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CHAPTER FOUR

THE END OF PREHISTORY AND THE URUK PERIOD

Guillermo Algaze

Ancient Mesopotamian civilization emerged in the alluvial lowlands of the Tigris–Euphrates rivers in what is today southern Iraq in the fourth millennium BC, and it endured in recognizable form for well over three millennia until Alexander the Great and his armies breached the gates of Babylon in 331 BC. Of this millennia-long history, no time span is more fundamental for our understanding of Mesopotamian civilization than the Uruk period, spanning the better part of the fourth millennium BC. This is by no means a new idea. In the cultural realm, for instance, the art historians H. Frankfort (1958) and Helene Kantor (1984) many years ago already noted the multiple ways in which the iconographic repertoire of Uruk times set the conventions that would guide artistic representation in Mesopotamia until the demise of the neo-Assyrian and neo-Babylonian empires in the first millennium BC. Similarly, Mario Liverani has recently pointed out that the conventions of scribal administration that emerged at the end of the Uruk period and are reflected in the so-called Archaic Texts, in effect, also set the framework for how Mesopotamian urban scribes would continue to comprehend, categorize, and record their world until the end of the cuneiform tradition millennia later – save for minor improvements and adjustments (Liverani and Heimpel 1995: 134).

A similar argument can be made for urbanism, perhaps the most fundamental characteristic of Mesopotamian civilization through the ages (Stone 1997). It has been argued many times that cities and city-states were the “default” spatial and political configurations, respectively, of Mesopotamia in the third millennium (e.g., Gibson 1976), with periods of regional political consolidation and transregional imperial outreach representing largely episodic albeit highly visible departures from the norm (Larsen 1979). If this broad characterization is correct, as I believe it is, cities can be conceptualized as both the crucible where Mesopotamian civilization was first forged and the locus where its unique institutions and distinctive *Weltanschauung* (Frankfort et al. 1951; Jacobsen 1976) replicated themselves (with modifications) over millennia. Again, the historical urban tradition of later Mesopotamian societies is firmly rooted in Uruk period developments, as has been widely acknowledged since at least the first half of the twentieth century.

What is new – or at least more recent – are three interconnected realizations that add significant nuance to our understanding of the context in which the various continuities of Mesopotamian civilization just noted first arose. The first is that of the

substantial temporal depth of the Uruk period, which now appears to have spanned most of the fourth millennium, as Henry Wright and Eric Rupley (2001) demonstrated just over a decade ago. The second realization is that for at least the first half of the Uruk period, developments in southern Mesopotamia were by no means as unique as previously thought for most of the twentieth century. Rather, recent archaeological work at Tell Brak and Khirbat al-Fakhar, both in the Upper Khabur basin of Syria, leaves no doubt that parallel and quite comparable trajectories toward urban-scale societies existed in both southern and northern Mesopotamia for much of the first half of the fourth millennium BC (Ur and Oates 2007; Oates et al. 2007; McMahon 2009; McMahon and Oates 2007; Al Quntar et al. in press; Cooper, this volume). The third realization follows from the preceding and is that the parallel trajectories exhibited by the southern and northern portions of “greater” Mesopotamia diverged abruptly sometime in the second half of the fourth millennium BC, when southern polities started to dramatically outpace competitors elsewhere in southwest Asia in terms of scale, population density, and social complexity – a process that eventually culminated with the intrusion of variously configured southern Mesopotamian colonies into selected areas of northern Mesopotamia and Iran (below) during the Middle and Late phases of the Uruk period, roughly corresponding to the 500 or so years between 3700/3600 and 3200/3100 BC.

In what follows, I briefly outline what is known about the Uruk period in southern Mesopotamia and speculate on some of the possible reasons underlying the dramatic reversal of regional fortunes just noted, which led to the emergence of the earliest iteration (Sumerian) of Mesopotamian civilization as we know it. Before proceeding, however, a few words are in order about the geographical scope of this chapter and the evidentiary sources it relies on.

GEOGRAPHY AND ENVIRONMENT

As may be surmised by the preceding, the term “Mesopotamia” is used here not in its expansive original Greek meaning that includes all of the areas contained within the Tigris and Euphrates rivers and between the Anatolian Plateau and the Persian Gulf, but more narrowly to denote only the relatively flat alluvial lowlands of the Tigris–Euphrates fluvial system. This is the area that geographers refer to as “Lower” or “Alluvial” Mesopotamia (Liverani 2007) and that in antiquity broadly corresponded to the self-conscious cultural entities of Sumer and Akkad (or Babylonia). This is a relatively flat but by no means homogenous plain that extends from the vicinity of modern Baghdad, where the Tigris and Euphrates start to meander and deposit their alluvial loads in earnest, to the vicinity of modern Basra and the Shatt el-Arab marshlands (see also Pournelle, this volume).

As Robert McCormick Adams (1966) and Michael Rowton (1973) noted many years ago, throughout antiquity the alluvial plains of southern Mesopotamia comprised a mosaic of complementary ecological zones or niches that fostered considerable regional economic specialization and trade. These zones range from well-watered areas near active river channels, where cultivation of garden and other water-intensive crops such as flax was possible, to broader irrigable plains just beyond natural river levees that are optimal for cereal cultivation, to more marginal areas ideal for pastoralism at the edges of cultivation and in fallow areas between fields, and, finally, to waterlogged marshes,

brackish lagoons, and estuaries at the juncture where the Tigris and Euphrates meet the Persian Gulf, where reeds usable as animal fodder and construction materials as well as abundant protein-rich fowl and fish were easily obtained.

While a comparable mosaic of ecologic niches also characterized alluvial Mesopotamia throughout the fourth millennium, recent geomorphological data do indicate some important differences at that time, which have been the subject of much recent analysis and discussion. Without question, the most significant such differences pertain to the nature of the Tigris and Euphrates rivers, which then formed a single complexly intertwined fluvial system, and to the location of the head of the Persian Gulf at the time, which was well north of its present location, and so too were its associated marshes and estuaries (Hole 1994; Pournelle 2003a, 2003b, 2007, this volume).

At the same time, recent paleoclimatic data suggests, in turn, that the climate of the Mesopotamian alluvium through the Uruk period was also somewhat different from that which prevailed in historic times, and, further, that it changed dramatically during the course of the fourth millennium (Bar-Matthews and Ayalon 2011; Brooks 2006; Staubwasser and Weiss 2006). Two changes appear most significant. The first pertains to the initial phase of the Uruk period, roughly dated to first half of the fourth millennium, when available data indicates that the southern Mesopotamian alluvial plains would have received a greater amount of rainfall than was the case later, and, further, that some of that rainfall would have fallen during the summer. This would have been compounded by the equally beneficial effects that the more northern location of the head of the Persian Gulf would have had on the Tigris–Euphrates fluvial system of the time. These include a higher water table across the southern Mesopotamian alluvium and a greater rate of river meandering (because the shorter length of the rivers increased water momentum) ensuring that larger portions of the Mesopotamian alluvial plains away from the enlarged marshes would have been exploitable by means of relatively simple basin flow irrigation without the need to construct the sorts of larger, more capital- and labor-intensive irrigation channels that became necessary to efficiently exploit the southern Mesopotamian landscape later on when the head of the Persian Gulf had receded southwards, lengthening the courses of the rivers and shrinking the extent of the interstitial marshes.

The second change pertains to the final phase of the Uruk period, when the conditions that had been so uniquely favorable to the initial growth of large-scale human settlement in the area started to dissipate. Recently obtained paleoclimatic data suggest that an interval of drier climate lasting perhaps as much as two centuries affected the southern Mesopotamian alluvium sometime at the end of the third and the beginning of the fourth quarters of the fourth millennium, marking a shift to the sorts of highly seasonal conditions that came to characterize the southern Mesopotamian alluvium through the historic and modern periods (Brooks 2006; Staubwasser and Weiss 2006). Interestingly, though we do not yet have close chronological correlation, this climatic deterioration seems to have taken place at about the time when a long-term process of expansion that brought Uruk polities in direct contact with peer and less developed societies at their periphery was reaching its peak. At least in some areas of that periphery, those contacts culminated in what may be characterized as the world's earliest colonial intrusion (below).

EVIDENTIARY SOURCES

Available sources of information for Uruk period Mesopotamia are uneven in quality and detail. Our best – and in many ways still only – data bearing on the developmental dynamics of the period as a whole are the pioneering surveys conducted by Robert McCormick Adams and his colleagues across large portions of the ancient alluvial plains of the Tigris and Euphrates rivers (Adams 1965, 1981; Adams and Nissen 1972; Gibson 1972; Wright 1981; for a reworking of the data, see now Kouchoukos and Wilkinson 2007; Pollock 2001; and Wilkinson 2000). Fundamental as they may be, these surveys are biased in a number of ways that must be acknowledged even as we use them. First, because of restrictions on work near the modern international border between Iraq and Iran, coverage of areas watered by the ancient Euphrates was much more extensive and representative than coverage of areas watered by the ancient Tigris. Second, because they were designed to be extensive in nature, and because depositional (alluviation rates) and erosional (channel scouring, wind deflation) patterns in environments such as alluvial Mesopotamia's necessarily hinder site visibility, existing surveys of southern Iraq are likely to have missed a substantial number of small, shallow, and buried sites (Wilkinson 2000). Notwithstanding these problems, there is general agreement that existing data can still be used to discern spatial relationships between settlement categories in the region and, in so doing, to infer the political and economic relationships that may have existed between those categories. Additionally, and equally importantly, the surveys allow for a diachronic reconstruction of gross trends in the demographic history of the large portions of the Mesopotamian alluvial plains that could not be discerned otherwise and they allow us to compare demographic trends for the Uruk period against those of the immediately preceding and succeeding settlement phases (see also Ur, this volume).

Existing excavations are no less useful – and no less problematic. Nowhere is this better illustrated than in the case of excavations that German teams conducted intermittently over much of the twentieth century at the ancient city of Uruk (modern Warka, near Nasiriyah) (Eichmann 1989, 2007). These efforts have shed much light on the nature of the structures that existed at the very core of what was without a doubt one of the most important polities in alluvial Mesopotamia throughout the Uruk period, on the scale of the labor resources needed to erect those buildings, and on the activities conducted within them – at least insofar as those activities may be reconstructed on the basis of the associated artifactual record. Alas, this key corpus of data, too, comes to us with important evidentiary biases.

As noted by Hans Nissen (1993, 2001, 2002) in a series of seminal articles, the most important of these biases are: (1) that the Warka excavations, though unusually extensive, concentrated only on elite quarters of the city and are thus not representative of the city as a whole, much less of its habitation and industrial areas; and (2) that save for a small number of limited soundings, the overwhelming portion of the materials and buildings uncovered by the Uruk excavators belong to the very end of the Uruk period, by which time Mesopotamian civilization was already, so to say, fully formed. This means that the formative phases of Mesopotamian civilization dated to the earlier phases of the Uruk period remain largely unexplored at Warka – or elsewhere in the Mesopotamian Alluvium for that matter; outside of surface surveys.

A further problem is the lack of substantial systematic exploration of second tier Uruk period regional centers elsewhere in the Mesopotamian alluvium, save for

excavations conducted in the 1940s at the core of Tell Uqair (Lloyd and Safar 1943) and Eridu (Safar, Mustafa, and Lloyd 1981), which mirror the more extensive data from the core of Uruk and thus add little to our understanding of the period, or excavations into sites such as Nippur (Hansen 1965), Ur (Wooley 1955), and Tello (Parrot 1948), which sampled Uruk period levels but were either so limited in extent so as to produce little information beyond ceramic chronologies (Nippur) or were conducted in such a haphazard fashion as to be largely irrelevant for scholarly use (Ur and Tello). Even more galling is the fact that after a century or so of systematic exploration in southern Mesopotamia, research designs that were massively biased from the beginning toward the recovery of elite architecture and artifacts mean that we still have almost no systematic explorations of Uruk period villages or hamlets away from the larger regional centers.¹

A further bias must still be discussed. Because of the shortcomings just noted of existing archaeological data for the Uruk period, Mesopotamian scholars often put much stock on available textual documentation for the period and its immediate aftermath, which consists of a corpus of 5,000 plus "Archaic Texts" excavated in Eanna IV–III levels at Warka (Englund 1998) and of an undetermined number of paleographically comparable tablets excavated or, more commonly, plundered from other southern Mesopotamian sites (Englund 2009: footnote 11). However, this data is also problematic in its own way. To begin with, the tablets date only to the very final phase of the Uruk period and shed no light whatsoever on the beginnings of the urban revolution in the area, which began much earlier (below). Moreover, even at Warka, only a handful of the thousands of tablets and tablet fragments recovered were found in primary contexts, so that it is difficult to associate any particular information contained in the texts with any particular institution at that site (Englund 1994: 11–19).

Mindful that our data for reconstructing developments in southern Mesopotamia in the Uruk period are not always complementary and are hopelessly partial, we may tentatively forge ahead with an attempt – necessarily imperfect – to create a narrative of sorts about the origins of early Mesopotamian civilization. By necessity, that narrative focuses on what we *can* say with the data we *do* have.

THE EVIDENCE FROM SURVEYS: URUK PERIOD SPATIAL AND POLITICAL ORGANIZATION

Available survey evidence suggests that the transition between the Uruk and the immediately preceding Ubaid periods was rather abrupt throughout the Mesopotamian alluvium (Nissen 1988: 66). To be sure, there is no way to know for certain whether this abruptness reflects an actual demographic pattern, or whether, at least in part, it reflects accidents of discovery due to changes in the rate and intensity of geomorphological forces that obscured site visibility in the alluvium between the two periods, or both.

Perhaps because of this caveat, in his analysis of long-term settlement trends in the southern Mesopotamian alluvium, Robert McCormick Adams (1981: 54–60) was unwilling to characterize the nature of pre-Uruk settlement in the Mesopotamian alluvium in detail, limiting himself to noting that in general the density of pre-Uruk sites is very light and declines northwards from the head of the gulf, that most pre-Uruk settlements represented but small hamlets or villages, and that larger settlements were not attested in the alluvium until the end of the Ubaid period (end of the fifth

millennium), when a handful of sites, each about 10 ha in extent, emerged. These larger sites, he argued, provide the only indication we have for social differentiation and complexity in southern Mesopotamia prior to the Uruk period.

Though Adams chose not to quantify the extent of occupation in the alluvium during the Ubaid period, what data we have, imperfect as they are, show a stark contrast between the Ubaid and the succeeding Uruk periods. While the earlier period evinced a bi-modal settlement structure with a handful of towns with monumental religious architecture at their core surrounded by relatively undifferentiated villages, the later period saw the development of a more complex multi-modal settlement configuration, comprising at least three or four tiers of settlement. This is reflected in a considerable increase in the total number of sites recorded across the alluvium, in the growth of multiple individual centers to urban proportions, and, most tellingly, in the thickening of the associated settlement networks that surrounded the newly emerged urban centers.

These differences matter. The bi-modal settlement structure of Ubaid Mesopotamia correlates well with the expected spatial configuration of chiefdom-level polities (Steponaitis 1981; Wright 1984; Nissen 1988; but see Yoffee 2005 for a contrary opinion),² while the multi-modal settlement structure that developed in the area during the Uruk period, in turn, correlates well with forms of spatial organization typical for state-level polities (Johnson 1975; Isbell and Schreiber 1978). Strikingly, the available survey evidence suggests that such polities were already in place across the surveyed portions of the southern Mesopotamian alluvium by the first quarter of the fourth millennium, the Early Uruk period, when Uruk/Warka, situated on a major branch of the fourth-millennium Euphrates, is estimated to have been between 70 and 100 hectares in extent. At least three other sites across the alluvium at this point were 40 hectares or larger in size (Eridu, Site 1237, and Tell al-Hayyad [Site 1306]). Multiple other sites across the alluvium at this time were in the range of 15–25 hectares (Adams 1981; Wright 1981; Algaze 2008: fig. 16 and appendix 1).

These various centers did not exist in isolation. When the relevant survey data are tallied, it appears that they anchored complex settlement grids minimally comprising four tiers in depth (Johnson 1980: 249). Indeed, available data indicate that the proportion of the population living in relatively large town-sized (ca. 10+ ha) or urban-sized (ca. 40+ ha) agglomerations in the alluvium in the Early Uruk period was just under 50 percent according to Adams' (1981: 75, table 4) original calculations. If Pollock's (2001: 216, table 6.7) recent reassessment of the same data, which tries to take into account the fact that not all sites assigned to a discrete period are likely to have been strictly contemporaneous, is preferred, that proportion rises to an astonishing 80 percent or so.

Impressive as this may be, developments in the succeeding Late Uruk period are even more striking. As in the earlier phase, the proportion of the population of the Mesopotamian alluvium living in relatively large town-sized or urban-sized agglomerations remained astonishingly high (ca. 70 percent for the Nippur Adab Region and ca. 60 percent for the Warka region).³ As in the preceding period, multiple towns (ca. 10–15 ha) and small (ca. 25 ha: Nippur, Site 1172, site 125) and larger (50 ha: Site 1306) cities existed across the surveyed portions of the alluvium at this time (Algaze 2008: fig. 17, appendix 2) and further such cities also existed in areas not systematically surveyed, minimally including Umma and Tello (Algaze 2008: 112). What is new in the

Late Uruk period, however, is the extraordinary development and demographic growth of the central portion of the alluvium surveyed by Adams, where Uruk/Warka attained the unprecedented size of 250 or so hectares, according to a detailed surface survey of the site conducted by a German expedition just before the onset of the First Gulf War (Finkbeiner 1991: fig. 18). Although there is no consensus on precisely how to correlate settlement extent and population in ancient Mesopotamian cities, there is general agreement that Nissen's (2003) estimate of the population of Warka in the Late Uruk period at 40,000 or so people probably represents a reasonable approximation.⁴

Not surprisingly, the settlement grid that surrounded Warka at this time was exceptionally complex in terms of its density and hierarchy (four or more tiers depending on how the data are analyzed). It included numerous dependent small and large towns, villages, and hamlets situated within a 15-kilometer range of the city, totaling a minimum of 280 or so hectares of further occupation (Adams and Nissen 1972; Nissen 2002: fig 5). In other words, at a minimum, by the final phase of the Uruk period, the growing regional polity centered at Uruk/Warka had a population that can be conservatively estimated at well upwards of 80/90,000 people – and this estimate necessarily excludes the many small sites that were surely missed by the surveyors as well as associated, but inherently difficult-to-trace, transhumant and marsh-dwelling populations.

How and why did a polity of such unprecedented scale form? The how part of the question is approachable with the archaeological tools at our disposal. While the overall density of population in the Mesopotamian alluvium remained essentially unchanged between the earlier and later phases of the Uruk period, important changes did take place in the distribution of populations within the area between those phases (Adams 1981: 70–71). In particular, absolute population levels appear to have declined in some areas of the alluvium in tandem with Warka's growth, suggesting that the dramatic growth of that city and its immediate hinterland was fueled in part by intra-alluvial population transfers. A case in point is offered by the Nippur-Adab region, north of Warka, where Adams' (1981) surveys show that, while town and urban-sized settlements remained stable through the Uruk period, the number of associated villages and hamlets declined significantly as the period progressed. A similar decline in absolute population levels between the earlier and later Uruk phases is visible in the Ur-Eridu region, south of Warka, an area surveyed by Henry Wright (1981). There, however, the loss of population took place largely at the expense of Eridu, which had been one of the largest Early Uruk cities in the entire alluvium.

Additionally, it is likely that the explosive growth of the Warka and its immediate hinterland in the Late Uruk period also drew in populations from areas well outside the Mesopotamian alluvium proper. Suggested in the past by a number of authors (Adams 1981; Algaze 1993; Wright and Johnson 1975), this possibility now finds quantitative support in a recent comparative reanalysis of the available survey data from southern and northern Mesopotamia and southwestern Iran in the fourth millennium by Nicholas Kouchoukos and Tony Wilkinson (2007). They note that settlement processes in Greater Mesopotamia throughout the Uruk period appear to have been causally articulated over vast regions and persuasively show that, when recalculated using a single standard, demographic trends in the Mesopotamian alluvium and immediately neighboring areas appear to be inversely correlated: the explosive growth of Warka and its hinterland took place not only at the expense of the Nippur-Adab and

Eridu-Ur areas, as argued earlier, but seemingly also at the expense of areas well outside the immediate confines of alluvial Mesopotamia, where a monotonical decline in settled population can be observed throughout the fourth millennium. Minimally, this is the case in areas as disparate as the Jazirah plains north of the Jebel Sinjar in northern Iraq, the Susiana plain of southwestern Iran, and Fars Plain in highland southwest Iran (see Kouchoukos and Wilkinson 2007 for the Jezirah and Susiana and Sumner 1986 for Fars).

The why part of the question is less straightforward and requires us to think in terms of self-amplifying iterative processes. Elsewhere, combining scraps of available data from Mesopotamia itself and historical analogies, I have argued for growing intra- and inter-regional trade funneled through Uruk cities, and for import substitution processes resulting from that trade, as primary forces fueling employment in those cities and spurring continued immigration into them (Algaze 2008). No doubt, this was compounded, in turn, by two further mutually reinforcing processes: (1) escalating conflict between rival centers that became ever more assertive as they grew in scale, increasing the defensive flight into those very same centers of rural populations caught in the middle, and (2) the ideological attractions of living in centers where the gods themselves were thought to reside (Adams 1981), which surely helped draw further people into already growing cities. As bigger pools of consumers for imported and locally-made commodities and of exploitable labor were created, further iterations of self-sustaining growth processes became increasingly likely.

Be that as it may, the unprecedented growth of urbanism in southern Mesopotamia during the later phase of the Uruk period can also be gauged by the scale of the building programs that took place in the burgeoning Mesopotamian cities of the time. It is to an examination of that evidence that we now turn.

EXCAVATIONS: A NARROW BUT REVEALING LOOK AT URUK URBANISM

Our knowledge of the nature of Uruk urbanism has increased exponentially in the last few decades as a result of excavations in the Tabqa Dam area of Syria, where large portions of an Uruk urban enclave have been uncovered by the combined efforts of German, Belgian, and Dutch excavators (below). Within alluvial Mesopotamia, however, the bulk of what detailed evidence we have for the nature of Uruk urbanism comes from the eponymous site of Uruk/Warka itself, which was intermittently excavated over the last 100 or so years by German teams.

While Warka appears to have been urban in size since the beginning of the Uruk period (above), little can be said about how the settlement was organized at the time because of the limited nature of pertinent exposures. That is not the case, however, with the succeeding Late Uruk period for which the site provides a wealth of evidence. As noted earlier, the settlement sprawled over an area of about 250 ha (2.5 sq. km) at the time. On the basis of parallels with Uruk colonial settlements in Syria, it is likely that Uruk was walled,⁵ and that it was divided into religious/administrative, residential, and industrial quarters. However, German excavators focused their efforts only on the very core of the city, where they eventually succeeded in exposing an area of about 9 ha (or just under 4 percent of the site; Nissen 2001). This substantial exposure yielded a series of monumental elite buildings organized into two separate architectural clusters

situated some 300 m apart from each other, known as the Eanna and Kullaba (Anu) Precincts. In later historic periods, these precincts were devoted, respectively, to the gods Inanna and Enlil, and almost certainly this was the case already in the Uruk period as well. Because the two areas were clearly distinct and are situated at significantly different elevations, it is plausibly hypothesized that they started as acropoleis for two distinct settlements that were later joined when Uruk first grew to urban size (Nissen 2002).

While far from representative of the city as a whole, the Eanna and Anu exposures are quite informative about the nature and scale of elite institutions at the heart of the settlement in the Late Uruk period. As the pertinent evidence has recently been the object of definitive studies by Ricardo Eichmann (1989, 2007) and of a recent reanalysis by Marlies Heinz (2006, and this volume), only a brief summary of some of the most salient data is necessary here.

The most coherent – or at least best understood – of the two exposed areas was the Anu Precinct, where excavators uncovered a massive tripartite structure (24 × 19 m) of Late Uruk date with a central cella and recess-buttressed walls known as the “White Temple” on account of the color of the plaster that lined its walls when first excavated. Those walls were preserved in places to a height of over 3 meters and allow the overall height of the building to be reconstructed with some confidence at about 6 meters (Nissen and Heine 2009: 23). Because of its tripartite plan focused around a central hall (which recalls that of earlier Ubaid temples) and because that hall contained both a freestanding central offering table and a corner podium (where the statue of the god would have stood), the Warka excavators plausibly interpreted this structure as a temple.

The White Temple was clearly the last of several similar but smaller structures erected over a series of successively rebuilt mudbrick terraces in the Anu area. By the time that the final version of White Temple was built, those terraces had risen to a height of 13 meters and the temple could only be accessed by means of a narrow staircase carved into the final terrace. The substantial bulk and height of the terrace, added to the also substantial height of the building itself, meant that the White Temple dominated the visual landscape of both the city and its surrounding region.

But the White Temple was hardly the most massive structure in the Anu area. Just at the base of its terrace, the Warka excavators uncovered a roughly contemporary structure that was even larger (25 × 30 m) but was built largely underground. Known as the Steingebäude because of its walls made of bitumen-mortared limestone, this building had a highly unusual labyrinthine plan surrounding a central space at its core. Because of the highly restricted nature of that space, the Steingebäude is generally interpreted as serving a cultic purpose (Forest 1999; Vertesalji 1989, 193, note 19).

The interpretation of the more numerous and sometimes more massive contemporary structures uncovered in the Eanna area is less straightforward. This is due to the fact that the excavators were not always able to trace the relative stratigraphy of many of the structures uncovered in that area, which has precluded a consensus as to exactly which buildings were in use contemporaneously. What follows is based for the most part on the analysis of the evidence by Eichmann (1989) and Heinz (2006), who use the superimposition of particular buildings over others and extrapolations of general alignments between buildings as a way to disentangle the architectural sequence.

By design, the bulk of exposures in the Eanna Area focused on Level IV of the sequence (Nissen 2002). Because exposures of deeper levels was limited, only two of the many Uruk structures exposed in Eanna predate Level IV: the so-called “Stone Cone Mosaic” Temple (ca. 20 × 30 m) and the much larger “Limestone” Temple (Fig. 4.1a: ca. 27 × 80 m), the former deriving its name from its wall decorations and the latter from the material used for its construction. Both structures have the tripartite architectural arrangement that reflexively gets subsumed under the category of “temple” by Mesopotamian archaeologists, but they lack altars and offering tables – a characteristic that, interestingly, is shared by all of the later tripartite Uruk structures cleared in Eanna.

Numerous buildings assignable to three superimposed but not always clearly delineable building phases and parts of a temenos wall separating those structures from the rest of the settlement were cleared in Level IV. The earliest structures in the level were a series of the now usual tripartite buildings (“Temples” A, B, F, G, and H), each roughly similar in scale to the earlier Stone Cone Mosaic Temple. What was new and significantly different at this time, however, was a very large square structure with recessed corners (ca. 57 m per side) of unique design assigned to Eanna IVb. Known as “Building E,” this structure has multiple external entrances leading to two symmetrical ranges of rooms and halls on each of its sides which, in turn, surround a large central square courtyard (ca. 31 m per side) that is also accessible through multiple points of entry (Fig. 4.1b).⁶

The final building phase assigned to the Eanna IV sequence introduced substantial changes in the spatial organization of the exposed area. Three such changes are noteworthy. One was the dismantling of Building E and the erection partly over it of a new tripartite structure (Building D) of traditional architectural design but much grander in scale (Fig. 4.1c: ca. 80 × 50 m). Another was the building of a row of new structures perpendicular to Building D, including two elaborately decorated halls (the “Pillared Hall” and the “Great Hall”), which, like the earlier Building E, could be entered from every direction. The third was the building of a large (ca. 60 m per side) partly sunken walled court (the “Great Court”) adjoining the temenos wall, which is generally interpreted as a garden because of the absence of interior walls and because associated water channels drain into the court, rather than the reverse.

What can we say about Uruk society on the basis of the exposed architecture at the heart of Uruk/Warka? It is impossible to begin to answer this question without delving into the function of the exposed buildings, but such an inquiry is inherently difficult because the overwhelming majority of those buildings were only preserved at the level of their foundations, having been razed and leveled in antiquity, and accordingly they had few directly associated finds. Moreover, as noted earlier, even when such finds existed, excavation methodologies and recording priorities in use at the time they were excavated mean that few of the finds can be put back into the buildings in which they were found (Nissen 2002). In light of this, inferences about the function of particular Eanna structures are almost entirely based on the form of the exposed buildings themselves and must be considered little more than informed speculation.

Seeking to reconcile the tripartite floor plan of many of the Eanna buildings with the widespread evidence for contemporary administrative activities found in their general vicinity (below), many archaeologists refer to the Eanna structures simply as “religious/administrative” in nature. This may certainly be correct but still begs the

question of their exact function. Others, in turn, noting similarities in the proportions of the central halls of many of the structures and modern reed-built reception huts used by traditional tribal chiefs in southern Iraq (Arabic: *madhaif*), suggest that they served as cultic reception halls or meeting places, an idea traceable to Walter Andrae (1936). Be that as it may, one fact immediately strikes the eye: while entrance to the structures in the Anu Area appears to have been carefully controlled, this was not always the case in the Eanna Area, where many of the buildings had multiple entrances and must have served purposes requiring the relatively free congregation of large numbers of people (feasting as a mode of social mobilization? See Dietler and Herbich 2001), as has been noted by a number of scholars (e.g., Crawford 2004; Dittmann 2007).

But if attempts to get at the function of the structures exposed at the heart of Uruk yield little beyond broad generalities, there is still much that can be said about Uruk society, and particularly about the ability of its elites to command both labor and resources, by looking at the energetics required to put those structures together in the first place (Figure 4.1).

Most Mesopotamian scholars are quite familiar with early calculations made by the excavators of the White Temple complex, who estimated that it would have taken 1,500 laborers working on average ten hours per day for about five years (Heinrich 1939: 24, note 2) to build the last major revetment of its massive underlying terrace (43×60 m at its base and 13 m in height = $33,540 \text{ m}^3$, of which the revetment occupied ca. 80 percent by volume = $26,832 \text{ m}^3$).⁷ Using the same labor estimates for comparative purposes, we can calculate the amount of labor required to build some of the contemporary structures in the Eanna Precinct. Lack of space prevents a thorough analysis here, but a few back-of-the-envelope calculations for some of the larger successive buildings erected in Eanna will serve to illustrate the point: the Limestone Temple

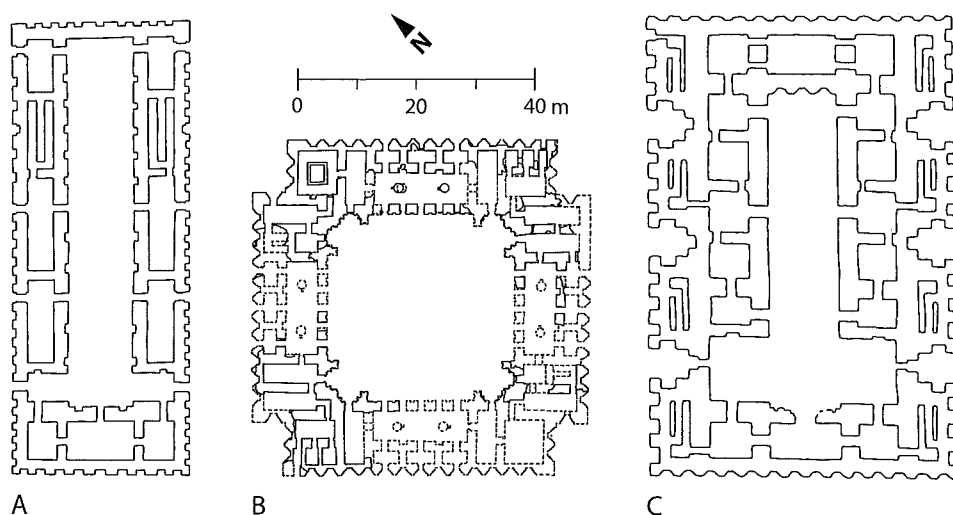


Figure 4.1 Reconstructed plans (redrawn after Eichmann 2007) of Late Uruk monumental buildings in Eanna Area at Uruk/Warka. (a) "Limestone Temple" (Eanna V); (b) "Palace E" (Eanna IVQ2b); (c) "Temple D" (Eanna IVA).

assigned to Eanna V, Building E assigned to IVb, and Temple D assigned to IVa. If we disregard doorways, presume that each of the three structures was as tall as the White Temple, and treat the Limestone Temple as if it had been built using (less labor intensive) mudbricks, then the combined volume of the internal and external walls of these buildings would have amounted to some $25,054 \text{ m}^3$.⁸ By construction standards of the final White Temple revetment, this volume of mudbrick would have required the labor of about 1,400 workers for five years. It does not take much imagination to see that preliminary calculations such as these would amount to a staggering amount of labor at the disposal of the rulers of Uruk cities if one includes all pertinent architectural evidence as well as associated architectural leveling efforts prior to building, and particularly so if Nissen (2003: 12) is correct in presuming that the administrative quarter of Uruk/Warka probably occupied ca. 20 percent of the total extent of the city (i.e., about 50 ha).

Impressive as this may be, the energetic requirements of the massive building programs at the core of Uruk required more than just labor. Substantial access to resources, many of them imported, was also needed. Take, for instance, the timber requirements of the same three successive buildings in Eanna discussed earlier. Given the wide span of most of the rooms and halls that they contained, these structures could only be roofed using wood not then locally available in the Mesopotamian Alluvium, almost certainly pines cut from the highlands of either the Taurus or Zagros Mountains of Turkey and Iran, respectively.⁹ Calculations by Jean-Claude Margueron (1992) allow us to infer what those requirements would have been. He estimates that somewhere between 3,000 and 6,000 linear meters of timber would have been necessary to roof the Limestone Temple, depending on, among other things, whether its courtyard was roofed, number of stories, and roofing beam placement interval. Extrapolating from these figures and presuming similar construction parameters and uncertainties per unit of built space, Building E would have required between 4,330 and 8,660 linear meters of imported roofing timber and Temple D, in turn, would have consumed somewhere between 5,580 and 11,160 linear meters, for a combined total of between 12,910 and 25,820 linear meters for the three buildings. Again, we have to assume that this represents but a small fraction of the full timber requirements of Late Uruk Warka.

We could continue with calculations of the energetics of Late Uruk urbanism, but by now the point should be abundantly clear. The scale of the Late Uruk building program at the center of Uruk/Warka leaves little doubt as to the substantial ability of that city's elites and institutions to acquire and deploy staggering amounts of both labor and resources. We have to presume that elites and institutions at other contemporary urban sites elsewhere in the Mesopotamian Alluvium would have had comparable needs and comparable abilities to satisfy those needs, as shown, for instance, by the massive bitumen-mortared, mudbrick and limestone-revetted platforms of Late Uruk Temples (Levels I–II) at Eridu (Safar, Mustapha, and Lloyd 1981). Who those elites were and what labor resources they were able to command are subjects addressed in the discussions that follow.

LATE URUK ELITES AND THEIR INSTITUTIONS

A picture of the top rung of Mesopotamian societies is not possible prior to the Middle and Late phases of the Uruk period, when iconographic and textual evidence,

respectively, become available. Without question one of the most important sources we have bearing on the nature of Uruk institutions is represented by fragments of a scribal exercise conventionally referred to as the “Titles and Professions List,” which date to the final phase of the Uruk period (Uruk IV script). In its complete version dating to the succeeding Early Dynastic period, the document lists over 120 categories of specialized administrative and priestly personnel in some sort of hierarchical order. While the earliest Uruk IV script fragments of this list are not complete, what portions we do have closely match later versions, strongly suggesting that those later versions are in fact scribal copies of documents already in circulation by Late Uruk times. The ranked list starts with an entry that on the basis of later parallels may be interpreted as “king.” Subsequent entries are not all clearly understood but include the titles of administrators and lesser officials in charge of various state institutions including individuals in charge of the administration of justice, the city assembly, plowing, sowing and other agricultural activities, temples, etc. (Nissen, Damerow, and Englund 1993: 110–115).

Further details of Uruk institutions and the individuals that created them are provided by iconography of Middle and Late Uruk date. Much of Uruk art, for instance, deals with the ideologically charged activities of a larger-than-life bearded male figure, who wears his hair in a chignon and sports a net-like skirt. Typically depicted as a hunter of wild animals and men, as a leader in battle, as a fountain of agricultural wealth, in direct association with niched buildings of presumably cultic significance, and as the main officiator in various religious rituals (Bahrami 2002; Boehmer 1999; Schmandt-Besserat 1993; Winter 2007), this individual is generally thought to represent a “priest-king” or “city ruler,” attributions largely based on the close parallels between the manner in which he is depicted in Uruk art and the way historic Mesopotamian kings were later portrayed.

When not focusing on heroic warlike rulers, Uruk iconography often depicts various types of economic activities, such as agricultural labor and the storage of agricultural products, the transport of commodities, the herding of caprids and bovines, and the processing of wool and dairy products. These images, too, provide important inferential information about Uruk institutions. As noted by Rene Dittmann (1986) in his groundbreaking review of Uruk glyptic from Susa, at that site, most scenes depicting economic activities are associated with images of buildings with niched façades. If we presume that the glyptic containing these images represented bureaucratic records of economic activities at the site, and that the niched structures depicted in the Susian glyptic are representations of similarly built structures excavated in Uruk cities, such as Warka, for instance, then the physical centrality of the niched structures in those cities may be taken as an indication of the economic centrality of the institutions that they housed.

THE LABOR REVOLUTION IN URUK MESOPOTAMIA

The earliest written tablets of ancient Mesopotamia are collectively known as the Archaic Texts and date to the very end of the Uruk period and its closely related but immediately succeeding Jemdet Nasr phase. While these tablets are not always entirely understandable to us, they are still enormously informative. Of the many aspects of early Mesopotamian societies that they illuminate, few are more important than how institutional labor was organized in Late Uruk cities.

The overwhelming majority of the tablets are simple accounts documenting flows of commodities. Many record the disbursement of textiles, grain, or dairy products to individuals. While generally they do not record details of the institution or institutions making these disbursements and only rarely record the status of the individuals receiving them, parallels to later cuneiform documentation suggest that many such accounts represent summaries of allotments to administrators for later distribution to fully or partially dependent workers under their command (Nissen, Damerow and Englund 1993; Englund 1998).

That such workers existed is both directly documented in the tablets and indirectly inferable from them. Direct corroboration, for instance, is provided by about fifty individual tablets that deal with individuals or groups of individuals that are explicitly characterized as dependent laborers. Most of these tablets, to be sure, date to the later Eanna III script phase, but some can be assigned to the Late Uruk period on paleographic grounds (Englund 2011). A case in point is provided by a recently published text in clear Uruk IV-type script which summarizes groups of male and female captives used as laborers, totaling 211 individuals (Englund 1998: 178–179, fig. 66). While it is difficult to ascertain how representative tablets such as these really are, the frequency of references to captive individuals in the Archaic Texts as a whole is quite high. Robert Englund (1998) notes that if one excludes non-numerical signs, the second most common sign in those texts is that denoting female slaves of foreign origin. Signs for captive males, while less common, are also quite frequent.

Inferential evidence for the importance of encumbered labor to Uruk institutions is also not hard to find. Such evidence takes several forms. One has emerged only recently as scholars were finally able to peruse the numerous plundered Archaic Texts in the Schøyen Collection, which exponentially expanded the repertoire of personal names known from such texts (from 38 to 440!). In a recent study of those names, Englund (2009) convincingly shows that the overwhelming majority of them are composed with signs that specifically denote the status of the individuals bearing them as either outright chattel or as fettered in some way, a fact he presumes is explained by Uruk overlords renaming foreign captives in terms comprehensible to themselves. In an exquisitely ironic twist of history, it would seem that most of the personal names we have for the earliest Mesopotamian cities and states are those of slaves rather than those of their owners. Another line of evidence that betrays the importance of captive labor to early Mesopotamian urban institutions is comprised by scribal summaries in the Archaic Texts that detail the composition of groups of foreign and native laborers. These summaries consistently describe these laborers with detailed age and sex categories that are identical to those used to summarize the composition of state-controlled herds of domestic animals (Englund 1998: 176–81, 2009, 2011). It would appear, therefore, that in the minds of Uruk scribes, and in the eyes of the institutions that employed them, such laborers were conceptualized as “domesticated” humans, wholly equivalent to domestic animals in status and partially equivalent to them in function.

To be sure, the evidence just outlined is too partial for a reliable picture of the Uruk economy to emerge, as the tablets that provide most of our information, by definition, exclude all activities beyond the immediate purview of the urban scribes that produced them and of the institutions they worked for. Accordingly, that evidence does not necessarily mean that captives were a significant component of the Uruk labor force *as a whole*, just that they were the primary component of the institutional labor force

at the command of Uruk urban elites (Englund 2009). Later historical parallels allow us to easily imagine the deployment of captives as part of the workforce used to build the monumental structures that stood as a testament to power at the very center of Uruk cities. Uruk iconography depicting siege scenes and bound prisoners (e.g., Boehmer 1999: pls II–27), while amenable to varying interpretations, provide us with multiple representations that can also be reasonably interpreted as depicting the taking of captives that would later swell the ranks of laborers tracked by Uruk scribes. To understand how and where many of those individuals may have been acquired, we must now turn to an examination of the so-called Uruk Expansion.

THE URUK EXPANSION: THE WORLD'S FIRST COLONIAL INTRUSION

No aspect pertaining to the origins of Mesopotamian civilization has garnered more attention in the past few decades than the expansion of Uruk polities into a variety of geographical and cultural areas across the periphery of alluvial Mesopotamia. This expansion took a variety of forms in different areas, depending no doubt on distance away from the alluvium, ease of transport, and the varying nature of preexisting societies in the intruded areas. Though it has been the subject of considerable recent discussion (Algaze 1993, 2001a, 2001b, 2005: 128–155; Postgate 2002; Potts 2004; Rothman 2001; Stein 1999, 2005; see also chapters by Cooper and Lamberg-Karlovsky in this volume), it is still necessary to address here the broad outlines of the Uruk Expansion because of what they reveal about the nature of Uruk societies and their evolving capabilities through the Uruk period.

Vastly oversimplifying, the Uruk Expansion can be heuristically divided into two components, which may have partly overlapped, both chronologically and causally. The first and possibly earliest phase of the expansion took place as Uruk populations colonized the neighboring Susiana plain of Khuzestan, in southwestern Iran, where indigenous populations (Terminal Susa A) had previously been in decline (Wright and Johnson 1975). This expansion may be discerned in the introduction of a full complement of Uruk material and ideological culture across the Susiana Plain (Algaze 1993: fig. 3), where it is found in sites both large and small suggesting that the whole region was taken over by the intruding populations.¹⁰ Given existing gaps in our understanding of the earlier part of the Uruk period, little can be said about when exactly this colonial intrusion got underway, how long it took, or how many alluvial polities participated in the initial push. What is clear is that ceramics and glyptic of Middle Uruk type, dated sometime between 3700/3600 and 3500/3400 BC, provide a *terminus ante quem* for the start of the intrusion and that its end result was the division of the Susiana into two competing Uruk polities (Wright and Johnson 1975; Johnson 1987), centered respectively at Susa and Chogha Mish. Culturally, though probably not politically, Susiana had become, in effect, part and parcel of Uruk Mesopotamia.

At about the same time that this was taking place in Susiana, some Uruk polities, possibly in reaction to events in Susiana, appear to have initiated systematic contacts with societies situated at their north and northeastern periphery. These contacts were particularly intense in the high rolling plains of Upper Mesopotamia stretching between the Tigris and Euphrates rivers – an area that in the earlier half of the fourth millennium was well under way to developing its own traditions of urbanism and social

complexity (below) – and led to establishment of a number of southern Mesopotamian outposts of varying types.

On the basis of existing C14 dates from Uruk sites in Upper Mesopotamia (Wright and Rupley 2001) and pertinent parallels in ceramics, glyptic iconography, and accounting procedures, those outposts were established in the Middle Uruk period and the earlier part of the Late Uruk phase. For reasons that we can only speculate about (below), the outposts were withdrawn or abandoned just before the very end of the Late Uruk period (Nissen 2001; Rothman 2001; Surenhagen 1986). As a group, these outposts represent a second component of the Uruk Expansion, one that evolved and grew in scale and geographic scope over time but that was clearly distinct from the Uruk takeover of the Susiana in that it did not include the colonization of whole regions. Rather, the northwards component of the Uruk Expansion appears limited to the implantation of individual sites at strategic locations of significance for transport across the Mesopotamian periphery, principally, but not solely, at the intersection of the north-to-south flowing rivers and the principal east–west overland routes across the high plains of northern Mesopotamia.

The intrusive Uruk settlements across the northern and northeastern periphery of Alluvial Mesopotamia can be lumped into three types. The first (and earliest) type is represented by small trading diasporas. These appear to have consisted of small groups of Uruk colonists living either in the midst of preexisting indigenous Late Chalcolithic sites already exploiting coveted resources or controlling access to those resources or living in more discrete small settlements placed in the immediate vicinity of some of the larger Late Chalcolithic centers of Upper Mesopotamia, commonly not much more than a stone's throw away. Examples of the first type of diaspora settlement include Hacinebi Tepe (Stein 1999), located just north of modern Birecik in Turkey, astride one of the few natural fording areas of the Upper Euphrates in antiquity, and Godin Tepe (Gopnick and Rothman 2011), situated in the Kangavar Valley, a strategic node controlling the historical east–west overland route from southern Mesopotamia into the Iranian plateau (the Khorasan Road). Examples of spatially discrete diaspora settlements near larger preexisting centers have been hypothesized to represent Old Assyrian Kültepe Karum-like emplacements (Algaze 1993: 48–50; Ur 2010; Ur et al. 2011) and have thus far only been identified in surveys. They have been recognized along the Upper Euphrates near Samsat, along the Balikh near Hammam et Turkman, and along the Upper Khabur near Brak and Hamoukar.

In many areas of the north and northeastern Mesopotamian periphery, Uruk penetration never proceeded beyond the diaspora-type outposts just described. In some areas, however, a second stage and a different type of outpost followed from the preceding in which important preexisting centers of substantial size, which by their very nature already served as nodes for interregional trade, were taken over by Uruk colonists, almost certainly by coercive means (Emberling 2011). Insofar as we have evidence, such second stage takeovers only took place in the later phases (Late Uruk) of the Uruk Expansion. Evidence for such takeovers is, to be sure, somewhat ambiguous. My earlier suggestion (Algaze 1993) that Carchemish on the Euphrates and Nineveh on the Tigris may represent preexisting regional centers taken over by Uruk colonists remains impossible to evaluate, as no new work has taken place at Nineveh and a new multinational excavation project only recently started in Carchemish in 2011.

More promising, however, is new work in the Upper Khabur basin of Syria. Excavations at Tell Hamoukar, a town-sized (ca. 12 ha) Late Chalcolithic settlement situated in eastern Syria along a historic east–west route connecting the Upper Khabur and Upper Tigris areas, for instance, has shown that the introduction of Late Uruk material culture at that site was preceded by a violent conflagration that destroyed the preexisting indigenous center (Reichel 2002 and personal communication 2009). A similar case appears to have obtained at Tell Brak on the more central Jagh Jagh branch of the Upper Khabur, which was clearly the largest and most important indigenous Late Chalcolithic center in Upper Mesopotamia during the first half of the fourth millennium (Oates et al. 2007; Ur et al. 2007; Ur 2010). Excavations in Area TW of the Brak High Mound leave little doubt that some sort of an intrusive Uruk colony was established at the site. Evidence is provided by a full repertoire of typically southern material culture of Late Uruk type (TW 11–12; Oates 2002), which caps a long and impressive sequence of earlier indigenous Late Chalcolithic remains (Emberling and McDonald 2001; Oates and Oates 1997; McMahon and Oates 2007; McMahon 2009).

What is not immediately clear, however, is whether that colony was an isolated diaspora-type presence similar to that at Hacinebi or Godin or whether the whole site was in effect taken over by southern intruders at the time. In considering precisely this question, Geoff Emberling (2002, 2011) argues, plausibly in my opinion, for the latter explanation. There are two parts to his line of reasoning. First, Emberling notes that, as was the case at Hamoukar, an intervening destruction layer separates the final Late Chalcolithic architectural level at Brak (TW 16) and the earliest superimposed Late Uruk architecture (TW 12). Second, Emberling surmises that on account of the commanding position that the last rebuilding of the Eye Temple (excavated by Max Mallowan in the 1930s) occupied at the site, its builders must have controlled the site as a whole. Who those builders were, in turn, he infers from the pervasive southern Mesopotamian affiliation of the temple's plan and architectural decorations, which he sees as evidence for the imposition at Brak of a religious agenda of southern Mesopotamian origin.

The third type of intrusive settlement is found in areas in which no significant pre-existing occupation had to be reckoned with. In those areas, from the very beginning, Uruk penetration was a process of urban implantation whereby Mesopotamian social and urban forms were reproduced in essentially virgin landscapes. This type of intrusive strategy appears restricted to the immediate vicinity of river fords along the Upper Euphrates and is particularly clear in the lower corner of the Great Bend of the river near the modern town of Meskene. There, built-from-scratch intrusive Uruk settlements have a long history that goes back to the founding of the small site of Tell Sheikh Hassan on the left bank of the river during the Middle Uruk period and continued into the earlier part of the Late Uruk period when a much larger urban enclave (ca. 20–40 ha) in extent comprised by Habuba Kabira-süd, Tell Qannas, and Jebel Aruda was founded on the opposite bank of the river (Strommenger 1980; Vallet 1996, 1998).¹¹ Because these latter sites were abandoned by the end of the Uruk period and were not reoccupied in later times, the relative wide exposures that were possible within them yield a snapshot of what the Uruk colonial enterprise in virgin areas looked like: the massive surrounding fortification walls, carefully laid-out streets and well-delineated residential, industrial, and administrative quarters of the Habuba/Qannas settlement are part of a vast and, before then, unimaginably coherent urban planning effort.

What do these various types of Uruk outposts tell us about Uruk societies and about their strategies of contact with far-away peripheral areas? Of the many points that could be made in answer to these questions, I will highlight but four. The first is that the carefully chosen locations of the outposts at river fording areas or at local sites at the apex of preexisting regional hierarchies along east–west routes suggest that control of trade and transport were the primary (though surely not the sole) motivations for the expansion northwards. However, because there was no obvious attempt to control the vast hinterlands away from those chosen locations, we are dealing with a very different type of colonial strategy than that effected in Susiana.

The second point is that processes of expansion of Uruk societies evolved over the centuries-long lifetime of the process. While we tend to think of the establishment of colonies as a process unique to state-level polities who seek to acquire and exploit non-contiguous territories and resources, there is in fact a considerable body of ethnographic and historic literature (Curtin 1984) showing that non-state actors can – and have – repeatedly established and maintained distant diaspora-style colonies in far-away areas and, conversely, that territorial annexation by states is often only the end result of long-term processes of colonization that began much more modestly with strategically situated isolated outposts seeking resources from native populations willing to trade (Gallagher and Robinson 1953), a process fittingly encapsulated by the expression “The Flag Follows the Trade.” Against this light, as Stein (2005) has noted, the relatively small scale of Middle Uruk outposts thus far documented along the Upper Euphrates would not be inconsistent with an Old Assyrian-type familiar enterprise seeking to plug into preexisting networks of trade and redirect some of that trade for their benefit. The same could be said, for that matter, for the small sites with Uruk materials near large Late Chalcolithic centers, noted earlier, along the Balikh and Upper Khabur basins. Additionally, I would argue, some of those same outposts would not be inconsistent with small groups of specialized merchants sent out by specific Uruk urban institutions to acquire a particular suite of coveted commodities – possibly not unlike the *damgar/tamkarum* who procured foreign goods for some Mesopotamian temple administrators in the Early Dynastic Period (Postgate 2003) or those sent by the city of Umma to Susa during the Akkadian period (Foster 1993). In either case, such outposts would represent a case of “colonies without colonialism,” to borrow Gil Stein's (2005) apt phrase.

The third point is that whatever the initial nature and impetus for the Middle Uruk expansion into Upper Mesopotamia, the sorts of massive, quickly erected and well-planned enclaves that we encounter in the succeeding Late Uruk phase could only have been built by state institutions capable of levying, commanding, and deploying substantial resources and labor. Similarly, the scale of some of the indigenous Late Chalcolithic polities that appear to have been vanquished and taken over by southern intruders in the Khabur area in the Late Uruk period also leaves little doubt that by then the Uruk Expansion had become a state-supported enterprise requiring the ability to organize, equip, feed, and field armies capable of operating far away from their base(s).

The final point may appear counterintuitive in light of the preceding remarks, but is not. There is little need to conceive of the Uruk Expansion as some sort of a centrally planned unitary phenomenon that took different forms in different areas. Rather, because available survey evidence from alluvial Mesopotamia (above) is consistent with an interpretation of multiple politically balkanized but culturally homogeneous polities

throughout every phase of the Uruk period, the expansion is perhaps best conceived as an organic process of action and counteraction, wherein individual Uruk (city) states scrambled to colonize specific areas of their periphery, or to found specific strategic outposts tailored to local conditions within that periphery, in order to secure access to the critical lines of communication through which coveted resources were obtainable and, equally important, to deny their local southern rivals such access.

CONCLUSIONS: SMITHIAN GROWTH

Working with assumptions ultimately derived from Marxian conceptions of history, economic historians generally contrast “ancient” and “modern” modes of economic growth as inherently different. The former is characterized by the self-limiting growth of largely agricultural regimes with stable or, more commonly, declining output per capita as they expand, Malthusian constraints on population density, and a slow or stagnant rate of overall technological advance, and the latter is characterized instead by self-sustaining growth based on increases in both income per capita and total output, ever-receding Malthusian constraints, and ever-accelerating technological progress (Clark 2007).

While roughly correct in its general outlines, this broad-brush characterization ignores one important pre-modern exception that is quite relevant to the understanding of what Daniel Potts (2004) aptly referred to as “The Uruk Explosion.” This exception is what the historian Jack Goldstone (2002) terms “Smithian Growth.” As Goldstone (2002: 324) explains it, Smithian Growth is similar to modern processes of growth in that “gains from specialization produce higher productivity and hence higher incomes per capita as well as total growth. These gains can come from specialization across different societies that accompany increased long distance trade, from regional or urban/rural specialization accompanying increased domestic trade and urbanization, or from increased occupational specialization accompanying increased population density and local circulation of goods and services.” However, Goldstone warns us that Smithian Growth, unlike Modern Growth, was not self-sustaining in the long run, and ultimately amounted only to a series of bright but temporary “efflorescences.” This is explained, he argues, by the fact that Smithian Growth was not commonly accompanied by major productivity-enhancing technological advances and therefore ceased when trade was interrupted or, eventually, when initial gains from trade-related specialization reached a plateau, reestablishing (though at a higher level) growth-limiting Malthusian constraints.

In Goldstone’s view, then, in the aggregate, pre-modern growth is sharply punctuated: short phases of fast growth follow closely in the heels of episodic and locally notable increases in trade, specialization, and population agglomeration but give way eventually to longer and more typical periods of much slower growth or even stagnation. These transitions, he notes, are not without consequences. Historically, significant decreases in income per capita can lead to a loss of political legitimacy, to rebellion, the rise of alternate religions or ideologies, and an intensification of all manner of conflict as self-defined factions within a declining society compete over its waning resources (Goldstone 2002: 325).

Uruk Mesopotamia can, in my opinion, be fittingly characterized as a case of Smithian Growth as defined by Goldstone. While correlation is not causation,

available data suggests that the explosive growth of both population and specialization in southern Mesopotamian societies of the second half of the fourth millennium took place at a time when substantial cross-cultural trade and transregional resource flows were the norm. This is inferable, indirectly, from the locational circumstances of Uruk outposts across the Mesopotamian periphery, which, irrespective of whether newly founded or implanted within preexisting Late Chalcolithic centers, were invariably situated at crucial nodes of transportation across the area (Algaze 1993, 2008). It is also inferable, more directly, from the dramatic (if still unquantifiable) increase in both the amount and the variety of utilitarian and exotic resources imported into southern Mesopotamia in the Middle and Late Uruk periods as compared to Late Ubaid times. Flows of resources of the sorts presumed here, to be sure, would have had important ramifications in all societies involved in them, including those from which the resources were extracted, but those ramifications would have been particularly marked in the case of Uruk polities because of four compounding factors that differentially fueled the growth of specialization, employment, and population in southern Mesopotamia as opposed to elsewhere.

The first factor applies irrespective of whether resources were acquired via trade or plunder and is that the majority of the commodities flowing southwards were raw or only partially processed goods, such as timber, metals, and stones, that required significant processing before they could be incorporated into the economy. The second factor pertains to imports acquired by trade. Historically, in the Mesopotamian case, this required the export of finished textiles – a specialized, labor-intensive industry that under Mesopotamian conditions had multiple employment ramifications that went well beyond the production and processing of wool itself (Algaze 2008). The third factor is scale dependent and follows from the increase in the scale of the economy that the need to process both imports and exports would have generated in alluvial Mesopotamia. Under such conditions, it often becomes both possible and profitable to start replacing imported commodities subject to scale economies with local production (“import substitution”), fueling further specialization-driven iterative development cycles that concentrate new growth in regions that are already expanding (Krugman 1995). The fourth compounding factor is one that fully complements the preceding three and pertains to the interrelated facts that captives, including no doubt both unskilled and skilled individuals, were among the resources flowing southwards in the Uruk period and that those captives were probably a primary source of the workers at the disposal of Uruk state administrators. The economic importance of such individuals probably far outweighed their numbers. Such captive “others” could be made to work more than native labor and, more importantly, could also be more easily coerced than natives into working in non-traditional ways so as to take advantage of gains from labor specialization and economies of scale.

It does not take much imagination to see how the conjuncture of these mutually reinforcing forces would have set into motion a specialization-driven burst of Smithian Growth in Uruk Mesopotamia. As with all cases of Smithian Growth prior to the advent of the Modern Age, however, the resulting efflorescence could not last, as it depended on an uninterrupted flow of foreign resources that could not be maintained over the long run. Three principal reasons account for this: (1) the flow would have altered the socio-political landscape of resource-rich areas in ways that would have been difficult for core societies to predict and much less control, (2) inherent inefficiencies

of premodern transportation technologies made interruptions in the flow of trade between faraway areas likely, and (3) those same inefficiencies guaranteed that core attempts to reestablish access to peripheral resources by force, when necessary, would not always be timely or successful.

In the Mesopotamian case, the beginning of the end of the Uruk efflorescence is perhaps already reflected in the collapse of the network of Uruk outposts across Upper Mesopotamia, which took place in a late but not final phase of the Uruk period (predating Eanna IV a-b on the basis of accounting technologies). However, it was not until the still little understood Jemdet Nasr interlude, conventionally dated to the transition from the fourth to the third millennium, when the breakdown became fully visible. This is reflected in substantial shifts in settlement patterns within the Mesopotamian alluvium (Postgate 1986) and, more dramatically, changes in the use of space at the very core of Uruk/Warka, where the earlier building program of the Uruk period was entirely demolished (Eichmann 2007).

The Mesopotamian case is particularly interesting, however, in that the intervals between its phases of efflorescence and stagnation depart from the expected trajectory of “ancient” economies in several notable ways. These departures become clear when viewed in comparative perspective. The first departure pertains to the length of the initial Smithian growth phase, which lasted for the better part of the fourth millennium in the southern Mesopotamian case but was much shorter in other areas of southwest Asia where early exchange-based specialization and urbanism also flourished, such as the Upper Khabur. The second departure pertains to what happened after the initial growth spurt came to a halt. In the Upper Khabur, as predicted by conventional characterizations of “ancient” economies, the initial efflorescence eventually led to a long period of stagnation marked by the disintegration of the indigenous urban tradition of the area for a millennium or so. This was not the case at all in southern Mesopotamia, where the Jemdet Nasr retrenchment gave way to another fast-paced phase of Smithian Growth barely two centuries or so after the end of the Uruk efflorescence. This may be inferred from the expansion of Uruk and Al-Hiba (Lagash) to encompass an area of 600 ha (6 sq km) by the first quarter of the third millennium (Nissen 2001 and Carter 1985, respectively), by the contemporary emergence of multiple new smaller urban sites across the alluvium (Adams 1981), and by the vigorous resumption of the flow of trade and growth of specialization that are implied by the many highly crafted sumptuary goods interred in Early Dynastic graves.

What made the early southern Mesopotamian economy so resilient, so atypically able to bounce back relatively quickly from the inevitable crises and stagnation that always follow a period of pre-modern Smithian efflorescence is, however, a subject for another day.

ACKNOWLEDGMENTS

Earlier drafts of this chapter were read by Jason Ur (Harvard University), Jennifer Pournelle (University of Southern Carolina), and Robert McC. Adams (UCSD). Each provided many insightful comments and corrections, for which I am most grateful.

NOTES

- 1 An exception is a systematic surface survey of an Early Uruk site near Nippur by Charles Redman (1971) as part of his doctoral dissertation. Additionally, it should be noted that limited soundings of at least two small rural Uruk sites do exist in Susiana (Johnson 1976).
- 2 The existence of Ubaidian chiefdoms has been rejected by Yoffee (2005) who notes the almost total lack of material culture markers of personal differentiation in excavated cemeteries of the Late Ubaid period within southern Mesopotamia. However, the dearth of archaeological evidence for wealth accumulation by elite individuals in Ubaid times looks quite different if one takes into account contemporary data from the nearby and related Susiana Plain of southwestern Iran, where significant wealth in the form of metal tools and weapons existed in the Susa A period cemetery (or mass grave) at the base of the so-called “*Massif Funéraire*” at the site of Susa (Moorey 1999: 256). Moreover, and most importantly, even if it were real, such a dearth is not in and of itself a sufficient reason to reject the existence of Ubaidian chiefdoms, a point made independently by Stein (1994) and Flannery (1999), who note that conspicuous consumption in life and death is only one of the many potential strategies used by chiefs to legitimize themselves.
- 3 Adams (1981, 75, table 4) originally estimated that up to 70 percent of the population in the Nippur-Adab region was “urban” in the Late Uruk period as opposed to about 40 percent in the Warka area, but the latter number must be revised sharply upwards to about 60 percent to account for the greatly increased estimate for the size of Warka itself at the time (250 ha as opposed to Adams’ initial estimate of 100 ha).
- 4 Nissen arrived at this estimate by presuming a density of 200 persons per hectare of surveyed occupied area and by presuming that the lightly inhabited public quarter of Warka amounted to ca. 20 percent of the 250 ha extent of the site. Almost certainly, this underestimates the actual population density of Warka in the Late Uruk period as may be inferred from Postgate’s (1994) study of the demography of Mesopotamian cities in the third and second millennia BC.
- 5 This possibility is strengthened by contemporary cylinder seal impressions depicting urban fortifications, some of which come from Warka itself (e.g., Boehmer 1999: fig. 26).
- 6 This structure is also sometimes referred to as “Palace E” (e.g., Nissen 1988) or, more neutrally, as the “Building with Four Halls” (Heinrich 1982). For a recent discussion of the structure, see Bretnschneider 2007.
- 7 The revetment in question was labeled Ar-2 by Heinrich and is relabeled Z6-7 in Eichmann’s (2007: 517, note 770) reconstruction. The estimate of the relative proportion of the total volume of the White Temple Terrace occupied by its last revetment provided here is derived from a schematic profile of the terrace published by its excavator, E. Heinrich (1938: 19, fig. 2).
- 8 All calculations are based on dimensions extracted from plans in Eichmann 2007.

Limestone Temple: External walls: $2 \times (2.6 \text{ m [thickness]} \times 30 \text{ m [length]} \times 6 \text{ m [height]})$; $2 \times (2.6 \text{ m} \times 75 \text{ m} \times 6 \text{ m})$. Internal walls: $1 \times (3 \text{ m} \times 30 \text{ m} \times 6 \text{ m})$; $2 \times (2.6 \text{ m} \times 60 \text{ m} \times 6 \text{ m})$. Crosswalls: $8 \times (2 \text{ m} \times 5 \text{ m} \times 6 \text{ m})$; $2 \times (2 \text{ m} \times 7 \text{ m} \times 6 \text{ m})$; $2 \times (2 \text{ m} \times 10 \text{ m} \times 6 \text{ m})$. Total volume: 6,576 m³.

Building E: External walls: $4 \times (2 \text{ m [thickness]} \times 47 \text{ m [length]} \times 6 \text{ m [height]})$. Internal walls: $4 \times (2 \text{ m} \times 57 \text{ m} \times 6 \text{ m})$; $4 \times (2 \text{ m} \times 20 \text{ m} \times 6 \text{ m})$; Crosswalls: $16 \times (2 \text{ m} \times 10 \text{ m} \times 6 \text{ m})$. Total volume: 6,912 m³.

Temple D: External walls: $4 \times (3 \text{ m [thickness]} \times 80 \text{ m [length]} \times 6 \text{ m [height]})$; $2 \times (3 \text{ m} \times 50 \text{ m} \times 6 \text{ m})$. Internal walls: $2 \times (3 \text{ m} \times 31 \text{ m} \times 6 \text{ m})$; $2 \times (3 \text{ m} \times 55 \text{ m} \times 6 \text{ m})$; Crosswalls: $4 \times (3 \text{ m} \times 7 \text{ m} \times 6 \text{ m})$; $8 \times (1.3 \text{ m} \times 7 \text{ m} \times 6 \text{ m})$. Total volume: 11,566 m³.
- 9 Carbonized pine has in fact been recovered in Late Uruk Levels at Warka (Engel and Kürshner 1993).
- 10 But for a contrary opinion, see Wright (1998), who interprets the convergence of material and ideological culture in Susiana and the Mesopotamian alluvium as a case of acculturation.

- 11 The actual extent of the Habuba/Qannas/Aruda enclave depends on estimates of how much of an extramural occupation surrounded the main walled settlement. For a detailed discussion, see Algaze 1993: 25–29.

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