacan and Tenochtitlan – contrasted with Lowland dispersed, low-density centers exemplified by sites such as Tikal, Copán and other smaller Classic Maya settlements, whose urban character was sometimes even questioned (Sanders and Webster 1998). A similar dichotomy was perceived at the level of the larger political systems since "cities can be understood only in terms of the kinds of states in which they are embedded" (Sanders and Webster 1998: 543; see also Blanton 1981: 392). According to Sanders and Webster, for example, Mesoamerican ritual-regal cities flourished within "segmentary states", while administrative cities such as Tenochtitlan and Teotihuacan would have pertained to "larger, more bureaucratically structured, and more highly centralized" states. In the former, the city center "may have been fruitfully conceived as the expanded household of the ruler" while in the latter the center would have hosted a much higher and diverse number of functions (Sanders and Webster 1988: 524-525).


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Such stark dichotomies have been subsequently criticized by various scholars, stressing their too strict typological emphasis and, notwithstanding their explicit functional approach, their excessive reliance on demographic and dimensional factors that led to the downplaying of the urban character of many small Classic Maya cities (Smith M.E. 1989; Chase, Chase and Haviland 1990). It has been showed, for example, that most Central Mexican settlements were not so large and densely packed as Tenochtitlan or Teotihuacan, as well as that in the Maya Lowlands there existed compact and densely settled Classic cities such as Chunchucmil, Yucatan (Magnoni et al. 2014) or even gridded ones as the Preclassic settlement of Nixtun-Ch'ich' (Pugh and Rice 2017). The recognition of a specific type of low-density, agrarian urbanism (Isendahl and Smith 2013) afforded urban status to demographically small settlements, now perceived as functionally complex sites that cannot be reduced to their regal-ritual functions.

Despite the more nuanced character of the recent theoretical debate, often driven by less schematic and more refined approaches (e.g. Joyce 2009), the abovementioned dichotomy between cities ascribable to highly centralized vs. poorly-centralized, or "galactic" polities is so deeply entrenched that it still looms large in our perception of Mesoamerican urbanism. Its most graphical expression is the often-reproduced visual comparison between the maps of Teotihuacan and Tikal, contrasting the dense, planned orthogonal urban plan of the former with the "organic" and apparently unplanned urban sprawl of the latter. Notwithstanding the critiques moved to some of its basic assumptions (e.g. Smith M.E. 2007), this tendency to overstress in a dichotomic way the diversity of ancient Mesoamerican cities, and thus of the political organizations in which they were embedded, is also confirmed, for example, by the frequent misuse of the influential theoretical proposal advanced by Blanton et al. (1996); contrarily to what explicitly stated by the authors (Blanton et al. 1996: 7; see also Feinman 2016: 7), corporate and network political strategies, rather than as opposite ends of a continuum, have been often perceived as typological labels enforcing the abovementioned dichotomy: if Teotihuacan is usually described as the most striking case of a corporate polity, Classic Maya cities are often mentioned as quintessential manifestations of network political strategies, whose most minute details are being steadily revealed by the works of archaeologists and epigraphers. In recent years, the corporate/network conceptual pair has been reformulated in a more nuanced theoretical manner based on the notion of collective action (Blanton and Fargher 2008, 2011; Fargher et al. 2011; Carballo 2013a; Carballo, Roscoe and Feinman 2014; Carballo and Feinman 2016; Feinman 2016); not surprisingly, also in this new formulation, Teotihuacan still represents one of the more extreme examples of collective states, that is, states whose economy was mainly based on internal revenues and whose leaders were more prone to invest in public goods, to rely on a highly developed bureaucracy, and to pursue collective, not autocratic, political goals (e.g. Carballo and Feinman 2016: 293). In many Teotihuacan studies the corporate/collective character of the Central Mexican polity is often perceived as the expression of an all-encompassing, highly centralized and hyper-bureaucratized central government whose political authority, even if almost "invisible" in the iconographic apparatus of the city, shaped every detail of the urban social life, as purportedly witnessed by some traits of Teotihuacan urban form.

In the present paper, after synthetizing some current views of Teotihuacan socio-political structure, I will argue that – contrarily to what often stated – the rich corpus of mural paintings covering the walls of the city's architectural compounds, understandable as the expression of a proper writing system, was mainly used to communicate very specific political information


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

which seem to characterize Teotihuacan's urban and political structure as much less anomalous than usually thought.

Even if usually mentioned in any general treatment of ancient Teotihuacan, the interpretive potential of its lavish tradition of mural paintings has usually been neglected in studies dealing with urbanism, especially because of the often alleged "lack" of a proper writing system and thus of emic descriptions of political events, institutions and titles comparable to those available to mayanists.

As already mentioned, one of the points most agreed upon by scholars dealing with ancient urbanism is the strict relationship linking urban forms and their wider institutional frameworks (e.g. Blanton 1981: 392); this relationship is usually stressed in order to state that the city and its formal and functional arrangement can only be understood by looking at the larger sociopolitical system in which it is embedded, as expressed by Robert McC. Adams when stating that the "comparison of urban layouts and their architectural components in Mesopotamia and Mesoamerica would be a largely futile exercise" because in both areas cities "were no more than the gross outer manifestations", or "the containers" of the "institutions of city life", so that "we should study urban institutions rather than urban forms, since the latter were simple containers of social processes" (Adams 1966: 77-78). My interpretive attempt is based, to a certain extent, on a complete reversal of this statement: if – as I will argue below – Teotihuacan mural paintings can provide interesting hints to understand a key aspect of the urban form, what does this urban form reveal about the larger sociopolitical organization of the Teotihuacan polity? Does it really suggest that it was, as often assumed, a hyper-centralized one, radically differing from that of other known Mesoamerican polities and making Teotihuacan an historical "anomaly"? The comparison between Classic Teotihuacan pictorial imagery and Late Postclassic Nahua hieroglyphic writing and literary genres, suggesting the existence of similar forms of conceiving and expressing political relations, will lead us to a comparison between Teotihuacan and Late Postclassic Nahua polities in order to observe possible analogies that could help understanding the role that intermediate elites, as governing bodies of lesser sociopolitical units not completely subjugated to the will of the central government, could have played in the shaping of Teotihuacan urban and political landscape. It is important to stress that these analogies do not imply at all that Teotihuacan was a Nahua site, but simply that its political structure could have been more similar than usually thought to other Mesoamerican cases, the Nahua one being by far the best known and comparatively useful. Hints about the role played by intermediate elites within the Teotihuacan political landscape were drawn also from studies of different cultural traditions, such as those of ancient Mesopotamia, so stressing the interpretive potential of cross-cultural comparisons such as the one fruitfully initiated half a century ago by Robert McC. Adams, to whose seminal work *The Evolution of Urban Society: Early Mesopotamia and Prehistoric Mexico* (1966) we are paying homage with this volume.

## 2. Current views of Teotihuacan urban and political structure

Teotihuacan (Fig. 2.1) is probably the most thoroughly studied site in Mesoamerica, and probably one of the most studied cities of the ancient world, with a centuries-old tradition of archaeological researches having investigated many aspects of the site's history.[1] The perception of

1 For general syntheses see Cowgill 1997, 2015; Headrick 2007; Clayton 2015; Nichols 2015; Robb 2017a.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Teotihuacan as a case of extreme political centralization mainly derives from a set of different factors: the stark contrast between the relatively small secondary centers of the Basin of Mexico and the gigantic dimensions of the capital, with an estimated population of 100.000-150.000 individuals living in an urban area of more than 20 square kilometers; the sheer monumentality of its epicenter (Fig. 2.2), dominated by massive structures such as the Sun and Moon pyramids, the Ciudadela, or the Plaza de las Columnas; the highly regular and orthogonal urban grid, centered on the huge Street of the Dead, oriented to the so-called Teotihuacan north, and spatially determining the location of more than 2000 walled architectural compounds showing a remarkable formal homogeneity. All these elements, and especially the highly regular and homogeneous urban design suggesting the existence of a multi-secular master plan, made that most scholars imagined the existence of a strong central government that controlled Teotihuacan urban life for centuries. Beyond this general agreement, many conflicting interpretations of the ancient Teotihuacan political system have been put forward, ranging from a despotic monarchy to a council of various lords and sometimes assuming an oscillation between these two poles (e.g. Manzanilla 2001, 2002, 2006; Cowgill 2015, 2017); nevertheless, in most cases no doubts were cast on the powerful, centralized, and all-encompassing character of Teotihuacan government, apparently reflected in the highly uniform urban landscape.

Not to overstate this general interpretive trend, it must be acknowledged that archaeological excavations revealed many aspects of Teotihuacan inner social and economic heterogeneity: it is well known, for example, that several neighborhoods were inhabited by non local populations from areas such as the Gulf Coast, the Maya area, Zapotec Oaxaca, and Western Mexico, attesting that Teotihuacan was a multiethnic and plurilinguistic city (Gómez Chávez and Gazzola 2009; Gómez Chávez 2017). Evidences of craft production point to an extremely heterogeneous situation where state-controlled, specialized production of goods such as pottery censers and obsidian tools seems to have coexisted with more localized, household- or compound-based, part-time productions of a wide range of products (Múnera 1985, Manzanilla 2009, 2012c, 2017b; Gazzola 2010, Carballo 2011, 2013b). Especially interesting for our purposes, the excavations of some of the walled architectural compounds revealed a high diversity in terms of complexity, richness, and social standing, leading to interpretations of the compounds as multifunctional spaces inhabited by Teotihuacan's constituent social units (Millon R. 1981; Manzanilla 1993, 2012a, 2017a, 2017b; Cabrera Castro 1996, Gómez Chavez 2000; Cabrera Castro and Gómez Chavez 2008; Carballo 2017; Murakami 2016); in every architectural compound one or more extended households (which L. Manzanilla compared with Sumerian *é*) would have "shared a domestic space surrounded by a wall" maybe constituting "corporate groups bonded together by a particular product, activity, or service that they offered to the neighborhood of the city" (Manzanilla 2017b: 96). Given the recent interest that urban studies have devoted to neighborhoods as spatial correlates of house-like sociopolitical units (Gillespie 2000a, 200b), the interpretation of Teotihuacan architectural compounds as constituents of wider sociopolitical units such as neighborhoods and districts has been a key theme in recent literature (Arnauld 2012; Gómez Chávez 2000, 2012; Gómez Chávez, Gazzola and Núñez Hernández 2004; Manzanilla 2012b, 2012c). Some of the architectural compounds, such as La Ventilla, Teopancazco, Zacuala, Xolalpan or Tepantitla would have thus functioned as multifunctional "neighborhood centers" where political, religious, administrative and craft activities were carried out by local inhabitants (sometimes of foreign origins) under the authority of intermediate elite members, distinguished by specific attires: according to a recent study on


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

the distribution of three-temple complexes, that the authors interpret as neighborhood centers, at least twenty-two different neighborhoods could be recognized within the city plan (Froese et al. 2014). The intermediate elites residing in neighborhood centers would have been subject to higher ranking lords ruling over wider political and administrative units such as "districts", maybe residing in royal palaces tentatively identified with the architectural complexes 1D and 1E of the Ciudadela, The Palace of the Sun, Xalla, and the Quetzalpapalotl Palace (Manzanilla and López Luján 2001; Manzanilla 2001, 2004, 2017; Sanders and Evans 2006; Evans 2006; Nielsen 2015); the Street of the Dead Compound could have been either a royal palace or the main administrative space of the ancient city (Murakami 2016).

Even if this kind of studies usually recognize a certain degree of autonomy to extended households and neighborhoods, with few exceptions (e.g. Manzanilla 2012b, 2012c; Murakami 2016) this autonomy has been usually perceived as a mainly social and economic phenomenon, rarely considering the possibility of some degree of political autonomy. In other words, neighborhood intermediate elites have been often perceived as direct expressions of the central government, as the long arm of the Teotihuacan state extended to control the daily life of the compounds' population. In this view, neighborhoods are perceived as loci of "the effective mechanisms by which the state could exert social and community control" (Gómez 2012: 81). I would propose here a rather different view but, needless to say, evaluating the inner articulation and the degree of political autonomy of intermediate sociopolitical units within the Teotihuacan polity is not easy at all for archaeologists: if economic and social practices can be inferred on the basis of material evidence, much more difficult is the understanding of specific political relationships, especially in absence of epigraphic sources (e.g. Manzanilla 2012: 55). But are these sources really absent?

## 3. Teotihuacan mural paintings as political tableaux

In my opinion, the interpretive potential of mural paintings embellishing the walls of many architectural compounds has been almost completely neglected in studies devoted to Teotihuacan urbanism and political organization. The common understanding of the mural paintings as mainly symbolic expressions of mythological and religious themes conveying an egalitarian ideology (e.g. Pasztory 1992; Cowgill 1997; Froese *et al.* 2014) or – even worst – simply as evidences of wealth and social status is, I believe, a pitfall that deprives us of a potentially rich source of information.

Apparently, a political content has been usually recognized only in anthropomorphic images, such as the so-called processional figures, interpreted as mimetic depictions of elite members whose headdress and costumes could function as indicators of specific political, religious, or military offices (Millon C. 1988; Paulinyi 2001; Conides and Barbour 2002; Headrick 2007; Manzanilla 2012c; Robb 2017b). Such images would have functioned as highly codified iconographic representations that, even if rich in visual information, would contain few of those detailed data that, in the form of anthroponims, titles, toponyms, etc., can be found in properly epigraphic records such as those found in the Maya area (but see Millon C. 1973). In contrast with this view, I would argue here that other expressions of Teotihuacan mural painting could also contain highly informative political data in the form of proper inscriptions, especially useful to understand emic expressions of the identity of the socio-political units inhabiting the walled architectural compounds; and, contrarily to what usually assumed, I would also argue


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

that these visual resources, rather than an egalitarian ideology, conveyed information related precisely with political hierarchies.

In recent years various scholars such as K. Taube (2000, 2002, 2011), T. King and S. Gómez Chávez (2004), C. Helmke and J. Nielsen (Nielsen 2004; Nielsen and Helmke 2008, 2014a; Helmke and Nielsen 2014), C. Garcia des Lauriers (2008), myself (Domenici 2005, 2017) and others, building on pioneering works such as those of J. Angulo Villaseñor (1972) C. Millon (Millon C. 1973) have strongly asserted the existence of a proper Teotihuacan writing system. Unfortunately, this script has not been deciphered and for the moment we do not even know which language should be searched for in the inscriptions. Nevertheless, an analysis of Teotihuacan mural paintings suggested the existence of at least four different "registers" of pictorial expression, which I called "condensed writing", "emblematic writing", "vestmental" and "mimetic", the latter being proper iconographic imagery and the "vestmental" corresponding to the abovementioned codified representation of costumes and headdresses as indicators of political offices; the first two registers, on the other hand, were interpreted – mainly on the base of structural comparisons with late Postclassic Nahua glyphs (Fig. 2.3) – as proper forms of writing expressing toponyms, titles and, maybe, even personal names; at times, their identification is made difficult by specific visual "tricks" performed by Teotihuacan painters, who arranged the glyphic compounds in emblematic forms resembling those of mimetic, realistic imagery (Domenici 2017).

Even if the structural comparison with later Nahua glyphs convincingly suggests a rather high frequency of toponyms and titles in Teotihuacan mural paintings, still problematic is the understanding of which kind of texts they were conforming. The seeming lack of verbs suggests that most Teotihuacan inscriptions were not of the narrative, historical kind best known in the Maya area. Moreover, the usual repetition of a same sign on the walls of a same architectural unit implies that we are not even dealing with name lists such as those of conquered or tributary places commonly found in Postclassic and Colonial Mixtec and Nahua monuments and documents. This difficulty of identifying structurally complex texts has sometimes led to the conviction that the Teotihuacan script was a writing system without syntax (Pasztory 1997: 192-94, 250; Headrick 2007:25, 26; Cowgill 2015: 213-214).

I think that a fruitful research avenue regarding the arrangement of individual glyph in complex "texts" could be based on the observation of the spatial organization of Teotihuacan paintings, whose main function seems to have been the "building tagging or labeling" (Nielsen and Helmke 2014a), that is, a writing practice mainly aimed at expressing information regarding the function and identity of architectural spaces, whose spatial syntax would correspond to the textual syntax of the associated inscriptions. Unfortunately, most of Teotihuacan architectural compounds suffered multiple phases of reconstruction and repainting, whose evidences are today mixed before our eyes due to the hazards of preservation and archaeological excavations, highly complicating our perception of the original mutual spatial relationships among different paintings.

Luckily enough, there are cases where our appreciation of the original, synchronic arrangement of paintings is still possible. This is the case, for example, of the so-called Zacuala Palace, entirely excavated by L. Sejourné between 1955 and 1958 (Sejourné 1959, 1966a, 1966b), where, notwithstanding the rather hectic publication of the excavation details, we can be almost sure of the synchronicity of its pictorial assemblage. The neat formal structure of Zacuala has been the object of various analyses of traffic patterns and spatial logic (Hopkins 1987; Robb 2007).


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

In synthesis, a linear sequence of spaces starts from the access on the southeastern corner of the compound and leads to the central patio. While the northern, western, and southern sides of the patio are occupied by porticoes with rear rooms, its eastern side (opposite the entrance) is occupied by a huge raised platform. This platform is usually referred to as a temple or shrine (e.g. Manzanilla 2001: 168), but it could actually have functioned as a lordly seat or throne room; in fact, a similar interpretation has been proposed for the formally analogous main "temple" in the West Plaza Complex (Sanders and Evans 2006:268)[2]. From the corners of the central patio, four L-shaped porticoes give access to four isolated (that is, not mutually communicating) architectural compounds that we will call corner subcompounds. Observing the extant mural paintings, it is easy to note that every spatial unit so far identified (access corridor, L-shaped porticoes, corner subcompounds, and the four structures of the central patio) is characterized by the repetition of a single image. This close correspondence between functional architectural units and their painted decoration suggests a form of "building tagging", with painted imagery conveying information related with the specific architectural space, its function and, maybe, its inhabitants (Fig. 2.4). Every corner subcompound is decorated by a painting showing the typical characteristics of "emblematic glyphs": Storm Gods (or Storm God impersonators with no legs) emerge from volutes in the southwestern unit (and in the access corridor); birds with an infixed "Reptile-Eye" glyph on their breasts occur in the northwestern one, while anthropomorphs with jaguar costumes (but, again, without legs) mark the southeastern subcompound; unfortunately, no mural painting is preserved in the northeastern one. Each of the L-shaped porticoes features full human figures (with full legs) wearing Storm God goggles, carrying maize stalks and walking from the patio toward the corner compounds. In the central patio, every portico and its rear room bears a specific image: raptorial birds appear in the west, while two different images including full-bodied and richly attired individuals decorate the north and south porticoes. Although the paintings of the main platform are badly preserved, one area of it (perhaps the taluds or the pillars) preserved remains of an image of a Feathered Serpent carrying a headdress on his back; the border of this last painting contains a mat motif, a common symbol of royalty in ancient Mesoamerica.

Even if we are still not able to "decipher" the specific meaning of the Zacuala imagery, the analysis of the spatial location of paintings pertaining to different semantic registers allows further reflections on their relationship to the architectural elements and their functions. The main, eastern platform overlooking the central patio seems to be characterized as a lordly seat by a painting that, following a pattern that also occurs in the Feathered Serpent Temple and in the border of the Tepantitla priests procession, portrays the Feathered Serpent carrying a headdress, arguably the materialization of a specific political or religious office (Sugiyama 2005:56-58). The two porticoes and associated rooms that flank the platform show two different "vestmental" representations, again possible references to lesser political or religious offices. The raptorial bird in the facing portico is likely to be an emblematic glyph of unknown

2 I doubt that the term "temple" could be properly applied to such structures or even to whole architectural compounds such as the so-called "Neighborhood Temple" in La Ventilla (Gómez 2012: 82-84). According to S. Gómez, precisely the "emblematic elements", "heraldic motifs or symbols associated with the state" would signal the religious function of such platforms; in my view, on the contrary, are precisely those "emblematic elements" which point to a more secular function, so that I prefer to see these structures as mainly political seats, keeping in mind that political offices in ancient Mesoamerica often had a strong religious component.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

significance. The vestmental representations in the L-shaped porticoes, portraying Storm God impersonators bringing maize toward the corner subcompounds, seem to be expressions of a common Teotihuacan metaphor for the exercise of power as a fertile flow moving from the center to the periphery of the compound, in a cosmogram-like arrangement. The emblematic imagery decorating the four corner subcompounds is hard to interpret, but its one-to-one correspondence with architectural units suggests that it may be understood as an expression of the identity of the inhabitants of every unit. The structure of the birds with infixed glyphs suggests that at least some of the emblematic compounds could correspond with titles or place names; significantly, glyphs with a more clear toponymic value are usually located in similar peripheral areas within other architectural compounds, suggesting the use of toponyms as names of communities subject to the authority of the lords whose attires are portrayed in the central patio of the neighborhood center. In sum, the Zacuala painted decoration seems to characterize the architectural compound as a lordly palace, where the close correspondence between functional architectural units and images seems to reflect syntactical relationships, thus forming a spatial text, a conceptual map of the political identities of the palace inhabitants and of their mutual hierarchical relationships. Arguably, the "full" political map would extend well beyond the Zacuala palace itself, also extending to lesser architectural compounds functionally and politically dependent from it.

According to this perspective, neighborhood centers such as Zacuala, functioning as physical centers of intermediate sociopolitical units or lordly houses that coexisted in the ancient city, expressed both their inner articulation and their relationship with the wider Teotihuacan polity by means of a pictorial tableau. Spatially peripheral titles and toponyms probably referred to political offices and communities that conformed the inner structure of the middle-level political unit, while the costumes and headdresses of the full figures in the central patio could refer to the hierarchical articulation between the local, intermediate elite and the higher Teotihuacan central government, with the headdress on the Feathered Serpent body on the main central platform of Zacuala representing the political office held by the main lord of the social, political and physical house; if we compare it with the decoration of the Feathered Serpent Pyramid – arguably an expression of Teotihuacan central government – we can easily observe that both structures share a same visual and political discourse, with different headdresses expressing different, and arguably hierarchically ordered, offices; interestingly enough, the production of headdresses and costumes has been archaeologically detected as precisely one of the main productive activities of elite palaces like Teopancazco (Manzanilla 2009, 2012c), where mural paintings even show toponymic signs embedded in the decoration of the elite attires (Helmke and Nielsen 2014; Domenici 2017).

According to this proposal, admittedly highly speculative, the non-narrative character of Teotihuacan art doesn't imply the absence of political information: much to the contrary, the inhabitants of Teotihuacan used glyphic writing to record a spatial and political order, whose most interesting aspect is its close structural correspondence with a well-attested early colonial Nahua pictorial genre, the political map, represented by various examples such as the maps in the *Historia Tolteca Chichimeca*, the *Cuauhtinchan Map*, or the depiction of Tezcoco's royal palace painted in the colonial document known as *Mapa Quinatzin*. The latter is both a map of the royal palace and of the Tezcoco polity, represented in a conceptual way by arranging the toponyms of the subject places around the royal palace, whose central patio is occupied by the lords of the kingdom, individually distinguished by their glyphic names; glyphs are also used to


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

explicit the function of specific rooms, such as the one devoted to the reception of allied kings, marked by the corresponding toponyms.

Not to overstate the analogy, it is important to note that the structure of the Zacuala compound and that of the Texcoco royal palace in the *Mapa Quinatzin* is not identical. What seems relevant to me is not a precise correspondence between the two architectural compounds, but rather their use of a common visual genre, based on the association between architectural spaces and glyphic tags, thus producing a similar spatial visualization of political relationships. It seems to me that the visual discourse shared by the mural paintings of Zacuala and the constitutive elements of the Texcoco *tecpan* as depicted in the *Mapa Quinatzin* indicates that the syntactical articulation of the Zacuala paintings conforms to a typically Mesoamerican expressive genre and spatial practice, analogous to what M. De Certeau called a tableau, where territory is represented as a hierarchically arranged order of places (De Certeau 1984:115-30; Leibsohn 1994:166; Carrasco 1999:18). According to this view, the practice of building tagging to create political tableaux – a typically Mesoamerican pictorial genre –was apparently used in Teotihuacan as a powerful mean to increase the "legibility" (Scott 1998) of the urban space as an embodiment of political relationships.

## 4. A comparative case: Postclassic Nahua political systems

The similarity between Classic Teotihuacan and Postclassic Nahua glyphic writing, as well as its usage to create analogous political tableaux, suggest that fruitful hints on the Teotihuacan political organization and urban structure can derive from a comparison with Postclassic Nahua political systems.

Available archaeological and historical evidence reveals a great deal of diversity in the internal organization of Postclassic Nahua polities, regarding both structural and terminological issues (Gibson 1964, 1971; Hodge 1984, 1994; Lockhart 1992; Reyes García 1996; Carrasco Pizana 1999; Smith M.E. 2000a, Hirth 2003, 2008, 2012; Fargher et al. 2011; Gutiérrez Mendoza 2012; Lind 2012). Nevertheless, some common element can be stressed. The fundamental sociopolitical unit in the Postclassic Nahua world was the *altepetl* ("Water mountain"), a term we could understand as comparable to "kingdom" or "royal household". Usually ruled by a king named *tlatoani* ("Speaker") living in a royal palace, every *altepetl* was constituted by various sectors, often called *parcialidades* or *cabeceras* in colonial Spanish accounts, ruled by lords residing in lordly palaces, called *tecpan*. In its turn, each of the constitutive sectors of the *altepetl* was composed by various corporate social units (often called *calpolli*) composed by various tens or hundreds of households – of both nobles and commoners, not necessarily linked by kinship ties – subject to a noble lord who owned the land and who was in charge of tribute collecting. Each of these corporate social units usually had a relatively small spatial nucleus with administrative buildings, the temple of the patron god, the elite residence and a school; at least in some instances, it was also characterized by a specific craft activity performed by its members.

Going back at the higher level of the political hierarchy, various *altepeme* (plural of *altepetl*) could be joined in a wider polity, a complex *altepetl* sometimes called *hueyaltepetl* ("Great *altepetl*") or *tlatocaaltepetl*, with various *tlatoque* recognizing the authority of one or more higher-ranking *tlatoque*; an extreme example of such complex system would be the *Excan tlatoloyan*, the triple alliance usually known as "Aztec empire", ruled by three *huey tlatoque*, the high-ranking *tlatoque* of the complex *altepeme* of Mexico, Tetzcoco and Tlacopan, whose authority


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

was exercised over various tens of subordinated *tlatoques*, some of them in their turn ruling over complex *altepeme*. As most Mesoamerican political systems, the segmentary *altepetl*-based system was extremely prone to processes of fission and fusion, often resulting in quite sudden reorganizations of the highly competitive and fluid political landscape.

Some important aspects of this system are worth to be mentioned here. First of all, if the royal palace, or *tecpan*, of the *tlatoani* was usually located in the main nucleated settlement of the *altepetl*'s territory, some of these settlements could host more than one *tlatoani*, each of them with his own royal palace; each *tlatoani* ruled over the *calpoltin* subject to his authority, with no need of a corresponding formal spatial distinction of the *calpoltin* pertaining to different *altepeme* within the settlement and its rural surroundings. This means that a single urban center could have been perceived not as the capital of a single polity, but rather as a segmented settlement functioning as the center of two or more different polities, each one physically centered on a *tecpan*. And even if ruled by a single *tlatoani*, an urban center was anyway perceived not as a homogeneous and unitary residential place of the population of the king's subjects, but rather as the conjoining of various semi-autonomous segments, each of them with its own ruling elite inhabiting specific lordly palaces.

A second important aspect is that, as stressed by Kenneth Hirth (e.g. Hirth 2008, 2012), each *calpolli* had both a "urban" and "rural" population, with no hierarchical implications emically attributed to this distinction, so that in Hirth's view the city was "en epiphenomenon", "a reflection of the corresponding *altepetl*, without a structure or identity separated from this political body" (Hirth 2012: 73, 75). Moreover, due to both historical contingencies and spatial relocation of population's sectors (Gutiérrez Mendoza 2012), the spatial distribution of the tributary *calpoltin* over a territory was often discontinuous, with the *calpoltin* subject to neighboring *altepeme* being often interspersed in a same area. In other words, what constituted the corporate identity of such sociopolitical formations, even if they often expressed their identity in toponymic form, was primarily not a shared territory but a shared political subordination to a lord or king. Such a system resulted in a highly complicated and interspersed settlement pattern defying any regular and geometric modeling of the kind often attempted by processual archeologists. In this perspective, the interlocking territorial distribution of Postclassic Nahua *altepeme* looks not so different from what we know of coeval Maya polities in Yucatan, where various *cuchteel* – groups of households – were subject to various *batabob* or lords, in their turn subject to an *halach uinic* or king, with the different polities not necessarily having territorial continuity (Okoshi-Harada 2012); such a similarity shows that the abovementioned dichotomic opposition between Highland and Lowland urbanized landscapes is in many ways untenable.

A third element worth to be stressed is that a complex *altepetl*, a political unit corresponding not to a nucleated settlement but to a territory composed both by cities or towns and rural villages and farmsteads, was not an absolute monarchy, but rather a poliarchy, composed by a set of hierarchically arranged semiautonomous units such as the *altepeme*, the *tecaltin* and the *calpoltin*, each of them having its own lords living in lordly residencies (Gutiérrez Mendoza 2012: 29). Even if most complex *altepeme* had a paramount *tlatoani*, selected among the *tlatoque* of the various subordinated *altepeme* joined into a single polity, in other cases the various *tlatoque* ruled together as members of a ruling council. In Cholula, for example, the rulers (*tetecuhtin*) of the six sections of the *altepetl*, even if subject to a paramount *tlatoani*, used to join in a council house named *Xiuhcalli*, or "Precious house"; interestingly enough, only one of the city's *calpoltin* expressed the two high priests of Quetzalcóatl, the patron of the city; since Cholula had the sta-


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

tus of Tollan ("Place of the Reeds", a kind of supreme political status ultimately deriving from ancient Teotihuacan), among the duties of the two priests there was the piercing of the nose or lips that invested both local and foreign lords with political power (Lind 2012).

To conclude this section on Postclassic Nahua polities, it is worth stressing here that in his path-breaking comparative book Robert McC. Adams gave notable importance to the *calpolli* organization – that he compared with the Sumerian *im-ru* – stressing that in political systems conformed by various of such unites, the degree of central control was minimum, not extending beyond the chiefs or the traditional leaders of the communities (1966: 86-119)[3].

## 5. Back to Teotihuacan: a segmentary urban landscape?

The analogy between the political tableaux hypothetically detected on the walls of the Zacuala palace and the one inscribed in the *Mapa Quinatzin* provides interesting hints that could help in better understanding Teotihuacan neighborhoods, those "elusive social units" which "may have formed an organization level that articulated households and state administrative institutions" (Clayton 2015: 288). It suggests, in fact, contrarily to what usually stated, that "neighborhood centers" such as Zacuala could have been proper royal palaces, emically perceived as *tecpan*-like structures, the formal seats of lords ruling over a noble house which constituted the head of an *altepetl*-like sociopolitical unit, whose material correlate would be not the single palace but a wider set of related architectural compounds, that is, the neighborhood[4]. The painted decoration of the central area of the main palace would have expressed the main lord's office as well as the offices of dependent nobles; toponymic glyphs in the corner subcompounds (and, arguably, in related, dependent architectural complexes that, sadly for archaeologists, should not be necessarily spatially linked with it) would have expressed the corporate identity of the subordinated segments of the polity, similar to Nahua *tecaltin* or *calpoltin*[5]. In this view, the pictorial apparatus of the neighborhood centers – and especially that of the corner subcompunds – would have mostly conveyed middle-level indexical meanings (Rappoport 1988; Blanton 1994; Smith M.E.

3 Nevertheless, Adams proposed that these organizations – that he understood mainly in kinship terms, a view no more tenable today – were being superseded by a stratified, class-based, state system. Today that the old neo-evolutionary tenet pretending that the state as a political formation should have necessarily overcome "previous" kinship-based organizations seems equally untenable, we can be rather doubtful of this outcome.

4 In my view the Teotihuacan neighborhood would have then corresponded to a higher and wider sociopolitical formation than the Nahua *calpolli*, a social unit (ca. 100-200 households) that in the literature is often associated with neighborhoods in Western Nahua cities (Smith and Novic 2012: 5-8). The dimensional ambiguity of terms such as neighborhood and *barrio* (Smith and Novic 2012: 14-15) often leads to confusion in scale-related issues. I use "neighborhood" here as a spatial unit corresponding to an *altepetl*-like sociopolitical unit and physically composed by various architectural compounds, best exemplified by the La Ventilla set of associated compounds; in my view, a *calpolli*-like unit would be associated with architectural subcompounds within the larger "palaces" (such as the corner ones in Zacuala) or with multiple lower-status compounds such as Oztoyahualco. It is important to stress that in my view, agreeing with K. Hirth's observations regarding the urban/rural organization of Postclassic Nahua settlements, not all the members of a *calpolli*-like unit (and similarly, of an *altepetl*-like one) would have resided in the city, but only part of them (arguably the elite ones and their retainers).

5 See Leibsohn (1994:175-79) and Sandstrom (2000:65) on toponymic expression of corporate social identities in Early Colonial and contemporary Nahua communities.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

2008) expressing sociopolitical identities reflecting the inner articulation, or political order, of the sociopolitical unit, while the vestmental imagery of the central patio would represent the point of articulation between these middle-level meanings and the canonical, high-level ones expressed in the pictorial and sculptural decoration of the city's main monuments, such as the Temple of the Feathered Serpent, the Pyramid of the Sun, and the Pyramid of the Moon.

According to this hypothesis, the pictorial assemblage of the *tecpan*-like neighbourhood centers of Teotihuacan was thus expressing a political order whose articulation was materialized in the physical arrangement of the architectural spaces. Interestingly enough, the Nahua verb *tecpana* means precisely "to put in order", "to put people in order" (Molina 1571: 93r). S. Toby Evans (2004: 48) stated that the Nahua *tecpan* had a "distinctive societal meaning, its courtyard and dais room shaping social and civic identity", while S. Gillespie – borrowing the phrase from A. Kuper – wrote that a house society is a "royal house writ large" (Gillespie 2000b: 38), where the physical house functions as a "map of social relations" (Gillespie 2000a: 20). The palace of Zacuala would then be precisely this: a house where a political scheme is expressed materially in its architectural spaces and painted walls[6]. Actually, the comparison between Zacuala and known Nahua *tecpan* and administrative palaces (Evans 2004) shows a strong formal similarity: in both cases there is a main central patio or courtyard (called *tecpan quiahuatl* in Nahuatl) whose access is located in front of the eastern main platform that, in Nahua royal palaces, corresponded to the throne room, while other rooms opening on the central courtyard were occupied by functionaries, courtiers, family, and servants performing a wide array of activities (Evans 2001; Smith *et al.* 2003). Actually, this hypothesis seems to be compatible with archaeological evidences brought to light in Teotihuacan neighborhood centers such as La Ventilla or Teopancazco, with religious and administrative facilities associated with the remains of craft production (including the production of costumes) and feasting practices (e.g. Manzanilla 2012c: 319), matching the range of activities routinely carried out in Nahua royal palaces. As previously mentioned, the search for a possible Teotihuacán royal palace has usually pointed to central architectural compounds such the Ciudadela, the Street of the Dead Complex, the Palace of Quetzalpapalotl, and Xalla (see Manzanilla and López Luján 2001; Manzanilla 2004; Sanders and Evans 2006; Evans 2006). But, if such a central location is to be expected for the main seat of the city's apical, or paramount lord(s), the Nahua case demonstrates that the presence of such a central establishment does not conflict at all with the existence of many other lordly palaces (that in the Postclassic were sometimes even related with a *tlatoani*-like political status) pertaining to the rulers of the lesser segments of the polity. At the height of the *Excan tlatoloyan*, the Basin of Mexico still housed more than sixty *tlatoque*, who were politically subservient to the *huey tlatoque* of Mexico, Tetzcoco, and Tlacopan; nevertheless these *tlatoque* lived in their own tecpan that were located in the over fifty city-states. More than five hundred administrative palaces housed local lords of lesser rank (Evans 2004: 10-14; 2006: 289). What I am envisioning is a similar scenario, with the important difference that if in Postclassic times

6 If calling Zacuala a "house" could seem an understatement, the structure of its central patio, as that of the patios of similar neighborhood centers, seems to replicate the basic triadic structure of Late Preclassic houses, or courtyard groups, such as those excavated by P. Plunket and G. Uruñuela at Tetimpa (Puebla), where patios with a central altar were surrounded by three platforms with *talud-tablero* facades, the larger and more decorated middle structure being associated with higher status male burials and thus suggesting they were the seats of the male leaders of patrilineal domestic groups (e.g. Plunket and Uruñuela 1998; Uruñuela and Plunket 2002; see also Carballo 2016: 95-98).


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

the palaces of lesser *tlatoque* and *tetecuhtin* were dispersed all over the Basin of Mexico and beyond, in Teotihuacan times they seem to have been mainly concentrated within the urban space. This higher degree of centralization is to some extent reminiscent of the *mul tepal* political structure of Postclassic Yucatec cities like Mayapan, where several noble houses or lineages coexisted in the capital under the rule of a paramount lineage but still governed their own territories (Tozzer 1941:26). In Mayapan, such a political structure is reflected in the abundance of plaza groups with colonnaded halls, which apparently corresponded to the several political units represented in the Yucatec capital (Ringle and Bey 2001). In the words of E.B. Kurjack the core of such a Maya community was "a cluster of elites mutually linked through social ties", where "political authority and control derived from alliances between palatial establishments" (Kurjack 2003:286-87).

According to my hypothesis, Teotihuacan could be perceived as the capital of an extremely complex *altepetl*-like polity – a hyper-*altepetl* I would say – conformed by the conjunction of middle and lower level (i.e. *altepetl*-like, *tecalli*-like, and *calpolli*-like) sociopolitical units, ruled by lordly houses whose formal establishments would correspond to specific architectural compounds, functioning as "structurally and functionally similar groups, which, by virtue of their similarity, compete for resources and positions of power and prestige" (Brumfiel 1994:4). The lavish *tecpan*-like compounds, as material expressions of the sociopolitical identity of the group and its leaders, would have been the main arenas for that competition.

In this view, the gigantic Teotihuacan urban space, far from being a homogeneous product of an all-encompassing central government, would thus be "a diverse and polycentric network of communities" (Froese *et al*. 2014: 5) or sociopolitical units, at least in part autonomous in political, administrative, and economic terms[7]. Rephrasing Sanders and Webster's (1988) terminology in a rather paradoxical way, I would say that Teotihuacan may be fruitfully conceived as a sum of expanded household*s* of ruler*s* (plural added). Such a segmentary view of Teotihuacan political organization, in stark contrast with a more traditional "monolithic" and hyper-centralized polity controlled by noble religious specialists (Pauliny 2011), allows rethinking various dichotomies, first of all the Highland-Lowland one: Teotihuacan looks now less anomalous, with strong similarities not only with later Nahua polities, but also with Postclassic Maya political organizations (see Isendahl and Smith 2013 for a similar point regarding Nahua and Maya cities). This is not to deny the uniqueness of Teotihuacan urban character: Teotihuacan was obviously a primate city, totally devoid of any comparable peer in the Basin of Mexico; but probably, peer polities interaction – a so common trait of Mesoamerican political landscapes – was taking place within the limits of the ancient city, inducing a heterarchic dimension (Crumley 2003) into the local political landscape.

The scenario so far sketched would also help understanding some still problematic aspects of the inner administrative organization of the city. How could have a central government supplied food and goods to a population of more than 100.000 individuals, especially in absence of any centralized storage facility? It seems far more reasonable to imagine that those tasks were mostly carried out by the smaller sociopolitical segments whose palaces, for instance, do contain storage facilities. And, as already stressed by K. Hirth, such sociopolitical segments

7 With reference to the terminology put forward by Blanton and Fargher (2012) I would relate Teotihucan with their "Theme II" cities (among which they included Aztec cities), highlighting the permanence of its segmentary inner structure (the defining element of Theme I cities) rather than the homogenizing trends more typical of deeply restructured urban societies (Theme III).


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

would have been constituted by both a urban and a rural population, thereby being able to control the flux of resources (food, raw materials, etc.) entering the city from faraway, dependent communities. The links between the lordly establishment of Teopancazco and the Gulf Coast revealed by L. Manzanilla's research (Manzanilla 2009, 2012c) would well fit with such a scenario. Unfortunately we have few pictorial evidence that could confirm specific ties between Teotihuacan palatial establishments and faraway, non-urban communities, but interesting hints derive from sites such as El Rosario, Querétaro (Nielsen and Helmke 2014b), where toponymic glyphs ("Obsidian Knives Mountains") very similar to those found at Teotihuacan could well record shared corporate identities. Rather than on "alliances" (e.g. Manzanilla 2017b: 100), I would say that the ties linking Teotihuacan with its hinterland could well have being organized along the lines of such shared membership in sociopolitical units that had both an urban and a rural component. One could even wonder to which degree residence patterns, and not only membership, would blur the distinction between the urban and the rural population of such sociopolitical units: if their higher elites (and their retainers) would have probably spent most of their time in the urban palaces, some other members of the sociopolitical unit could have well experienced some degree of mobility between its urban and rural seats.

Describing the Nahua political organization, we saw that the political and economic ties linking nucleated settlements and their rural counterparts were very uneven, with many cases of discontinuous and interlocking political landscapes. Apparently, some of the still too scarce data on Teotihuacan-related settlements in the Basin of Mexico and beyond point to a similar situation. For example, S. Clayton's (2013) study of the sites of Axotlan and Cerro Portezuelo, respectively a large village and an administrative secondary center in the Basin of Mexico, showed a considerable variability in patterns of good procurement and consumption. If Axotlan seems to have been tightly integrated into the Teotihuacan economic sphere, Cerro Portezuelo seems to have been part of a different network, mostly centered in the southeastern area of the Basin. Clayton interprets Axotlan and Cerro Portezuelo data as evidences of the very different approaches deployed by the central Teotihuacan government to manage the rural population; I would rather suggest that such a variability could well reflect the intricacies of a complex, stratified, and spatially discontinuous political landscape of the kind observed in Postclassic Central Mexico and Yucatan. Similarly, Kenneth Hirth's (2013) excavation of a rural residence at Nealtican (Puebla), revealed patterns of ceramic and obsidian consumption indicating weak ties with the neighboring, huge city of Cholula – just 11 kilometers to the East – and much stronger ones with Teotihuacan, lying 95 kilometers to the northwest. If most domestic goods at Nealtican seem to have circulated through a network of small local markets that was not centered on a central solar market in Cholula, some very specific items – such as the theatre-censers, pottery figurines and *candeleros* – were directly imported from Teotihuacan. The spatially counterintuitive pattern of goods consumption in Nealtican could then reflect centuries-old political ties between the local community and Teotihuacan, especially because Nealtican is located in the Tetimpa area, that is, precisely one of those areas that are believed to have been points of origin of the population movement that led to the rise of Teotihuacan in Late Preclassic times.

Actually, a political landscape constituted by the conjoining of various semiautonomous segments would also help in explaining the process the led to the sudden conurbation of a so large population: according to view here expressed, we are not compelled to imagine masses of individual immigrants drove by some kind of "magnetic", centripetal attraction to the urban center, but rather to evaluate the role played by both forced and voluntary assimilation of the


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

elites of various local sociopolitical units that, either compelled or in search of political and economic benefits, moved into the city and became parts of its sociopolitical fabric in a form of synoikism (Murakami 2010; Cowgill 2017: 21). This would be a rather typical situation where "pre-urban form of authority would not only have built the city but would have persisted in its earliest stages, at least" (Emberling, Clayton, and Janusek 2015: 302).

A segmented political landscape would also allow to rethink Teotihuacan collapse not as a catastrophic meltdown of every political authority, with tens of thousands of refugees freely wandering around central Mexico, but rather as a process of fission of the various constituent lesser units, whose coexistence and competition in Teotihuacan, as often stressed by L. Manzanilla (e.g. 2012c: 327, 2015), could have produced precisely those conflictual forces that led to the city's collapse and to the shaping of the fragmented Epiclassic political landscape. Such a view of the Teotihuacan abandonment is perfectly coherent with the description of this phenomenon as given by the 16th century Franciscan friar Bernardino de Sahagún: "Then they departed; they moved very slowly. Their leaders accompanied them" (cit. in Carballo and Robb 2017: 19, n. 50).

## 6. Becoming Teotihuacano: Uniformity and diversity

Admittedly, the undeniable material and stylistic homogeneity of Teotihuacan architectural compounds and their mural paintings seems at odds with the scenario sketched above. If the neighborhood centers and their subordinate architectural compounds were the product of different sociopolitical units of diverse origin, why are they so similar, even sharing many construction materials (Murakami 2010)? Unfortunately, we know little about the urban landscape of Teotihuacan beyond its monumental epicenter before the huge urban renewal started in Early Tlamimilolpa times (around AD 250-300) that, in a few decades, brought to the construction of more than two thousands architectural compounds. This lack of information prevents us to evaluate if the architectural seats of the recently conurbated sociopolitical units of early Teotihuacan showed the formal and stylistic diversity that one would expect in such a situation. Anyway, the formal homogeneity of the urban landscape since the Tlamimilolpa phase forces us to ask to which degree its was the product of bottom-up processes of neighborhood formation or if, conversely, it was mainly a top-down phenomenon, reflecting the administrative needs of the central state (see Blanton and Fargher 2008; Smith M.E. 2011; Smith and Novic 2012: 17-19). And, bringing the question to the realm of visual expressions of political hierarchies, to which degree the system of offices visually materialized in headdresses and attires was the expression of the intricacies of a state-controlled bureaucracy or, on the contrary, of a mainly intra-unit political and administrative organization? On the base of available evidence, these questions are for the moment doomed to remain unanswered, but it is quite logical to assume, as R. Millon did many years ago even if leaning toward a high degree of centralized state control (Millon R. 1981: 209-210), that what we observe today is the product of both tendencies, of a complex and secular interplay between the needs of the central government and the interests and strategies of the various, highly competitive sociopolitical segments. In the words of T. Murakami, "the similarities and differences between the rulers and the ruled at Teotihuacan were achieved not as a sole result of rulers' political strategies but through entangled political strategies among varying social groups and at multiple scale of social interaction" (Murakami 2016: 172). I would agree with such a statement, but further stressing that any dichotomic opposition between rul-


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

ers and ruled is flawed and that rulership acted at multiple scales of social interaction; a specific hierarchical level, interacting both with upper and lower levels, could be at the same time the agent of top-down and bottom-up processes, enforcing different political strategies. Even the writing system used to convey specific political information could be seen as the result of such a two-sided process: if its content seems to be mostly related with the inner hierarchies of distinct sociopolitical segments, its quite homogeneous style could reflect a need of "legibility" (a term that in this case assumes a quite literal meaning) pursued by the state (Scott 1998).

As originally stated by R. Blanton and colleagues (Blanton et al. 1996), and as already noted by L. Manzanilla for the Teotihuacan case (2009, 2012c, 2015), corporate and exclusionary political strategies need not to be seen as mutually exclusive possibilities (or worst, types of societies), but rather as two coexisting options situationally chosen by intermediate political elites which strategically adopted both cooperative and competitive behaviors; differentiation and integration (Yoffee 2004: 32; Carballo 2016: 2) always coexisted as basic forces that shaped the social and political fabric of the Teotihuacan state in some sort of unstable equilibrium. Apparently, integrative and inclusionary forces predominated in the early phases of Teotihuacan history, while exclusionary or differentiating strategies predominated in the later part of the sequence. In the early phases of Teotihuacan history (Patlachique, Tzacualli, Miccaotli) three-temple complexes seem to have functioned as ritual focuses of neighborhoods (Manzanilla 2009; Froese et al. 2014) that – according to Robertson 2005 –seem to have been socially and economically heterogeneous, being composed by both elite and commoners residences; on the contrary, during later phases (Tlamimilolpa and Xolalpan), when the walled and painted compounds became the dominant residential form in the city, the spatial nearness to the epicenter seem to have become discriminant in terms of socioeconomic distinction, thus suggesting that profound social transformations had taken place; significantly, in these same phases three-temple complexes probably lost their role as neighborhood centers, as witnessed for example by our excavations in Group 5', a three-temple complex that despite its location in the epicenter of the city was even dismantled during the Xolalpan phase (Daneels et al. 1998). Thus, quite paradoxically, the Tlamimilolpa urban renewal seems to have fostered not a more collective state organization (Blanton and Fargher 2012: 43-44), but rather an almost opposite outcome. Actually, according to T. Murakami, some kind of decentralization of power was initiated precisely during the Early Tlamimilolpa phase (250-300 d.C.), that is, coinciding with the building of the walled residential compounds, culminating in the in Early Xolalpan phase (ca. AD 500) (2016: 166-167). Apparently the trend toward the affirmation of more localized interests and identities was also expressed in visual art: according to M. Robb

> "murals […] signaled the connections between highly localized affiliations and broader citywide identities" and "alternations between structural similarities and discrete differences in the overall and in the detail suggest that even as the murals share so many basic compositional strategies and iconography, they were focused on articulating and reinforcing highly local identities within the city" (Robb 2017b).

In other words, Teotihuacan history seem to have been characterized by a continuous tension between the attempt to shape of a new "geography of social identity, shifting the sense of belonging to a new civic identity transcending that of the neighborhood person", and the existence of "a multiplicity of largely self-governing neighborhoods that provided public goods at the local level and often were bound by walls, gates, and guards" (Blanton and Fargher


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

2012: 43). In Tlamimilolpa and Xolalpan phases the latter trend seem to have predominated, so that on the long run the bringers of these local identities, pursuing their own political and economic interests, seem to have contributed to the fission of the wider system and to the ultimate crisis of the state-enforced corporative strategy that for centuries had been able to shape a "Teotihuacano" collective identity.

But, even if ultimately failed, the corporate ideology materialized in Teotihuacan highly ordered (and cosmologically "tuned"; Sugiyama 2017) urban plan and in the canonical meanings conveyed by a highly uniform artistic style cannot be underestimated. The massive scale of its central monuments suggests that they had a powerful socially integrative function. In the words of D. Carballo and M. Robb "the city's art and architecture reflect the purposeful projection of a collective identity that subordinated human achievements to maintaining the cosmic order and the city's political and economic hegemony over much of central Mexico" (Carballo and Robb 2017: 13). In this light, looking at the abovementioned comparison with Nahua political systems from a Teotihuacan perspective, one cannot but be skeptical of a certain downplaying of the urban phenomenon, described as a mere epiphenomenon, an incidental "byproduct" of wider social processes. If nothing else, the massive monumental quality of Teotihuacan epicenter stands there today as an overtly explicit reminder that the Central Mexican metropolis was something more than the sum of its constituent units. Some kind of integrative force – contrasting fission-inducing processes and shaping a pan-Teotihuacano identity – maintained Teotihuacan alive as a single city for over six centuries. It is quite clear that part of that force resided in a highly successful corporate religious and political ideology, centered on the idea of the coexistence of a highly diverse and multiethnic population under the beneficial influence of a supreme, fertility enhancing, political structure. As argued by K. Taube (2000: 26, 47), and as expressed in the Zacuala mural paintings, precisely the scattering of flows of fertility-related items seems to be the main visual metaphor of the deployment of a beneficial political power in Teotihuacan iconography. This idea seems to be graphically expressed in paintings such as those from Techinantitla, where different plants/toponyms are moistened by a water flux coming from the mouth of an overarching Feathered Serpent (Berrin 1988). This idea of a powerful and fertile urban place able to keep together a highly diverse population, both in ethnical and political terms, came to be instantiated, probably since Teotihuacan times, in the notion of Tollan as a urban source of well-being and political legitimacy and of the Feathered Serpent as its prototypical ruler (Stuart 2000; Carrasco, Jones, and Sessions 2000). The Late Postclassic high priests of Tollan Chololan which endowed both local and foreign rulers with a Toltec legitimacy were probably replicating an act that in classic times was performed at the *Adosada* of the Pyramid of the Sun, where even Maya rulers where endowed with a political legitimacy that allowed them to found new royal dynasties in the faraway forests of Southeastern Mesoamerica (Fash, Tokovinine, and Fash 2009). To phrase it synthetically, downplaying the role of Teotihuacan as a city would mean downplaying what "being Toltec" meant to Mesoamericans for centuries.

In the previous pages, my reading of the mural paintings as "sociopolitical tags" has been centered on the expression of mainly local, intra-neighborhood political orders. Now, I would argue that some architectural "tags" could also be especially related with the higher, pan-Teotihuacan level of political expression. Recurrent elements in Teotihuacan architectural decoration, for example, are the so-called *chalchihuites*, often painted (or sculpted and painted) on the frames of the *tableros* of important buildings and usually interpreted as generic expression of "preciousness" (the circles representing jade ornaments) or "sacredness". What seems impor-


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

tant to me is that their usage is almost completely restricted to architectures aligned along the Avenue of the Dead, which suggests that they functioned as very specific "building tags". If, again, we look at the Postclassic Nahua writing system we can easily perceive that one of the main semantic function of the *chalchihuites* was distinguishing a *tecpan*, or lordly palace, from a *calli*, or house, thus labeling a building as a "royal" one (Evans 2005). I argue that the very same semantic function could have been used in Teotihuacan to mark a specific set of buildings as associated to some kind of supreme royalty – I would say a "Toltec" one – and to distinguishing them from the architectural spaces used by intermediate elites (note that the Zacuala Palace, even if so lavishly decorated, was devoid of any *chalchihuitl*, probably a sign of its subordinate political status).

Despite the inner ethnic and cultural diversity of Teotihuacan sociopolitical segments, their multisecular coexistence within the massive and "Toltec" urban space of Teotihuacan must have been a powerful "urban experience" (Cowgill 2004) shaping individual and collective identities, practices, and social relations and also fostering a general overarching sense of citizenship. It is highly unlikely that the sociopolitical segments that were originally joined at the beginning of Teotihuacan history could have maintained untouched their original identities while sharing a same urban space. As often stressed in recent urban studies (e.g. Smith M.L. 2003; Gosden 2005; Joyce 2009; Creekmore and Fisher 2014; Emberling, Clayton, and Janusek 2015), urban spaces are both products and producers of social relations. The unique urban character of Teotihuacan must have had an important socially productive, even ethnogenetic role, so that one could even argue to which extent the above discussed Late Postclassic Nahua sociopolitical landscape was, at least in part, an outcome of the powerful and long-lasting Teotihuacan urban experience.

## 7. Conclusion

In the previous pages I argued that the study of Teotihuacan urban phenomenon could draw important insights from a detailed analysis of the huge extant corpus of mural paintings, especially when this corpus is compared with later forms of Nahua glyphic writing. Such a comparison, not implying any linguistic relationship, shows that much of Teotihuacan paintings, rather than being a "rudimentary system of signs" (Froese et al. 2014: 4), was a full-blown writing system, sometimes used in ways that reminds those of Late Postclassic and Colonial political maps or tableaux. The analogy between the painted decoration of the Zacuala Palace and Late Postclassic political tableaux such as the *Mapa Quinatzin* induced a further comparison between the Teotihuacan political system – as it can be imagined on the basis of its material, especially architectural, correlates – and the Late Postclassic Nahua political system as witnessed by both archaeological and ethnohistorical data. This comparison, not implying any linguistic continuity, led to envision the Teotihuacan political system as a highly segmented one, an hypothesis that seems to me in good agreement with interpretations based on archaeological evidence, especially those put forward by L. Manzanilla in her more recent works (2012c, 2015, 2017b; Froese et al. 2014). Such a segmentary system would have been composed by the conjoining of different (*altepetl*-like) sociopolitical units, whose elites – that we call intermediate because of their subordinate position with respect to a still poorly understood central government – must have had a key role in the classic political landscape, fostering both corporate and exclusionary strategies in a complex interplay between centripetal, fusion-inducing and centrifugal, fission-


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

inducing forces, between corporate and exclusionary political strategies, between hierarchy and heterarchy. Seen in this light, Teotihuacan seems much less anomalous than previously thought, not only resembling Central Mexican Nahua polities but also similar Postclassic Maya ones and thus overcoming too dichotomic views of the Mesoamerican urban tradition.

In line with the cross-cultural comparative aims of the present volume and its relation with the pioneering work of Robert McC. Adams, it is worth concluding this paper reminding that in his 1966 groundbreaking book Adams already observed the importance of the *calpolli* as a sociopolitical unit and that in a more recent article (Adams 2012) he again tackled the role that non-state governance structures, or "intermediate bodies", had in ancient Mesopotamian urbanism. Also worth reminding here is that our stress on the role that such intermediate groups had in Teotihuacan political structure has been also inspired by N. Yoffee's debunking of the *Myths of the Archaic State* (2005) as totalities, or "large territorial systems ruled by totalitarian despots who controlled the flow of goods, services, and information and imposed true law and order on their subjects" (Yoffee 2005: 2); on the contrary, he argued that "various subsystems – local community authorities, ethnic groups and their leaders, and social corporations of elites – aspire to their own autonomy, are at least partly independent of other parts of society, and compete for power according to accepted social rules" in states where "conflict and consensus", integration and differentiation coexist and where "partial, 'consensual' resolution of conflict whereby a legitimacy of the order of differentiated subsystems and their goals is at least partly achieved (Yoffee 2005: 15, 32). In Yoffee's view, "the evolution of the earliest states and civilizations was marked by the development of semi-autonomous social groups, in each of which there were patrons and clients organized in hierarchies, and that there were struggles for power within groups and among leaders of groups" (Yoffee 2005: 42). These leaders could have assumed the role of "officers of states but also maintaining sets of local powers that lay outside states" (Yoffee 2005: 36). Yoffee also stressed that conceiving early states as composed by semiautonomous political segments helps in better explaining the mechanisms of both their formation and collapse, since "the process of collapse, but not its cause, is roughly predictable because the survivors of systemic failure are not randomly formed associations (or social groups), but precisely those intermediate and lower-level units that existed before the formation of higher-level ones" (Yoffee 2005: 137).

At least in part following Yoffee's lead, I tried here to give a small contribution to the debunking of the "myth of Teotihuacan anomaly", instantiated in the view of Teotihuacan as a hyper-centralized ancient state. The comparison with other Mesoamerican polities provided us with a working hypothesis that, being admittedly highly speculative, needs to be tested against new evidence, especially of the kind that could hopefully emerge from future breakthroughs in the understanding of Teotihuacan writing system. If it will stand such tests, it would make Teotihuacan much less anomalous than previously thought. Less anomalous, but not less unique: the undeniable success that Teotihuacan had in bringing together and managing ethnic and political diversity and in creating an overarching urban identity still seems unparalleled in ancient Mesoamerica and it was probably the main contribution that the Central Mexican metropolis made to what we call the Mesoamerican urban tradition.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

## BIBLIOGRAPHY

Angulo Villaseñor, J.
1972 Reconstrucción etnográfica a través de la pintura, in *Teotihuacán: Onceava Mesa Redonda*, Mexico, Sociedad Mexicana de Antropología, pp. 43-68.

Adams, R. McC.
1966 *The Evolution of Urban Society: Early Mesopotamia and Prehistoric Mexico*, Chicago, Aldine.
2012 Ancient Mesopotamian Urbanism and Blurred Disciplinary Boundaries, *Annual Review of Anthropology* 41, pp. 1-20.

Berrin, K.
1988 Feathered Serpents and Flowering Trees with Glyphs, in K. Berrin (ed.), *Feathered Serpents and Flowering Trees. Reconstructing the Murals of Teotihuacan*, San Francisco, The Fine Arts Museum of San Francisco, pp. 137-161.

Blanton, R.E.
1981 The Rise of Cities, in J. Sabloff (ed.), *Handbook of Middle American Indians, Supplement 1 Archaeology*, Austin, University of Texas Press, pp. 392-400.
1994 Houses and Households: A Comparative Study, New York, Plenum Press.

Blanton, R.E., and Fargher, L.F.
2008 *Collective Action in the Formation of Pre-Modern States*, New York, Springer.
2011 The collective logic of pre-modern cities, *World Archaeology* 43(3), pp. 502-522.

Blanton, R.E., Feinman, G.M., Kowalewski, S.A., Peregrine, P.N.
1996 A Dual-Processual Theory for the Evolution of Mesoamerican Civilization, *Current Anthropology* 37(1), pp. 1-14.

Brumfiel, E.M.
1994 Factional Competition and Political Development in the New World: An Introduction, in E.M. Brumfiel and J.W. Fox (eds.), *Factional Competition and Political Development in the New World*, Cambridge, Cambridge University Press, pp. 3-13.

Cabrera Castro, R.
1996 Las excavaciones de La Ventilla. Un barrio teotihuacano, *Revista mexicana de estudios antropológicos* 42, pp. 5-30.

Cabrera Castro, R., and Gómez Chávez, S.
2008 La Ventilla: A Model for a Barrio in the Urban Structure of Teotihuacan, in A.G. Mastache, R.H. Cobean, A. García Cook, and K.G. Hirth (eds.), *El urbanismo en Mesoamérica/Urbanism in Mesoamerica*, Mexico-University Park, INAH, Pennsylvania State University, vol. 2, pp. 37-83.

Carballo, D.M.
2011 *Obsidian and the Teotihuacan State: Weaponry and Ritual Production at the Moon Pyramid / La obsidiana y el estado teotihuacano: La producción militar y ritual en la Pirámide de la Luna*, Pittsburgh-Mexico City, University of Pittsburgh Center for Comparative Archaeology, UNAM, Instituto de Investigaciones Antropológicas.
2013b The Social Organization of Craft Production and Interregional Exchange at Teotihuacan, in K.G. Hirth and J. Pillsbury (eds.), *Merchants, Markets, and Exchange in the Pre-Columbian World*, Washington, DC, Dumbarton Oaks Research Library and Collection, pp. 113-140.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

2016 *Urbanization and Religion in Ancient Central Mexico*, Oxford, Oxford University Press.

2017 Daily Life in Teotihuacan's Southern Periphery: The Tlajinga District, in M. Robb (ed.), *Teotihuacan. City of Water, City of Fire*, San Francisco, de Young Museum, University of California Press, pp. 124-129.

Carballo, D.M. (ed.)

2013a *Cooperation and Collective Action. Archaeological Perspectives*, Boulder, University Press of Colorado.

Carballo, D.M., and Feinman, G.M.

2016 Cooperation, Collective Action, and the Archeology of Large-Scale Societies, *Evolutionary Anthropology* 25, pp. 288–296.

Carballo, D.M., and Robb, M.H.

2017 Lighting the World: Teotihuacan and Urbanism in Central Mexico, in M. Robb (ed.), *Teotihuacan, City of Water, City of Fire*, San Francisco, Fine Arts Museums of San Francisco, de Young, University of California Press, pp. 12-19.

Carballo, D.M., Roscoe, P., and Feinman, G.M.

2014 Cooperation and Collective Action in the Cultural Evolution of Complex Societies, *Journal of Archaeological Method and Theory* 21(1), pp. 98-133.

Carrasco, D., Jones, L., and Sessions, S. (eds.)

2000 *Mesoamerica's Classic Heritage: From Teotihuacán to the Great Aztec Temple*, Niwot, University Press of Colorado.

Carrasco Pizana, P.

1999 *The Tenochca Empire of Ancient Mexico: The Triple Alliance of Tenochtitlan, Tezcoco, and Tlacopan*, Norman, University of Oklahoma Press.

Chase, D.Z., Chase, A.F., and Haviland W.A.

1990 The Classic Maya City: Reconsidering the "Mesoamerican Urban Tradition", *American Anthropologist*, New Series, 92(2), pp. 499-506.

Clayton, S.C.

2013 Measuring the long arm of the state: Teotihuacan's relations in the Basin of Mexico, *Ancient Mesoamerica* 24(1), pp. 87-105.

2015 Teotihuacan: an early urban center in its regional context, in N. Yoffee (ed.), *Cambridge World History, vol. III, Early Cities in Comparative Perspective. 4000 BCE-1200 CE*, Cambridge, Cambridge University Press, pp. 279-299.

Conides, C., and Barbour, W.

2002 Tocados dentro del paisaje arquitectónico y social en Teotihuacan, in M.E. Ruíz Gallut (ed.), *Ideología y política a través de materiales, imágenes y símbolos. Memoria de la Primera Mesa Redonda de Teotihuacán*, Mexico, CONACULTA, Instituto Nacional de Antropología e Historia, pp. 411-430.

Cowgill, G.

1997 State and Society at Teotihuacan, Mexico, *Annual Review of Anthropology* 26, pp. 129-161.

2004 Origins and Development of Urbanism: Archaeological Perspectives, *Annual Review of Anthropology* 33, pp. 525-49.

2015 *Ancient Teotihuacan: Early Urbanism in Central Mexico*, Cambridge, Cambridge University Press.

2017 A Speculative History of Teotihuacan, in M. Robb (ed.), *Teotihuacan. City of Water, City of Fire*, San Francisco, de Young Museum, University of California Press, pp. 20-27.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Creekmore, A.T., and Fisher, K.D.
2014 Making Ancient Cities: New Perspectives on the Production of Urban Places, in A.T. Creekmore and K.D. Fisher (eds.), *Making Ancient Cities. Space and Place in Early Urban Societies*, Cambridge, Cambridge University Press, pp. 1-31.

Crumley, C.
2003 Alternative Forms of Social Order, in V. Scarborough, F. Valdez, and N. Dunning (eds.), *Heterarchy, Political Economy, and the Ancient Maya: The Three Rivers Region of the East-Central Yucatan Peninsula*, Tucson, University of Arizona Press, pp. 136–145.

Daneels A., Domenici, D., Grazioso, L., Goldsmith Jilote, K., Layet, V., Moragas, N., Nobile J., Paz Baustista, C., and Rodríguez Manso, V.
1998 The Architectural Development of a Three-Temple Complex. Excavations in Group 5', Teotihuacan, Mexico, in G. Bermond Montanari, R. Francovich, F. Mori, P. Pensabene, S. Salvatori, M. Tosi and C. Peretto (eds.), *Proceedings of the XIII International Congress of Prehistoric and Protohistoric Sciences*, Forlì, Abaco, pp. 487-492.

Domenici, D.
2005 *I linguaggi del potere. Arti e propaganda nell'antica Mesoamerica*, Milan-Bologna, Jaca Book-Clueb.
2017 Place Names and Political Identities in the Teotihuacán Mural Paintings, in M. Paxton and L. Staines Cicero (eds.), *Constructing Power and Place in Mesoamerica. Prehispanic paintings from three regions*, Albuquerque, University of New Mexico Press, pp. 53-75.

Emberling, G., Clayton S.C., and Janusek, J.W.
2015 Urban landscapes: transforming spaces and reshaping communities, in N. Yoffee (ed.), *Cambridge World History, vol. III, Early Cities in Comparative Perspective. 4000 BCE-1200 CE*, Cambridge, Cambridge University Press, pp. 300-316.

Evans, S.T.
2001 Aztec Noble Courts. Men, Women, and Children of the Palace, in T. Inomata and S. D. Houston (eds.), *Royal Courts of the Ancient Maya*, vol. 1, Boulder, Westview Press, pp. 237-73.
2004 Aztec palaces and Other Elite Residential Architecture, in S.T. Evans and J. Pillsbury (eds.), *Palaces of the Ancient New World*, Washington, D.C., Dumbarton Oaks Research Library and Collection, pp. 7-58.
2005 The Aztec Palace under Spanish Rule. Disk Motifs in the Mapa de México de 1550 (Uppsala Map or Mapa de Santa Cruz), in S. Kepecs and R.T. Alexander (eds.), *The Postclassic to Spanish-Era Transition in Mesoamerica. Archaeological Perspectives*, Albuquerque, University of New Mexico Press, pp. 13-33.
2006 Antecedents of the Aztec Palace. Palaces and Political Power in Classic and Postclassic Mexico, in J.J. Christie and P.J. Sarro (eds.), *Palaces and Power in the Americas. From Peru to the Northwest Coast*, Austin, University of Texas Press, pp. 285-310.

Fargher, L.F., Heredia Espinoza, V.Y., and Blanton R.E.
2011 Alternative pathways to power in late Postclassic Highland Mesoamerica, *Journal of Anthropological Archaeology* 30, pp. 306-326.

Fash, W.L., Tokovinine, A., and Fash, B.W.
2009 The House of New Fire at Teotihuacan and Its Legacy in Mesoamerica, in W.L. Fash and L. López Luján (eds.), *The Art of Urbanism: How Mesoamerican Kingdoms Represented Themselves in Architecture and Imagery*, Washington, D.C., Dumbarton Oaks Research Library and Collection, pp. 465-513.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Feinman, G.M.
2016 Variation and Change in Archaic States. Ritual as a Mechanism of Sociopolitical Integration, in J.M.A. Murphy (ed.), *Ritual and Archaic States*, Gainesville, University Press of Florida, pp. 1-22.
Froese, T., Gershenson, C., and Manzanilla, L.R.
2014 Can Government Be Self-Organized? A Mathematical Model of the Collective Social Organization of Ancient Teotihuacan, Central Mexico, *Plos One* 9(10), pp. 1-14.
García-Des Lauriers, C.
2008 The House of Darts, *Mesoamerican Voices* 3, pp. 3-21.
Gazzola, J.
2010 Producción en Teotihuacán: Taller de barrio y taller estatal, in R. Nieto Calleja (ed.), *Técnicas y tecnología en el México prehispánico*, Mexico City, INAH, pp. 35-51.
Gibson, C.
1964 *The Aztec Under Spanish Rule. A History of the Indians of the Valley of Mexico, 1519-1810*, Stanford, Stanford University Press.
1971 Structure of the Aztec Empire, in G. Ekholm and I. Bernal (eds.), *Handbook of Middle Mesoamerican Indians, Part One, Archaeology of Northern Mesoamerica*, vol. 10, Austin, University of Texas Press, pp. 376-394.
Gillespie, S.D.
2000a Beyond Kinship: An Introduction, in R.A. Joyce and S.D. Gillespie (eds.), *Beyond Kinship. Social and Material Reproduction in House Societies*, Philadelphia, University of Pennsylvania Press, pp. 1-21.
2000b Lévi-Strauss: Maison and Société à Maisons, in R.A. Joyce and S.D. Gillespie (eds.), *Beyond Kinship. Social and Material Reproduction in House Societies*, Philadelphia, University of Pennsylvania Press, pp. 22-52.
Gómez Chávez, S.
2000 *La Ventilla. Un barrio de la antigua ciudad de Teotihuacán*, unpublished bachelor thesis, Mexico, Escuela Nacional de Antropología e Historia.
2012 Structure and Organization of Neighborhoods in the Ancient City of Teotihuacan, in M.C. Arnauld, L.R. Manzanilla, and M.E. Smith (eds.), *Neighborhood as a Social and Spatial Unit in Mesoamerican Cities*, Tucson, University of Arizona Press, pp. 74-100.
2017 Foreigners' Barrios at Teotihuacan: Reasons for and Consequences of Migration, in M. Robb (ed.), *Teotihuacan. City of Water, City of Fire*, San Francisco, de Young Museum, University of California Press, pp. 102-107.
Gómez Chávez, S., and Gazzola, J.
2009 Les quartiers des communautés étrangères dans la cité de Teotihuacan, in F. Solis (ed.), *Teotihuacan: Cité des dieux*, Paris, Somogy, Musée du Quai Branly, pp. 109-117.
Gómez Chávez, S., Gazzola, J., and Núñez Hernández, J.
2004 Nuevas ideas sobre el juego de pelota en Teotihuacan, in M.E. Ruíz Gallut and A.P. Soto (eds.), *La Costa del Golfo en tiempos teotihuacanos: propuestas y perspectivas. Memoria de la Segunda Mesa Redonda de Teotihuacán*, Mexico, CONACULTA, Instituto Nacional de Antropología e Historia, pp. 165-199.
Gosden, C.
2005 What Do Objects Want?, *Journal of Archaeological Method and Theory* 12(3), pp.193-211.
Gutiérrez Mendoza, G.
2012 Hacia un modelo general para entender la estructura político-territorial del Estado nativo mesoamericano (altepetl), in A. Daneels and G. Gutiérrez Mendoza (eds.), *El poder compartido. Ensayos sobre la arqueología de organizaciones políticas segmentarias y*


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

*oligárquicas*, Mexico, Centrod e Investigaciones y Estudios Superiores en Antropología Social, El Colegio de Michoacán, pp. 27-67.

Headrick, A.
2007 *The Teotihuacán Trinity. The Sociopolitical Structure of an Ancient Mesoamerican City*, Austin, University of Texas Press.

Helmke, C., and Nielsen, J.
2014 If mountains could speak: Ancient toponyms recorded at Teotihuacan, Mexico, in C. Helmke and J. Źrałka (eds.), *Mesoamerican Writing Systems*. Contributions in New World Archaeology 7, Krakow, Polish Academy of Arts and Sciences and Jagiellonian University, Institute of Archaeology, pp. 73-112.

Hirth, K.
2003 The *Altepetl* and Urban Structure in Prehispanic Mesoamerica, in W. T. Sanders, A.G. Mastache, and R.H. Cobean (eds.), *El urbanismo en Mesoamérica/Urbanism in Mesoamerica*, Mexico-University Park, INAH, Pennsylvania State University, pp. 85-115.
2008 Incidental urbanism: the structure of the prehispanic city in central Mexico, in J. Marcus and J.A. Sabloff (eds.), *The Ancient City: New Perspectives on Urbanism in the Old and New World*, Santa Fe, School for Advanced Research Press, pp. 273-297.
2012 El *altepetl* y la estructura urbana en la Mesoamérica prehispánica, in A. Daneels and G. Gutiérrez Mendoza (eds.), *El poder compartido. Ensayos sobre la arqueología de organizaciones políticas segmentarias y oligárquicas*, Mexico, Centrod e Investigaciones y Estudios Superiores en Antropología Social, El Colegio de Michoacán, pp. 69-98.
2013 Economic Consumption and Domestic Economy in Cholula's Rural Hinterland, Mexico, *Latin American Antiquity* 24(2), pp. 124-148.

Hodge, M.
1984 *Aztec City States*, Memoirs of the Museum of Anthrpology, n. 18, Ann Arbor, University of Michigan.
1994 Polities Composing the Aztec Empire, in M. Hodge and M.E. Smith (eds.), *Economies and Polities in the Aztec Realm*, Albany, State University of New York, Institute for Mesoamerican Studies, pp. 43-71.

Isendahl, C., and Smith, M.
2013 Sustainable agrarian urbanism: The low-density cities of the Mayas and Aztecs, *Cities* 31, pp. 132-143.

Joyce, A.A.
2009 Theorizing Urbanism in Ancient Mesoamerica, *Ancient Mesoamerica* 20(2), pp. 189-196.

King, T., and Gómez Chávez, S.
2004 Avances en el descriframiento de la escritura jeroglífica de Teotihuacán, in M.E. Ruíz Gallut and A.P. Soto (eds.), *La Costa del Golfo en tiempos teotihuacanos: propuestas y perspectivas. Memoria de la Segunda Mesa Redonda de Teotihuacán*, Mexico, CONACULTA, Instituto Nacional de Antropología e Historia, pp. 201-44.

Kurjack, E.B.
2003 Palace and Society in the Northern Maya Lowlands, in J.J. Christie (ed.), *Maya Palaces and Elite Residences. An Interdisciplinary Approach*, Austin, The University of Texas Press, pp. 274-90.

Leibsohn, D.
1994 Primers for Memory: Cartographic Histories and Nahua Identity, in E.H. Boone and W.D. Mignolo (eds.), *Writing Without Words. Alternative Literacies in Mesoamerica and the Andes*, Durham and London, Duke University Press, pp. 161-87.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Lind, M.
2012 La estructura político-territorial del altepetl de Cholula, in A. Daneels and G. Gutiérrez Mendoza (eds.), *El poder compartido. Ensayos sobre la arqueología de organizaciones políticas segmentarias y oligárquicas*, Mexico, Centrod e Investigaciones y Estudios Superiores en Antropología Social, El Colegio de Michoacán, pp. 99-113.

Lockhart, J.
1992 *The Nahuas after the Conquest*, Stanford, Stanford University Press.

Magnoni, A., Ardren, T., Hutson, S., and Dahlin, B.
2014 The Production of Space and Identity at Classic Period Chunchucmil, Yucatán, México, in A. Creekmore and K. Fisher (eds.), *Making Ancient Cities: Space and Place in Early Urban Societies*, Cambridge, Cambridge University Press, pp. 145-180.

Manzanilla, L.R.
2001 Gobierno corporativo en Teotihuacan: una revisión del concepto palacio aplicado a la gran urbe prehispánica. *Anales de antropología* 35(1), pp. 157-190.
2002 Organizacíon sociopolítica de Teotihuacan: Lo que los materiales arqueológico nos dicen o nos callan, in M. E. Ruiz Gallut (ed.), *Ideología y política a través de materiales, imágenes y símbolos: Memoria de la Primera Mesa Redonda de Teotihuacan,* Mexico City, UNAM, Instituto de Investigaciones Antropológicas, Instituto de Investigaciones Estéticas, INAH, pp. 3-22.
2004 Social identity and Daily Life at Classic Teotihuacán, in J.A. Hendon and R.A. Joyce (eds.), *Mesoamerican Archaeology: Theory and Practice*, London, Blackwell, pp. 124-47.
2006 Estados corporativos arcaicos. Organizaciones de excepción en escenarios excluyentes, *Cuicuilco* 13(36), pp. 13-45.
2009 Corporate Life in Apartments and Barrio Compounds at Teotihuacan, Central Mexico: Craft Specialization, Hierarchy, and Ethnicity, in L.R. Manzanilla and C. Chapdelaine (eds.), *Domestic Life in Prehispanic Capitals: A Study of Specialization, Hierarchy, and Ethnicity*, Memoirs of the Museum of Anthropology 46, Ann Arbor, University of Michigan, Museum of Anthropology, pp. 21-42.
2012b Neighborhoods and Elite 'Houses' at Teotihuacan, Central Mexico, in M.C. Arnauld, L.R. Manzanilla, and M.E. Smith (eds.), *Neighborhood as a Social and Spatial Unit in Mesoamerican Cities*, Tucson, University of Arizona Press, pp. 55–73.
2012c Las "casas" nobles de los barrios de Teotihuacan: estructuras excluyentes en un entorno corporativo, in A. Daneels and G. Gutiérrez Mendoza (eds.), *El poder com partido. Ensayos sobre la arqueología de organizaciones políticas segmentarias y oligárquicas*, Mexico, Centrod e Investigaciones y Estudios Superiores en Antropología Social, El Colegio de Michoacán, pp. 313-332.
2015 Cooperation and Tensions in Multiethnic Corporate Societies Using Teotihuacan, Central Mexico, as a Case Study, *Proceedings of the National Academy of Sciences* 112(30), pp. 9210–9215.
2017b Teotihuacan Apartment Compounds, Neighborhood Centers, and Palace Structures, in M. Robb (ed.), *Teotihuacan. City of Water, City of Fire*, San Francisco, de Young Museum, University of California Press, pp. 94-101.

Manzanilla, L.R. (ed.)
1993 *Anatomía de un conjunto residencial teotihuacano en Oztoyahualco*, Mexico, Instituto de Investigaciones Antropológicas, Universidad Nacional Autónoma de México.
2012a *Estudios arqueométricos del centro de barrio de Teopancazco en Teotihuacan*, Mexico, UNAM, Instituto de Investigaciones Antropológicas.
2017a *Multiethnicity and Migration at Teopancazco: Investigations of a Teotihuacan Neighborhood Center*, Gainesville, University Press of Florida.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Manzanilla, L.R., and L. López Luján
2001 Exploraciones en un posible palacio de Teotihuacán: el Proyecto Xalla 2000-2001, *Mexicon* 13(3), pp. 58-61.

Millon, C.
1973 Painting, Writing and Polity in Teotihuacán, Mexico, *American Antiquity* 38(3), pp. 294-314.
1988 A Reexamination of the Teotihuacán Tassel Headdress Insignia, in K. Berrin (ed.), *Feathered Serpents and Flowering Trees: Reconstructing the Murals of Teotihuacán*, Seattle, University of Washington Press, pp. 114-134.
1981 Teotihuacan: City, State, and Civilization, in J. Sabloff (ed.), *Handbook of Middle American Indians, Supplement 1 Archaeology*, Austin, University of Texas Press, pp. 392-400.

Millon, R.
1993 The Place Where Time Began: An Archaeologist's Interpretation of What Happened in Teotihuacan History, in K. Berrin and E. Pasztory (eds.), *Teotihuacan. Art from the City of the Gods*, San Francisco – London, The Fine Arts Museums of San Francisco – Thames and Hudson Ltd., pp. 17-43.

Molina, A.
1571 *Vocabulario en la lengua castellana y mexicana y mexicana y castellana*, Mexico, Antonio de Spinosa.

Múnera, C.
1985 *Un taller de cerámica ritual en La Ciudadela, Teotihuacán*, Unpublished Bachelor Thesis, Mexico City, Escuela Nacional de Antropología e Historia.

Murakami, T.
2010 *Power Relations and Urban Landscape Formation: A Study of Construction Labor and Resources at Teotihuacan*, PhD dissertation, Tempe, Arizona State University.
2016 Entangled Political Strategies. Rulership, Bureaucracy, and Intermediate Elites at Teotihuacan, in S. Kurnick and J. Baron (eds.), *Political Strategies in Pre-Columbian Mesoamerica*, Boulder, University Press of Colorado, pp. 153-179.

Nichols, D.L.
2015 Teotihuacan, *Journal of Archaeological Research* 24(1), pp. 1-74.

Nielsen, J.
2004 The Coyote and the Tasseled Shield: A Possible Titular Glyph on a Late Xolalpan Teotihuacán Tripod, *Mexicon* 26(3), pp. 61-64.
2015 Where Kings Once Ruled? Considerations on Palaces and Rulership at Teotihuacan, in J. Nehammer Knub, C. Helmke and J. Nielsen (eds.), *Palaces and Courtly Culture in Ancient Mesoamerica*, Oxford, Archaeopress, pp. 1-16.

Nielsen, J., and Helmke, C.
2008 Spearthrower Owl Hill: A Toponym at Atetelco, Teotihuacán, *Latin American Antiquity* 19(4), pp. 459-74.
2011 Reinterpteting the Plaza de los Glifos, La Ventilla, *Ancient Mesoamerica* 22, pp. 345-370.
2014a House of the Serpent Mat, House of Fire: The names of buildings in Teotihuacan writing, in C. Helmke and J. Źrałka (eds.), *Mesoamerican Writing Systems*. Contributions in New World Archaeology 7, Krakow, Polish Academy of Arts and Sciences and Jagiellonian University, Institute of Archaeology, pp. 113-140.
2014b Estudio preliminar de la iconografía de los murales de El Rosario, Querétaro, México, in J.C. Saint-Charles Zetina (ed.), *El Valle de San Juan del Río: Un palimpsesto arqueológico*, Santiago de Querétaro, Fondo Editorial de Querétaro, pp. 75-83.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Okoshi-Harada, T.
2012 Postclassic Maya 'Barrios' in Yucatán: An Historical Approach, in M.C. Arnauld, L.R. Manzanilla, and M.E. Smith (eds.), *The Neighborhood as a Social and Spatial Unit in Mesoamerican Cities*, Tucson, University of Arizona Press, pp. 286-301.

Pasztory, E.
1976 *The Murals of Tepantitla, Teotihuacán*, New York, Garland Publishing.
1988 Feathered Serpents and Flowering Trees with Glyphs, in K. Berrin (ed.), *Feathered Serpents and Flowering Trees: Reconstructing the Murals of Teotihuacán*, Seattle, University of Washington Press, pp. 137-61.

Paulinyi, Z.
2001 Los señores con tocado de borlas. Un estudio sobre el estado teotihuacano, *Ancient Mesoamerica* 12, pp. 1-30.

Plunket, P., and Uruñuela, G.
1998 Preclassic Household Patterns Preserved Under Volcanic Ash at Tetimpa, Puebla, *Latin American Antiquity* 9, pp. 287-309.

Pugh, T.W., and Rice, P.M.
2017 Early Urban Planning, Spatial Strategies, and the Maya Gridded City of Nixtun-Ch'ich', Petén, Guatemala, *Current Anthropology* 58(5), pp. 576-603.

Rapoport, A.
1988 Levels of Meaning in the Built Environment, in F. Poyatos (ed.), *Cross-Cultural Perspectives in Nonverbal Communication*, Levingston, C.J. Hogrefe, pp. 317-336.

Reyes García, L.
1996 El término calpulli en documentos de siglo XVI, in L. Reyes García, E.C. Solís, A. Valencia Ríos, C. Medina Lima, G. Guerrero Díaz (eds.), *Documentos nauas de la ciudad de México del siglo XVI*, Mexico, Ciesas, Archivo General de la Nación, Secretaría de Gobernación, pp. 21-68.

Ringle, W.M., and G.J. Bey III
2001 Post-Classic and Terminal Classic Courts of the Northern Maya Lowlands. In T. Inomata and S.D. Houston (eds.), *Royal Courts of the Ancient Maya*, vol. 2, Boulder, Westview Press, pp. 266-307.

Robb, M.H.
2007 The Spatial Logic of Zacuala, Teotihuacán, in A. S. Kubat, Ö. Ertekin, Y.İ. Güney, and E. Eyüboğlu (eds.), *Proceedings, 6th International Space Syntax Symposium, İstanbul, 2007*, Istanbul, Cenkler, Chapter 62, pp. 1-15.
2017b Space, Object, and Identity in the City of the Gods, in M. Robb (ed.), *Teotihuacan. City of Water, City of Fire*, San Francisco, de Young Museum, University of California Press, pp. 158-167.

Robb, M.H. (ed.)
2017a *Teotihuacan. City of Water, City of Fire*, San Francisco, de Young Museum, University of California Press.

Robertson, I.G.
2005 Patrones diacrónicos en la constitución de los vecindarios Teotihuacanos, in M.E. Ruiz Gallut and J. Torres Peralta (eds.), *Arquitectura y urbanismo: Pasado y presente de los espacios en Teotihuacan. Memorias de la Tercera Mesa Redonda de Teotihuacan*, Mexico, INAH, pp. 277–294.

Sanders, W., and Evans, S.T.
2006 Rulership and Palaces at Teotihuacan, in J.J. Christie and P.J. Sarro (eds.), *Palaces and Power in the Americas: From Peru to the Northwest Coast*, Austin: University of Texas Press, pp. 256-284.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Sanders, W., and Webster, D.
1988 The Mesoamerican Urban Tradition, *American Anthropologist* 90(3), new series, pp. 521-546.
Sandstrom, A.R.
2000 Toponymic Groups and House Organization: The Nahuas of Northern Veracruz, Mexico, in R.A. Joyce and S.D. Gillespie (eds.), *Beyond Kinship. Social and Material Reproduction in House Societies*, Philadelphia, University of Pennsylvania Press, pp. 53-72.
Scott, J.
1998 *Seeing like a State: How Certain Schemes to Improve the Human Condition Have Failed*, New Haven, Yale University Press.
Sejourné, L.
1959 *Un palacio en la ciudad de los dioses*, Mexico, Instituto Nacional de Antropología e Historia.
1966a *Arquitectura y pintura en Teotihuacán*, Mexico, Siglo XXI.
1966b *Arqueología de Teotihuacán: La cerámica*, Mexico, Fondo de Cultura Económica.
Smith, M.E.
1989 Cities, Towns, and Urbanism: Comment on Sanders and Webster, *American Anthropologist*, 91, pp. 454-460.
2000a Aztec City-States, in M.H. Hansen (ed.), *A Comparative Study of Thirty City-State Cultures*, Copenhagen, The Royal Danish Academy of Sciences and Letters, pp. 581-595.
2000b The Earliest Cities, in G. Gmelch and W.P. Zenner (eds.), *Urban Life. Readings in the Anthropology of the City*, Prospect Heights, Waveland Press Inc., pp. 3-19.
2007 Form and Meaning in the Earliest Cities: A New Approach to Ancient Urban Planning, *Journal of Planning History* 6(1), pp. 3-47.
2008 *Aztec City States Capitals*, Gainesville, University Press of Florida.
2011 Empirical Urban Theory for Archaeologists, *Journal of Archaeological Method and Theory* 18(3), pp. 167-192.
Smith, M.E., and Novic, J.
2012 Introduction. Neighborhoods and Districts in Ancient Mesoamerica, in M. C. Arnauld, L.R. Manzanilla, and M.E. Smith (eds.), *Neighborhood as a Social and Spatial Unit in Mesoamerican Cities*, Tucson, University of Arizona Press, pp. 1-26.
Smith, M.E., Wharton, J.B., and Olson, J.M.
2003 Aztec Feasts, Rituals, and Markets: Political Uses of Ceramic Vessels in a Commercial Economy, in T. Bray (ed.), *The Archaeology and Politics of Food and Feasting in Early States and Empires*, New York, Kluwer Academic Publishers, pp. 235-268.
Smith, M.L.
2003 *The Social Construction of Ancient Cities*. Washington, D.C., Smithsonian Institution.
Stuart, D.
2000 The Arrival of Strangers: Teotihuacán and Tollan in Classic Maya History, in D. Carrasco, L. Jones, and S. Sessions (eds.), *Mesoamerica's Classic Heritage: From Teotihuacán to the Great Aztec Temple*, Niwot, University Press of Colorado, pp. 465-514.
Sugiyama, S.
2017 Teotihuacan: Planned City with Cosmic Pyramids, in M. Robb (ed.), *Teotihuacan. City of Water, City of Fire*, San Francisco, de Young Museum, University of California Press, pp. 28-37.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Taube, K.A.
2000 The Writing System of Ancient Teotihuacán, *Ancient America* 1, Barnardsville, Center for Ancient American Studies.
2002 The Writing System of Ancient Teotihuacán, in M. E. Ruíz Gallut (ed.), *Ideología y política a través de materiales, imágenes y símbolos. Memoria de la Primera Mesa Redonda de Teotihuacán*, Mexico, CONACULTA, Instituto Nacional de Antropología e Historia, pp. 331-370.
2011 Teotihuacán and the Development of Writing in Early Classic Central Mexico, in E. Hill Boone and G. Urton (eds.), *Their Way of Writing: Scripts, Signs, and Pictographies in Pre-Columbian America*, Washington, D.C., Dumbarton Oaks Research Library and Collection, pp. 77-109.
Tozzer, A.
1941 *Landa's Relación de las Cosas de Yucatan,* Papers of the Peabody Museum of American Archaeology and Ethnology, vol. 18, Cambridge, Harvard University.
Uruñuela, G., and Plunket, P.
2002 Lineages and Ancestors: The Formative Mortuary Assemblages at Tetimpa, Puebla, in P. Plunket (ed.), *Domestic Ritual in Ancient Mesoamerica*, Los Angeles, Cotsen Institute of Archaeology, University of California, pp. 21-30.
Yoffee, N.
2005 *Myths of the Archaic State. Evolution of the Earliest Cities, States, and Civilizations*, Cambridge, Cambridge University Press.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

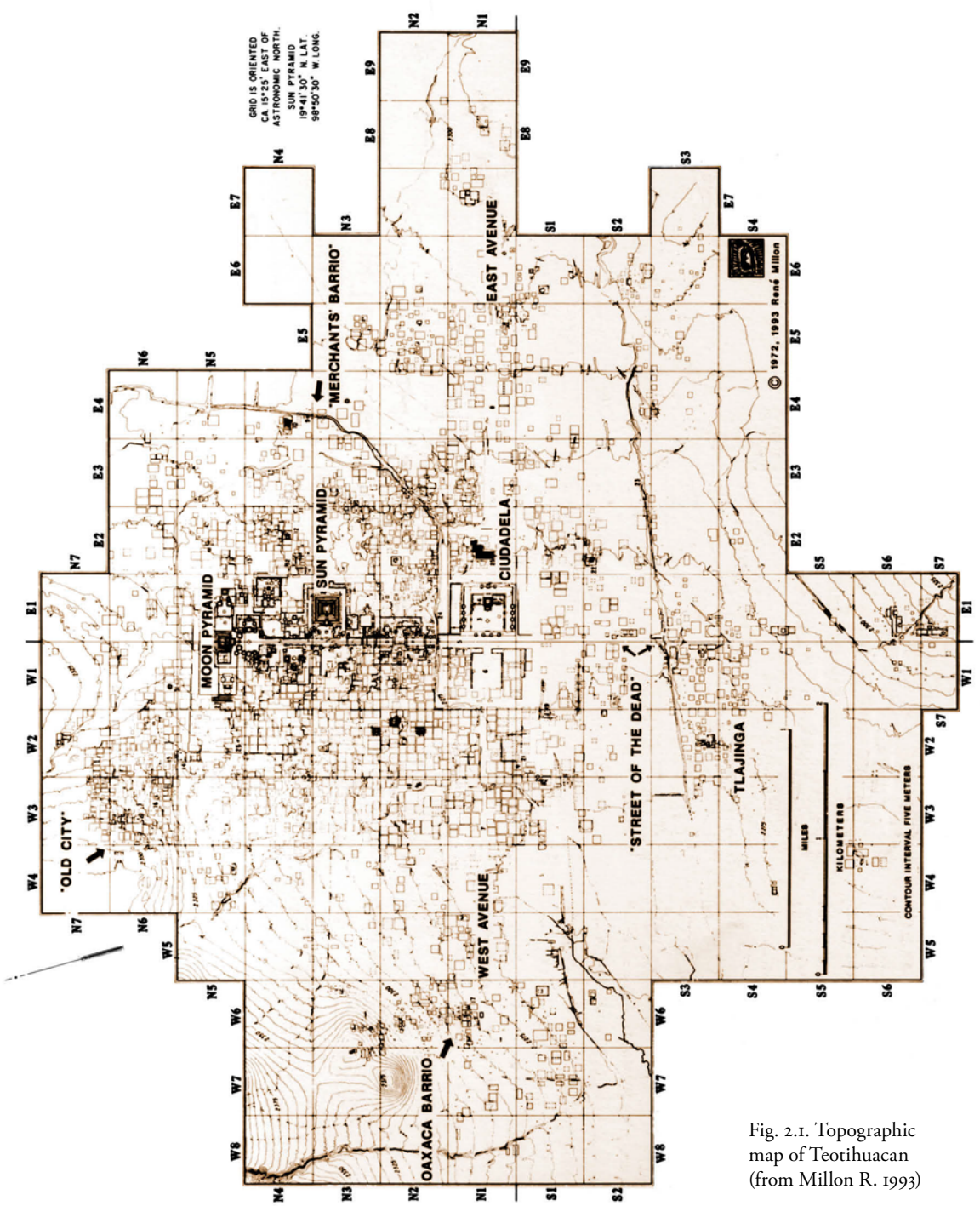



Fig. 2.1. Topographic map of Teotihuacan (from Millon R. 1993)


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

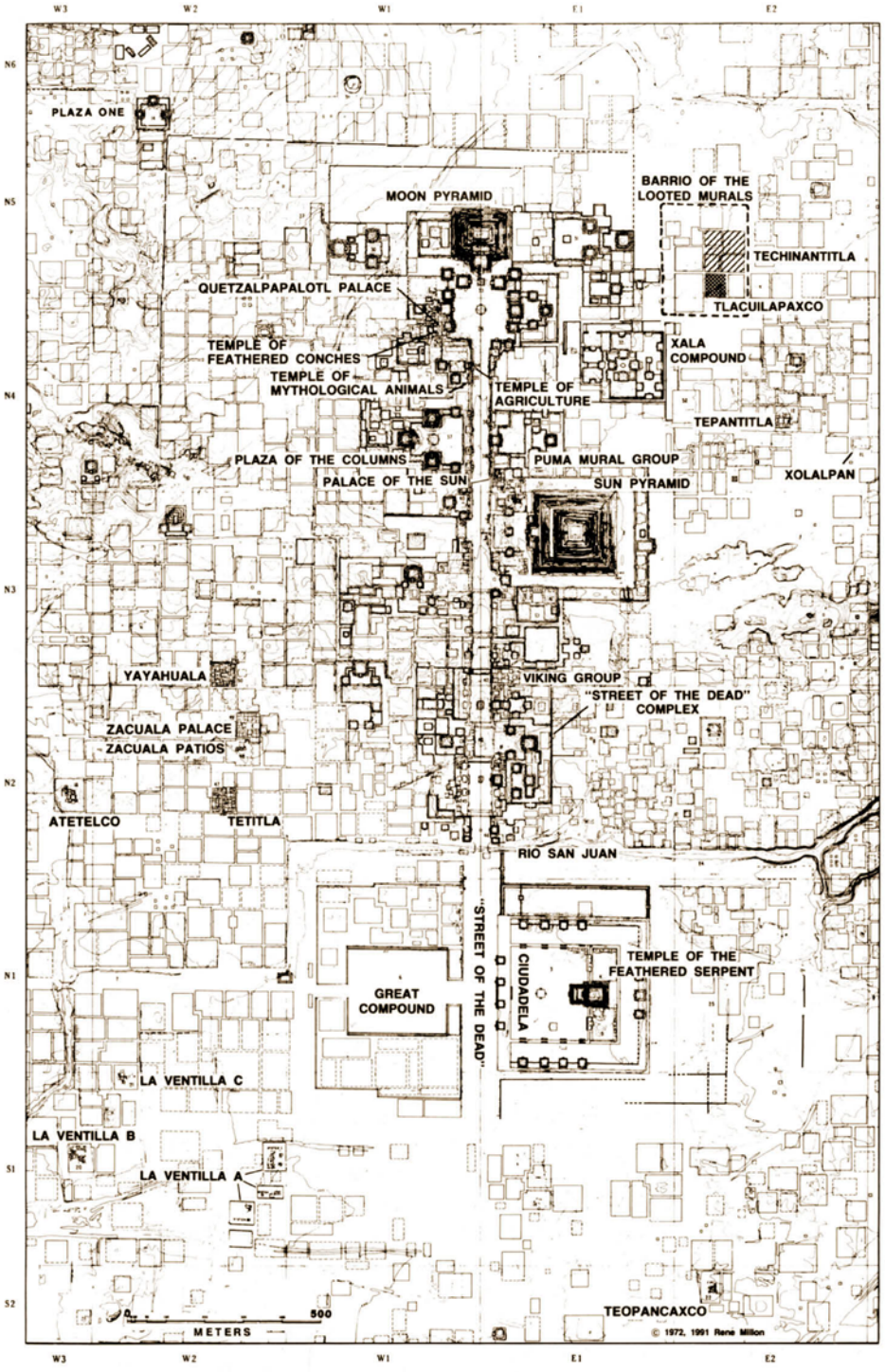
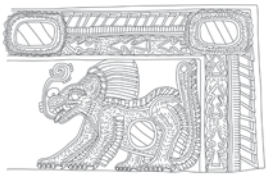



Fig. 2.2. Teotihuacan epicenter with main architectural groups (from Millon R. 1993)


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823


a


b


c


d


e

f

g


h


i


j


k


l


m


n


o


p


q


r


s


t


w


x


u


v


y


z

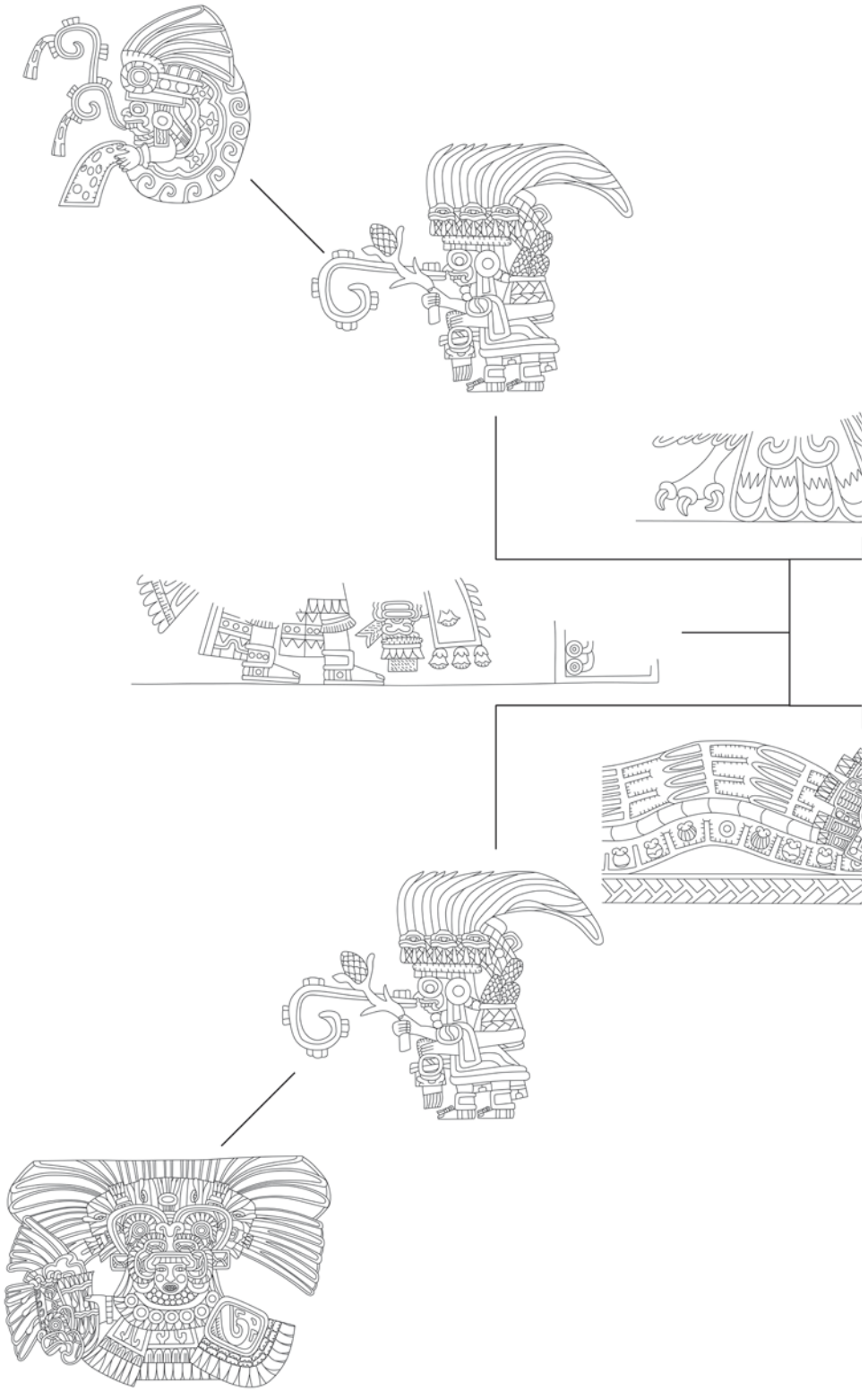

ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Fig. 2.3. Comparisons among Teotihuacan images and Nahuatl toponyms:

(a) coyotes in Portico 1, Patio Blanco, Atetelco, Teotihuacan;
(b) Nahuatl toponym for Coyoacan, Matrícula de Tributos;
(c) Nahuatl toponym for Coyohuacan, Codex Mendoza;
(d) and (e) Nahuatl toponym for Ixcoyamec, Matrícula de Tributos and Codex Mendoza;
(f) jaguar on stones (?), Great Compound, Teotihuacan;
(g) jaguar on element with hands, Patio of the Jaguars, Teotihuacan;
(h) skunk on teeth in Nahuatl toponym for Epatlan;
(i) bird on knot from Totometla, Teotihuacan;
(j) Nahuatl toponym for Amaxtlan (rotated 90°), Codex Mendoza;
(k) puma that eats a heart and is shown with a stool, Tetitla, Teotihuacan;
(l) and (m) Nahuatl toponyms for Ehecatlapechco and Oztotlapechco, Codex Mendoza;
(n) coyote that eats a heart, Atetelco, Teotihuacan;
(o) jaguars eating a heart, La Ventilla, Teotihuacan;
(p) Nahuatl glyph for Teyollocualoyan, Codex Vaticanus A;
(q) Nahuatl glyph for Tecualoyan, Codex Mendoza;
(r) polylobed mountain with star, La Ventilla, Teotihuacan;
(s) Nahuatl toponym for Citlaltepec, Historia Tolteca-Chichimeca;
(t) polylobed mountain with obsidian knives, shallow basin, and twisted roots, Atetelco, Teotihuacan;
(u) and (v) animals on shallow basins associated with obsidian knives, Atetelco, Teotihuacan;
(w) Nahuatl toponym for Itztepec, Matrícula de Tributos;
(x) Nahuatl toponym for Itztocan with serrated obsidian tools, Historia Tolteca-Chichimeca;
(y) Nahuatl toponym for Atlatlauhcan, Matrícula de Tributos;
(z) Nahuatl toponym for Cuitlahuac, Matrícula de Tributos.

Drawings by Elbis Domínguez


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823




ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

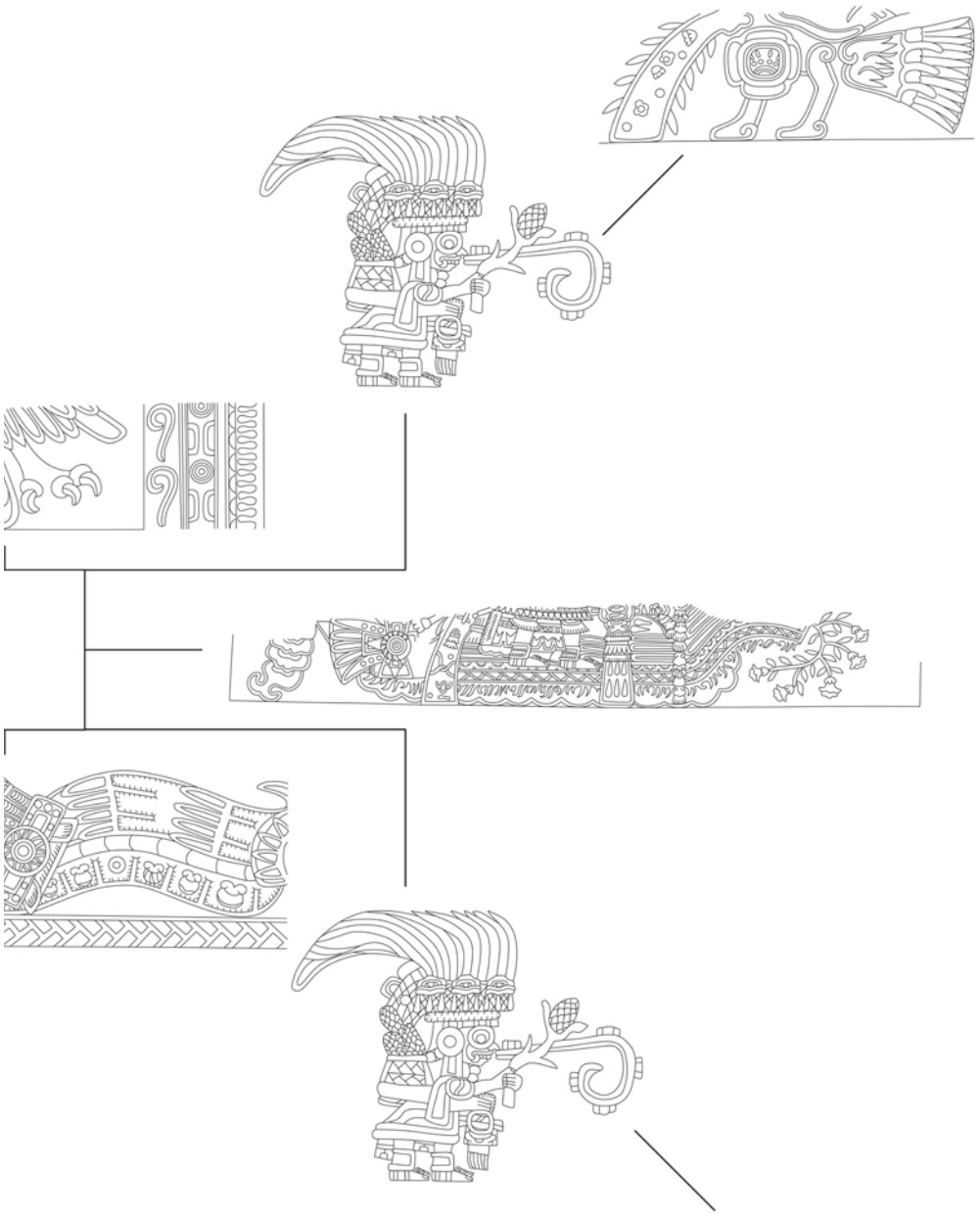


Fig. 2.4. Spatial arrangement of the mural paintings in the Zacuala palace (north on the right side of the image).

Drawing by Elbis Domínguez


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

# Chapter 3
# Princes marchands d'Uruk? L'expansion urukéenne en question (Études proto-urbaines 5)

Pascal Butterlin

*Abstract*

The developments of the late prehistoric Mesopotamian phase saw the process of formation of urban societies and ultimately the appearance of writing technologies. These developments are combined with a particularly wide expansion of Mesopotamian interaction spheres into the neighboring regions during the latter half of the Late Chalcolithic period. This expansive phenomenon is still poorly understood and object of academic controversies. This essay presents a discussion of the so-called Uruk expansion via a reevaluation of methodological trends and key stratified contexts in order to propose new ideas as to the nature of the wide-ranging contacts attested in the late 4th millennium BC archaeological record from Greater Mesopotamia.

## 1. Introduction

Prise entre la Préhistoire et l'histoire, la dernière phase de la préhistoire mésopotamienne, longtemps appelée période d'Uruk a vu éclore la première civilisation urbaine du Proche-Orient et dans sa phase finale l'écriture. Ce développement s'est accompagné du rayonnement inédit et à bien des égards sans lendemains d'une culture dont on considère qu'elle est née dans le sud irakien à la fin du Ve millénaire avant notre ère. Entre la période des "sphères d'interaction" caractéristiques des cultures néolithiques acéramiques puis céramiques et les phénomènes de globalisation observés à partir du IIIe millénaire, l'expansion de la culture d'Uruk reste un phénomène mal compris objet de controverses fameuses.

Elles ont largement cristallisé sur la thèse émise par G. Algaze (1997) de l'existence d'un

> "système monde urukéen", une forme extrêmement précoce de système asymétrique de relations entre un centre – le sud irakien et Uruk même – et des périphéries colonisées pour une part, influencées pour l'autre, par les "Urukéens" dans lesquels on reconnaît ordinairement les ancêtres des "Sumériens".

L'expansion de la culture d'Uruk a ainsi pris sa place récemment dans le panthéon des premiers systèmes mondes de l'histoire (Beaujard 2012), avant le développement du système monde sumérien du IIIe millénaire, puis l'internationalisation des échanges du II e millénaire avant notre ère. La thèse est loin d'avoir fait l'unanimité des chercheurs, dont beaucoup doutent de l'exisetnce de tels systèmes-mondes, si précocement (Butterlin 2003). Ils doutent surtout de la capacité des cités du sud irakien de lancer un processus de colonisation aussi


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

ambitieux, en gardant des approches de type colonial ou en récusant même toute démarche de ce type au proft d'autres modèles (Porter 2012).

De fait, une bonne partie de la discussion est biaisé par notre méconnaissance des mécanismes du développement des sociétés proto-urbaines du Proche-Orient, en particulier dans le sud irakien au cours des phases formatives de la culture d'Uruk. Algaze a répondu a ces critiques en s'appuyant pour l'essentiel sur des données postérieures à l'époque d'Uruk, et en proposant un ingénieux scénario du décollage sumérien qui reste largement conjectural (Algaze 2008).

Voyons quels sont aujourd'hui les termes d'un débat qui est exemplaire des problèmes de méthode que l'on renconre quand on réfléchit sur un ensemble culturel aussi vaste avec les divers outils des "global studies".

## 2. Colonisation et acculturation, l'expansion urukéenne, les termes du débat

La qualité des recherches conduites à Uruk dans les années 30 a fait du nom d'Uruk un terme qui désigne non seulement une ville mais aussi une période et une culture, situées au IVe millénaire. Max Mallowan découvrit en Haute Mésopotamie, à Ninive puis à Tell Brak des artefacts qu'il associa aux découvertes réalisées à Uruk, proposant le premier que des marchands venus du Sud de l'Irak avaient colonisé au IVe millénaire les plaines de Syrie du nord (Mallowan 1947). Au moment même où les fouilles d'Uruk permettaient le dégagement d'une extraordinaire série de monuments archaïques (Eanna et ziggurat d'Anu) était ainsi posée aussi la question de l'expansion de la culture d'Uruk. On estima que son développement était local à Uruk même, à la suite du sondage profond réalisé dans l'espace central du temple calcaire. Cette culture avait rayonné en Mésopotamie mais aussi en Iran: il y avait de claires affinités entre Uruk et la période II identifiée au début du XXe siècle à Suse. Depuis ces recherches pionnières, les découvertes de sites présentant du matériel urukéenn se sont multipliées et l'aire de diffusion de la culture d'Uruk est immense, depuis l'Anatolie orientale jusqu'à l'Iran de l'est (Fig. 3.1).

Une étape essentielle de ces découvertes se situe à la fin des années soixante: à l'occasion de la campagne de sauvetage des sites archéologiques menacés par la construction du barrage de Tabqa sur le moyen Euphrate syrien, furent découverts plusieurs établissements urukéens. Une équipe belge explora le site de Tell Qannas où ils découvrirent les restes de «temples» urukéens (Finet 1975). Au pied du site l'équipe allemande qui travaillait à Habuba Kabira découvrit juste sous la surface que gisaient là les restes de toute une "ville", Habuba Kabira Sud, dont Tell Qannas fut le centre monumental (Fig. 3.2). A quelques kilomètres au nord, un autre établissement fut exploré par une équipe hollandaise au Jebel Aruda, tandis que de l'autre côté du fleuve, le site de Sheikh Hassan présentait lui une longue séquence de niveaux qui furent explorés par une autre équipe allemande jusque dans les années 80. Ces découvertes firent sensation. Elles intervenaient peu après la fouille, en Iran occidental, d'un autre établissement, à Godin Tepe (Kupnik et Rothman 2011). Il fut interprété par les archéologues comme une colonie de marchands venus de Suse (Weiss et Young 1972).

Comme cela a souvent été le cas dans l'histoire des discussions sur la culture d'Uruk, la première thèse moderne sur l'existence de colonies marchandes a attribué aux Susiens la fondation de la colonie de Godin tepe. Pour les archéologues travaillant en Iran, Suse était la référence majeure et le berceau de la civilisation urbaine, pac nécessairement Uruk. Les liens entre Suse et Uruk étaient alors loin d'être très clairs, si ce n'est pour souligner la parenté évidente du matériel découvert à Uruk et Suse et daté de la deuxième moitié du IV e millénaire


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

(Amiet 1986). L'origine de cet ensemble restait toutefois problématique: Boehmer par exemple considère encore comme proto-élamites les bulles découvertes à Uruk dans la rue longeant le Steinstiftgebäude d'Uruk (Boehmer 1999), tant elles paraissent singulières dans l'inventaire des supports de gestion de l'Eanna et courantes à Suse. Ce type de bulles fut aussi découvert dans les colonies du Moyen Euphrate. Mais pour les archéologues travaillant sur l'Euphrate, c'est en revanche Uruk qui a été invoquée comme modèle et en 1986, Sürenhagen propose le premier schéma d'ensemble du système d'influence urukéen (Sürenhagen 1986). Plus récemment, Pittman s'est interrogée à nouveau sur le caractère urukéen ou "susien" de la glyptique issue des sites du Moyen Euphrate, tant les affinités paraissent fortes entre la Susiane et le Moyen Euphrate à la fin du IV e millénaire (Pittman 2013). C'est vrai de fait à la fois pour la glyptique et la production céramique. La part jouée par Uruk dans l'élaboration de ce "style international" reste problématique, peut être en partie parce que les niveaux contemporains de l'expansion urukéenne à Uruk même n'ont été touchés que de manière très partielle. Expansion urukéenne ou susienne alors ? Le débat n'est pas clos.

Au delà de ces colonies, existait un vaste espace dans lequel on retrouvait mêlé aux artefacts locaux des objets attribués à la culture d'Uruk ou à son influence, notamment dans la haute vallée de l'Euphrate. Un des exemples les plus significatifs était le site d'Arslantepe, à quelques kilomètres de Malatya, où les archéologues italiens découvrirent les restes d'un grand complexe monumental (Palmieri 1977, 1981, 1985a, b, 1989, Frangipane 2007). Là se trouvaient quelques objets urukéens, mêlés à une culture locale qui témoignait d'un haut niveau de développement. Il ne s'agissait donc pas là d'un processus de colonisation mais au contraire d'un phénomène d'acculturation dans le contexte de l'essor d'une civilisation proto-urbaine locale, dont les origines remontent au Ve millénaire. A Arslantepe, se développe au cours du IVe millénaire, une administration extrêmement sophistiquée: des milliers de scellements de cachets ont été rerouvés sur le site, mais très peu d'empreintes des sceaux cylindres que l'on associe ordinairement à la culture d'Uruk.

Toutes ces découvertes ont suscité de considérables débats dans la communauté scientifique, car cette expansion urukéenne était clairement un des éléments clefs de la compréhension de l'urbanisation du monde mésopotamien. Quelle fut l'étendue du processus? Les colons étaient-ils des marchands en quête de produits exotiques ou de matières premières, des paysans à la recherche de terre, voire des réfugiés?

La thèse qui a soulevé le plus de discussions est celle d'Algaze (1993, 2001, 2007, 2008; Fig. 3.3). Il proposa dans un ouvrage qui a fait date qu'il avait existé un système-monde urukéen. Les colonies fondées en Mésopotamie ou en Iran avaient permis aux grandes métropoles du Sud irakien de se procurer des matières premières, du vin, de l'huile; du bois, des métaux et des pierres semi-précieuses. A cette occasion, les communautés «indigènes» avaient subi une acculturation. En témoignaient les différents artefacts urukéens ou liés à la culture d'Uruk. J'ai moi-même proposé (Butterlin 2003) une synthèse sur la question, en affinant les questions chronologiques et en suggérant que l'expansion urukéenne était le résultat d'un phénomène de globalisation, moins une colonisation qui a été ponctuelle que la création d'une aire de civilisation.

Au départ, toute la discussion porte en effet sur la définition de ce qui est urukéen, ou lié à la culture d'Uruk. On a défini une sorte de kit culturel de la culture d'Uruk (Fig. 3.4), résultat des principales innovations techniques et culturelles de la période. Il comprend d'abord une série de céramiques bien définies, fabriquées pour l'essentiel au tour rapide, standardisées, et décorées pour certaines d'entre elles de motifs incisés, des croisillons notamment. Il faut mettre


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

à part les fameux bols à bord biseauté. Ils représentent parfois plus de 50% des céramiques qui ont été exhumées. Ils témoignent comme les autres céramiques de profondes mutations socio-économiques, notamment du développement d'une économie de redistribution contrôlée par de puissantes agences économiques.

Deuxième élément de ce «kit», ce sont les objets liés à la révolution des technologies de l'information à la fin du IVe millénaire. La première est l'invention du sceau-cylindre, qui remplace progressivement les cachets utilisés depuis le néolithique pour sceller des objets divers, notamment des récipients. Toute une série de sites de l'expansion de la culture d'Uruk présentent de multiples supports scellés avec des sceaux. Parmi ces supports, on observe notamment des jetons, des sphères d'argile, dites bulles, des scellements fusiformes et surtout des tablettes qui portent non seulement des empreintes de sceaux-cylindres mais aussi des signes numéraux. Ce n'est qu'à Uruk toutefois qu'on a découvert des tabletes inscrites des premiers idéogrammes, les sites "coloniaux" eux n'ont livré que des signes numéraux. Les scellements urukéens présentent une iconographie qui peut varier d'un site à un autre mais on a reconnu parmi eux une iconographie commune, un style international distinctif. On y trouve notamment des scènes artisanales, des scènes de guerre ou des scènes rituelles distinctives.

Le troisième élément caractéristique est l'architecture. Les fouilles d'Uruk ont permis le dégagement d'une belle série d'édifices tripartites monumentaux. Ils présentent des caractères communs: la construction en petites briques dites *Riemchen*, un décor réalisé en mosaïques de cônes d'argiles, rouge, noir ou blanc, et la présence de foyers en forme de poële à frire. De tels édifices ont été dégagés à Jebel Aruda et Habuba Kabira/Qannas: il s'agit à la fois d'édifices monumentaux (identifiés comme des temples par les fouilleurs) et de maisons. Ces édifices partagent de nombreuses caractéristiques des édifices d'Uruk mais s'en distinguent par leur organisation et leurs dimensions. J'ai donc suggéré d'envisager la notion d'architecture coloniale urukéenne (Butterlin 2012). Toutefois, Uruk n'a pas livré d'architeture domestique de cette période. Les sites du Moyen Euphrate ont permis d'entrevoir ce que pouvait être cette architecture domestique et l'organisation d'un espace urbain à la fin du IVe millénaire (Strommenger, Sürenhagen et Rittig 2014).

A partir de là, on a raisonné selon l'idée que seuls les sites offrant le spectre complet de ce kit colonial pouvaient être considérés comme vraiment urukéens, comme des colonies à part entière. En revanche, les sites offrant partiellement cet assemblage et présentant surtout des caractères «locaux», seraient le résultat de processus plus ou moins prononcés d'acculturation ou d'influences plus lointaines.

## 3. L'expansion urukéenne: le temps et l'espace d'une nouvelle globalisation

La recherche moderne a surtout insisté sur la longueur de ces processus de contact et leur diversité. Même si les grandes colonies n'ont été occupées que pendant quelques générations, elles s'inscrivent dans une longue histoire dont elles sont un aboutissement. L'établissement d'une chronologie plus fine des dernières phases de la Préhistoire mésopotamienne a permis de montrer que le phénomène d'urbanisation était en marche dès la fin du Ve millénaire dans un très vaste espace. En effet, il ne se limite pas au sud de la Mésopotamie mais s'étend de l'Anatolie orientale au sud de l'Iran. La culture dite d'Uruk n'est au départ qu'une des cultures issues des cultures à céramiques peintes qui étaient présentes dans cette «Grande Mésopotamie». Le Moyen Orient est jalonné de centres proto-urbains qui présentent à des degrés divers des signes


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

de hiérarchisation et de complexité socio-politique depuis le début du Ve millénaire. L'existence à Uruk même ou à Suse de hautes terrasses à la période dite d'Obeid est une excellente illustration de ce processus. Ces centres constituent un réseau de relations à longue distance qui sont en place depuis le néolithique. Le développement de centres proto-urbains comme Tepe Gawra, Suse ou Uruk a donné une échelle nouvelle à ces échanges qui s'intensifient avec le développement de nouveaux outils comptables et de système de redistribution des produits de base. On y pratique une économie de plus en plus sophistiquée, comme en témoignent les divers types de bols produits en masse recueillis sur ces sites.

A partir de 3700, l'un de ces systèmes, dont on suppose qu'il est issu du Sud irakien et notamment de la région d'Uruk est adopté dans les régions limitrophes, notamment en Susiane. J'ai montré que cette adoption s'est produite en plusieurs étapes, au moins trois phases principales, selon plusieurs variantes. Il semble bien que l'Urukisation a été d'autant plus précoce et complète que le milieu «indigène» était développé antérieurement. On assiste alors à une globalisation qui est l'acte de naissance d'une civilisation urbaine. Dans cet univers globalisé, circulent toute une série d'innovations comme les BRB, le sceau-cylindre ou les techniques de production standardisées de céramiques. Rien ne prouve que le centre d'impulsion de toutes ces innovations se trouvent dans le sud irakien : la richesse de la glyptique susienne semble traduire un dynamisme probablement particulier comme la production de petites statuettes de gypse. Chaque étape de l'expansion urukéenne correspond à la généralisation de nouvelles innovations transmises dans les réseaux de contact et d'échanges mis en place dès le Néolithique.

C'est dans ce contexte hautement dynamique que l'on observe des situations de contact ou de colonisation possible. La chronologie de cette expansion "urukéenne" a été clairement fixée grâce à une étude systématique des datations radiocarbones (Wright et Rupley 2002). Elle a permis de faire la part entre devéloppements strictement "locaux" et phases liées à l'apparition d'artefacts "urukéens" sur un nombre considérables de sites du Nord de la Mésopotamie mais aussi d'Iran occidental. La Susiane a été très tôt liée au monde urukéen, selon des modalités qui restent discutées (Butterlin 2003: 297-315). En dépit de ces avancées notables, le détail de cette chronologie présente des incertitudes. Le problème se pose en plusieurs temps : d'abord la chronologie de l'expansion urukéenne dans le monde nord mésopotamien, puis surtout la synchronisation avec les séquences canoniques d'Uruk mais aussi de Suse. L'articulation entre les développements intervenis dans les trois premières phases du chalcolithique tardif (réputées antérieures à l'expansion urukéenne) et les phases 4 et 5 est encore confuse (Fig. 3.5).

Les séquences de Tell Brak et Tell Leilan dans le Khabur, la séquence de Hacinebi sur le Moyen Euphrate et la séquence de Ninive, sur le Tigre ont livré chacune selon des modalités multiples la transition entre ces diverses périodes. Elles ont été comparées avec les sites qui n'ont livré que du matériel urukéen et paraissent résulter de fondations ex nihilo: Sheikh Hassan, d'abord sur le Moyen Euphrate en Syrie et les sites coloniaux supposés de Aruda et Habuba Kabira. Deux, voire trois ou quatre phases de l'expansion urukéenne auraient eu lieu. Deux phases ont été clairement fixées par analogie avec les sites du Moyen Euphrate : une phase "Sheikh Hassan", bien définie sur ce site par les niveaux 5-7 et datée de la période LC 4 et une phase "Habuba", par analogie avec le site qui a livré un plan "urbain" considéré comme le plus ancien plan de ville (Fig. 3.6).

Il me semble toutefois que l'expansion urukéenne a débuté avant la période LC 4 au cours d'une phase récente de la période LC 3, où apparaissent dans des contextes dits "locaux" des BRB. L'existence d'une telle phase a été discutée par plusieurs auteurs (Rova 1990), mais il est


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

difficile d'en déduire que cette phase a lieu simultènament sur tous les sites. J'ai fait une revue détaillée ailleurs de ces niveaux (Butterlin 2003: 315-317). La question délicate que pose l'arrivé de ces bols à bord biseauté est liée étroitement à ce que représente leur introduction.

Il faut d'abord rendre compte de leur très vaste zone de diffusion, comme l'a constaté récemment Porter. C'est le premier artefact supposé urukéen présent dans le nord, mais aussi le plus largement diffusé. La présence de BRB ne signe assurément pas la présence physique d'"Urukéens". Que signifient ces bols dans des contextes qui en apparence ne présentent aucun autre signe d'acculturation ou de présence "urukéenne"?

L'arrivée des BRB ne correspond pas à une innovation mais à l'introduction d'un nouveau type de bols produit en masse (Fig. 3.6). La durée d'usage de ces bols ne se limite pas à la période de l'expansion urukéenne et leur usage se poursuit au début du IIIe millénaire, notamment en Iran. J'ai suggéré ailleurs que cette introduction correspond à l'adoption d'un procédé plus rapide de fabrication de bols produits en masse, dans une société redistributive qui en a l'usage de longue date (Butterlin 2003: 344-345). Le changement intervient après une crise, dont l'existence paraît de plus en plus plausible, comme en témoignent les vestiges découverts à Tell Majnuna près de tell Brak ou à Hamoukar. Les signes d'intenses conflits au cours de la période LC 2 ou au début de la période LC 3 nous paraissent les indicateurs d'une tension profonde dans un croissant fertile devenu peut-être à la suite d'une aridité accrue un croissant fragile pour reprendre l'expression heureuse de Wilkinson et Philip. J'ai observé toute une série de niveaux d'abandons au cours de cette phase sur les sites clefs du Nord mésopotamien, abandon qui n'ont pas nécessairement été suivis d'une réoccupation comme c'est le cas par exemple à Hammam et Turkman sur le Balih. En revanche, sur d'autres sites, l'abandon est suivie d'une réoccupation, et les populations dont rien n'indique qu'elles sont nouvelles, font alors usage de ces fameux bols à bord biseauté.

Dès lors, il faut se demander en quoi l'usage de ce type de bols s'est avéré attractif. Outre la rapidité de façonnage, largement commentée, on s'est demandé si la mutation n'était pas liée à une mutation culinaire, qu'il s'agisse de fabrication de pain, de bière, ou d'autres produits. En somme, au delà de la technique, est-ce que de nouvelles modes culinaires ont voyagé, "urukisant" les habitant du Nord mésopotamien ou du plateau iranien? L'archéologie post-coloniale a été prompte à discuter à partir de là de thématiques identitaires sur l'usage de faire du pain et ce que ces mutations peuvent impliquer sur le plan sociologique dans les sociétés modernes au Moyen Orient par exemple. Le BRB deviendrait alors le symbole d'une révolution identitaire, de l'assimilation volontaire d'une culture attractive.

Porter est allée plus loin récemment en se fondant sur l'occurrence des premiers BRB à Tell Brak, au niveau 16 (Porter 2012: 103-107), où ont été dégagées une maison tripartite et un édifice bipartite, décoré de niches. Les premiers BRB ont été découverts dans cet édifice, interprété comme un sanctuaire. Porter en déduit que ces BRB avaient une fonction rituelle, et furent utilisés au cours des grandes fêtes qui avaient lieu dans ces édifices à Brak. Leur présence serait le signe d'importantes mutations ayant alors lieu dans le nord mésopotamien, notamment l'irruption depuis le Sud mésopotamien et la Susiane de groupes de pasteurs nomades. L'interaction avec les communautés locales aurait eu lieu à travers des fêtes où les Urukéens nomades auraient amené leur propre manière de faire le pain.

Le point important ici est l'explication de l'attractivité de ces objets via l'introduction d'un modèle de commensalité, par la suite adopté par des élites locales soucieuses d'exhiber dans ses propres rituels et mises en scène l'objet exotique. Les pasteurs ont ainsi remplacé dans ce modèle


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

les habiles marchands urukéens, les paysans ou les réfugiés des thèses classiques sur l'expansion urukéenne (Butterlin 2003: 97-159). Porter en a tiré une vision différente de l'expansion urukéenne mais surtout une nouvelle proposition sur les étapes de cette expansion: six phases ont été proposées (Porter 2012 : 89, fig. 3.8). La première phase comme c'est souvent le cas dans les théories sur l'expansion urukéenne inclut la Susiane. L'expansion aurait débuté le long de l'Euphrate puis se serait généralisée vers le Khabour et intensifiée. Malheureusement aucune discussion chronologique serrée n'accompagne cette nouvelle chronologie, notamment quand il s'agit de discuter le développement de la culture d'Uruk dans la vallée du Tigre ou en Iran.

Le deuxième problème majeur est la synchronisation des deux phases successives de l'expansion urukéenne, d'une part dans le nord mésopotamien, puis surtout avec le Sud mésopotamien et la Susiane. Il est communément admis que les sites de Jebel Aruda et de Habuba/Qannas ont été occupés pendant une courte durée, de l'ordre d'une centaine année au plus, alors que la présence urukéenne dans la région était déjà ancienne. Sur le site de Sheikh Hassan a été établie une séquence beaucoup plus développée. Sans entrer dans le détail de la discussion, à Sheikh Hassan, plus de dix phases ont été définies. Une seule coupe stratigraphique a été publiée pour le moment et il apparaît très clairement que l'établissement urukéen dont la date de fondation reste incertaine a subi plusieurs destructions par le feu. Stein a récemment fait la revue des questions qui se posent au sujet de la période LC 4, associée à la phase Sheikh Hassan de l'expansion urukéenne (Stein 2012: LC 4, 141-145). Malheureusement, toutes ces données stratigraphiques restent pour l'essentiel non publiées, le matériel de Habuba Kabira a fait l'objet d'une monographie (Sürenhagen 1986b) mais tout le reste de la documentation reste à l'état de rapport préliminaires, publiés sans coupes stratigraphiques.

Cet ensemble a été rapproché de ce qui a été observé à Tell Brak et Ninive pour construire une chronologie de l'expansion urukéenne eu deux phases. J'ai présenté ailleurs (Oates 2001) en détail ces deux phases, caractérisées par un assemblages bien spécifique sur ces divers sites. La phase dite Sheikh Hassan se caractérise outre les écuelles grossières par la présence de formes distinctives : des bols coniques à bec verseur, des pots globulaies décorés sur leurs épaules de rainures parallèles ou d'un décor peigné, des pots à quatre tenons et les louches urukéennes, tous types absents à Habuba (Butterlin 2003: 236-237, fig. 35). Cette phase est identifiée à Ninive dans les niveaux Uruk B et à Brak, au chantier TW niveau 13 (Butterlin 2003: 238-240). La phase Habuba est elle bien identifiée à Habuba/Qannas et Aruda, à Tell Brak au niveau 12, et à Ninive dans les niveaux Uruk C. Ces niveaux et leur assemblage offrent de claires comparaisons avec les niveaux de l'Acropole I de Suse, principalement les niveaux 18 et 17.

D'autre sites enfin ne présentent pas ces deux phases de l'expansion urukéenne et les niveaux concernés ont été rattachés soit à la phase Sheikh Hassan soit à la phase Habuba. C'est ainsi que les sites clefs de Hacinebi, Hassek Höyük et Arslantepe ont vu leur stratigraphie connectée au schéma général mettant en oeuvre ces deux phases. A Hacinebi, la phase B2 est considérée comme contemporaine de la phase Sheikh Hassan. Les niveaux assignés à la phase B2 sont considérés comme l'archétype d'une situtation d'interaction culturelle entre Urukéens et indigènes. La tradition céramique héritée de la période LC 3 se perpétue dans l'assemblage classique de casseroles et bols dits *hammerhead* mais il se combine pour la première fois avec des types urukéens, non seulement des céramiques mais aussi des scellements et en particulier des bulles urukéennes scellées selon des modalistés comparables à ce qui a été découvert à Sheikh Hassan ou en Susiane. Parmi les autres marqueurs culturels urukéens figurent également des faucilles de terre cuite, des poids en basalte, gravés d'une croix, et des cônes de terre cuite. Tous ces objets


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

sont en effet bien connus du répertoire urukéen, dans le Nord mésopotamien comme dans le Sud. Stein en a conclu qu'on était en présence d'un comptoir commercial où deux communautés ont coexisté, pendant près de 400 ans[1].

Ces communautés auraient formé des maisonnées interculturelles, avec des maisonnées plus urukéennes que d'autres (Stein 2012a, b). Ainsi, dans ces contextes locaux, 81,5% des céramiques de stockage et 83,2% des vaisselles de table sont locales alors que dans les contextes urukéens, 47,5% des céramiques de stockage sont urukéennes, tout comme 97% des vaisselles de table ou de service. En revanche, Stein a fait remarquer que les pots de cuisson de facture locale prédominent dans l'assemblage local naturellement mais aussi dans les contextes urukéens. Cette anomalie serait liée à la présence de femmes indigènes dans des maisons urukéennes dominées par des hommes. On serait donc dans une situation coloniale typique: la colonisation est le fait d'hommes qui s'installent pacifiquement dans des communautés indigènes qu'ils n'exploitent pas, mais avec lesquelles ils interagissent selon une forme d'échanges symétriques, équitables en quelque sorte.

L'établissemetnt dégagé à Hasssek Höyük dans la région du barrage de Karababa en amont de Samsat est lui considéré comme contemporain de Habuba et il a offert une autre piste analytique. L'étude de sa céramique par Helwing (1999) a permis de montrer que si morphologiquement les céramiques dégagées à Hassek sont indubitablement à comparer avec celles de Habuba, elles s'en distinguent par les techniques de fabrication. Celles-ci restent dans la lignée des céramiques de tradition locale, pour l'essentiel à dégraissant végétal. Elle en a conclu qu'à Hassek on était en présence de phénomènes d'hybridation culturelle et non de colonisation. Elle a observé deux phénomènes distincts: l'usage de techniques réputées urukéennes pour fabriquer des pots locaux ou bien la réalisation de formes urukéennes avec des techniques locales. Les deux cultures auraient fusionné dans cet établissement qui a été ordinairement interprété comme un avant-poste urukéen (Algaze 1993).

Avec ces quelques exemples, nous avons rencontré tout le spectre classique des discussions sur l'expansion urukéenne et leur intérprétation. On a en effet établi une grille de lecture culturelle et ethnique sur la documentation matérielle, pour l'essentiel la céramique et la glyptique, mais aussi quand cela a été possible, l'architecture. Il faut toutefois insister de prime abord sur l'hétérogénéité considérable des données disponibles. La plupart du temps, nos informations se limitent à des sondages, qu'ils soient anciens ou non, avec des contextes archéologiques difficilés à analyser. La grille d'analyse privilégie une lecture ethnique de la documenation archéologique qui reste en fait à prouver. Assurément, les éléments du "kit culturel urukéen" sont aisément identifiables, leur interprétation "culturelle" ou ethnique l'est beaucoup moins.

## 4. Un empire du vin ou de la laine?

Si la chronologie de ces différentes phases paraît relativement bien établie maintenant, leur interprétation l'est beaucoup moins. L'identification d'acteurs "Urukéens" ou "Urukiens" reste, faut-il le rappeler, une fiction d'archéologues, ni une ethnie et encore moins un peuple. En dehors d'Uruk même et de l'Etat proto-urbain qui l'entourait, le terme est dénué de tout sens, dès que l'on touche à des dicussions ethniques. Nous ne savons pas quelle langue était parlée par les Proto-Sumériens du Sud mésopotamien, et, a *fortiori*, par les habitants de Susiane ou de Haute

1 Stein 1999 a et b, pour une présentation détaillée du modèle, Butterlin 1999 pour une critique et 2003 pour une discussion générale de la position qu'occupe Hacinebi dans la discussion sur l'expansion urukéenne.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Mésopotamie. L'identification de communautés culturelles distinctes est en grande partie le résultat d'une démarche suméro-centrique et colonialiste qui a été bien identifiée dans les argumentaires développés sur les colonies urukéennes et leur influence culturelle. Cet argumentaire a été décliné selon plusieurs lignes d'argumentation qui ont vu s'opposer modernistes et primitivistes (Butterlin 2003: 97-159): les Urukéens était des colonisateurs marchands impérialistes (Algaze 1986, 1993, 2008, Stein 1998 ; Butterlin 2003: 107-115) ou des pionniers agriculteurs (Frangipane 1997, Schwartz 1990, Butterlin 2003: 115-125), voire pour certains les réfugiés (Johnson 1989, Hole 1994; Butterlin 2003 : 125-131) issus des conflits ou des crises environnementales qui déchiraient le Sud mésopotamien et la Susiane.

L'archéologie post-coloniale a remplacé une discussion classique sur le développement de colonies, largement importée de débats ayant lieu dans d'autres domaines archéologiques, par une discussion sur les phénomènes d'hybridation, d'interculturalité et de globalisation. En mettant en avant la longue durée et l'existence d'une filière proto-urbaine antérieure à l'expansion urukéenne, cette archéologie n'a pas renoncé à l'idée d'une colonisation mais a abouti à l'idée d'un système où avaient coexisté colonisation ponctuelle et contacts culturels sur une base plus équilibrée entre des colonies et des centres proto-urbains qui avaient intégré ces "apports urukéens" (Stein 1998). La question qui se pose est dès lors de comprendre ces "apports", de comprendre ce qui change concrètement avec l'introduction plus ou moins complète du "kit culturel urukéen". Il faut surtout tenter de dessiner les contours d'une société urukéenne si ce n'est de Haute Mésopotamie, au moins du Moyen Euphrate. Porter a proposé récemment que l'introduction de les céramiques qualifiées d'urukéenne sont des vaisselles hautement spécialisées, liées au service du sanctuaire de Jebel Aruda (Fig. 3.7 et 3.8; Porter 2012: 124-135). L'usage de céramiques réputées locales, réalisées avec des dégraissants végétaux correspondrait non à une présence de populations indigènes locales mais à une différence fonctionnelle entre vaisselle domestique et vaisselle utilisée dans un contexte rituel (Porter 2012: 130). Elle reprend l'analyse de van Driel sur la répartition dans l'espace des vaisselles à Aruda (van Driel 2002). Elle oppose ainsi des concentrations de vaisselles à dégraissant végétal dans la moitié nord du site, où se trouvent aussi les fours, à des espaces spécialisés dans la moitié Sud, notamment des pièces où ont été retrouvées des jarres urukéennes (N°33 de van Driel) considérées comme des jarres à huile (Fig. 3.8).

Il est patent que personne n'a tenté d'opposer à Aruda un secteur indigène à un secteur colonial, parce que la pétition de principe était que nous étions en présence d'une colonie, d'un clone d'Uruk. L'idée d'un tel clonage est en soi étrange, car ce serait bien le seul cas dans l'histoire des systèmes coloniaux que de tels clonages auraient eu lieu. Porter a plus de mal à expliquer la présence en masse de telles céramiques spécialisées dans les maisons de Habuba (Porter 2012: 130-132). Elle estime qu'elles sont là parce que toutes les maisons de Habuba travaillaient pour les temples d'Aruda via les bâtiments monumentaux de Habuba. C'est là une pétition de principe liée à l'idée que ces vaisselles spécialisées sont rituelles (comme les BRB à ses yeux). Il me semble que cette théorie religieuse est surtout un bon prétéexte pour ressusciter le modèle théocratique de la société urukéenne. Je n'irai donc pas aussi loin et retiendrai de cette argumentaire la déconstruction hautement salutaire de distinctions profondément ancrées dans un modèle colonialiste.

Cette déconstruction m'a conduit à l'idée que ce qui était urukéen correspondait à une série d'innovations d'abord économiques, résultat de mutations de systèmes de production et du développement de véritables filières spécialisées (Butterlin 2003: 342-344). Parmi ces filières


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

spécialisées figurent notamment la production textile et celle du vin. La publication récente des objets découverts à Habuba Kabira nous permet d'aller un peu plus loin dans la compréhension de cette économie coloniale et ses orientations.

Le premier ensemble de données concerne la production de laine, un des éléments clefs de ce que McCorriston a appelé "révolution des fibres". La production lainière a déjà une longue histoire derrière elle au IVe millénaire. La question majeure est le développement éventuel de nouveaux métiers à tisser, notamment du métier à tisser vertical (Butterlin 2003: 342-344). La datation de l'apparition de ces métiers qui laissent peu de traces matérielles reste discutée. Il n'en reste souvent que des pesons particulièrement distinctifs datés de la deuxième moitié du IV e millénaire. Il s'agit de pierres présentant des rainures croisées dans lesquelles étaient liées par paquets les fils de chaîne des métiers à tisser verticaux. Ces pesons sont un des fossiles directeurs de la culture d'Uruk et font partie du kit colonial.

Un ensemble particulièrement homogène de 29 poids a été retrouvé notamment dans la maison 35 de Habuba Kabira, pièce J (Fig. 3.9). Le diamètre de ces pesons est de l'ordre de 8 à 9 cm, leur hauteur de 6 à 8,5 cm, pour les plus grands. Il s'agit d'un ensemble homogène qui pourrait fort bien provenir d'un ou plusieurs métiers à tisser. Un autre ensemble de 11 pesons a été retrouvé dans la maison 2. On a retrouvé de nombreuses fusaïoles dans toutes les maisons de Habuba, plus de 80 pesons de métiers à tisser mais seulement deux concentrations significatives, dans les maisons 2 et 35 (Fig. 3.10). On peut donc proposer que si le filage était généralisé, le tissage se faisait dans quelques unités domestiques spécialisées. Le développement de tels métiers permit de multiplier les barres mobiles et le tissage d'armures différentes qui permettent de tisser du sergé, de réaliser ainsi des motifs en biais, chevrons ou losanges, en somme un répertoire distinctif de motifs que l'on retrouve également dans le décor architectural, notamment les décors de mosaïques de cônes ou les peintures.

Il n'est pas indifférent à mon sens d'ajouter que c'est précisément dans les deux maisons que nous venons de citer qu'ont été retrouvées les seules concentrations de tablettes scellées mais aussi de bulles et bulles fusiformes (Fig. 3.11). La plupart de ces tablettes portaient ders signes numéraux mais deux d'entre: elles portaient en outre des empreintes de sceaux. Les deux tablettes scellées 1 et 2 présentent un ensemble complexe de motifs. Sur la tablette N°1, qui porte le sceau N°94 , on observe notamment un motif bien connu de la glyptique urukéenne : un vase d'où émergent deux objets frangés, interprétés ordinairement comme des textiles (Boehmer 1998: 29-; Rittig 2014: taf. 200 et 201). Un autre vase d'où émergent deux serpents entrelacés et un oiseau de proie complètent le tableau. Cette association qui est peut-être liée aux activités de teinture des textiles est pour le moins intéressante dans le contexte que nous venons d'évoquer. Il est bien possible que ces tablettes sont liées à la gestion des produits réalisés dans l'atelier de tissage associé. Le motif présent sur la deuxième tablette, S 63 présente également des animaux, un lion bondissant sur un capridé , à nouveau un vase et un oiseau de proie, mais rien n'évoque directement la production textile (Rittig 2014: taf. 195.9, taf. 201.2).

La question se pose en tout cas pour les deux sphères creuses scellées et cassées découvertes à Habuba toujours dans la maison 2, pièce k et m (Schmandt Besserat 2014 : 312-313, Taf. 204). La bulle 1 porte l'empreinte du sceau 65, où l'on reconnaît à nouveau le motif des deux tissus frangés émergeant d'une jarre à deux anses (Rittig 2014 : taf. 195.11).

La bulle 2 porte l'empreinte du sceau 98 ainsi que des encoches que Schmandt Besserat rapproche des six calculi qui lui ont été associés. S 98 est une composition héraldique, présentant


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

deux lions liés par leurs queues et leurs pattes. Entre leurs têtes figurent à nouveau des vases (Riitig 2014: taf. 198.5).

Les bulles découvertes dans ces maisons portent elles aussi des empreintes qui sont très intéressantes pour notre propos. S 31 à S 40 (Rittig 2014: 334-337, taf. 193, S 31-36, et Taf. 194, S37 à S 41), S 52 et 53, 66, 85 et 99 sont des empreintes de sceaux figurant des défilés d'animaux, des scènes classiques de troupeaux. Le N°107 figure à nouveau vases et textiles (Rittig 2014, taf. 1999.6). Il est donc très plausible de considérer que ces bulles étaient en relation avec l'élevage et pourquoi pas avec la production de la laine, peut-être la filature ou le tissage. La forme fusiforme de ces scellements qui étaient percés pourrait être liée au filage et à l'enregistrement de production de fils receptionnés dans les ateliers de tissage. Tout un système économique se dessine ainsi, depuis la production du fil qui paraît au vu de la dispersion des fusaïoles une production décentralisée et domestique jusqu'au tissage réalisé dans quelques grandes maisons de Habuba.

Deux autres concentrations d'artefacts appellent notre attention. Il s'agit cette fois de remarquables concentrations de jarres à vin, notamment de bouteilles dites du *Riemchengebäude*. Cette forme est précisément la forme 33 que nous venons d'évoquer à Aruda. Ces jarres constituent l'un des types de récipients dans lesquels ont été retrouvé des résidus de vin et elles ont alimenté toute la discussion sur le rôle du vin dans les réseaux commerciaux à l'époque LC 4-5 (McGovern *et al.* 1997). A Habuba, deux concentrations remarquables ont été repérées dans les maisons 40 et 43 (Sürenhagen 2014; Fig. 3.12). Il s'agit en particulier d'un type bien connu, FG 36 des groupes définis par Sürenhagen (Fig. 3.13). Des bouteilles ovoïdes de divers types ont été retrouvées dans le spièces e, f, g et h de la maison 40. Une importante concentration de jarres a été identifiée notamment dans l'angle sud-est de la pièce de réception de la maison: 9 exemplaires du type 674, 3 du type 977 et 3 du type 991. En y ajoutant les autres types découverts (672, 673), on arrive à une impressionnante quantité de récipients.

La quantité paraît telle qu'il me paraît difficile de considérer qu'il s'agit d'une production consommée sur place. De surcroit, ces jarres sont stockées ou présentes tout au moins dans des espaces dans lesquels on a retrouvé les seules concentrations de scellements de portes et un type particulier de jetons. 15 scellements de porte ont été découverts dans la maison 40, pour l'essentiel dans les pièces a, b, c et e. Ce sont les seuls scellements de porte découverts à Habuba. Il est est tenant de les mettre en rapport avec l'importance du stockage réalisé dans cet ensemble. Les motifs présents sur ces scellements sont très intéressants : 42, 43 et 44 sont des défilés d'hommes, 68 et 71 des troupeaux, 86, 89, 90, 93, 100 et 101 constituent l'ensemble le plus développé de compositions héraldiques trouvé à Habuba. 90 et 93 présentent une intéressante association de jarre à anses, borés par des animaux et surmontés par deux serpents entrelacés (Rittig 2014 : 339, taf. 197.11 et 14). Le sceau S 42 a été commenté par Rittig (Rittig 2014: 335, taf. 194.6): il présente une intéressante association de motifs, une femme en relation avec une plante, deux autres femmes avec des vases. Rittig interprète la plante comme un pln de lin et l'ensemble serait lié à la production d'huile de lin ou à la production textile.

Il faut ajouter à cte ensemble 21 jetons complexes, la plus grosse concentration de Habuba. 198 jetons complexes ont été découverts à Habuba en tout. 47 d'entre eux proviennent de maisons tripartites (maisons 2, 31, 35, 38, 40, 43 et 57). La maison 40 a livré un ensemble remarquable de jetons complexes (Schmandt Besserat 2014 : 313-314). 5 ont été recueillis dans la pièce a, 9 dans la pièce b, 5 dans la pièce h et 1 en d. 13 types différents ont été reconnus, parmi lesquels on retiendra deux classes particulières de jetons : le type 3, sous type 51 est un type de disques perforés, décorés d'une croix (Schmandt Besserat 2014: taf. 186, 6, 7, 8, 9). 4 jetons de ce type


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

ont été reconnus. Un autre type, le type 6.23 est ovoïde, percé et porteur du même motif de croix (Schmandt Besserat 2014: 322, taf. 186, 17 et 18). Deux jetons de ce type ont été découverts.

S'il reste toujours difficile malgré les tentatives de Schmandt Besserat de mettre en rapport type de jetons et activités économiques, il est tentant de considérer ici que le motif en croix était la marque de cette maison spécifique ou éventuellement d'un producteur. Schmandt Besserat a suggéré notamment que le type 6 de jetons coniques, pourrait correspondre au signe ATU 733 (ZATU 393), désignant l'huile (Schmandt Besserat 1992: 144). J'en tire la conclusion que nous avons à faire à des entrepôts de liquides, peut-être destiinés à l'exportation le long de l'Euphrate. Notons de surcroît que ces entrepots se trouvent a mi chemin entre la porte ouest dite de Qannas et le rebord de la terrase, sur l'un des axes qui descend vers le fleuve. Schmandt Besserat a également observé une importante concentration de jetons dans la porte sud de Habuba. On y retrouve notamment un jeton du type 3.51. La présence de telles concentrations de jetons à proximité des portes est avérée également à Uruk, un argument pour voir dans ces jetons aux yeux de Schmandt Besserat les outils du commerce.

Se dessinent ainsi les contours d'une société coloniale, si l'on accepte l'idée qu'il s'agit bien de colonies crées par Uruk. Qu'il s'agisse de production textile, de vin ou d'huile, on est en présence du type même des produits au sujet desquels on a proposé qu'ils participaient d'un grand commerce international. Nous savons peu de choses sur la nature de de ce grand commerce mais si son existence est avérée, ne serait-ce qu'à travers certains inventaires exceptionnels comme celui du *Riemchengebäude*. Là des centaines de jarres ont été retrouvées brisées sur le sol, de concert avec un impressionnant inventaire d'objets exotiques, d'éléments d'ameublement luxueux, d'armes en cuivre mais aussi d'exceptionnels silex, don't l'origine reste discutée. Il faut toutefois souligner à ce sujet qu'un type particulier d'outils en silex, bien attestés sur le Moyen Euphrate urukéen n'apparaît guère dans le sud irakien. Il s'agit des lames cananéennes. La découverte d'un ensemble exceptionnel de ce type de lames à Hassek Höyük, au nord de Habuba dans la région du barrage de Karababa a permis de situer dans cette région une aire privilégiée de production de ces objets que l'on trouve en abondance à Habuba. L'étude de ce corpus d'objets à Habuba a montré qu'une part au moins ne présentait pas de stigmates d'usure et qu'ils étaient donc destinés probablement à être exportés. Ils ne le furent pas en tout cas vers Uruk et il est possible que ces objets étaient exportés vers le Levant. Dans ce contexte, Habuba n'est pas lié ici à un système monde urukéen mais à une sphère d'interaction levantine qui se constitue au IV e millénaire entre le Levant et l'Egypte prédynastique. Outre la circulation éventuelle de lames cananéennes cette sphère s'organise autour du commerce du vin notamment. La société coloniale urukéenne apparaît ainsi comme un noeud dans plusieurs systèmes d'échanges qui se superposent en partie.

## 5. Une koinè et ses mécanismes?

Il s'agit surtout d'un système remarquablement homogène, du point de vue des formes céramiques mais aussi de l'iconographie présente sur les supports qui assuraient le fonctionnement du système de stockage et de redistribution. Les études de Dittman puis Pittman ont dessiné les contours d'une culture internationale. Pittman a surtout souligné que cette culture paraît en l'espèce plus susienne d'inspiration, que spécifiquement urukéenne. L'identification de ce style international a été initiée par Dittmann (Dittman 1986b) dans une étude pionnière. Il a distingué plusieurs thèmes considérés comme interrégionaux : des files de capridés avec des produits, et le thème des félins au cou serpentiforme, disposés dans des compositions héraldiques


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

(Dittman 1986b: 336). Cette liste a été reprise et élargie largement par Pittman, à la lumière des données publiées par la suite sur la Susiane ou surtout en Haute Mésopotamie (Pittman 2013).

Pittman a dressé la liste de ces thèmes présents à la fois en Susiane, en Haute Mésopotamie et à Uruk même. Il concerne surtout les images des niveaux V- IVb. Le premier thème est celui des processions de porteurs présentes à Uruk même, en Susiane mais aussi à Jebel Aruda, Habuba, Sheikh Hassan, Hacinebi et Tell Brak (Pittman 2013: fig. 16.13 pour une planche comparée). Le second thème présente des animaux associés à des produits, ou bien des animaux disposés de manière héraldique. Un troisième ensemble est constitué de rangées de céramiques, d'où émergent des textiles ou des peaux. Le roi prêtre lui-même, fréquemment représenté en Susiane et à Uruk on l'a vu plus haut, est présent aussi à Habuba et Tell Brak. En revanche, au cours de la phase Late Uruk B de Pittman s'opère une progressive séparation des ensembles glyptiques susiens et d'Uruk, comme du reste du monde urukéen. Cette coupure correspond aussi à l'apparition à Uruk de l'écriture proto-cunéiforme.

Ces observations viennent corroborer en partie l'idée que les niveaux les plus récents de la période d'Uruk à Uruk même (Phase IV récente voire ancienne) se sont développés peut-être après la fin de l'expansion de la culture d'Uruk et l'abandon des colonies elles-mêmes. Sürenhagen avait déjà suggéré dans ses synthèses l'idée que l'assemblage typique des colonies n'apparaissait pas au niveau IV d'Uruk mais serait typique des phases plus anciennes VI et V. Il est revenu sur ce point récemment dans la publication de Habuba dessinant les contours d'une culture internationale qui ne se perpétue pas dans les phases récentes de la période LC 5. Sans revenir sur le détail de cette thèse qui repose notamment sur l'idée problématique que les BRB n'étaient plus en usage au niveau IV d'Uruk, il est tentant de tenter de lier ce qui se passe alors à Uruk avec l'abandon des colonies. J'ai suggéré ailleurs que d'importantes mutations politiques sont intervenues à Uruk même au cours de la période IV, avec une concentration du pouvoir dans un espace proto-palatin inédit dans le monde urukéen (Butterlin 2018). Il est possible que ce processus de concentration du pouvoir a eu lieu au moment ou les colonies furent abandonnées.

L'apogée du système colonial urukéen s'il exista eut lieu au cours de période qui restent très mal documentées à Uruk même. Il me semble que la phase Sheikh Hassan de l'expansion urukéenne coïncide avec les niveaux VII-VI, niveaux où ont été recuillies à Uruk les bulles du *Steinstiftgebäude*. Ces bulles, comme le note Pittman (2013: 336) sont une des meilleures illustrations à Uruk du style international et elles sont comparables aux bulles recueillies à Sheikh Hassan même, Hacinebi ou Brak. Il me semble que la phase Late Uruk A correspond à la phase Habuba, mais que la phase *Late Uruk* B qui voit se différencier nettement Uruk et Suse est postérieure à la fin de l'expansion urukéenne et à l'abandon des colonies.

La phase Sheikh Hassan correspond à Uruk à l'usage puis à l'abandon d'édifices remarquables: le Steinstiftgebäude, dans la zone ouest de l'Eanna, le Steingebäude et le temple C/D dans la ziggurat d'Anu et peut-être le temple calcaire. L'abandon de ces édifices marque une rupture majeure de l'histoire d'Uruk, avec l'abandon de l'usage des pierres dans l'architecture et le développement des grands complexes intégrés de l'Eanna. J'ai proposé qu'Uruk fut alors la capitale d'un système confédéral matérialisé par l'existence de toute une série de complexes distincts occupant une part de l'Eanna et accueillant des assemblées distinctes. Ce serait l'époque où les colonies du Moyen Euphrate auraient prospéré. Il est possible que l'inventaire du *Riemchengebäude* et les cérémonies associées eurent lieu au cours de cette phase. Enfin, la phase finale à Uruk se serait développée dans un autre contexte au moment où Uruk et Suse


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

développent des traditions différentes, marquées par l'usage de l'écriture proto-cunéiforme et l'écriture proto-élamite.

Si l'on avance ainsi sur le contexte de la fondation de ces colonies, c'est moins le cas pour en comprendre la raison. Y eut-il des rois marchands d'Uruk, comme purent l'être en leur temps un Georges Simpson ou un Baranov? Les maisons de Habuba furent-elles les factories d'un empire colonial? Un fait est très frappant. L'extrême homogénéité de cette culture internationale tant du point de vue de l'iconographie que de la culture matérielle donne l'image d'un mouvement qui visait moins à stimuler le commerce qu'à reproduire de toutes pièces un système fondé sur de grandes maisonnées. On peut toujours supposer que certains produits étaient l'objet d'un intense commerce, le vin est assurément un excellent exemple. Toutefois, cela n'implique pas pour autant que c'était la motivation première. L'importance jouée par la production textile à partir de la fin du IVe millénaire est tout à fait notable. Son rôle dans l'expansion urukéenne a été diversement jugé: elle figure régulièrement parmi les candidats pour les produits qu'aurait exporté le sud mésopotamien, à l'instar de ce qu'il fut pour les marchands assyriens des siècles plus tard. Toutefois, le développement de telles productions dans toute la ceinture des contacts à Habuba, Aruda mais aussi Arslantepe indique plutôt qu'il s'agit de la généralisation d'un système économique et symbolique où un certain types de vêtements décoré de motifs géométriques est un des fondements du système social.

L'idée défendue par Porter que les troupeaux d'Uruk venaient paître en Haute Mésopotamie et que l'ensemble du système fonctionnait sur cette base me paraît imprudente. Il vaut mieux tenter de comprendre ce que ce type de production représentait à Habuba même.

Il faut revenir à ce sujet sur les maisonnées spécialisées que nous avons entrevues plus haut. Est-ce que ces maisons avaient une position particulière à Habuba? Nous avons vu que les maisons concernées sont des maisons tripartites. Les deux maisons où se concentre le stockage de jarres à huile ou vin se situent dans la partie centrale du centre proto-urbain. Les deux maisons où nous avons identifié des métiers à tisser se trouvent pour l'une au nord de ces entrepots et pour l'aure dans le quartier nord de la ville (Fig. 3.10). Quand on compare les dimensions de ces maisons, aucun résultat notable n'émerge. Une étude générale des maisons urukéennes des bords de l'Euphrate (Fig. 3.14) permet de situer les maisons qui nous intéressent dans un schéma général. La maison 43 comprend deux unités tripartites, respectivement de 135 et 162 m², avec des espaces centraux de 28,7 et 40 m². La maison tripartite 40 a une superficie de 220 m² pour un espace central de 49,9 m2. Les deux maisons 1 et 35 ont respectivement des superficies pour leur unité tripartite de 148 et 201 m² avec des espaces centraux de 34,8 et 49,9 m². Des différences considérables existent donc entre ces maisons. Une revue de l'ensemble de la documentation m'a permis de ranger ces maisons en cinq catégories. Les maisons que nous envisageons ne sont pas les plus grandes de l'architecture coloniale mais se situent dans les rangs 2 et 3. Leurs espaces centraux paraissent relativement modestes, les maisons 40 et 35 présentent une superficie voisine de l'espace central (rang 3) et les maisons 43 et 2 des superficies voisines de 30 m², soit un rang 4. Il ne paraît pas y avoir de lien entre les dimensions observées de ces unités et leur fonction. On est frappé en revanche par l'importance de la superficie des cours associées à ces maisons: 98 m² pour la maison 2, 131 m² pour la maison 35, 247 m² pour la maison 40, et dans le cas de 43, deux cours de 88 et 45 m². La moyenne des superficies des cours à Habuba est de 82,7 m² d'après Vallet. Il en résulte que ces maisons se situent encore une fois largement au-dessus de la moyenne et que l'importance qu'y joue leur cour est tout à fait considérable. C'est aussi le cas pour les pièces de réception. La maison 2 en présente 2, la maison 35 présente au moins deux unités bipartites. La


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

principale a une superficie de 69,4 m². La maison 40 présente la plus importante unité bipartite de Habuba avec une superficie d'ensemble de 167 m². Enfin la maison 43 présente trois espaces de réception. Il résulte de ces observations que si les maisons tripartites de ces unités ne sont pas parmi les plus éminentes de Habuba, les quatre maisons que nous avons retenues se distinguent en revanche par l'importance de leurs cours et de leurs espaces de réception.

Elles occupent systématiquement des parcelles de plus de 600 m² environ qui associent selon des modalités variées cours, espaces de réception, bâtiments tripartites. Vallet a bien montré que c'était là le résultat d'une évolution complexe issue d'un parcellaire normé au départ (Vallet 1996, 1998). Nous avons là de grandes maisons qui furent la base d'un système économique semi-spécialisé dans des unités qui paraissent chacune avoir des fonctions propres, tout en présentant un spectre d'activités variées par ailleurs. Il est clair que le système de gestion est lié à ces activités spécialisées et se déroulaient dans le cadre de ces grandes maisons.

Il n'est guère possible ici d'envisager dans quel cadre opéraient ces maisons. Il est admis couramment qu'un Etat colonial s'est développé sur le Moyen Euphrate (Fig. 3.15). J'ai suggéré ailleurs que le système politique fonctionnant à Habuba/Aruda combinait un centre politique et religieux et que se trouvaient là des complexes intégrés en binomes. Leur échelle et leur fonctionnement correspondent assez bien à un complexe intégré à Uruk où plusieurs complexes du même type ont fonctionné au même moment. On aurait en quelque sorte sur l'Euphrate une des unités élémentaires qui se réunissaient à Uruk dans une fédération d'unités de réception construites sur le même modèle. Le lien entre ces grands complexes de réception et les maisons que nous venons d'étudier n'est pas clair. A Habuba comme Aruda, un premier grand édifice tripartite fonctionne seul avant qu'un deuxième y soit adjoint. Ces édifices se distinguent des édifices domestiques par l'épaisseur de leurs murs, pas nécessairement par leur emprise au sol qui est comparable la plupart du temps à eelle des maisons. On a suggéré qu'il s'agissait de salles de conseil à Habuba, de sanctuaires à Aruda. Si ont suit mon argumentaire, il est possible que le système fonctionnait comme une confédération de grandes familles.

## BIBLIOGRAPHIE

Algaze, G.

1989 The Uruk Expansion: Cross Cultural Exchange in Early Mesopotamian Civilization, *Current Anthropology* 30/5, pp. 571-608.

1993 *The Uruk World System, the Dynamics of Expansion of early Mesopotamian Civilization*, Chicago – London, Chicago University Press.

1995 Fourth Millennium Trade in Greater Mesopotamia and the Question of Wine, in F. Fleming et al. (eds.), *The Origins and Ancient History of Wine*, Gordon and Breach, New York, pp. 89-96.

2001 The Prehistory of Imperialism: The Case of Uruk Period Mesopotamia, in M. S. Rothman (ed.), *Uruk Mesopotamia and its Neighbors: Cross-cultural Interactions and their Consequences in the Era of State Formation*, Santa Fe, School of American Research, pp. 27-84.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

2007 The Sumerian Takeoff, in E. Stone (ed.), *Settlement and Society, Essays dedicated to Robert McCormick Adams*, Los Angeles, Cotsen Institute of Archaeology at UCLA, pp. 343-369.
2008 *Early Mesopotamia at the Dawn of Civilization: The Evolution of an Urban Landscape*, Chicago, Chicago University Press.
2013 The End of Prehistory and the Uruk Period, in H. Crawford (ed.), *The Sumerian World*, London - New York, Routlledge, pp. 68-94.

Beaujard, P.
2012 *Les mondes de l'Océan indien, tome I, de la formation de l'Etat au premier système-monde afro-eurasien*, Paris, Armand Colin.

Behm-Blancke, M.
1981 Hassek Höyük. Vorläufiger Bericht über die Ausgrabungen der Jahre 1978-1980, *Istanbuler Mitteilungen* 31, pp. 5-82.
1983 Hassek Höyük. Die grabungen 1981, *Türk Arkeoloji dergisi* 2612, pp. 65-78.
1984 Die Ausgrabungen auf dem Hassek Höyük im Jahre 1982, *Kazi Sonuclari Toplantisi* 5, pp. 163-168, pp. 419-423.

Boehmer, R.M.
1999 *Uruk: früheste Siegelabrollungen* (Augrabungen in Uruk-Warka Endberichte, 24), von Zabern, Mainz am Rhein.

Boese, J,
1986-1987 Excavations at Tell Sheikh Hassan, Preliminary Report on the Year 1987 Campaign in the Euphrates Valley, *Annales Archéologiques Arabes Syriennes* 36/37, pp. 67-100.
1995 *Ausgrabungen in Tell Sheikh Hassan, Vorläufige Berichte über die Grabungskampagnen 1984-1990 und 1992-1994*, Saarbrück, Saarbrücker Druckerei und Verlag.

Breniquet, C.
2008 *Essai sur le tissage en Mésopotamie, des premières communautés sédentaires au milieu du III e millénaire avant J.C.* (Travaux de la Maison René Ginouvés 5), Paris, de Boccard.

Butterlin, P.
2003 *Les temps proto-urbains de Mésopotamie, contact et acculturation à l'époque dite d'Uruk en Mésopotamie*, Paris, CNRS éditions.
2012 Les caractéristiques de l'espace monumental dans le monde urukéen, de la métropole aux colonies, *Origini* 24, pp. 171-191.
2013a Les terrasses monumentales proto-urbaines et les centres proto-urbains de Suse à Uruk, études proto-urbaines 1, in J.L. Montero-Fenollos (ed.), *Du village néolithique à la ville mésopotamienne* (Bibliotheca Euphratica, 1), pp. 117-132.
2013b Die Expansion der Uruk Kultur, in Crüsemann et al. (eds.), *Uruk, 5000 Jahre Megacity*, Michael Imhof Verlag, Berlin, pp. 164-171.
2015a Late Chalcolithic Mesopotamia, Towards a Definition of Sacred Space and Its Evolution, in N. Laneri (ed.), *Defining the sacred, Approaches to the Archaeology of Religion in the Ancient Near East*, Oxford, Oxbow Books, pp. 60-72.

Finet, A.
2018 Architecture et société au Proche-Orient ancien, *Les bâtisseurs de mémoire*, Paris, Picard.
1975 Les temples sumériens du Tell Kannâs, *Syria* 52, pp. 157-174.

Forest, J.-D.
1997 L'habitat urukien du Djebel Aruda, approche fonctionnelle et arrières plans symboliques, in C. Castel et al. (eds.), *Les maisons dans la Syrie antique du IIIe millénaire aux débuts de l'Islam, Beyrouth*, Institut Français d'Archéologie du Proche-Orient (IFAPO), pp. 217-234.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Mallowan, M.E.L.
1947 Excavations at Brak and Chagar Bazar, *Iraq* 9, pp. 1-266.
McGovern, P.E., Hartung, U., Badler, V.R., Glusker, D.L., and Exner, L.J.
1997 The Beginnings of Winemaking and Viniculture in the Ancient Neat East and Egypt, *Expedition* 39/1, pp. 3-21.
Palmieri, A.
1977 The 1973 and 1975 Campaigns at Arslan Tepe (Malatya), *Türk Arkeoloji dergisi* 24/2, pp. 123-132.
1981 Excavations at Arslantepe (Malatya), *Anatolian Studies* 31, pp. 101-119.
1985a Eastern Anatolia and Early Mesopotamian Urbanization . Remarks on changing Relations, in M. Liverani, A. Palmieri and R. Peroni (ed.), *Studi di paletnologia in onore di S.M. Puglisi*, Rome, Università degli studi di Roma "La Sapienza", pp. 191-213.
1985b 1984 Excavations at Arslan Tepe, *Kazi Sonuçlari Toplantisi* 7, pp. 29-36.
1989 Storage and Distribution at Arslantepe, Malatya in the Late Uruk Period, in K. Emre *et al.* (eds.), *Anatolia and the Ancient Near East: Studies in Honor of Tahsin özgüç*, Ankara, Anadolu Yayinları, pp. 419-431.
Pittman, H.
2013 Imagery in Administrative Context: Susiana and the West in the Fourth Millennium, in C.A. Petrie (ed.), *Ancient Iran and its Neighbours, Local Developments and Long Range Interactions in the Fourth Millennium B.C.* (The British Institute of Persian Studies – Archaeological Monographs, 3), Oxford, Oxbow Books, pp. 293-336.
Porter, A.
2012 *Mobile Pastoralism and the Formation of Near Eastern Civilizations, Cambridge,* Cambridge University Press.
Rittig, D.
2014 Siegel, Siegelbilder und ihre Träger, in E. Strommnenger, D. Sürenhagen and D. Rittig (eds.), *Die Kleinfunde von Habuba Kabira Süd* (WVDOG 141), Wiesbaden, Harrassowitz Verlag, pp. 327-367.
Schmadt Besserat, D.
1994 *Before Writing: from Counting to Cuneiform*, Austin, University of Texas Press.
2014 Symbole aus Ton und Stein (calculi), in E. Strommnenger, D. Sürenhagen and D. Rittig (eds.), *Die Kleinfunde von Habuba Kabira Süd* (WVDOG 141), Wiesbaden, Harrassowitz Verlag, pp. 309-326.
Stein, G.
2012 The Development of indigeneous Complexity in Late Chalcolithic Upper Mesopotamia in the 5 th and the 4th Millennia B.C.- An Initial Assessment, *Origini* 24, pp. 125-152.
Strommenger, E.
1980 *Habuba Kabira, Eine Stadt vor 5000 Jahren*, Mainza am Rhein, von Zabern.
Strommenger, E., Sürenhagen, D., and Rittig, D. (eds.)
2014 *Die Kleinfunde von Habuba Kabira-Süd*, 2 vols., Wiesbande, Harrassowitz Verlag.
Sürenhagen, D.
1986 The Dry-Farming Belt: the Uruk Period and Subsequent Developments, in H. Weiss (ed.), *The Origins of Cities in dry-Farming Syria and Mesopotamia in the third Millennium B.C.*, New York, Four Quarters Publishing Corporation, pp. 7-45.
1999 *Untersuchungen zur relativen Chronologie Babyloniens und angrenzender Gebiete von der ausgehenden 'Ubaidzeit bis zum Beginn der Frühdynastische II-Zeit, 1. Studien zur Chronostratigraphie der Südbabylonischen Stadtruinen von Uruk und Ur* (Heidelberger Studien zum alten Orient Band 8), Heidelberg, Heidelberger Orientverlag.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Vallet, R.
1996 Habuba Kebira ou la naissance de l'urbanisme, *Paléorient* 22/2, pp. 45-76.
1998 L'urbanisme colonial urukien, l'exemple de Djebel Aruda, in M. Lebeau (ed.), *Subartu IV, A propos de Subartu, Etudes consacrées à la Haute-Mésopotamie*, Turnhout, Brepols, pp. 53-88.
Van Driel, G.
1982 Ǧabal Arūda, *Archiv für Orientforschung* 28, pp. 245-246.
1999 Capital Formation and Investment in an Institutional Context in Ancient Mesopotamia, in J. Dercksen (ed.), *Trade and Finance in Ancient Mesopotamia. Proceedings of the First MOS Symposium (Leiden 1997)*, Leiden, Nederlands Historisch-Archaeologisch Instituut te Istanbul, pp. 25-42.
2002 Jebel Aruda, variations on a Late Uruk domestic Theme, in J.N. Postgate (ed.), *Artefacts of Complexity. Tracking the Uruk in the Near East* (Iraq Archaeological Reports, 5), Oxford, British School of Archaeology in Iraq, pp.191-205.
Weiss, H., and Young, T.C.
1975 The Merchants of Susa: Godin V and Plateau Lowland Relations in the Late Fourth Millennium B.C., *Iran* 13, pp. 1-18.
Wright, H.T., and Rupley, E.S.A.
2001 Calibrated Radiocarbon Age Determinations of Uruk Related Assemblages, in M.S. Rothman (ed.), *Uruk Mesopotamia and Its Neighbors: Cross-cultural Interactions in the Era of State Formation*, Santa Fe, SAR Press, pp. 85-122.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

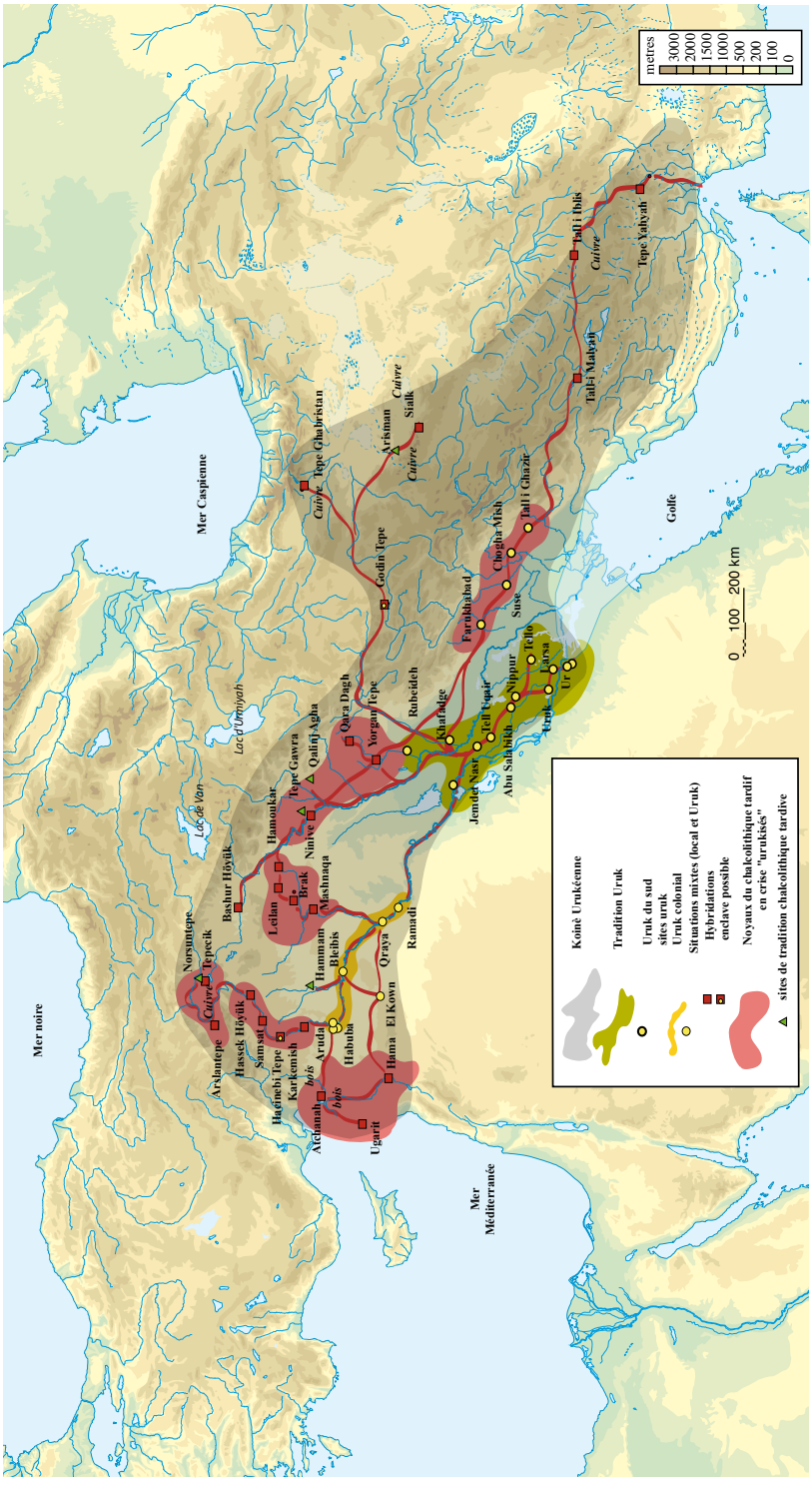



Fig. 3.1. Le monde urukéen, carte de l'auteur


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

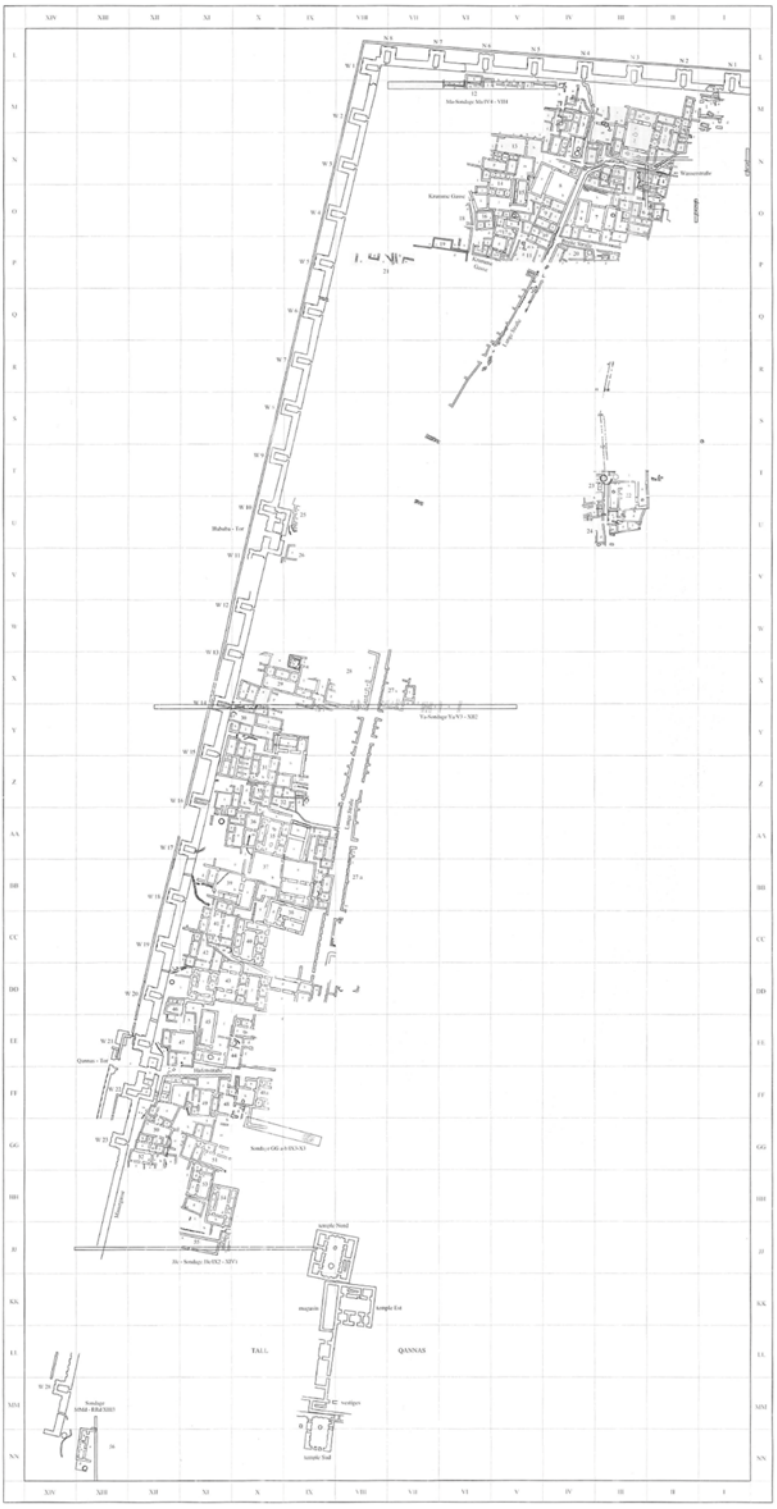



Fig. 3.2. Habuba Kabira plan d'après Strommenger *et al.* 2014


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

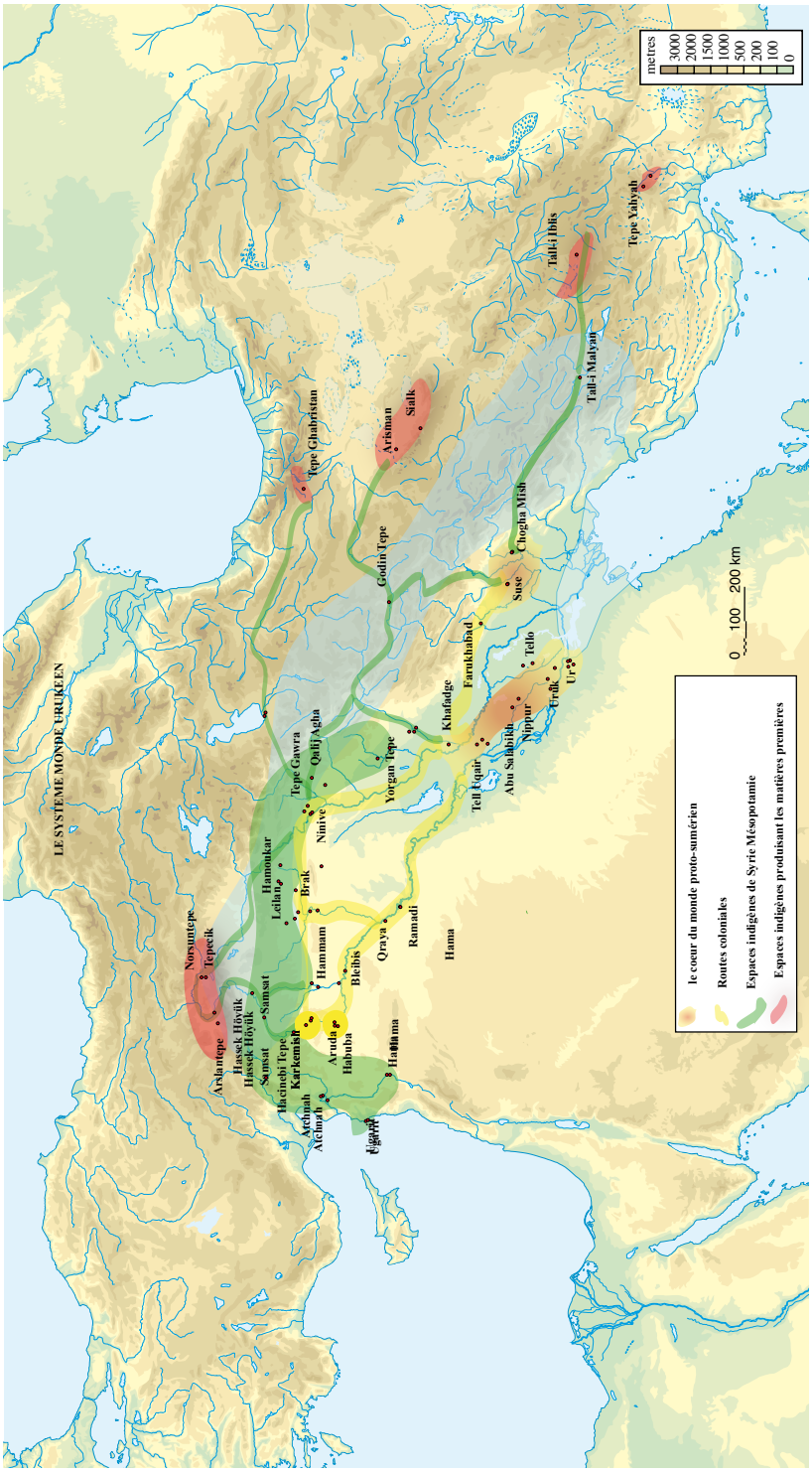



Fig. 3.3. Expansion urukéenne, thèse de Guillermo Algaze, carte de l'auteur


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

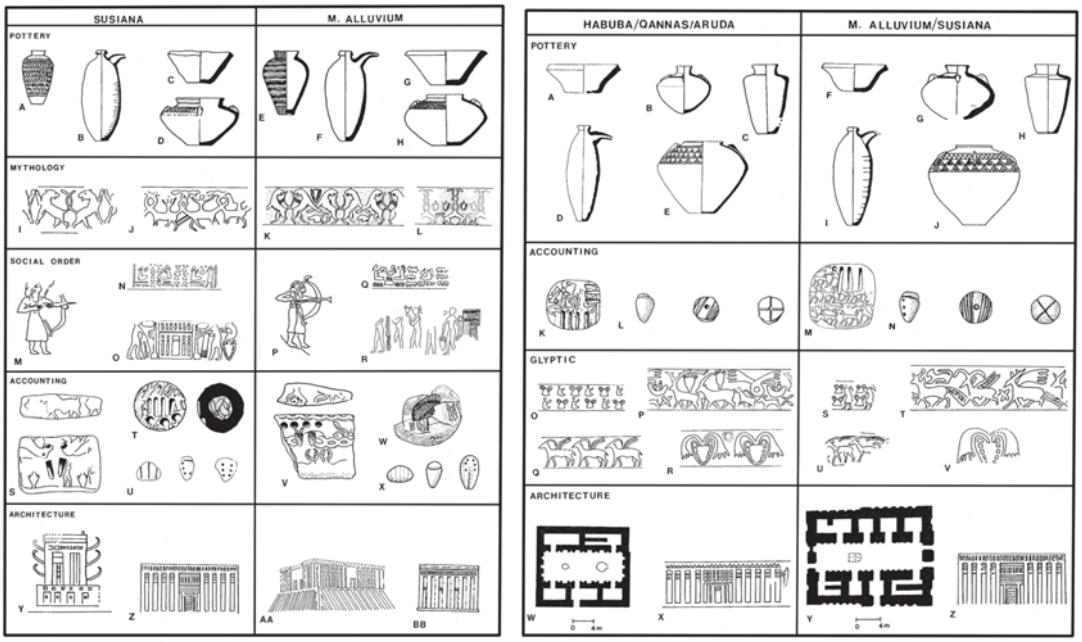



Fig. 3.4. Kit culurel urukéen d'après Algaze, planche synthétique de l'auteur

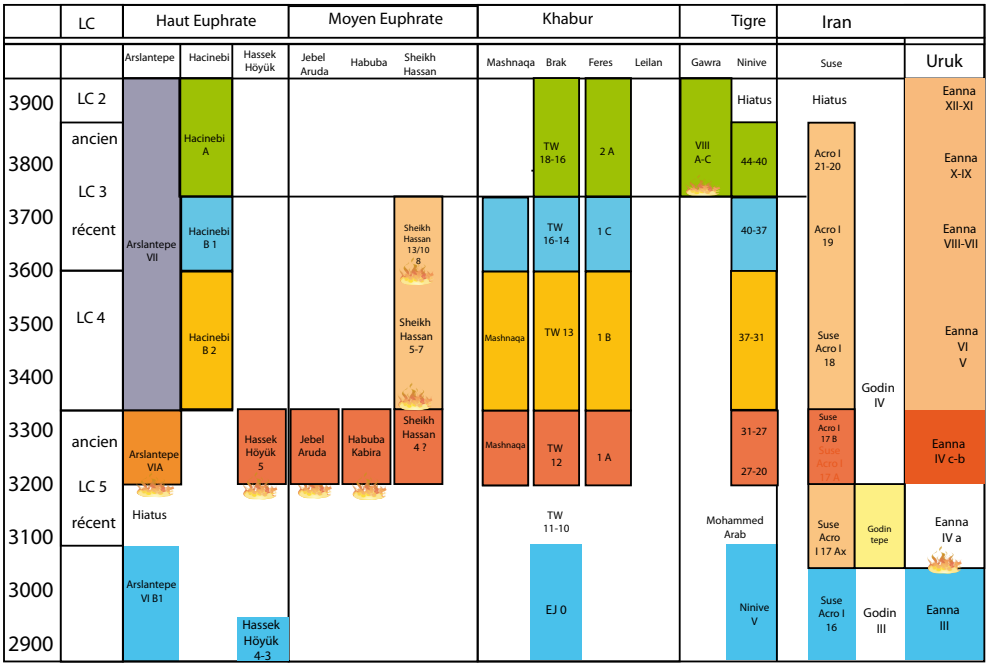



Fig. 3.5. Expansion urukéenne, tableau chronologique de l'auteur


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823


Fig. 3.6. Les phases de l'expansion urukéenne, planche de l'auteur


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823


Fig. 3.7. Jebel Aruda plan, d'après Van Driel 1982


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

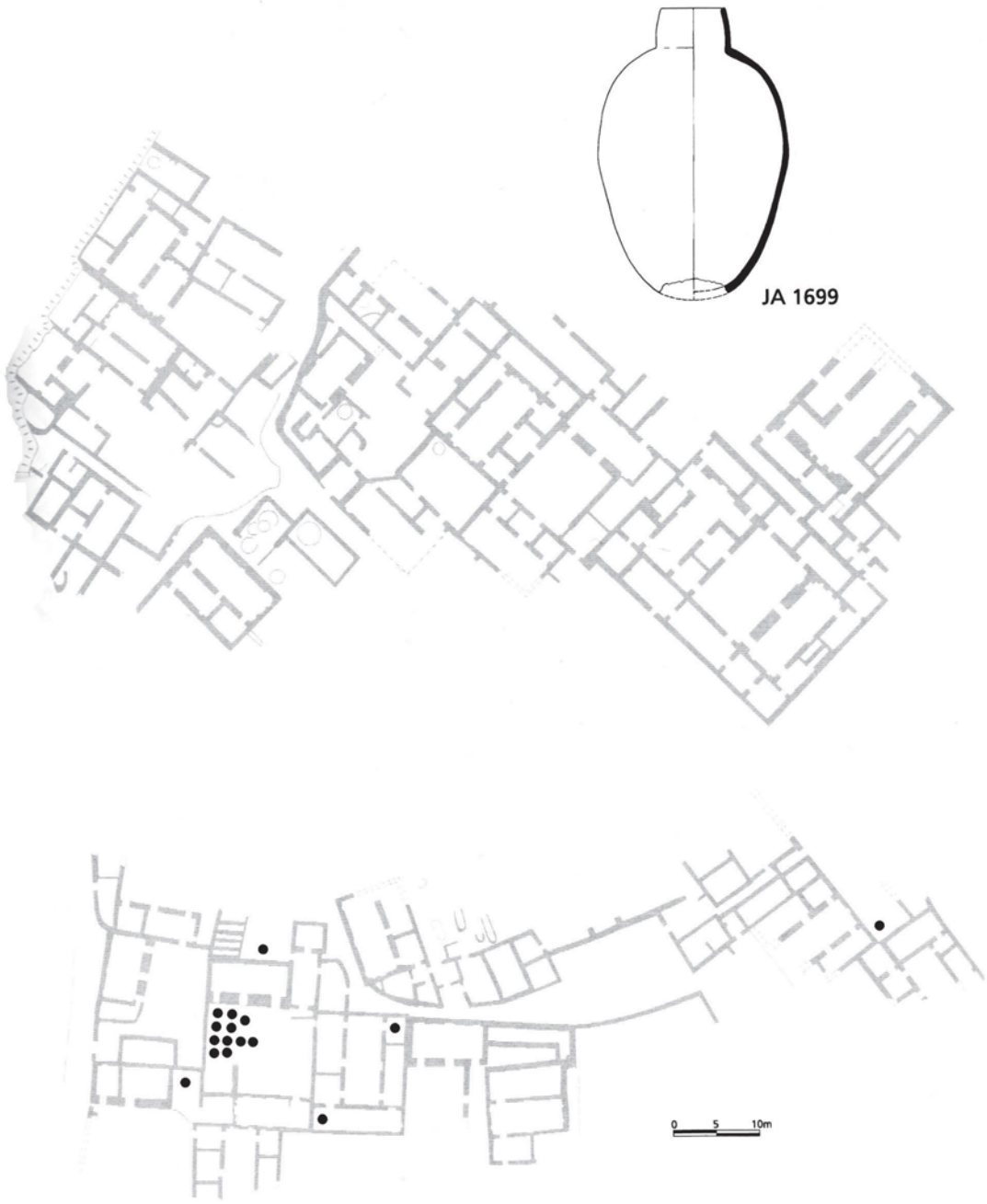



Fig. 3.8. Jebel Aruda repartition des jarres N°33, d'apreès van Driel 1999


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Fig. 3.9. Habuba Kabira, pesons de métier à tisser, d'après Strommenger *et al.* 2014

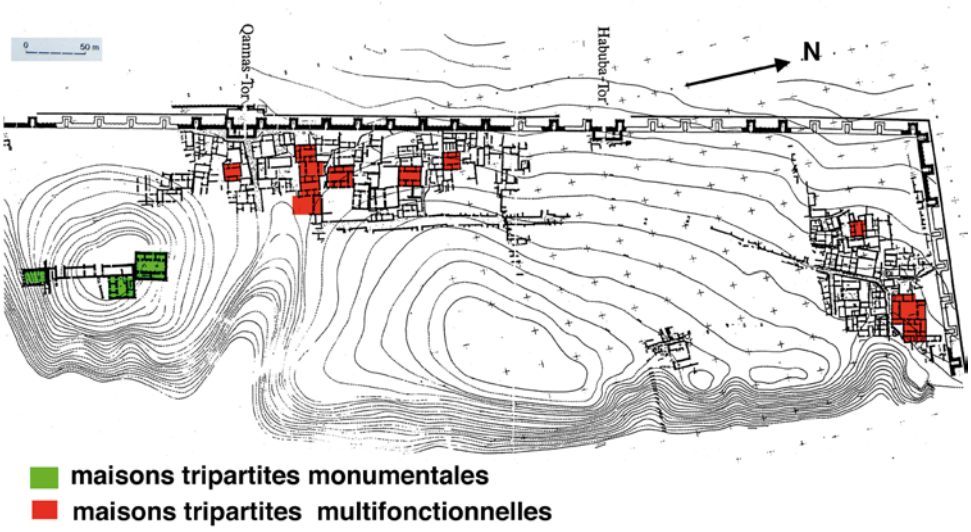



Fig. 3.10. Habuba Kabira, situation des édifices tripartites, plan de l'auteur


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

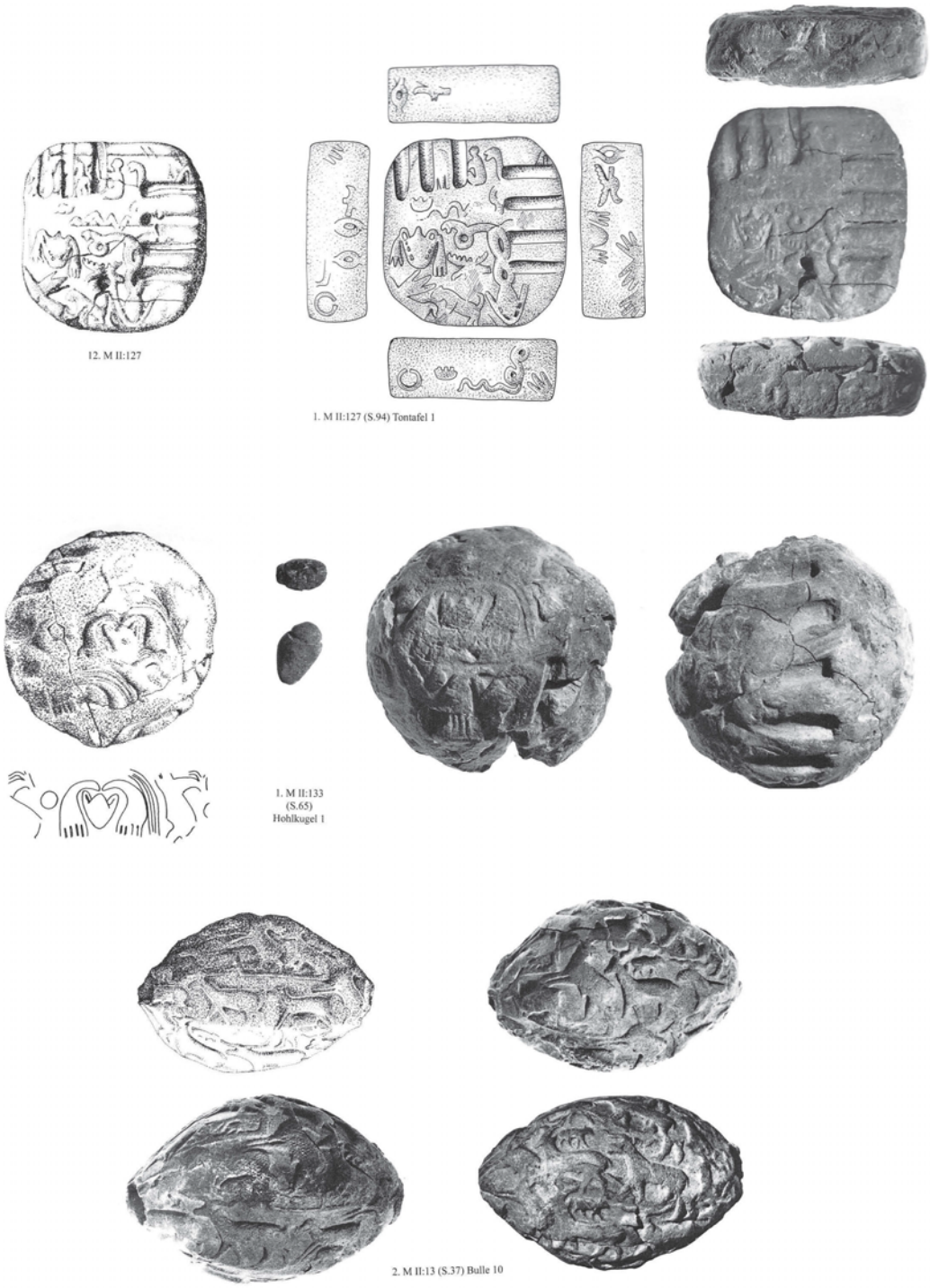



Fig. 3.11. Habuba Kabira, tablettes, sphères et bulles scellées, planch synthétqiue de l'auteur d'après Strommenger *et al.* 2014


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

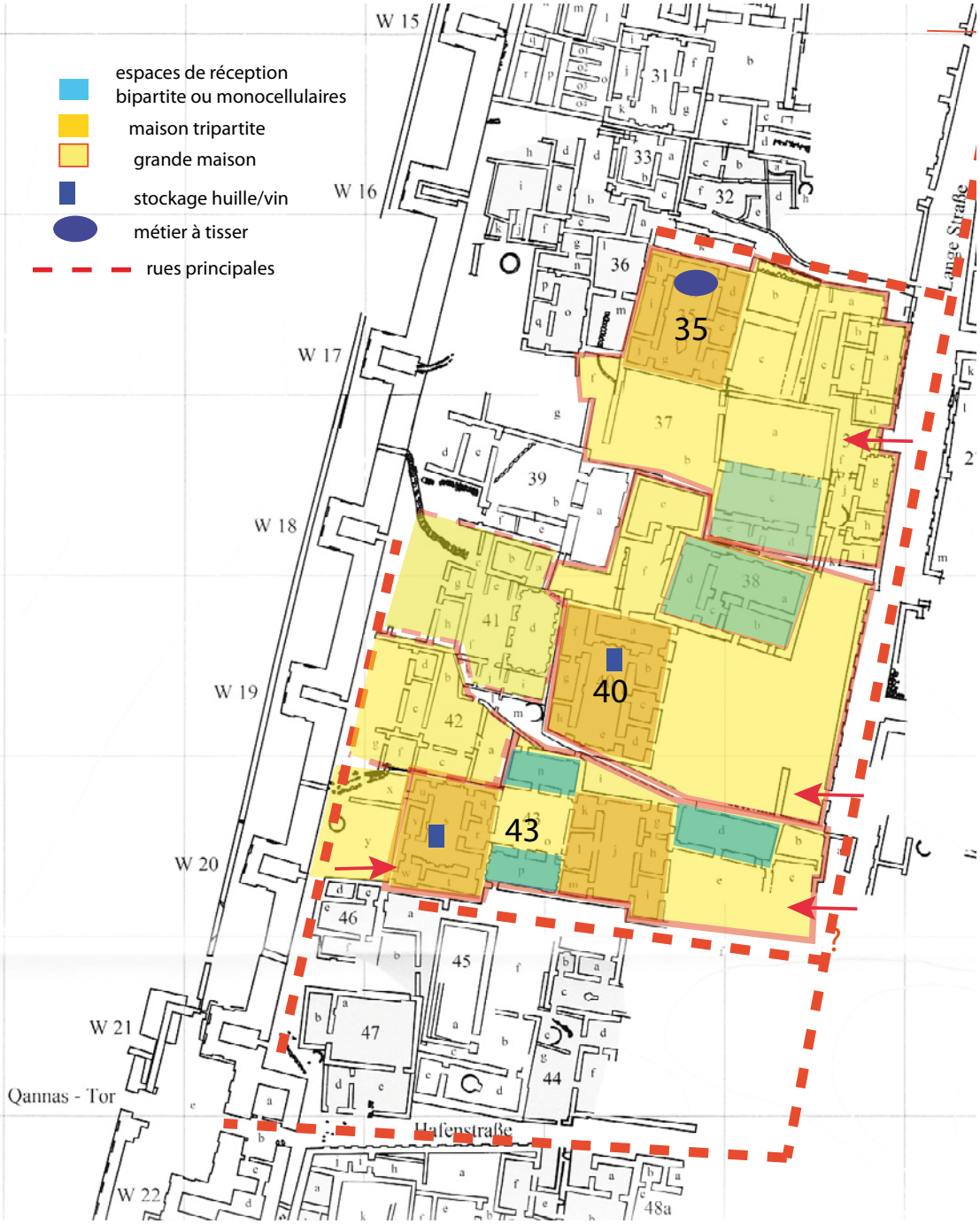



Fig. 3.12. Habuba Kabira, centre de la ville, maisons tripartites et parcelles, plan de l'auteur


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

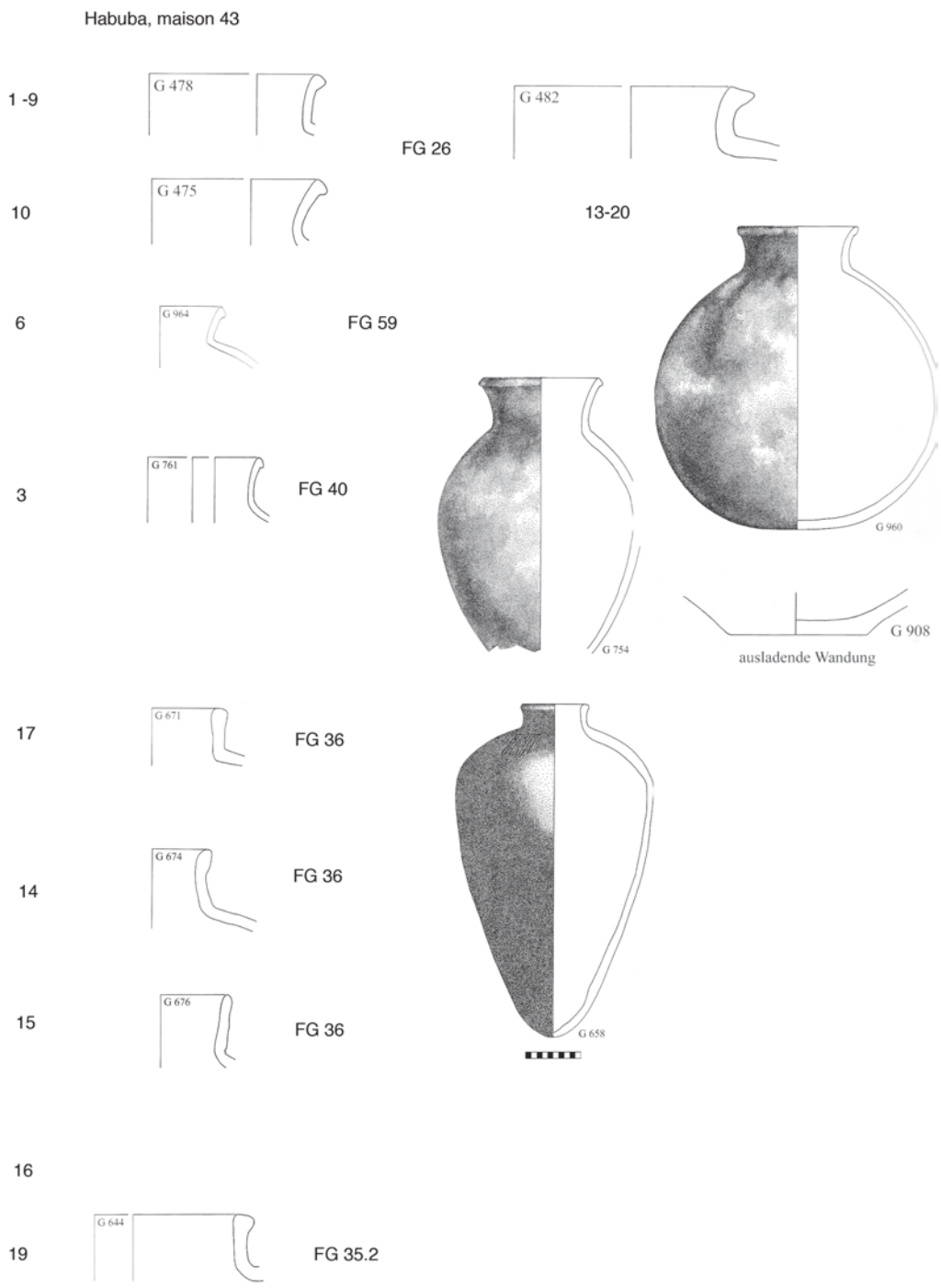



Fig. 3.13. Habuba Kabira, jarres de la maison 43, planche de l'auteur


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

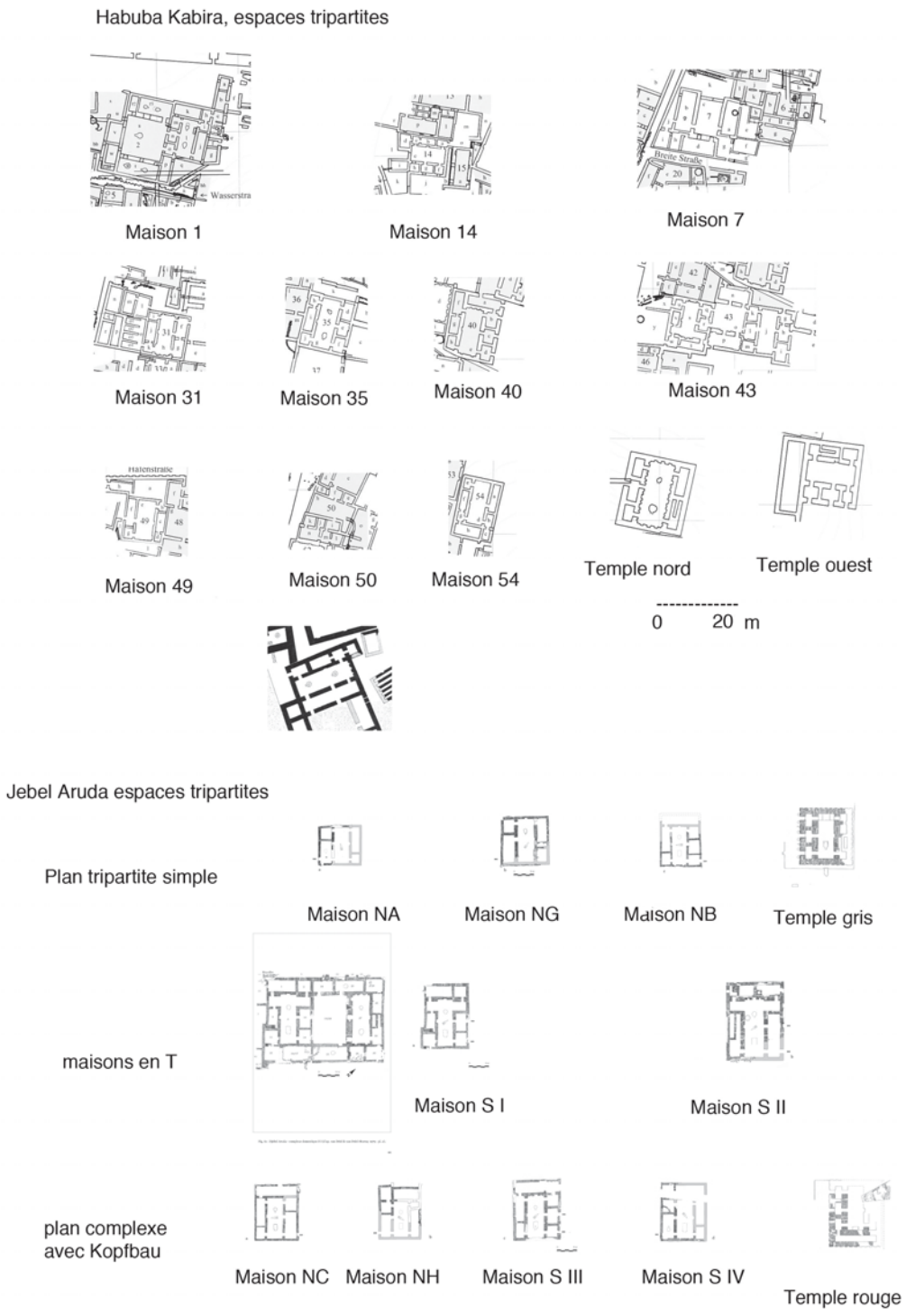



Fig. 3.14. Maisons tripartites du Moyen Euphrate, planche synthétique de l'auteur


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

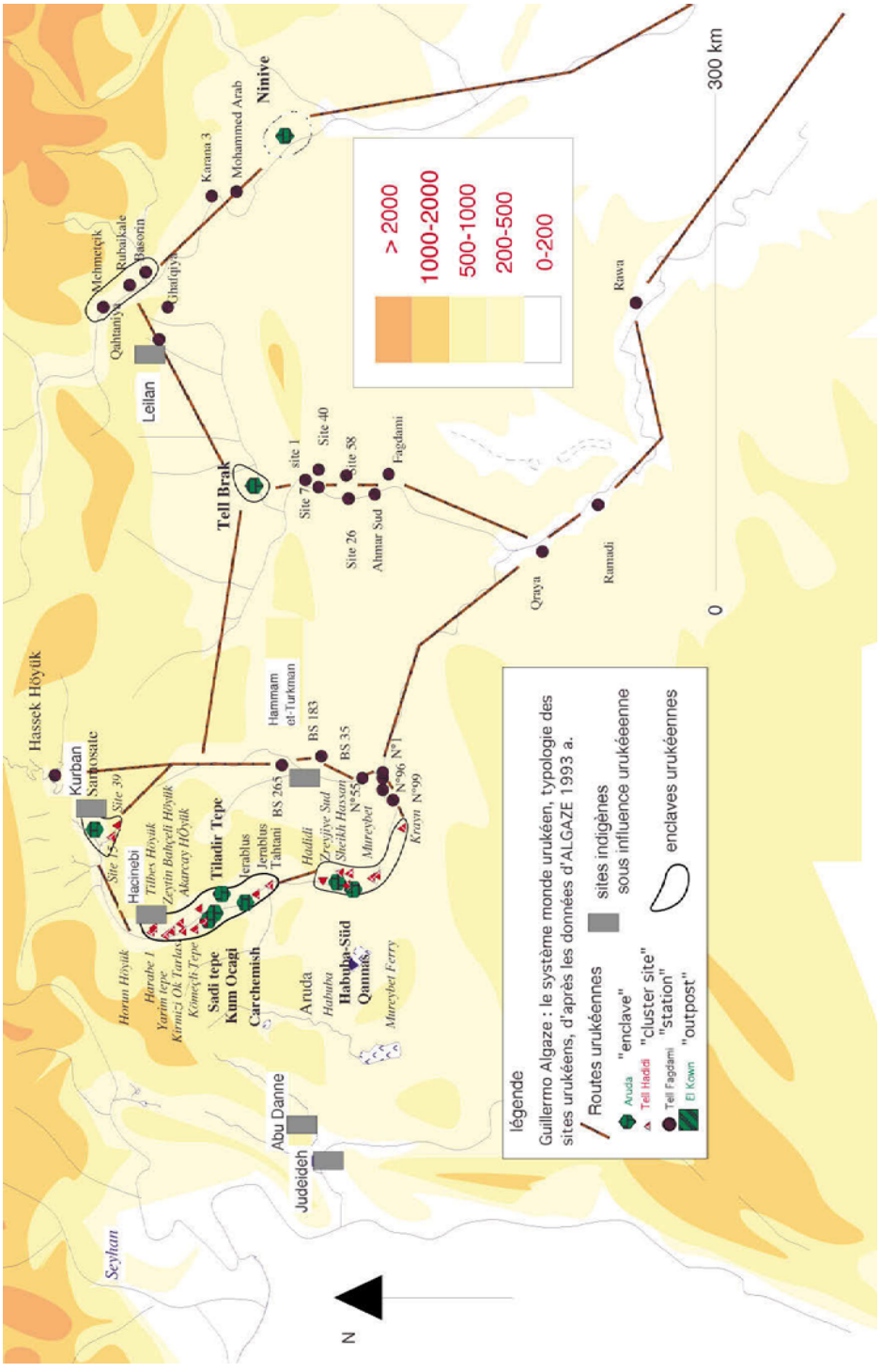



Fig. 3.15. Moyen Euphrate, Etat urukéen, carte de l'auteur


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

# Chapter 4
# The Construction of Large-scale Networks in Late Chalcolithic Mesopotamia: Emergent Political Institutions and Their Strategies

Giacomo Benati

*Abstract*

Emergent institutions are considered pivotal in the shift from small-scale to urban, and politically-centralized societies in the ancient Near East. Despite the abundance of evidence on this phenomenon, a detailed definition of the "structures and performances" of emergent political institutions is yet to be offered, making early Mesopotamian institutions as de facto black-boxes. This paper focuses on the construction of large-scale networks by political institutions in Late Chalcolithic Mesopotamia with the aim of reframing narratives on their developmental traits. The article draws on archaeological, textual and anthropological evidence for attempting to define some determinants of institutional behaviors and political economies in early urban Mesopotamia.

## 1. The challenge of complexity / challenging complexity[1]

> "Are archaeologists not in some danger, I find myself asking, of becoming imprisoned in monocausal explanatory theories through over-reliance on simplistic geometric models that are heavily dependent on narrowly rationalizing economic or administrative variables?" (R. McC. Adams 2006: § 6.1.12).

Bob Adams not only tackled issues related to broad settlement patterns and human-natural interaction, he also greatly contributed to the understanding of social and political arrangements in ancient Mesopotamia. In his most recent scholarly production, he problematized long-standing paradigms on state power, bureaucracy, administration, political economy and social stratification (Adams 2006, 2007, 2008; Yoffee in this volume).

1 This article is a revised and enlarged version of the oral presentation delivered with the title of "Administered Flows of Resources in Ancient Economies". I thank J. Cale Johnson for providing me drafts of his forthcoming publications, N. Yoffee, F. Zaina, S. Renette and the Editors for reading early drafts of the manuscript and for providing precious criticism that allowed me to improve the overall quality of the paper.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Adams' interdisciplinary vision is important for any scholar that intends to refocus issues of political economy in early states and his thinking may provide a springboard for reshaping historical and epistemological trajectories of scholarly research. Mesopotamia is, in fact, an exceptional laboratory for understanding socio-economic and administrative organizations in early urban societies due to the unparalleled richness of written corpora and archaeological data at our disposal (Adams 2004).

Adams demonstrated that reconstructing complex socio-economic behaviors from the material traces in the archaeological record and from textual corpora is a challenging, but rewarding, endeavor. The Models of Mesopotamian Landscapes or MASS project demonstrated that the way paved by Adams is still productive (Wilkinson, Gibson and Widell 2013), but, notably, one major variable was left out of the picture: the impact of institutions on the formation of early Mesopotamian urban societies and economies.

Emergent institutions are considered pivotal in the shift from small-scale agrarian to urban, and state-level, entities – a sort of "complexity package" for the scholars that deal with these phenomena – but a detailed definition of their structures and performances is yet to be offered, making pristine Mesopotamian institutions as de facto black-boxes.

The article draws on archaeological, textual and anthropological evidence for attempting to define some determinants of institutional behaviors, such as the organization and maintenance of labor and exchange networks that exceeded household level

## 2. Social manipulation strategies in Late Chalcolithic Mesopotamia

The article attempts to analyze diachronically variability in intracommunity group dynamics through the archaeological and textual datasets from early Greater Mesopotamia (hereafter GM) (southern Anatolia, northern Levant, Mesopotamia, southwestern Iran [Susiana plain]) from the 4$^{th}$ millennium BC (Late Chalcolithic 3-5, see Table 1 below), which is traditionally considered as a pristine-state formation episode. Although the paper takes a long-term, large-scale perspective, there is no intention of providing a teleological narrative (cf. Pollock 2013; Emberling 2016a) or a comprehensive model of development.

The focus of this investigation is the construction of large-scale (or above-household) networks for mobilization of labor and resources, which in early Mesopotamian communities can be connected to the emergence of institutional organization (cf. Blanton and Fargher 2008; Carballo, Roscoe and Feinman 2014; Carballo and Feinman 2016; Feinman 2013a, b; Feinman 2017).

To do so, stratified archaeological deposits, material culture, and particularly, control and information technologies (seals, clay sealings, bullae, accounting and writing devices), are analyzed with the aim of reconstructing the means by which groups are socially integrated into large-scale networks and collectives by political players.

### *2.1. The Late Chalcolithic of Greater Mesopotamia: a brief summary*

The Late Chalcolithic of GM received considerable attention in the last decades, both as a result of numerous archaeological field projects – mostly concentrated in the northern part of GM – and as topic subjected to intense investigation (cf. Pittman 2013: 293). Therefore, the evidence at disposal is substantial. Suffice to say here that, towards the end of the Ubaid period (Ubaid 3-4


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

/ LC 1), changes in craft production, food distribution patterns, and widespread use of sealing technologies, seem to suggest new ways of organizing cooperative labor and to construct social networks (cf. Frangipane 2000: 227, 2009: 136; Frangipane 2017; Balossi Restelli 2015: 99).[2] Within this frame, specialization of production and the construction of interregional exchange systems are considered to be major components of the growth of Mesopotamian communities at the onset of the LC period (Al-Quntar 2016; McMahon 2015).

Several lines of evidence indicate that, in the LC 3 periods, the construction of socio-economic networks (at least in densely settled urban enclaves), hinged on competitive food manipulation strategies, sometimes of considerable scale, also geared by making use of articulate control systems and mass-produced undecorated ceramics. Control of specialized craft production, far-flung exchange, and of commensal venues seem to be main underpinnings of political economies in this phase, possibly suggesting the emergence of managing bodies.

The evidence from LC 4-5, in turn, suggests important changes of these phenomena, in terms of both scale and strategies, possibly resulting from the stratification of large-scale non-kin power groups, i.e. institutions. These changes are analyzed below in order to illustrate the central points of this paper.

### *2.2. Late Chalcolithic 3-4*

The LC 3 period is characterized by a trend toward settlement nucleation and emergence of multi-tiered size hierarchy possibly resulting from complex relationships between settlements (cf. Skuldbøl and Colantoni 2016: 21). Bureaucratic and political centralization become clearly distinguishable in the archaeological record (Frangipane 2009, 2017; Balossi Restelli 2015; Stein 2012a: 140). Status distinction, elite markers and specialization start to be clearly detectable in the architectural features, in the concentration of economic control via clay sealings, in the repeated use of some seals, in production techniques, in the distribution of craft areas, and in burials (Rothman 2002: 147; McMahon and Stone 2013: 93).

The LC 4 period sees the first organized contacts between the "Uruk" alluvium and northern GM (cf. Emberling and Minc 2016) and a significant spread of distinctive forms of southern material culture in the neighboring regions (the so-called "Uruk expansion", Algaze 1989; Butterlin in this volume).

Administrative Technologies: Control and Information Flows. The LC 3-4 period is also marked by important technological innovations in the administrative toolkit (Pittman 2001: 419). It is at this point that we have the earliest stratified attestation of the introduction of cylinder seals, one of the "Uruk period" technological hallmarks, and hollow clay balls, or

2 Stamp-seals are attested since the mid 8th millennium BC in the Ancient Near East, but it is only at about 6300-6200 BC in northern Syria, that engraved stamp-seals start to be used as marking devices for leaving multiple impressions on plastic materials used as container closures (Duistermaat 2010, 2012; Frangipane 2000: 222). In Late Neolithic Tell Sabi Abyad clay sealings are found concentrated in specialized places (cf. Frangipane 2000: 224-225; 2007: fig. 3), in association with charred grains, pointing to communal storage of staples contained in baskets and pots. Aggregate behavior from these storehouses indicate communal management of perishables, while analysis of clay sealings suggests a large participation in the sealing procedures, seemingly carried out by householders using stamp-seals to mark their belongings (Duistermaat and Akkermans 1996: 44; Duistermaat 2010: 170-171; Frangipane 2000: 224-225). In LC Mesopotamia, on the other hand, seals and sealings start to be used to control flows of goods organized for a variety of purposes and, in some cases, exceeding household-level management (distribution/redistribution).


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

bullae (Pittman 1999: 45). The introduction of drilling technology is also an important feature (Pittman 2001: 419) and the introduction of cylinder seals may have been a by-product of wheel-based modes of production (idem). It has been noted that, in most cases, the cylinder seals and related administrative practices entirely replaced local stamp-seal based technologies, suggesting the movement of craftsmen from the southern alluvium to the neighboring regions, or the training of local specialists (Pittman and Blackman 2016). According to Pittman and Blackman (2016), much of the LC 4-5 administrative practices originated in Khuzistan and then they spread from Uruk along the Euphrates and from Khuzistan along the piedmont arc. In addition to technological changes, the archaeological record indicates an intensification in the use of seals and sealings, as attested by the finds from Hamoukar, Tell Brak, Arslantepe, Gawra and Habuba Kabira (Frangipane 2017).

Gawra VIII, Tell Brak – TW 13, HS1 in northern Mesopotamia, and Sharafabad in Khuzistan produced the earliest evidence of the use of bone and stone cylinder seals decorated with drilled figures (idem; Pittman in Emberling and McDonald 2003: 14-19; Pittman 2013: 301, figs. 16.4e, 16.4f.i,ii).

For hollow clay balls the earliest attestations are from LC 3 layers at Sheikh Hassan 10, possibly Susa – Acropole I, 21/20 (Pittman 2013: 297, figs. 16.2-16.3), Choga Mish [LC 3-4] (Dittmann 2012: 69 n. 2), Farukhabad (Wright, Redding and Miller 1980), Hacinebi B2b [LC 4], Tell Qraya (Pittman 2001: 418-426). Balls were used as containers for plain tokens, then sealed with cylinder seals and marked with symbols bearing numeric value. There is general agreement on considering this typology a southern alluvium innovation then spread in northern GM.

Geometric clay tokens were used to count discrete goods (probably grains and animal products) and possibly to record deliveries of goods (Englund 1998b: 214). Hollow clay balls attest to the merging of sealing and counting technologies (Robson 2007: 40). This process was meant to convey numeric information about the goods that were counted through tokens and to identify the sender of the goods via the imagery of the seal (Dittmann 2012: 69). Each ball with its token content represented a discrete transaction concerning consumables (Englund 1998b: 214). Tokens found within hollow clay balls can be considered as forerunners of the numerical signs that will be marked on tablets later on (Englund 1998b: 48).

Towards the end of the LC 4 phase new accounting devices, numerical tablets, are added to the administrative toolkit. In the first place, tokens and other objects start to be impressed on the surfaces of the balls leaving marks (one-to-one correspondence between marks and enclosed tokens), then, clay lumps started to be pressed flat, impressions were made on the surfaces of these "tablets" and in some cases the whole sealed (Englund 1998b: 50, 214, figs. 13-14). The earliest numerical tablets were impressed with tokens or with styli leaving marks that imitated tokens (Englund 1998b: 214). The shift from 3D to 2D devices made possible to record multiple transactions.

Stratified assemblages from Susa – Acropole I, 18 attest the simultaneous use of sealed hollow clay balls and numerical tablets. Other numerical tablets have been found in stratified deposits at Tell Brak (Jasim and Oates 1986), Nineveh (Collon and Reade 1983), Habuba Kabira (Schmandt-Besserat 2014), Jebel Aruda (van Driel 1982).[3] According to the fact that the so-called

3 At Habuba Kabira in particular, clay balls were retrieved inside the largest compound of the settlement, alongside seals, sealings, tokens, solid bullae and four impressed numerical tablets (Schmandt-Besserat 1996: 45). Numerical tablets at Uruk come from the so-called Mosaic Court, located to the South-East of Building D, and the debris of the Red Temple (see below; Nissen 1986: 323).


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

"Uruk colonies" did not produce full-fledged proto-cuneiform records, it has been postulated that the last phases of these settlements may somewhat predate the administrative "apex" of the Uruk IVa phase (i.e. mid/late LC 5; cf. Jasim and Oates 1986: 349). This hypothesis is in line with the structural parallels noted by Butterlin (2012a: fig. 6) between Tell Qannas and Eanna V/IVc, suggesting a very early LC 5 for these two settlements (but see Nissen 2001 for a different opinion). On the other hand, C14 determinations from Jebel Aruda (3360-2970 BC) and Habuba (3340-3000/2900 BC; Wright and Rupley 2001: 103-104; Gösdorf and Kohl 2014), are not helpful in resolving this matter and simply indicate that both settlements may have been occupied during the LC 5 period.

Socio-economic and Political Trends in Light of the Archaeological Record. Socio-economic and political trends can be contextualized more precisely on the basis of data from excavations at Tepe Gawra, Tell Brak, Tell Hamoukar and Arslantepe, where substantial debris of economic and administrative activities have been uncovered (McMahon 2016: 170), often in association with monumental tripartite buildings (cf. Pittman 2012: 81-83).[4]

Gawra VIIIA-C (LC 3) has one formal storehouse (VIIIB-A), one possible ceremonial building ("Southeastern Temple", VIIIC-A), and one multi-functional building perhaps functioning as distribution center ("Western Temple", VIIIC-B; cf. Butterlin 2013). Sealing systems in this phase appear to be used more substantially, and they are employed to regulate storage, production and distribution of commodities, and most notably, food allotments (cf. Rothman 2002: 140, fig. 5.79-5.81). In particular, in phase VIII seals and sealings appear to be concentrated in monumental tripartite buildings, in the central granary/storehouse, and in few other loci (note loci 884, 889, 809 in phase VIIIC seemingly part of a gateway system; Butterlin 2013: 27; Rothman 2002: fig. 5.79). Within the Western Building of phase VIIIC, the excavators found obsidian blades, clay sealings, grains and "wide flower pots" (Rothman 2002: 135-136, fig. 5.73). One particular seal is found impressed on several sealings, distributed widely across the site and especially concentrated nearby the storehouse, possibly indicating centralized control and redistribution of resources (Rothman 2004: 87; Butterlin 2013: 26-27). Data from NAA of clays also indicate that sealed containers may have come from outside the site, pointing to extra-site mobilization of goods (Rothman and Blackman 1990).

The same holds true for clay balls and jar sealings from LC 4 Hacinebi (B2b), some of which may have been shipped from southwestern Iran to Anatolia (Stein 2012a: 142), indicating possible long-distance exchange of packaged consumables and, overall, movement of people and containers from the South along the piedmont arc (Pittman and Blackman 2016). From this evidence, Pittman (ibidem) concluded that individuals wielding administrative power probably came to Hacinebi from Khuzistan carrying seals, administrative documents and sealed containers, and then carried out the same economic tasks at Hacinebi with locally available materials. Furthermore, chemical analyses on bitumen artifacts indicate that since the LC 4 period, bitumen – seemingly used as packaging material and for waterproofing boats – seems to become a significant import from central/lower Mesopotamia and Khuzistan to upper Mesopotamia (Hacinebi, Sheikh Hassan, Tell Brak, Habuba Kabira, Jerablus Tahtani; Schwartz and Hollander 2016).

4 A new tripartite monumental building has been dating from the LC 3-4 period, has been discovered in the site of Bab-w-Kur in the Rania Plain, Iraqi Kurdistan, and is currently being investigated (Skuldbøl and Colantoni 2016: figs. 4-5)


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

During the LC 3 (3850-3400 BC) period Tell Brak was the major site of the area, reaching an extension of perhaps 130 ha (Emberling and Minc 2016). The LC 3 occupation on the main mound can be divided in two main phases: TW 19 and TW 18-16. TW 19 main feature is the so-called "Red Libn Building", consisting of massive walls and many ovens (McMahon et al. 2007: fig. 5), dated to the very onset of LC 3 on pottery criteria and interpreted as an industrial complex.[5] The building produced large storage jars, several types of bowls, some of which mass-produced, casseroles, piles of flints, obsidian and other stones, raw bitumen, numerous spindle-whorls, river molluscs and an exceptional obsidian and marble chalice (ibidem, 151, fig. 6), certainly a prestige item. Numerous stamp sealings were also found here (Ur *et al*. 2007: figs. 9-10; McMahon *et al*. 2007: fig. 15a). Interestingly, from this workshop came small bowls marked with signs that resemble later pictograms (Oates *et al*. 2007: fig. 7).

TW 18-16 consisted of tripartite houses and a monumental tripartite building ("Niched Building") interpreted as a feasting/audience hall, due to the storage and cooking facilities located in the courtyard (court 1, a large oven and a grill structure for baking and roasting), large amounts of mass-produced shallow plates (70% of the assemblage), typical "casseroles" and "hammer-head" bowls, storage jars (cf. Stein 2012a: fig. 7), faunal remains of sheep, goats and cattle, alongside small amounts of pigs, dogs, gazelle, fox, hare, bird, fish (Charles *et al.* 2001). Crops and cleaning by-products have been also retrieved in abundance in the courtyard of the Niched Building and in the tripartite houses located nearby (Hald and Charles 2008: 38, figs. 4-5). Semi-cleaned barley, glume wheat and flax and their by-products (Hald and Charles 2008: fig. 7) were stored preferably in large ceramic jars in area TW.

Stamp seals are also common in this level and notably, clay sealings seem to be clustered around ovens, suggesting a connection with food production processes (Emberling 2016b: 49). TW 16, destroyed by fire at the end of LC 3, produced evidence of a seemingly cultic/ceremonial compound (cf. Oates 2012: 176, fig. 6: rooms 1, 5), decorated with niches, wooden panels, and semi-columns, that yielded in situ eye idols, ivory objects and a hoard of beads (Oates 2012: fig. 7) from the courtyard outside the entrance.

LC 3 assemblages were also excavated in trench HS1, in areas UA, and CH (Arroyo Barrantes 2016: 141). In HS1 in particular (Felli 2003), tripartite domestic buildings produced large ovens, storage jars, beads, tools, mass-produced pottery and clay container sealings, indicating craft production and some degree of administrative control also in domestic compounds.

Recent excavations around the main mound of Tell Brak revealed a corona of subsidiary mounds with LC 3 debris pointing to industrial productions, garbage disposal and burial. In a subsidiary mound, Tell T2, remains of mud-brick structures, pottery kilns, rubbish deposits and structures seemingly for dyeing/tanning textiles were identified alongside single burials (McMahon 2013; McMahon, Sołtysiak and Weber 2011; Arroyo Barrantes 2016: 141-142). Tell Majnuna, on the other hand, is a small mound formed by repeated disposal of garbage deposits with dense ceramic debris and packed concentrations of ceramics, sealings, animal remains and human bones which has been associated with large-scale feasting events, seemingly in connection with a secondary burial of many individuals killed in violent conflict (Oates 2012: 170-171; Arroyo Barrantes 2016: 142, fig. 1). According to the excavators, the organization of industrial scale facilities and waste management in peri-urban areas may have been a result of the urban

5 It has been noted that the onset of the LC 3 period at Brak also features a shift from labor-intensive ceramics to coarser mass produced vessels (Al-Quntar and Abu Jayyab 2014; cf. also Peyronel and Vacca 2015: 114).


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

growth of Tell Brak during LC 3 resulting in the creation of a new urban landscape (McMahon and Stone 2013: 101-102).

LC 3 levels at Tell Brak yielded numerous clay sealings from the central mound, and especially numerous from the satellite mounds of Majnuna (925) and T2 (65; McMahon 2016: 170-171, figs. 1-4), the majority of which are container sealings (jars, reed boxes, baskets, sacks, bags), whereas door sealings are extremely rare (McMahon 2009; 2013: 77; McMahon *et al.* 2007: figs. 16-17; McMahon 2016: 170-171; Oates 2012). Interestingly, in the Majnuna sample, although mostly attested once, a number of seals reconstructed from seal impressions appear to be used repeatedly (McMahon 2016: 171). On the other hand, a greater degree of duplication of unique seals has been observed in the T2 corpus. No overlap of seal motifs has been noted between the T2 and the Majnuna sealings (idem), pointing to separate spheres of activity and most certainly different economic patterns in the trash-producing loci. Lumps of unused clay, interpreted as sealing blanks, have been found associated with the broken sealings.

This evidence indicates that loci in which administrative debris originated were characterized by: a) large-scale opening of sealed containers, some resealing of containers; b) a (virtually) low degree of warehousing; c) participation of a large number of seal-bearers in the system; d) multilevel control systems and perhaps a hierarchy in the seal-using system; e) separate seal-using systems in the site.

At Tell Hamoukar – Area B, three large tripartite compounds with courtyards and cooking facilities, destroyed by fire during LC 4, provide a wealth of data on floor assemblages (Reichel 2011). One of these buildings, TpB-A, yielded numerous storage vessels, 173 clay sealings and 3 stamp seals (Reichel 2002; Reichel 2006: figs. 9-11). Most of the sealings were clustered in the three rooms forming the western side of the building, but some were also in the central hall and other rooms. Notably, basket sealings were in a high fill, suggesting these were kept on the roof/upper story, while container and door sealings were at floor level. Contextual study of duplicate impressions indicates that at least three different seal-holders carried out different tasks within the building consisting of repeated sealing/opening of storerooms and containers. The row of rooms located along the western side of TpB-A, produced evidence of one domed oven, ash and vast amounts of animal bones, indicating cooking activities (Reichel 2006). In a second phase, the room was converted into a storage unit.

The building to the side, TpB-B, was found almost empty, except for a group sealings in a back room (d), which are characterized by duplicate impressions of two particular seals, on both baskets and jar sealings. The same holds true for the largest group of sealings from these layers, a trash dump located in a long side room of TpB-B (au). Interestingly, some of these sealings were marked with incised drawings instead of seal impressions (Reichel 2006: figs. 14-15). According to the excavators, the sealings were dumped in au during a single event, probably shortly after the building was depleted of its content (perhaps storage jars and containers as TpB-A?). Three rooms located along the eastern side of the open court located in front of TpB-B were furnished with cooking and food-processing installations (oven, grinding stones) and provided large amounts of ash (Reichel 2006: 7). Altogether, we cannot exclude a residential function for the two tripartite buildings, seemingly of high status. Furthermore, the cooking facilities and the large amounts of food processing remains indicate that these loci had the means to organize large-scale commensality, beside substantial storage. Although no information on eventual serving vessels is available, the two tripartite compounds show similarities with the monumental tripartite building of Tell Brak TW 18-16.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Arslantepe VII levels, dating from the LC 3 - LC 4 period (3900-3400 BC), have been exposed in the western and north-eastern parts of the mound (Frangipane 2016b: fig. 6). In this phase, the settlement occupied the whole surface of the mound (Frangipane 2012: 20). Level 3 (LC 3) in the western area, a seemingly central and high location, consisted of a large building (Building XXV) with long rooms decorated with paintings and mud-brick columns that is interpreted as an elite domestic device (Frangipane 2010a: 31; 2012: 23, figs. 2, 3).

Level 1 (LC 4) produced evidence of a monumental tripartite building (Building C/Building XXIX), located on a raised platform, and some rooms to the north, perhaps residential and work units. Building C main function seems to be connected to large-scale food distribution due the retrieval of 1100 mass-produced clay bowls, almost 200 clay sealings (Pittman 2012), storage jars, hearths and andirons, and animal bones (Frangipane 2010a: 31-36, fig. II.6; 2012: fig. 4; D'Anna and Guarino 2010: 193; Balossi Restelli 2015: 103). Bowls were scattered in the central hall – furnished with a podium, a central platform and mural paintings – and piled up in the two side rooms, alongside the bulk of sealings (room A392; Pittman 2012: 84). Bones indicate presence of sheep and goat remains alongside cattle, pigs and wild animals (Siracusano and Bartosiewicz 2012: fig. 1). The excavators interpreted this evidence as distribution of food as remuneration for occasional collective work-events on behalf of an institution, perhaps within a cultic environment (D'Anna and Guarino 2010: 203; D'Anna 2015a: 120; Frangipane 2012: 26). In 2015, to the side of Building C, a new building (D) has started to emerge (Frangipane 2016a: fig. 12; Frangipane 2016b: fig. 5d). The excavation of the building is still ongoing, but some features, such as the internal decoration of niches and buttresses and the retrieval of hundreds of conical bowls and sealings (Frangipane 2016b: fig. 7a-b) dumped in rubbish layers indicates similarity of functions with Building C and contemporaneity (same seals are attested on sealings from C and D).

Conversely, the rooms to the north afforded evidence of craft activities (stone cutting) and had 29 sealings buried under the floor (Frangipane 2012: 26, n. 2; Pittman 2012: 84-85), but no evidence of bowls. A third group of sealings came from two wells connected to this complex located to the back of Building C (Pittman 2012: 85-86). The sealings were used to fasten jars, door knobs, bags, wicker baskets, and fabric closures (ibidem, 86).

Behaviors, Strategies and Structures: Emergent Institutions or Elites? What is clear now is that between LC 3 and LC 4 administrative systems become not only more complex, but also more developed. Administrative devices start to be used for regulating the distribution of staple products within circuits built for creating extended labor and social networks, for controlling production, for recording complex sets of numerical and visual information, and in some cases, for long-distance movement of resources.

Manipulation of commensality seems to be the basic strategy for both organizing collective action and for creating inequality in urban populations – i.e. for political economy – and seemingly had a major impact on production (cf. Frangipane 2016b: 6; Frangipane 2017). It is therefore possible that power groups within early urban settlement started to compete for engaging commoners in their activities and extract wealth from others by manipulating on the one hand, collection and mobilization of agricultural surpluses and raw materials, and on the other hand, ceremonial events encompassing meat-based consumptions, probably concentrated in specialized tripartite monumental compounds (cf. D'Anna and Guarino 2010) and controlled


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

by means of administrative technologies (Frangipane 2016b: 8; Frangipane 2017: figs. 7-8).[6] Archaeological evidence from LC 3 "feasting middens" excavated at Tell Majnuna indicates that, already in this phase, communal events involving consumption of huge amounts of food and beverages, were recurrent and carried out at very large-scale by using mass-produced utilitarian ceramics (Arroyo Barrantes 2016). This is corroborated by the finds from the tripartite buildings excavated in Arslantepe VII, Tell Brak (18-16), and Hamoukar.

A direct consequence of heightened regimes of commensality may be seen in the intensification of production of utilitarian ceramic containers (and other tools), as attested by the changes in manufacture and diffusion of coarse and undecorated ceramics produced in standardized fashion during LC 3 (Frangipane 2010a: 35; 2012: 22-23; Arroyo Barrantes 2016; Al-Quntar 2016: 172-173). Interestingly, the importance of meat-based commensality is portrayed also in the osteological record from LC 3 Tell Brak since, as remarked by Weber (2016: 210), the preponderance of bulls among the bones from LC 3 phases is singular and can be surely connected to feasting, the primary use of those animals in this phase.

Other possible venues for social competition in this phase may have been violence and the organization of far-flung trade networks. LC 3 Tell Brak (Majnuna), and possibly Hamoukar, provide evidence of large-scale conflict that may suggest warfare strategies conducted by political leaders (cf. Stein 2012a: 141). Recent provenance studies of obsidian assemblages from LC 1-3 sites indicate that the growth of centers such as Khirbat al-Fakhar (LC 1-2) and Tell Brak (LC 2-3) can be also connected to their role as gateways for long-distance exchange networks, of which, obsidian was certainly one of the most important (Khalidi et al. 2016). Successful manipulation of these venues may have provided emergent elites the wherewithal to enlarge their networks and increase their wealth.

Craft areas in this phase reach considerable dimensions and differentiation, indicating that these communities were able to organize specialized manufactures, both utilitarian and prestige goods, at industrial scale (McMahon 2015: 26). Also, the amount and type of non-local raw materials indicate that these communities were engaged in extensive far-flung exchange. Faunal remains from Tell Brak indicate that a shift from goats to sheep occurred during LC 3, suggesting perhaps a trend towards exploitation of sheep for industrial wool production (Weber in McMahon et al. 2007: 168-169), which is corroborated by the retrieval of quantities of spindle-whorls in craft areas and domestic compounds. Furthermore, the production of high-end commodities, such as beads, inlay in mother-of-pearl and obsidian, appear to be growing in this phase at Brak (McMahon and Stone 2013: 84).

Conversely, at Arslantepe, although caprines appear to be the main domesticated species, pigs and cattle are still important for the political economy (Siracusano and Bartosiewicz 2012: fig. 1). Among caprines, it appears that goats (lambs) are preponderant and according to calculate mortality patterns, it is possible that these animals were intensely exploited for milk production (ibidem, 116). It has been observed that goats are typically exploited for their superior milk production by self-sufficient households in subsistence economies, rather than in large-scale herding situations (ibidem, 122).

In any case, it is difficult to evaluate the degree of centralization of craft activities and whether or not laborers were provisioned steadily by elite groups, and how. Also, it is very hard to dis-

6 These patterns indicate an extension of control over food circulation with respect to the management forms reconstructed for the terminal Ubaid, revolving around the limited ritualized distribution of foodstuffs in specialized buildings (Frangipane 2016b: 5).


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

entangle differential feasting/commensal habits due to the lack of context variety (household vs. above-household). Beside scale (cf. Arroyo Barrantes 2016), perhaps a distinction between meat-based and grain-based meals was a meaningful one: quoting J. Cale Johnson (forthcoming) "beer codes solidarity, but meat codes hierarchy" (see below). Although the association between large-scale ceremonies and leadership/political power seems plausible for the contexts analyzed above, we know very little about the structure of these power groups and their leaders, their systems of belief, their ideological apparatuses and, in all, we are in no position to tell whether these practices reflect elite ceremonies or the mechanics of emergent political institutions.

One thing that can be said for sure is that the association between clay sealings and institutional management is not straightforward (contra McMahon 2015: 26 and Frangipane 2017). There is no real indicator of specialized administrative organization in the contexts mentioned above. Sealing systems are certainly embedded in an expanding context of control over certain exchange and production spheres, but they do not necessarily indicate specialized bureaucracy or structured administrative apparatuses.

These difficulties are, at least in part, due to the fact that these excavations are largely unpublished and datasets from important contexts have been presented only in preliminary form. Even more problematic is the task of defining "centralized" agencies for the management of agricultural surpluses given the scarcity of published information about the main groups of excavated clay sealings.

### *2.3. Late Chalcolithic 5*

By the second half of the 4th millennium BC formalized power structures in this area become evident in the archaeological record. Full-fledged administrative systems, developed between LC 3 and LC 4, continue to be used in LC 5, and in some well-documented cases become part of a ramified bureaucratic framework that is employed by emergent institutional bodies (cf. Frangipane 2016b: 6-7). LC 4-5 glyptics show strong similarities throughout GM in both iconographic and stylistic features and in function (Pittman and Blackman 2016). The archaeological and administrative records from the best-documented case studies of the period, Arslantepe VIA and Uruk (Eanna V-IV) are reviewed here in order to get glimpses into the socio-economic organization of LC 5 GM.

It is generally estimated that Uruk in this phase reached 250 ha of extension, with a population perhaps exceeding 20000 or so people (Algaze 2008: 103, fig. 18, Table 1), and a multi-tiered hinterland of towns and villages (Nissen 2002: 7). On the other hand, Arslantepe appears to be a small regional center equipped with an extensive official complex composed of multiple buildings whose functions can be reconstructed in great detail (Frangipane 2010, 2012: 27-36, fig. 9).

#### *2.3.1. Arslantepe: a key-site for observing institutional agency.*

At Arslantepe VIA (LC 5, 3300-3000 BC), this process is epitomized in the official district excavated in the upper area of the mound, which clearly shows the establishment of a complex organizational system in which systematic distribution of processed food was the core activity of elite/power groups. The violent destruction by fire, occurred at the very end of the 4th millennium BC, that ended the life of the complex also allowed its exceptional preservation.

By contrast with the complex of Level VII, although only partially excavated, Level VIA appears to be a larger and more articulated complex encompassing monumental buildings con-


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

notated by different functions and connected through corridors and courtyards. Two building phases have been recognized by the excavators: the earliest phase witnessed the construction of Building 37, Building B, separated by a large open courtyard, and the entrance corridor to the side of Building B (Frangipane 2017: fig. 12). The second phase consisted of the expansion of the complex to the South of Building B, with the construction of the storerooms, the elongation of the main corridor and the construction of the entrance gate, the complex of Building A and the associated "Weapon Building" (or Building III), and possibly another courtyard and massive building to the East (Frangipane 2017: fig. 13).

The thousands of clay sealings (impressed with stamp seals) from period VIA – retrieved in situ inside formal storerooms and ceremonial buildings, and discarded in back spaces – pertain to a full-fledge bureaucratic structure which manages concentration and large-scale distribution of staples inside an integrated complexconsisting of monumental ceremonial buildings, open spaces, and storage/distribution facilities (Frangipane [ed.] 2007, Frangipane 2010: figs. II.1-2).[7]

The large number of sealings (more than 2000; Frangipane 2012: 34), the spatial distribution and the associated finds (mass-produced wheel-thrown truncated bowls, serving and cooking vessels, animal bones), seem to suggest that distribution of food took place regularly within the compound (Frangipane 2012: 33), but with different modalities:

1. Large-scale food distribution occurred in the courtyard to the back of room A340, which functioned as distributive device for cooked food. This has been interpreted as distribution of meals to attached laborers (D'Anna 2015a: 126), on behalf of central institutions that controlled the disbursements with clay sealings.[8]
2. Smaller-scale ceremonial events featuring the preparation and consumption of meat and drinks took place inside cultic buildings (Building B, perhaps A; D'Anna 2015a: 129). These have been interpreted as diacritical events connected to the elite sphere according to the presence of elaborate serving vessels, and a wide variety of animal bones (mature cattle, pigs, hares, wild animals, etc. D'Anna and Guarino 2010: 199). Notably, according to Bartosiewicz (2010: 140) cattle meat from Building B appear to be of low gastronomic value, while hare may have been luxury food. Low amounts of clay sealings attest that some degree of administrative control was exerted over these operations as well.
3. Small-scale feasting events took place in domestic compounds also, as attested by the assemblage from one room (A747) pertaining to a possible elite residential unit, located to the north of the administrative district (D'Anna 2015a: 131-135, figs. 11-14). Here, elaborate serving vessels, plain bowls, large open basins, cooking vessels and cattle bones, match the pattern from Building B. Notably, only the operations carried out in the administrative district were regulated via clay sealings, much numerous inside storeroom A340. The large number of individual seals attested on the sealings, and the operational chains reconstructed for the distribution process seemingly indicate the appearance of a ramified bureaucracy, perhaps operating

7 A series of buildings excavated to the north of the administrative complex can be interpreted as residential compounds (D'Anna 2015: 123-124, fig. 11). These buildings produced evidence of food processing, small-scale storage, textile production, but not administration or food distribution.

8 Notably, over 3/4 of the bones from A340 came from an upper story, these originated from medium quality beef and mutton and some from large game (Bartosiewicz 2010: 137-138) and are not directly connected to the practices attested in the lower story. In any case, large quantities of meat were processed/consumed in the upper quarters.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

through a ranked hierarchy (Frangipane 2010: 29). Furthermore, clay tablets bearing numerical indicators, and one bearing a sign, have been retrieved, pointing to the incipient need of keeping track of some of these economic operations (Frangipane 2010: 27-28).

Some significant aspects for the Arslantepe IVA evidence can be singled-out at this point:

1. Scale: the thousands of sealings from the final phases of VIA indicate that the volume of the operations was considerably high, perhaps reflecting daily practices. In addition, large storage vessels are frequent in the administrative district, in contrast with residential compounds, indicating also large-scale food storage.
2. Operational chains: the careful study of the sealing system seems to suggest that once broken, the sealings were kept for some time, possibly indicating the need to keep track of economic operations.
3. Elite control: the systems is seemingly managed by officials invested of bureaucratic power, operating in a non-residential specialized compound.
4. Labor: regular food allotments may indicate a stable workforce routinely provisioned by a central decision-making core which may regarded as an institutional environment.[9]
5. Differential commensality patterns: events occurring inside elite/ceremonial buildings and domestic compounds (mature cattle, pig, wild species meat, beverages kept in bottles [perhaps alcoholic drinks]) are clearly differentiated by the outdoor distribution of individual meals (low-quality cuts of sheep and goat meat, grain products, beverages) in standard containers (cf. D'Anna 2015b: 59-66). We can perhaps interpret the former ones as diacritical and socially restricted, and the latter as work-related and communal.

*2.3.2. Another key-site: Uruk*

It appears that, at the end of the LC 4 period, the numerical tablets – now using a standardized numero-metrological system (Englund 1998b: 214) – are replaced by numero-ideographic tablets, as suggested by the finds from the Red Temple area and the White Temple in Uruk.[10]

The stage of development of numero-ideographic tablets is best documented at Uruk and Susa (Acr. I, 17). These tablets include numerical notations, seal impressions and one or two groups of ideograms representing discrete objects (Englund 1998b). Numerical sign sequence and the official seal impressed on the tablet indicated the type of numeral system used, while the ideograms the object of the transaction (grains or animal products; Englund 1998b: 214).

9 See the discussion by Prentice (2010: 91-95) and Steinkeller (2015: 27-30, n. 71) of the misuse of the term "ration" for designing fixed allotments of food and commodities used as remuneration for work in ancient Mesopotamia.

10 Note that the context of provenance of the numerical tablets from the area of the Red Temple is highly problematic, see the discussion in Englund 1998b: 37-39. The same can be said for the sealed numerical gypsum tablets retrieved inside the White Temple on the "Anu Ziqqurat" (Boehmer 1999: fig. 70c; Englund 1998b: figs. 8, 14; Eichmann 2016; Pittman 2013: 300-301), that, according to Nissen (1986: 323) were probably found among the bricks laid to fill the building after its abandonment. Be that as it may, new C14 determinations seem to indicate that construction of the White Temple predates the last phase of use of Building C of some 100 years (see Table 3). This corroborates Butterlin's (2012b: 120) hypothesis that the White Temple is to be considered earlier than phase IV of the Eanna district. Numero-ideographic tablets are also attested in Godin VI: 1 (Matthews 2013), but in this case several lines of evidence indicate a late LC 5 date for this phase of the settlement.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

According to Englund (1998b: 260) this denotes the inception of proto-cuneiform, which "expanded from the registration of quantities and goods in bound numerical notations to a combination of numerical and ideographic signs". Interestingly, there is one attestation of a seal used on both a numeric and a numero-ideographic tablet at Uruk, indicating that both media were, to some extent, used contemporaneously (Pittman 2013: 322).

In a second stage, attested uniquely at Uruk in Mesopotamia, full proto-cuneiform notations were introduced (Dittman 2012: 74).[11] Flat and rectangular unsealed tablets are now impressed with styli to record numerical notations and a full array of pictograms (Englund 1998b: 215). This step consists of a quantum leap in information recording techniques. In addition, only a dozen of the hundreds of tablets bearing full proto-cuneiform script are sealed, in contrast with the far higher attestation of this custom on numerical and numero-ideographic tablets, indicating a shift also in sealing practices (Pittman 2013: 322).

Ca 85% of the Uruk IV corpus, ca 1800 tablets and fragments (1148 tablets according to a recent review by Nissen 2016: 37), consists of bare-boned administrative accounts detailing the economic operations of some institutional bodies from the administrative core of the city, while the rest are lexical lists, which consist of simple lists of semantically related words (Englund 1998b: 65; Wagensonner 2012). It is important to stress that the management reflected in these media is focused almost exclusively on the operations of central decision-making bodies. The texts were written by individuals trained in the mechanics of proto-cuneiform account and writing, who were possibly also the primary users of these accounts, either functioning as "aides-mémoire" or as materials for economic planning (cf. Palaima 2015: 619-620; Steinkeller 2004).

The system attested in the texts is mostly concerned with the movement of a huge variety of commodities, both organic and inorganic, allocation of cultivated land, organization of workforce, craft productions and livestock (see also Green 1980). In spite of the specific work carried out on the mechanics of bookkeeping practices (Nissen, Damerow and Englund 1993), the structure of the administrative framework that issued and used the accounts remains poorly understood.

It is possible to single-out "administrative offices" in charge of the management of: 1) grain products (among which beer, bread); 2) fish (fresh/dried fish mobilized in reed containers); 3) domesticate animals (sheep, goat, pigs and cattle exploited for meat, wool, dairy products); 4) textiles; 5) dairy products (mobilized in containers); 6) cultivated land.

Labor was tightly controlled, organized and scheduled (Englund 1998: 176). These operations were overseen by cadres of administrators and scribes (cf. Pittman 1993) organized in a precise hierarchy – as attested by the archaic "profession lists" enumerating officials which are also at-

11 A recent review of stratigraphic and radiocarbon evidence suggests that the use of Proto-Elamite script can be placed in between ca 3400 and 2900 BC (Dahl et al. 2013), therefore spanning the whole LC 5-Jemdet Nasr period (in line with Desset 2012, 2016). The introduction of the Proto-Elamite script in Iran in its formative phases clearly shows close contacts between Mesopotamia and Iran, and seemingly a key role of Susa in the development of this technology (Dahl 2009; Dahl et al. 2013). The corpus is composed of administrative texts coming from eight sites (Desset 2016: 69, fig. 1). Notably, at Susa and Shahr-e Sokhta (and possibly Tepe Yahya?) tablets came from household levels, and one monumental building certainly of elite nature at Tal-e Malyan. The topics registered in the P-E texts are: animal husbandry (sheep and goats), labor (inventories, food allotments, occasionally recording the names of workers and overseers), fields (plowing records, yield accounts), and cereal production (beer and bread accounts; Dahl et al. 2013: 365). In particular, the production, storage and distribution of food is the main content of these account (Dahl 2015).


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

tested in administrative documents (cf. Nissen 2015: 119; Damerow 1996) – provisioned by the central administration according to their rank with beneficial land and allotments of staples and other goods. Also, it is possible that a considerable amount of slaves (and perhaps war captives) were employed as laborers.

As to agriculture, the majority of the texts deal with cereals and specifically with storage and distribution of grain (Englund 1998b: 182).[12] In some instances, the recorded quantities of grain products and beer are astonishingly high, indicating the sheer economic power of Uruk administration. Numerous accounts deal with distributions of dry grain products and beer (cf. Englund 1998b: fig. 80). Accountants administered the conversion of barley and emmer into bread and beer and their distribution to the final users.

The mechanics of storage and allocation of perishables are further elucidated by the great number of clay sealings (ca 2000) and seals from the LC 5 layers of the Eanna district (in general Boehmer 1999; Pittman 2013). The earliest stratified sealings from Eanna come from level V, while association between tablets is attested only in level IVa (Pittman 2013: 296). The imagery of these specimens is homogeneous and pertain to a shared horizon that is documented in LC 5 levels at Susa, Choga Mish, in the Middle Euphrates area and in Jezira (ibidem, 308-312, fig. 16.3). Although mostly discarded in trash layers or reused as building materials, important insights can be gathered from the contextual study of these devices.

*2.3.3. Contextual remarks on the Uruk - Eanna archaeological record.*

Very broadly, it is possible to say that the Eanna precinct encompassed multiple functions, for sure administration – attested by the large amount of seals, clay sealings and tablets retrieved –, large-scale "ceremonial" functions (be it for cultic events or other kinds of gatherings; cf. Bretschneider 2007; Butterlin 2012a: 187-188, 2015; Nissen 2001: 154-155; Rothman 2004: 100; Ur 2014: 262), and seemingly craft activities (cf. Butterlin 2003: 90-91; Nissen 2001: 155). Given the nature of the archaeological deposits and the shortcomings imposed by excavation and publication methods, no systematic contextual analysis has ever been carried out on the assemblages from the "Eanna" district (Nissen 2002). This and the paucity of floor assemblages prevented functional interpretations of the complexes excavated within the district (cf. Nissen 2001, 2002).[13] It is however possible to review the spatial distribution of administrative materials in the complex and gather some general insights into the economic functions of these buildings.[14]

12 See Pittman 1993 for LC pictorial representations of grain management practices.

13 As stressed by Englund (1994: 14-16; 1998b: 41, 90) in many cases, groups of texts from particular loci have shown administrative and lexical coherence, indicating that archives, or parts of archives, were removed from their use-loci and discarded in bulk. Thus, the excavated batches of tables from these loci show internal consistency and retain information on the original archival and writing units. The same holds true for groups of clay sealings, as remarked by Collon (1982: 180). Unfortunately, an archival approach to the administrative materials from Eanna has never been attempted, also due to the lack of detailed stratigraphic and contextual information reported by the excavators (cf. Englund 1994: 16).

14 Interestingly, the LC complex excavated at Tell Qannas – encompassing juxtaposed decorated tripartite buildings, open courts and adjoining rooms (Vallet 1996: fig. 8) – shows strong similarities with groups of buildings of the Eanna district, in particular the complex formed by Buildings F, G and H of phases V/IVc (cf. Butterlin 2012a: fig. 6). It must be remarked that the tripartite buildings of Tell Qannas afford evidence of storage (sealed jars in one formal storeroom), food processing (cooking pots and grinding stone in the side rooms of the so-called North Temple), and food consumption/distribution due to the retrieval of serv-


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Most of the some 1800 tablets and fragments retrieved at Uruk were embedded in debris layers accumulated during the latest sub-phase (IVa) of the Eanna sequence (Englund 1998b: 65, figs. 6-7; Nissen 1986; Nissen 2016: 36-37; Sallaberger and Schrakamp 2015: 53), that according to the new C14 determinations from Building C (see Table 3) may now be placed in the late LC 5 period.[15] Of these, 80% were excavated in the area of the Red Temple (Englund 1998b: fig. 6), seemingly in secondary deposition, while it seems that seven tablets (nos. W 21300) were retrieved in situ on the floor of Building C, sealed by the destruction layer generated by the burning of the building (Englund 1998b: 41 n. 82; Nissen 1986: 319; Sallaberger and Schrakamp 2015: 54, n. 21). If so, then one may suppose that the corpus of the Uruk IV cuneiform records was possibly produced within a timespan of roughly 150 years (ca 3360 – 3200 BC; cf. Nissen 1986: 326).

As to administration via clay sealings, it is important to stress the work carried out by M. Torcia Rigillo (1991b). Among the hundreds of sealings examined by this author, the most representative lot is that coming from some rooms of the so-called Building E, ascribed to the Uruk V-IVc phase (i.e. early LC5; Boehmer 1999: figs. 11a-b).[16] Most of the 116 sealings from this building were retrieved in room 1, and inside a stone lined pit in the same room (pit 1a), while 10 specimens were on the floor of the adjoining room, room 2 (Torcia Rigillo 1991b: 177; Boehmer 1999: fig. 11b).[17] Patterning of obverses and reverses indicates that the group is internally coherent: only five individual seals have been used to impress these sealings (Boehmer 1999: cat. nos. 6-8 13, 22), the imprints on the backs are morphologically similar, the sealings from room 2 are duplicate impressions of a seal (ibidem, cat. no. 22) attested on several sealings from pit 1a. Although the reconstructions of the type of door closures are highly hypothetical (Torcia Rigillo 1991b: figs. 3-5), there is no doubt that these are not container sealings (jar sealings are attested within the sample analyzed by the author) and that they belong to a set of interrelated sealing operations, suggesting that broken clay sealings, resulting from repeated opening/closing of storage rooms, were collected inside this building after being removed from their supports. This dataset, coupled with the evidence of in situ tablets in Building C, and the widespread use of seals and sealings, indicates that some of the Eanna buildings certainly had

ing wares (bowls, small bottles, goblets; cf. Finet 1975; Vallet 1996: 63-66). If so, then it would appear that Tell Qannas complex, although being clearly an isolated monumental complex, had utilitarian functions connected to food storage, transformation and consumption.

15 On the general problems related to the Late Uruk sequence of the Eanna precinct see Butterlin 2003: 286-297; Nissen 2002. The wooden beams from Building C provide the terminus post quem for the last phase of use of the building that seemingly feature a redoing of the roof (Van Ess and Heußner 2015: 22, 30). The building was seemingly built in an early phase of the Uruk IV period (building level 17) and it remained in use until the end of the period (building level 15; Van Ess and Heußner 2015: 29). Previous analyses on charred remains from Building C are published by Wright and Rupley 2001: 92.

16 Clay sealings were also found inside the White Temple, inside the Stone Cones Mosaic Building and inside Building C (Butterlin 2003: 50 n. 123; Boehmer 1999: figs. 8a, 70c). Sixteen hollow clay balls were found tucked into a wall nearby the "Steinstiftgebäude", seemingly a cultic building assigned to the Uruk V phase according to stratigraphic criteria (Pittman 2013: fig. 16.7)

17 Consider that it is not given whether the sealings were retrieved below the stone lining, or above it. According to the presence of duplicate impressions of the same seal on the floor of room 2 and in the pit, the latter hypothesis seems more plausible.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

strong administrative/economic connotations linked to the storage and distribution of sealed commodities.

The archaeological and textual record from LC 5 Uruk attest to a large-scale political and economic centralization process that may span less than 200 years. The last phases of this period saw the formation of an extended economic-political decision-making apparatus (institution/s) that was using a complex bureaucratic template for administering extensive economic activities related to land exploitation, mobilization of agricultural surpluses, manufactured products, and workforce.

On the basis of the archaeological evidence examined above, it seems safe to assume that some of these activities – storage and distribution of products, administration, communal/ceremonial gatherings – were physically concentrated in large-scale non-residential complexes, such as those excavated within the so-called Eanna district (V-IV) and in the complex of Arslantepe VIA (cf. Butterlin 2015: 67).[18]

According to a review of the architectural features of the LC monumental complexes, Butterlin (2015) proposes a distinction of functions for the tripartite architecture which may be related to distinct spheres of cultural, political and economic action in these societies. According to this author, architectural and topographic specifics indicate isolated monumental buildings built on top of terraces and/or in specific compounds – such as the "Eye Temple" of Tell Brak, the Anu Ziqqurat at Uruk, the Uqair "painted temple" and possibly the Jebel Aruda "temples" – as loci of religious activities, i.e. proper sanctuaries. On the other hand, the large-scale complexes of the "Eanna" and Arslantepe VI, encompassing integrated halls, courts and tripartite/bipartite buildings, can be characterized as above, as loci of social, economic and political integration.

*2.3.4. Macro- and micro-economic dynamics in LC 5 GM.*

The settlement pattern of this phase indicates that growth concentrated in few major settlements, such as Uruk, resulting in a reduction or abandonment of smaller sites (Altaweel 2013). This urban growth was certainly non-biological and connected to complex feedback mechanisms stemming from geographical, transportational, economic and other factors (idem; Pournelle and Algaze 2014).

From the intra-social point of view, there is clear evidence of the formation of an integrated vertical control hierarchy with an urban elite, invested of bureaucratic and perhaps ceremonial power, a class of laborers provisioned by the political core, and slaves/captives of war, employed in industrial scale manufacturing activities, construction, agriculture, etc.[19]

Notably, by cross-checking economic accounts and lexical lists from Late Uruk it is possible, in some cases, to get glimpses into the structure of the institutional machinery (cf. Damerow 1996; Johnson 2015a; Wagensonner 2012). From texts dealing with distribution of portions of meat it has been possible to reconstruct "bureaus" with hundreds of staff members divided in layered hierarchies (Johnson 2015a: 49-51). Johnson (2015a: 51) reconstructed an "UKKIN"

18 Note, however, that Nissen (2001: 155) stressed that wherever excavations touched LC 5 levels outside the Eanna district, archaic tablets were retrieved. This would indicate that administrative record-keeping functions were not concentrated solely in the central district. Nissen, unfortunately, did not substantiate this information with specific data on the findspot or on the nature of these findings outside the Eanna precinct.

19 One big problem is that we lack substantial evidence on burial practices for this phase in Mesopotamia (cf. Algaze 2008: 162-163).


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

institution responsible of distributing meat cuts to officials during festivals with as many as 275 individuals involved divided in three hierarchical layers (head, mid-level managers, low-level offices): 224 staffers were assigned to 140 low-level offices, managed by ca 50 mid-level managers whose titles correspond to the official list called UKKIN (idem).

In several instances, institutional bodies responsible for the economic accounts can associated with "temple" precincts/households, designated as "eš + god's name", as "é + god's name", and possibly, in some cases as "IB + adjective" (Szarzynska 1992). The terms eš / é (with or without god's name) may indicate both the sanctuary itself and the administrative unit in charge of the economic operations (idem). Also, the word é by itself may indicate households which were not necessarily connected to the cult of a deity. Notably, Szarzynska (1992: 273) noticed that in the Uruk IV texts the term eš is attested in connection to the titles of high dignitaries, establishing a clear connection between the hierarchy attested in the official lists and the power structure of the administrative foci attested in the economic accounts.

The tight control over land, production means, and food/drink exercised by political-economic bodies certainly had a strong impact on household economy and kinship-structures. It is possible that the process of transformation of wealthy household units into extended lineage-based corporate groups was well underway in the terminal Ubaid period in Mesopotamia, but the formation of a constellation of non-kin land-holding workshop-based institutions is still elusive (cf. Lamberg-Karlovsky 1999; Ur 2014). Key tenets of these transformations are certainly land tenure, labor organization and gastropolitics.

Scholars correctly emphasize the importance of food-manipulation practices for the development of political economies in early Mesopotamia (cf. Pollock 2003, 2012, 2013; Frangipane 2017). One the hallmarks of Late Uruk society is the system of provisioning of both laborers and attached personnel through the allotment of fixed quantities of staple products, probably delivered and, in part, consumed on the spot in standard containers. In this sense, it is possible that during the LC 4-5 period, food provisioning from central places took the form of a steady flow of goods for remunerating a stable workforce, as attested in the archaeological record of the Arslantepe VI A complex (cf. Frangipane 2010b: 299; 2016b: 14; Algaze 2005: 22).[20] In Late Uruk dependent laborers were provisioned daily with grain-based allotments (GAR) of ca 1 l by the central administration, and with yearly allotments of wool/garments.[21] Elite allotments comprised beer, bread, meat (sheep/goat), fish, dairy products and fruits, and allocation of arable land (Englund 1998b: 162, 204).

Thus, Pollock (2003: 32; 2012: 161-162; 2013: 161) stressed that an important component of this economic behavior was that increasing amounts of people consumed meals communally in alienated work environments, instead of the household context. According to Rothman (2004: 101), one approach to document intensive labor mobilization is to map the distribution of large amounts of discarded BRBs. Recently, D. T. Potts (2009) and J. Goulder (2010), on the basis of material features, production technique, contextual occurrences, and cross-cultural comparisons, concluded that BRBs appear to be well-suited for serial baking of wheat leavened bread.

20 This is only partially attested at Arslantepe since there is no evidence of the eventual provisioning of elite members through redistributive modalities.

21 Englund (1998b: 181) sustains that textual evidence supports the identification of the BRBs – crude mass-produced bowls introduced in LC 2 and ubiquitous in LC 4-5 levels throughout Mesopotamia (Goulder 2010: tables 1-2), with a capacity ranging between 0.5 and 1 l – as containers fit for distribution of the daily allotments of ca 1 l of grains.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Consequently, mass-produced leavened bread and beer may have been the distinctive package of institutional work-day meals in southern Mesopotamia.

These patterns surely had a key role in shaping new social links, now related to class and labor rather than kinship, and perhaps resulting in incorporating heterogeneous social groups. However, we have to remind that other mechanisms, such as feasting, work-festive events, corvée labor (Steinkeller 2015: 15-16), taxation, marriage policies, organized conflict and conscription, as yet, poorly understood, may have played a role in the formation of the Uruk economic and political landscape. There are in fact very clear pictorial representations of captives on the glyptics from Uruk and elsewhere (cf. McMahon, Sołtysiak and Weber 2011: 201-202), that coupled with the presence of slaves in the records, may suggest systematic conflict (warfare?) and exploitation of enslaved individuals/prisoners of war.

As a whole, we have no idea about the underlying social infrastructures (cf. Yoffee 2016), of the existence of horizontal integration mechanisms (non-state), and on how individuals obtained positions/advancements inside the hierarchy (cf. McIntosh 1999: 11). Also, we should envision the possibility that multiple hierarchies (political, ritual, administrative) existed at this point, each with a discrete political-economic domain (cf. McIntosh 1999: 16; Yoffee 2005: 179).

The archaeological record from Arslantepe clearly indicates that ceremonial buildings and residential units housed socially restricted feasting events, which are quite different from work-related food distributions in terms of setting, scale, paraphernalia and food/drinks consumed. It is possible that in this society, the organization of diacritical feasts was the key to obtain prestige.[22] The same lens cannot be applied to the record from the southern alluvium due to the paucity of LC 5 remains, and especially due to the lack of available datasets on household behaviors. In addition, the set of weapons retrieved inside Building 3 at Arslantepe indicates that war/display of military power may have been another strategy for gaining prestige (Frangipane 2016b: fig. 4). This can be applied to some extent also to the LC 5 societies of southern Mesopotamia, given the abundant evidence of violence on visual media.

There are, however, in the Uruk texts hints at a system of elite provisioning based on meat distributions – the proposed ŠITAa1/UKKINa system – that may have been instrumental for organizing institutionally-sponsored diacritical feasting and for distinguishing between work-day and ceremonial forms of provisioning (Johnson 2015a, 2015b, forthcoming).[23] Johnson's discovery is paramount since it permits, on the one hand, to get some glimpses into the ways of articulating rank and status within the institutional frameworks of late 4$^{th}$ millennium urban centers (cf. also Damerow 1996), and on the other hand to draw a direct comparison with much better understood provisioning practices of late 3rd millennium BC Mesopotamia (Brunke 2015; Benati 2015: § 4.3.4.). In Ur III (and possibly Early Dynastic) Mesopotamia there is a direct relationship between quantity/quality of food allotments and rank/status, with work-related

22 However, we have to keep in mind that data on burial practices are scarce (McMahon and Stone 2013).

23 J. Cale Johnson (2015a, 2015b) focused on the texts dealing with meat distributions: officials pertaining to institutions in the cities of Uruk and Jemdet Nasr, and enlisted in the so-called Subordinate Staff Lists (derived from the UKKIN or Officials List, Uruk III phase) were provisioned with cuts of meat (ŠITAa1) and dried fish (UKKINa) in particular occasions such as festivals. According to Johnson (2015a: 54) meat distributions corresponded to standard cuts, i.e. 1/20th of a sheep. Given that only some individuals within major institutions received meat allotments – with some top-notch administrators receiving multiple portions –, Johnson (2015a: 46) interpreted these distributions as related to diacritical feasting.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

distributions consisting of cereal products and pulses (Brunke 2015: Table 4) and sweets, oils and meat connected to festive events and high-ranking individuals (ibidem, Table 5).

By contrast with Arslantepe, where meat/cooked food is at the core of both socially-restricted (elite?) feasting and work-related distributions (cf. Frangipane 2015: 9186), the southern Mesopotamian material and textual records indicate separation between grain-products consumption (beer/bread), and meat-based (sheep/goat, fish) distributions.

Turning to broader economic strategies, it seems likely that maximization strategies were pursued in order to augment the agricultural output and, by default, maximize the surplus (Adams 1978; Frangipane 2010b). Palaeobotanic data from Arslantepe VIA (Balossi, Sadori and Masi 2010: 112-116) indicate a shift towards high-yield crops in this phase and investments in agricultural infrastructures and technologies (irrigation), perhaps as a result of centralized management.[24]

Datasets from northern GM indicate a dramatic increase in sheep and goat rearing since LC 3, pointing to more systematic exploitation of wool/dairy/meat products, which according to Frangipane (2010b: 294) and McCorriston (1997) may be associated with centralized management models. Evidence of homogeneous herding strategies come from LC 5 assemblages in GM, suggesting a general preponderance of domestic sheep (Berthon 2015: 44, Table 1; Frangipane 2015: 9186; Siracusano and Bartosiewicz 2012: fig. 1), and an emphasis on wool-bearing sheep (McCorriston 1997: 521; Weber 2016: 2010), and on mutton production (Arslantepe; Siracusano and Bartosiewicz 2012: 117) indicate intensive and specialized pastoral strategies (Berthon 2015: 44-45). Although archaeozoological evidence from southern Mesopotamia, and Uruk, is not available, proxy data indicate that sheep rearing for wool and woolen textiles production become major underpinnings of LC political economies throughout GM, seemingly carried out at industrial level (Algaze 2008: 77-92; Becker et al. 2016; Charvát 2014; Green 1980: 11, 15; McCorriston 1997; Vila and Helmer 2014).

Economic spheres encompassed also the construction of long-distance networks for procurement of foreign raw materials, prestige and exotic goods, and possibly for exchange of utilitarian goods, comestibles and techniques (cf. Algaze 2008: 93-99; Stein 1999; Wright 2001: 139-140; Frangipane 2015). The archaeological record from the "Eanna" district indicates massive use of timber, precious/semiprecious stones, and metals that are not locally available in southern Mesopotamia (Algaze 2005: 15-16), as attested in particular by the exceptional finds retrieved in the Riemchen Building (Fig. 4.1; Algaze 2008: 95). Furthermore, recent analyses indicate consumption of exotic products, such as grapes/wine, at Uruk and Arslantepe, goods/crops that must have been imported from distant producing regions (Algaze 2008: 95-96, n. 1; Badler et al. 1996; Balossi Restelli, Sadori and Masi 2010: 113).

This notwithstanding, the mechanics of exchange for the LC period, either locally or long-distance, are unclear (cf. Emberling and Minc 2016). Recent archaeometric analyses of LC 4-5 pottery, bitumen and clay artifacts from all over GM seem to indicate low degree of circulation for containerized goods (Gopnik et al. 2016; Minc and Emberling 2016; Minc 2016; Schwartz

24 It is also possible that the adoption of 4/6-row barley and irrigation may be the result of adaptation to a drier climate phase, as indicated by isotope lacustrine records for the late 4th millennium BC (Balossi Restelli, Sadori and Masi 2010: 116). A shift from predominant glume wheat to hulled barley has been noticed between the LC and EBA levels at Tell Brak (Hald and Charles 2008: 39), in line with other datasets from northern Mesopotamia. Although urban institutions were certainly reliant on barley used as currency, it is possible that this choice was dictated by the need to cope with environmental conditions (ibidem, 40).


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

and Hollander 2016; Wright 2016).[25] Some movement of ceramics (mostly jars and bottles) are, however, documented from lower Mesopotamia to the Syrian Euphrates, Khabur and Tigris basin (Jebel Aruda, Tell Brak, Nineveh), between Mesopotamia and the Ram Hormuz Plain (Emberling and Minc 2016), and possibly between Godin Tepe and Khuzistan (Gopnik et al. 2016). Similar patterns derive from the NAA carried out on clay sealings from LC 5 deposits excavated at Tell Brak (Pittman and Blackman 2016): most of the sealings bearing Uruk-style impressions appear to be made with local clay, but some of them may suggest connections with Khuzistan, in line with the hypothesis put forward for LC 4 Hacinebi (cf. above § 2.2.). LC 4-5 sealings of foreign clay from Brak and Hacinebi were used for fastening baskets and ceramic jars (Pittman and Blackman 2016), indicating that small quantities of dry and liquid/semi-liquid products may have been transported over long distances. Furthermore, study of bitumen samples (Schwartz and Hollander 2016) document substantial movements of this commodity between lower Mesopotamia and Southwestern Iran to the Middle Euphrates, indicating the existence of an intra-/inter-regional network for the exchange of this important technological material (Wright 2016).

One hypothesis that has been brought to the fore for explaining the scatter of non-local items is that of itinerant craftsmen and officials, traveling alongside tools and equipment (Alden and Minc 2016; Wright 2001: 135; Wright 2016). However, it seems clear that stones, metals and materials such as bitumen, were transported in substantial quantities over long-distances (Wright 2016).

Taken altogether, these lines of evidence indicate for LC 4-5 GM a composite picture made of multi-form movements of goods, people, tools, techniques/technologies and possibly crops. Intense and wide-ranging contacts probably contributed to create multi-ethnic societies, as suggested by recent researches (Frangipane 2015), with possible evidence of inter-cultural mixing and cohabitation of different ethnic groups in some cases (Stein 2012b). It is to be hoped that further work on these aspects of exchange will bring more evidence to the fore (cf. Wright 2016).

The inter-regional contacts of Uruk are also attested by the mentions of geographical names in the texts (cf. Sallaberger and Schrakamp 2015: 56): beside several cities in the Mesopotamian alluvium (Šuruppak, Zabalam, Ur, Adab, the most attested), Susa and Iran, and perhaps Dilmun (modern Oman), were part of this network.

## 3. Competitive vs. institutional landscapes in Late Chalcolithic 4-5 Mesopotamia

A. Sherratt (2004: 97-98) stressed the connection between the so-called "urban revolution" of the Late Uruk period and a possible "consumer revolution". According to him, key factors in this economy were the manufacture of textiles and organic consumables, in particular, fermented beverages, animal products and woolen textiles (cf. Greenfield 2015). Consequently, the formation of urban entities was accompanied by a transformation in clothing and dietary habits (cf. also Wengrow 2008: 20).[26] The manufacture of these goods feature the transformation of raw

25 But note that the affinity of clay composition in lower Mesopotamia and in the Syrian Euphrates basin (Minc and Emberling 2016; Emberling and Minc 2016), which according to several lines of evidence was a major traffic route during the LC 4-5 period, hinders our understanding of exchanges of containerized goods between these areas.

26 Despite the scant of bioanthropological evidence from 4th Millennium BC Mesopotamia, Rosenstock (2015) connects the decline in body heights suggested by skeletal remains from LC contexts with low living stan-


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

materials into added-value goods mass-produced in standard units through lengthened chains of transformation (or "linked industries", Algaze 2008: 38). According to Sherratt (2004: 98) and Algaze (2008: 16), the process of commodification of goods has the potential for generating exponential growth through specialization ("organizational efficiencies") and export, i.e. economies of scale. Therefore, production of added-value "commodities" has been considered a significant structural shift in the development of state-level economies in early Mesopotamia (cf. also Wengrow 2008, 2010; Algaze 2001, 2005).

Sherratt (2004: 99) inferred that the potential for producing added-value commodities existed for many millennia, but the scale, organization and concentration of production during the latter part of the LC period provides a fundamental threshold (cf. also Becker et al. 2016: 105). It is only during this phase of Mesopotamian history that power groups become able to concentrate and coordinate activities of different groups of workers "into long chains of preparation involving delayed consumption" (idem). This way it became possible to accumulate exponential quantities of "capital" by transforming large amounts of raw materials in added-value consumables and non-consumable commodities.

Wengrow (2008) identified the reliance upon branded commodities – homogeneous, standardized and substitutable – as a key factor of growth for institutional economies since the production of added-value goods is capable of generating demand, rather than responding to it. Demand is crucial for understanding growth in these societies (cf. Warburton 2000). Following Algaze (2008: 38), the creation of new work sectors in linked industries in turn spurs employment in the managerial classes, intensifying demand for internal consumption. Considering that export is, at present, little documented, in LC 5 Mesopotamia, it seems that demand was mostly generated by the necessities of corporate production: sustaining a large bureaucratic machinery, industrial manufacturing activities carried out by a pool of waged workers, and extensive farming. This system seemingly required intensification of food production for the purpose of internal exchange.

According to Carrier (1995: 39), who builds upon the experience of the Industrial Revolution, "understanding the changing nature of production is important for understanding the changing ways people think about objects". The process of production may be structured in two dimensions (idem): 1) the producer controls what is produced, how it is produced and what has to be done with it; 2) production is entirely set by others and the producer works following directions. The second dimension is the dimension of commodity production: when production is commonly alienated by producers, i.e. the household sector and the productive sector are separated (cf. McMahon 2015: 26).

Looking at the material record unpacked above, it seems clear that, at least in Northern GM, large-scale industrial activities were undertaken, sometimes clearly above household-level and in off-site locations, since LC 3. This may indicate that a process of alienation of objects and production from workers was underway. There is, however, no evidence, until LC 4-5, of structured wage labor systems. Before that, it seems that the key work transitions were geared through competitive feasting events/occasional food distributions (entrepreneurial feasts, patron-role feasts; cf. Dietler 1996) possibly with cultic overtones.

Conversely, in LC 4-5 the structures of the social relationships entailed in production became increasingly differentiated by those of the household. This picture fits well with the models pro-

dards, possibly connected to a staple-based diet relatively poor in protein.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

posed by Pollock (2012, 2013), Goulder (2010), and Frangipane (2010b): increasing amounts of people were consuming standard meals communally in work-related environments, and in general, increase of people receiving fixed allotments of goods as remuneration for waged labor.[27]

Commodified goods circulating in institutional circuits were therefore valued for their exchange-use – i.e. largely as remuneration for labor and as wages for officials and ranked individuals – rather than for their use-value, i.e. nutrition. Which means that these goods were valued because highly convertible/transferable. Indeed, given the paramount importance of staples for these societies, rather than accumulation it seems that the key factor was circulation (Frangipane 2016b: 14). Increasingly complex and articulated food distribution systems probably stimulated the development of complex administrative technologies and stable apparatuses (idem).

This seems to be supported by the administrative control exerted over the quantities of ingredients allocated for producing food and beverages required for sustaining state activities, as gleaned from the Uruk texts and from the finds of clay sealings from Arslantepe. These commodified goods were the cornerstone of an institutionalized system of production and exchange, which is clearly distinct from other distribution circuits (such as domestic commensality, gift giving, taxation/tribute, etc.), and within this system, the ones who mobilized the commodities were not the producers. Thus, important forms of production and circulation – the ones controlled by institutions – came to involve increasingly impersonal social relations (cf. Carrier 1995: 107).

Both work-day and "elite" meat-based distribution systems may also be regarded as group incentives to motivate cooperative behavior and assure stable participation to institutional endeavors. Keeping a stable flow of resources in different social occasions (work, ceremonies, feasts) was certainly instrumental to construct a stable environment, reduce inter-group conflicts and promote non-kin cooperation (cf. Bowles and Gintis 2006).

It is perhaps possible to define this system as an autocatalytic cycle of production: the process of secondary staple production, packaging, standardization, sealing and administered mobilization was shaped by the necessity of having goods that could be easily exchanged in fixed quantities for labor-time and reproduced incrementally: the production of standard media of exchange. Packaging possibly responded to the need of having goods of controlled quality, in standard units, ready to be stored in central places and then allocated (cf. Wengrow 2008). It is also possible that some portions of the products were either traded or channeled externally (Algaze 2008: 66), even shipped far away, but it is at the moment impossible to quantify the importance of the external economy for these early periods or to evaluate the existence of formal marketplaces.

This can be defined as an institutional attempt to organize some sectors of society along formal lines (Hart 2005), or "simplify" some social arrangements (Yoffee 2005: 94), those connected to the institutional frameworks. Bureaucracy is in turn a cornerstone of formal principles of social organization (idem; cf. Haicheng 2016: 136-137). In LC5 the introduction of the proto-cuneiform script transformed bureaucratic praxis. The use of proto-cuneiform writing afforded a powerful tool to better monitor inflows and outflows of goods and labor. These early sources also indicate the rise of a very refined system of accounting, establishing systems for measuring capacity, surfaces and time (Englund 1988, 1998b, 2001, 2011; Nissen, Damerow and Englund

27 This seems to be attested also through figural imagery on glyptics that show a wide variety of representations of workshop/agricultural/herding activities on visual media (cf. Pittman 2013: 312-319, figs.16.14-16.20)


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

1993).[28] The use of writing and the systems for accounting made possible to abstract and summarize economic data, making also possible planning in advance (cf. Woods 2015), transmitting information over time and space, and prioritizing needs in order to maximize revenues (Algaze 2001: 213). Literacy can be also considered a tool to mediate, and enhance, face-to-face interaction within a restricted, but modular, social group that aimed at capitalizing collective interests in LC 5 Uruk (cf. Carballo, Roscoe and Feinman 2014: 112).

These spheres were commanded by two types of logics: economic rationality and impersonality, and were seemingly kept distinct from other areas of life. Commodity exchange in fact establishes objective quantitative relationships between the objects transacted (Gregory 1982). The cultural and economic realms revolving around commodities and institutional employment was seemingly superimposed over long-term reciprocal ("informal") relationships – such as those typical of domestic/kin-groups, peer-groups and the likes – but the interplay between the institutional and the other sectors is a matter of debate (cf. Dahl 2010; Steinkeller 1996; Ur 2014; Yoffee 2016). The system drove a wedge between people and objects since state provisioning separated producers and consumers and perhaps attempted to progressively concentrate the means of production – land and craft activities – in the hands of institutions (Narotzky 2005).

People provisioned by the "state sector" were therefore also embedded in "formal" social relationships with institutions bearing collective/political/economic/perhaps "sacred" identity, through the sociality of labor (Lamberg-Karlovsky 2015: 60), which is an organizational quantum leap if compared to the use of occasional feasting-related distribution of goods (cf. Frangipane 2016b: 16).

We can perhaps define this process as an attempt to shape group behaviors by introducing formal lifestyles, ones in which resources are mobilized and allocated regularly following a predicable rhythm dictated by a structured set of rules (Hart 2005), established and enforced by a formal economic sector operating via cadres of agents enrolled in "firm-type" institutions and using standard administrative tools.

## 4. Concluding remarks: "The unbearable lightness of complexity"

This paper targeted the creation of large-scale political networks between the 5th and the late 4th millennium BC in Mesopotamia. Following Adams' example, this essay attempted to provide an economic anthropological reading of archaeological contexts and texts in order to observe changing economic and political behaviors, purposely avoiding dichotomous definitions, old narratives, and ideology.

The paper in particular aimed at discovering linkages between the trajectories of development of institutional agencies, administrative technologies, and economic strategies in relation to the construction of social and labor networks in these societies. One strong point of convergence seems to be found in the transformation of manufactured products, be it foodstuff or craft items, into commodities, and the related construction of structured labor and interaction spheres. Control over these processes – achieved also by making systematic use of administrative technologies –, and upscaling, certainly accrued the wherewithal for building formal labor and social networks, stimulate production and consumption behaviors, and ultimately to create structured inequality and leadership. It is perhaps with the structuration of these network-

28 Note that Englund (2011: 33) stressed the absence of early evidence on weights, equivalencies other than grain and the use of silver as reference.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

building modes – in contrast with competitive modes – that we have proof of the emergence of social classes, proper political "institutions", and perhaps nested hierarchies. The pathways conducting to the crystallization of these strategies are still ill-defined and it is, at present, impossible to evaluate in full the transformative impact of institutional strategies within the early Mesopotamian state-formation processes.

One general conclusion that can be drawn is that, if on the one hand it is possible to sketch some underpinnings of political economies during the LC period, on the other hand, serious hurdles stem from the enormous backlog in the publication of primary archaeological data, from the lack of interdisciplinary and contextual study of cuneiform archives, and from the paucity of scientific analyses on archaeological artifacts. Although it is true that we lack a good record on household archaeology (Algaze 2008: 157-159), general economic dynamics seem within our grasp thanks to the application of modern archaeological and archaeometric methods, attention towards bioarchaeological remains, use of climatic data, administrative technologies, etc. (Frangipane [ed.] 2007; Frangipane 2010b). Conversely, the understanding of political and social organization lags behind. Headway has been certainly made in defining some components of the social and economic structures thanks to recent fieldwork that targeted early LC period communities in northern GM, but these socio-political formations still elude precise characterization, especially in core sectors, such as the family-based organization.

So, the question: how were socio-political bodies in early Mesopotamia built and how they functioned? Is still worth asking, since classification does not amount to analysis (cf. Warburton 2016: 467).

The appearance of new material and new research strategies will certainly contribute to bring these phenomena into clearer perspective, but only if we invest heavily in the publication of primary data from excavations, in scientific analyses of the artifacts, and if we change approach towards the analysis of textual sources. Adams' lesson is that we have to strive towards documenting variability: we can do so by engaging critically the material and textual records of ancient civilizations, and by rejecting mechanistic models of social and cultural systems. In the meantime, the concept of early Mesopotamia socio-political complexities remains "unbearably light" (cf. Yoffee 2010).


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

## BIBLIOGRAPHY

Adams, R. McC.

1978 Strategies of Maximization, Stability, and Resilience in Mesopotamian Society, Settlement, and Agriculture, *Proceedings of the American Philosophical Society* 127/5, pp.329–335.

2004 Reflections on the Early Southern Mesopotamian Economy, in G. Feinman and L.M. Nicholas (eds.) *Archaeological Perspectives on Political Economies*, Salt Lake City, University of Utah Press, pp. 41–60.

2006 Shepherds at Umma in the Third Dynasty of Ur: Interlocutors with a World beyond the Scribal Field, *Journal of the Economic and Social History of the Orient* 49/2, pp. 133–169.

2007 The Limits of State Power on the Mesopotamian Plain, *Cuneiform Digital Library Bulletin* 1, pp. 1–3.
Available at: http://cdli.ucla.edu/pubs/cdlb/2007/cdlb2007_001.html.

2008 An Interdisciplinary Overview of a Mesopotamian City and its Hinterlands, *Cuneiform Digital Library Journal* 1, pp. 1–23.
Available at: http://cdli.ucla.edu/pubs/cdlj/2008/cdlj2008_001.html.

Alden, J.R., and Minc, L.D.

2016 Itinerant Potters and the Transmission of Ceramic Technologies and Styles during the Proto-Elamite Period in Iran, *Journal of Archaeological Science: Reports* 7, pp. 863-876.

Algaze, G.

1989 The Uruk Expansion: Cross-Cultural Exchange in Early Mesopotamian Civilization, *Current Anthropology* 30/5, pp. 571–608.

2001 Initial Social Complexity in Southwestern Asia: The Mesopotamian Advantage, *Current Anthropology* 42/2, pp. 199–233.

2005 The Sumerian Takeoff, *Structure and Dynamics: eJournal of Anthropological and Related Sciences* 1/1, pp. 1–41.
Available at: https://escholarship.org/uc/item/76r673km.

2008 *Ancient Mesopotamia at the Dawn of Civilization. The Evolution of an Urban Landscape*, Chicago-London, University of Chicago Press.

Al-Quntar, S.

2016 Craft Specialisation and the Process of Urban Growth in Northern Mesopotamia in the Late Chalcolithic: A View from the Syrian Jazira, in M. Iamoni (ed.), *Trajectories of Complexity. Socio-economic Dynamics in Upper Mesopotamia in the Neolithic and Chalcolithic Period* (Studia Chaburensia 6), Wiesbaden, Harrassowitz, pp. 159–182.

Al-Quntar, S., and Abu Jayyab, A.K.

2014 The Political Economy of the Upper Khabur in the Late Chalcolithic 1-2: Ceramic Mass-production, Standardization and Specialization, in A. McMahon and H. Crawford (eds.), *Preludes to Urbanism. The Late Chalcolithic of Mesopotamia*, Cambridge, McDonald Institute for Archaeological Research, pp. 89–108.

Al-Quntar, S., Khalidi, L., and Ur, J.

2012 Proto-urbanism in the Late 5th Millennium BC: Survey and Excavations at Khirbat al-Fakhar (Hamoukar), Northeast Syria, *Paléorient* 37/2, pp. 151–175.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Altaweel, M.
2013 The Application of an Entropy Maximizing Model for Understanding the Rise of Urbanism, in T.J. Wilkinson, M. Gibson and M. Widell (eds.), *Models of Mesopotamian Landscapes. How Small-Scale Processes Contributed to the Growth of Early Civilizations* (BAR S2552), Oxford, Archaeopress, pp. 239–254.

Abu Jayyab, A.K.
2012 A Ceramic Chronology from Tell Hamoukar's Southern Extension, in C. Marro (ed.), *After the Ubaid: Interpreting Change from the Caucasus to Mesopotamia at the Dawn of Urban Civilization (4500-3500 BC). Papers from The Post-Ubaid Horizon in the Fertile Crescent and Beyond International Workshop held at Fosseuse, 29th June-1st July 2009*, Paris, De Boccard, pp. 87–128.

Arroyo Barrantes, D.
2016 Communities in Transition: The Development of Mass Production and Urban Feasting in Northern Mesopotamia, in M. Iamoni (ed.), *Trajectories of Complexity. Socio-economic Dynamics in Upper Mesopotamia in the Neolithic and Chalcolithic Period* (Studia Chaburensia 6), Wiesbaden, Harrassowitz, pp. 139–158.

Badler, V.R., McGovern, P.E., and Glusker, D.L.
1996 Chemical Evidence for a Wine Residue from Warka (Uruk) Inside a Late Uruk Period Spouted Jar, *Baghdader Mitteilungen* 27, pp.39–43.

Baldi, J.S.
2012a Coba Bowls, Mass-production and Social Change in Post-Ubaid Times, in C. Marro (ed.), *After the Ubaid: Interpreting Change from the Caucasus to Mesopotamia at the Dawn of Urban Civilization (4500-3500 BC). Papers from The Post-Ubaid Horizon in the Fertile Crescent and Beyond International Workshop held at Fosseuse, 29th June-1st July 2009*, Paris, De Boccard, pp. 393–416.
2012b Tell Feres al-Sharqi in the LC 1-2 Period. Serial Production and Regionalisation of Ceramic Traditions: A Perspective from a Small Rural Site, in C. Marro (ed.), *After the Ubaid: Interpreting Change from the Caucasus to Mesopotamia at the Dawn of Urban Civilization (4500-3500 BC). Papers from The Post-Ubaid Horizon in the Fertile Crescent and Beyond International Workshop held at Fosseuse, 29th June-1st July 2009*, Paris, De Boccard, pp. 129–162.

Balossi Restelli, F.
2010 Extended Families and Nuclear Families. Daily Life and the Use of Domestic Space in the Ubaid and Post-Ubaid Communities: The Case of the Malatya Plain (Eastern Turkey), *Origini* 32, pp. 189–201.
2015 Eating at Home and "Dining" Out? Commensalities in the Neolithic and Late Chalcolithic in the Near East, in S. Pollock (ed.), *Between Feasts and Daily Meals: Toward an Archaeology of Commensal Spaces* (Berlin Studies of the Ancient World 30), Berlin, Edition Topoi, pp. 87–110.

Balossi Restelli, F., Sadori, L., and Masi, A.
2010 Agriculture at Arslantepe at the End of the 4th Millennium BC. Did the Centralized Political Institutions have an Influence on Farming Practices? in M. Frangipane (ed.), *Economic Centralisation in Formative States. The Archaeological Reconstruction of the Economic System in 4th Millennium Arslantepe* (Studi di Preistoria Orientale 3), Roma, Università di Roma "La Sapienza", pp. 103–118.

Bartosiewicz, L.
2010 Herding in Period VI A. Development and Changes from Period VII, in M. Frangipane (ed.), *Economic Centralisation in Formative States. The Archaeological Reconstruction of the Economic System in 4th Millennium Arslantepe* (Studi di Preistoria Orientale 3), Roma, Università di Roma "La Sapienza", pp. 119–148.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Becker, C., Benecke, N., Grabundzija, A., Küchelmann, H.-C., Pollock, S., Schier, W., Schoch, C., Schrakamp, I., Schütt, B., Schumacher, M.
2016 The Textile Revolution. Research into the Origin and Spread of Wool Production between the Near East and Central Europe, *eTopoi* 6, pp.102–151.

Benati, G.
2015 Re-modeling Political Economy in Early 3rd Millennium BC Mesopotamia: Patterns of Socio-Economic Organization in Archaic Ur (Tell al-Muqayyar, Iraq), *Cuneiform Digital Library Journal* 2015/2, pp. 1-1-37,
Available at: http://cdli.ucla.edu/pubs/cdlj/2015/cdlj2015_002.html.

Berthon, R.
2015 Animal Resources in the Late Uruk Period Food Practices, *Origini* 37/1, pp. 43–45.

Blanton, R.E., and Fargher, L.
2008 *Collective Action in the Formation of Pre-Modern States*, New York, Springer.

Bretschneider, J.
2007 The "Reception Palace" of Uruk and Its Architectural Origin, in J. Bretschneider, J. Driessen and K. Van Lerberghe (eds.), *Power and Architecture. Monumental Public Architecture in the Bronze Age Near East and Aegean* (OLA 156), Leuven, Peeters, pp. 11–22.

Boehmer, R.M.
1999 *Uruk: Früheste Siegelabrollungen* (AUWE 24), Mainz am Rhein, Von Zabern.

Bowles, S., and Gintis, H.
2006 The Evolutionary Basis of Collective Action, in B.R. Weingast and D.A. Whitman (eds.) *The Oxford Handbook of Political Economy*, Oxford, Oxford University Press, pp. 951–967.

Brunke, H.
2015 Importance and Food Rank: Some Examples from Ur III Mesopotamia, *Origini* 37/1, pp.73–77.

Butterlin, P.
2003 *Les temps proto-urbains de Mésopotamie. Contacts et acculturation à l'époque d'Uruk au Moyen-Orient*, Paris, CNRS.
2012a Les caractéristiques de l'espace monumental dans le monde urukéen: de la métropole aux colonies, *Origini* 34, pp.179–200.
2012b Les terrasses monumentales proto-urbaines et les centres proto-urbains de Suse à Uruk (études proto-urbaines 1), in J.L. Montero Fenollòs (ed.), *Du village néolithique à la ville syromesopotamienne* (Bibliotheca Euphratica 1), Ferrol, Proyecto Arqueológico Medio Éufrates Sirio – Universidade da Coruña Sociedad Luso-Gallega de Estudios Mesopotámicos, pp. 117–132.
2013 Le niveau VIII de Tepe Gawra, acropole proto-urbaine et chefferie complexe, *Studia Orontica* 11, pp.15–40.
2015 Late Chalcolithic Mesopotamia: Towards a Definition of Sacred Space and Its Evolution, in N. Laneri (ed.), *Defining the Sacred. Approaches to the Archaeology of Religion in the Near East*, Oxford, Oxbow Books, pp. 60–72.

Carballo, D.M., and Feinman, G.M.
2016 Cooperation, Collective Action, and the Archeology of Large-scale Societies, *Evolutionary Anthropology: Issues, News, and Reviews* 25/6, pp. 288–296.

Carballo, D.M., Roscoe, P.B., and Feinman, G.M.
2014 Cooperation and Collective Action in the Cultural Evolution of Complex Societies, *Journal of Archaeological Method and Theory* 21/1, pp. 98–133.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Carrier, J.G.
1995 *Gifts and Commodities: Exchange and Western Capitalism since 1700*, London, Routledge.
Charles, M., Hald, M.M., Weber, J., Wright, H.T.
2001 The Forecourt of the Niched Building (Brak TWB 18): Preliminary Note on an Interdisciplinary Study, in Emberling and McDonald, Excavations at Tell Brak 2000. *Iraq*, 63, pp. 25–32.
Charvát, P.
2014 Lamb of the Gods. The Beginnings of the Wool Economy in the Proto-cuneiform Texts, in C. Breniquet and C. Michel (eds.), *Wool Economy in the Ancient Near East and Aegean. From the Beginning of Sheep Husbandry to Institutional Textile Industry* (Ancient Textiles Series, 17), Oxford, Oxbow Books, pp. 79–93.
Collon, D.
1981-1982 Siegelabrollungen aus den archaischen Bauschichten in Uruk-Warka. I. Teil. II. Teil. (Freiburgeraltorientalische Studien Band 3) by Mark A. Brandes, *Archiv für Orientforschung* 28, pp. 177–181.
Collon, D., and Reade, J.
1983 Archaic Nineveh, *Baghdader Mitteilungen* 14, pp.33–42.
D'Anna, M.B.
2015a Between Inclusion and Exclusion: Feasting and Redistribution of Meals at Late Chalcolithic Arslantepe (Malatya, Turkey), in S. Pollock (ed.), *Between Feasts and Daily Meals: Toward an Archaeology of Commensal Spaces* (Berlin Studies of the Ancient World 30), Berlin, Edition Topoi, pp. 111–141.
2015b A Material Perspective on Food Politics in a Non-Urban Center. The Case of Arslantepe Period VI A (LC 5), *Origini* 37/1, pp. 56–66.
D'Anna, M.B., and Guarino, P.
2010 Continuity and Changes in the Elite Food Management During the 4th Millennium BC. Arslantepe Period VII and VI A: A Comparison, in M. Frangipane (ed.), *Economic Centralisation in Formative States. The Archaeological Reconstruction of the Economic System in 4th Millennium Arslantepe* (Studi di Preistoria Orientale 3), Roma, Sapienza Università di Roma, pp. 193–204.
Dahl, J.
2009 Early Writing in Iran, a Reappraisal. *Iran*, XLVII, pp.23–32.
2010 A Babylonian Gang of Potters. Reconstructing the Social Organization of Craft Production in the Late Third Millennium B.C. Southern Mesopotamia, in L. Kogan *et al*. (eds.), *City Administration in the Ancient Near East, Proceedings of the 53e Rencontre Assyriologique Internationale (23th-28th July 2007, Moscow and St. Petersburg, Russia)*, Winona Lake, Eisenbrauns, pp. 275–305.
2015 The Production and Storage of Food in Early Iran, *Origini* 37/1, pp. 67–72.
Dahl, J., Petrie, C., and Potts, D.T.
2013 Chronological Parameters of the Earliest Writing System in Iran. In C. Petrie, ed. *Ancient Iran and Its Neighbours. Local Developments and Long-range Interactions in the Fourth Milenium BC* (British Institute of Persian Studies. Archaeological Monographs Series III), Oxbow Books, pp. 353–378.
Damerow, P.
1996 Food Production and Social Status as Documented in Proto-Cuneiform Texts, in P. Wiessner and W. Schiefenhövel (eds.), *Food and the Status Quest: An Interdisciplinary Perspective*, Providence, Berghahn Books, pp. 149–169.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Desset, F.
2012 *Premières écritures iraniennes. Les systèmes proto-elamite et élamite linéaire*, Napoli, Università degli Studi di Napoli "L'Orientale".
2016 Proto-Elamite Writing in Iran, *Archéo-Nil* 26, pp. 67–104.
Dietler, M.
1996 Feasts and Commensal Politics in the Political Economy: Food, Power and Status in Prehistoric Europe, in P. Wiessner and W. Schiefenhövel (eds.), *Food and the Status Quest: An Interdisciplinary Perspective,* Providence, Berghahn Books, pp. 87–125.
Dietler, M., and Herbich, I.
2001 Feasts and Labor Mobilization. Dissecting a Fundamental Economic Practice, in M. Dietler and B. Hayden (eds.), *Feasts: Archaeological and Ethnographic Perspectives on Food, Politics, and Power*, Washington DC, Smithsonian Institution Press, pp. 240–264.
Dittmann, R.
2012 Multiple Sealed Hollow Balls. A Fresh Look at the Uruk System almost Thirty Years later, in H. D. Baker, K. Kaniuth and A. Otto (eds.), *Stories of Long Ago. Festschrift für Michael D. Roaf* (AOAT 397), Münster, Ugarit Verlag, pp. 69–90.
Duistermaat, K.
2010 Administration in Neolithic Societies? The First Use of Seals in Syria and Some Considerations on Seal Owners, Seal Use and Private Property, in W. Müller (ed.) *Die Bedeutung der minoischen und mykenischen Glyptik. VI. Internationales Siegel-Symposium aus Anlass des 50 jährigen Bestehens des CMS Marburg, 9.-12. Oktober 2008* (CMS Beiheft 8), Mainz am Rhein, Von Zabern, pp. 163–178.
2012 Which Came First, the Bureaucrat or the Seal? Some Thoughts on the Non-Administrative Origins of Seals in Neolithic Syria, in I. Regulski, K. Duistermaat and P. Verkinderen (eds.), *Seals and Sealing Practices in the Near East. Developments in Administration and Magic from Prehistory to the Islamic Period Proceedings of an International Workshop at the Netherlands-Flemish Institute in Cairo on December 2-3, 2009* (OLA 219), Leuven - Paris - Walpole, MA, Peeters, pp. 1–16.
Duistermaat, K., and Akkermans, P.M.M.G.
1996 Of Storage and Nomads. The Sealings from Late Neolithic, Sabi Abyad, Syria, *Paléorient*, 22/2, pp. 17–44.
Eichmann, R.
2016 La séquence des batiments sur terrasse d'Uruk / Warka: Secteur de la "Ziggurat d'Anu", in P. Quenet (ed.) *"ana ziqquratim" Sur la piste de Babel*, Strasbourg, Presses Universitaires de Strasbourg, pp. 105–111.
Emberling, G.
2016a Counternarratives: The Archaeology of the Long Term and the Large Scale, in G. Emberling (ed.), *Social Theory in Archaeology and Ancient History. The Present and Future of Counternarratives*, Cambridge, Cambridge University Press, pp. 3–16.
2016b Structures of Authority: Feasting and Political Practice in the Earliest Mesopotamian States, in G. Emberling (ed.), *Social Theory in Archaeology and Ancient History. The Present and Future of Counternarratives*, Cambridge, Cambridge University Press, pp. 34–59.
Emberling, G., and McDonald, H.
2000 Excavations at Tell Brak 2000, *Iraq* 63, pp. 21-54.
2003 Excavations at Tell Brak 2001-2002: Preliminary Report, *Iraq* 65, pp.1–75.
Emberling, G., and Minc, L.D.
2016 Ceramics and Long-distance Trade in Early Mesopotamian states, *Journal of Archaeological Science: Reports* 7, pp. 819-834.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Englund, R.K.
1983 Dilmun in the Archaic Uruk Corpus, in D. T. Potts (ed.), *Dilmun: New Studies in the Archaeology and Early History of Bahrain* (BBVO 2), Berlin: Reimer Verlag, pp. 35–37.
1988 Administrative Timekeeping in Ancient Mesopotamia, *Journal of Economy and Social History of the Orient* 31, pp. 121–185.
1994 *Archaic Administrative Texts from Uruk: The Early Campaigns* (ATU 5), Berlin, Gebr. Mann.
1995 Late Uruk Period Cattle and Dairy Products: Evidence from Proto-cuneiform Sources. *Bulletin on Sumerian Agriculture* 8/2, pp. 33–48.
1998a Review of D. Schmandt-Besserat, How Writing Came About, *Written Language and Literacy* 1, pp. 257–261.
1998b Texts from the Late Uruk Period. In J. Bauer, R.K. Englund, and M. Krebernik, eds. *Mesopotamien: Späturuk-Zeit und Frühdynastische Zeit* (Orbis Biblicus et Orientalis 160/1), Göttingen, Vandenhoeck and Ruprecht, pp. 14–233.
2001 Grain Accounting Practices in Archaic Mesopotamia, in J. Høyrup and P. Damerow (eds.), *Changing Views on Ancient Near Eastern Mathematics* (BBVO 19), Berling, Reimer Verlag, pp. 1–35.
2011 Accounting in Proto-cuneiform, in K. Radner and E. Robson (eds.), *The Oxford Handbook of Cuneiform Culture*, Oxford, Oxford University Press, pp. 32–50.

Esin, U.
1994 The Functional Evidence of Seals and Sealings of Değirmentepe, in P. Ferioli *et al.* (eds.), *Archives before Writing. Proceedings of the International Colloquium, Oriolo Romano, October 23-25, 1991*, Turin, Scriptorium, pp. 59–81.

Feinman, G.M.
2013a The Emergence of Social Complexity: Why More than Population Size Matters, in D.M. Carballo (ed.), *Cooperation and Collective Action. Archaeological Perspectives*, Boulder, University of Colorado Press, pp. 35–56.
2013b The Dynamics of Cooperation. Concluding Thoughts, in D.M. Carballo (ed.), *Cooperation and Collective Action. Archaeological Perspectives*, Boulder, University of Colorado Press, pp. 299–307.
2017 Multiple Pathways to Large-Scale Human Cooperative Networks: A Reframing, in R.J. Chacon and R.G. Mendoza (eds.), *Feast, Famine or Fighting? Multiple Pathways to Social Complexity*, New York, Springer, pp. 459–478.

Felli, C.
2003 Developing Complexity. Early to Mid Fourth Millennium Investigations: The Northern Middle Uruk Period, in R.J. Matthews (ed.), *Excavations at Tell Brak. Vol. 4: Exploring an Upper Mesopotamian Urban Centre, 1994-1996,* Cambridge, McDonald Institute for Archaeological Research/British School of Archaeology in Iraq, pp. 53–94.

Finet, A.
1975 Les temples sumériens de Tell Kannas, *Syria* 52/3-4, pp. 157–174.

Frangipane, M.
2000 The Development of Administration from Collective to Centralized Economies in the Mesopotamian World. The Transformation of an Institution from System-Serving to Self-Serving, in G.M. Feinman and L. Manzanilla (eds.), *Cultural Evolution: Contemporary Viewpoints*, New York, Kluwer Academic Publishers, pp. 215–232.
2007 Different Types of Egalitarian Societies and the Development of Inequality in Early Mesopotamia, *World Archaeology* 39/2, pp. 151–176.
2009 Non-Urban Hierarchical Patterns of Territorial and Political Organisation in Northern Regions of Greater Mesopotamia: Tepe Gawra and Arslantepe, in P.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Butterlin (ed.), *A Propos de Tepe Gawra, Le Monde Proto-urbain de Mesopotamie/About Tepe Gawara: A Proto-urban World in Mesopotamia* (Subartu XXIII), Turnhout, Brepols, pp. 135–148.

2010a Arslantepe. Growth and Collapse of an Early Centralised System: The Archaeological Evidence, in M. Frangipane (ed.), *Economic Centralisation in Formative States. The Archaeological Reconstruction of the Economic System in 4th Millennium Arslantepe* (Studi di Preistoria Orientale 3), Roma, Sapienza Università di Roma, pp. 23–44.

2010b *Economic Centralisation in Formative States. The Archaeological Reconstruction of the Economic System in 4th Millennium Arslantepe* (Studi di Preistoria Orientale 3), Roma, Università di Roma "La Sapienza".

2010c The Political Economy of the Early Central Institutions at Arslantepe. Concluding Remarks, in M. Frangipane (ed.), *Economic Centralisation in Formative States. The Archaeological Reconstruction of the Economic System in 4th Millennium Arslantepe* (Studi di Preistoria Orientale 3), Rome, Sapienza Università di Roma, pp. 289–308.

2015 Different Types of Multiethnic Societies and Different Patterns of Development and Change in the Prehistoric Near East, *Proceedings of the National Academy of Sciences of the United States of America* 112/30, pp. 9182–9189.

2016a The Origins of Administrative Practices and Their Developments in Greater Mesopotamia. The Evidence from Arslantepe, *Archéo-Nil* 26, pp. 9–32.

2016b The Development of Centralised Societies in Greater Mesopotamia and the Foundation of Economic Inequality, in H. Meller *et al.* (eds.), *Arm und Reich – Zur Ressourcenverteilung in prähistorischen Gesellschaften. Rich and Poor – Competing for resources in prehistoric societies. 8. Mitteldeutscher Archäologentag vom 22. bis 24. Oktober 2015 in Halle (Saale)*, Halle, Landesamt für Denkmalpflege und Archäologie Sachsen-Anhalt, pp. 469–489.

2017 Different Trajectories in State Formation in Greater Mesopotamia: A View from Arslantepe (Turkey), *Journal of Archaeological Research* 2017, pp. 1-61.

Frangipane, M. (ed.)

2007 *Arslantepe Cretulae. An Early Centralised Administrative System Before Writing* (Arslantepe 5), Roma, Università di Roma "La Sapienza".

Gopnik, H., Reichel, C., Minc, L.D., and Elendari, R.

2016 A View from the East: The Godin VI Oval and the Uruk Sphere. *Journal of Archaeological Science: Reports* 7, pp. 835-848.

Goulder, J.

2010 Administrators' Bread: An Experiment-based Re-assessment of the Functional and Cultural Role of the Uruk Bevel-rim Bowl, *Antiquity* 84, pp. 351–362.

Green, M.W.

1980 Animal Husbandry at Uruk in the Archaic Period, *Journal of Near Eastern Studies* 39/1, pp. 1–35.

Greenfield, H.J.

2015 Secondary Products Revolution, in K. B. Metheny and M. C. Beaudry (eds.), *Archaeology of Food. An Encyclopedia. Volume 2: L-Z,* Lanham, MD - Boulder, CO - New York - London: Rowman and Littlefield, pp. 451–454.

Gregory, C.A.

1982 *Gifts and Commodities*, New York, Academic Press.

Gurdil, B.

2010 Exploring Social Organizational Aspects of the Ubaid Communities: A Case Study of Değirmentepe in Eastern Turkey, in R. Carter and G. Philip (eds.), *Beyond the Ubaid. Transformation and Integration in the Late Prehistoric Societies of the Middle*


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

*East* (SAOC 63), Chicago, The Oriental Institute of the University of Chicago, pp. 361–375.

Gösdorf, J., and Kohl, G.
2014 Radiokohlenstoffendatierung, in E. Strommenger, D. Sürenhagen, and D. Rittig (eds.), *Die Kleinfunde von Habuba Kabira-Süd* (Ausgrabungen in Habuba Kabira 2; WVDOG 141), Wiesbaden, Harrassowitz, pp. 437.

Haicheng, W.
2016 Administrative Reach and Documentary Coverage in Ancient States, *Archéo-Nil* 26, pp. 135–148.

Hald, M.M., and Charles, M.
2008 Storage of Crops during the Fourth and Third Millennia B.C. at the Settlement Mound of Tell Brak, Northeast Syria, *Vegetation History and Archaeobotany* 17/1, pp. 35–41.

Hart, K.
2005 Formal Bureaucracy and the Emergent Forms of the Informal Economy, *Working Paper, United Nations University (UNU), World Institute for Development Economics Research (WIDER)*, 2005/11, pp. 1-22.

Helwing, B.
2003 Feasts as a Social Dynamic in Prehistoric Western Asia: Three Case Studies from Syria and Anatolia, Paléorient 29, pp.63–85.

Jasim, S.A., and Oates, J.
1986 Early Tokens and Tablets in Mesopotamia: New Information from Tell Abada and Tell Brak, *World Archaeology* 17, pp.348–362.

Johnson, J. Cale
2015a Deciphering the Late Uruk Butchering Texts, *Origini* 37/1, pp. 46–55.
2015b Late Uruk Bicameral Orthographies and Their Early Dynastic Rezeptionsgeschichte, in R. Dittmann and G.J. Selz (eds.), *It's a Long Way to a Historiography of the Early Dynastic Period(s)* (Altertumskunde des Vorderen Orients 15), Münster, Ugarit Verlag, pp. 169–210.
forthcoming Meat Distribution in Late Uruk Diacritical Feasts: Second-order Bookkeeping Techniques and Their Institutional Context in Third Millennium BCE Mesopotamia, *Proceedings of the Colloquium Commemorating Peter Damerow*.

Kehoe, D.
2013 Archives and Archival Documents in Ancient Societies: Introduction, in M. Faraguna (ed.), *Archives and Archival Documents in Ancient Societies. Trieste, 30 September-1 October 2011* (Legal Documents in Ancient Societies IV; Graeca Tergestina, Storia e Civiltà 1), Trieste, Edizioni Università di Trieste, pp. 11–22.

Kennedy, J.R.
2015 Commensality and Labor in Terminal Ubaid Northern Mesopotamia. In S. Pollock, ed. *Between Feasts and Daily Meals: Toward an Archaeology of Commensal Spaces* (Berlin Studies of the Ancient World 30), Berlin, Edition Topoi, pp. 143–179.

Kepinski, C.
2011 New Evidence from Grai Resh, Northern Iraq - the 2001 and 2002 Seasons. A Pre-Uruk Expansion Site from Late Chalcolithic Period, *Zeitschrift für Orient-Archäologie* 4, pp.26–81.

Lamberg-Karlovsky, C.C.
1999 Households, Land Tenure, and Communications Systems in the 6th–4th Millennia of Greater Mesopotamia, in M. Hudson and B. Levine (eds.), *Urbanization and Land Ownership in the Ancient Near East*, Cambridge, MA, Peabody Museum - Harvard University, pp. 167–201.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

2015 Labor, Social Formation, and the Neolithic Revolution, in P. Steinkeller and M. Hudson (eds.), *Labor in the Ancient World* (The International Scholars Conference on Ancient Near Eastern Economies, 5), Dresden, ISLET-Verlag, pp. 37–68.

Lieberman, S.J.

1980 Of Clay Pebbles, Hollow Clay Balls, and Writing: A Sumerian View, *American Journal of Archaeology* 84, pp. 339–358.

Lloyd, S., Safar, F., and Frankfort, H.

1943 Tell Uqair: Excavations by the Iraq Government Directorate of Antiquities in 1940 and 1941, *Journal of Near Eastern Studies* 2/2, pp. 131–158.

Matthews, R.J.

2003 Traces of Early Complexity Late Fifth to Early Fourth-millennia Investigations: The Early Northern Uruk Period, in R.J. Matthews (ed.), *Excavations at Tell Brak. Vol. 4: Exploring an Upper Mesopotamian Urban Centre, 1994-1996*, Cambridge, McDonald Institute for Archaeological Research/British School of Archaeology in Iraq, pp. 25–52.

2013 The Power of Writing: Administrative Activity at Godin Tepe, Central Zagros, in the Later Fourth Millennium BC, in C.A. Petrie (ed.), *Ancient Iran and Its Neighbours. Local Developments and Long-range Interactions in the Fourth Milenium BC* (British Institute of Persian Studies. Archaeological Monographs Series III), Oxford, British Institute of Persian Studies/Oxbow Books, pp. 337–352.

McCorriston, J.

1997 The Fiber Revolution: Textile Extensification, Alienation, and Social Stratification in Ancient Mesopotamia, *Current Anthropology* 38, pp. 517–549.

McIntosh, S.K.

1999 Pathways to Complexity: An African Perspective, in S. K. McIntosh (ed.), *Beyond Chiefdoms: Pathways to Complexity in Africa*, Cambridge, Cambridge University Press, pp. 1–30.

McMahon, A.

2009 The Lion, the King and the Cage: Late Chalcolithic Iconography and Ideology in Northern Mesopotamia, *Iraq* 71, pp. 115–124.

2013 Tell Brak Early Northern Mesopotamian Urbanism, Economic Complexity and Social Stress, Fifth – Fourth Millennia BC, in D. Bonatz and L. Martin (eds.), *100 Jahre Archäeologische Feldforschungen in Nordost-Syrien – Eine Bilanz*, Wiesbaden, Harrassowitz, pp. 67–80.

2015 A New World of Work: Economic Inequalities in 4th Millennium BC Mesopotamia, *Origini* 38/2, pp.23–39.

2016 The Encultured Vulture; Late Chalcolithic Sealing Images and the Challenges of Urbanism in 4th Millennium BC Northern Mesopotamia, *Paléorient* 42/1, pp. 169–183.

McMahon, A., and Stone, A.

2013 The Edge of the City: Urban Growth and Burial Space in 4th Millennium BC Mesopotamia, *Origini* 35, pp.83–110.

McMahon, A., Oates, J., Al-Quntar, S., Charles, M., Colantoni, C., Hald, M.M., Karsgaard, P., Khalidi, L., Sołtysiak,, A., Stone, A., Weber, J.,

2007 Excavations at Tell Brak 2006-2007, *Iraq* 69, pp. 145–171.

McMahon, A., Sołtysiak, A., and Weber, J.

2011 Late Chalcolithic Mass Graves at Tell Brak, Syria, and Violent Conflict During the Growth of Early City-States, *Journal of Field Archaeology* 36/3, pp. 201–220.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Miller, H.M.-L.
2006 Water Supply, Labor Organization, and Land Ownership in Indus Floodplain Agricultural System, in J. Marcus and C. Stanish (eds.), *Agricultural Strategies* (Cotsen Advanced Seminar 2), Los Angeles, Cotsen Institute of Archaeology, pp. 92–130.

Minc, L.D.
2016 Trace-element Analyses of Uruk Ceramics: Establishing a Database to Track Interregional Exchange, *Journal of Archaeological Science: Reports* 7, pp. 798-807.

Minc, L.D., and Emberling, G.
2016 Trade and Interaction during the Era of the Uruk Expansion: Recent Insights from Archaeometric Analyses, *Journal of Archaeological Science: Reports* 7, pp. 793-797.

Narotzky, S.
2005 Provisioning, in J.G. Carrier (ed.), *A Handbook of Economic Anthropology*, Cheltenham, UK - Northampton, MA, Edward Elgar Publising, pp. 78–93.

Nissen, H.J.
1986 The Archaic Texts from Uruk, *World Archaeology* 17/3, pp. 317–334.
2001 Cultural and Political Networks in the Ancient Near East During the Fourth and Third Millennia B.C., in M. Rothman (ed.), *Uruk Mesopotamia and Its Neighbors. Cross Cultural Interactions in the Era of State Formation*, Santa Fe: School of American Research Press, pp. 149–180.
2002 Uruk: Key Site of the Period and Key Site of the Problem, in N. Postgate (ed.), *Artefacts of Complexity. Tracking the Uruk in the Near East* (Iraq Archaeological Report 5), Oxford, British Institute for the Study of Iraq, pp. 1–16.
2015 Urbanization and Techniques of Communication: The Case of the Rise of the Southern Mesopotamian City of Uruk during the Fourth Millennium BCE, in N. Yoffee (ed.), *Early Cities in Comparative Perspective, 4000 BCE-1200 CE* (The Cambridge World History, III), Cambridge, Cambridge University Press, pp. 113–130.
2016 Uruk: Early Administration Practices and the Development of Proto-Cuneiform Writing, *Archéo-Nil* 26, pp. 33–48.

Nissen, H.J., Damerow, P., and Englund, R.K.
1993 *Archaic Bookkeeping: Early Writing and Techniques of Economic Administration in the Ancient Near East*, Chicago, Chicago University Press.

Oates, J.
2012 Early Administration at Arslatepe and Tell Brak (Ancient Nagar), *Origini* 24, pp.1691–78.

Oates, J., McMahon, A., Karsgaard, P., Al-Quntar, S., and Ur., J.
2007 Early Mesopotamian Urbanism: A New View from the North, *Antiquity* 81, pp. 585–600.

Palaima, T.
2015 The Mycenaean Mobilization of Labor in Agriculture and Building Projects: Institutions, Individuals, Compensation, and Status in the Linear B Tablets, in P. Steinkeller and M. Hudson (eds.), *Labor in the Ancient World* (The International Scholars Conference on Ancient Near Eastern Economies, 5), Dresden: ISLET-Verlag, pp. 617–648.

Peyronel, L., and Vacca, A.
2015 Northern Ubaid and Late Chalcolithic 1-3 Periods in the Erbil Plain. New Insights from Recent Researches at Helawa, Iraqi Kurdistan, *Origini* 37/1, pp. 89–128.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Pittman, H.
1993 Pictures of an Administration: The Late Uruk Scribe at Work, in M. Frangipane et al. (eds.), *Between the Rivers and Over the Mountains: Archaeologica Anatolica et Mesopotamica Alba Palmieri Dedicata*, Roma, Università di Roma "La Sapienza", pp. 235–247.
1999 Administrative Evidence from Hacinebi Tepe: An Essay on the Local and the Colonial, *Paléorient* 25/1, pp. 43–50.
2001 Mesopotamian Intraregional Relations Reflected through Glyptic Evidence in the Late Chalcolithic 1–5 Periods, in M. Rothman (ed.), *Uruk Mesopotamia and Its Neighbors. Cross Cultural Interactions in the Era of State Formation*, Santa Fe, School of American Research Press, pp. 403–444.
2012 Interregional Interaction at Arslantepe: The Glyptic Evidence of Level VII, *Origini* 24, pp. 79–96.
2013 Imagery in Administrative Context: Susiana and the West in the Fourth Millennium BC, in C. Petrie (ed.), *Ancient Iran and Its Neighbours. Local Developments and Long-range Interactions in the Fourth Millenium BC* (British Institute of Persian Studies. Archaeological Monographs Series, III), Oxford, British Institute of Persian Studies/ Oxbow Books, pp. 293–336.
Pittman, H., and Blackman, M.J.
2016 Mobile or Stationary: Chemical Analysis of Clay Administrative Devices from Tell Brak in the Uruk Period, *Journal of Archaeological Science: Reports* 7, pp. 877-883.
Pollock, S.
2003 Feasts, Funerals, and Fast Food in Early Mesopotamian States, in T. Bray (ed.), *The Archaeology and Politics of Food and Feasting in Early States and Empires*, New York: Kluwer Academic Publishers, pp. 17–38.
2012 Politics of Food in Early Mesopotamian Centralized Societies, *Origini* 34, pp.146–153.
2013 Commensality, Public Spheres and Handlungsräume in Ancient Mesopotamia, in J.E. Robb and T.R. Pauketat (eds.), *Big Histories, Human Lives: Tackling Problems of Scale in Archaeology*, Santa Fe, School of Advanced Research, pp. 145–170.
Potts, D.T.
2009 Bevel-rim Bowls and Bakeries: Evidence from Iran and the Indo-Iranian Borderlands, *Journal of Cuneiform Studies* 61, pp. 1–23.
Pournelle, J., and Algaze, G.
2014 Travels in Edin: Deltaic Resilience and Early Urbanism in Greater Mesopotamia, in A. McMahon and H. Crawford (eds.), *Preludes to Urbanism. The Late Chalcolithic of Mesopotamia*, Cambridge, McDonald Institute for Archaeological Research, pp. 7–34.
Prentice, R.
2010 *The Exchange of Goods and Services in Pre-Sargonic Lagaš* (AOAT 368), Munster, Ugarit Verlag.
Reichel, C.
2002 Administrative Complexity in Syria during the 4th Millennium B.C. – The Seals and Sealings from Tell Hamoukar, *Akkadica* 123/1, pp. 35–56.
2006 Urbanism and Warfare: The 2005 Hamoukar, Syria, Excavations, *Oriental Institute News and Notes* 189, pp. 1–11.
2011 Hamoukar 2005-2010: Revisiting the Origins of Urbanism in Syria, *Oriental Institute News and Notes*, pp. 3–9.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Renger, J.M.
1995 Institutional, Communal, and Individual Ownership or Possession of Arable Land in Ancient Mesopotamia from the End of the Fourth to the End of the First Millennium B.C., *Chicago-Kent Law Review* 71/1, pp. 269–319.

Robson, E.
2007 Numeracy, Literacy, and the State in Early Mesopotamia, in K. Lomas, R.D. Whitehouse, and J.B. Wilkins (eds.), *Literacy and the State in the Ancient Mediterranean* (Accordia Specialist Studies on the Mediterranean 7), London, Accordia Research Institute, University of London, pp. 37–50.

Rosenstock, E.
2015 The Price of Urbanization? Biological Standard of Living in the Near East Around the 4th Millennium, *Origini* 37/1, pp. 38–42.

Rothman, M.S.
1994 Sealings as Control Mechanism in Prehistory: Tepe Gawra XI, X, VIII, in G.J. Stein and M. Rothman (eds.), *Chiefdoms and Early States in the Near East: The Organizational Dynamics of Complexity* (Monographs in World Prehistory 18), Madison (WI), Prehistory Press, pp. 103–120.
2000 The Commoditization of Goods and the Rise of the State in Mesopotamia, in A. Haugerud, M. Priscilla Stone, and P.D. Little (eds.), *Commodities and Globalization: Anthropological Perspectives*, Lanham, MD, University Press of America, pp. 163–178.
2001 *Uruk Mesopotamia and Its Neighbors. Cross-Cultural Interaction in the Era of State Formation*, Santa Fe, School of American Research Press.
2002 *Tepe Gawra: The Evolution of a Small Prehistoric Center in Northern Iraq* (University Museum Monographs 112), Philadelphia, University of Pennsylvania Museum of Archaeology and Anthropology.
2004 Studying the Development of Complex Societies: Mesopotamia in the Late Fifth and Fourth Millennia BC, *Journal of Archaeological Research* 12/1, pp. 75–119.
2005 Sealing Function and Interaction at Tepe Gawra, in M. Perna (ed.), *Studi in onore di Enrica Fiandra: contributi di archeologia egea e vicinorientale* (Studi Egei e Vicino Orientali, 1), Napoli, De Broccard, pp. 341–355.
2009 Religion, Function, and Social Networks: Tepe Gawra in the Late Fifth and Early Fourth Millennia BC, in P. Butterlin (ed.), *A Propos de Tepe Gawra, Le Monde Proto-urbain de Mesopotamie/About Tepe Gawara: A Proto-urban World in Mesopotamia* (Subartu XXIII), Turnhout, Brepols, pp. 15–40.

Rothman, M.S., and Blackman, M.J.
1990 Monitoring Administrative Spheres of Action in Late Prehistoric Northern Mesopotamia with the Aid of Chemical Characterization (INAA) of Sealing Clays, in N. Miller (ed.), *Economy and Settlement in the Near East: Analyses of Ancient Sites and Materials* (MASCA Research Papers Supplement to vol. 7), Philadelphia, University of Pennsylvania Museum of Archaeology and Anthropology, pp. 19–45.

Sallaberger, W., and Schrakamp, I.
2015 Part 1: Philological Data for a Historical Chronology of Mesopotamia in the 3rd Millenium, in W. Sallaberger and I. Schrakamp (eds.), *ARCANE III. History and Philology*, Turnhout, Brepols, pp. 1–136.

Schmandt-Besserat, D.
1996 *How Writing Came about*, Austin: University of Texas Press.
2014 Symbole aus Ton und Stein (calculi), in E. Strommenger, D. Sürenhagen, and D. Rittig (eds.), *Ausgrabungen in Habuba Kabira II: Die Kleinfunde von Habuba Kabira-Süd* (WVDOG 141), Wiesbaden, Harrassowitz, pp. 309–326.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Schwartz, M., and Hollander, D.
2016 The Uruk Expansion as Dynamic Process: A Reconstruction of Middle to Late Uruk Exchange Patterns from Bulk Stable Isotope Analyses of Bitumen Artifacts, *Journal of Archaeological Science: Reports* 7, pp. 884-889.

Sherratt, A.
2004 Material Resources, Capital, and Power: The Coevolution of Society and Culture, in G. Feinman and L.M. Nicholas (eds.), *Archaeological Perspectives on Political Economies*, Salt Lake City, University of Utah Press, pp. 79–104.

Skuldbøl, T.B.B., and Colantoni, C.
2016 Early Urbanism on the Margins of Upper Mesopotamia – Compex Settlement Patterns and Urban Transformations on the Rania Plain in Northeastern Iraq, in M. Iamoni (ed.), *Trajectories of Complexity. Socio-economic Dynamics in Upper Mesopotamia in the Neolithic and Chalcolithic Period* (Studia Chaburensia 6), Wiesbaden, Harrassowitz, pp. 1–26.

Siracusano, G., and Bartosiewicz, L.
2012 Meat Consumption and Sheep/Goat Exploitation in Centralised and Non-centralised Economies at Arslantepe, Anatolia, *Origini* 24, pp. 111–124.

Stein, G.J.
1999 Rethinking World-Systems. Diasporas, Colonies and Interaction in Uruk Mesopotamia, Tucson, The University of Arizona Press.
2012a The Development of Indigenous Social Complexity in Late Chalcolithic Upper Mesopotamia in the 5th-4th Millennia BC – An Initial Assessment, *Origini* 34, pp. 125–151.
2012b Food Preparation, Social Context, and Ethnicity in a Prehistoric Mesopotamian Colony, in S.G. Graff and H. Rodriguez-Alegria (eds.), *The Menial Art of Cooking: Archaeological Studies of Cooking and Food Preparation*, Boulder, University of Colorado Press, pp. 47–63.

Stein, G.J., and Alizadeh, A.
2014 Surezha, Kurdistan, in G.J. Stein (ed.), *Oriental Institute 2013-2014 Annual Report*, Chicago, The Oriental Institute of the University of Chicago, pp. 133–146.

Steinkeller, P.
2004 The Function of Written Documentation in the Administrative Praxis of Early Babylonia, in M. Hudson and C. Wusch (eds.), *Creating Economic Order: Record-keeping, Standardization and the Development of Accounting in the Ancient Near East: A Colloquium Held at the British Museum, November 2000*, Bethesda, CDL Press, pp. 65–88.
2015 Introduction. Labor in the Early States: An Early Mesopotamian Perspective, in P. Steinkeller and M. Hudson (eds.), *Labor in the Ancient World: A Colloquium held at Hirschbach (Saxony), April 2005* (The International Scholars Conference on Ancient Near Eastern Economies 5), Dresden, ISLET-Verlag, pp. 1–35.

Szarzynska, K.
1992 Names of Temples in the Archaic Texts from Uruk, *Acta Sumerologica* 14, pp. 269–287.

Şaul, M.
1983 Work Parties, Wages, and Accumulation in a Voltaic Village, *American Ethnologist* 10, pp. 77–96.

Torcia Rigillo, M.
1991a Cretule da Tepe Gawra, *Mesopotamia* 26, pp.35–99.
1991b Sealing Systems on Uruk Doors, *Baghdader Mitteilungen* 22, pp. 175–223.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Ur, J.
2014 Households and the Emergence of Cities in Ancient Mesopotamia. *Cambridge Archaeological Journal* 24/2, pp. 249–268.
Vallet, R.
1996 Habuba Kebira: ou la naissance de l'urbanisme, *Paléorient* 22/2, pp. 45–76.
Van Driel, G.
1982 Tablets from Jebel Aruda, in G. van Driel, T.J.H. Krispijn, and M. Stol (eds.), *Zikir Šumim: Assyriological Studies Presented to F. R. Kraus on the Occasion of his Seventieth Birthday* (Studia Francisci Scholten memoriae dicata, 5), Leiden, Brill, pp. 12–25.
Van Ess, M., and Heußner, K.-U.
2015 Absolute Chronology of the Uruk and Jemdet Nasr Periods at Uruk, Southern Mesopotamia. The Interpretation of Additional 14C Samples, *Zeitschrift für Orient-Archäologie* 8, pp. 10–37.
Vila, E., and Helmer, D.
2014 The Expansion of Sheep Herding and the Development of Wool Production in the Ancient Near East: An Archaeozoological and Iconographical Approach, in C. Breniquet and C. Michel (eds.), *Wool Economy in the Ancient Near East and Aegean. From the Beginning of Sheep Husbandry to Institutional Textile Industry* (Ancient Textiles Series 17), Oxford, Oxbow Books, pp. 22–40.
Wagensonner, K.
2012 Early Lexical Lists and Their Impact on Economic Records: An Attempt of Correlation Between Two Seemingly Different Kinds of Data-Sets, in G. Wilhelm (ed.), *Organization, Representation, and Symbols of Power in the Ancient Near East Proceedings of the 54th Rencontre Assyriologique Internationale at Würzburg 20–25 July 2008*, Winona Lake, IN, Eisenbrauns, pp. 805–817.
Warburton, D.
2000 Before the IMF: The Economic Implications of Unintentional Structural Adjustment in Ancient Egypt, *Journal of the Economic and Social History of the Orient* 43/2, pp. 65–131.
2016 *The Fundamentals of Economics: Lessons from the Bronze Age Near East* (Civilisations du Proche-Orient, série IV, histoire-essais, 3), Neuchâtel: Recherches et Publications.
Weber, J.
2016 Animals and Complexity: Mapping Urban Land-use through Sex and Size, in M. Iamoni (ed.) Trajectories of Complexity. *Socio-economic Dynamics in Upper Mesopotamia in the Neolithic and Chalcolithic Period* (Studia Chaburensia 6), Wiesbaden, Harrassowitz, pp. 195–214.
Wengrow, D.
2008 Prehistories of Commodity Branding, *Current Anthropology* 49/1, pp.7–34.
2010 Introduction: Commodity Branding in Archaeological and Anthropological Perspectives, in A. Bevan and D. Wengrow (eds.), *Cultures of Commodity Branging*, Walnut Creek, CA, Left Coast Press, pp. 11–34.
Wilkinson, T.J., Gibson, M., and Widell, M.
2013 *Models of Mesopotamian Landscapes. How Small-Scale Processes Contributed to the Growth of Early Civilizations* (BAR S2552), Oxford, Archaeopress.
Woods, C.
2015 Contingency Tables and Economic Forecasting in the Earliest Texts from Mesopotamia, in P. Del Nero and J. Lauinger (eds.), *Texts and Contexts. The Circulation and Transmission of Cuneiform Texts in Social Space* (Studies in Ancient Near Eastern Records 9), Berlin, De Gruyter, pp. 121–142.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Wright, H.T.
2001 Cultural Action in the Uruk World, in M. Rothmann (ed.), *Uruk Mesopotamia and Its Neighbors*, Santa Fe, SAR Press, pp. 123–148.
2014 Early Uruk Ceramic Assemblages: Cultural Relations in Greater Mesopotamia during the Late Fifth and Early Fourth Millennia BC, in A. McMahon, and H. Crawford (eds.), *Preludes to Urbanism. The Late Chalcolithic of Mesopotamia*, Cambridge, McDonald Institute for Archaeological Research, pp. 109–126.
2016 The Uruk Expansion and Beyond: Archaeometric and Social Perspectives on Exchange in the IV$^{th}$ Millennium BCE, *Journal of Archaeological Science: Reports* 7, pp. 900-904.
Wright, H.T., and Rupley, E.S.A.
2001 Calibrated Radiocarbon Age Determinations of Uruk-related Assemblages, in M.S. Rothman (ed.), *Uruk Mesopotamia and Its Neighbors. Cross Cultural Interactions in the Era of State Formation*, Santa Fe, SAR Press, pp. 85–122.
Wright, H.T., Miller, N.F., and Redding, R.W.
1980 Time and Process in an Uruk Rural Center, in M.-T. Barrelet (ed.), *L'Archeologie de l'Iraq du début de l'époque néolithique à 333 avant notre ère: perspectives et limites de l'interpretation anthropologiques des documents; Paris, 13-15 juin 1978* (Colloques internationaux du CNRS 580), Paris, Editions du CNRS, pp. 265–284.
Yoffee, N.
1995 Political Economy in Early Mesopotamian States, *Annual Review of Anthropology* 24, pp. 281–311.
2005 *Myths of the Archaic State. Evolution of the Earliest Cities, States, and Civilizations*, Cambridge, Cambridge University Press.
2010 The Unbearable Lightness of Complexity, in S. Alt (ed.), *Ancient Complexities. New Perspectives in Precolumbian North America*, Salt Lake City, University of Utah Press, pp. 220–225.
2016 The Power of Infrastructures: A Counternarrative and a Speculation. *Journal of Archaeological Method and Theory* 23/4, pp. 1053–1065.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

## Tables

| Archaeological Period | Cultural Period | Calibrated date |
|---|---|---|
| Ubaid 3-4 / Northern Ubaid | | 5300-4500 BC |
| Late Chalcolithic 1 | Post Ubaid | (begins 4800 BC in Kurdistan) 4500-4200 BC |
| LC 2 | Early Uruk | 4200-3850 BC |
| LC 3 | Middle Uruk | 3850-3700 BC |
| LC 4 | | 3700-3370 BC |
| LC 5 | Late Uruk | 3370-3200/3100 BC (3000 in Anatolia) |

Table 1. Chronology of the 6th to the 4th millennia BC in GM (based on Rothman 2001; Stein and Alizadeh 2014: Table 1; Van Ess and Heußner 2015)

| Calibrated date | Period | Sites | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Arslantepe | Hacinebi | Hamoukar | Brak | Gawra | Grai Resh | Sheik Hassan | Susa – Acr. | Uruk - Eanna |
| 5300-4500 BC | Ubaid 3-4 | | | | | XIX-XIII | | | | |
| 4500-4200 BC | LC 1 | | | | | XII | | | 27-23 | XVI-XIV |
| 4200-3850 BC | LC 2 | VIII | A | Khirbet al-Fakhar 3-1 | TW 22-20 TW19 | XI-IX | IV, IIIB, IIB | | | XIII-X |
| 3850-3700 BC | LC 3 | VII | B1 | Ham. - Area B | TW 18-16 | VIII | IIA | 8-10/13 | 22-20 | IX-VII |
| 3700-3370 BC | LC 4 | | B2a-B2b | | TW 15-13 | | | 5-7 | | VII-VI |
| 3370-3200 (end 3000 Anatolia) BC | LC 5 | VIA | | | TW 12-11 | | | 4 | 19-17 | V-IV |

Table 2. Chronostratigraphic synopsis of the main LC sequences in GM (based on Stein 2012a: Table 1, Pittman 2013; Rothman 2004: 77; for LC 4-5 Uruk see also Table 3 below)


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

| Area | Context | Layer | Sample type | C14 date (calibrated) | Eanna phasing | Archaeological period |
|---|---|---|---|---|---|---|
| Anu Ziqqurat | Terrace (Level C) | Building level (10-)8 | Juniper twigs | 3500-3425 BC | Eanna VI? | LC 4 |
| | White Temple (Level B) | Building level (8-)7 | Wooden beams | 3385–3360 BC | Eanna V? | |
| | | | | | | |
| Eanna | Riemchen Building | In-fill | Bones, reed | 3370 BC (or 3520-3100 BC) | Eanna V/VI? | LC 5 |
| | Building C | Destruction? (fell of beams) | Roof beams | 3275–3250 or 3290–3245 BC | Eanna IVa (building level 15) | |
| | "Opferstätte" – oval pits | Content of pits | Bones and wood | 3360/3340-3200/3150 BC | Eanna IIIc (between level 15 and 14) | |
| | | | | | | |
| "Archaische Siedlung" | Dwelling quarter | Content of ovens | Ash | 3350/3330 – 3210/3180 – 3240/3100 BC | Eanna III? | Jemdet Nasr (?) |
| Md 15-14 | Reed structure | | Wood and reed | 3330/3215 – 3070/3025 BC | Late Eanna IVa or Eanna IIIc | |

Table 3. Calibrated C14 determinations for LC 4-5 and Jemdet Nasr contexts at Uruk (elaborated from Van Ess and Heußner 2015)

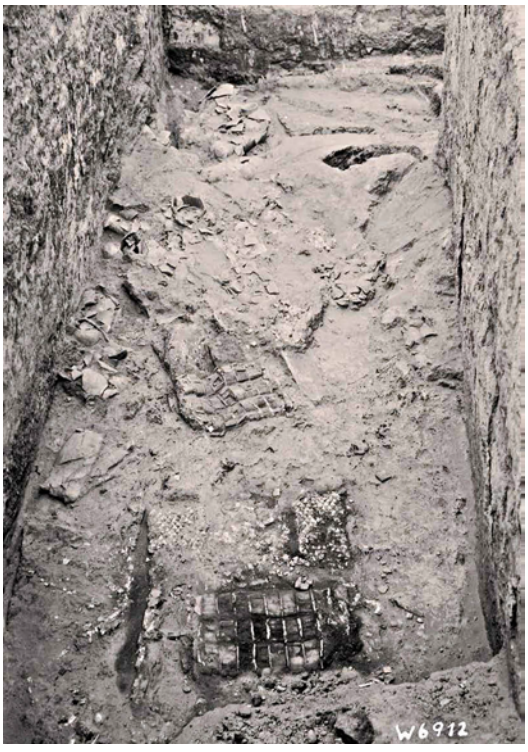



Fig. 4.1. Destruction layer in the Riemchen building in the Eanna area at Uruk (by courtesy of the DAI Orient-Abteilung, Uruk-Warka-Archiv, photo no. W-06912)


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

# Chapter 5
# Wandering through Early Urbanized Landscapes in Syro-Mesopotamia

Nicolò Marchetti

*Abstract*
In modern surveys, research design has become an integrated task drawing not only from many different fields, but applying simultaneously diverse perspectives and approaches too, from micro- to macro-scales, envisioning a continuum of data which binds nested landscapes and humanscapes. Two recent projects, Ebla Chora – characterizing the 3rd millennium BC diverse ecological niches east and south of Ebla – and QADIS – unraveling settlement patterns and eco-strategies in a central mesopotamian area between Nippur and Fara – attempted at showcasing such an approach both on the field and on previously acquired data, building upon the outstanding work and ideas put forward by Robert McCormick Adams fifty years ago.

## 1. Introduction

Present accessibility for archaeologists of remote sensing techniques has dramatically altered our perception of ancient landscapes in the last two decades: if this seems even a trivial truth at present, in fact it needs to be properly framed in a conceptual and practical modelisation. The reconstruction of ancient natural and anthropized landscapes presents a series of local challenges during field surveys – both archaeological and geomorphological – which have been masterly reviewed and discussed in 2003 by Tony Wilkinson. In fact, if on the one hand the informative potential varies enormously depending on the nature of the terrain and of ancient settlements, on the other we have to cope with an ever-increasing array of modern and contemporary dangers: deforestation entailing soil erosion carries away whole sets of evidence, flooding and silting conceal entire landscapes, agricultural mechanization brings the levelling of fields (with deep ploughing removing superficial evidence as well), manuring changes the patterns of artifactual dispersion, not to speak of all the other actions connected with economic development (urbanization, construction of dams and other infrastructures, digging of canals, etc.). In the current, quickly changing world we benefit of unprecedented options in documentation but at a rate barely parallel to the accelerating destruction of the evidence.

In the present paper I will outline some personal comments on issues relating to research questions and design in archaeological surveys, skipping the connected legislative aspects.[1] If

1 It suffices to say that preventive archaeology – in best case scenarios meaning the systematic control and data collection required by the Law through an array of techniques, before and during excavation works


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

we look at the sheer number of published surveys in the Near East, the need for a coordinated effort for mapping in a digital environment what has been put on paper is as evident as awe-inspiring because of the magnitude of such task and the rapid development of research questions which risks to make obsolete the initial structure: while a cooperative spirit going in the direction of networked science may be the best answer to this challenge (Marchetti *et al*. 2017), at present there are but a few projects which have tackled or are tackling holistically this issue.[2] If a quantitative basis is indeed a prerequisite for any sound evaluation of trends, it is however the quality of the data collected/created which allows for complex explanatory models. But what if both are less accurate than expected?

Once we visualize a historical landscape as a continuum of data, from a maximum represented by a settlement to a minimum by, say, a desert, it is obvious that intensive surveying is the kind of field research that best copes with that reality. Restricting myself to the Syro-Mesopotamian area, we immediately note that only a minority of surveys, however, are carried out in a systematic way, mostly due to budget constraints, personnel and/or time limitations. Even in the case of areas to be submerged by prospective dams, surveys carried out in the past were faulty at best: for example, when we consider the Upper and Middle Euphrates areas, we see that less than one fourth of the area was surveyed intensively, while in another third (sometimes even a little more than half of the area) only remains visible from a distance were grossly recorded and the rest went unsurveyed altogether.[3] Further, a recent alarming trend – which takes a political stint – is of not even putting out an international call for archaeological surveys in newly planned or already started dam construction areas, as it is happening for the upper reaches of the Euphrates basin.[4] If we then look at the techniques employed in the field until recently, we may often single out other critical issues: not all projects survey their allotted areas in different seasons (which accounts for markedly different visibility of surface features), some are content with surveying only highly visible sites, while remote sensing analyses based on aerial (historical and newly obtained through UAVs) and satellite imagery are often insuf-

carried out for infrastructures and buildings, a control which is paid for by contractors and managed by State Cultural Authorities through the direct hiring of recognized professionals – is still unfortunately mostly in its infancy outside Europe (cf. Bozóki-Ernyey 2007).

2 In the past fifteen years the most remarkable projects have been the ArchAtlas (www.archatlas.dept.shef.ac.uk) and The Fragile Crescent Project (www.dur.ac.uk/fragile_crescent_project) ones, with the latter asking the more complex questions about the landscape context of urban developments in the northern Levant and northern Mesopotamia. Currently, it is the CRANE project (www.crane.utoronto.ca) which is developing the most promising approach, based on inclusivity and flexibility. For synthetic reviews of surveys in northern Syria and Iraq, see Mantellini 2013; Wilkinson *et al*. 2014; Hritz 2010: 186, fig. 3).

3 We have carried out systematic bibliographic research coupled with GIS analysis, within the EU-JPI "HeAT" project, for the whole Euphrates valley dam system: preliminary results have been presented in Marchetti *et al.* in press. Surveyors often used old topographic maps and relied upon indications supplied by local villagers (Blaylock, French and Summers 1990, Özdoğan 1977 among others). For the Alpaslan II dam see Rothmann 1993. For the Keban dam see METU 1967; Whallon 1979. For the Karakaya dam see Özdoğan 1977. For the Atatürk dam see Özdoğan 1977; Blaylock, French and Summers 1990; Serdaroğlu 1977. For the Birecik and Karkamış dams see Algaze 1991; Algaze, Breuninger and Knutstad 1994.

4 Cf. http://geodata.ormansu.gov.tr/index.html?lang=en. Further information on specific dams can be found at http://en.dsi.gov.tr/Search-Dam. For general information on Turkish dams, cf. DSI 2014 and http://www.fao.org/nr/water/aquastat/dams/index.stm. Because of the current state of crisis in Iraq and Syria, development projects there have presently come to a standstill since some years.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

ficiently carried out in depth, almost skipping vegetational, hydro-geological and climatic issues as well (Ur 2014).

That Robert McCormick Adams' surveys in southern Mesopotamia were carried out according to standards which were unparalleled by their times (and somehow they still often are so) has been often repeated, but it remains nonetheless a most remarkable fact: he was using a set of aerial photographs from 1961, otherwise of restricted access, for locating potential sites and mapping traces of canals visible on the surface, he was systematic in recording sites (not intensively nor analytically, but at least repeating a standard set of field operations) and, perhaps most significantly, he was acutely aware of the historical potential of his survey work, resulting in a powerful interpretation of settlement patterns and hydraulic activities. Although he – understandably perhaps – limited himself mostly to uncultivated areas (which have since greatly expanded together with the cutting of new canals), what his very limited team achieved stirs our admiration (Adams 1981). In this paper, I'd like to sketch an overview on two different projects in which we have tried to build in his footsteps (Fig. 5.1).[5]

## 2. Case 1: the rural landscape of Ebla in North Syria

The urbanization processes of Mesopotamia and Syria have been constantly contrasted (Weiss 1986). Surveys in Syria (Mantellini 2013) were contented with cataloguing mounds with different occupation periods, until work in the Jazirah since the 1970s produced an effort to single out the characteristics of the EBA occupation in its historical development also according to peculiar landscape marks such as the "hollow ways" (Wilkinson, Tucker 1995; Ur 2010). The intrinsic potential of investigating third millennium BC urban centers was best revealed since 1974 when written evidence, of an outstanding amount and quality, for an early centralized administration started appearing at Tell Mardikh/Ebla in its archaeological context (Matthiae 2010). The Italian archaeological expedition, which had been active on the field every year between 1964 and 2010, further gathered a wide array of data through surveys and soundings in the area around Tell Mardikh (Figs. 5.2, 5.4) and had begun a multidisciplinary program of analyses.[6] The initial results of the Ebla Chora Project (ECP), as it is called, with quite detailed

5 Figs. 5.2-5.5 are by courtesy of the Ebla Chora Project (cf. Matthiae, Marchetti 2013: figs. 0.3, 8.12, 9.1, pl. 4), coordinated by Paolo Matthiae as PI and the Author as Beneficiary (ERC Advanced Grant 2010-2014, Grant Agreement no. 249394). Figs. 5.7-5.14 are by courtesy of the QADIS project , a joint Iraqi-Italian enterprise with the SBAH and directed by the Author (funded by the University of Bologna, the Italian Ministry for Foreign Affairs, and the European Union project EDUU EuropeAid CSOLA/ 2016/382-631). Fig. 5.1 is by Marco Valeri whom I thank.

6 Thanks to funding from the European Research Council, a project for systematically assessing the data relating from the Early Bronze Age (hereafter EBA) and deriving from excavations, textual studies and scientific analyses was started in 2010, just before the outbreak of the Syrian civil war. The limitation posed by the one single field campaign, which could be carried out before those events, was overcome (and this may apply also for other projects of old as well) thanks to the data stored and the samples exported by the Ebla expedition in four decades, integrated by a newly conceived remote sensing research framework: in four years a c. 3500 sq. km-large area around Ebla was characterized for its EBA phases and a diachronic pattern for the development of the Early Syrian civilization was singled out in sufficient archaeological detail, coupled with the beginning of an in-depth textual analysis concerning villages and the organization of agriculture at the height of that process. A final report on archaeological survey data collected in the ECP region is under way (cf., preliminarily, Mantellini et al. 2013). Palaeoclimatic data are being currently


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

settlement patterns variations also in relation to palaeoenvironmental features such as the shifting extent of the Matkh lake have been published as a first batch of studies highlighting the potential of this approach in Inner Northern Syria (Fig. 5.5): while surveys around sites with major ongoing excavation projects have been often carried out and have consequently profited from the refined ceramic chronologies established through excavations – as was the case with Ebla[7] – approaches as global as that of the ECP project are however still relatively rare (Matthiae, Marchetti 2013; see also Milano, Lebeau 2014).

One macroscopic difference between the chora of Ebla with other urban cores in Mesopotamia, both northern and southern with their hollow-ways and canal networks respectively, is that no major landscape features could be attributed positively to the EBA in Inner Syria, save for some minor landscape marks which are only now beginning to be evaluated such as in the case of the immediate surroundings of Ebla (Fig. 5.3)[8]. In fact, there is a single major feature which almost touched the ECP area but actually lay south of it, the so-called *Très Long Mur* (TLM), which may represent the demarcation between settled areas under urban control and the world of semi-pastoralists of the steppe, interacting at various degrees with the former (Fig. 5.6).[9] As it has been noted, it is the conquest of the steppe, entailing a rise in the number of settlements, that marks the final ascending phase of the early urbanization in the Northern Levant (what Wilkinson *et al.* 2014, 94-95 call the "zone of uncertainty" with its high risk/high gain potential), a process which starts earlier in Northern Mesopotamia and on the contrary aborts in the Southern Levant before the ensuing crisis in the north (Lawrence, Wilkinson 2015; Vacca, D'Andrea in press; for the other peak in the occupation of the arid zone occuring in the Roman period, cf. Geyer *et al.* 2007: 271, 276).

worked out starting from a borehole dug in 1981 at Tell Tuqan, a site which lies at the edge of the Matkh depression (S. Cremonini, N. Marchetti, V. Picotti, V. Rossi, D. Scarponi, "Holocene Palaeoclimatic data from the Matkh Lake, Syria", forthcoming).

7 In the case of the Ebla region, the detailed EBA ceramic chronology for Ebla, Afis and Tuqan has been recently worked out in several papers (EB I-II: Mazzoni 2002; Vacca 2014; EB III: Vacca 2014; 2018; EB IVA1: Vacca 2015; 2018; EB IVA2 initial: Vacca 2015; Marchetti, Vacca 2018; EB IVA2 final: Mazzoni 2002; 2013; Marchetti 2013; EB IVB: D'Andrea 2014-2015; Welton 2014).

8 An interesting feature of the Eblaite landscape, and of the adjacent plateau in general, is that represented by the line of wells along the -20 m depth of the water table, which marks the border with the arid steppe: see Mantellini et al. 2013; Biga 2013: 264-265.

9 Cf. most recently Mouamar 2016. His interpretation of the TLM as the south-eastern boundary of the Ib'al confederation is attractive but requires further elaboration: while the connection of the TLM with large EB IVA-B rounded cities is convincing on the one side (cf. Castel 2018: 83-85, figs. 11, 13 for their location at a c. regular distance of 10 km to the west of the TLM), one has to be careful in putting forward otherwise unwarranted toponomastic identifications (see, however, Bonechi 2016).


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

## 3. Case 2: from canals to streets in Central Mesopotamia

If the Ebla Chora project was partly based on data produced in previous decades, a new 3-years project, aiming at investigating settlement dynamics in a region which currently extends over 1829 sq. km (down from its initial 2457 sq. km) around Adab and Puzriš-Dagan, was started in 2016, with five campaigns having been carried out until January 2018. Adams had included this area in his field surveys (he catalogued 415 sites within it): in spite of his pioneering efforts in modeling site hierarchies and agricultural catchment, the lack of fine-grained datasets – partially due to the overall lack of survey projects in central/southern Iraq in the last decades – left many of the crucial questions posed by Adams' work unanswered. In fact, one of the main objectives of the survey project is that of understanding the complex interplay between the spatial clustering of human communities and the organization of irrigated agriculture, which appear to be the main variables of the southern Mesopotamian eco-social system during much of its history, highlighting the feedback processes that led to the formation, development and decline of urban centers and state entities since the late 4$^{th}$ millennium BC (the area under study appears to be, in fact, a major urban formation core from the early prehistory to the latest historical periods).

One of our first practical concerns was to transport on a fixed coordinate system Adams' maps, which proved to be a laborious task, with several of his 415 sites which were included there resulting actually shifted up to 1 km (an error depending on the 1:300,000 scale of his maps and also on his positioning method based on triangulation, Adams 1981, 29). We initiated two main research avenues there, with the aim of producing a new understanding of the multi-layered historical landscape of the region by means of cutting-edge documentation techniques. In the first place, after carrying out a preliminary remote sensing analysis (which included both visible surface features and traces of looting), we prepared a list of new sites to be surveyed on the ground: as of the time of writing, more than 100 have been confirmed through ground control (Fig. 5.7).[10] Ancient, now silted canal networks and possible ancient agricultural fields in extra-site areas are also being systematically mapped by us, mostly through satellite imagery, with UAV flights supplementing higher resolution imagery for selected portions of them.[11] A long-term goal is to integrate epigraphical sources and surface evidence from settlement patterns into reconstructions of historical land use and patterns of change for institutional and decision-making structures, maintaining as key perspective the study of the relationship between settlements, water-ways and the development of agricultural infrastructures.

10 We are keeping a gazeteer also of sites which, although showing a potential settlement nature from remote sensing, were classified as non-sites after checking them: however, since silting deeply affects sites in our area too, boreholes should be required to conclusively assess their nature. Unfortunately, in recent satellite imagery an important indicator for actual sites, in addition to visible surface features, is represented by well-visible looting pits (although the peak of looting occurred between 2003 and 2007 – cf. Emberling, Hanson 2008 – it is still ongoing on a regular basis and it is carried out both by local people and by specialized gangs allegedly coming from the Nasiriyah region).

11 In some cases, Adams' maps provided a good starting point for identifying new anomalies possibly interpreted as archaeological sites. Indeed, several sites have been recognized where the map made by Adams (1981: 364) showed a confluence of palaeochannels in an empty area (empty spots; Marchetti *et al.* 2017: 65, fig. 2).


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

At the same time we started new, high-precision survey work on sites selected through a variety of criteria based on their historical importance (such as Adab and Puzriš-Dagan), on essaying to characterize in detail a limited area in a given period (such as the Ur III rural landscape south and east of Tell Drehem/Puzriš-Dagan) or even because of detectable surface features such as buildings and fortifications (either noted upon direct inspection or through remote sensing). On these selected sites, we intend to plot – with the greatest possible detail through aerial photogrammetric surveys using UAVs – urban plans from visible surface remains and work out a fine-tuned chronological attribution of sites through systematic collections of surface materials (which also define the functional interpretation of the urban sectors). We especially concentrated on the extensive documentation of the urban layouts of some major centers such as Tell Umm al-Fugas (Fig. 5.8), Bismaya/Adab (Fig. 5.11), Tell Dlehim/Tummal (?), Tell Jidr/Karkara, Tell Drehem/Puzriš-Dagan (Fig. 5.13) and Tell Abu Hatab/Kisurra, in addition to some minor sites, but with high-quality surface archaeological information, mainly dating from the Late Uruk, ED I, II, III, Akkadian, Ur III to Old Babylonian and Parthian periods. In 2017 we also applied another methodology:[12] in fact, we checked through selected superficial test soundings within and around looting pits the precise nature of the readings of structures allowed by aerial imagery, so that we could better tune the interpretations of visible features, as well as establishing a precise date for some apparently homogeneous built-up areas. Soundings were thus carried at the previously mentioned first four sites (but not at the last two ones): portions of monumental as well as of residential architecture were revealed, greatly helping us in mapping and interpreting intra-site spatial organization (Figs. 5.9, 5.10, 5.12).[13]

## 4. Not just two different areas

In the Ebla region, we are striving to characterize the *chora* of an early state, on the basis also of a highly developed ceramic chronology and extensive datasets from excavations at different sites, which allow us to pinpoint in the regional landscape features belonging to a limited time-slice, an otherwise typically hard-to-reach-result in surface surveys. On the other hand, the ultimate aim of the QADIS nested approach is that of creating fine-grained behavioral models for urbanized landscapes that can be used for framing ancient socio-political developments (Yoffee 2005). This paper revolves around the idea of urbanization in the sense which has come to take in recent studies,[14] with a focus on the centuries which see the great landscape transformations usually connected with the establishment of cities across Syro-Mesopotamia during the fourth and third millennia BC. From the plateaus of western Syria to the lowlands of southern

12 First suggested by Adams (1981: 47, 48 )himself although he did not have the full chance to apply it, but cf. ibid., pp. 37, 232, 237 for soundings at Tell Abu Sarifa.

13 A similar result was achieved at Tell Drehem/Puzriš-Dagān, where Iraqi excavations by the State Board of Antiquities and Heritage (SBAH) brought to ligh an Ur III administrative complex dated to Amar-Zuena (Al-Mutawalli, Shalkham 2014; Al-Hussainy, Notizia 2018: fig. 1). Nearby buildings surveyed through remote sensing can thus be best dated to the Ur III period and understood by connecting them to those excavations (Fig. 5.14).

14 The history of near eastern studies relating to the conceptualization of the "urban" phenomenon has been admirably discussed until the end of the 20th century by Mario Liverani (2013; 2016). The most significant, though a preliminary one, recent specific contribution on the themes touched in the present paper has been put forward by the MASS research group (Wilkinson *et al*. 2013; cf. also Benati 2015).


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Mesopotamia we are attempting at building in the footsteps of Robert McCormick Adams, trying to bring further his questions in diverse ecological and operational environments but with his same enthusiasm, if not skillfulness, for modeling history while walking through barren wastelands as well as sprouting agricultural fields. As Italo Calvino (1974: 122) has Kublai Khan meditating on the descriptions of cities made to him by Marco Polo:

> "Contemplating these essential landscapes, Kublai reflected on the invisible order that sustains cities, on the rules that decreed how they rise, take shape and prosper, adapting themselves to the seasons, and then how they sadden and fall in ruins. At times he thought he was on the verge of discovering a coherent, harmonious system underlying the infinite deformities and discords, but no model could stand up to the comparison with the game of chess."

## BIBLIOGRAPHY


Adams, R. McC.
1981 *Heartland of Cities. Surveys of Ancient Settlement and Land Use on the Central Floodplain of the Euphrates*, University Press, Chicago.

Algaze, G., Breuninger, R., and Knudstad, J.
1991 The Tigris-Euphrates Archaeological Reconnaissance Project: A Preliminary Report of the 1989–1990 Seasons, *Anatolica* 17, 175–240.

Algaze, G., Breuninger, R., and Knudstad, J.
1994 The Tigris-Euphrates Archaeological Reconnaissance Project: Final Report of the Birecik and Carchemish Dam Survey Areas, *Anatolica* 20, 1-97.

Al-Hussainy, A., Notizia, P.
2018 New Epigraphic Materials from Tell Drehem/Puzriš-Dagān: The Stamped Bricks of Amar-Zuena, *Orientalia* 87, 39-55

Al-Mutawalli, N., Shalkham, A.U.
2014 From the Archive of DI.KU$_5$-mīšar: Excavation of Drehem (Ancient Puzriš-$^{d}$Dagan), *Sumer* 59, 93-112.

Benati, G.
2015 Review Article. On Reconstructing Past Economies and Lifeways: A View from the Ancient Near East, *Ocnus* 23, pp. 199-205.

Biga, M.G.
2013 Defining the Chora of Ebla. A Textual Perspective, in P. Matthiae, N. Marchetti (eds), *Ebla and Its Landscape*, pp. 259-267.
2014 The Syrian Steppes and the Kingdom of Ibal in the Third Millennium B.C.: New Data from the Ebla texts, in D. Morandi Bonacossi (ed.), *Settlement Dynamics and Human-Landscape Interaction in the Dry Steppes of Syria* (Studia Chaburiensia 4), Harrassowitz, Wiesbaden: 199–207.

Blaylock, S., French, D., and Summers, G.
1990 The Adiyaman Survey: an Interim Report, *Anatolian Studies* 40, 81-135.

Bonechi, M.
2016 Thorny Geo-political Problems in the Palace G Archives. The Ebla Southern Horizon, Part One: The Middle Orontes Basin, in D. Parayre (ed.), *Le fleuve rebelle. Géographie*



ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

*historique du moyen Oronte d'Ebla à l'époque médiévale. Actes du colloque international tenu les 13 et 14 décembre 2012 à Nanterre (MAE) et à Paris (INHA), 2016* (Syria Supplement 4), IFPO, Beyrouth, 29–87.

Bozóki-Ernyey, K. (ed.)
2007 *European Preventive Archaeology: Papers of the EPAC Meeting, Vilnius 2004*, National Office of Cultural Heritage, Hungary – Council of Europe, Budapest. Downloadable at https://rm.coe.int/16806a5717.

Calvino, I.
1974 *Invisible Cities*, Harcourt Brace & Company, San Diego - New York - London.

Castel, C.
2018 Urban Planning and Urbanization in 3rd Millennium BC Syria. Tell Al-Rawda in Context, in P. Matthiae, F. Pinnock, M. D'Andrea (eds), *Ebla and Beyond. Ancient Near Eastern Studies after Fifty Years of Discoveries at Tell Mardikh. Proceedings of the International Congress Held in Rome, 15th–17th December 2014*, Harrossowitz, Wiesbaden, pp. 75-106

D'Andrea, M.
2014-2015 Early Bronze IVB at Ebla. Stratigraphy, Chronology, and Material Culture of the Late Early Syrian Town and Their Meaning in the Regional Context, *Annales Archéologiques Arabes Syriennes* 57-58, pp. 131-164.

Emberling, E., Hanson, K. (eds)
2008 *Catastrophe! The Looting and Destruction of Iraq's Past* (OIMP 28),, University of Chicago Oriental Institute Chicago.

Geyer, B., Al-Dbiyat, M., Awad, N., Barge, O., Besançon, J., Calvet, Y., Jaubert, R.
2007 The Arid Margins of Northern Syria: Occupation of the Land and Modes of Exploitation in the Bronze Age, in D. Morandi Bonacossi (ed.), *Urban and Natural Landscapes of an Ancient Syrian Capital. Settlement and Environment at Tell Mishrifeh/ Qatna and in Central-Western Syria* (SAQ 1), Forum, Udine, pp. 269-281.

Hritz, C.
2010 Tracing Settlement Patterns and Channel Systems in Southern Mesopotamia Using Remote Sensing. *Journal of Field Archaeology* 35(2), pp. 184–203.

Lawrence, D., Wilkinson, T.J.
2015 Hubs and upstarts: pathways to urbanism in the northern Fertile Crescent, *Antiquity* 89, pp. 328-344.

Liverani, M.
2013 *Immaginare Babele. Due secoli di studi sulla città orientale antica* (Storia e Società), Laterza, Roma – Bari (English translation, *Imagining Babylon. The Modern Story of an Ancient City* [SANER 11], De Gruyter, Berlin – Boston 2016).

Mantellini, S.
2013 Regional Approach and Archaeological Surveys in Northern Syria. An Overview, in P. Matthiae, N. Marchetti (eds), *Ebla and Its Landscape*, pp. 238-256.

Mantellini, S., Micale, M.G., Peyronel, L.
2013 Exploiting Diversity. Archaeological Landscape of the Eblaite Chora, in P. Matthiae, N. Marchetti (eds), *Ebla and Its Landscape*, pp. 161-192.

Marchetti, N.
2013 Working for the Elites. The Pottery Assemblage of Building P4, in P. Matthiae, N. Marchetti (eds), *Ebla and Its Landscape*, pp. 131-159.

Marchetti, N., Angelini, I., Artioli, G., Benati, G., Bitelli, G., Curci, A., Marfia, G., Roccetti, M.
2017 NEARCHOS. Networked Archaeological Open Science: Advances in Archaeology Through Field Analytics and Scientific Community Sharing, *Journal of Archaeological Research*. https://doi.org/10.1007/s10814-017-9112-4


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Marchetti, N., Bitelli, G., Franci, F., and Zaina, F.
in press Flooded Heritage. A Multi-temporal Analysis on the Evolution of Dam Reservoirs in South-eastern Turkey and Their Impact on Cultural Heritage, *Journal of Archaeological Science*.

Marchetti, N., Einwag, B., Al-Hussainy, A., Leoni, E., Luglio, G., Marchesi, G., Otto, A., Scazzosi, G., Valeri, M., and Zaina, F.
2017 QADIS. The Iraqi-Italian 2016 Survey Season in the South-eastern Region of Qadisiyah, *Sumer* 63, pp. 63-92.

Marchetti, N., Vacca, A.
2018 Building Complexity. Layers from Initial EB IVA2 in Area P South at Ebla, in A. Vacca, S. Pizzimenti, M.G. Micale (eds), *Scritti in onore di Gabriella Scandone Matthiae* CMAO XVIII), Sapienza Università di Roma, Rome, pp. 317–358.

Matthiae, P.
2010 *Ebla, la città del trono. Archeologia e storia*, Einaudi, Torino.

Matthiae, P., Marchetti, N. (eds)
2013 *Ebla and Its Landscape. Early State Formation in the Ancient Near East*, Left Coast Press, Walnut Creek, CA.

Mazzoni, S.
2002 The Ancient Bronze Age Pottery Tradition in Northwestern Central Syria, in Al-Maqdissi, M., Matoïan, V. and Nicolle, C. (eds), *Céramique de l'Âge du Bronze en Syrie, I: La Syrie du Sud et la Vallée de l'Oronte* (BAH 161), Presse de l'Ifpo, Beyrouth, pp. 69-96.

Mazzoni, S.
2013 Centralization and Redistribution. The Pottery Assemblage of Royal Palace G, in P. Matthiae, N. Marchetti (eds), *Ebla and Its Landscape*, pp. 89-110.

METU
1967 *Doomed by the Dam. A Survey of Monuments Threatened by the Creation of the Keban Dam Flood Area*, METU, Ankara.

Milano, L., Lebeau, M. (eds)
2014 *Tell Beydar. Environmental and Technical Studies* II (Subartu XXXIII), Brepols, Turnhout.

Mouamar, G.
2016 Tell Sh'aīrat: une ville circulaire majeure du IIIème millénaire av. J.-C. du territoire de la confédération des Ib'al, *Studia Eblaitica* 2, pp. 71-101

Özdoğan, M.
1977 *Lower Euphrates Basin 1977 Survey* (Middle East Technical University, Lower Euphrates Project Publications, Series I, No. 2), Middle East Technical University Keban and Lower Euphrates Projects, Istanbul.

Rothmann, M.
1993 Preliminary Report on the Archaeological Survey in the Alpaslan Dam Reservoir Area and Muş Plain 1991, in *X Araştırma Sonuçları Toplantisi, Ankara 25-29 Mayis 1992*, T.C. Kültür Bakanliği, Ankara, 279-310.

Serdaroğlu, Ü.
1977 *Aşağı Firat Havzasınza Araştirmalar 1975: Surveys in the Lower Euphrates Basin.* (Middle East Technical University, Lower Euphrates Project Publications, Series I, No. 1), Middle East Technical University Keban and Lower Euphrates Projects, Ankara.

Vacca, A.
2014 The Tuqan IC Pottery Sequence from Area P South, in F. Baffi – R. Fiorentino – L. Peyronel (eds), *Tell Tuqan Excavations and Regional Perspectives Cultural Developments*


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

*in Inner Syria from the Early Bronze Age to the Persian/Hellenistic Period, Proceedings of the International Conference May 15th–17th 2013 – Lecce*, Congedo, Lecce, pp. 45–84.

2015 Before the Royal Palace G. The Stratigraphic and Pottery Sequence of the West Unit of the Central Complex: The Building G5, *Studia Eblaitica* 1, pp. 1–32.

2018 Centralization before the Palace. The EB III-IVA1 Sequence on the Acropolis of Tell Mardikh/Ebla: Stratigraphy and Architecture, in P. Matthiae, F. Pinnock, and M. D'Andrea (eds), *Ebla and Beyond. Ancient Near Eastern Studies after Fifty Years of Discoveries at Tell Mardikh. Proceedings of the International Congress Held in Rome, 15th-17th December 2014*, Harrassowitz, Wiesbaden, pp. 35-74.

Vacca, A., D'Andrea, M.

in press Evidence for Connectivity between the Northern and Southern Levant during EB III, in S. Richard (ed.), *New Horizons in the Study of the Early Bronze III and Early Bronze IV in the Levant*, Eisenbrauns, Winona Lake, IN.

Ur, J.A.

2010 *Urbanism and Cultural Landscapes in Northeastern Syria: The Tell Hamoukar Survey, 1999-2001* (OIP 137), University of Chicago Oriental Institute, Chicago.

2014 Urban Adaptations to Climate Change in Northern Mesopotamia, in S. Kerner, R. Dann, P. Bangsgaard Jensen (eds), *Ancient Society and Climate*, Museum Tusculanum Press, Copenhagen, pp. 69-95.

Welton, L.

2014 Revisiting the Amuq Sequence: a Preliminary Investigation of the EB IVB Ceramic Assemblage from Tell Tayinat, *Levant* 46, pp. 339-370.

Weiss, H. (ed.)

1986 *The Origins of Cities in Dry-farming Syria and Mesopotamia in the Third Millennium B.C.*, Four Quarters, Guilford.

Whallon, R.

1979 *An Archaeological Survey of the Keban Reservoir Area of East-Central Turkey*, University of Michigan - Museum of Anthropology, Ann Arbor.

Wilkinson, T.J., Gibson, McG., and Widell, M. (eds)

2013 *Models of Mesopotamian Landscapes. How Small-scale Processes contributed to the Growth of Early Civilizations* (BAR S2552), Archaeopress, Oxford.

Wilkinson, T J., Philip, G., Bradbury, J., Dunford, R., Donoghue, D., Galiatsatos, N., Lawrence, D., Ricci, A., and Smith, S. L.

2014 Contextualizing Early Urbanization: Settlement Cores, Early States and Agro-pastoral Strategies in the Fertile Crescent during the Fourth and Third Millennia BC, *Journal of World Prehistory* 27, pp. 43–109.

Wilkinson, T.J., Tucker, D.

1995 *Settlement Development in the North Jazira, Iraq. A Study of the Archaeological Landscape* (Iraq Archaeological Reports 3), British School of Archaeology in Iraq, Warminster.

Yoffee, N.

2005 *Myths of the Archaic State. Evolution of the Earliest Cities, States, and Civilizations*, Cambridge University Press, Cambridge – New York.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

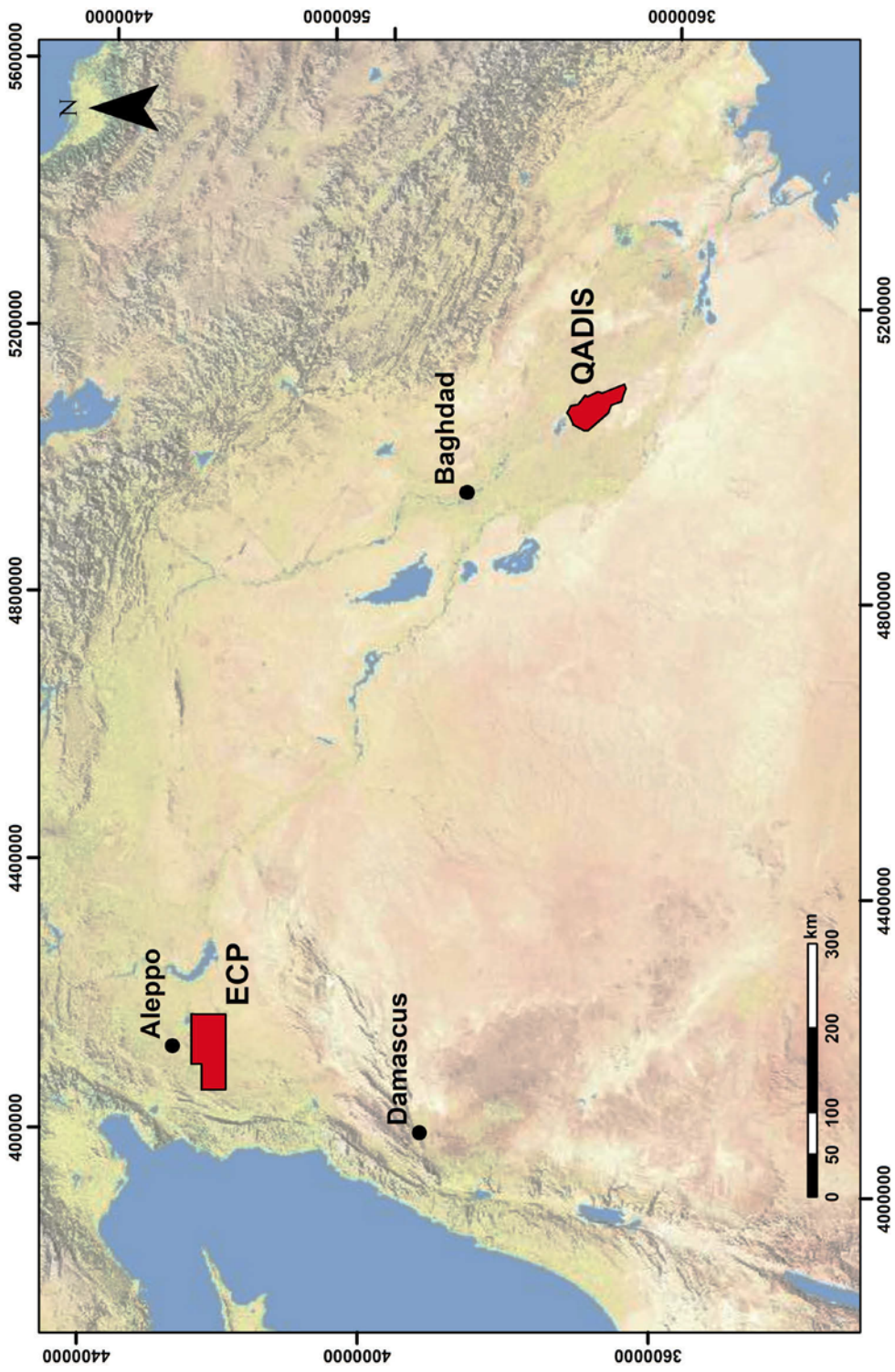
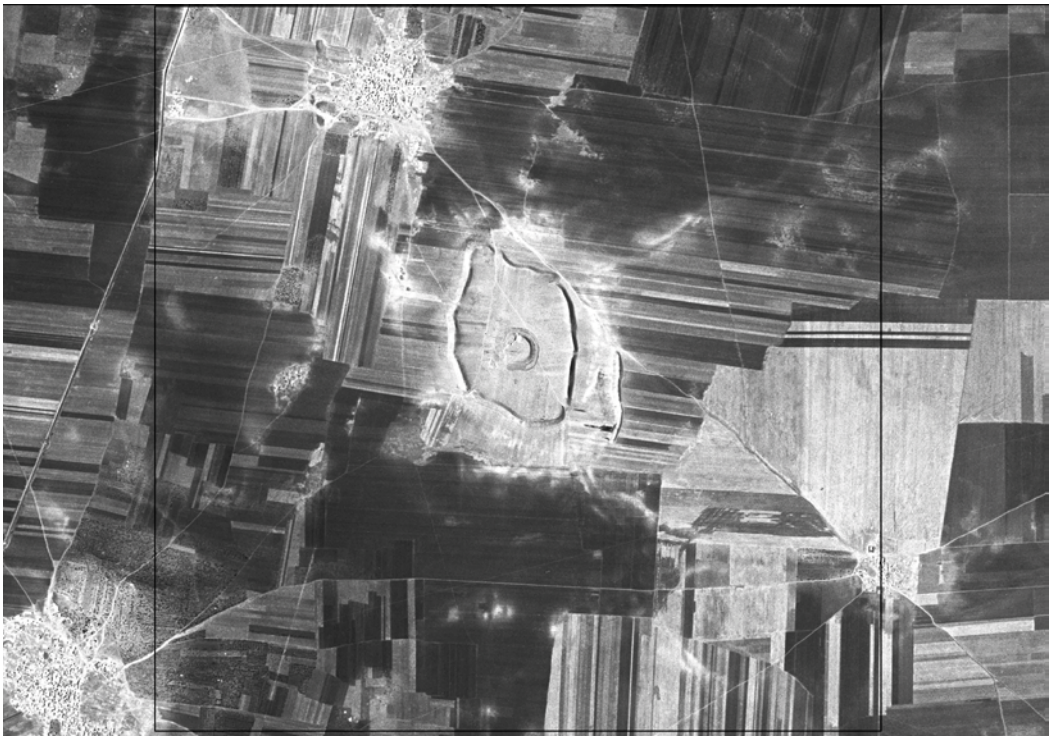
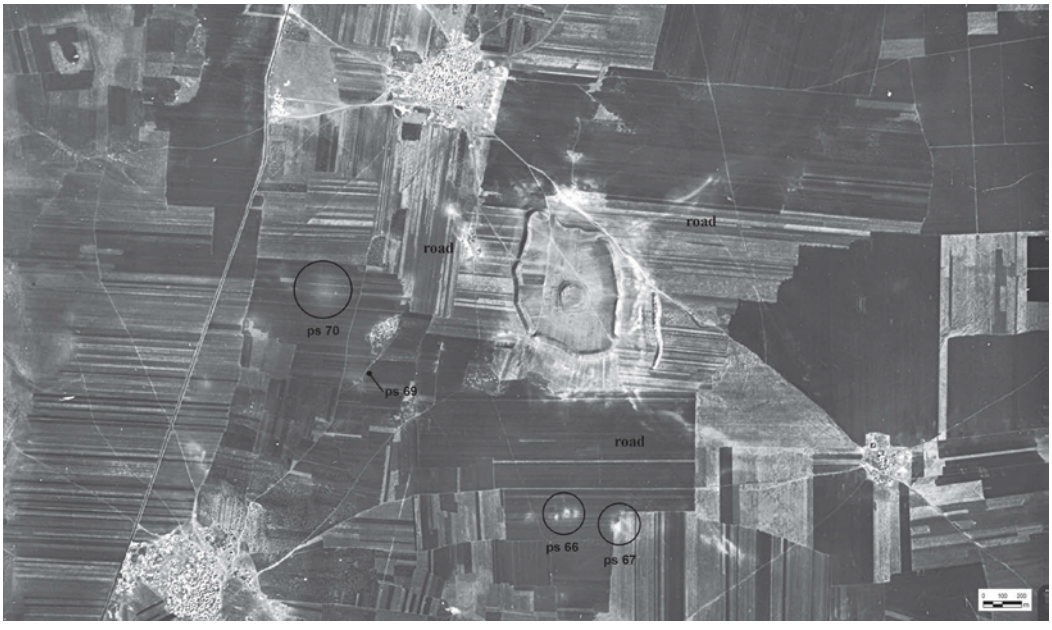



Fig. 5.1. Location of the ECP and QADIS survey areas

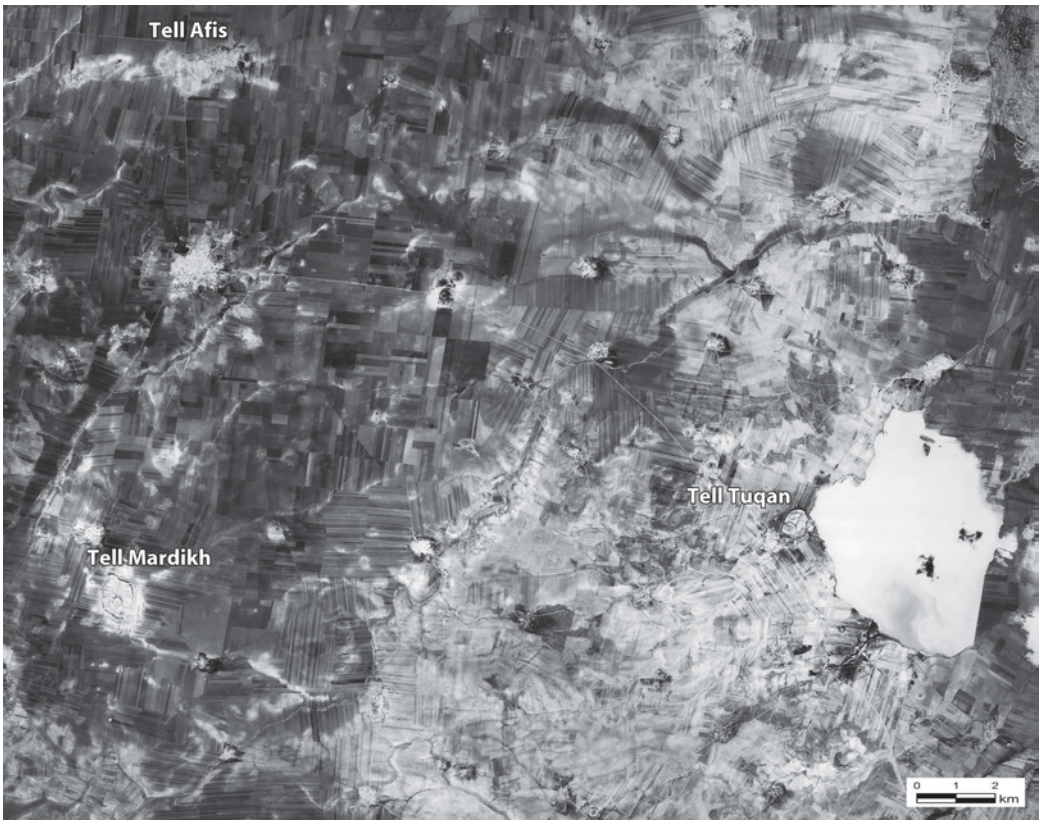

ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823







ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

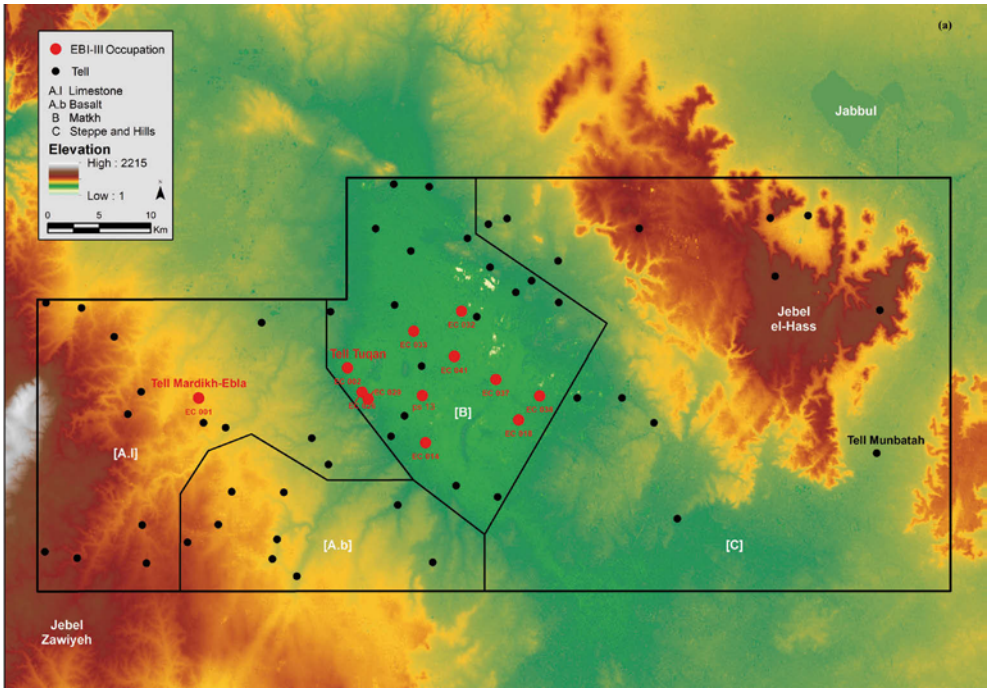


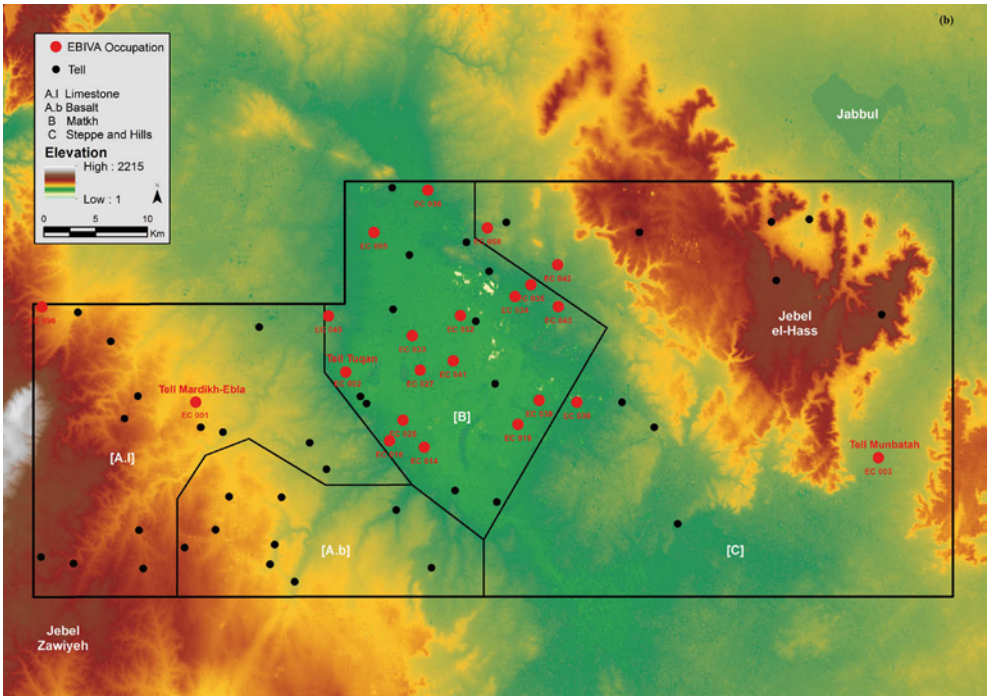

← Fig. 5.2. Detail of Tell Mardikh in a CORONA satellite image (frame ID DS1107-1122DA057, taken on 31st July 1969); resolution 3.4 m; the black square frame refers to an area measuring 4x4 km

← Fig. 5.3. Detection of linear hollows and potential sites (PS) on an aerial photograph (1:18,000 scale, taken by the Syrian Air Force on 1st October 1967). PS 66, 67, and 70 are potential off-sites; PS 69 is a potential, probably destroyed, tell according to the toponym on French and Soviet maps

↑ Fig. 5.4. The region of Ebla, with Tell Tuqan and Tell Afis, in a CORONA satellite image


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823





ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

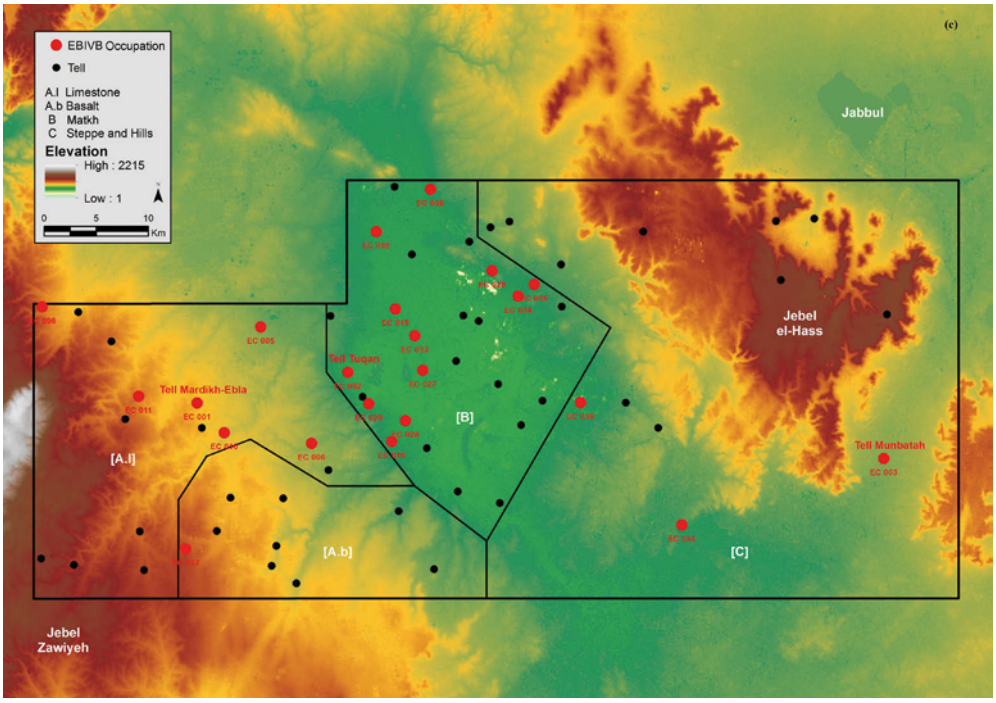



Fig. 5.5. (a,b,c): Distribution of tells with EBA occupation in the Eblaite chora (in the background a 2011 Aster Gdem v.2 image):

a. EB I-III sites;

b. EB IVA sites;

c. EB IVB sites


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

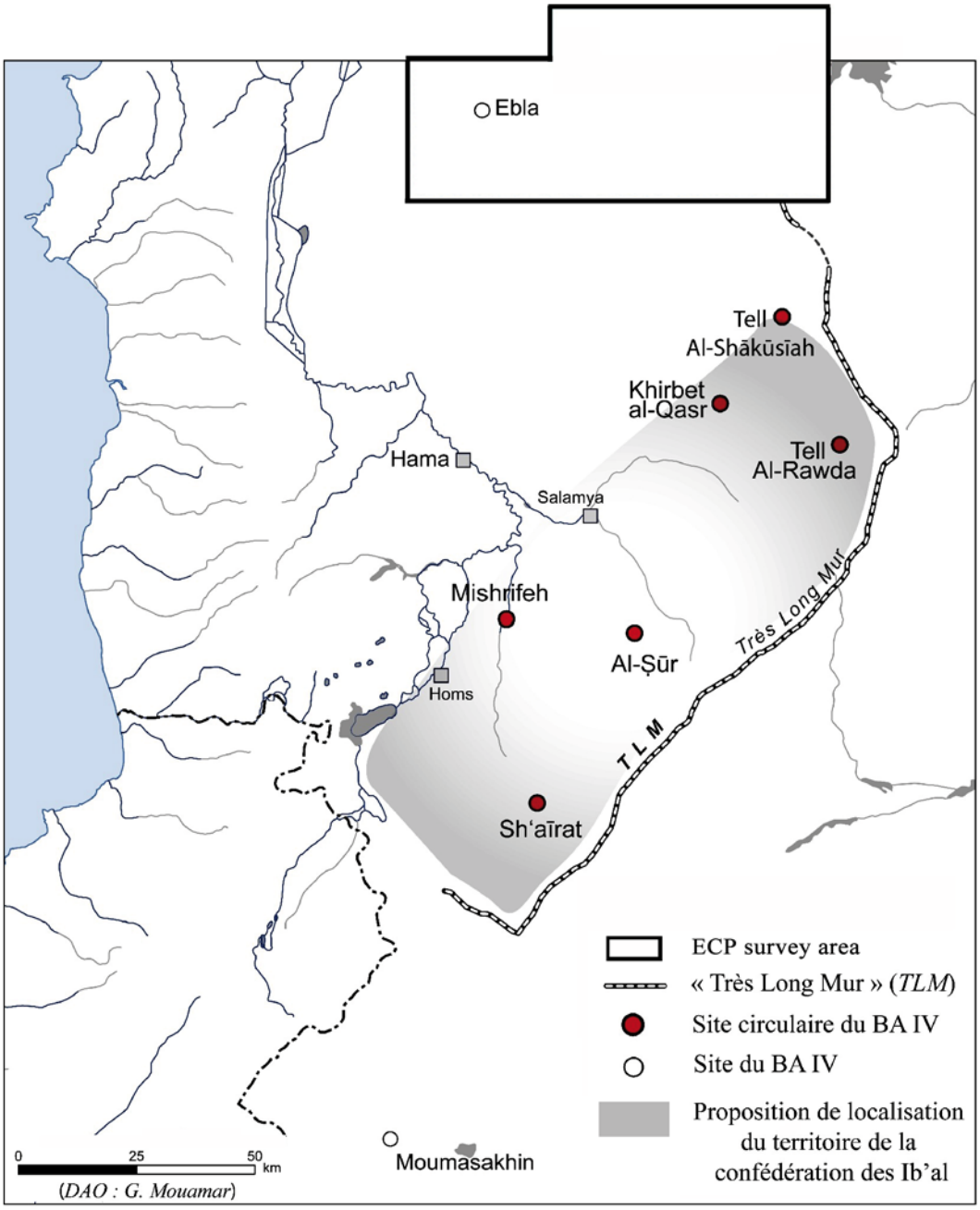



Fig. 5.6. Localization of the TLM and the EB IVA-B round sites to the South-East in respect of the ECP survey area (modified after Mouamar 2016: fig. 13). That the TLM coincides with the territorial limits of a specific political entity mentioned in the Ebla archives is, however, doubtful


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

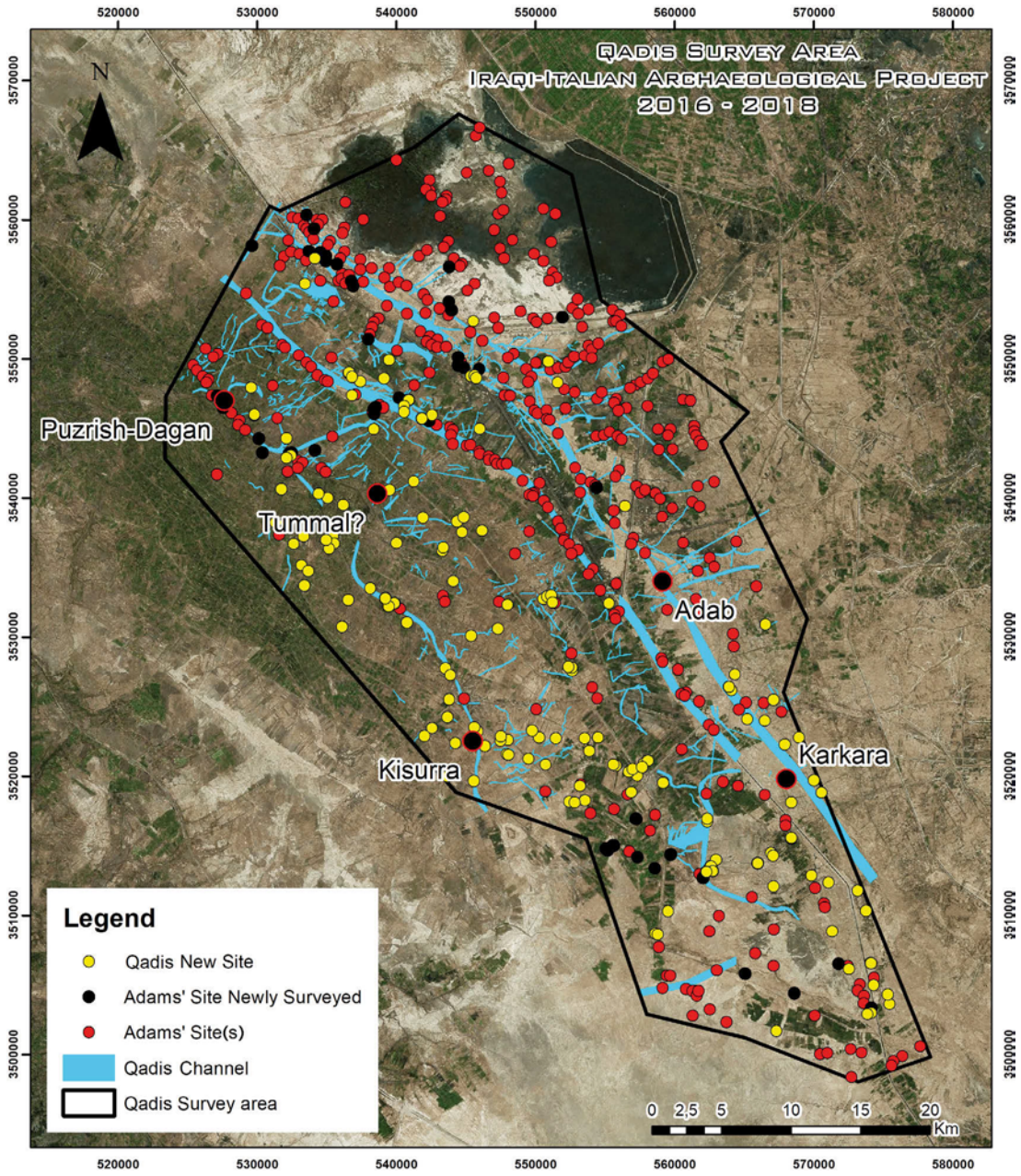



Fig. 5.7. QADIS survey area 2016-2018. Larger dots refer to sites whose ancient name is known. Ancient canals and riverbeds, identified through remote sensingwith ground control and by Adams, are marked in light blue


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

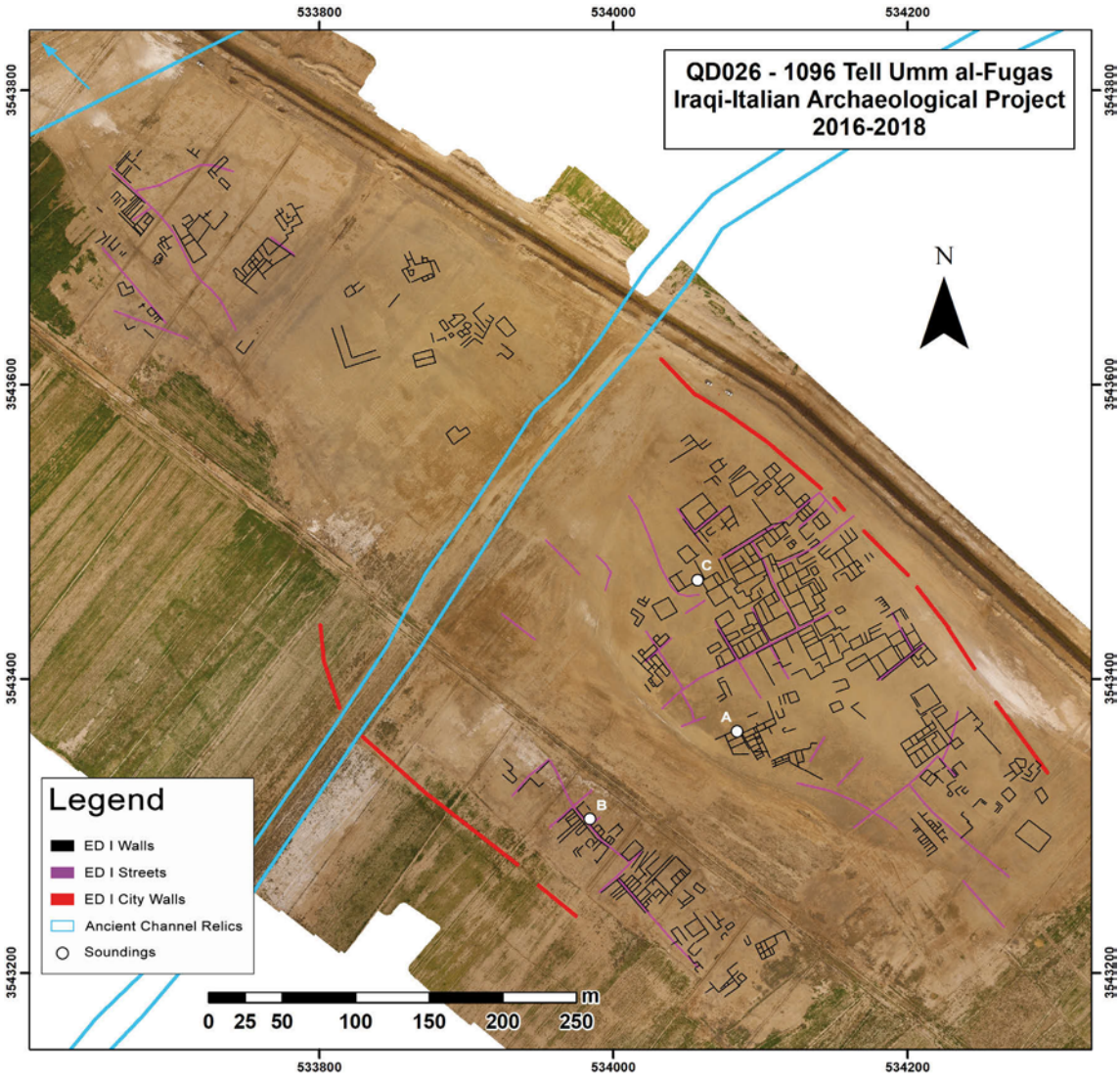



Fig. 5.8. UAV's orthophoto of site Qdo26 – Tell Umm al-Fugas and the different types of structural evidence recognized there

→ Fig. 5.9. Site Qdo26 - Umm el-Fugas, Early Dynastic I room L.64 with smashed solid footed goblets and other shapes in situ in Sounding C

→ Fig. 5.10. Early Dynastic I selected pottery shapes from room L.64, Sounding C at site Qdo26 - Umm el-Fugas


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

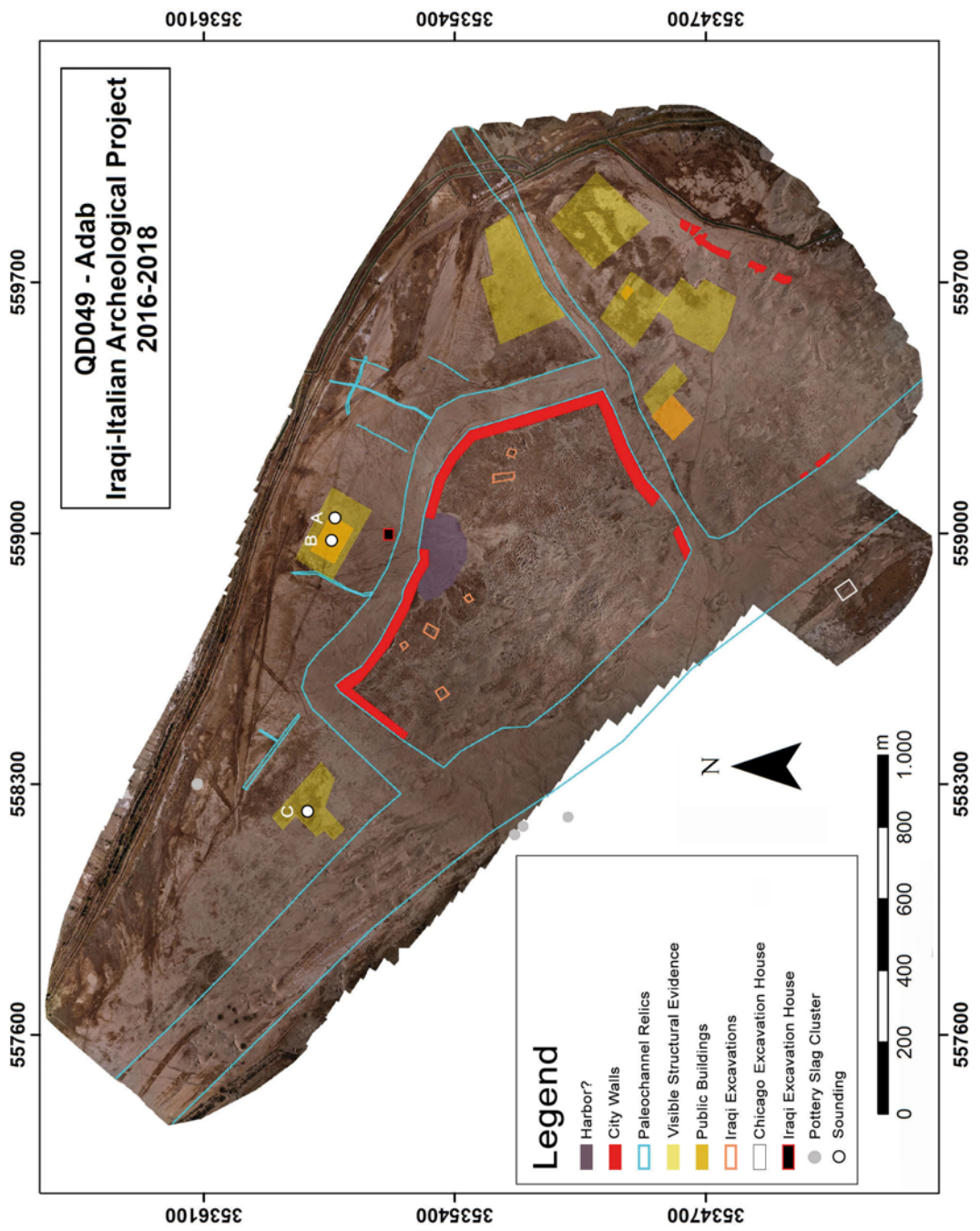



Fig. 5.11. UAV's orthophoto of site Qd049 - Bismaya/Adab and the different types of structural evidence recognized


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Fig. 5.12. Sounding C at site Qd049 – Bismaya/Adab from North-East: the superficial digging revealed a building dating from EB IV/Akkadian period preserved for a very limited height; on the surface, note the clearly visible dwelling quarter, with which it is presumably contemporary, extending to the South-West


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

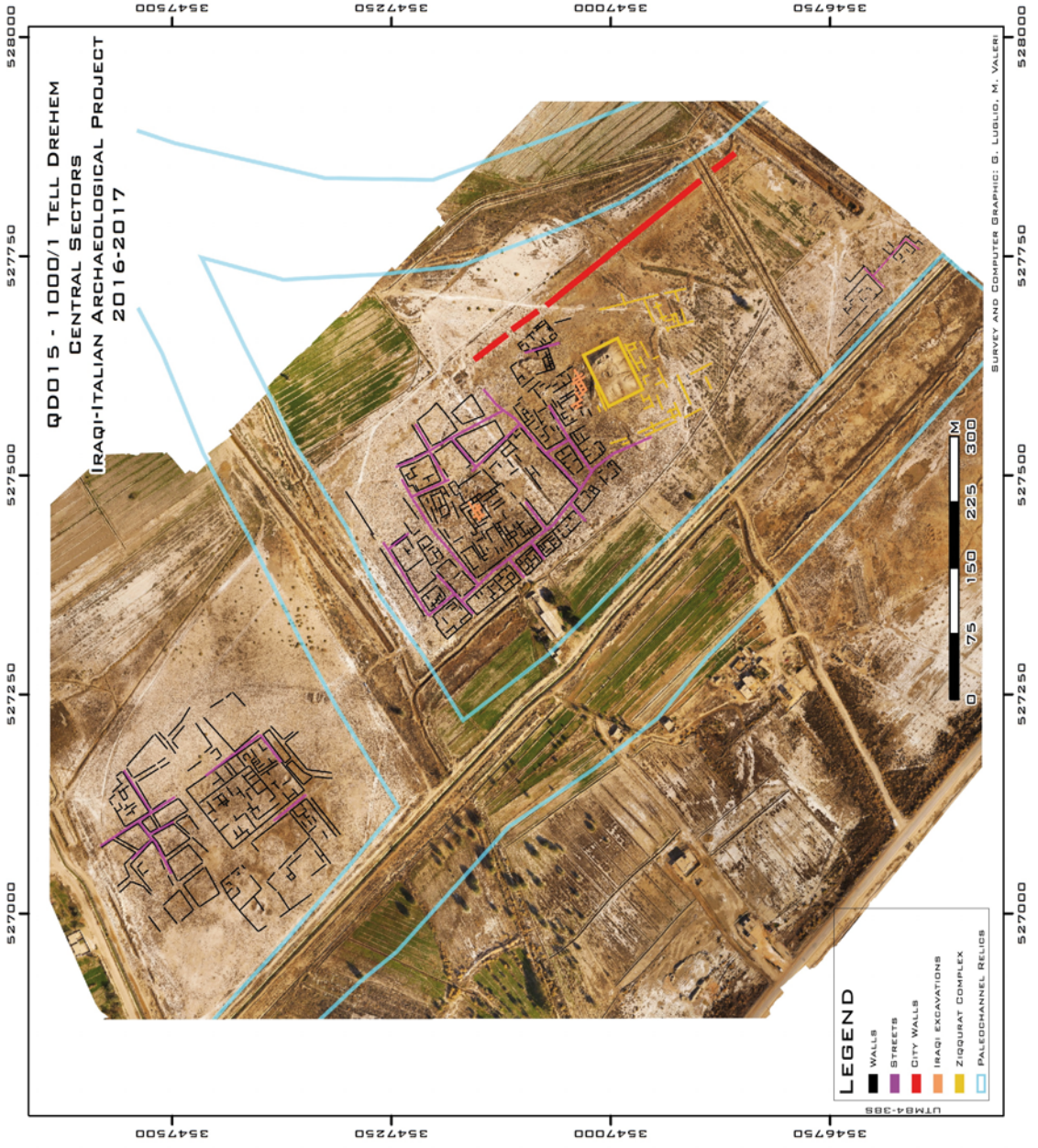



Fig. 5.13. UAV's orthophoto of site Qdo15 – Tell Drehem/Puzriš-Dagan and the different types of structural evidence recognized


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823


Fig. 5.14. Detail of the UAV's orthophoto of the public quarter in the south-eastern sector at site Qd015 – Tell Drehem/Puzriš-Dagan: note the ziqqurat, the MB I/Ur III period administrative complex behind it excavated in 2007 by the SBAH and the clear superficial traces of nearby buildings (graphically interpreted in Fig. 5.13)


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

# Chapter 6
# Landscape Archaeology and Irrigation Systems in Central Asia: A View from Samarkand (Uzbekistan)

Simone Mantellini

*Abstract*
Thousands of archaeological mounds and relicts of irrigation canals characterize the Central Asian landscapes. Unlike the Near East and Mesopotamia, which have both a long experience in landscape archaeology, in Central Asia this approach is still limited. Only recently, new cooperation programs between local institutions and international teams, as well as improved methods and technologies in recording and analyzing spatial data, have allowed for new season of research in this area of the ancient world. Data from the Samarkand oasis (Uzbekistan) have been already used, though preliminarily, to reconstruct the historical interactions between man and the environment in this region. The main goal of this paper is to rather use the case of Samarkand to introduce some problems connected to the identification and dating of multilayered anthropic mounds (*tepa*) and abandoned irrigation canals. After a brief comparison between the landscape archaeology tradition in Central Asia, Mesopotamia and the Near East, methods and results from the Uzbek-Italian Archaeological Expedition in Samarkand are presented. Finally, the main markers used in chronological attribution will be considered in an attempt to provide some insights on both the benefits and limits of such a methodological approach.

## 1. Introduction

In 1953 a symposium on cultural evolution took place at the Annual Meeting of the American Anthropological Association in Tucson, AZ, USA. The anthropologist Julian H. Steward chaired that session and its proceedings were published two years later (Steward 1955). The main goal was to compare the multilinear evolution of the early irrigation civilizations based on case studies from the Old and the New Worlds. Robert McC. Adams presented the development stages of Mesopotamia, from the 'incipient' agriculture (7$^{th}$ millennium BCE), when dry-farming subsistence patterns prevailed, to the Dynastic period (middle 3rd millennium BCE), with the appearance of kingship and city-states. Among the other scholars attending that session, Karl A. Wittfogel held a lecture on those hydraulic societies which he subsequently published in his famous Oriental Despotism (Wittfogel 1957).

Studies from Central Asia were totally omitted from that symposium, which considered findings from Peru and Mesoamerica to the Near East and China. Even though Central Asia –often referred to as Western Turkestan- deserved special mention in the history of irrigation


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

and water management, no consideration was accorded to it at that time. The so-called 'Oxus civilization', i.e. the earliest systematic settlement attested at the end of the 3rd millennium BCE around the Oxus (Amudarya) river, was posited only later (Francfort 1984: 174). Above all, at the time of the meeting, Central Asian history and archaeology were poorly known in the West compared to the more famous civilizations of Mesopotamia and the Near East. Yet in the early 80's, the Soviet scholars Valentin A. Bulkin, Leo S. Klejn and Gleb S. Lebedev (1982: 272) described such situation with the following words: "Western archaeologists have yet to make an interesting discovery: the existence of Soviet archaeology. Its real nature is almost unknown to Western colleagues because of a major language barrier and prolonged cultural and political estrange" [sic.]. Even today, many years after the end of the Cold War and the USSR fragmentation into individual countries, our knowledge of the early history of that region is still scant and poorly spread.[1]

## 2. Landscape approach between the Near East, Mesopotamia and Central Asia

The 'gap', or 'delay', in Western knowledge about Central Asian archaeology and history is revealed, among others, in the field of landscape archaeology. After the first regional surveys in the 30's by Robert Braidwood in the Antioch plain (Braidwood 1937) and Torkhild Jacobsen in the Diyala plain (Jacobsen and Adams 1958), the systematic investigation by Robert McC. Adams in Iraq signed a milestone in the landscape studies of the Near East and Mesopotamia.[2] The following decades saw a striking proliferation of regional-based research in those regions to such an extent that Tony J. Wilkinson (2003: 33) refers to this approach as the "modern school of Near Eastern landscape archaeology". The 90's are especially remarkable because of the first systematic and massive introduction in archaeology of Geographical Information System – GIS applications and remote sensing techniques (CORONA series above all) for the study of the ancient landscapes and the human-environment interactions. This trend was confirmed in the last two decades. Based on the assumption that in Near Eastern archaeology [but also elsewhere] "no site can be understood in isolation from its hinterland" (Ur 2010: 1), in the following years, several international projects were started, especially in Syria and the Northern Levant, with the goal of studying a given site under a regional and multidisciplinary perspective. Just a few examples of this impressive collection of archaeological data at a large scale are: Tell Atchana-Alalakh and the "Amuq Valley Regional Projects" - 1995-2002 (Yener 2005), the "Tell Hamoukar Survey" – 1999-2001 (Ur 2010), Tell Mishrife-Qatna and its hinterland – 1999-2004 (Morandi Bonacossi 2007), "The Land of Carchemish Project" – 2006-2010 (Wilkinson, Peltenburg and Barbanes Wilkinson 2016), "Ebla and its chora" around Tell Mardikh – 2010-2014 (Matthiae and Marchetti 2013), but also the "Marges Arides de la Syrie du Nord Project"

1 See more on Soviet Archaeology in Central Asia, its history of research and relationships with foreign countries in Frumkin 1970: 1-10; Bulkin, Klejn and Lebedev 1982; Kohl 1984: 17-23, 243-248; Kohl 1985; Lamberg-Karlovsky 1994a: 353; Lamberg-Karlovsky 1994b; Kohl 2007: 184-187; Klejn 2012; Dolukhanov 2016.

2 See also Redman 1969: 375.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

– 1995-2010 (Rousset et al. 2016) and the "Settlement and Landscape Development in the Homs Region" – 1999-2010 (Philip and Bradbury 2010).[3]

On the contrary, Central Asia does not share such a similar tradition in landscape archaeology. Although "Soviet archaeology in Central Asia has been enormously productive" (Kohl 1984: 243), Russian, and later Soviet, archaeologists directed their interest to the excavation of a single site in order to uncover a stratigraphic sequence and to provide its interpretation in terms of relative chronology. Little, or no, attention was given to the environment surrounding the site nor to its spatial relationships with other sites. A sort of exception to this trend occurred in the first half of the 20th century, when the Soviet Academy of Sciences, either the general headquarters in Moscow or its peripheral branches, undertook a series of long-term interdisciplinary projects. However,

> "… it would be incorrect to consider such projects as typical of Soviet Central Asian archaeology" (Kohl 1984: 245).

Nevertheless, two projects represent an exception and are worthy of consideration. Even today, many years after their beginning and the significant improvement in archaeological research method and techniques, both expeditions are still remarkable for their approach, the number of scholars involved, the activities conducted and the results produced. They also have had the merit of spreading the Soviet archaeological school in the West.

Exactly when Thorkild Jacobsen surveyed the Diyala plain (1936-1937), Sergey P. Tolstov started the "Khorezm Archaeological-Ethnographical Expedition" (Khorezmskoy Arkheologo-Etnograficheskoy Ekspeditsii – KhAEE). The approach used to reconstruct the history of that region can be compared to what Jabobsen, and later Adams, did in the Diyala plain. Intensive field inspections were integrated with information from aerial photographs in order to reconstruct the distribution of ancient settlements and their relationships with the abandoned artificial canals and hydraulic structures over a long period. The archaeologists of the KhAEE could rely upon the collaboration with geographers, geologists, pedologists, botanists and ethnographers. They were provided with a well-advanced -for that time- equipment that included also some small PO-2 airplanes for the aerial reconnaissance of the main anthropogenic features in the so-called 'lands of ancient irrigation' (Andrianov 1969: 3). Many dedicated series, monographs and articles described the work and the results of that impressive project.[4] Between the 1952 and 1964 seasons, a specific archaeological-topographical unit, led by the geographer Boris V. Andrianov researched the ancient irrigation systems around the Aral Sea, from the Bronze Age (3rd millennium BCE) up to the early-mid 20th century. In 1969 Andrianov published the result of that study in Drevnie orositelnye sistemy priaralya [Ancient Irrigation Systems of the Aral Sea Area], a book that can be considered a milestone in the archaeology of irrigation of Central Asia (Bolelov 2016: 9; Mantellini 2016: XXVI). Andrianov's book followed by a few

3 Either the latest or the main monograph were reported for each project. For an overview on the regional archaeological surveys conducted in Syria and northern Levant, and their complete bibliography, see Mantellini 2013. See also more on the automated site discovery in Menze and Ur 2012, and Casana 2014.

4 Publications from the KhAEE are many. They can be summarized in three monographs by Sergey P. Tolstov (1948a, 1948b, 1962) and two major series Materialy Korezmskoy Ekspeditsii [Materials from the Khorezm Expedition] and Trudy Khorezmskoy Arkehologo-Etnograficheskoy Ekspeditsii [Proceedings of the Khorezm Archaeological-Ethnographic Expedition], both under the general editorship of Sergey P. Tolstov and published by the Institute of Ethnography of Moscow, USSR Academy of Sciences.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

years Adams' first monograph Land Behind Baghdad (1965), which Andrianov included in his references together with other publications by Adams available at that time.

The "South Turkmenistan Complex Archaeological Expedition" (Yujno-Turkmenistanskoy Arkheologicheskoy Kompleksnoy Ekspeditsii - YuTAKE), promoted by the Academy of Sciences of Turkmenistan, began in 1946 under the direction of the archaeologist Mikhail E. Masson, and later his son Vadim M. Masson.[5] The YuTAKE explored intensively the pre-protohistoric settlements of the Merv Oasis and the Kopet Dag foothills. The excavations of sites like Altyn-depe, Geoksyur-depe, Gonur-depe and Namazga-depe, together with the discoveries of the Dèlégation Archéologique Française en Afghanistan – DAFA in Afghanistan (see below), provided strong evidence of the Bronze Age civilization known later as the Bactria-Margiana Archaeological Complex – BMAC, or Oxus Civilization.[6] Even in this case, a specific team, under the direction of the paleobotanist Gorislava N. Lisitsyna, focused its research on the early economy of that region with special attention to the beginning of irrigated agriculture. Her first monograph on that subject, Oroshaemoe zemledelie epokhi eneolita na yuge Turkmenii (Lisitsyna 1965), was earlier than the one by Andrianov and it was published the same year as the Land Behind Baghdad. As in Andrianov's, among the few Western scholars mentioned in that book, Adams and his work in the Diyala plain appear frequently.

After the pioneering exploration of Turkestan and the excavation at Anau, by Raphael Pumpelly in the first years of the 20th century (Pumpelly 1908), under the Soviet regime foreign scholars had great difficulty in accessing Central Asia (Lamberg-Karlovsky 1994b: XVIII). The works of the DAFA in Bactria can be seen as an 'anomaly' and deserve a special mention. Although outside the proper political Soviet influence, northern Afghanistan borders with former USSR countries (Tajikistan, Turkmenistan and Uzbekistan) and it is historically, archaeologically, and culturally connected to Central Asia. The extensive and systematic survey carried out in northeastern Bactria, on the Amudarya left bank, between 1974 and 1978 under the direction of Jean-Claude Gardin uncovered a large number of sites, burial mounds and remains of ancient canals, providing the history of this region from the end of the 3rd millennium BCE to modern times (Gardin, Lyonnet 1978; Gardin 1998). A specific branch of the project was addressed to the reconstruction of the palaeo-environment and the study of the ancient irrigation systems (Gentelle 1989). Soon later, an archaeological gazetteer of Afghanistan was also published (Ball 1982). It was a first attempt for a systematic catalogue of the archaeological sites and monuments of the whole country. The catalogue was based on the information, some of which unpublished, available from previous works, private archives and field activities. The work is divided into three sections: a catalogue with 1272 entries (Volume I), bibliography and atlas (Vol. II). The atlas does include general maps, where the sites are mapped according to either their location and chronology, and specific plans and sections of individual sites and monuments.

Before the Soviet regime collapsed, a first disclosure occurred in the early 80's with the establishment of four USA-URSS archaeological symposia, the first at Harvard, USA, in 1981 and the last in Tbilisi, Georgia, in 1988 (Adams, Kohl and Lamberg-Karlovsky 1980; Lamberg-

5 As the KhAEE, the results of this project were published in many books, articles and in the dedicated series Trudy Yujno-Turkmenistanskoy Arkheologicheskoy Kompleksnoy Ekspeditsii [Proceedings of the South Turkmenistan Archaeological Complex Expedition], published by the Turmenkistan SSR Academy of Sciences under the editorship of M. E. Masson.

6 For an updated overview on the BMAC or Oxus Civilization see Lamberg-Karlovksy 2013.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Karlovsky 1994b: XIX-XXI). Furthermore, in 1982, a colloquium at Dushanbe began the French-Soviet relationship that in 1984 inaugurated the excavation at Sarazm (Gardin 1985). A second meeting was also held in Paris in 1985 (David 1986). The fall of the USSR in 1991 allowed for a new research seasons based on international cooperation programs between the Academy of Sciences of the former USSR countries and institutions from outside. Those years in Europe were marked by the consolidation of GIS application in archaeological fields, frequently aimed at creating local archaeological maps either for research or cultural heritage purposes. Among the several expeditions promoted at that time in Central Asia, Maurizio Tosi was the first to seize the opportunity to 'introduce' that digital approach in such a crucial region of the ancient East. He first started the archaeological map in the Murghab Delta, Turkmenistan (Gubaev, Koshelenko and Tosi 1998; Salvatori and Tosi 2008), and later in Samarkand-Middle Zeravshan Valley, Uzbekistan (Tosi *et al.* 2001-2002; Bonora *et al.* 2003; Shirinov and Tosi 2003; Rondelli and Tosi 2006; Berdimuradov *et al.* 2007; Tosi *et al.* 2007; Mantellini and Berdimuradov 2016; Mantellini, in press; Mantellini and Berdimuradov in press).

## 3. Landscapes, water and settlements in Central Asia

Central Asia shares with Mesopotamia and the Near East its thousand-year long history, as well as many geographical and climatic features. It can be seen as a mosaic of different environments, characterized by piedmont zones, steppes, oases, deserts and mountains, all offering different potentials for land use strategies (Mantellini, Rondelli and Stride 2011: 387). Central Asian landscapes are particularly dominated by vast dry deserts, such as the Kara Kum and the Kyzyl Kum, and treeless grassy steppes. The climate is harsh, with hot summers, cool winters and very poor precipitation throughout the year. The Tien Shan and Pamir mountain ranges drain the two largest rivers, the Amudarya and Syrdarya, respectively the Oxus and Yaxarte in the Greek sources, which both drain into the Aral Sea. The Zeravshan, which is the third longest river in Central Asia with ca. 700 km, runs encased between mountains up to the Samarkand oasis, then it shapes Navoi and Bukhara oases before disappearing in the Kyzyl Kum sand without joining the Amudarya (Fig. 6.1).

In such hostile environment and climate, life is possible only in the presence of an appropriate and skillful water management. Since ancient times, the inhabitants of this region have improved methods and techniques to ensure water for the cities, villages and fields. Canals, dams, dykes, reservoirs, water-lifting wheels (chigir), and many other devices were developed in order to make the Central Asian arid environments suitable for life and agriculture. The most impressive results of these efforts are networks of artificial canals developed by local people over time in the irrigated oases of Central Asia. Irrigation canals, even many kilometers long and hundreds of meters wide, were diverted from major rivers with people settled along their banks or in the fertile foothill fans. This pattern of green blooming city-oases interrupting the white desert and the pale yellow-green steppe remained almost unchanged throughout the centuries, as is evident nowadays when looking at Central Asia from a satellite (Fig. 6.2).

In several arid regions of Central Asia, canals and settlements abandoned many centuries ago have been replaced by steppe and desert, which preserved those archaeological remains from extensive cultivation and urban development. To corroborate the fragile relationship between man and the environment in these regions, in his book incipit, Boris V. Andrianov (1969: 3) quoted the words of the Russian geographer A. I. Voeykov:


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

> "The results of artificial irrigation [in Central Asia] are astonishing, they are characterized by the well-known words 'desert' and 'oasis'".

Similarly to Mesopotamia and the Near East, where the *tell* represent the main anthropic features in the archaeological landscape, Central Asian landscapes are dotted with thousands of multilayered mounds known as *tepa*, *tepe*, or *depe*, which testify to a long-period of human occupation on the same spot (Fig. 6.3). Their architecture usually combines mud bricks with blocks of *pakhsa* (rammed earth or *pisé*), according to a tradition still used in the rural countryside (di Cugno, Mantellini and Berdimuradov 2013: 102-103). The presence of *tepa* is so rooted in Central Asian tradition that many place names refer to their presence, often associated with their 'physical' perception by local people: Aktepa ("white hill"), Karatepa ("black hill"), Kattatepa ("big hill"), etc. Compared to Mesopotamia and the Near East, where *tell* mostly refer to the Bronze Age/pre-classical occupation, Central Asian *tepa* represent the typical settlement unit until the Late Middle Ages.

If the *tepa* and the canals are generally connected with settled farmers, a second archaeological feature, the *kurgan*, is associated with nomadism or semi-mobile pastoralism. The *kurgan* is an underground burial mound, whose presence on the ground can be marked by stone rings. They can be individual or clustered together and their size can range in both height and width, from less than one meter to several meters. *Kurgan* is also quite a common toponym, sometimes combined with *tepa* (ex. Kurgantepa; see also § 8.4 below the case of Kurgan Kadirbek).

## 4. Researching the ancient irrigation systems

The attention of Soviet scholars in studying the ancient irrigation networks in arid regions of the former USSR held a critical part in both the interdisciplinary projects above mentioned as well as in individual research conducted locally. In the last century, Soviet scholars published extensively on the role of irrigated agriculture in the historical development of Central Asian oases. Although remarkably, those works were written in Russian with a restricted distribution in the West (Mantellini 2016: XXV). Already at the beginning of the 20th century, the outstanding historian and orientalist Vasyliy V. Bartold dedicated a section -K *istorii orosheniya Turkestana* [On the history of Turkestan irrigation] - of his majestic *Sochineniya* [Writings] to the subject of irrigation in ancient Central Asia (Bartold 1965). Later on, studies on the history of irrigation in specific regions of Central Asia became the reference works on that subject: Khorezm (Gulyamov 1957), Ferghana (Latynin 1962), South Turkmenia (Lisitsyna 1965, 1978), Aral Sea (Andrianov 1969), and the Bukhara oasis (Mukhamedjanov 1978). It was not until the mid-60's that writings on that subject started to be available in English. The American geographer Robert A. Lewis (1966) combined geographical observations with archaeological information to outline the diachronic development of irrigation in West Turkestan according to its different ecological zones. A few years later, Gorislava N. Lisitsyna (1969) published the Late Chalcolithic (end of the 4th-beginning of the 3rd millennia BCE) irrigation canals of Geoksyur, in Southern Turkmenia. Later on still, Boris V. Andrianov (1995) described the development of irrigation in the Aral Sea and compared it with other historical regions of Central Asia. Henri-Paul Francfort and Olivier Lecomte (2002) used updated archaeological data to analyze the socio-political implications connected to the emergence of artificial irrigation in the 'proto-state' societies of Central Asia, from the Bronze Age to the Achaemenids. More recently, Boris V. Andrianov's


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

book on the Aral Sea has been translated into English (Mantellini 2016) and improved with additional contributions and notes, thus making this work available also outside the proper Russian cultural world.

## 5. Samarkand and its territory – The Uzbek-Italian Archaeological Program

The Samarkand oasis is for a large part an alluvial plain stretching for some 5,000 sq. km along the middle section of the Zeravshan river (Fig. 6.4).[7] Mountains encompass the plain over three sides, while southwest the steppe gradually shifts into desert. At the exit of its upper valley, where the Zeravshan is winding and meandering, the river broadens up, forming a depression stretching in the sub-meridian direction between offshoots of the Turkestan and the Zeravshan ranges, for a length of ca. 100 km and a width of ca. 40 km (Shirinov and Tosi 2003: 34). The altitude ranges from the 900 m asl at the May 1st Dam in Ravatkhodja, which is the border between Uzbekistan and Tajikistan as well as the limit between upper and middle Zeravshan valley, to the 500 m asl at Kattakurgan, 100 km downstream. The geological composition of the valley's central section is an alternation of proluvial sediments due to the erosion caused by the natural intermittent streams from the Karatyube ranges and the alluvial sediments generated by the millennial artificial irrigation, and possibly floods and levee breaks in extremely rainy seasons. From the archaeological point of view, this situation prevents the identification of the human settlements, especially those other than multilayered mounds, which are therefore discovered only occasionally because buried under several meters of alluvium.

The climate is Mediterranean turning to semi-arid, with hot and dry summers and cold winters. Average precipitation is ca. 400 mm/year, the daily mean temperature is ca 14.5°C, and the average relative humidity ca. 60%.[8]

In similar environmental conditions, extensive agriculture is possible only by means of irrigation. The water diverted from the Zeravshan river allowed agriculture through a complex network of artificial canals. The Dargom on the south and the Bulungur on the north, and their minor distributors, regulate the water supply in this landscape (Stride, Rondelli, Mantellini 2009; Mantellini, Rondelli, Stride 2011; Mantellini 2015).

Samarkand has always been considered as a major commercial, economic, and cultural hub promoting the transfer of ideas and the exchange of market goods in Central Asia and along the ancient Silk Road. However, assuming that no city can survive and grow without its hinterland, the real wealth of Samarkand depended on the proper exploitation of its territory. Different ecological niches characterize this region and provide multiple resources to sustain the local development. Today, as in the past, irrigated agriculture in the surrounding plain is combined with semi-mobile pastoralism in the rain-fed piedmont and steppe to create a symbiotic economy having their meeting point in urban and rural markets.

This territory was the object of territorial investigations as early as the Soviet time, with many archaeological surveys dated to the 80's. However, those investigations did not systematically cover the whole region, they were scantly published, and often stored in local archives with difficult access. Moreover, urban and landscape transformations of the last decades resulted in

7 Area calculated from the Uzbek-Tajik border to the Kattagurgan reservoir. The overall extension of the Samarkand Region according to its administrartive border is ca. 17,000 sq. km.

8 Data available on www.worldweatheronline.com, entry 'Samarkand', last visited on 14 May 2016.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

the massive destruction of archeological mounds (*tepa*), including those already registered in previous research. In 2001 the University of Bologna started a long-term collaboration with the Institute of Archaeology of the Uzbek Academy of Sciences.[9] The main goal of the "Samarkand and Its Territory" project was the creation of an updated archaeological map of the southern sector of the Middle Zeravshan valley. A second task was the reconstruction of the historical development of Samarkand and its neighboring areas, by investigating the landscape transformations and the archaeological record at both regional and local scales, the latter referring to the systematic excavation of selected sites (Mantellini 2017a).

## 6. Method

The regional-based approach of the survey around Samarkand benefited significantly from the experiences in the Near East and Mesopotamia.[10] The Geographical Information Systems (GIS) offered an excellent tool for integrating, processing and analyzing data that differ in scale (regional or local), type (topographical maps, satellite and aerial images, geophysics, GPS and total station survey) and acquisition period (historical or recent).[11] Similarly to the Near East and Mesopotamia, the combined use of modern and historical satellite images, such as CORONA, improved significantly the possibility of identifying archaeological mounds (*tell*/*tepa*), off-sites, canals, roads, and many other anthropogenic features in the cultural landscape detected by remote sensing techniques and later validated on the field.[12]

In Samarkand, and Central Asia more generally, the Soviet military maps represented the most valuable source to identify archaeological mounds (Mantellini, Rondelli, Stride 2011: 389-390; Rondelli, Stride and García-Granero 2012; Mantellini 2017b: 15-16). Soon after the Second World War, the USSR Military and Civil State Topographic Service began a comprehensive topographical mapping of the country (Postnikov 2002: 250; Davies 2005: 26).[13] This project resulted in the creation of map series at different scales, from the general representation 1:1,000,000 scale to the most detailed 1:10,000 scale. The Soviet military maps became fundamental in the detection of archaeological sites for several reasons. First, although outside of the primary task of the program, the Soviet topographers recognized the *tepa* as 'anomalies' on the ground, then they used specific signs and keys to report them on the maps (US Department of

9 The "Samarkand and Its Territory" project was strongly promoted and supported by Timur Sh. Shirinov, former Director of the Institute of Archaeology of the Uzbek Academy of Sciences. The Uzbek-Italian Expedition was directed by Maurizio Tosi, and currently Antonio Curci (Department of History and Cultures, University of Bologna) for the Italian side, and Amriddin E. Berdimuradov (Institute of Archaeology, Uzbek Academy of Sciences) for the Uzbek side.

10 See Note 2.

11 On the GIS application within the "Samarkand and Its Territory" Project see Rondelli and Mantellini 2004; Rondelli and Tosi 2006; Mokroborodov *et alii* 2017. For the Pasdargom District only see Dmitrieva, Suchilin and Inevatkina 2012.

12 CORONA imagery has been widely used for archaeological purposes in the Near East and Mesopotamia. The writings on this matter are several, as well as their related bibliography. See a general overview in Casana and Cothren 2013, and Ur 2013.

13 The mapping was extended also outside the proper USSR border and included many regions of Asia, the Near and Far East, North Africa, Europe and North America (Davies 2005: 26).


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

the Army 1958; Psarev *et al.* 1986: Appendix 1, XIII). Secondly, most of these maps date to the early 50's, i.e. before the Soviet agrarian reforms and urban development, thus making feasible also the positioning of sites destroyed later. Thirdly, the extreme accuracy of Soviet maps (for example, 1:10,000 scale map have 1 m contour lines) made possible the discovery of archaeological sites and abandoned canals according to their detailed shape and morphology.

Steps of the research were as follows (see also Mantellini 2017b: 15-17; Mantellini in press):

1. Scanning and georeferencing of topographical maps: 1:10,000 and 1:25,000 scale (early 1950s-1960s and early 1990s) and 1:100,000 scale (late 1970s-1980s).
2. Acquisition, scanning, orthorectification, and georeferencing of aerial photos and CORONA satellite imagery, dated to the 1960s and early 1970s.
3. Acquisition of previous surveys of the Samarkand region. They consisted of: list of sites with their description and location, pictures (not always available), sketch maps (drawn by a topographer who usually joined the archaeological unit on the field), and maps (also not always available) with the location of sites.
4. Preliminary desktop detection of *tepa*, abandoned canals, natural riverbeds, other archaeological evidence on topographical maps and satellite data, including historical CORONA photographs and the most recent Google Earth© satellite imagery.
5. Field surveys, conducted according to the different ecological zones shaping the Samarkand territory. In areas where cultivations prevail, the inspection was addressed directly to the *tepa* – if still preserved – or to the spot where the *tepa* had been located. Although destroyed many years ago, it is quite usual to find ceramic scattered on the field or near houses (Mantellini, Rondelli and Stride 2011: 389; Rondelli, Stride and García-Granero 2013: 274). The steppe, on the contrary, is completely free of any cultivation or modern settlement, thus preserving very well a high number of sites and traces of abandoned canals. This environment required a different approach, based on a comprehensive field-walking survey across the entire steppe, for a total surface of ca. 200 sq. km and (Mantellini 2017b: 17-18). In both cases, cultivated areas and steppe, inspection was aimed at validating the sites position, describing their main physical features and state of preservation, as well as collecting pottery or any archaeological finds useful for their dating.
6. Data processing and analysis in GIS: the latest updates of both Google Earth Pro© and GIS software packages made possible an easy exchange and interconnection between data.

## 7. Results

The project investigated an area of ca. 2,500 sq. km. corresponding to the six administrative districts south of the Zeravshan river: Nurabad, Pasdargom, Samarkand City, Samarkand Selski, Taylak and Urgut.[14] Until the 2015 campaign, the research yielded the identification of more than 2,000 archaeological sites, which differ in shape, size, function and hierarchy (see preliminary results and analysis in Mantellini 2014; Mantellini and Berdimuradov 2016; Mantellini 2017a; Mantellini in press; Mantellini and Berdimuradov, in press) (Fig. 6.5).

14 The district of Nurabad, which covers 5,000 sq. km. and extends from the Dargom canal to the remote steppe in the southwest, was arbitrarily investigated only up to the height of the Jam corridor (see Fig. 6.5).


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

The first result concerns the high degree of destruction of archaeological sites (Fig. 6.6). Around 40% of the anthropic mounds were flattened in the last decades due to the urban development of Samarkand, the expansion of rural villages, and, most of all, the extensive cultivation of cotton and vineyards. This rate is of course higher around the city and in its agricultural districts. On the contrary, the unexploited steppe resulted in a better preserved landscape, and it provided priceless information on the presence of ancient irrigation canals and archaeological features other than *tepa* (Mantellini 2014: 42-43; Mantellini and Berdimuradov 2016: 62; Mantellini in press). This is the case of low-mounds -scantly reported on maps given their limited extension and height- and off-sites. The former refers to very small mounds, which rise only a few cm above the ground so that their visual field detection is often impossible (Fig. 6.7). However, the low-mounds are almost always clustered together and located in proximity of major *tepa*, hence their clear white pattern is highly distinguishable, for example, on modern Google Earth© satellite images (Fig. 6.8). The off-sites are flat sites characterized by pottery concentrations scattered randomly in the steppe, whose detection is possible only through an accurate field-walking.

According to the data hitherto available (Fig. 6.9),[15] a first observation concerns the low number of Achaemenid sites (6th-4th centuries BCE). This is in contrast with the fact that Samarkand, founded in the mid-6th century BCE, at that time was the major city, or 'capital', of the Achaemenid satrapy of Sogdiana (Shishkina 1994: 81; Grenet 2004). The first significant occupation of the region is dated as early as the late/post-Hellenistic centuries (3rd-1st centuries BCE), followed by a period known as Kangju (1st century BCE – 1st century CE).[16] The highest peak in settlement is attested in the Early Middle Ages, the so-called 'Sogdian' period, (6th-8th centuries CE). The pre-Islamic centuries are commonly known as the apogee in the economic and socio-political history of Samarkand and Sogdiana. This was due to the rich trade along the ancient Silk Road, the establishment of the local (Sogdian) traders in the highest levels of society, as well as the proceeds ensured by agricultural products and animal breeding in its territory.[17] The significant reductions in settlements in the Samarkand Region are instead connected to dramatic events for the city: in the 9th century, i.e. after the Islamic conquest of 712, and later in the 13th-14th centuries, i.e. after the Mongol invasion of 1220 that brought the complete abandonment of the ancient city (the present site of Afrasiab). According to the historical sources, it is remarkable how both events are likely connected to the destruction of hydraulic infrastructures providing the city and its environs with water (Mantellini in press). Finally, a significant settlement revival is attested during the Timurid Ages (14th-mid-15th centuries), when Tamerlane made Samarkand the capital of his large empire.

Together with hundreds of archaeological sites, traces of several irrigation canals were recorded (Fig. 6.10, see also Fig. 6.8). They differ in construction period, length, width and hierarchy, testifying to a great hydraulic master plan irrigating the whole region (Stride, Rondelli,

15 Finds of the last season are still under study.

16 Since the 1st century BCE Sogdiana was included in the larger nomadic state of Kangju, centered on the Middle Syrdarya (de La Vaissière 2011). While evidences of Kangju culture has been found at Afrasiab (Shishkina 1994: 90; Claude Rapin, pers. comm.), later Samarkand was apparently outside the control of the nomadic Kushan empire (Shishkina 1994: 90).

17 On the Sogdian traders see de la Vaissiére 2005. See the same work (pp. 16-17) for irrigated agriculture as the main economic base in Sogdian society.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Mantellini 2009; Mantellini et al. 2009; Mantellini, Rondelli and Stride 2011; Mantellini 2015). The origin of the Dargom, Bulungur and the other canals of this region has always been disputed in an attempt to understand their chronology. As a result, many theories have been advanced and different dating proposed, often in contrast with each other (Isamiddinov 2002: 15-30; Gentelle 2003: 173-231; Mantellini 2015: 4-6). To date these canals, the Uzbek-Italian expedition combined archaeological and geological surveys and sediments analysis. Radiocarbon dating from samples collected at Kafir Kala and in the nearby site Sam-174 proved that the irrigation network in the southern Zeravshan flank was functioning between 80-240 Cal. AD (Malatesta *et al*. 2012). This result fits with the earliest mention of the Dargom in historical sources. In his *Geography* of the 2nd century CE, Ptolemy refers to the Dargom as the main canal providing *Maracanda* with water. Furthermore, the correlation between the abandoned canal beds and their surrounding ancient settlements in the steppe let us surmise that the early irrigation system was even older, possibly dating to the late/post-Hellenistic - Kangju centuries (3rd-1st centuries CE), i.e. the time of the first significant settlement increase according to pottery gathered during the field survey (Mantellini 2015: 6).

## 8. Discussion – Identification and dating of archaeological sites and ancient canals

The case of Samarkand shares benefits, problems and general issues with similar regional archaeological projects. Spatial datasets available, field accessibility, methods used, resources and many other variables affect the project feasibility and results in term of quantitative and qualitative assessment. This is particularly true when the interpretation deals with spatial and chronological relationships between ancient settlements and irrigation networks. Dating canals is very difficult, even after focused investigations and excavations. In many cases it is possible to establish their chronology only roughly on the basis of their topographical proximity to the nearest settlements.

Major issues that concern this research approach are:

### *8.1 Identification of archaeological remains*

The preliminary desktop reconnaissance of anthropogenic features in the landscape, before the ground inspection, holds a crucial step in this approach. However, its effectiveness depends on the availability of accurate maps and high-resolution satellite images. The case of Samarkand, which is almost completely covered by maps at different scales from the 50's to the 90's, demonstrated how the number of the *tepa* detected can differ sensibly. Looking at a sample area around the major archaeological complex of Kafir Kala, the number of sites reported on the maps ranges from 21 on the 1:10,000 scale, 13 on the 1:25,000 scale, to only 2 on the 1:100,000 scale (Fig. 6.11a-c). In addition to the sites, large-scale maps report also the presence of further features of potential archaeological or historical value, such as an artificial canal defining the southern border of Kafir Kala and an earthen work 1-1.2 m high (wall? fence?). The detail decreases in the small-scale maps and it is worth noting that Kafir Kala is not reported at all in the 1:100,000 scale map. Furthermore, the accuracy of the 1:10,000 scale maps makes also possible some considerations on the basis of shape, height and surface of the *tepa*, even those destroyed and no longer accessible on the field. Detection of sites is possible also on satellite images. The earliest CORONA series refers to a period prior to the massive landscape transformations and


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

urban development of many regions of the Middle East and Central Asia. However, their original main goal was the identification of military installations, thus sometimes their resolution cannot satisfy archaeological purposes. Still, modern satellite images, either those available on Google Earth© and other free online platforms or those purchasable by dealers, are very accurate and detailed, but they report a situation that follows the massive anthropization of the last decades, when a huge amount of potential archaeological information was already lost.

### *8.2 Field visits*

Ground inspection is a fundamental step to validate archaeological features detected remotely. Although surveys in Central Asia are facilitated by the friendliness of the local people and the fact that many fields apparently 'do not belong to anyone', the possibility of field surveys depends on both natural and cultural factors. The former mainly concerns the topography of a site location and the environmental conditions at the time of the survey. Although better preserved than other regions, the landscape in the steppe is completely covered by grass after the spring rains (late April-May). In such a condition, the identification of particular sites like low-mounds, off-sites, and kurgan, is more difficult than in other seasons of the year. Among cultural factors, the anthropization degree of a certain territory, in terms of amount of preserved/destroyed sites, is the most important. The steppe of Samarkand resulted not only in the highest preservation rate of *tepa*, but also in the type of archaeological features. Low-mounds, off-sites and ancient canals were recorded only in the steppe, but their absence in the cultivated areas is not proof that there were no such sites even in today's cultivated areas A possible explanation is that agricultural activities completely flattened low-mounds and off-sites, since they are characterized by a minimal or non-existent architecture. Those same anthropic activities, combined with atmospheric conditions, were also the reason of ancient canals filling and burial. Traces of the Yanghìaryk abandoned bed, for example, were discovered only at the border between cultivations and foothill steppe. Other main implications concern the authorization of the field/house owner to access the archaeological site, and safety reasons in those regions affected by wars and political crisis.

### *8.3 Chronology*

Dating of multilayered settlements, *tepa* in Central Asia and *tell* in the Near East, depends on several factors. Compared to the Near East and Mesopotamia, which have strong evidence provided by written sources coeval to the Bronze Age settlements, in Central Asia "texts are few in number and rather laconic" (Lyonnet 2012: 143), even during historical and classic periods. Chronology of Central Asian *tepa* is essentially based on archaeological finds, usually pottery, scattered on and around it. Even in this case there are main issues. First, the ceramic sherds collected *in situ* can denote either the latest or the major settlement phases, without recognizing random and short-period occupations. Secondly, the presence and the amount of pottery on the surface is strongly connected to the preservation degree of the site: the more the site is preserved, the less is the pottery produced around it. Other reasons preventing the sherds to come out of the *tepa* in Samarkand concern the frequent reuse of the archaeological mounds as a cemetery, as well as the blooming vegetation covering the *tepa* and that often make also impossible any collection of finds. Thirdly, not the whole pottery collected in the field is diagnostic and useful


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

for a suitable chronology. Moreover, independently from the historical periods, Central Asia lacks a systematic ceramic seriation and repertoires to be used for comparison in the study of pottery produced locally.[18] As a consequence, even after stratigraphic excavations, site chronology is given by using cultural-historical horizons rather than an absolute dating or a limited span of years (see Fig. 6.9). It is common, for example, to date a certain ceramic type to the 'Sogdian period' (6th-early 8th centuries CE) rather than providing its chronology in terms of half-century –at least- or even a smaller lapse of time. Exceptions to this rule are few, and this is essentially due to a general lack of knowledge of the local ceramic productions, and their interpretation in a broader geographical perspective. Finally, the amount of sherds from excavation is higher than survey and it allows to narrow the dates of a specific ceramic according to its precise provenience. On the contrary, the ceramics from surveys are definitely fewer and without any association with stratigraphy or phase of occupation.

Little is changed since the late 70's, when Jean-Claude Gardin (1977: 81) referred to this issue as a "dark spot", especially in the transition periods connected to outside conquests.

### *8.4 Excavation*

Stratigraphic digs can of course provide further information on the absolute chronology and function of a certain site. Alongside the above-mentioned excavations at Kafir Kala and Sam-174, there are two significant examples from the Uzbek-Italian expedition in relation to the dating of the ancient irrigation system. The first comes from Kurgan Kadirbek, an archaeological complex located in the steppe and visited during the 2010 and 2011 surveys (see Figs. 6.7, 6.8, 6.10). The archaeological compound is characterized by two main close-up *tepa* (administrative codes = Uz-Sa-Sam-172 the northern *tepa*, Uz-Sa-Sam-484 the southern *tepa*; field code = Stp-031), 5 m height, and many low mounds in their surroundings. Since low mounds have never been investigated before, one of them (Uz-Sa-Sam-486 = Stp-031d) was targeted for a stratigraphic investigation in 2012 (Mantellini 2017b: 17). The excavation provided evidence of a site without significant architecture and with pits, postholes and many lithic tools such as grinding stones, grinders, and pestles. This was certainly not a burial, as the toponym suggested, but rather a small temporary settlement exploited for seasonal agricultural activities. According to the pottery, the earliest and most attested occupation dates to the post-Hellenistic period (2nd-1st centuries BCE), which confirms the first chronology of the Kurgan Kadirbek compound after the survey. The second case is Koitepa, currently investigated by the University of Naples "L'Orientale" under the direction of Bruno Genito since 2009 (Abdullaev and Genito 2014). It is a 4 ha site located in the present steppe, while in the ancient times it stood in the middle of a large irrigated areas based on the ancient Eskì Angar and Dargom canals, which are both presently dry (Fig. 6.12). Koitepa is remarkable for its circular conic-truncated *tepa* (citadel) surrounded by a quadrangular earthen rampart. In 2008 Koitepa was selected for a long-term excavation due to its location and because, at that time, it was one of the few sites providing – although very little- pottery belonging to the Achaemenid horizon of the 6th-4th centuries BCE (Genito 2014: 37-39). The comparison with the ceramics from other sites in the Samarkand region suggests positioning Koitepa between the 4th century BCE and the 8th-10th century CE, with a major occupation in the Hellenistic and post-Hellenistic periods (4th-2nd centuries BCE)

18 Exceptions are the study of the pottery from the Chalcolitich-Bronze Age site of Sarazm (Lyonnet 1996) and the survey in Northeastern Bactria (Lyonnet 1997).


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

(Raiano 2014a: 297-304). The chronology suggested for Koitepa seems to find a confirmation in its topographical layout, which is usually associated with a Greek foundation (Shishkina and Inevatkina 2012: 15; fig. 15.5-6). Unlike what the preliminary survey proposed, at the moment, no evidence suggests an earlier, Achaemenid, occupation.[19] On the contrary, but as already attested at Kurgan Kadirbek, the stratigraphic sequence found at Koitepa recalls the main periods attested from the pottery collected in the survey of the steppe.

*8.5 Random discoveries*

A further factor deals with those discoveries which occurred accidentally. They go beyond any possibility of detecting archaeological sites, even with the highest resolution spatial datasets available, or speculating on their presence according to predictive analysis and models. In Samarkand, the most relevant example concerns the Bronze Age occupation, which is apparently attested on the foothills and the first river terrace while it is sporadic in the floodplain (Fig. 6.13). Only 40 km east of Samarkand, Sarazm provided the earliest evidence of a proto-urban site along the middle Zeravshan as early as the 4$^{th}$ millennium BCE (Besenval 1987). After its casual discovery in 1976, several excavation seasons provided proof of an important agricultural settlement with significant artisanal and metallurgical activities (Besenval and Isakov 1989). Even closer to Samarkand than Sarazm, is Koktepe. The site covers 17.5 ha 25 km north of Samarkand and it was the object of systematic excavation from the Mission Archéologique Franco-Ouzbèke (MAFOuz) de Sogdiane from 1994 to 2008 (Rapin and Isamiddinov 2013). The discoveries at Koktepe suggest the presence here of a proto-urban, regional center existing in the last third of the 2$^{nd}$ millennium BCE, thus definitely before than the Samarkand foundation and perhaps connected to the beginning of irrigation here based on the Bulungur-Payaryk system.

Because of its proximity to both Sarazm and Koktepe, as well as in the existence of similar environmental conditions, the presence of significant Bronze Age sites in the Samarkand territory can be postulated. However, from an archeological point of view, their reconnaissance is very difficult. Although it extended over 15+ ha, Sarazm and its coeval sites in the Samarkand territory are not *tepa*. Later sediments covered them after their abandonment, sometimes preserving them from later anthropization but making difficult their discovery and identification. The thickness of the deposit varies according to the natural and cultural processes which occurred in the following centuries in that specific area. The site of Sarazm is located in a small plain amid the mountains right at the border between the upper and the middle Zeravshan sections. The archaeological area is included between the small villages of Avazali and Sokhibnazar, both numbering a few hundred-people. Hence, archaeological remains can be found just a few cm below ground. On the contrary, Samarkand is a historical metropolis which developed in a larger alluvial plain, where archaeological finds can be buried under several meters of deposit. These suppositions are confirmed by the following discoveries. The first concerns two remarkable protohistoric sites, both located on the first upper terrace of the Zeravshan between the villages

19 The excavations hitherto conducted at Koitepa concerned some trial trenches on the rampart and partially the upper citadel (Abduallev and Genito 2014). Achaemenid layers, if present, might therefore be located below the layers uncovered until now.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

of Jukov and Tugai, 19 km from Samarkand and 25 km from Sarazm (Fig.6.14).[20] Occasional discoveries from Jukov date to 1986 during some hydro-geological drillings (Avanesova 1996). The few potteries found, comparable with those from Sarazm suggest dating this site to the Early Bronze Age (end 3rd – beginning 2nd millennia BCE). According to the topographical information available (Avanesova 1996: 117), the river terrace was 7 m above the riverbed while the archaeological remains stood 5 m above the riverbed, thus inferring the depth of the site at 2 m below the ground surface. The discovery of a second site, Tugai, in a context similar to Jukov, occurred in 1987 as the result of a systematic investigation of the University of Samarkand (Avanesova and Jurakulov 2008). A landslide of part of the river terrace, made visible some archaeological remains at a depth of 5.02 m below the ground surface (Avanesova and Jurakulov 2008: 13).[21] The finds date this settlement slightly later than Jukov, around the early 2nd millennium BCE. Finally, the remains of an Andronovo necropolis (early 2nd millennium BCE) were discovered in September 1999 near Fayzabad during the maintenance of an underground irrigation water pipe.[22] The installation of the pipe many years earlier had already damaged the site because human bones, metal objects and pottery were found scattered outside their primary context. Due to this particular condition, a surveillance and cleaning, rather than a proper excavation, were done during the preliminary research season of the Uzbek-Italian Expedition. The site is located between the Zeravshan first terrace and the Karatyube foothills, at an altitude of 890 m asl. Also in this case, the depth of the discovery is attested 2.5-3 m below ground.

## 9. Conclusions

The last two decades have seen an impressive increase of regional-based archaeological projects. This trend is significantly attested in those regions, less in Central Asia. Based on the experiences developed in the Near East and Mesopotamia, the Uzbek-Italian Expedition attempted to reconstruct the historical development of Samarkand in connection with its landscape transformations. A desktop assessment combined with field survey and targeted excavations allowed to piece together the main settlement phases of this region in the last three millennia with special focus on water management. Like elsewhere in arid Central Asia, irrigation practices are essential to supply settlements and fields with water, and vice versa, settlements and fields provide the basic resources to dig and maintain artificial canals. The interdependence between human settlements and hydraulic works is both topographic and chronological.

The most advanced techniques in remote sensing analysis and field data acquisition, and the availability of the high-resolution spatial datasets improved sensibly the possibility of detecting

20 Location of both sites has not been precisely provided by the authors, who only refer to the modern villages of Jukov and Tugai. Here the distance has been calculated halfway between the two modern villages from the center of Afrasiab (ancient Samarkand) and the center of Sarazm.

21 The attention of this section focused on a methodological issue, i.e. the problems connected to sites identification and dating. It is however worth noting that the depth of Jukov and Tugai finds must be taken with caution. The inferred depth of Jukov is -2 m while Tugai is reported at -5.02 m. A difference of 3 m between the two sites appears exaggerated in consideration of their proximity (ca. 2 km), their similar topographical location (upper river terrace), and their close chronology (end of the 3rd-beginning of the 2nd millennia BCE).

22 A preliminary report on the 1999 Fayzabad excavation is available at the archive of the Institute of Archaeology of Samarkand.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

archaeological features in the landscape. The investigation of Samarkand demonstrated how, for example, without large-scale historical maps and satellite images, hundreds of destroyed sites would never have been located. The loss of archaeological data in cultivated areas is balanced by the steppe, where the landscape is extremely well preserved (Fig.6.15). There, the archaeological assessment increased not only in quantity (number) of sites, but also in their quality, such as type (low-mounds, off-sites and kurgan) and chronology, where the excavations at Koitepa and Kurgan Kadirbek confirmed the chronological trend attested from the survey.

However, there are many factors affecting this approach in terms of quantitative and qualitative results. If historical maps and satellite images allowed the detection of hundreds of archaeological mounds, even those flattened, and abandoned canals, often their chronology can be only roughly estimated. The uncertain site chronology is therefore implied in the uncertain chronology of the canals connected to them.

**Acknowledgments**

The author would like to thank the Co-Directors of the UIAP Amdriddin Berdimuradov, Antonio Curci and Maurizio Tosi who strongly supported this research. The results hitherto achieved on the development of irrigation in Samarkand are the results of a long and prolific debate with many scholars. I want to remember in particular Frantz Grenet, Mutalib Khasanov, Mukhamadjan Isamiddinov, Bertille Lyonnet, Claude Rapin, Bernardo Rondelli, and Sebastian Stride. I would also express my gratitude to Enrico Agnolin, Stefano Camellini, Giorgia Codini, Serena di Cugno, Rita Dimartino, Sibilla Piergiacomi, and Elisabetta Sedda for their assistance on the field and laboratory. A special thanks to Gian Luca Bonora, Bertille Lyonnet and Claude Rapin who provided feedbacks on this paper, as well as fruitful comments in elaborating the chronology of the main historical-cultural horizons of the Samarkand region illustrated in Figure 6.9. Last but not least, Giò Morse for her review of the English text.

## BIBLIOGRAPHY

Abdullaev, K. and Genito, B. (eds.)
2014 *The Archaeological Project in the Samarkand Area (Sogdiana): Excavations at Kojtepa 2008-2012)*, Samarkand-Napoli, Università degli Studi di Napoli L'Orientale.

Adams, R. McC.
1965 *Land Behind Baghdad. A History of Settlement on the Diyala Plains*, Chicago and London, The University of Chicago Press.

Adams, R., McC., Kohl, P.L,. and C.C. Lamberg-Karlovsky
1980 Soviet-American Archaeological Symposia on the Near East and Central Asia, *Current Anthropology* 21, p. 266.

Andrianov, B.V.
1969 *Drevnie orositelnye sistemy priaralya*, Moskva, Izdatelstvo Nauka.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

1995 The history of economic development in the Aral region and its influence on the environment, *GeoJournal* 35, pp. 11-16.

Avanesova, N.A.

1996 Annexe. Pasteurs et agriculteurs de la Vallée du Zeravshan (Ouzbékistan) au début de l'age du Bronze: relations et influences mutuelles, in B. Lyonnet, *Sarazm (Tadjikistan). Céramique. Chalcolithique et Bronze Ancien* (Mémoires de la Mission Archéologique Française en Asie Centrale VII), Paris, De Boccard, pp. 117-131.

Avanseova, N.A., and Jurakulov, D.M.

2008 Drevneyshie nomady zeravshana, in K.M. Baypakov et al. (eds.), *Culture of Nomadic Peoples of Central Asia. Proceedings of the International Conference, Samarkand 22-24 November 2007*, Samarkand, International Institute for Central Asian Studies, pp. 13-33.

Ball, W.

1982 *Archaeological Gazetteer of Afghanistan*, Vol. I-II (Synthèse 8), Paris, Editions Recherche sur les civilisations.

Bartold, V.V.

1965 *Sochineniya. Tom III. Raboty po istoricheskoy geografii,* Moskva, Izdatelstvo NAUKA.

Berdimuradov, A.E., Franceschini, F., Giorgetti, D., Mantellini, S., Rondelli, B., Tosi, M.

2007 Samarkand and Its Territory: from Archaeological Map to Cultural landscape Management, *Bulletin of the International Institute for Central Asian Studies* 6, pp. 22-33.

Besenval, R.

1987 Découvertes récentes à Sarazm (R.S.S. du Tadjikistan): attestation des relations au IIIe millénaire entre l'Asie centrale, l'Iran du Nord-Est et le Baluchistan, *Comptes rendus des séances de l'Académie des Inscriptions et Belles-Lettres* 131, pp. 441-456.

Besenval, R., and Isakov, A.I.

1989 Sarazm et les débuts du peuplement agricole dans la région de Samarkand, *Arts Asiatiques* 44, pp. 5-20.

Bolelov, S.

2016 Boris Vasilevich Andrianov and the Study of Irrigation in Ancient Khorezm, in S. Mantellini (ed.), *Ancient Irrigation Systems of the Aral Sea Area*, Oxford & Philadelphia, Oxbow Books, pp. 7-9.

Bonora, G.L., Franceschini F., Mantellini, S., and Rondelli, B.

2003 Carta Archeologica della Media Valle dello Zeravshan: aspetti diversificati per una comprensione diacronica del popolamento antico, *Ocnus* 11, pp. 35-63.

Braidwood, R.

1937 *Mounds in the Plain of Antioch. An Archaeological Survey* (OIP 48), Chicago, The Oriental Institute of the University of Chicago.

Bulkin, V.A., Klejn, L.S., and Lebedev, G.S.

1982 Attainments and Problems of Soviet Archaeology, *World Archaeology* 13, pp. 272-295.

Casana, J.

2014 Regional-Scale Archaeological Remote Sensing in the Age of Big Data. Automated Site Discovery vs. Brute Force Methods, *Advances in Archaeological Practice* 3, pp. 222-233.

Casana, J.J., and Cothren, J.

2013 The CORONA Atlas Project: Orthorectification of CORONA Satellite Imagery and Regional-Scale Archaeological Exploration in the Near East, in D.C. Comer and M.J. Harrower (eds.), *Mapping Archaeological Landscapes from Space* (SpringerBriefs in Archaeology), New-York-Heidelberg-Dordrecht-London, Springer, pp. 33-43.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

David, T.
1986 2e colloque franco-soviétique sur l'archéologie de l'Asie centrale des origines à l'Âge du Fer, Paris, 19-26 novembre 1985, *Dialogues d'histoire ancienne* 12, pp. 481-494.
Davies, J.
2005 Uncle Joe knew where you lived. Soviet mapping of Britain (part 1), *Sheetlines* 72, pp. 26-38.
de la Vaissière, É.
2005 *Sogdian Traders* (Handbook of Oriental Studies 10), Leiden-Boston, Brill.
2011 Sogdiana iii. History and Archaeology, *Encyclopædia Iranica*, online edition, http://www.iranicaonline.org/articles/sogdiana-iii-history-and-archeology (accessed on 04 March 2011).
di Cugno, S., Mantellini S., and Berdimuradov, A.E.
2013 Traditional Techniques, Resources Exploitation and Archaeological Record: an Ethnographical Study from the Oasis of Samarkand (Uzbekistan), in F. Lugli, A.A. Stoppiello and S. Biagetti (eds.), *Ethnoarchaeology: Current Research and Field Methods. Conference Proceedings, Rome, Italy, 13th–14th May 2010* (BAR International Series 2472), Oxford, Archaeopress, pp. 99-106.
Dmitrieva, Yu. A., Suchilin, A.A., and Inevatkina, O.N.
2012 Razrabotka struktury arkheologicheskoy GIS "Kulturnoe nasledie Zarafshanskoy Doliny", *Kratkie Soobshcheniya Institua Arkehologii* 226, pp. 122-132.
Dolukhanov, P.M.
2016 Central Asian Archaeology: The Russian and Soviet Times, in S. Mantellini (ed.), *Ancient Irrigation Systems of the Aral Sea Area*, Oxford & Philadelphia, Oxbow Books, pp. 1-5.
Francfort, H.-P.
1984 The Early Periods of Shortugai (Harappan) and Western Bactrian Culture of Dashly, in B. Allchin (ed.), *South Asian Archaeology 1981. Proceedings of the Sixth International Conference of the Association of South Asian Archaeologists in Western Europe (Cambridge University, 5-10 July 1981)*, Cambridge, Cambridge University Press, pp. 170-175.
Francfort, H.-P., and Lecomte, O.
2002 Irrigation et société en Asie centrale des origines à l'époque achéménide, *Annales. Histoire, Sciences Sociales* 57, pp. 625-663.
Frumkin, G.
1970 *Archaeology in Soviet Central Asia*, Leiden-Koln, Brill.
Gardin, J.C.
1977 The Study of Central Asiatic Pottery: Some Reflections on Publication, *American Journal of Archaeology* 81, pp. 80-81.
1985 *L'archéologie de la Bactriane ancienne: actes du Colloque franco-soviétique, (Dushanbe, URSS, 27 octobre-3 novembre 1982)*, Paris, Éditions du Centre national de la recherche scientifique.
1998 *Prospections Archéologiques en Bactriane Orientale (1974-1978). Volume 3. Description des sites et notes de synthèse* (Memoires de la Mission Archéologique Française en Asie Centrale 9), Paris, Editions Recherche sur les Civilisation.
Gardin, J.C., and Lyonnet, B.
1978 La prospection archéologique de la Bactriane orientale (1974-1978): premiers résultats, *Mesopotamia. Rivista di Archeologia, Epigrafia e Storia Orientale Antica* XIII-XIV,pp. 99-154.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Gentelle, P.
1989 *Prospections Archéologiques en Bactriane Orientale (1974-1978). Volume 1. Donnée paléo-géographiques et fondaments de l'irrigation* (Memoires de la Mission Archéologique Française en Asie Centrale 3), Paris, Diffusion de Boccard.
2003 *Traces d'eau. Un géographe chez les archeologues*, Paris, Belin.
Grenet, F.
2004 Maracanda/Samarkand, une métropole pré-mongole. Sources écrites et archéologie, *Annales. Histoire, Sciences Sociales* 59, pp. 1043-1067.
Gubaev, A., Koshelenko, G., and Tosi, M. (eds.)
1998 *The Archaeological Map of the Murghab Delta. Preliminary Reports 1990-1995*, Roma, IsIAO.
Gulyamov, Ya.G.
1957 *Istoriya orosheniya khorezma s drevneyshikh vremen do nashik dney*, Tashkent, Izdatelstvo Akademii Nauk Uzbekskoy SSR.
Hieberth, F.T.
1994 *Origins of the Bronze Age Oasis Civilization in Central Asia*, (American School of Prehistoric Research Bulletin 42), Cambridge – MA, Peabody Museum Harvard University.
Isamiddinov, M.Kh.
2002 *Istoki gorodskoy kultury Samarkandskogo sogda*, Tashkent, Izdatelsvo narodnogo naslediya imeni A. Kadyri.
Jacobsen, T. and Adams, R. McC.
1958 Salt and Silt in Ancient Mesopotamian Agriculture, *Science* 128, pp. 1251-1258.
Klejn, L.S.
2012 *Soviet Archaeology. Trends, Schools, and History*, Oxford, Oxford University Press.
Kohl, P.L.
1984 Soviet archaeology in Central Asia: a methodological and structural analysis, in P.L. Kohl (ed.), *Central Asia. Palaeolithic beginnings to the Iron Age*, Paris, Éditions Recherche sur les Civilisations, pp. 243-248.
1985 Recent Research in Central Asia, *American Antiquity* 50, pp. 789-795
2007 *The Making of Bronze Age Eurasia*, Cambridge – UK, Cambridge University Press.
Lamberg-Karlosvky, C.C.
1994a The Oxus Civilization: The Bronze Age of Central Asia, *Antiquity* 68, pp. 353-354.
1994b Foreword. Initiating an Archaeological Dialogue: The USA-URSS Archaeological Exchange, in F.T. Hiebert, *Origins of the Bronze Age Oasis Civilizations in Central Asia* (American School of Prehistoric Research Bulletin 42), Cambridge – MA, Peabody Museum Harvard University, pp. XVII-XXX.
2013 The Oxus Civilization (AKA: The Bactria-Margiana Archaeological Complex): A Review, *Reviews in Archaeology* 30, pp. 21–63.
Latynin, B.A.
1962 *Voprosy istorii irrigatsii i oroshaemogo zemledeliya drevney Fergany. Obobshchayushny doklad po rabotam, predstavlennym kak dissertatsiya na soiskanie uchenoy stepeni doktora istoricheskikh nauk*. Leningrad, Leningradskiy Gosudarstvenniy Ordena Lenina Universitet imeni A.A. Jdanova.
Lewis, R.A.
1966 Early Irrigation in West Turkestan, *Annals of the Association of American Geographers* 56, pp. 467-491.
Lisitsyna, G.N.
1965 *Oroshaemoe zemledelie epokhi eneolita na yuge Turkmenii*, Moskva, Izdatelstvo Nauka.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

1978 *Stanovlenie i razvitie oroshaemogo zemledeliya v yujnoy turkmenii*, Moskva, Izdatelstvo Nauka.

Lyonnet, B.

1996 *Sarazm (Tadjikistan). Céramique. Chalcolithique et Bronze Ancien* (Mémoires de la Mission Archéologique Française en Asie Centrale VII), Paris, De Boccard.

1997 *Prospections Archéologiques en Bactriane Orientale (1974-1978). Volume 2. Ceramique et peuplement du Chalcolithique a la conquete arabe* (Memoires de la Mission Archeologique Française en Asie Centrale 8), Paris, Editions Recherche sur les Civilisation.

2012 Questions on the Date of the Hellenistic Pottery from Central Asia (Ai Khanoum, Marakanda and Koktepe), *Ancient Civilizations from Scythia to Siberia* 18, pp. 143-173.

Malatesta, L.C., Castelltort S., Mantellini S., Picotti, V., Hajdas I., Simpson G., Berdimuradov A.E., Tosi M., Willet S.D.

2012 Dating the Irrigation System of the Samarkand Oasis: A Geoarchaeological Study, *Radiocarbon* 54, pp. 91-105.

Mantellini, S.

2013 Regional Approach and Archaeological Survey in Northern Syria. An overview, in P. Matthiae and N. Marchetti (eds.), *Ebla and Its Landscape. Early State Formation in the Ancient Near East*, Walnut Creek, Left Coast Press, pp. 302-315.

2015 Irrigation Systems in Samarkand, in H. Selin (ed.), *Encyclopaedia of the History of Science, Technology, and Medicine in Non-Western Cultures*, Dordrecht, Springer Science+Business Media, pp. 1-14.

2016 Preface: Boris V. Andrianov and the Archaeology of Irrigation, in S. Mantellini (ed.), *Ancient Irrigation Systems of the Aral Sea Area*, Oxford & Philadelphia, Oxbow Books, pp. XXV-XXXII.

2017a A City and Its Landscape across time: Samarkand in the Ancient Sogdiana (Uzbekistan), in Garagnani, S., Gaucci, A. (Eds.), *Knowledge, Analysis and Innovative Methods for the Study and the Dissemination of Ancient Urban Areas. Proceedings of the KAINUA 2017 International Conference in Honour of Professor Giuseppe Sassatelli's 70th Birthday (Bologna, 18-21 April 2017)*, Firenze, All'Insegna del Giglio, pp. 333-342.

2017b Settlement Dynamics, Territory Exploitation, and Trade Routes in the Ancient Samarkand Oasis (Uzbekistan), in B. Genito and L. Caterina (eds.), *Archeologie delle "Vie della Seta". Percorsi, Immagini e Cultura Materiale. II Ciclo di Conferenze, 6 marzo – 22 maggio 2013*, Roma, Università di Napoli L'Orientale - ISMEO, pp. 13-24.

in press Urbanscape vs. Landscape or Urbanscape as Landscape? A case from ancient Samarkand (Sogdiana), in C. Baumer and M. Novak (eds.), *Urban cultures of Central Asia from the Bronze Age to the Karakhanids. Proceedings of the International Conference, Bern, 4th-6th February 2016*, Wiesbaden, Harrassowitz Verlag.

Mantellini, S. (ed.)

2016 *Ancient Irrigation Systems of the Aral Sea Area*, Oxford & Philadelphia, Oxbow Books.

Mantellini, S., and Berdimuradov, A.E.

2016 The Archaeological and Historical Heritage of Samarkand: an Overview from the Uzbek-Italian Expedition 2001, in A.E. Berdimuradov (ed.), *Archaeology of Uzbekistan During the Years of the Independence: Progress and Perspectives, Samarkand 15-16 September 2016*, Samarkand, Institute of Archaeology, Uzbek Academy of Sciences, pp. 60-63.

in press Cultural Heritage and Settlement Dynamics in Samarkand Oasis: The Archaeological Map of the Middle Zeravshan Valley", in A. Abduvakhitov (ed.), *The Historical Heritage of Scientists and Thinkers of the Medieval East, its Role and Significance for*


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

*Modern Civilization. Proceedings of the International Conference, Samarkand, 14-15 May 2014*, Cambridge, Cambridge Scientific Publishers, pp. 279-297.

Mantellini, S., Rapin, C., Rondelli, B., and Stride, S.
2009 Pouvoir et grands travaux dans la plaine de Samarkand de l'âge du fer au haut moyen-âge (nouvelles données pour la comparaison avec le site k'Aktepe-Tchilanzar de Tashkent), in D. Alimova and Sh. Pidaev (eds.), *The Role of Tashkent in Development of the World Civilization. Proceedings of the International Conference dedicated to the 2200th anniversary of the foundation of the city of Tashkent*, Paris, UNESCO HQ, 9 April 2009, Tashkent, FAN, pp. 23-30.

Mantellini, S., Rondelli, B., and Stride, S.
2011 Analytical Approach for Representing the Water Landscape Evolution in Samarkand Oasis (Uzbekistan), in E. Jerem, F. Redő and V. Szeverényi (eds.), *On the Road to Reconstructing the Past. Computer Applications and Quantitative Methods in Archaeology (CAA). Proceedings of the 36th International Conference*, Budapest, April 2-6, 2008, Budapest, Archaeolingua Foundation, pp. 387-396.

Matthiae, P., and Marchetti, N. (eds.)
2013 *Ebla and its Landscape. Research on Early State Formation in the Ancient Near East*, Walnut Creek, Left Coast Press.

Menze, B.H., and Ur, J.A.
2012 Mapping Patterns of Long-Term Settlement in Northern Mesopotamia at a Large Scale, *Proceedings of the National Academy of Sciences* 109, pp. E778–E787.

Mokroborodov, V.V., Stride, S., Maksudov, F., Rondelli, B., Mantellini, S.
2017 Poslednie raboty po sostavleniyu arkheologicheskikh kart Sredney Azii. Metody, rezultaty, perspektivy, *Arkheologiya i geoinformatika* 8, pp. 1-17.

Morandi Bonacossi, D. (ed.)
2007 *Urban and Natural Landscapes of an Ancient Syrian Capital. Settlement and Environment at Tell Mishrifeh/Qatna and in Central-Western Syria* (Studi Archeologici su Qatna 1), Udine, Forum, pp. 65-90.

Mukhamedjanov, A.R.
1978 *Istoriya orosheniya bukharskogo oazisa (s drevneyshikh vremen do nachala XX v.)*, Tashkent, Izdatelstvo FAN Uzbekskoy SSR.

Philip, G., and Bradbury, J.
2010 Pre-Classical Activity in the Basalt Landscape of the Homs Region, Syria: Implications for the Development of 'Sub-Optimal' Zones in the Levant During the Chalcolithic-Early Bronze Age, *Levant* 42, pp. 136-169.

Postnikov, A.V.
2002 Maps for Ordinary Consumers versus Maps for the Military: Double Standards of Map Accuracy in Soviet Cartography, 1917-1991, *Cartography and Geographic Information Science* 29, pp. 243-260.

Psarev, A.A., Kovalenko, A.N., Kuprin, A.M., and B.I. Pirnak
1986 *Voennaya topografiya*, Moskva, Voennoe Izdatelstvo.

Pumpelly, R.
1908 *Explorations in Turkestan. Expedition of 1904. Prehistoric Civilizations of Anau. Origins, Growth, and Influence of Environment*, Washington D.C., Carnegie Institution of Washington.

Raiano, F.
2014a Study on the Ceramic Materials from Kojtepa, in K. Abdullaev and B. Genito (eds.), *The Archaeological Project in the Samarkand Area (Sogdiana): Excavations at Kojtepa (2008-2012)*, Samarkand-Napoli, Università degli Studi di Napoli L'Orientale, pp. 247-313.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Rapin, C., and Isamiddinov, M.Kh.
2013 Entre sédentaires et nomads: les recherches de la Mission archéologique franco-ouzbèke (MAFOuz) de Sogdiane sur le site de Koktepe, in J. Bendezu-Sarmiento (ed.), *L'Archéologie française en Asie Centrale. Nouvelles rechearches et enjeux socioculturels* (Cahiers d'Asie Centrale 21-22), Paris, De Boccard, pp. 113-133.

Redman, C.L.
1982 Archaeological Survey and the Study of Mesopotamian Urban Systems, *Journal of Field Archaeology* 9, pp. 375-382.

Rondelli, B., and Mantellini, S.
2004 Methods and Perspectives for Ancient Settlement Studies in the Middle Zeravshan Valley, *Silk Road Newsletter* 2, pp. 35-39.

Rondelli, B., and Tosi, M.
2006 GIS and Silk Road Studies: Monitoring Landscape and Population Changes at Samarkand and in the Middle Zeravshan Valley, in T. Uno (ed.), *Reading Historical Spatial Information from around the World. Studies of Culture and Civilization Based on GIS Data*, Kyoto 7-11 February 2005, Kyoto, International Research Center for Japanese Studies, pp. 459-489.

Rondelli, S., Stride, S., and García-Granero J.J.
2013 Soviet military maps and archaeological survey in the Samarkand region, *Journal of Cultural Heritage* 14, pp. 270-276.

Rousset, M.-O., Geyer, B., Gatier, P.-L., and Awad, N. (eds.)
2016 *Habitat et environnement. Prospections dans les marges arides de la Syrie du Nord* (Travaux de la Maison de l'Orient 71), Lyon, Maison de l'Orient et de la Méditerranée-Jean Pouilloux.

Salvatori, S., and Tosi, M. (eds.)
2008 *The Bronze Age and early Iron Age in the Margiana Lowlands: facts and methodological proposals for a redefinition of the research strategies* (The Archaeological Maps of the Murghab Delta Studies and Reports II; BAR International Series 1806), Oxford, Archaeopress.

Shirinov, T. Sh., and Tosi, M.
2003 Land Behind Samarkand, in S. Pagani (ed.), *Italo-Uzbek Scientific Cooperation in Archaeology and Islamic Studies: An Overview, Rome, January 30, 2001*, Roma, IsIAO, pp. 13-40.

Shishkina, G., and Inevatkina, O.N.
2012 Zapadnye zemli Samarkandskogo Sogda. Tipologiya arckheologicheskikh pamyatnikov, *Problemy Istorii, Filologii, Kultury* 38, pp. 33-68.

Steward, J.H. (ed.)
1955 *Irrigation Civilizations: A Comparative Study*, Washington D.C., Pan American Union.

Stride, S., Rondelli, B., and Mantellini, S.
2009 Canals versus horses: political power in the oasis of Samarkand, *World Archaeology* 41, pp. 73-87.

Shishkina, G.V.
1994 Ancient Samarkand: Capital of Soghd, in B. A. Litvinskii and C. Altman Bromberg (eds.), *The Archaeology and Art of Central Asia: Studies From the Former Soviet Union* (Bulletin of the Asia Institute, New Series, 8), Bloomfield Hills, MI, Asia Institute, pp. 81-99.

Tolstov, S.P.
1948a *Drevniy Khorezm. Opyt istoriko-arkheologicheskogo issledovaniya*, Moskva, Izdanie MGU.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

1948b *Po sledam drevnekhorezmiyskoy tsivilizatsii*, Moskva-Leningrad, Izdatelstvo Akademii NAUK SSR.

1962 *Po drevnim deltam oksa i yaksarta*, Moskva, Izdatelstvo Vostochnoy Literatury.

Tosi, M., Rondelli, B., Menghi E., and Mantellini, S.

2001-2002 Interventi Archeologici in Uzbekistan, *Ocnus* 9-10, pp. 343-351.

Tosi, M., Berdimuradov, A.E., Franceschini, F., Giorgetti D., Mantellini, S., and Rondelli, B.

2007 La Carta Archeologica della Media valle dello Zeravshan: strategie e metodi per la storia del popolamento nella regione di Samarcanda, in T.Sh. Shirinov and Sh. R. Pidayev (eds.), *The Role of Samarkand in the History of World Civilization. Material of the International Scientific Symposium devoted to the 2750th Anniversary of the City of Samarkand, Samarkand, 24-26 May 2007*, Tashkent-Samarkand, FAN, pp. 68-73.

Ur, J.A.

2010 *Urbanism and Cultural Landscapes in Northeastern Syria. The Tell Hamoukar Survey, 1999-2001* (OIP 137), Chicago, The Oriental Institute of the University of Chicago.

2013 CORONA Satellite Imagery and Ancient Near Eastern Landscapes, in D.C. Comer and M.J. Harrower (eds.), *Mapping Archaeological Landscapes from Space* (Springer Briefs in Archaeology), New-York-Heidelberg-Dordrecht-London, Springer pp. 21-31.

US Department of the Army, Headquarters

1958 *Soviet Topographic Map Symbols*. TM 30-548, Washington DC, US Department of the Army Headquarters.

Yener, K.A. (ed.)

2005 *The Amuq Valley Regional Projects. Volume 1. Surveys in the Plain of Antioch and Orontes Delta, Turkey, 1995-2002* (Oriental Institute Publications 131), Chicago, The Oriental Institute of the University of Chicago.

Wilkinson, T.J.

2003 *Archaeological Landscapes of the Near East*, Tucson, The University of Arizona Press.

Wilkinson, T.J., Peltenburg, E., and Wilkinson, E. B. (eds.)

2016 *Carchemish in Context. The Land of Carchemish Project, 2006-2010* (Themes from the Ancient Near East BANEA Publication Series 4), Oxford & Philadelphia, Oxbow Books.

Wittfogel, K.A.

1957 *Oriental Despotism. A Comparative Study of Total Power*, New Haven and London, Yale University Press.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823


Fig. 6.1. The Near East, Mesopotamia and Central Asia and their main geographical and environmental features (Basemap: USGS© – GMTED 2011)


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

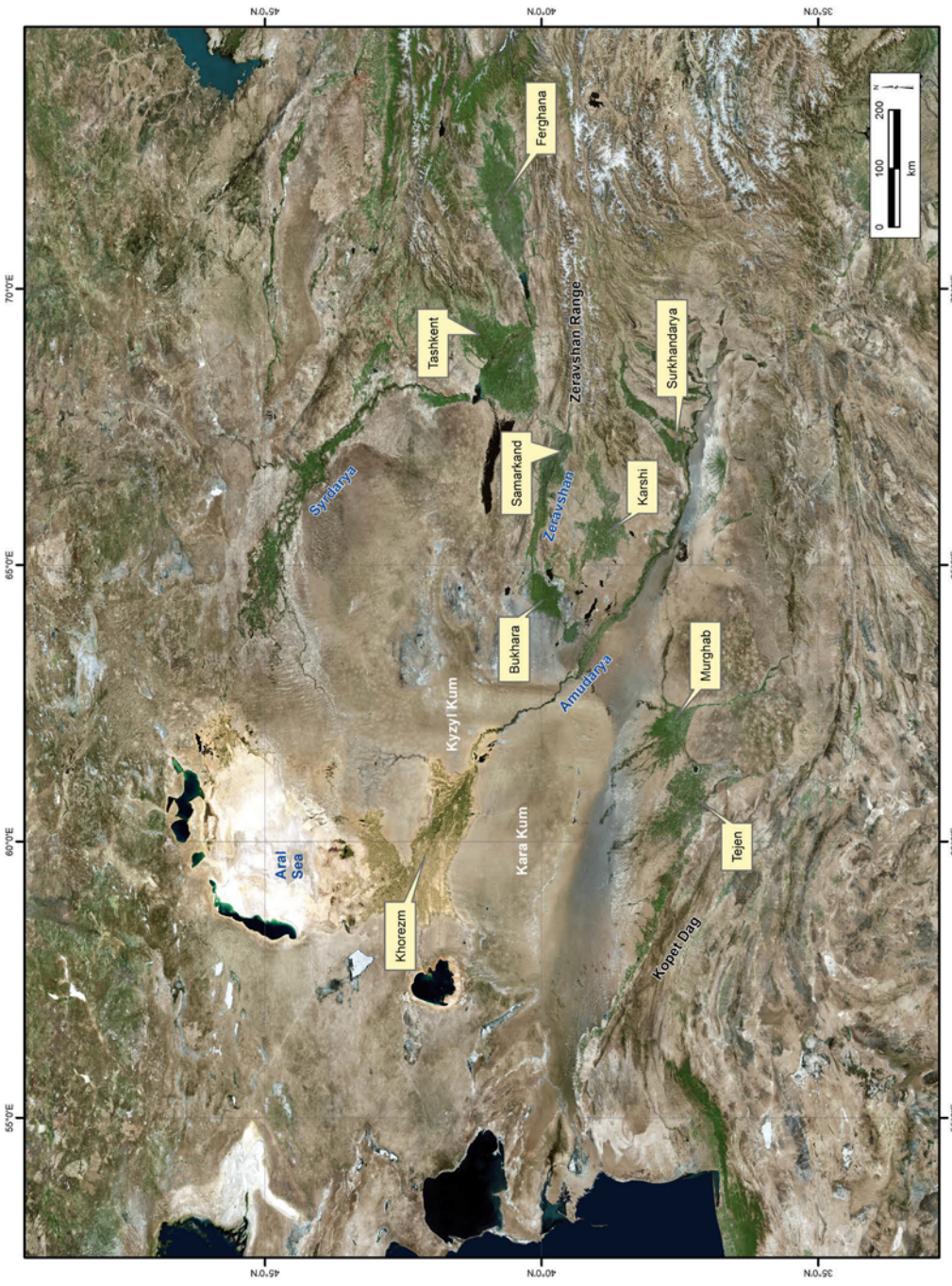



Fig. 6.2. The major oases in Western Central Asia (Basemap: ESRI© World Imagery 2016)


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Fig. 6.3. Multilayered anthropic mounds: left Tell Kalbeh from Ebla, Syria (ECP-028, Ebla Chora Project©); right; unnamed tepa from Samarkand, Uzbekistan (Pas-008, Uzbek-Italian Archaeological Expedition©)

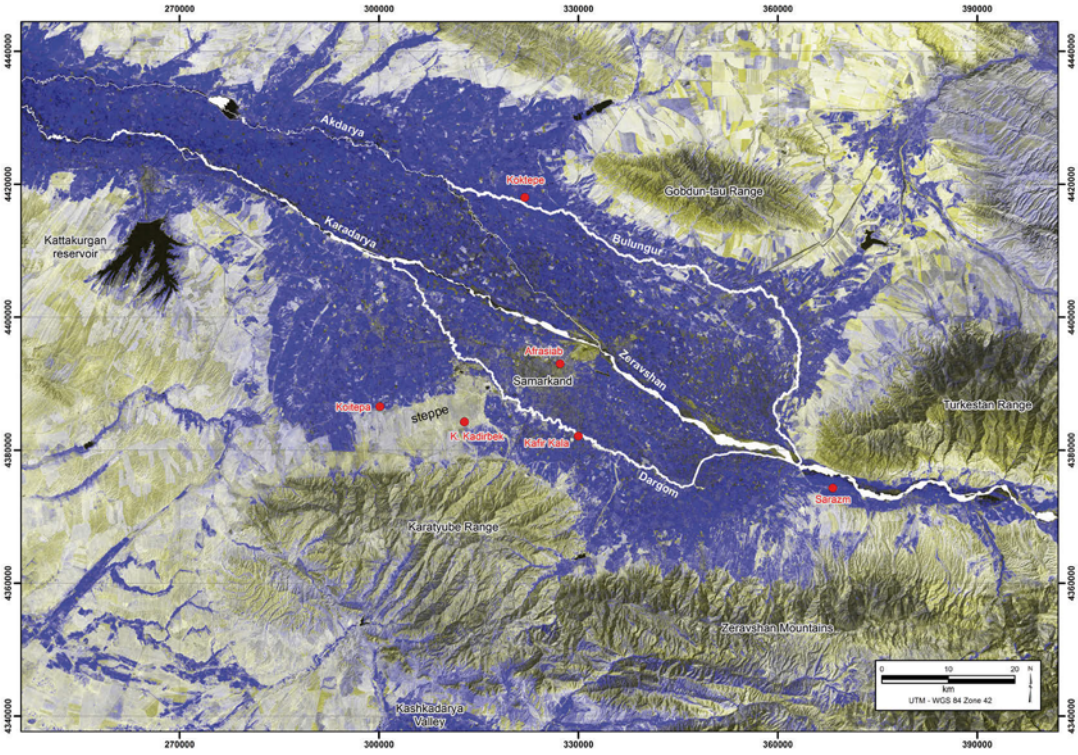



Fig. 6.4. Samarkand oasis on a USGS© Landsat Orthorectified TM satellite image 1987-1992 (RGB channels 1-1-2). Blue refers to the cultivated areas irrigated by artificial irrigation


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

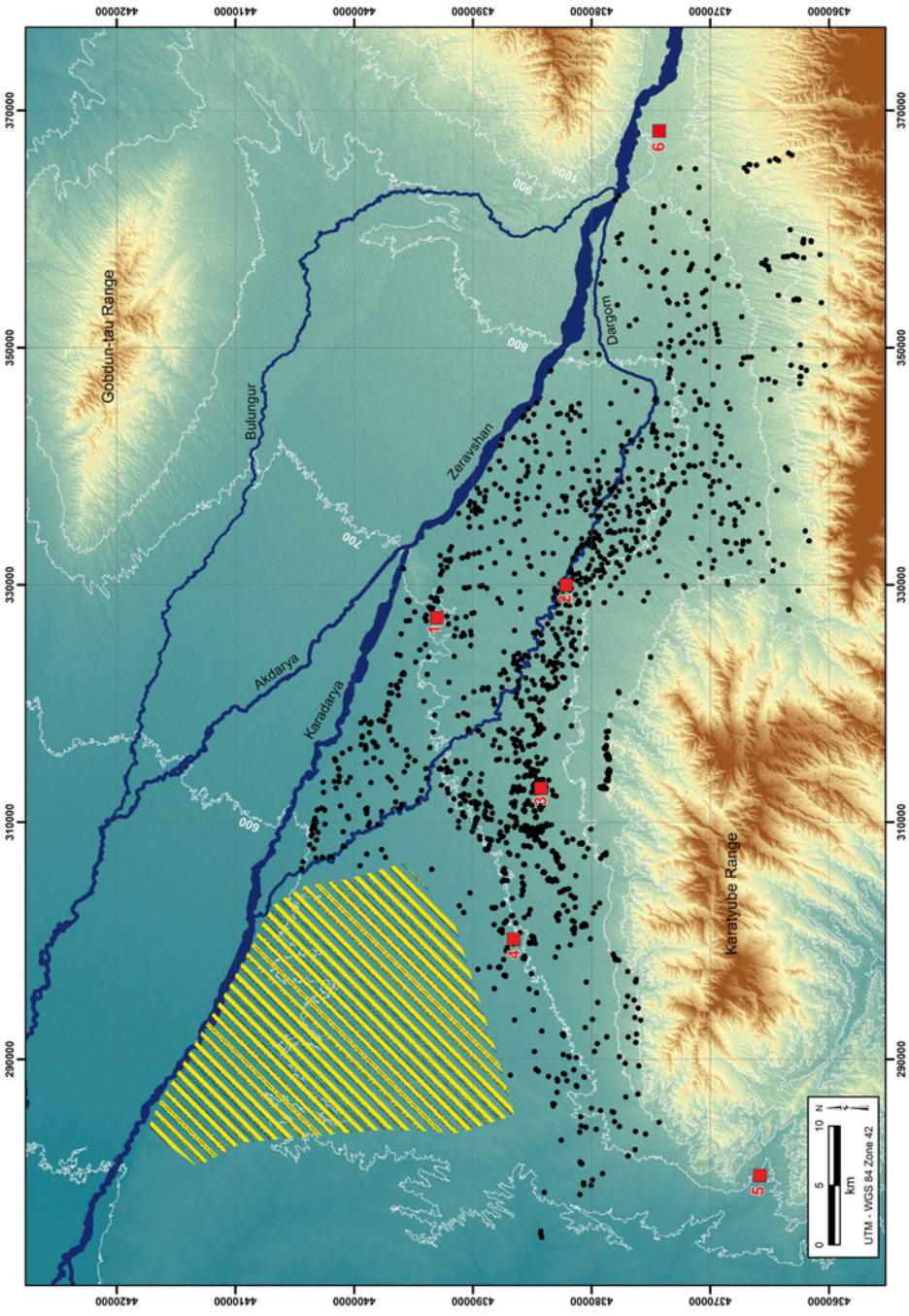



Fig. 6.5. Archaeological sites (black dots) after the Uzbek-Italian Survey 2001-2014. Yellow lines refer to the Pasdargom area to still be investigated; red squares are the sites mentioned in this paper: 1= Afrasiab (ancient Samarkand); 2= Kafir Kala; 3= Kurgan Kadirbek; 4= Koitepa; 5= Jam; 6= Sarazm (Basemap: Aster© GDEM 2011)


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

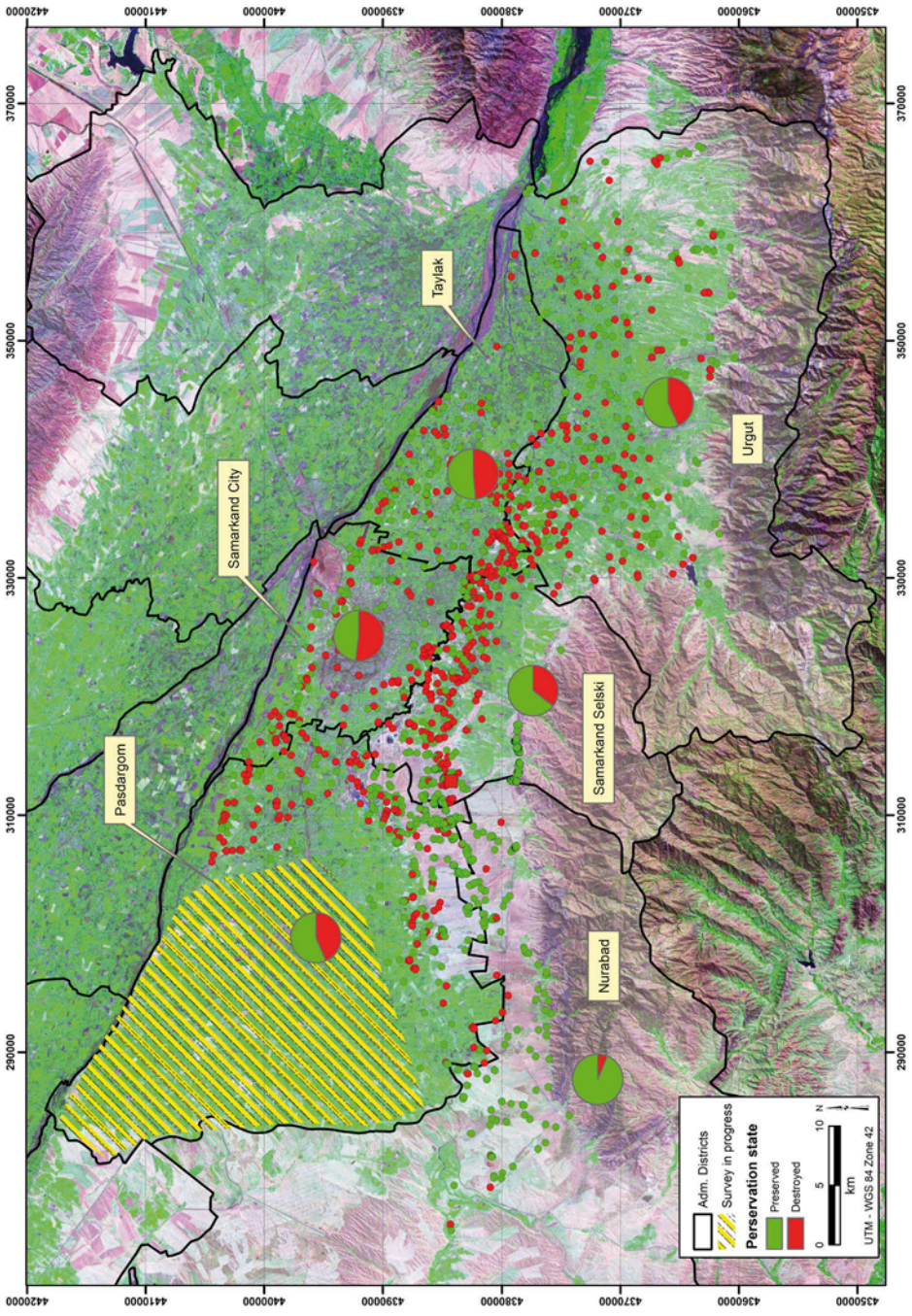



Fig. 6.6. Location of the preserved and destroyed sites according to the administrative districts (Basemap: USGS© Landsat Orthorectified TM satellite image)


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

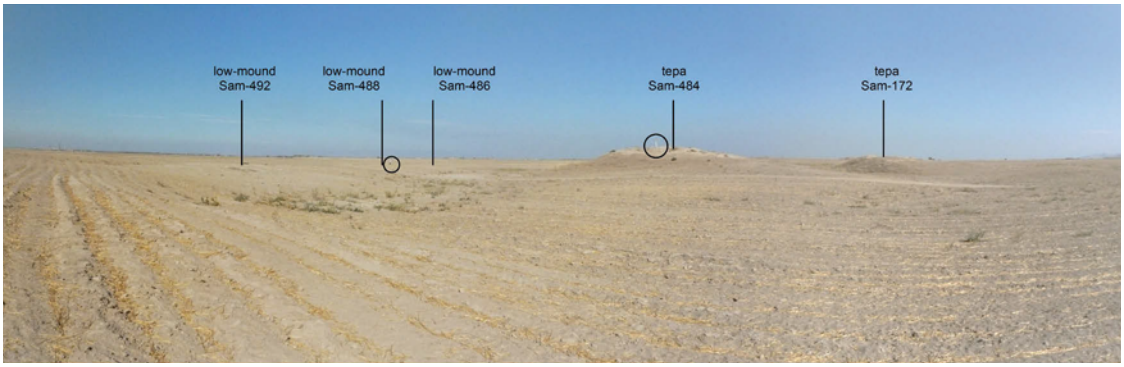



Fig. 6.7. The Kurgan Kadirbek complex (view from Southwest): the main tepa Sam-484 (left) and Sam-182 (right) and some low-mounds around them (Sam-486 was excavated during the 2012 season). Black circle refers to archaeologist standing on the top of tepa and low-mound


Fig. 6.8. The Kurgan Kadirbek environs on a satellite image. Alongside the main tepa, low-mounds clusters and traces of abandoned canals are clearly visible (Basemap: ESRI© World Imagery 2016, standard deviation used to emphasize low-mounds and canals


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

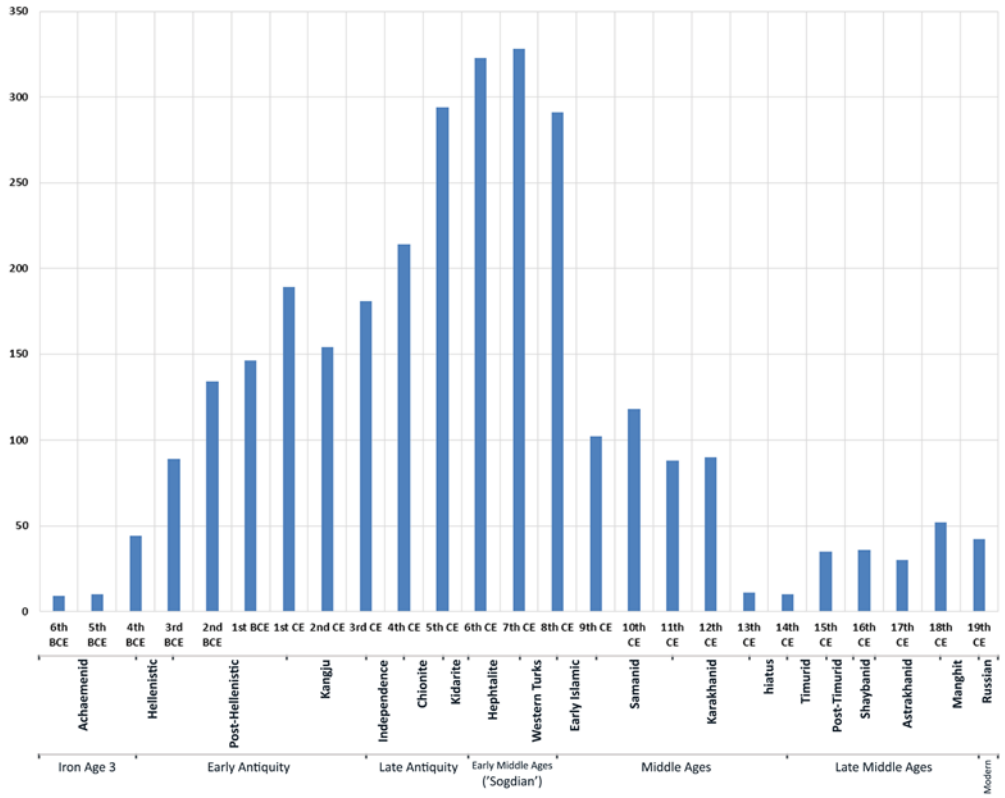



Fig. 6.9. Sites chronology according to the finds from the survey, with their subdivision in centuries, cultural horizons and historical periods

Fig. 6.10. The canal south of Kurgan Kadirbek (view from West). The bed width between levees (black line) is 20 m and it is clearly marked by vegetation


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

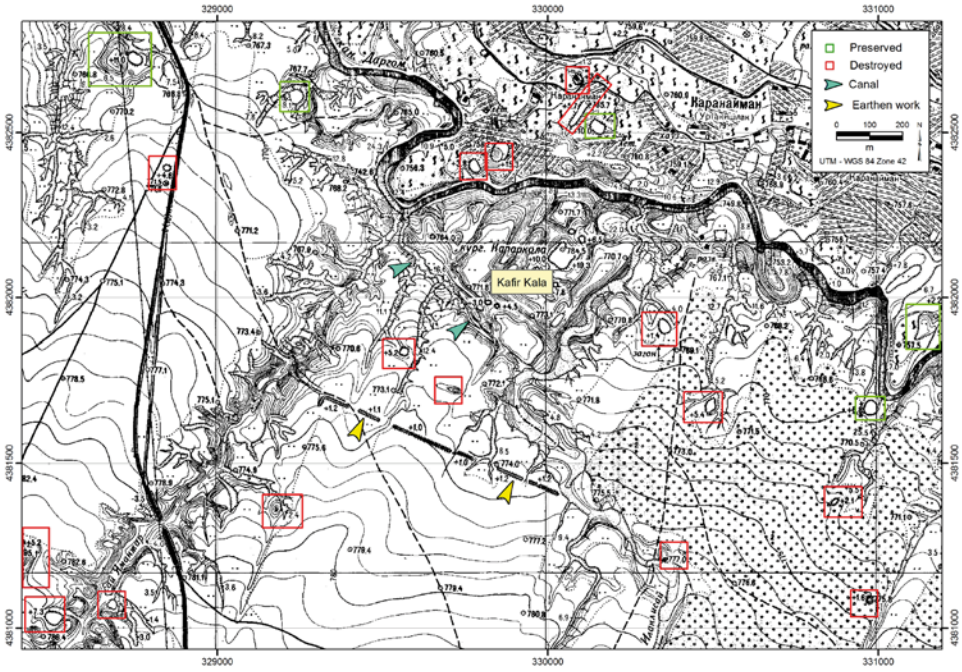



Fig. 6.11a. Sites detected in the area of Kafir Kala using different topographic datasets: 1:10,000 scale map (id J-42-15-Av-1, year 1957)

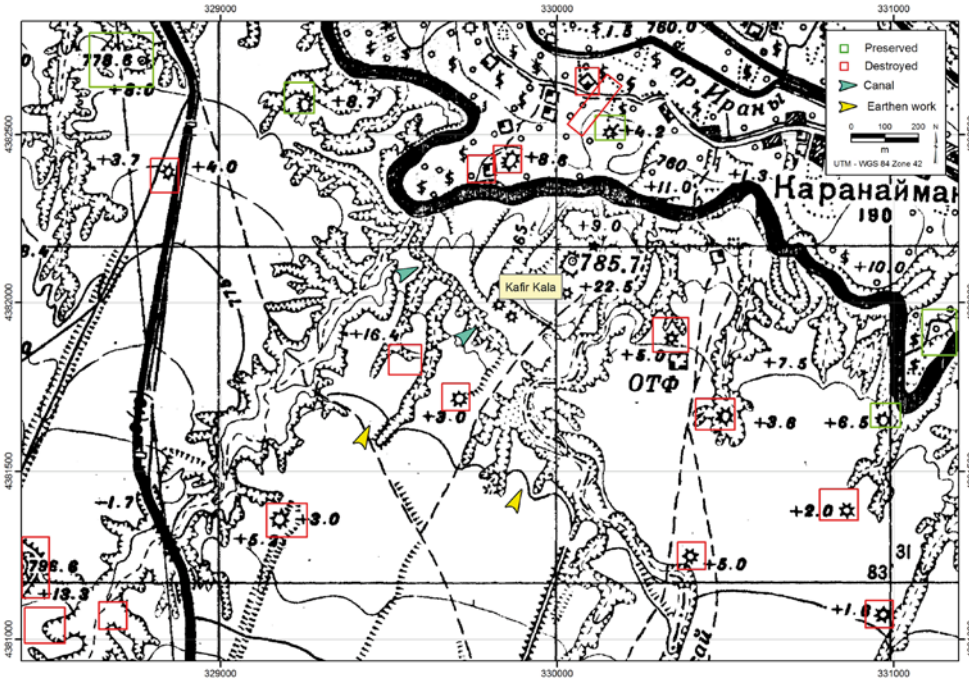



Fig. 6.11b. Sites detected in the area of Kafir Kala using different topographic datasets: 1:25,000 scale map (id J-42-15-Av, year 1951)


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

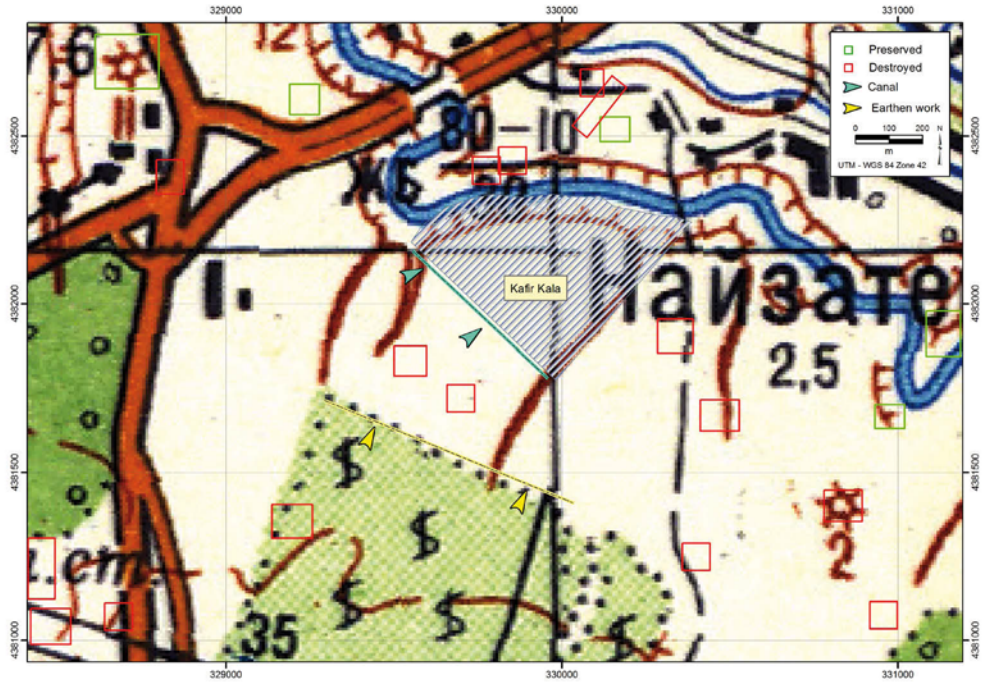



Fig. 6.11c. Sites detected in the area of Kafir Kala using different topographic datasets: 1:100,000 scale map (id J-42-15 Urgut, year 1989)


Fig. 6.12. The site of Koitepa (Pas-588), and its environs on a 1:100,000 scale map (id J-42-14, 1977), where Koitepa is represented with its typical circular citadel surrounded by a quadrangular earthen rampart


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

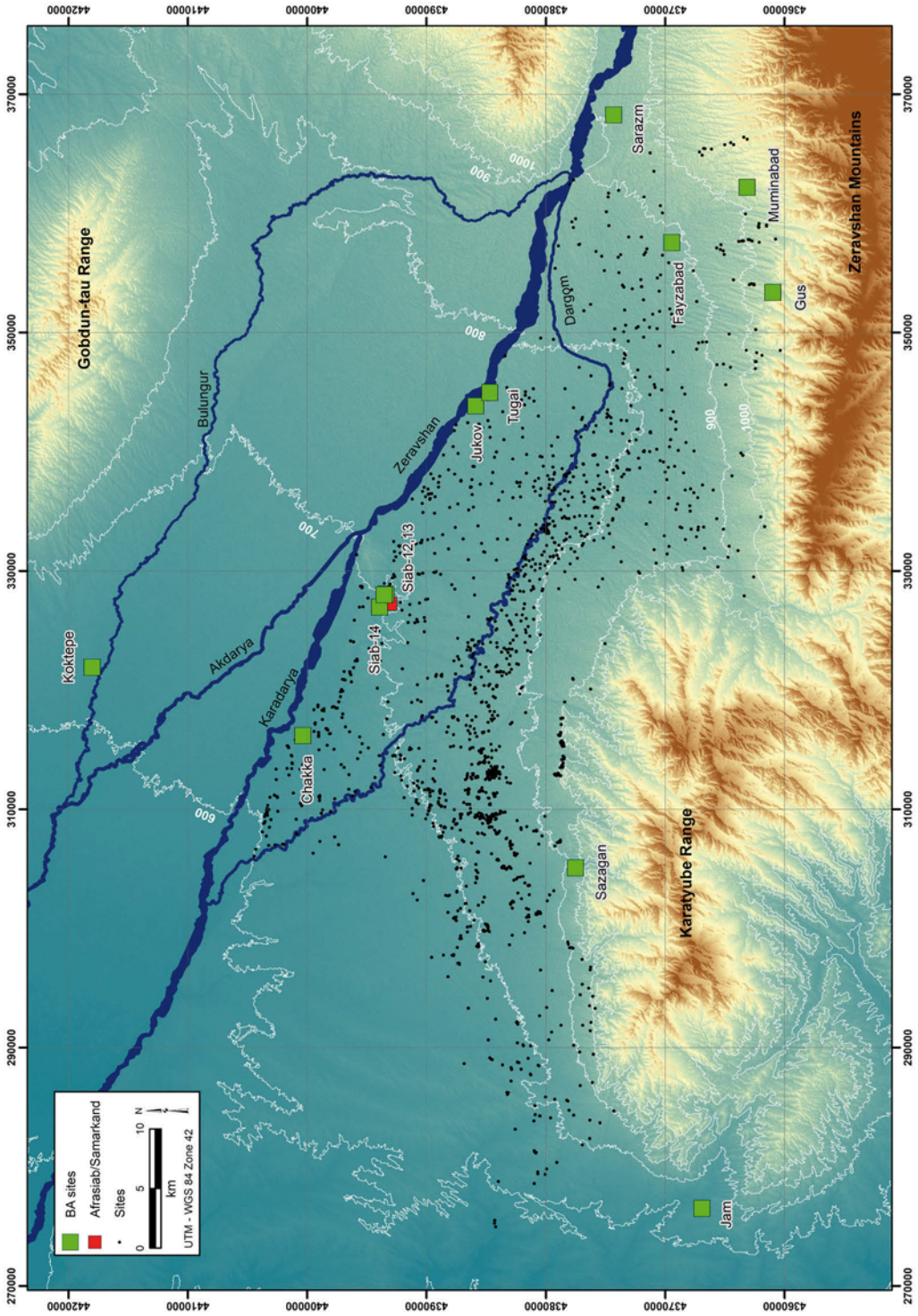



Fig. 6.13. Main Bronze Age discoveries around Samarkand (Basemap: Aster© GDEM 2011)


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Fig. 6.14. The first terrace at Zeravshan between Jukov and Tugai (view from Southeast)


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

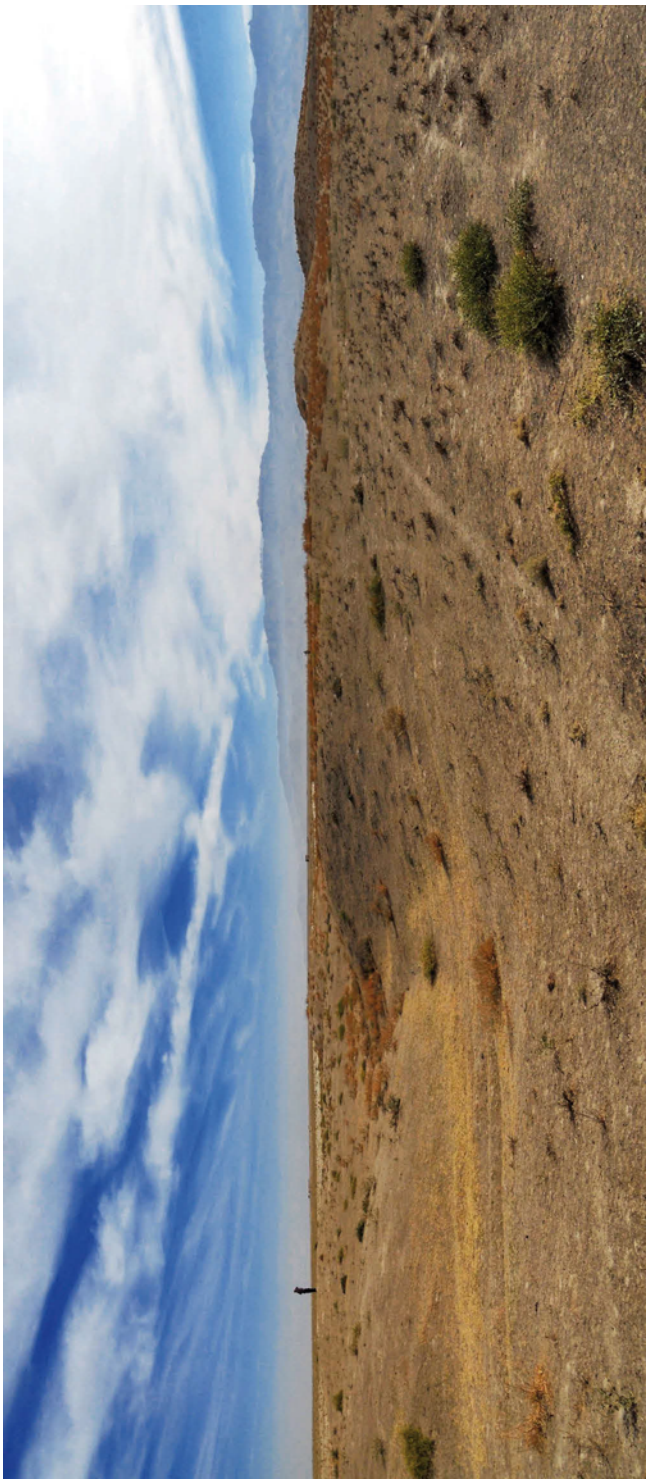


Fig. 6.15. Canal and archaeological mounds in the typical steppe landscape of Samarkand with the Karatyube Range on the background (archaeologist on the left standing as reference)


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

# Chapter 7
# The Evolution of Urban Society Today: Robert Adams in and for the New Century

Norman Yoffee

*Abstract*

After his retirement from the Smithsonian Institution, Robert Adams returned to the study of ancient Mesopotamian social organization, urbanism, and ecology. This essay appraises his essays from 2000-2012. It continues the "archaeological biography" of Adams that was published in 1997 (Yoffee 1997).

## 1. Introduction[1]

> "È poi per me un vero piacere poter esprimere al grande maestro la mia riconoscenza per tutto quanto ho imparato da lui..."

The "grande maestro" of those words is of course Robert Adams, and the author of the words is another grande maestro, Mario Liverani, who dedicated his amazing new book, *Immaginare Babele* (Liverani 2013, p. viii) to Adams. I was with i due maestri in 1996 when Mario was awarded an honorary degree by the University of Copenhagen. Bob was a visiting fellow in 1995-96 at the Wissenschaftskolleg zu Berlin, and I was a Gast-Professor at the Freie Universitaet Berlin, working in both Johannes Renger's and Hans Nissen's institutes. Mogens Trolle Larsen, who engineered the honorary degree, decided to convene a conference in Copenhagen in honor of Mario and invited three Berliners to speak, Adams, Nissen, and me.

It was in that year in Berlin that I interviewed Bob for the "archaeological biography" I wrote and which was published in American Antiquity in 1997. I was commissioned to write the essay by Tim Murray, who was collecting essays for his *Encyclopedia of Archaeology: The Great Archaeologists* (Murray 1999). Since the publication of those volumes was being delayed, I asked Tim if I could submit my biography of Adams (with a few changes) to American Antiquity where I believed it would be welcomed and receive wide distribution.

1 Many thanks to Nicolò Marchetti and Davide Domenici and their colleagues for the invitation to come to Bologna in February, 2015 and to participate in the conference in tribute to Adams' publication, *The Evolution of Urban Society* fifty years on. This essay maintains some of my oral presentation in Bologna.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

## 2. An archaeological biography

I first met Adams in 1965 at the Oriental Institute in Chicago. I was a third-year undergraduate, taking archaeology classes at a university across town, Northwestern University, and studying with a certain Prof. Binford. That was Sally Binford. Binford had recommended that I go to an undergraduate field school in north-central Arizona run by the Chicago Natural History Museum, now the Field Museum (Gary Feinman's present institution), directed, ostensibly by the venerable Paul Martin, but led by others as Paul really couldn't come to the excavation site. Sally Binford wanted me to meet Adams, whom she had coached to persuade me that an Assyriology career, which I was preparing to undertake in graduate school, might be less, well, attractive than a program in Near Eastern archaeology. I went on the field school, but started Mesopotamian languages in grad school at Yale University, while also taking archaeology courses.

In this paper, I intend to follow-up my archaeological biography of Adams that appeared in 1997. To a certain extent, Adams has done that himself in his autobiographical essay in the *Annual Review of Anthropology* (Adams 2012). In my biography I highlighted the accomplishments of Adams by tracing his publications through time; I now examine his recent work and also note what influences there have been on Adams, both from things he has read and also from people with whom he has interacted (as far as I can infer).[2] I'll try, in conclusion, to summarize Adams' main themes, point out how some of these are being pursued by young scholars, and also to note some avenues of research and social theory that Adams did not follow—but which are decidedly compatible with his ideas. Finally, although this paper, like Adams' recent essays, does not explicitly discuss comparative research, and focuses on Mesopotamia, the implications for comparative research on urban societies can easily be generated.

## 3. Adams returns to Mesopotamia

When I interviewed Adams in Berlin in 1996, he had just retired from ten years as Secretary of the Smithsonian Institution, Washington, D.C. Previously he had spent two years as Provost, University of Chicago, and five years as Dean of the Division of Social Sciences at Chicago and before that as Director of the Oriental Institute. He had managed – I don't know how – to write his major volumes while working as a university administrator. In his final years at the Smithsonian he completed a volume on ancient and less ancient technologies and their social meaning (Adams 1996). I asked him if he intended to return to research on ancient Mesopotamia, and he responded "no", that he was too out of touch with Mesopotamian archaeological work to contribute much. He was wrong.

From 2000-2010 Adams wrote nine articles,[3] two for volumes edited by New World archaeologists, and one article for an anthropological journal. He wrote an essay for the Mogens Trolle Larsen Festschrift, and five articles for Near Eastern journals, one for the *Journal of the Economic and Social History of the Orient*, which I happened to have been editing, and four for a new digital journal, part of the Cuneiform Digital Library Initiative. His essays in the *Cuneiform*

2 Bob read a draft of this paper and made a few corrections.

3 See Adams's essays in the references cited. Elizabeth Stone (2007) edited the Adams Festschrift in which many essays were stimulated by Adams' work.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

*Digital Library Journal* have not been seen – I assume – except by Near Eastern specialists; indeed, they would be difficult to follow by any non-Near Eastern humanoids. (And some of my comments today are probably going to be challenging to non-Near Easterners, too). There's a certain amount of cross-referencing in the nine articles which encompass about 150 journal pages, and amount, in effect, to a monograph on early Mesopotamian archaeology and history. If Adams' dissertation was entitled, *Level and Trend in Early Sumerian Civilization* (1956), this quasi-monograph might be called "Bias and Locality in the Study of Early Mesopotamian Civilization". I shall explain.

## 4. Themes and influences

Although I do not intend to explicate Adams' various articles here, I do want to emphasize several of his major themes. I also propose to delineate some of the influences on Adams' thinking. As to the latter, one must begin with his colleagues at the Oriental Institute; these include Thorkild Jacobsen and Leo Oppenheim and most of all I.J. Gelb. Gelb's own career changed utterly when Igor Diakonoff (D'jakonov) spent a period of time at the Oriental Institute; Adams' interest in D'jakonov's work on social organization is also clear, as one perceives in his essay in the D'jakonov Festschrift (Adams 1982). Adams also relied on the work of Miguel Civil on all things Sumerian, especially Civil's edition of the poem called "The Farmer's Instructions" (Civil 1994).

The major influence from the Oriental Institute in Adams' later career was supplied by a student of Gelb, Piotr Steinkeller (for the last decades a Harvard professor), whose work on the world of Ur III and especially the city of Umma (e.g., Steinkeller 1987, 1996, 1999, 2007; also Stepien 1996), provoked Adams and provided much of the basic data for Adams' recent analyses. It is worthwhile noting, as Adams himself does, that he does not endorse some of Steinkeller's views of Ur III economy and society; still, the two exchanged papers, and Adams valued Steinkeller's research greatly.

Other, major influences on Adams' later career, which I only adumbrate, are his association with the Santa Fe Institute and the formal study of "complex adaptive systems", and his association with the Dept of Anthropology, University of California, San Diego, and especially his work with Jennifer Pournelle, who was a student in the department. She is an expert analyst of satellite imagery and the interpretation of early landscape morphology and irrigation systems in southern Mesopotamia (Pournelle 2007). Finally, one must credit Adams' enormous energy and critical readings of new and detailed historical, indeed philological, work on Ur III texts. As someone who can sort-of deal with Sumerian and Akkadian, I am amazed at Adams' penetration of those dense monographs.

## 5. Irrigation and "complexity"

In his first two articles in volumes edited by New World archaeologists (Adams 2000, 2006), Adams recapitulates some of the work he had been doing on technology and social change while at the Smithsonian and also some of the work he observed at the Santa Fe Institute on "complexity". Complexity in Mesopotamia isn't a straightforward matter of hierarchical differentiation and interdependency of social parts, as Adams writes. Adams stresses the "cellular character" of Mesopotamian polities, the "polycentricity" of Mesopotamian political systems (Henry


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Wright, Adams' foremost student, has himself written on polycentricity in Mesopotamia and other early states [Wright 2005]. And Nikolai Grube [2000] has written about the matter of city-states in Maya land). In his article on complexity, Adams refers to co-existing ethnicities and rival domains of religious estates and politico-military institutions. These are well-known to Mesopotamianists; Adams' originality lies in identifying and inferring institutions of power and solidarity outside these great estates.

Some of his narratives are clearly intended as refutations of certain trends in archaeological theory; Adams' style, however, is not to criticize directly but rather to emphasize new directions in social theory. Thus, he argues that social change is discontinuous and often rapid, that disorder and path-dependency (that is, historical contingency) are critically important, that intra-elite and intra-societal social conflict are endemic, and that human agents, who are not just leaders, are forces of change. All these views are developed in his subsequent articles, as I note.

His article on large-scale irrigation in the Sasanian period, in a book on "agricultural strategies", resumes his early work on this late period in the history of ancient Iraq that he discussed in *Heartland of Cities* (Adams 1981). As it happened, I was a reviewer of the manuscript for the University of Chicago Press. I had no idea why the press asked an assistant professor to evaluate Adams' magnum opus. In any case, when I read Adams' lengthy analysis of Sasanian irrigation systems, it only slowly dawned on me why he devoted so many pages to what seemed to have little relevance to ancient Mesopotamian irrigation and settlement patterns. However, the point became clear, and it is resumed in his 2006 article: ancient Mesopotamian irrigation, especially in its early phases in the evolution of urban societies, was utterly unlike the Sasanian systems which required massive investments of labor and materials and directions by a kind of central government that simply never existed in early Mesopotamia. The managers of these later irrigation systems lived in new capital cities and had little knowledge of the hydrodynamic variability of the major rivers and their branches and about the problems of saline groundwater. One of Adams' former students, McGuire Gibson, described the potentiality of such ignorance as "engineered disaster" (Gibson 1974). It is to the nature of centralization in Mesopotamia that was so different than that in the Sasanian period, the sources for its reconstruction, and finally what lay outside the great institutions of place and temple that Adams turned in his more specialized articles.

## 6. Myopia and ordered vision

These five articles include one in the Larsen Fs (Adams 2004) and four in the *CDLJ* (Adams 2007, 2008, 2009, 2010). In the Larsen Fs essay Adams discusses the role of writing and scribal bureaucrats who monitor agricultural production, especially in the Ur III period. His favorite word to describe scribal activity is "myopia", and he extends this in other articles also to archaeological analyses of materials in urban complexes. His conclusion is that the "state is not all-pervasive" in agricultural production. For example, the literary text, "The Farmer's Instructions" (Civil 1994) omits many steps in the agricultural production process and says nothing about "what reserves common people were able to amass". Furthermore, Adams finds nothing about the use of children to weed and deal with pests, which, according to "worldwide experience", is an important part of farming. Adams also questions the very high yield of seed to grain that are depicted in Ur III texts. These yields are "not comparable with any other region of time of traditional agricultural regimes". This analysis depends on what I might call Adams' "anthropologi-


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

cal gaze". That is, the "data" of Ur III texts can be questioned on the basis of ethnographic analogy, not a holistic analogy, which would be foolish, but an analogy of technological practicality.

I shall not detail Adams' reliance on and occasional debates with the work of (inter alia) Steinkeller (op.cit.), Garfinkle (2004), Heimpel 1995, 2009), Powell (1987), Maekawa (1983, 1987), Waetzoldt (1972, 1987), Stepien (op.cit.), Englund (1991, 2003), Dahl (2007) , Studevent-Hickman (2006), Scharlach (2004) and many others in the four articles in *CDLJ*. Some of the themes he stated in the Larsen Fs article are pursued in the articles. Scribes lived in an "insular world" of "ordered vision" and were concerned how ugula, guruš, eren$_2$, sipa, and UN-il$_2$ distributed tens of 1000s of animals in the Umma province. They say little, however, about the care of the animals. Adams knows something about the rural countryside –see his essay in the D'jakonov FS – and he also cites a new ethnography by Ochsenschager (2004) who studied villages in southern Iraq. He can't help wondering about who the shepherds were, what were their kinship relations, how did local people get pots, furniture, garments, foodstuffs – things that scribes were uninterested in recording. Whereas Steinkeller sees "one vast vessel of royal dependents", Adams speculates about how local shepherds may have been hired – citing a few references to hirelings, lu-hun-ga$_2$. Coming, as I do, from a perspective of the Old Babylonian period, where there are many contacts by temples and palaces with shepherds (Finkelstein [1968], Postgate and Payne [1975], Kraus [1966]), his speculation seems quite plausible.

Umma scribal myopia is matched, for Adams, by that of modern analysts, since both ancient scribes and modern scholars of Mesopotamia have little concern for "the conditions of life for the vast majority". Adams asks, "is this not at least slightly embarrassing?" Combining Ochsenschlager's ethnography (2004) with new work by Pournelle (2007) on the antiquity of the southern marshes, Adams finds that many of the settlements recorded in Umma texts must be referring to the "isolation of rural populations" who subsisted on the "marshes that were teeming with life". Adams notes two articles of Steinkeller (1987, 1996) in which deliveries of reeds and wood and also pots from rural villages are recorded within six month periods. Presumably, he infers, after these required deliveries to the state, villagers could do as they pleased. He further cites Steinkeller that scribes wrote many documents "post-factum", that is, as "what the administration pretended had happened" and were "accounting fictions".

Adams' third article on Ur III economics and society concerns the matter of slavery, which was debated by D'jakonov (1969) and Gelb (1969), in the late 60s. He turns his gaze to new texts from Garshana (Owen 2011), a provincial outpost in the Umma region. Adams notes the daily reports on building activities in this outpost, the rations paid to workers, some of whom are "slaves", others hired people, including women who carried bricks. Adams shows that there was little difference in the rations received by slaves and hired people, who moved in the same "chow line".

The fourth article in *CDLJ* is on Old Babylonian "notables" (Adams 2009). Adams cites several older works, for example, by Rivkah Harris (1975), as well as very new ones, by Andrea Seri (2005) and Anne Goddeeris (2002), as well as the new synopsis of the period by Marten Stol (2004). This article seems to me rather wistful: in the OB period there are many "secular uses of writing", as Adams puts it, and many documents of landsales (at least in the northern part of the region), inheritance provisions, and disputes, local officials who sometimes deal with the state, in certain times in certain places, and who otherwise seem to ignore the central state or the governments of the various city-states. Adams seems to be wondering if it is the accident


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

of discovery of texts in temple and palace precincts in the Ur III period that such social interactions have not been attested for the Ur III period.

## 7. Themes covered and some not

In this concluding section I briefly address a few of Adams' themes that resonate in new research and a couple of matters that Adams doesn't address but which strengthen his basic propositions.

I begin with a recent study by Laura Culbertson (2009, 2016) on Ur III court-cases, ditillas, from Umma and Girsu, which happily tends to confirm Adams' skepticism about the all-pervasive state of Ur III. Now, the pioneering study of Falkenstein (1956-7), who published all the *neusumerische Gerichtsurkunden* known to him in mid-50s, while a landmark study, was focused on the philological niceties of the documents. Culbertson re-edits the documents, as advances in the knowledge of Sumerian grammar have proceeded and adds many new tablets that have been added to the corpus in the last decades. She also comprehensively analyzes the legal circumstances portrayed in the documents, which are from Umma and Girsu/Lagash. The cases pertain to divorces, inheritances, slave sales, unpaid purchases of damages to loaned or rented property, and contests over marriage arrangements. The resolutions of the disputes were filed in the governors' archives.

The cases include previous investigations by local authorities, including those in rural settlements, especially those titled *hazannu* (usually translated as "mayor") and the listing of various "urban elites" who were the judges of the cases. Some disputes lasted for years and were overseen by constantly changing groups of people, possibly assembled in ad hoc fashion. "These urban courts do not reflect a centralization of power under one judicial authority", according to Culbertson, but were local ways of settling disputes. "The king was not the consummate judge, or even an attested judge at all".[4]

For me, there are two striking omissions in Adams' recent studies that explore non-governmental social and economic organization. One is certainly well-known to Adams, that is, the nature of trade in Mesopotamia, which Adams had explored in a long article in the early 1970s, especially the Old Assyrian trading system (Adams 1974). A couple of years ago I sent Bob a pdf of Gojko Barjamovic's recent book (2011) on the mechanics of this trade, which he read with glee. The other omission, if I may call it that, is James Scott's work (1998) on resistance to state power in Southeast Asia and his concept of "simplicity" as a goal of the state. I have referred to this in a book that Adams cites, and David Wengrow (2001) has similarly discussed ancient states' (or at least their leaders') desire to "simplify" their societies.

It is not necessary to recapitulate the facts of the Old Assyrian trading system, which was organized by "entrepreneurs"/family firms, who moved goods from where they were plentiful to where they were scarce and making large profits on sales in markets. The Old Assyrian city-state taxed profits and monitored investment agreements. The Copenhagen mafia—Larsen, Barjamovic, Hertel—along with Cecile Michel (see essays by these in Atıcı, et al. 2014, Larsen 2015), speculate that the Old Assyrian system, or its forerunners, was NOT atypical, but may well explain how goods were acquired over considerable distances long before the Old Assyrian period. Steinkeller, for his part (2004, 2013), has discussed that goods were brought overseas by

4 There is one legal document that appears to have a seal of Ibbi-Sin on it, and there are a few attestations of the term di-dab$_5$-ba lugal ("seized by the king"?).


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

"admirals" and "commanders" who owned their own fleets (after Ur III but perhaps during that period, too).

The importance of Scott's concept of the state trying to simplify its society fits well, I suggest, with Adams' own skepticism of how scribal bureaucrats "order their field of vision" (in Adams' phrase) to pretend that the entire economy and society of the Ur III period was controlled by the state. Scott's examples show that attempts to order nature, to construct new (Le Corbusier-inspired) centers and roads, and to eliminate local forms of governance and agricultural productivity were failures—in both modern and pre-modern states. The irony of this analysis for anthropological archaeologists is that "complexity" – in the well-worn phrase the "evolution of complex societies" – is precisely what early rulers and their minions in states try to subvert. Perhaps we should study the evolution of simplicity.

Finally, in his autobiographical essay in 2012, as well as elsewhere, going back to the *Evolution of Urban Society* (1966), Adams pleads for the interdisciplinary study of Mesopotamia, and especially the training of scholars in both historical materials (and the languages needed to read them) and archaeological analysis, including the anthropological matrix of such research. This plea has gone largely unanswered in the USA. The attempt to set up such a program at my own University of Michigan was explicitly contested and successfully prevented. Adams declared in the *Evolution of Urban Society* that "anthropology is not so much an academic discipline as a broadly generalized and comparative tradition of empirical inquiry". American anthropological archaeologists have, for the most part, not followed Adams' excellent advice.

(I note that with the relatively recent decipherment of Maya glyphs, many Mesoamerican archaeologists learn how to read Maya inscriptions, while Maya glyphic experts pay considerable attention to Maya archaeology. Maya studies prosper precisely as Adams has long wished for the study of Mesopotamia).

Perhaps the Italian experience of dealing with mafias can lead to the formation of teams of scholars, with individuals with different expertise in Mesopotamian studies, as exist in Bologna and (sometimes) in Roma, working together. Although mafias are not without their difficulties, this may be the way to respond to Adams' directives. If so, perhaps we can think of Adams not only as il grande maestro, but as the Godfather.

## BIBLIOGRAPHY

Adams, R. McC.

1956 *Level and Trend in Early Sumerian Civilization*, PhD Dissertation, University of Chicago.

1966 *The Evolution of Urban Society: Early Mesopotamia and Prehispanic Mexico*, Chicago, Aldine.

1974 Archaeological Perspectives on Ancient Trade, *Current Anthropology* 15, pp. 239-258.

1981 *Heartland of Cities: Surveys of Ancient Settlement and Land Use on the Central Floodplain of the Euphrates*, Chicago, University of Chicago Press.

1982 Property Rights and Functional Tenure in Mesopotamian Rural Communities, in J.N. Postgate (ed.), *Societies and Languages of the Ancient Near East: Studies in Honour of I. M. Diakonoff,* Warminster, Aris and Phillips, pp. 1-14.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

1996 *Paths of Fire: An Anthropologist's Inquiry into Western Technology*, Princeton, Princeton University Press.

2000 Accelerated Technological Change in Archaeology and Ancient History, in G. Feinman and L. Manzanilla (eds.), *Cultural Evolution: Contemporary Viewpoints*, Kluwer/Plenum, pp. 95-118.

2001 Complexity in Archaic States, *Journal of Anthropological Archaeology* 20, pp. 345-360.

2004 The Role of Writing in Sumerian Agriculture: Asking Broader Questions, in J.G. Dercksen (ed.) *Assyria and Beyond: Studies Presented to Mogens Trolle Larsen*, Leiden, Nederlands Instituut voor het Nabije Oosten, pp. 1-8.

2006a Intensified Large-Scale Irrigation as an Aspect of Imperial Policy: Strategies of Statecraft on the Late Sasanian Mesopotamian Plain, in J. Marcus and C. Stanish (eds.), *Agricultural Strategies* (Cotsen Advanced Seminar Series 2), Los Angeles, Cotsen Institute of Archaeology at UCLA, pp.17-37.

2006b Shepherds at Umma in the Third Dynasty of Ur: Interlocutors with a World Beyond the Scribal Field of Vision, *Journal of the Economic and Social History of the Orient* 49, pp 133-69.

2007 The Limits of State Power on the Mesopotamian Plain, *Cuneiform Digital Library Journal* 2007: 1, pp. 1-3.

2008 An Interdisciplinary Overview of a Mesopotamian City and its Hinterland, *Cuneiform Digital Library Journal* 2008: 1, pp. 1-23.

2009 Old Babylonian Networks of Urban Nobles, *Cuneiform Digital Library Journal* 2009: 7, pp. 1-14.

2010 Slavery and Freedom in the Third Dynasty of Ur: Implications of the Garshana Archives, *Cuneiform Digital Library Journal* 2010: 2, pp. 1-8.

2012 Ancient Mesopotamian Urbanism and Blurred Disciplinary Boundaries, *Annual Reviewof Anthropology* 41, pp. 1-20.

Atıcı, L., F. Kulakoğlu, G. Barjamovic, and A. Fairbairn (eds.)

2014 *Current Research at Kültepe-Kaneš: Interdisciplinary and Integrated Approaches to Trade Networks, Internationalism, and Identity in the Middle Bronze Age* (Journal of Cuneiform Studies Supplemental Series 4), Bristol, Connecticut, American Schools of Oriental Research.

Barjamovic, G.

2011 *A Historical Geography of Anatolia in the Old Assyrian Period*, Copenhagen Museum Tusculanum Press.

Civil, M.

1994 *The Farmer's Instructions: A Sumerian Agricultural Manual*. (Aula Orientalis Supplementa 5), Sabadell, Editorial Ausa.

Culbertson, L.

2009 *Dispute Resolution in the Provincial Courts of the Third Dynasty of Ur*. PhD Dissertation, Department of Near Eastern Studies, University of Michigan

2016 Local Courts in Centralizing States: The Case of Ur III Mesopotamia, in G. Emberling (ed.), *Social Theory in Archaeology and Ancient History: The Present and Future of Counternarratives*, Cambridge, Cambridge University Press, pp. 185-202.

Dahl, J.

2007 *The Ruling Family of Ur III Umma*. Leiden, Nederlands Instituut voor het Nabije Oosten.

Diakonoff, I.M.

1969 The Rise of the Despotic State in Ancient Mesopotamia, in I. M. Diakonoff (ed.), *Ancient Mesopotamia*, Moscow, Nauka Publishing House, pp. 173-203.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Englund, R.
1991 Hard Work—Where Will It Get You? Labor Management in Ur III Mesopotamia, *Journal of Near Eastern Studies* 50, pp. 255-80.
1998 Texts from the Late Uruk Period, in J. Bauer, R. Englund and M. Krebernik (eds.), *Mesopotamien: Spaeturukzeit und Fruehdynastische Zeit* (Orbis Biblicus et Orientalis 160/1)., Freiburg, Vandenhoeck & Ruprecht, pp. 14-233.

Falkenstein, A.
1956-7 *Die neusumerischen Gerichtsurkunden*, Munich, Bayrische Akademie der Wissenschaften.

Finkelstein, J.J.
1968 An Old Babylonian Herding Contract and Genesis 31: 38f, *Journal of the American Oriental Society* 88, pp. 30-36.

Garfinkel, S.
2004 Shepherds, Merchants, and Credit: Some Observations on Lending Practices in Ur III Mesopotamia, *Journal of the Economic and Social History of the Orient* 47, pp. 1-30.

Gelb, I.J.
1969 On the Alleged Temple and State Economies in Ancient Mesopotamia, in *Studi in Onore di Edoardo Volterra*. Milan, Giuffrè, pp. 138-154.

Gibson, A. McG.
1974 Violation of Fallow and Engineered Disaster in Mesopotamian Civilization, in McG. Gibson and T. Downing (eds.), *Irrigation's Impact on Society* (Anthropological Papers 25), Tucson, University of Arizona Press, pp. 7-19.

Goddeeris, A.
2002 *Economy and Society in Northern Babylonia in the Old Babylonian Period*, Leuven, Peeters.

Grube, N.
2000 The City-States of the Maya, in M. H. Hansen (ed.), *A Comparative Study of Thirty City-State Cultures.* (Historisk-filosofiske Skrifter 21), The Royal Danish Academy of Sciences and Letters, Copenhagen, C.A. Reitzels Forlag, pp. 547-566.

Harris, R.
1975 *Ancient Sippar: A Demographic Study of an Old Babylonian City*, 1894-1595B.C., Istanbul, Uitgaven van het Nederlands Historisch-Archaeologisch Instituut te Istanbul.

Heimpel, W.
1995 Sheep Management in Ur III: Texts from Lagash and Umma. *Acta Sumerologica* 17, pp. 135-144.
2009 *Workers and Construction Work at Garšana*, Bethesda, CDL Press.

Kraus, F.R.
1966 *Staatliche Viehhaltung im altbabylonischen Lande Larsa*, Amsterdam, North Holland Publishing.

Larsen, M.T.
2015 *Ancient Kanesh: A Merchant Colony in Bronze Age Anatolia*, Cambridge, Cambridge University Press.

Liverani, M.
2013 *Immaginare Babele: Due secoli di studi sulla città antica*, Roma-Bari, Laterza.

Maekawa, K.
1983 The Management of Fatted Sheep (udu-nigal) in Ur III Girsu/Lagash, *Acta Sumerologica* 5, pp. 81-111.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

1987 Collective Labor Service in Girsu-Lagash: The Pre-Sargonic and Ur III Periods, in M. Powell (ed.), *Labor in the Ancient Near East* (American Oriental Series 68), New Haven, American Oriental Society, pp.49-71.

Murray, T.
1999 *Encyclopedia of Archaeology: The Great Archaeologists*, Santa Barbara, ABC-CLIO

Ochsenschlager, E.L.
2004 *Iraq's Marsh Arabs in the Garden of Eden*, Philadelphia, University of Pennsylvania Museum.

Owen, D. (ed.)
2011 *Garšana* Studies, Bethesda, CDL Press

Postgate, J.N., and S. Payne
1975 Some Old Babylonian Shepherds and their Flocks, *Journal of Semitic Studies* 20, pp. 1-21

Powell, M. (ed.)
1987 *Labor in the Ancient Near East* (American Oriental Series 68), New Haven, American Oriental Society.

Pournelle, J.
2007 From KLM to Corona: Using Satellite Photography toward a new understanding of 5th/4th Millennium BC Landscapes in Southern Mesopotamia, in E. Stone (ed.),*Settlement and Society: Essays Dedicated to Robert McCormick Adams*, Los Angeles, Cotsen Institute of Archaeology at UCLA, pp. 29-62

Scharlach, T.
2004 *Provincial Taxation and the Ur III State*, Leiden, Brill.

Scott, J.
1998 *Seeing Like a State: How Certain Schemes to Improve the Human Condition Have Failed*, New Haven, Yale University Press.

Seri, A.
2005 *Local Power in Old Babylonian Mesopotamia*, London, Equinox

Steinkeller, P.
1987 The Foresters of Umma: Toward a Definition of Ur III Labor, in M. Powell (ed.), *Labor in the Ancient Near East* (American Oriental Society Series 68), New Haven, American Oriental Society, pp. 73-115
1996 The Organization of Crafts in Third Millennium Mesopotamia: The Case of Potters, *Altorientalische Forschungen* 23, pp. 232-253.
1999 Land Tenure Conditions in the Third Millennium: The Problem of Regional Variation, in M. Hudson and B. Levine (eds.), *Urbanization and Land Ownership in the Ancient Near East* (Peabody Museum Bulletin 7). Cambridge, MA, Peabody Museum, Harvard University, pp. 289-329.
2004 Toward a Definition of Private Activity in Third Millennium Babylonia, in R. Rollinger and C. Ulf (eds.), *Commerce and Monetary Systems in the Ancient World: Means of Transmission and Cultural Interaction* (Melammu Symposia 5), Stuttgart, Steiner, pp. 91-111.
2007 City and Countryside in Third Millennium Southern Babylonia, in E. Stone (ed.), *Settlement and Society: Essays Dedicated to Robert McCormick Adams*, Los Angeles, Cotsen Institute of Archaeology at UCLA, pp. 185-211
2013 Trade Routes and Commercial Networks in the Persian Gulf during the Third Millennium BC, in C. Faizee (ed.) *Collection of Papers Presented to the Third International Biennial Conference of the Persian Gulf*, Tehran, University of Tehran Press, pp. 413-431.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Stepien, M.
1996 *Animal Husbandry in the Ancient Near East: A Prosopographic Study of Third-Millennium Umma*, Bethesda, CDL Press

Stol, M.
2004 Wirtschaft und Gesellschaft in altbabylonischer Zeit, in D. Charping, D.O. Edzard and M. Stol (eds.), *Mesopotamien: Die altbabylonische Zeit* (Orbis Biblicus et Orientalis 160/4), Freiburg – Göttingen, Academic Press – Vandenhoeck & Ruprecht, pp. 643-1027

Stone, E. (ed.)
2007 *Settlement and Society: Essays Dedicated to Robert McCormick Adams*, Los Angeles, Cotsen Institute of Archaeology at UCLA.

Studevent-Hickman, B.
2006 *The Organization of Manual Labor in Ur III Babylonia*, PhD Dissertation, Department of Near Eastern Languages and Civilizations, Harvard University.

Waetzoldt, H.
1972 *Untersuchungen zur neusumerischen Textilindustrie* (Studi Economici e Tecnologici 1), Rome, Centro per le Antichità e la Storia dell'Arte Vicino Oriente.
1987 Compensation of Craft Workers and Officials in the Ur III Period, in M. Powell (ed.), *Labor in the Ancient Near East* (American Oriental Series 68), New Haven, American Oriental Society, pp. 117-141.

Wengrow, D.
2001 The Evolution of Simplicity and Aestehetic Labour in the Neolithic Near East, *World Archaeology* 33, pp. 168-188.

Wright, H.
2005 The Polycentricity of the Archaic Civilizations, in V. A. Scarborough (ed.), *Catalyst for Ideas: Anthropological Archaeology and the Legacy of Douglas W. Schwartz,* Santa Fe, School of American Research Press, pp. 149-167.

Yoffee, N.
1997 Robert McCormick Adams: An Archaeological Biography, *American Antiquity* 62, pp. 399-413.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

# Appendix

## Publications of Robert McCormick Adams (1926-2018)

*Books (edited books and monographs)*

Adams, R.McC.

1953 *Some Small Ceremonial Structures at Mayapan* (Department of Archaeology Current Reports 9), Washington DC: Carnegie Institution of Washington.

Adams, R.McC., and Kraeling, C.H. (eds.)

1960 *City Invincible: A Symposium of Urbanization and Cultural Development in the Ancient Near East*, Chicago: University of Chicago Press.

Adams, R.McC.

1965 *The Land Behind Baghdad*, Chicago: University of Chicago Press.

1966 *The Evolution of Urban Society. Early Mesopotamia and Prehispanic Mexico*, Chicago: Aldine.

Adams, R.McC., and Nissen, H.J.

1972 *The Uruk Countryside*, Chicago-London: University of Chicago Press.

Adams, R.McC., and Schelling, C.S.

1979 *Corners of a Foreign Field: Discussions about American Overseas Advanced Research Centers in the Humanities and Social Sciences*, New York: Rockefeller Foundation.

Adams, R.McC.

1981 *Heartland of Cities. Surveys of Ancient Settlement and Land Use on the Central Floodplain of the Euphrates*, Chicago-London: The University of Chicago Press.

Adams, R.McC. Smelser, N.J., and Treima, D.J. (eds.)

1982 *Behavioral and Social Science Research: A National Resource*, Washington DC: National Academy Press.

Adams, R.McC.

1996 *Paths of Fire: An Anthropologist's Inquiry into Technology in the Making of the Modern West*, Princeton, NJ: Princeton University Press.

2002 *Trends in American and German Higher Education*, Cambridge, MA: American Academy of Arts and Sciences.

*Articles (journals, book chapters, reviews, etc.)*

Adams, R.McC.

1952 Review of "A New Neolithic Industry: The Yarmukian of Palestine" by M. Stekelis. *Artibus Asiae*, 15, pp. 296–297.

1953 Review of "Excavations at Tepe Gawra, II" by A.J. Tobler. *Journal of Near Eastern Studies*, 12, pp. 217–219.

1954a Review of "New Light on the Most Ancient East" by G. Childe. *American Anthropologist*, 56, pp. 316–319.

1954b Review of "Cave Explorations in Iran 1949" by C.S. Coon. *Journal of Near Eastern Studies*, 13, pp. 65–66.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

1955a Review of "Relative Chronologies in Old World Archaeology" by E. Ehrich *et al.* (eds.). *American Anthropologist*, 57, p. 1327.

1955b Developmental Stages in Ancient Mesopotamia. In J.H. Steward (ed.), *Irrigation Civilizations: A Comparative Study* (Social Science Monographs, 1). Washington DC: Panamerican Union, pp. 6–18.

1956a Review of "Everyday life in Babylonia and Assyria" E. Contenau. *Archaeology*, 9, pp.71–72.

1956b Review of "Excavations at Star Carr: An Early Mesolithic Site at Seamer Near Scarborough" by G. Clark. J*ournal of Geology*, 64, p.309.

1956c Review of "Theory of Culture Change" J. Steward. *American Antiquity*, 22, pp.195–196.

1956d Some Hypotheses on the Development of Early Civilizations. *American Antiquity*, 21, pp. 227–232.

1957a Settlements in Ancient Akkad. *Archaeology*, 10, pp. 270–273.

1957b Review of "Trade and Markets in the Early Empires" By K. Polanyi et al. *American Sociological Review*, 22, pp. 596–597.

Harris, S.A., and Adams, R.McC.

1957 A Note on Canal and Marsh Stratigraphy near Zubediyah. *Sumer*, 13, pp. 157–163.

Adams, R.McC.

1958a Survey of Ancient Watercourses in Central Iraq. *Sumer*, 14, pp. 101–103.

1958b Review of "Prehistory of European Society" G. Childe. *American Anthropologist*, 60, pp. 1240–1241.

Adams, R.McC., and Jacobsen, T.

1958 Salt and Silt: Problems of Irrigation Agriculture in Ancient Mesopotamia. *Science*, 128/3334, November 21, pp. 1251–1258. Available at: http://www.jstor.org/stable/1754565

Adams, R.McC.

1959 A Reconnaissance of the Early Settlements and Watercourses in Central Iraq. In H. Franke (ed.), *Akten des vierundzwanzigsten Internationalen Orientalisten-Kongresses München 28. August bis 4. September 1957*. Wiesbaden: Deutsche Morgenländische Gesellschaft, in Kommission bei Franz Steiner Verlag.

Adams, R.McC., and Mcquown, N.A.

1959 Report on an Archaeological Reconnaissance in the Central Highlands of Chiapas, Mexico. In *Report on the Man-in-Nature Project*. Chicago: Department of Anthropology of the University of Chicago, pp. 1–58.

Adams, R.McC.

1960a Ecological and Socio-economic Features in the Rise of Mesopotamian Civilization. In C. Kraeling, and R.McC. Adams (eds.), *City Invincible: A Symposium of Urbanization and Cultural Development in the Ancient Near East*. Chicago: University of Chicago Press, pp. 24–34.

1960b Early Civilizations, Subsistence and Environment. In C.H. Kraeling, and R.McC. Adams (eds.), *City Invincible: A Symposium of Urbanization and Cultural Development in the Ancient Near East*. Chicago: University of Chicago Press, pp. 269–296.

1960c The Evolutionary Process in Early Civilization. In S. Tax (ed.), *Evolution after Darwin*. Chicago: University of Chicago Press, pp. 153–168.

1960d The Origin of Cities. *Scientific American*, 203/3, p. 154. Available at: http://www.scientificamerican.com/article/the-origin-of-cities/

1960e Review of "The Origin of Civilized Societies" R. Coulborn. *American Antiquity*, 25, pp.424–425.

1961a Archaeological Reconnaissance in the Chiapas Highlands. In B.P. Dutton, (ed.), *Los Mayas del Sur y sus relaciones con los Nahuas Meridionales: Chiapas-Guatemala Relationships* (Sociedad Mexicana de Antropologia, VIII Mesa Redonda: San


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Cristobal las Casas, Chiapas). Mexico City: Sociedad Mexicana de Antropologia, pp. 105–110.

1961b Changing Patterns of Territorial Organizations in the Central Highlands of Chiapas, Mexico. *American Antiquity*, 26, pp. 341–360. Available at: www.jstor.org/stable/277401

1961c Review of "The Preindustrial City" by G. Sjoberg. *American Anthropologist*, 63, pp. 1105–1107.

1962a A Synopsis of the Historical Demography and Ecology of the Diyala River Basin, Central Iraq. In R.B. Woodbury (ed.), *Civilizations in Arid Lands* (Archaeological Papers, 62). Salt Lake City, UT: University of Utah Press, pp. 15–29.

1962b Agriculture and Urban Life in Early Southwestern Iran. *Science*, 136/3511, April 13, pp. 109–122. Available at: http://www.sciencemag.org/content/136/3511/109.full.pdf

1962c A Survey of the Urban Development of Southern Mesopotamia. In *Oriental Institute 1961-1962b Annual Report*. Chicago: The Oriental Institute, p. 12. Available at: http://oi.uchicago.edu/sites/oi.uchicago.edu/files/uploads/shared/docs/ar/61-70/61-62b/61-62b_Southern_Mesopotamia.pdf

1963 Prehistory, World: Civilizations. *Encyclopedia Britannica*.

1964 The Origins of Agriculture. In S. Tax (ed.), *Horizons of Anthropology*. Chicago: Aldine Publishing Co., pp. 120–131.

1965 The Development of Political Institutions. Economic *Development and Cultural Change*, 13/2, pp. 245–248. Available at: http://www.jstor.org/stable/1152225

1966a Trend and Tradition in Near Eastern Archaeology. *Proceedings of the American Philosophical Society*, 110, pp. 105–110. Available at: http://www.jstor.org/stable/985743

1966b Review of "Archäologie aus der Luft: Arbeitsergebnisse der Flugjahr 1960 und 1961 im Rheinland" by I. Scollar. *American Anthropologist*, 68, pp.1305–1306.

1967a Review of "Men, Machines and Modern Times" by E.E. Morison. *Bulletin of the Atomic Scientists*, 26.

1967b Surface Reconnaissance of Southern Iraq. In R.McC. Adams (ed.), *Oriental Institute 1966-1967 Annual Report*. Chicago: The Oriental Institute, pp. 16–17. Available at: http://oi.uchicago.edu/sites/oi.uchicago.edu/files/uploads/shared/docs/ar/61-70/66-67/66-67_Southern_Iraq.pdf

1968a Archaeological Research Strategies: Past and Present. *Science*, 160, pp. 1187–1192. Available at: http://www.jstor.org/stable/1724576

1968b The Natural History of Urbanism. In *The Fitness of Man's Environment* (Smithsonian Annual 2). Washington DC: Smithsonian Institution Press, pp. 41–59.

1968c Urban Revolution: Introduction. *International Encyclopedia of the Social Sciences*, 16, pp. 201–207.

1968d Uruk-Warka Area. *Sumer*, 23, pp. 203–209.

1968e Field Surveys of Ancient Mesopotamian Irrigation and Settlement Patterns. In *Oriental Institute 1967-1968b Annual Report*. Chicago: The Oriental Institute, pp. 5–6. Available at: http://oi.uchicago.edu/sites/oi.uchicago.edu/files/uploads/shared/docs/ar/61-70/67-68b/67-68b_Mesopotamian_Settlement.pdf

1968f Archeological Reconnaissance at Gunde Shapur. In *Oriental Institute 1967-1968b Annual Report*. Chicago: The Oriental Institute, p. 15. Available at: http://oi.uchicago.edu/sites/oi.uchicago.edu/files/uploads/shared/docs/ar/61-70/67-68b/67-68b_Gunde_Shapur.pdf

Adams, R.McC., and Hansen, D.P.

1968 Archaeological Reconnaissance and Soundings in Jundi Shapur. *Ars Orientalis*, 7, pp. 53–70. Available at: http://www.jstor.org/stable/4629240


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

Adams, R.McC.

1969a Conclusion. In I.M. Lapidus (ed.), *Middle Eastern Cities*. Berkeley, CA: University of California Press, pp. 188–196.

1969b Reconnaissance and Soundings in the Nippur Area. In G.R. Hughes (ed.), *Oriental Institute 1968-1969 Annual Report*. Chicago: The Oriental Institute, pp. 22–26. Available at: http://oi.uchicago.edu/sites/oi.uchicago.edu/files/uploads/shared/docs/ar/61-70/68-69/68-69_Nippur.pdf

1969c The Study of Ancient Mesopotamian Settlement Patterns and the Problem of Urban Origins. *Sumer*, 25, pp. 111–124.

1970a Tell Abu Sarifa: A Sassanian-Islamic Ceramic Sequence from South Central Iraq. *Ars Orientalis*, 8, pp. 87–119. Available at: http://www.jstor.org/stable/4629254

1970b Review of "The Domestication and Exploitation of Plants and Animals" by P. Ucko and G.W. Dimbleby (eds.). *Economic History Review*, 23, pp. 380–382.

1970c Review of "Looking for Dilmun" by G. Bibby. *Chicago Sun-Times Book Week*, 1, p. 10.

1971 Illicit International Trade in Antiquities. *American Antiquity*, 36, pp. ii–iii. Available at: http://www.jstor.org/stable/278017

1972a Patterns of Urbanism in Early Southern Mesopotamia. In P.J. Ucko, R. Tringham, and G.W. Dimbleby (eds.), Man, *Settlement and Urbanism*. London: Duckworth, pp. 753–749.

1972b Settlement and Irrigation Patterns in Ancient Akkad. In M. Gibson (ed.), *The City and Area of Kish*. Coconut Grove, FL: Field Research Project, pp. 182–208.

1973a Discussion. In C.L. Redman (ed.), *Research and Theory in Current Archaeology*. New York: John Wiley, and Sons, pp. 321–327.

1973b Review of "Radiocarbon Variations and Absolute Chronology" by I.U. Olsson (ed.). *Journal of Near Eastern Studies*, 32, pp. 253–256.

1974a Review of "An Archaeological Perspective" by L. Binford. *American Anthropologist*, 76, pp. 649–651.

1974b Review of "Archaeological Researches in Retrospect" by G.R. Willey. *Science*, 185, pp. 849–850.

1974c Anthropological Perspectives on Ancient Trade. *Current Anthropology*, 15, pp. 239–258. Available at: www.jstor.org/stable/2740901

1974d Historic Patterns of Mesopotamian Agriculture. In T.E. Downing, and M. Gibson (eds.) *Irrigation's Impact on Society* (Anthropological Papers 25). Tucson, AZ: University of Arizona Press, pp. 1–6.

1974e The Mesopotamian Social Landscape: A View from the Frontier. *Bulletin of the American Schools of Oriental Research. Supplementary Studies, No. 20, Reconstructing Complex Societies: An Archaeological Colloquium (1974)*, pp. 1–20. Available at: www.jstor.org/stable/20066623

1975a An Early Preshistoric Site in the Warka Region. *Sumer*, 31/1-2, pp. 11–16.

1975b An Ancient Uruk Threshing Sledge or Harrow? *Sumer*, 31/1-2, pp. 17–20.

1975c Reconnaissance of Ancient Mesopotamian Settlement Patterns. In J.A. Brinkman (ed.), *Oriental Institute 1974-1975 Annual Report*. Chicago: The Oriental Institute, pp. 13–17. Available at: http://oi.uchicago.edu/sites/oi.uchicago.edu/files/uploads/shared/docs/ar/71-80/74-75/74-75_Mesopotamian_Settlement.pdf

1975d The Emerging Place of Trade in Civilizational Studies. In J. Sabloff, and C.C. Lamberg-Karlovsky, eds. *Ancient Civilization and Trade*. Albuquerque, NM: University of New Mexico Press, pp. 451–465.

1977a Social Research and Development. In *The National Research Council in 1977: Current Issues and Studies*. Washington DC: National Academy of Science, pp. 23–34.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

1977b World Picture, Anthropological Frames. *American Anthropologist*, 79, pp. 265–279. Available at: www.jstor.org/stable/673839

Adams, R.McC. Parr, P.J., Ibrahim, M., al-Mughannun, A.S.

1977 Saudi Arabian Archaeological Reconnaissance 1976. *Atlal, The Journal of Saudi Arabian Archaeology*, 1, pp. 21–40.

Adams, R.McC.

1978a Review of "The Old Assyrian City-state and Its Colonies" by M.T. Larsen. *Journal of Near Eastern Studies*, 37, pp. 265–269.

1978b Strategies of Maximization, Stability, and Resilience in Mesopotamian Society, Settlement, and Agriculture. *Proceedings of the American Philosophical Society*, 127/5, pp. 329–335. Available at: www.jstor.org/stable/986687

1979a Late Prehispanic Empires of the New World. In M.T. Larsen (ed.), *Power and Propaganda: A Symposium on Ancient Empires*. Copenhagen: Akademisk Forlag, pp. 59–73.

1979b Common Concerns but Different Standpoints: A Commentary. In M.T. Larsen (ed.), *Power and Propaganda: A Symposium on Ancient Empires*. Copenhagen: Akademisk Forlag, pp. 393–404.

Adams, R.McC., Kohl, P.L., and Lamberg-Karlovsky, C.C.

1980 Soviet-American Archaeological Symposia on the Near East and Central Asia. *Current Anthropology*, 21/2, p. 266. Available at: http://www.jstor.org/stable/2741725

Katz, M., Mac Lane, S., Adams R.McC., and Wilson, R.R.

1980 Scientific Exchanges with the Soviet Union. *Bulletin of the American Academy of Arts and Sciences*, 34/1, pp. 6–19. Available at: http://www.jstor.org/stable/3823517

Adams, R.McC.

1980 Review of "Gordon Childe: Revolutions in Archaeology" by B. Trigger. *American Scientist*, 68, p.704.

1981a Review of "The Dying Community" by A. Gallaher and H. Padfield. *Science*, 212, pp.1380–1381.

1981b Rationales and Strategies for Social Science Research. *Bulletin of the American Academy of Arts and Sciences*, 34, pp. 8–34. Available at: www.jstor.org/stable/20171734.

1981c Review of "The Rural Landscape of the Land of Arraphe" by C. Zaccagnini. *Rivista degli Studi Orientali*, 54, pp. 381–388.

Gilman, A., Adams, R.McC., Bietti Sestieri, A.M., Cazzella, A., Claessen, H.J.M., Cowgill, G.L., Crumley, C.L., Earle, T K., Gallay, Alain, Harding, A.F., Harrison, R.J., Hicks, R., Kohl, P.L., Lewthwaite, J., Schwartz, C., Shennan, S., Sherratt, A., Tosi, M., Wells, P.

1981 The Development of Social Stratification in Bronze Age Europe. *Current Anthropology*, 22(1), pp. 1–23.

Adams, R.McC.

1982a Die Rolle des Bewasserungsbodenbaus bei der Entwicklung von Institutionen in der altmesopotamischen Gesellschaft. In J. Hermann, and I. Sellnow (eds.), *Produktivkrdfte und Gesellschaftsformationen in vorkapitalistischer Zeit*. Berlin: Akademie Verlag, pp. 119–140.

1982b Property Rights and Functional Tenure in Mesopotamian Rural Communities. In M.A. Dandamayev et al. (eds.), *Societies and Languages of the Ancient Near East: Studies in Honor of I. M. Diakonoff*. Warminster: Aris and Phillips, pp. 1–14.

1983a Natural and Social Sciences Paradigms in Near Eastern Prehistory. In T.C.J. Young, P.E.L. Smith, and P. Mortense (eds.), *The Hilly Flanks and Beyond: Essays on the Prehistory of Southwestern Asia Presented to Robert J. Braidwood* (SAOC 36). Chicago:


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

University of Chicago, pp. 369–374. Volume available at: http://oi.uchicago.edu/sites/oi.uchicago.edu/files/uploads/shared/docs/saoc36.pdf

1983b The Jarmo Pottery and Stone Vessel Industries. In L.S. Braidwood *et al.* (eds.), *Prehistoric Archaeology along the Zagros Flanks* (OIP 105). Chicago: University of Chicago, pp. 209–232. Volume available at: http://oi.uchicago.edu/sites/oi.uchicago.edu/files/uploads/shared/docs/oip105.pdf

1983c Review of "Lowland Maya Settlement Patterns" by W. Ashmore (ed.). *Economic Geography*, 59(1), pp.91–94.

1984a Mesopotamian Social Evolution: Old Outlooks, New Goals. In T.K. Earle (ed.), *On the Evolution of Complex Societies: Essays in Honor of Harry Hoijer*. Malibu: Undena, pp. 79–129.

1984b Text and Context in the Study of the Bronze Age in Mesopotamia and Neighboring Regions. *Information Bulletin*, 6, pp. 38–48.

1985 Review of "Land Tenure and Social Transformation in the Middle East" by T. Khalidi (ed.). *Middle East Studies Association Bulletin*, 19, pp.227–230.

1986 Prologue. In S. Lindenberg, J.S. Coleman, and S. Nowak (eds.), *Approaches to Social Theory*. New York: Russell Sage Foundation, pp. 15–18.

1988a Contexts of Civilization's Collapse: A Mesopotamian View. In N. Yoffee, and G.L. Cowgill (eds.), *Collapse of Ancient States and Civilizations*. Tucson, AZ: University of Arizona Press, pp. 20–43.

1988b Introductory Remarks: Spatial and Temporal Contexts. In J.L. Bintliff, D.A. Davidson, and E.G. Grant (eds.), *Conceptual Issues in Environmental Archaeology*. Edinburgh: Edinburgh University Press, pp. 1–15.

1988c Views of Academe from Washington. *American Academy of Arts and Sciences, Bulletin*, 41/8, pp. 15–27. Available at: www.jstor.org/stable/3823919

Cowan, G.A., and Adams, R.McC.

1988 Summary of Meeting on "International Finance as a Complex" at the Rancho Encantado, Tesuque, New Mexico, August 6-7, 1986. In P.W. Anderson, K.J. Arrow, and D. Pines (eds), *The Economy as an Evolving Complex System: The Proceedings of the Evolutionary Paths of the Global Economy Workshop, Held September, 1987 in Santa Fe, New Mexico* (Santa Fe Studies in the Sciences of Complexity 5). Redwood City, CA: Addison-Wesley, pp. 307–312.

Adams, R.McC.

1991a Cultural and Sociotechnical Value. In H.E. Sladovich (ed.), *Engineering as a Social Enterprise*. Washington DC: National Academy Press, pp. 26–38.

1991b Museums beyond Treasures and Tradition. *Proceedings of the American Philosophical Society*, 135, pp. 332–338. Available at: http://www.jstor.org/stable/986771

1991c Strains in the American Industry-Science-Education Triad. In W.D. Kingery (ed.), *Japanese/American Technological Innovations: The Influence of Cultural Differences in Japanese and American Innovation in Advanced Materials*. New York: Elsevier Press, pp. 243–248.

1992a Anthropological Perspectives on Ancient Trade. *Current Anthropology*, 33/1, pp.141–160. Available at: http://www.jstor.org/stable/2740901

1992b Ideologies: Unity and Diversity. In A. Demarest and G. Conra (eds.), *Ideologies and the Evolution of Precolumbian Civilizations*. Santa Fe, NM: American Research Press, pp. 205–221.

1994a Ancient Sumer, Modern Iraq. *Scientific American*, July 1, p. 112. Available at: http://www.scientificamerican.com/article/ancient-sumer-modern-iraq/


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

1994b Soil and Water as Critical Factors in the History of the Fertile Crescent. In *Soil and Water Science: Key to Understanding our Global Environment* (Special Publication, 36). Madison, WI: Soil Science Society of America, pp. 11–14.

1996 Epilogue. In J.S. Cooper, and G.M. Schwartz (eds.), *The Study of the Ancient Near East in the 21st Century*. Winona Lake, IN: Eisenbrauns, pp. 405–411.

1997a Social Contexts of Technology. *Social Research*, 64/3, pp. 947–964. Available at: http://www.jstor.org/stable/40971193

1997b Introduction. *Social Research*, 64/3, pp. 1309-1311. Available at: http://www.jstor.org/stable/40971212

1999a Forums, not Temples. *American Behavioral Scientist*, 42/6, pp. 968–976. Available at: http://abs.sagepub.com/content/42/6/968.full.pdf+html

1999b Introduction: Case Histories. *Social Research*, 66/1, pp. 39-40. Available at: http://www.jstor.org/stable/40971300

2000a Accelerated Technological Change in Archaeology and Ancient History. In G.M. Feinman, and L. Manzanilla (eds.), *Cultural Evolution: Contemporary Viewpoints*. New York: Kluwer Academic Publishers, pp. 95–118.

2000b Scale and Complexity in Archaic States: Review Article on G.M. Feinman and J. Marcus (eds.) "Archaic States". *Latin American Antiquity*, 11/2, pp. 187–193.

Holley Jr., I.B., and Adams, R.McC.

2000 Communication. *Technology and Culture*, 41/2, pp. 402–403. Available at: http://www.jstor.org/stable/25147532

Adams, R.McC.

2001a Complexity in Archaic States. *Journal of Anthropological Archaeology*, 20/3, pp. 345–360. Available at: http://www.sciencedirect.com/science/article/pii/S0278416500903775

2001b Iraq's Cultural Heritage: Collateral Damage. *Science*, 293/5527, p. 13. Available at: http://www.sciencemag.org/content/293/5527/13.full

2002a Edging toward Credible Models: A Commentary. In E.C.M. van den Brink, and T.E. Levy (eds.), *Egypt and the Levant: Interrelations from the 4th through the Early 3rd Millennium B.C.E.* London-New York: Leicester University Press, pp. 523–527.

2002b Foreword. In E. Reiner (ed.), *An Adventure of Great Dimension: The Launching of the Chicago Assyrian Dictiionary*. Philadelphia: American Philosophical Society, pp. vii–x. Available at: http://www.jstor.org/stable/4144918

2002c Steps Toward a Regional Understanding of the Mesopotamian Plain. In A. Hausleiter, S. Kerner, and B. Müller-Neuhof (eds.), *Material Culture and Mental Spheres: International Symposium für Hans J. Nissen*. Münster: Ugarit Verlag, pp. 33–48.

2002d Review of "Anthropological Perspectives on Technology" by M. Schiffer (Ed.). *Technology and Culture*, 43, pp. 155–157.

2002e Review of "Catastrophes and Culture: The Anthropology of Disaster" by S.M, Hoffman and A. Oliver-Smith. *Science*, 296, pp. 1404–1405.

2004a Reflections on the Early Southern Mesopotamian Economy. In G. Feinman, and L.M. Nicholas (eds.), *Archaeological Perspectives on Political Economies*. Salt Lake City: University of Utah Press, pp. 41–60.

2004b Review of "Understanding Early Civilizations: A Comparative Study" by Bruce A. Trigger. *The International History Review*, 26/2, pp. 349–351. Available at: http://www.jstor.org/stable/40109475

2004c Roots of Terrorism. In *Terrorism: Reducing Vulnerabilities and Improving Responses: U.S. – Russian Workshop Proceedings*. Washington DC: National Academies Press, pp. 168–175.


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823

2004d The Role of Writing in Sumerian Agriculture: Asking Broader Questions. In J.G. Dercksen (ed.), *Assyria and Beyond: Studies Presented to Mogens Trolle Larsen*. Leuven: Nederlands Instituut voor het Nabije Oosten, pp. 1–8.

2005 Contexts of Iraqi Looting. *Proceedings of the American Philosophical Society*, 149/1, pp. 56–62. Available at: http://www.jstor.org/stable/4598908

2006a Critique of Guillermo Algaze's "The Sumerian Takeoff." *Structure and Dynamics: eJournal of Anthropological and Related Sciences*, 1/1, pp. 1–3. Available at: https://escholarship.org/uc/item/5m8043vf

2006b Intensified Large-Scale Irrigation as an Aspect of Imperial Policy: Strategies of Statecraft on the Layer Sasanian Mesopotamian Plain. In C. Stanish, and J. Marcus, (eds.), *Agricultural Strategies* (Cotsen Advanced Seminar 2). Los Angeles: Cotsen Institute of Archaeology, pp. 17–37.

2006c Review of "Myths of the Archaic State: Evolution of the Earliest Cities, States, and Civilizations" by N. Yoffee. *Journal of Anthropological Research*, 62/1, pp. 154–155. Available at: http://www.jstor.org/stable/3630747

2006d Shepherds at Umma in the Third Dynasty of Ur: Interlocutors with a World beyond the Scribal Field. *Journal of the Economic and Social History of the Orient*, 49/2, pp. 133–169. Available at: http://www.jstor.org/stable/25165137

2007 The Limits of State Power on the Mesopotamian Plain. *Cuneiform Digital Library Bulletin*, 2007/1, pp. 1–3. Available at: http://cdli.ucla.edu/pubs/cdlb/2007/cdlb2007_001.html

2008 An Interdisciplinary Overview of a Mesopotamian City and its Hinterlands. *Cuneiform Digital Library Journal*, 2008/1, pp. 1-23. Available at: http://cdli.ucla.edu/pubs/cdlj/2008/cdlj2008_001.html

2009 Old Babylonian Networks of Urban Notables. *Cuneiform Digital Library Journal*, 2009/7, pp. 1–14. Available at: http://cdli.ucla.edu/pubs/cdlj/2009/cdlj2009_007.html

2010 Slavery and Freedom in the Third Dynasty of Ur: Implications of the Garshana Archive. *Cuneiform Digital Library Journal*, 2010/2, pp. 1–8. Available at: http://cdli.ucla.edu/pubs/cdlj/2010/cdlj2010_002.html

2012 Ancient Mesopotamian Urbanism and Blurred Disciplinary Boundaries. *Annual Review of Anthropology*, 41/1, pp. 1–20. Available at: http://www.annualreviews.org/doi/pdf/10.1146/annurev-anthro-092611-145701


ISBN Print: 9783447110860 — ISBN E-Book: 9783447197823