

An Examination of the “Textual” Witnesses to Late Uruk World Systems

Robert K. Englund
(UCLA, USA)

“Why did you sell it to him, then?” the barber said.

“What?” Snopes said. The barber was looking at him.

*“What was you trying to sell to that car when
it run over you?” the barber said.*

“Have a cigar, ” Snopes said.

Much discussion of the socio-economic history of ancient Mesopotamia has centered around the resource disparity between a culturally developed alluvial heartland and a less developed surrounding periphery, in particular regions to the northwest in Syria and Anatolia, and to the east and southeast in Persia and along the Persian Gulf. A general consensus states that rapidly improved methods of agriculture and animal husbandry, together with a social order amenable to their exploitation, facilitated in Babylonia the emergence of a surplus economy and a concomitant class formation, in particular including the emergence of an elite class seeking resources abroad that were unavailable in the alluvium. These resources included above all stone and metals, to a lesser extent wood, domesticated and wild animals, and humans.

Two phases of prehistory in Mesopotamia have enjoyed the greatest attention among archaeologists who have been active in this discussion. The first is the Uruk period, so-called based on the German excavations at southern Babylonian Warka, ancient Uruk, that identified a stratigraphic continuum at that settlement dating to most of the 4th millennium BC. Divided into Early, Middle and Late Uruk, the phases corresponding to levels XIII through IV of the monumental center of the ancient city called the Eanna district witnessed the development of a series of architectural and artifact sets that would

characterize this early high culture in Babylonia and elsewhere (in the current paper, “Babylonia” refers to the area of Mesopotamia from the Baghdad “waist” of the Tigris and Euphrates to the marshlands of the south; the term “Babylonians,” is chosen to refer generally to the inhabitants of this area in avoidance of a charged term like “Sumerians” or “Euphratians,” since the linguistic affiliation of 4th millennium inhabitants of this area is not known; “proto-writing” refers to bullae and numerical tablets that appear to predate Uruk IVa tablets, while “proto-cuneiform” refers to tablets of the Uruk IVa and UrukIII/Jemdet Nasr phases in Babylonia (ca. 3350–3000 BC, “proto-Elamite” to archaic Persian inscriptions from the Uruk III through, possibly, the ED I periods, ca. 3200–2800 BC). These finds included monumental temple architecture with regular use of clay cone façade work; large sculpture; the wheel and plough; an apparent rationing system based on distribution of roughly formed beveled-rim bowls; the cylinder seal; and precursor forms of cuneiform that developed directly into the proto-cuneiform of the phases Uruk IV and III. Since during the latter part of the Middle, and the first half of the Late Uruk periods the same diagnostic wares were unearthed at sites east, north and northwest of Uruk, both within Mesopotamia and well beyond its natural borders, finds stratigraphically post-dating the earliest development of these artifacts in Babylonia and from settlements very much less developed than Uruk, it was convenient to see in these patterns of cultural homogeneity a transference of wares, and, due to the occurrence of Uruk enclaves within settlements that retained indigenous cultural identities, also of persons, from a more to a less developed region of the ancient Near East. The demographic development itself was called the Uruk expansion.

<i>period</i>	<i>date (BC)</i>	<i>Eanna stratigraphy</i>
Ubaid	5500–4000	
EarlyUruk	4000–3800	levels XII–XI
Middle Uruk	3800–3600	levels X–IX
Late Uruk	3600–3200	levels VIII–IV
Uruk IVa	3350–3200	IV
Uruk III	3200–3000	III

Figure 1: Chronology of Early Babylonia

Of late, Hans Nissen (1988: 39–64) and others (for instance, Stürénhagen 1986: 7–8) have underscored a parallel though by no means equally extensive cultural expansion in the preceding Ubaid period (ca. 5500–4000 BC). Here too subsequent to a long

development, an increasingly complex network of agricultural communities expanded into peripheral regions, most notably up both Euphrates and Tigris rivers into Anatolia, and along the Arabian coast of the Persian Gulf. In both cases, settlement survey data indicated a rapid population increase in Mesopotamia following upon more efficient methods of grain agriculture and animal husbandry; in both cases, the intrusive cultural expansion was followed by a withdrawal from occupied territories and the return of those regions to indigenous traditions.

Were these demographic developments due to natural pressures to implement trade networks designed to satisfy consumer demands from culturally more developed polities? Were they, rather, simply the consequence of population growth and the need to acquire productive land in chiefdom settings? Or were they, in a much more radical view, the result of political or even military decision-making within a highly developed social structure in southern Mesopotamia? This latter description of the Uruk expansion, and with it the idea of an incipient “empire,” entered the academic discussion with a now noted publication in *Current Anthropology* by Guillermo Algaze (Algaze 1989).

Algaze, like many other social scientists before and after him, took as his point of departure, and modeled much of his discussion around the publication by Immanuel Wallerstein in 1974 of the first volume of his *Modern World System* (Wallerstein 1974–1989; cp. Braudel 1979). This is no place for a review of Wallerstein’s influential three-volume treatise, nor of the treatments of world history related to it (in particular Marx 1867ff.; Weber 1905; Toynbee 1934–61; Polanyi 1957), but in short, the publication described the author’s view of the emergence of a modern capitalist system that consists of a network of hierarchically spaced units called “core states”, “peripheral areas” and “semi-peripheries”. Of particular concern to social scientists, and indeed apposite to current discussions of the merits of “job outsourcing in a global economy” is the world system view of labor: it is not, in a networked economy, just functionally, but also interregionally divided among groups according to social organization and political power. Therefore in a world system, low-status labor can be exported to underdeveloped regions, be they in semi-peripheral or peripheral areas in geographical contact with developed core nation states. The costs of resources and products sought by core regions can be held at a minimum by partially usurping ownership of the means of production abroad, and thus sharing costs with lesser developed peripheries from which resources are claimed.

Of course, peripheral regions will recognize and react to the brazen exploitation that such world systems represent, often ending in conflict among themselves to assume the cloak of most equal of unequal partners in a disadvantageous relationship with a core state, but eventually and necessarily leading to conflict with that developed core. Despite the evidently attractive conceptual framework of his historical views to social theorists, Wallerstein's stated thesis of materialistic "world empires" dominated by discrete polities, and "world economies" characterized by a political rivalry of numerous players, and the limited success of his later application of these views to the historical record, have drawn welcoming praise, and heavy criticism in the social sciences.

The reaction to Algaze's application of a world system model to the prehistoric Near East, already seen in the remarks by a number of archaeological specialists appended to that paper (1989) and to the revised version of the dissertation from which his initial article derived, *The Uruk World System: The Dynamics of Expansion of Early Mesopotamian Civilization* (1993; see, for instance, Steve 1991; Kohl 1992; Yoffee 1993; Amiet 1994; Joffe 1994; Potts 1999: 56–58, and particularly 2004; Stein 1999, 2004; Ratnagar 2001; see also Chase-Dunn & Hall 1991, 1997, and the papers in Rothman 2004 not cited above), was mixed with admiration and with criticism of both the Wallersteinian view of a natural world order, and its application in the specific case of the Uruk expansion. This model did appear to explain the archaic Babylonian (Algaze: "Sumerian") character in Susiana of the mid-4th millennium, and the stratigraphic discontinuities marked by the beginning and the end of the Uruk incursion (Algaze 1993: 16–17). Most incongruous with available archaeological data seemed Algaze's inference of a politically centralized state in Uruk so advanced as to have directed a program of economic colonization reaching from the eastern Mediterranean to the Persian highlands. Neither the size and organization of Uruk, even if combined with its hinterland, nor the demographics of 4th millennium Babylonia as described by Adams (1965, 1981) or Nissen & Adams (1972), seemed to support this thesis. As if on cue, Algaze proposed instead a mixed form of world system in which several central polities, most notably Uruk in southern, and Nippur in northern Babylonia, could have served as moving forces in a political expansion to the north and east.

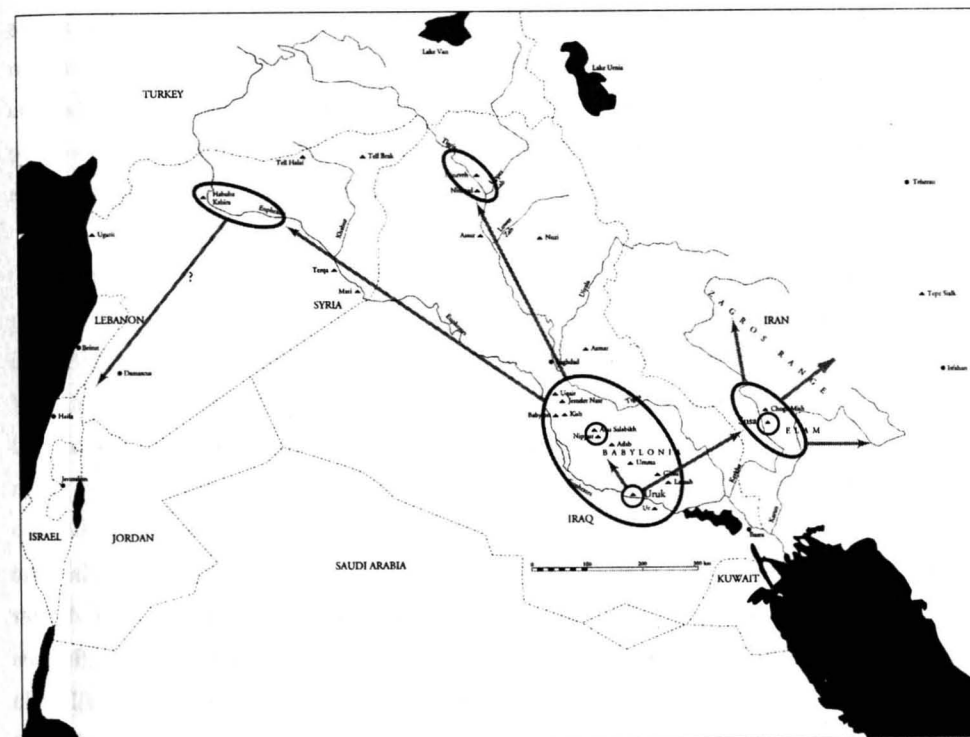


Figure 2. Map of the Near East with Uruk heartland, and islands of expansion to the east and northwest

Although the discussion of the Uruk expansion and its consequences for the political and economic developments of historical periods of Babylonia have by and large gone unnoticed in Assyriological publications, the Harvard Assyriologist Piotr Steinkeller addressed the issue in a 1993 paper tracing the origins of the Sargonic Empire of the 24th and 23rd centuries BC. Since the same regions of the Near East as those affected by the Uruk expansion came to be part of what is usually considered the first Mesopotamian, that is, the Old Akkadian empire, and since Algaze had specifically cited the Old Akkadian empire as a possible historical parallel to his Late Uruk world system, Steinkeller naturally prefaced his contribution with a philological view of the proto-historical record (1993: 108–116). Rejecting the argument of a resource procurement scheme consciously planned by political elites within Babylonian cities, he cited the following incongruities in the 1989 study of Algaze:

- 1) the procurement premise of the Uruk world system argument is weak, since in each case of Babylonian territorial expansion the costs far exceeded the profits gained from achieving direct access to resources, and, indeed, simple control of Khuzistan and the Zagros foothills would have represented a substantially more economical avenue to achieve all the strategic resources sought by early Uruk society than penetrating any deeper into the periphery;
- 2) imperial expansions occurred not to maintain a growing economy, but rather in advance of it;
- 3) there is no reason to assume that southern Babylonian polities of the Late Uruk period were any more capable of organizing and maintaining a pristine empire than were their Early Dynastic successors, mired in theocratic particularism.

Instead, Steinkeller marshalled above all linguistic evidence for a prehistoric expansion of Babylonian settlers into the Susiana, the Diyala region, and Upper Mesopotamia and Syria (1993: 111–113). Citing the occurrence of Sumerian influence on the name of the tutelary god of Susa (Inshushinak, but not attested before ED IIIa Abu Salabikh ^dnin-šušinak, and much later in Elam); the existence of a Sumerian substrate in the pantheon of Eshnunna; and toponyms ending in the Sumerian genitive marker in northern Babylonia and the Diyala region, he concluded that in fact an expansion had taken place, but that it represented an entirely commercial enterprise very much comparable to the network of profit oriented traders' enclaves of the Old Assyrian period. Since the Uruk population movements were merely an expanded version of the earlier Ubaid model, foreign expansions preceded rather than followed the growth of Babylonian urbanism, and, still Steinkeller, Uruk commerce "enabled, or at least made a major contribution to, the growth of Babylonian cities, a process that is well-documented in world history, just to mention the examples of Venice and Amsterdam."

This discussion is ongoing. The current paper is designed to help clarify, insofar as our philological data allow us, the possible role of one of the numerous sets of artifacts that have been cited as evidence of a culture common to the "core state" of southern Babylonia, led by Uruk, and many enclaves in its periphery, that is, the diagnostic wares usually described as bullae and numerical tablets. These precursors to the earliest stages of true writing in Mesopotamia, levels Uruk IV and III dating to ca. 3350–3000 BC, are

regularly cited as evidence for whatever explanatory approach to the Uruk expansion an author might choose, although their role is relegated to that of mute bystanders no more relevant to the particular argument than clay cones or beveled-rim bowls. Yet we might ask whether an elite Babylonian class could, through the use of this form of proto-writing, have more clearly spoken to their purpose and pursuits in regions well removed from Uruk.

A number of plausible explanations for a Late Uruk presence in Persia and Syria present themselves, perhaps the more credible when considered together with evidence from 3rd millennium archival remains that document comparable excursions into the Babylonian periphery in pursuit of resources unavailable in the alluvium. There were, then as now, different avenues available to elites in order to procure these resources. One might be to organize engineers and work crews that themselves traveled to the sources of desired goods, where they simply mined and processed metal ore or stone, or felled timber, and organized its transportation back to Babylonia. This particular aspect is little researched in work on cuneiform texts. In the absence of reported conflict, we might for instance consider whether royal inscriptions, detailing the importation of goods from mountainous or foreign regions were not after all records of an entirely peaceful extraction of resources that were, in politically undeveloped mountainous regions, not encumbered by ownership claims. Gudea's inscriptions, describing the building of the great Eninnu temple for Girsu's tutelary god Ningirsu, note that

ama-a-num ₂ ħur-sag eren-ta	From the Amanus, the cedar
^{ges} eren gid ₂ -bi 1 (geš ₂) kuš ₃	mountains, cedar of 60 cubits,
^{ges} eren gid ₂ -bi 5 (u) kuš ₃	cedar of 50 cubits,
^{ges} taskarin gid ₂ -bi 2 (u) 5 (diš) kuš ₃	boxwood of 25 cubits,
...	...
ad-še ₃ mu-ak-ak	I made into rafts/beams and
kur-bi im-ta-e ₁₁	brought down the mountains.
^{ges} eren-bi ig gal-še ₃	The cedar into great doors
mu-dim ₂	I fashioned.
...	...
uru ur-su ^{ki}	From Ursu
ħur-sag eb-la ^{ki} -ta	in the Ebla mountains,

^{ges} za-ba-lum	juniper
^{ges} u ₃ -šuh ₃ gal-gal	great pines and
^{ges} tu-bu-lu-um ^{ges} kur	tubulum of the tree-mountains
ad-še ₃ mu-ak-ak	I made into rafts/beams and
e ₂ -ninnu-a	in the Eninnu
^{ges} ur ₃ -še ₃ mu-na-gar	I set to the roof.

...

(Gudea Statue B [<http://cdli.ucla.edu/P232275>] column v 28ff.)

This and other references to the procurement of building supplies abroad have usually been identified by Assyriologists as evidence either of greater political expansion during the Lagash II period (mid 22nd through early 21st century BC) than would otherwise be indicated by textual witnesses, or of a self-aggrandizing description of trade by the Girsu governors. Textual references to such importation of timber date at least back to the beginning of the ED IIIb period during the reign of Ur-Nanše (early 25th century BC), and continue straight through to the end of the neo-Babylonian empire under Nabonidus (6th century; Potts 1997: 109). One might wonder, in the case of wood procurement, whether construction lumber of the sort described above—a qualification of “60 cubits” refers to logs or beams 30 meters in length—can ever have been dealt through exchange mechanisms. Architectural remains from Babylonian centers dating throughout the 3rd millennium, and particularly in Uruk dating back to the Late Uruk period ca. 3500 BC, make a strong case for the need of substantial wooden beams to carry roofs over rooms up to 11 meters wide, expanses that locally grown trees—poplar, date palm—would not support (see generally Margueron 1992, Potts 1997: 109, contra Weiss 2003: 594-595; there is really no clear archaeological evidence for the use of local southern Mesopotamian trees—date palm, poplar, tamarisk—as longbeams, but instead compelling philological evidence against this, and for the use of foreign wood in royal building projects).

An example from the succeeding Ur III period (Lafont 1996) suggests that metals too may have simply been taken by work teams organized in Babylonia.

TCTI 2, 3859 (<http://cdli.ucla.edu/P133055>)

obv.

- | | |
|---|---|
| 1. 1 (geš ₂) 4 (u) guruš 6 (diš) sila ₃ dabin-ta | 100 worker (days) at 6 sila flour each, |
| 2. zi ₃ -bi 2 (aš) gur | its flour: 2 gur; |

- | | |
|---------------------------|---|
| 3. simug ħur-sag ba-al-me | they are miners (lit. “mountain digging smiths”); |
|---------------------------|---|

rev.

- | | |
|---|--------------------------------|
| 1. nu-banda ₃ dingir-zi-li ₂ | the foreman: Ilizili |
| 2. kišib ₃ šu ¹ -ti <-nu? > -um ¹ lu ₂ - ^{ges} tukul | seal of Šutinum, the gendarme. |
| (blank space) | |
| 3. a-dam-dun ^{ki} -še ₃ du-ne-ne ¹ | They are going to Adamdun. |
| 4. iti ezem- ^d li ₉ -si ₄ | Month: “festival of Lisi”. |
| seal. | |
| 1. šu-ti-nu-um | Šutinum, |
| 2. aga ₃ [?] -us ₂ lugal | royal soldier, |
| 3. [...] | [...] |

Following a proven precept to concentrate efforts on those who have already done the painstaking work of removing and/or pre-processing natural resources at their place of origin, early Babylonians could opt for simple plunder. The violent removal of desired goods from Anatolia, Persia and other Gulf regions such as Bahrain and particularly Oman (ancient Magan), or their removal under threat of annihilation, was a preferred means of Babylonian elites to satisfy their needs for goods not native to Mesopotamia. Campaigns designed to plunder booty from their neighbors, early on in the Old Akkadian period, and more systematically thereafter, became institutionalized means of state-sponsored extortion that, at least in several instances, was so widespread as to stave off the impending collapse of terror regimes with little or no other basis of economic support.

This threat of violence stood squarely behind the more benign extortion of taxation of domestic populations and close neighbors, and the demand of tribute from those more distant from Babylonian seats of power.

Babylonians could, of course, choose the form of trade. The first clear textual evidence for a developed system of domestic and interregional exchange derives from the Early Dynastic IIIb period (ca. 2500–2350 BC), although both trade terminology and equivalency values based on metal (copper and silver), using sexagesimally based weight metrology notations, are well established about a century earlier in ED IIIa. Exchange agents of central households in the neo-Sumerian period (ca. 2100–2000 BC) serviced

internal mechanisms of the Ur III empire initiated by Shulgi, but clearly also dispatched traders to, or dealt with traders from areas well beyond the inner core of Ur III provinces, including Syria, Anatolia, all of Persia, the Persian Gulf, and as far east as the Indus Valley. Based on the accounting archives from Drehem near Nippur, however, these external contacts paled in comparison to the tributary payments exacted from the near periphery of the realm, above all from its immediate neighbor to the east, Elam.

Some few goods formed the basis for Mesopotamian exports. These included, probably at all times of exchange, finished textiles; value-concentrated dairy products such as butter oil; acting as an entrepot, such metals as tin used in the production, at ore-producing areas, of bronze; and the classical exchange medium, silver, that itself had been acquired abroad and hoarded in Babylonia. Since transportation costs would far exceed the possible benefits of trade, the major component of Babylonian wealth, grain, never entered in any substantive way the exchange mechanisms that connected Mesopotamia with its periphery.

These arguments would seem to boil down to two credible models of explanation for the Late Uruk expansion (and assuming Amiet's [1994] belief that Khuzistan was always ethnically heavily mixed, so that the Uruk expansion would represent nothing more than the socio-political emergence of one of two or more indigenous populations, is incorrect; the same Uruk phenomenon in Syria would seem to undermine this view). Either the periphery enclaves of Babylonian cultural wares represented attempts, centrally directed or as part of a trading network, to establish and maintain avenues of exchange between the resource-poor but economically vibrant Mesopotamian alluvium and the resource-rich, but politically underdeveloped periphery, or they were evidence of

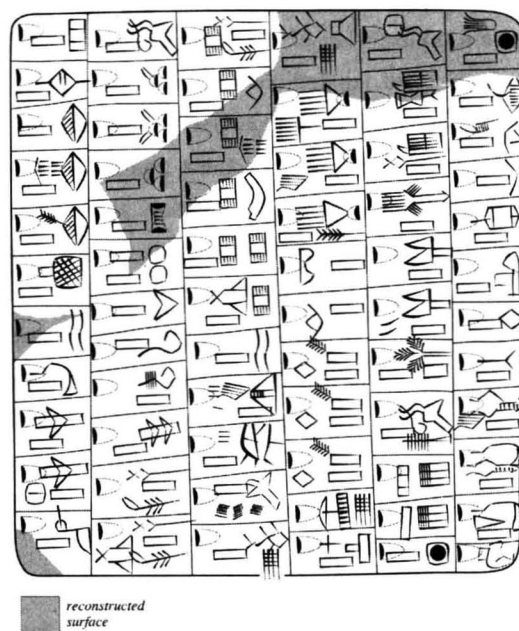


Figure 3. The Uruk III period wood listwitness W20327, 2 (Englund & Nissen 1993: pl. 38)

demographic developments attendant on the population growth in Mesopotamia that resulted from its surplus economy successes. The physical evidence for trade with the Babylonian periphery is certainly not limited to physical remains from Late Uruk strata that include large stone statuary and the use of such foreign stone as lapis lazuli, obsidian and alabaster in cylinder seals, beads and other small stone objects, and decorative objects made of copper, silver and gold (for instance, copper seal handles and parts of composite animal statuettes). Textual remains too make a strong case for the existence in Uruk of substantial amounts of foreign goods, however they were brought there.

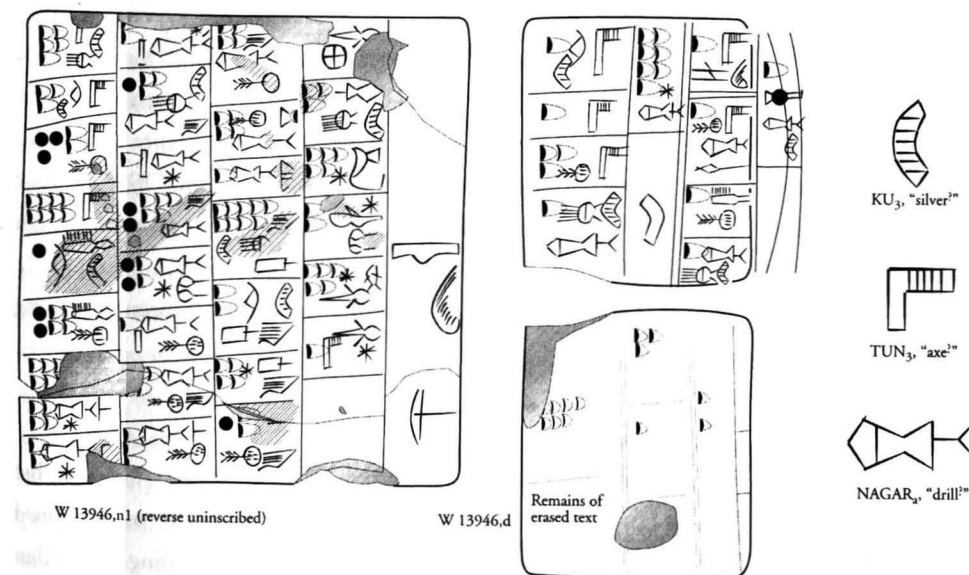


Figure 4. Examples of Uruk III period metal accounts (Englund & Nissen 2005: pls. 28 and 30)

The core accounting representation of imported goods might therefore be expected to play some role in the administrative tools exported, together with the remaining inventories of diagnostic Late Uruk ware, into the Babylonian periphery. For instance, proto-cuneiform texts document the receipt and distribution of variously qualified wooden objects, conveniently listed in one of the Late Uruk period lexical com-

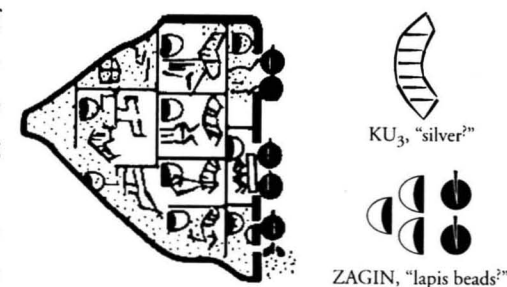


Figure 5. W 22104, 0 demonstrates that the metals list continues with entries of precious metals and stone beads (Englund & Nissen 1993: pl. 73)

posita, the so-called Wood list (figure 3; see Englund & Nissen 1993: 23–25).

Since, however, it seems unlikely that wood ever played more than a passing role in early exchange markets, greater attention should be given those proto-cuneiform lexical lists and accounts that document the terminology of metal, and stone. In this our archives offer an abundance of textual information. In the first place, a series of accounts (figure 4; see Englund & Nissen, 2005, *plt. 28: W 14946, d, pl. 30: W 14946, n1*, etc.) record numbers of objects, including possible axe or adze heads and drill bits, that were made of processed metals. Englund & Nissen (1993: 34) have made the point that metal tools, in the proto-cuneiform texts untagged by metal qualifications, probably presumed these objects were made of copper. Correspondingly, the lexical compendium of metal objects (*loc. cit.*) divided such objects into unqualified (copper) products, and products qualified with the sign AN, assumed to represent a copper alloy, probably bronze (therefore that AN corresponds to later Sumerian an-na, tin, for which see Waetzoldt 1981; against Vaiman 1982). This interpretation would seem to make good sense given the high frequency of such objects as GIR₂, "knife", NAGAR, "drill bit", and NU, "scraper?", that were so qualified, tools that would profit most from the strength of a bronze alloying process.

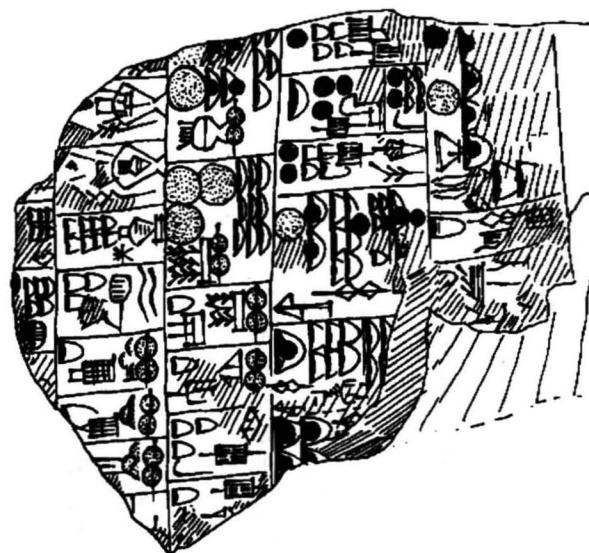
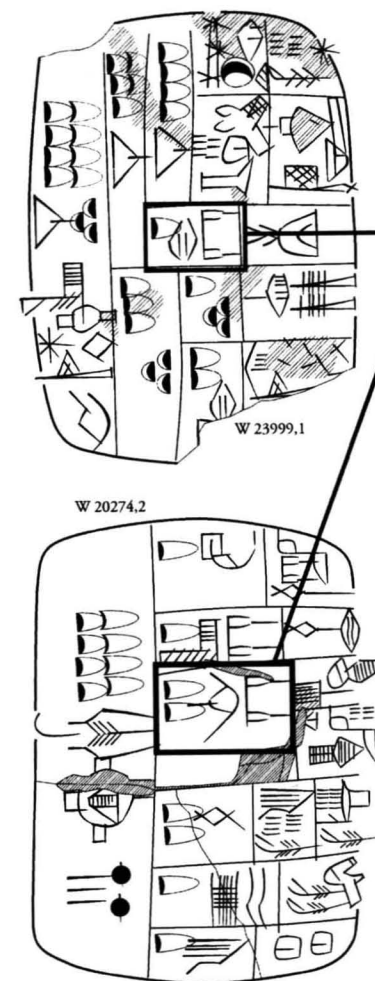


Figure 6. The text W 24008, 8, an account of large numbers of precious stone (?; Cavigneaux 1991: 88).

The same lexical list contains reference to presumed gemstones, including cornelian chalcedony and lapis lazuli (figure 5, witness W 22104, 0); in an account that contained a possible temple inventory (Cavigneaux 1991: 88, W 24008, 8), large numbers of stone objects, possibly beads, are recorded. Following a series of entries representing various products made of lapis (ZAGIN = KUR ZA₇; *obv. ii 5–8*), the account records nearly 10,000 beads of cornelian

(NE ZA₇) and 11,340 beads of another, presumably imported stone (ŠAR + ŠE ZA₇; in all cases sexagesimal notations).

We should mention also the multiple attestations in the proto-cuneiform text corpus of groups of slaves, since these were favored war plunder of succeeding ages of Babylonian rulers, in particular resulting from campaigns conducted throughout the expanse of the Zagros range. While numerous proto-cuneiform accounts document the inventories of small groups of slaves consisting of from one to ten individuals (figure 7; exceptionally one Uruk IV period account with a total of 211 + female and male slaves [Englund 1998: 176–179]), several documents from Uruk III period Jemdet Nasr (that is, from the period following immediately



The text above contains an account of 8 slaves, one of whom is qualified as an "infant of the womb." The similar account below records two "infants in their first year."

Figure 7. Uruk III period accounts of human "herds" (after Englund 1998: 177)

upon the Late Uruk collapse in Persia and Syria) record larger numbers of individuals, nearly thirty in one case, of which some are qualified as SAG + MA, "led on a noose", the remainder as ERIM, "yoked" (Nissen, Damerow & Englund 1993: 72–75). These qualifications would be entirely consonant with later, specifically Old Akkadian traditions of iconically qualifying prisoners of war with their being led, bound, on a march to captivity and slavery in Babylonian labor camps.

A tally of target symbolic representations that might be expected among the accounting tools of Babylonian resource procurement agents in the periphery of the Late Uruk period might, finally, include those icons of standards that seem to have stood for major temple households. Proto-cuneiform accounts indicate that the organizations behind these symbols were active in all facets of administrative life. The standards themselves, in a form that seems to parallel the nome symbols of ancient Egypt and may be totemic, probably represent some sort of socio-political organization centered around a unifying cult, and these social units may have had geographic roots in the various settlements of southern Babylonia. Thus the Uruk III sign NUN_a , a straight pole to whose upper staff some number of parallel horizontal bars were attached, possibly a graphically abstracted form of the Uruk IV period sign with rounded objects instead of bars, may have been the functional equivalent of later Enki, a major god of the Sumerian pantheon with cult center at Eridu (sign NUN). The sign URI_3 , again a pole, to whose upper staff a triangular emblem is attached, may have represented the moon god Nanna of southern Ur. These signs combined with the sign representing a hut (DU_6), or more broadly the composite signs of many of the toponyms of archaic Babylonia, often combinations of cult figures and the sign representing large households (AB), may be expected in some of the iconography of procurement agents acting in their names in the Late Uruk periphery, comparable to the widespread use of functionally equivalent symbols during the proto-Elamite period. The best known of these latter symbols were the so-called hairy triangles, evident triangular standards on whose central fields icons of what are believed to have been tribal or otherwise household units were attached (Lamberg-Karlovsky 1985).

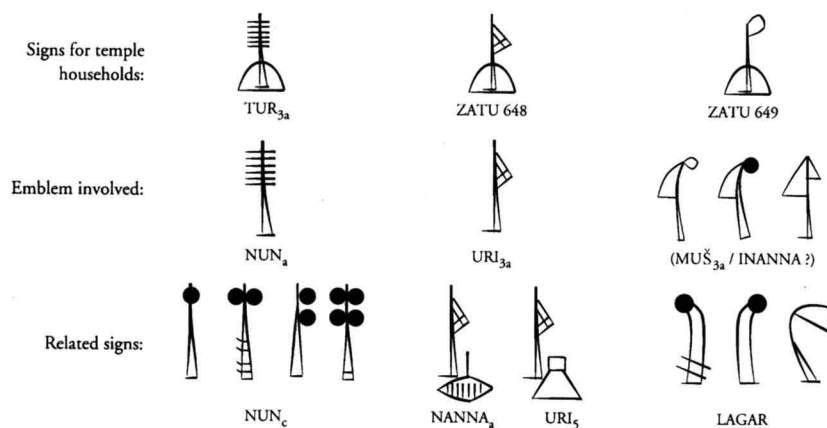


Figure 8. Overview of signs representing probable temple households in texts from Uruk (signs demonstrate their original pictographic position; Englund 1998: 102)

These then are some of the iconic representations we might expect to find, in some form, above all either in the remains of proto-writing described above, or in the iconography of cylinder seals used in administrative practice, in the repertoire of cultural goods imported by groups of southern Babylonians during the early Middle, and the Late Uruk expansion of the 4th millennium BC—assuming these groups retained some lines of communication with their homeland. There could be traces of household, temple or tribal icons in the contemporary Late Uruk record, or in the artifactual remains of the succeeding proto-Elamite period. There could, and should be evidence in the administrative record of the goods specifically targeted for exploitation by a resource-poor alluvium, for instance precious stone and metal, wood, aromatics—wherefore else post to these regions an elite class of agents replete with the advanced administrative tools needed, and as we see used in local record-keeping? Put another way, if these intruders into the periphery were active agents of the Mesopotamian alluvium, their administrative records should not restrict themselves to the accounting of local, small-scale agrarian economies.

It is true that the remains of proto-writing, that is, of bullae encasing significant assemblages of administrative markers and of numerical tablets, are not imposing. Denise Schmandt-Besserat has presented in full and condensed versions (1992; 1996) the results of her thirty-year study of symbolic accounting in the prehistory of the Near East. Despite the occasionally withering criticism of her methodology and conclusions (Lieberman 1980; Damerow 1993; Englund 1993; Michalowski 1993; Zimansky 1993; Friberg 1994; Brown 1996; Glassner 2003), there can be no doubt that the current understanding of the basic chronology and function of prehistoric communication in the ancient Near East, deriving in large measure from her work, is now a part of the “core knowledge” of our field.

Schmandt-Besserat's publications document the existence of undecorated small geometric clay objects (her “plain tokens”) in Near Eastern excavation levels dating from the 7th (?; thus Nissen 2003) millennium BC into levels representing the centuries immediately before the appearance in ca. 3350 BC of true writing in Uruk (the date of Uruk IVa has been conservatively revised upward; see Lawler 2001: 2419). In the 4th millennium, small clay objects of plain and complex form that had been baked with holes and thus probably hung on strings, or had been decorated with varying numbers of hatching incisions, or both (SB: “complex tokens”), begin to appear. Toward the mid-4th millennium, plain tokens were encased in sealed clay balls (usually called “envelopes” or “bullae”), thus forming apparent contextually meaningful assemblages of accounting

tools. Loose plain and decorated "tokens", and clay envelopes containing plain tokens, generally ceased to exist with the emergence of writing ca. 3350 BC (the Yahya bulla TF 1136, cited in Schmandt-Besserat 1992: 114, and in Schmandt-Besserat 1996: 44 as evidence of the use of these balls until ca. 2700 BC [Yahya IV B2] remains a curious, and unpublished exception; C. C. Lamberg-Karlovsky reports to me that the half-destroyed fist-sized bulla in question was found "with three clay tokens, two small ball-shaped and one large pyramid-shaped, positioned in a manner that suggested they were placed within the once complete [US] football shaped object" [pers. communication, e-mail 13 April 2004]). Schmandt-Besserat catalogued, although in a wholly inadequate form, just over 7400 of these small clay objects (Zimansky 1993: 515–516; see also Friberg 1994: 486–491). As we must conclude, plain tokens were the precursors of those impressed proto-cuneiform signs used in numerical and metrological notations to represent in the earliest texts numbers and measures of products.

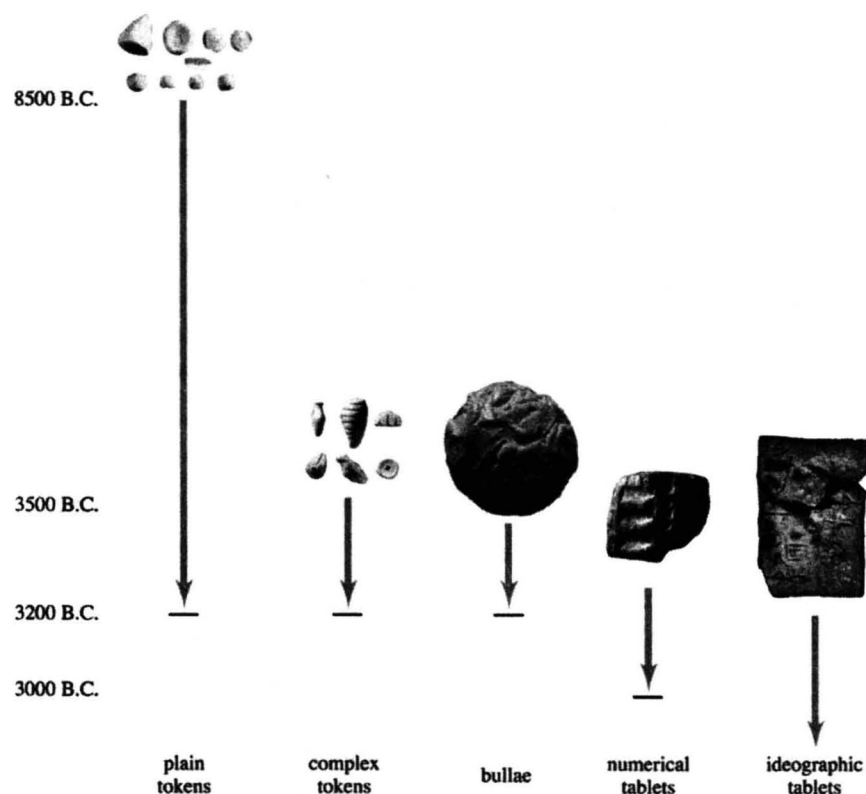


Figure 9. Development of proto-writing according to Schmandt-Besserat, *Before Writing* (Austin 1994) (after Englund 1998: 177)

The effective elimination from further consideration of a presumed administrative role for the complex tokens as described by Schmandt-Besserat is, it seems, dictated by the fact that they, possibly without exception, were not found encased in clay balls in the Late Uruk period, and may have served a variety of other functions (Lieberman 1980; Sampson 1985: 57–61; Jasim & Oates 1986; Nissen, Damerow & Englund 1993: 11–15, 125–130). Even the few examples now known of the so-called silver tokens (crescents decorated with varying numbers of incised lines, compared by Schmandt-Besserat and others to the KU₃ sign discussed above; see figure 10 here and the discussion below) found within clay balls are better interpreted as metrological markers possibly representing a half vessel of butter oil. In the same vein, "oil tokens" from Uruk and Habuba Kabira will have represented either some discrete metrological unit qualified by the addition of a stroke (Englund 1998: 120), or indeed the clay vessel of butter oil as a member of the (semi-) liquid capacity system itself. These two markers that are otherwise booked under the column of complex tokens, thus tokens that according to Schmandt-Besserat were precursors of proto-cuneiform ideograms, may more accurately be described as "derived plain tokens," parallel to the description of "derived numerical sign systems" by Damerow & Englund 1987: 126 and *passim*.

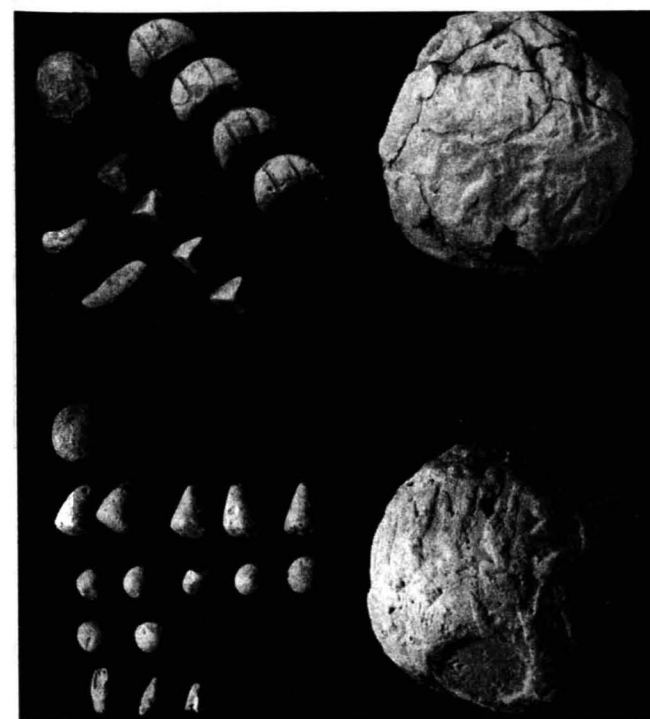


Figure 10. Opened bullae MS 4631 – 4632 with, in the first caste, four examples of the so-called silver token (images courtesy M. Schøyen)

We must then concentrate on the meaning of plain tokens, focusing particular attention on those assemblages found within clay balls that exhibit a sufficient variability and number as to be useful in a determination of their numerical function. As Damerow and I have attempted to demonstrate (1987: 117–166), fairly compelling conclusions can be drawn even from the most disturbed of contexts if the researcher has adequate numbers of disturbed attestations with similar contents.

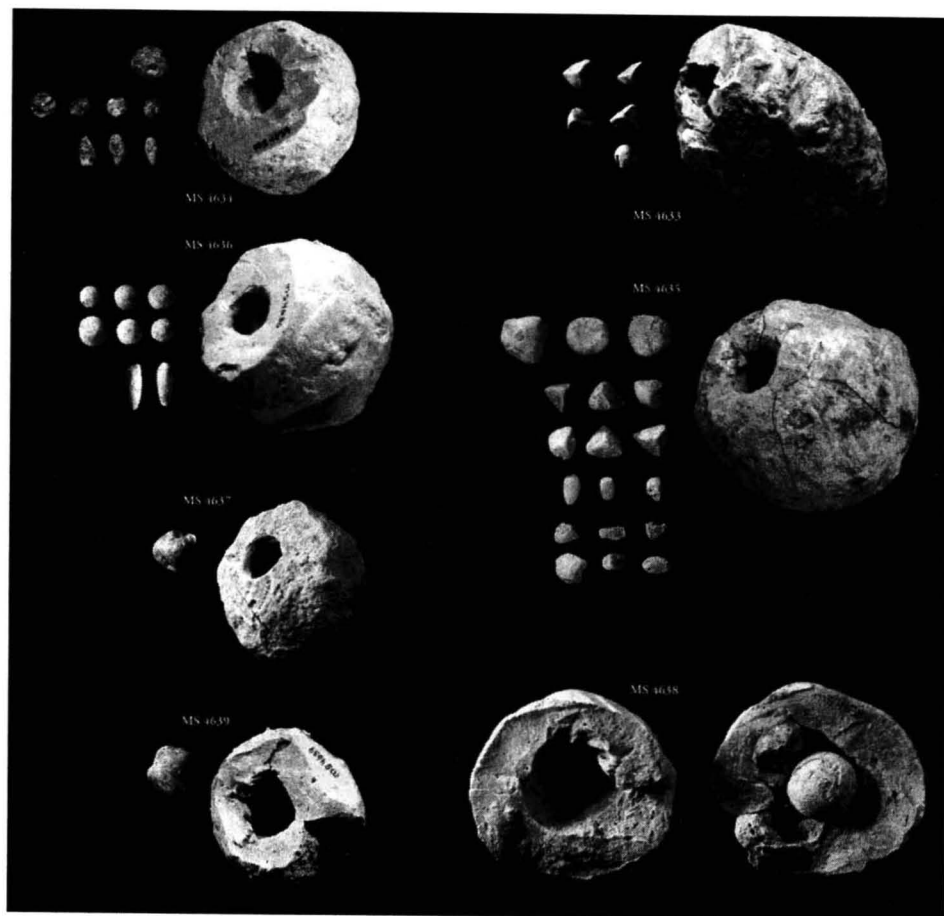


Figure 11. The opened bullae MS 4633–4639 (images courtesy M. Schøyen)

It would therefore be a critical desideratum to have access to all such assemblages of tokens in bullae, in particular given the clarity of understanding that we have in the past twenty years achieved in our work on early numerical representation of the Late Uruk period. While it is true, for instance, that research on the proto-cuneiform and

proto-Elamite record has not resulted in the identification of a metrological system of weight notation, certainly a numerical sign system we would hope to locate among records of presumed metal traders in Persia and Anatolia, still the simple identification of Urukian numerical systems among the periphery token assemblages, and their comparison with those assemblages from Uruk itself, would represent a piece of information of some consequence in the debate on the ultimate purpose of prehistoric administrative records in the Late Uruk periphery.

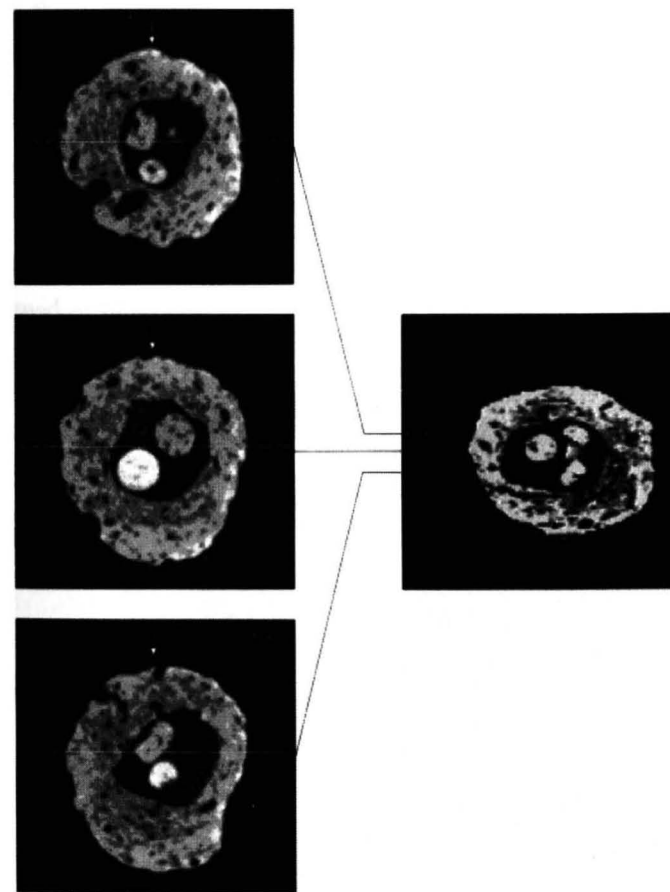


Figure 12. W 20987, 11

The closed bulla W 20987, 11 was cat-scanned in Heidelberg; the images to the left show cuts at 7, 15 and 22mm from outer surface (images courtesy German Archaeological Institute, Berlin)

Unfortunately, of the approximately 130 known clay balls from Late Uruk settlements, eighty remain intact, and, until recently, the contents of only five were known with certainty. This total of known token assemblages has in the past several years been augmented by the addition to the Norwegian Schøyen collection of, at last count, 13 balls, opened to expose discrete token contents (it might be noted in passing that reports of such data deriving from material purchased on the antiquities markets are more and more restricted through fiat by some archeological organizations and publications, including recently the notice from the 4th ICAANE Congress in Berlin [March 29, April 3, 2004] that the organizers "do not accept any papers dealing with unprovenienced artifacts" <http://www.4icaane.de/03_progpapers.html>). There should be no question but that the identification of the tokens remaining in unopened clay balls far surpasses in significance the cataloguing of thousands of loose, usually unprovenienced tokens from diverse excavations, and that despite the faint promise of tomographic or other non-destructive intrusions, all available clay balls should be documented, probed, and carefully opened (Delougaz & Kantor 1996 published the Choga Mish bullae fully intact). Although some few unbroken Uruk and Susa envelopes have been cat-scanned, the results, with a cut of often more than 0.5 mm (Drilhon, Laval-Jeantet & A. Lahmi 1986; Damerow & Meinzer 1995), could not clearly indicate the nature of possible decorations on enclosed tokens, nor could they clearly indicate which tokens were intact, or which might have been damaged by the proclivity of collection officials to demonstrate to important official visitors a rattle effect in closed bullae.

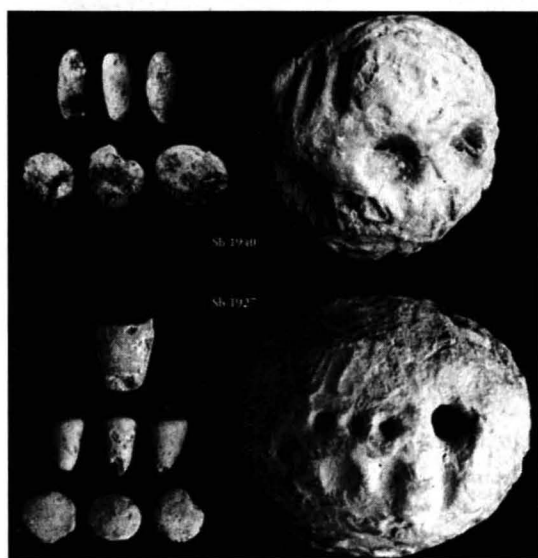


Figure 13. Sb 1940 and 1927.

These two bullae from Susa are usually cited as examples of a stage of archaic writing during which accountants began to make impressions of tokens on the surface of clay balls

The exterior surfaces of some few of these closed bullae, for instance Sb 1940 (figure 13; Nissen, Damerow & Englund 1993: 127 fig. 109), were in antiquity marked with impressions corresponding exactly to the numbers and forms of the tokens then enclosed. These impressions offer a still more compelling reason to closely examine those contents, since the form, but more importantly the sequence of signs appear to be fully consonant with the sequences of numerical signs identified as entirely standardized in the Uruk IV pe-

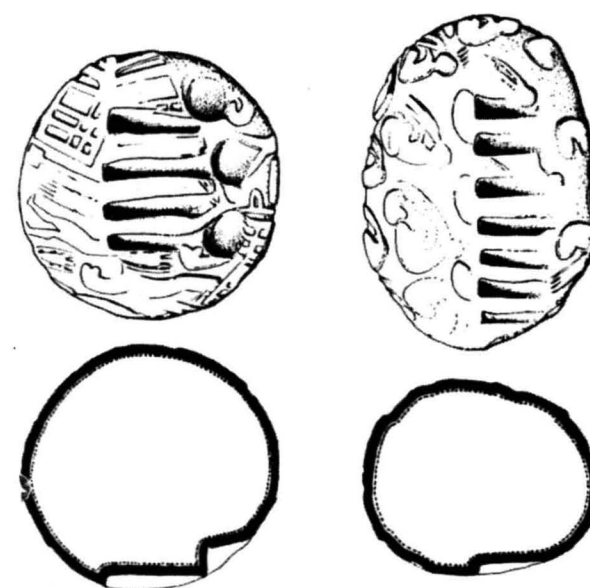


Figure 14. "la bulle n'a pas été ouverte"

The Susa bullae Acropolis I 77, 2130.2 and 2130.1 (le Brun and Vallat 1978: 16-17, 45).

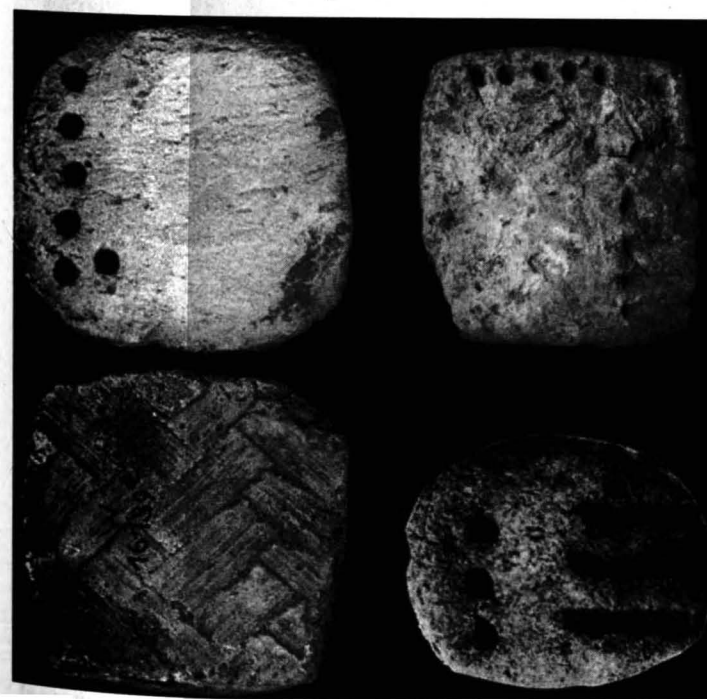


Figure 15. Early numerical tablets.

The three examples of early numerical tablets from Uruk date to ca. 3400 BC; to the left a "gypsum tablet" from the White Temple, upper right an example from the Eanna district, and lower right a tablet recently excavated in the British Museum after its initial find in 1850 by W. Loftus.

riod at Uruk, the immediate successor level there to strata containing artifacts of proto-writing. In the instance of Sb 1940 and the still unopened S. ACR. I. 77. 2130. 2 (figure 14; le Brun & Vallat 1978: 16–17, 45), that sign sequence would best comport with the rules of the grain capacity system. It should be noted that this sequence really indicates an advanced numerical syntax at the time of the clay envelopes, as well as in the inscriptions on the subsequent numerical tablets. This implies that while the tokens themselves could have served as one-to-one referents for the objects they represented, let us say, for instance, for baskets of grain, each known to be some whole fraction of a larger basket, or conversely some multiple of a smaller basket in a known metrological system, and that therefore there would have been no intrinsic need to order them into a sequence representing first the largest, then the next largest units and so on, still the strict sequencing found already in the few examples of surface notations among the bullae would seem to indicate that this was a syntax in the accountants minds, as well as, in all likelihood, on their tallying boards. One form that these boards took was, in all likelihood, that represented by the proto-cuneiform sign SANGA (𐎶𐎵).

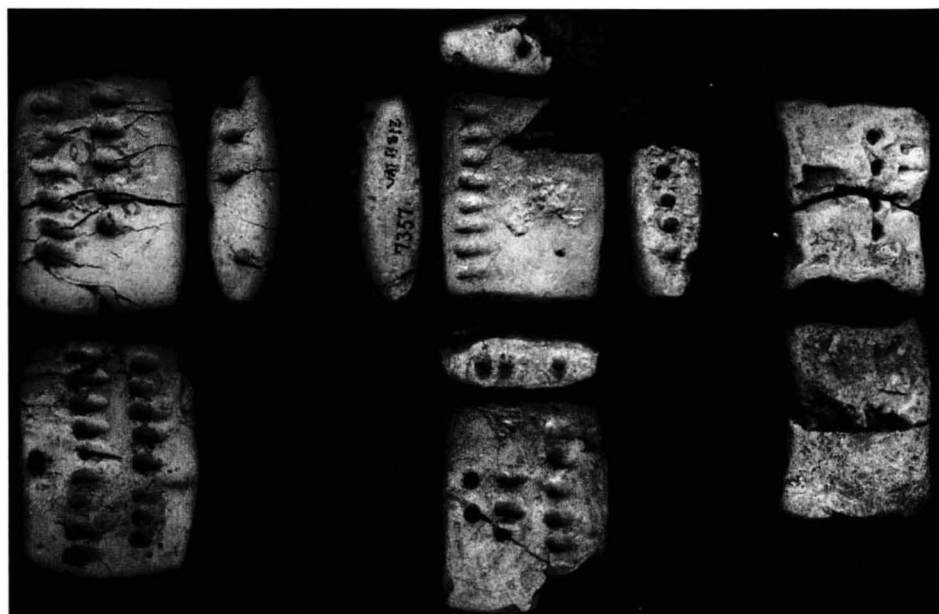


Figure 16. The Uruk numerical tablets W 6245, c, 7357 and 6883, a.

Susa stratigraphy as defined by the more recent French excavations would appear to support the dating of the second set of proto-writing artifacts, the texts called numerical

tablets due to the fact that they contained only seal impressions and numerical, but no ideographic sign notations, to a phase immediately after, or overlapping with that of the clay envelopes. These artifacts have been understood to represent that stage of proto-writing at which bookkeepers recognized the efficiency of simply impressing representations of plain tokens in the outer surface of now flattened bullae, early on with the tokens themselves, or in some instances with fingers, later with round styli fashioned from reed or wood. Although these texts contain no qualifying ideograms, their numerical notations do clarify the nature of the goods they record insofar

as these are either grain notations or are objects that were considered discrete units, such as animals or animal products (spools of wool, vessels of dairy fat and so on), tools, or humans. Dittmann (1986) has made the further observation that in lieu of ideograms cylinder seal impressions identified guarantors of transactions described in proto-writing, and possibly even the economic nature of the households these officials represented.



Figure 17. Sb2313

This numerical tablet from Susa, ca. 3400 BC, contains impressions of an apparent ovoid token (the notation represents ca. 16,000 liters of grain).

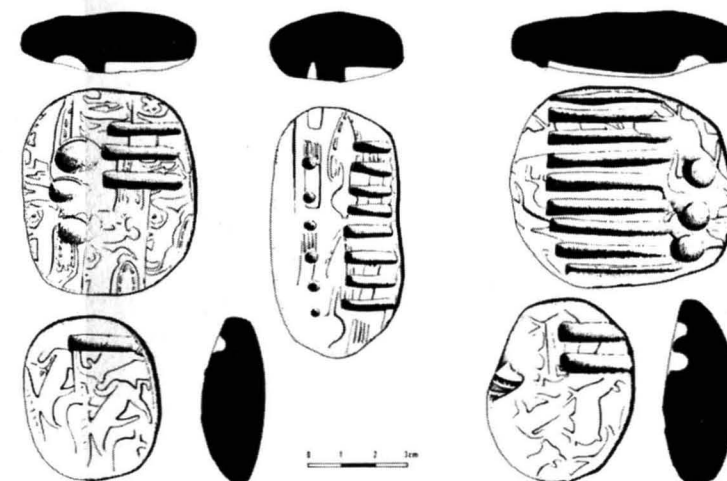


Figure 18. More numerical tablets from Susa (le Brun & Vallat 1978: 47)

Whereas numerical tablets in Uruk evidently had a very short period of initial experimentation in tablet form—if indeed the gypsum tablets from the White Temple are a part of this development—after which they were in outer form indistinguishable from Uruk IV period ideographic accounts, the same phase of proto-writing from the Late Uruk periphery exhibited a decidedly more marked variability. One of the better known examples from Susa, Sb 2313, contains a grain notation representing, if we ascribe to this period of writing the absolute values we have theorized for the proto-cuneiform texts, approximately 16,000 liters of barley (figure 17). Other numerical tablets from Susa (figure 18) seem to contain notations that do not conform with our understanding of the numerical structure of proto-cuneiform systems, including texts with such irregular notations as $6N_{14}$ $8N_1$, that is, with a combination of sign multiples that would seem to exclude both the classical grain notation system ($8N_1$ would be incompatible with the grain bundling rule $N_{14} = 6N_1$; for a description of the archaic numerical systems and their modern transliterations, see Englund 1998: 111–122) and one of the systems employed to record discrete units, the sexagesimal or bisexagesimal systems (in which $6N_{14}$ would be replaced by N_{34}). Still others would appear to have incompatible combinations of discrete unit counters (more than 5 occurrences of N_1) and signs that appear to represent $1/5$ of the basic unit (N_1) in the grain capacity system. In the first case, we might consider two possible explanations. Either the notation is in fact from a grain notation, and therefore the disregard of the bundling step $N_{14} = 6N_1$ a simple scribal mistake, or possibly an innovation in a periphery grain notation system, for which see the following paragraph; or, these are the first examples of decimal notations in the proto-writing record. I have no good explanation for the second case.

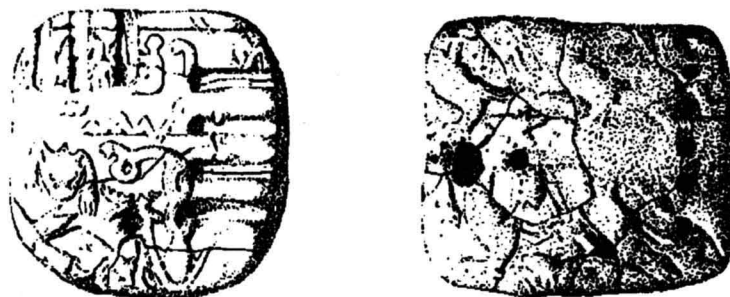


Figure 19. Numerical tablets from Habuba Kabira, Syria

Numerical tablets from Syrian Habuba Kabira look very much like their counterparts from Uruk and from Susa (figure 19). In all cases, the notations they contain can be

ascribed to grain accounts; again, assuming the use of the same absolute values as we have posited for Uruk, these notations might represent measures in the range of several, up to maximally 2000 liters of barley. At the Late Uruk mound of Jebel Aruda slightly north of Habuba Kabira, on the other hand, were found more than a dozen numerical tablets that, while following a strict numerical syntax of signs representing large to small units, in several instances disregarded the bundling unit $N_{45} = 10N_{14}$ seen regularly in contemporary numerical tablets from Uruk and Susa (figure 20). Since these exceptions to this rule do contain attestations of the next higher unit $N_{34} (= 3N_{45})$, and since in this group of texts there is no clear example of the same disregard for the bundling rule $N_{14} = 6N_1$, it seems possible that the Jebel Aruda scribe at least in some cases wrote his own rule, $N_{34} = 30N_{14}$. Several heretofore unknown numerical tablets in the Norwegian Schøyen collection contain comparable notations that would appear to disregard the proto-cuneiform rule of $N_{45} = 10N_{14}$, while also attesting for the first time the use in a numerical notation of a triangular rather than a circular or ovoid impression to represent, as it seems, some basic unit. These impressions are the only numerical tablet examples known to me of a common form of tokens found in bullae, that is, of pyramid-shaped tokens that Friberg has interpreted to represent labor records.

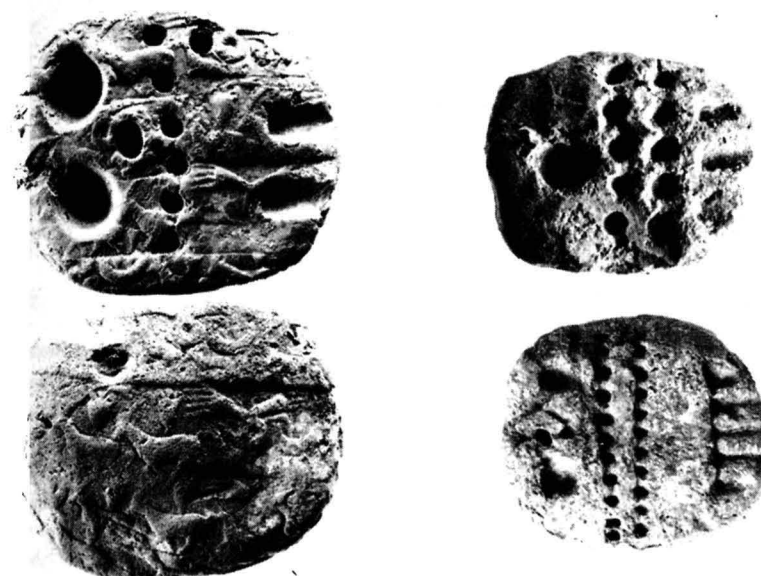


Figure 20. Numerical tablets from Jebel Aruda, Syria

Ten small circular impressions were not replaced with one large impression in the two tablets to the right (van Driel 1982: 12–25, nos. 4[left], 2 and 6[right]).

The numerical texts from Late Uruk Godin Tepe in Persia (figure 21; Weiss & Young 1975) have received some attention in recent years from a small team of investigators at the University of Pennsylvania (Michel, McGovern & Badler 1993, Badler 2000). One of these texts (fig. 21, top middle) would appear to contain what I have called a “numero-ideographic” notation, that is, it is one of a small set of tablets from the Late Uruk period found in Babylonia and in Persia with the general format, paleography and cylinder seal impressions of the numerical tablets, but also one, at most two additional ideographic signs. While it is not possible to state with any conviction what numerical system is used in this text, the notations of the other texts seem most likely to derive from the grain capacity system. In one case, a notation is clearly of a grain measure, including signs corresponding to proto-cuneiform N_{39b} and N_{24} , that is, to measures representing $1/5$ and $1/10$ of the basic unit N_1 , respectively. Gd 73–291, 297, 299 and 321 (unpublished) contain the same combination N_{39b} and N_{24} , in the expected sequence. The publication of the remaining tablets from Godin Tepe, in preparation by Bill Hallo, will help to clarify the nature of transactions recorded in these texts.



Figure 21. Numerical tablets from Godin Tepe V (Weiss & Young 1975)

The state of publication of the Late Uruk exemplars of proto-writing is less than optimal, with the great majority of discrete token assemblages still encased in their original clay envelopes, and the numerical tablets, even many decades after their excavation,

only partially edited, and even then often with very cursory hand copies prepared, as it seems, with no clear attention paid to the numerical notations or their individual signs.

Despite the amount of information to which we are not privy, it does nevertheless seem clear that the decorated and/or perforated small clay objects that Schmandt-Besserat labeled complex tokens were not a part of proto-writing. Even adding to our pool of data the contents of those closed bullae that have been x-rayed (Nissen, Damerow & Englund 1993: 129, fig. 112) or cat-scanned (Drilhon, Laval-Jeantet & Lahmi 1984; Damerow & Mainzer 1995), there are but two examples among the many plain tokens that can be considered candidates for complex tokens. That most often cited, the “oil” token found in bullae from Habuba Kabira and from Uruk, is as likely to represent a

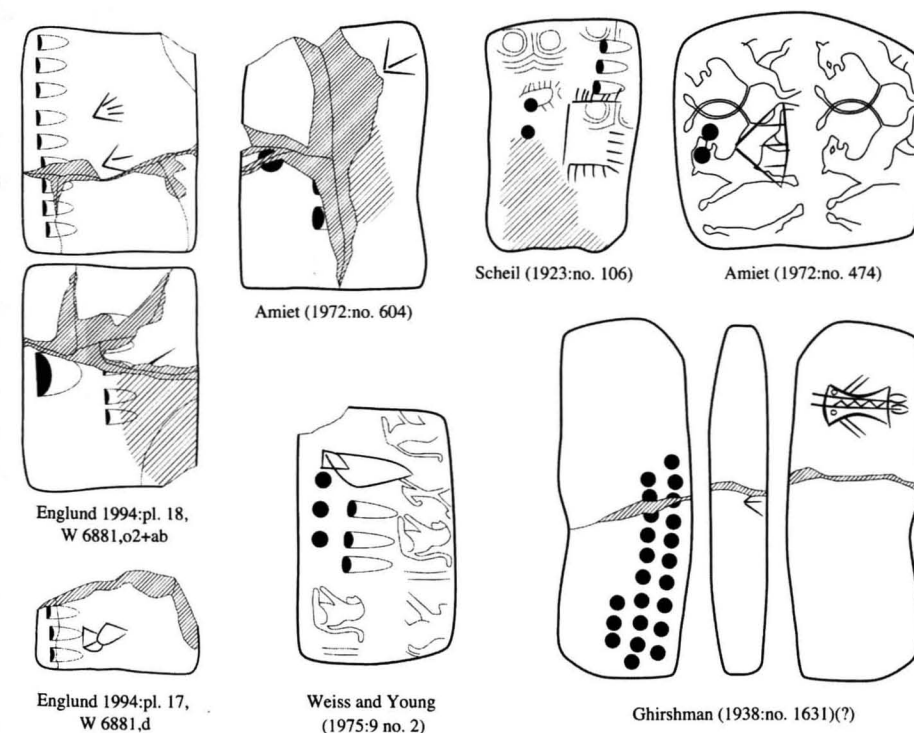


Figure 22. Numero-ideographic texts from greater archaic Babylonia

A group of texts called “numero-ideographic” demonstrate the use of a remarkable set of earliest ideographic signs in Babylonia and Persia ca. 3350 BC, including those representing textiles, sheep, fruit and dairy products (Englund 2004: 128–129).

member of one of the many derived numerical sign systems (Englund 1998: 118–119) known from the proto-cuneiform texts. The second, a crescent decorated with two or more

strokes found in one or possibly two bullae from Susa (Drilhon, Laval-Jeantet & Lahmi 1984: 339–40, Sb 1931; Sb 1937 uncertain) and an unprovenienced bulla in the Schøyen collection (MSC 4631, unpublished; not from Uruk [figure 10 above]), has been identified by Schmandt-Besserat with the proto-cuneiform sign KU_3 . But while it is true that that sign can apparently represent a precious metal, as demonstrated by attestations in the professions list (KU_3 $UMUN_2$, "silver smith"), the metal list and in numerous accounts, it serves with greater frequency as a qualifier of a metrological unit in a liquid capacity system reserved for notations of measures of butter oil; specifically, it represents a measure equal to $1/2$ of a ceramic vessel used to store this dairy product (figure 22). Another, equally plausible explanation of this incised crescent found in bullae is that it represents the next-lower unit in the derived grain capacity system qualifying emmer wheat rather than barley. In the context of the assemblages in which this token is found, the least likely alternative is silver.

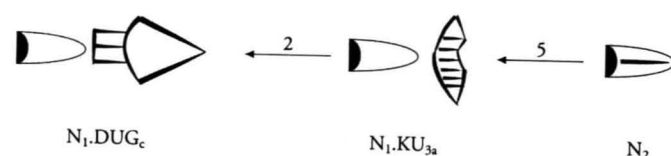


Figure 23. Archaic butter oil metrology

The " ku_3 " token is probably not silver, but rather represents a unit one half the size of a ceramic jar full of butter oil.

system, and therefore one or the other commodity, was recorded in many of the token assemblages or numerical texts of the Late Uruk periphery. We have good reason to assume that a certain functional continuity characterized the use of numerical sign systems in the three stages of development of proto-writing into proto-cuneiform in Late Uruk Mesopotamia. The structure and function of the many Uruk IV systems have been shown to be internally consistent and fully compatible with the better attested systems of the Uruk III/Jemdet Nasr period. They follow a strict numerical syntax not otherwise dictated by a form of place notation with a possibly ambiguous usage of the same signs within the same systems (this phenomenon is in fact known in Uruk III texts, but seems attenuated by the very much higher numbers found in this period, and thus the occasional ad hoc need for new, very high bundling units). They are consistently context-bound across time and, at least within Mesopotamia proper, space. And these systems, with their use of bundling units to represent steps at which some number of lower

Our data leave us with an excess of negative information; it is nonetheless possible to make some general positive comments about the likelihood that one or the other numerical

members of a particular system is replaced by another sign at the next higher syntactical stage of the same system, only very rarely tolerate exceptions to internal structural rules. We have looked throughout the proto-cuneiform record to just these exceptions, since they will tell us whether we have missed an important numerical sign system, certainly a possibility given the high ambiguity of particular signs across, but not within the systems we have identified.

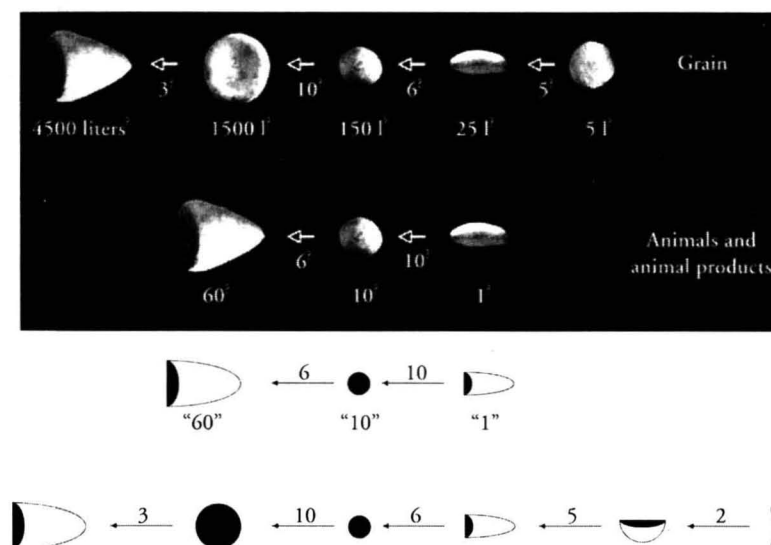


Figure 24. Numerical systems attested in the pre-writing phase

Token counters (above) appear to have qualified modest numbers and measures of grains and animals and animal products; comparably limited systems from the numerical tablet phase of early writing conform to the fully developed sexagesimal and grain capacity systems of the Uruk IV period.

It is therefore not unlikely that a judicious application of Uruk IV system identifications to the numerical tablets, and from the numerical tablets to the token assemblages found within bullae, will result in numerical identifications that can serve as working hypotheses until we have a fuller record of publication of proto-writing. Given these conditions and caveats, there seem to be two numerical systems attested in both numerical tablets and in bullae tokens. The plain tokens qualify objects as discrete units with a truncated sexagesimal system consisting of signs representing "1", "10", and "60" units. Further publication of bulla contents and of the remainder of excavated numerical tablets might add the earliest attestation of the archaic Persian decimal to the peculiar Babylonian sexagesimal system of the Late Uruk period. The discrete units thus counted

are most likely animals and animal products. The same tokens, together with two more, seem to qualify grain measures at this time. The transference of the convex disk in the token grain system to the oblique impression of the large circular stylus in the later numerical tablet, and then in the Uruk IV period grain capacity system—representing a measure $1/5$ the size of the basic unit N_1 —seems to have occurred through a phase that included the use of the scribe's finger, including the curve of his fingernail. I have no explanation for the function, if different from the two systems described here, of the pyramid-shaped tokens.

If we may now stand back and return to the purpose of this paper, namely, to ascertain whether the fairly numerous examples of prehistoric symbolic communication can inform us of the intentions of their use in regions that experienced the Uruk expansion of the late Middle and Late Uruk periods, then I would say that they can and should form a part of this discussion. There seem to be few instances of either token assemblages or numerical tablet notations that acted to qualify counted, discrete objects. These are open to interpretation, but to ascribe to them any role in the accounting of metal, or stone, or slave or wood procurement agents from southern Babylonia is entirely speculative. We may furthermore note in passing that no devices that might have been used to weigh precious stone or metals have been unearthed from Late Uruk assemblages in the Babylonian periphery. On the other hand, most of Near Eastern proto-writing can be reasonably ascribed to accounting in grain, indeed, in altogether modest amounts of grain. The measures recorded, if they reflect in some fashion the absolute, or even just the relative capacities of their Uruk IV-III correspondences in the proto-cuneiform texts, would in fact suppose that these earliest accounts were embedded in a local economy scaled well below that of the urban center at Uruk. If this is the case, then we must ask why elites from Babylonia would make the great effort to organize a migration of other elites and sufficient numbers of their families, their peers and households to guarantee the viability of this migration into a distant land, if only to use one of their most powerful symbols of advanced social organization, namely the power of symbolic communication and data storage, not to document those resources sought by their homeland, but rather to record the administrative transactions of an economy scaled to the Late Uruk periphery. It would, however, make sense if the earliest texts from Syria, Upper Mesopotamia, and Persia were simply part of a local economy led, at least in its initial stages, by Babylonian elites having traveled there to take and maintain control of new land no longer available to them in southern Babylonia.

Bibliography

Robert McC. Adams

- 1981 *Heartland of Cities: Surveys of Ancient Settlement and Land Use on the Central Floodplain of the Euphrates* (Chicago: University of Chicago Press)

Guillermo Algaze

- 1989 "The Uruk Expansion," *Current Anthropology* 30: 571–608
1993 *The Uruk World System: The Dynamics of Expansion of Early Mesopotamian Civilization* (Chicago: University of Chicago Press)

Virginia Badler

- 2000 "The Dregs of Civilization: 5000 Year-Old Wine and Beer, Residues from Godin Tepe, Iran," *Bulletin of the Canadian Society for Mesopotamian Studies* 35, 48–56

Fernand Braudel

- 1979 *Civilisation matérielle, économie et capitalisme 15^e siècle 18^e siècle I-III* (Paris: A. Colin)

Louis Le Breton

- 1957 "The Early Periods at Susa," *Iraq* 19, 79–124

Stuart Brown

- 1996 Review of Denise Schmandt-Besserat, *Before Writing*, *Canadian Society for Mesopotamian Studies, Bulletin* 31, 35–43

Alain Le Brun

- 1971 "Recherches stratigraphiques à l'Acropole de Suse, 1969–1971," *Cahiers de la Délégation Archéologique Française* 1, 163–216

Alain Le Brun & François Vallat

- 1978 "L'origine de l'écriture à Suse," *Cahiers de la Délégation Archéologique Française* 8, 11–57

Elisabeth Carter & Matthew Stolper

- 1984 *Elam: Surveys of Political History and Archaeology* (Berkeley: University of California Press)

Antoine Cavigneaux

- 1991 "Die Inschriften der XXXII./XXXIII. Kampagne," *Baghdader Mitteilungen* 22, 33-123 and 124-163

Christopher Chase-Dunn & Thomas D. Hall (eds.)

- 1991 *Core/Periphery Relations in Precapitalist Worlds* (Boulder, CO: Westview Press)
1997 *Rise and Demise: Comparing World-Systems* (Boulder, CO: Westview Press)

Peter Damerow

- 1993 Review of Denise Schmandt-Besserat, *Before Writing*, *Rechtshistorisches Journal* 12, 9-35

Peter Damerow & Robert Englund

- 1987 "Die Zahlzeichensysteme der Archaischen Texte aus Uruk," in M. Green & H. Nissen, *Zeichenliste der Archaischen Texte aus Uruk* (= Archaische Texte aus Uruk 2; Berlin: Gebr der Mann Verlag) 117-166
1989 *The Proto-Elamite Texts from Tepe Yahya* (= American School of Prehistoric Research Bulletin 39; Cambridge, Massachusetts: Harvard University Press)

Peter Damerow & Hans-Peter Meinzer

- 1995 "Computertomographische Untersuchung ungeöffneter archaischer Tonkugeln aus Uruk W 20987, 9, W 20987, 11 und W 20987, 12," *Baghdader Mitteilungen* 26, 7-33 + plts. 1-4

Pinhas Delougaz & Helene Kantor (ed. Abbas Alizadeh)

- 1996 *Choga Mish, Vol. 1: The First Five Seasons of Excavations 1961-1971, Part 1: Text* (= OIP 101; Chicago: University of Chicago Press)

René Dittmann

- 1986 "Seals, Sealings and Tablets," in U. Finkbeiner & W. Röllig, eds., *Ĝamdat Nasr: Period or Regional Style?* (= Beihefte zum Tübinger Atlas des Vorderen Orients, Reihe B 62; Wiesbaden: Dr. Ludwig Reichert) 332-366

Govert van Driel

- 1982 "Tablets from Jebel Aruda," in G. van Driel et al., eds., *zikir šumim: Assyriological Studies Presented to F. R. Kraus on the Occasion of His Seventieth Birthday* (Leiden: Nederlands Instituut voor het Nabije Oosten) 12-25

F. Drilhon, Pr. M. Laval-Jeantet & A. Lahmi

- 1986 "Étude en laboratoire de seize bulles mésopotamiennes appartenant au Département des Antiquités Orientales," *Colloques internationaux CNRS Préhistoire de la Mésopotamie 17-18-19 Décembre 1984* (Paris: Editions du CNRS) 335-344

Robert K. Englund

- 1993 Review of Denise Schmandt-Besserat, *Before Writing*, *Science* 260 (11 June) 1670-1671
1998 "Texts from the Late Uruk Period," in J. Bauer, R. K. Englund & M. Krebern timer, *Mesopotamien: Späturuk-Zeit und Frühdynastische Zeit* (= Orbis Biblicus et Orientalis 160/1; Freiburg, Switzerland: Universitätsverlag Freiburg Schweiz, Göttingen: Vandenhoeck & Ruprecht)

Robert K. Englund & Jean-Pierre Grégoire

- 1991 *The Proto-Cuneiform Texts from Jemdet Nasr* (= Materialien zu den frühen Schriftzeugnissen des Vorderen Orients 1; Berlin: Gebr der Mann Verlag)

Robert Englund & Hans J. Nissen

- 1993 *Die lexikalischen Listen der archaischen Texte aus Uruk* (= Archaische Texte aus Uruk 3; Berlin: Gebrüder Mann Verlag)
2005 *Archaische Verwaltungstexte aus Uruk: Vorderasiatisches Museum II* (= Archaische Texte aus Uruk 6; Berlin: Gebrüder Mann Verlag)

Jöran Friberg

- 1978-79 *The Early Roots of Babylonian Mathematics I-II* (Göteborg 1978-1979)
 1994 Review of Denise Schmandt-Besserat, *Before Writing*, *Orientalistische Literaturzeitung* 89, 477-502

Jean-Jacques Glassner

- 2003 *The Invention of Cuneiform: Writing in Sumer* (Baltimore: Johns Hopkins Press)

Margaret Green & Hans J. Nissen

- 1987 *Zeichenliste der Archaischen Texte aus Uruk* (= Archaische Texte aus Uruk 2; Berlin: Gebrüder Mann Verlag)

Alexander H. Joffe

- 1994 Review of Guillermo Algaze, *The Uruk World System: The Dynamics of Expansion of Early Mesopotamian Civilization*, in: *Journal of Field Archaeology* 21, 512-516

Philip Kohl

- 1987 "The Ancient Economy, Transferable Technologies and the Bronze Age World System: A View from the Northeastern Frontier of the Ancient Near East," in M. Rowlands, M. Larsen & K. Kristiansen, eds., *Centre and Periphery in the Ancient World* (Cambridge: Cambridge University Press) 13-24
 1989 "The Use and Abuse of World Systems Theory: The Case of the 'Pristine' West Asian State," in C. C. Lamberg-Karlovsky, ed., *Archaeological Thought in America* (Cambridge: Cambridge University Press) 218-240

Bertrand Lafont

- 1996 "L'extraction du minerai de cuivre en Iran à la fin du III^e millénaire," in A. Tunca & D. Deheselle, eds., *Tablettes et Images aux Pays de Sumer et d'Akkad: Mélanges offerts à Monsieur H. Limet* (= Association pour la Promotion de l'Histoire et de l'Archéologie Orientales 1; Liege: Université de Liège) 87-93

Clifford Charles Lamberg-Karlovsky

- 1985 "The longue durée of the Ancient Near East," in J.-L. Huot, M. Yon & Y. Calvet, eds., *De l'Indus aux Balkans* (= Festschrift Deshayes; Paris: Recherche sur les civilisations) 55-72.

Andrew Lawler

- 2001 "Writing Gets a Rewrite," *Science* 292, 2418-2420

Steven Lieberman

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

Jean-Claude Margueron

- 1992 "Le boid dans l'architecture: Première essai pour une estimation des besoins dans le bassin mésopotamie," *Bulletin of Sumerian Agriculture* 6 (1992) 79-96

Rudolph Michel, Patrick McGovern & Virginia Badler

- 1993 "The First Wine and Beer: Chemical Detection of Ancient Fermented Beverages," *Analytical Chemistry* 65/8, 408A-413A

Hans J. Nissen

- 1993 *The Early History of the Ancient Near East, 9000-2000 B. C.* (Chicago: University of Chicago Press)

Hans J. Nissen, Peter Damerow & Robert K. Englund

- 1993 *Archaic Bookkeeping* (Chicago: University of Chicago Press)

Joan Oates

- 1993 "Trade and power in the fifth and fourth millennia B. C.: new evidence from northern Mesopotamia," *World Archaeology* 24: 403-422

Daniel T. Potts

- 1997 *Mesopotamian Civilization: The Material Foundations* (London: Athlone Press)

- 1999 *The Archaeology of Elam* (Cambridge: Cambridge University Press)
- 2004 "The Uruk Explosion: More Heat than Light?," review of Mitchell S. Rothman, ed., *Uruk Mesopotamia & its Neighbors: Cross-Cultural Interactions in the Era of State Formation* (Santa Fe/Oxford: School of American Research Press)
- Mitchell S. Rothman, ed.
- 2004 *Uruk Mesopotamia & its Neighbors: Cross-Cultural Interactions in the Era of State Formation* (Santa Fe/Oxford: School of American Research Press)
- Geoffrey Sampson
- 1985 *Writing Systems: A Linguistic Introduction* (Palo Alto: Stanford University Press)
- Denise Schmandt-Besserat
- 1992 *Before Writing I-II* (Austin: University of Texas Press)
- 1996 *How Writing Came About* (Austin: University of Texas Press)
- Shereen Ratnagar
- 2001 "The Bronze Age: Unique Instance of a Pre-Industrial World System?" *Current Anthropology* 42: 351-379
- Sabah Abboud Jasim & Joan Oates
- 1986 "Early Tokens and Tablets in Mesopotamia: New Information from Tell Abada and Tell Brak," *World Archaeology* 17, 349-350
- Gil J. Stein
- 1999 *Rethinking World-Systems: Diasporas, Colonies, and Interaction in Uruk Mesopotamia* (Tucson: University of Arizona Press)
- 2005 "The Political Economy of Mesopotamian Colonial Encounters," in G. J. Stein, ed., *The Archaeology of Colonial Encounters: Comparative Perspectives* (Sante Fe: School of American Research Press) 143-172
- Piotr Steinkeller
- 1993 "Early Political Development in Mesopotamia and the Origins of the

- Sargonic Empire," in M. Liverani, ed., *Akkad, the First World Empire* (Rome & Padua: Herder Editrice e Libreria) 107-129
- M. -J. Steve
- 1991 "Élam. Histoire continue ou discontinue?," in L. De Meyer and H. Gasche, eds., *Mésopotamie et Elam* (= Actes de la XXXVI^{ème} Rencontre Assyriologique Internationale, Mesopotamian History and Environment, Occasional Publications I; Ghent: University of Ghent) 1-9
- William Sumner
- 1974 "Excavations at Tall-i Malyan, 1971-1972," *Iran* 12, 155-180
- 1976 "Excavations at Tall-i Malyan (Anshan) 1974," *Iran* 14, 103-114 + pls. I-III
- Dietrich Sürenhagen
- 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.* (Guilford, CT: Four Quarters Publishing) 7-43
- François Vallat
- 1971 "Les documents épigraphiques de l'Acropole (1969-1970)," *Cahiers de la Délégation Archéologique Française* 1, 235-245
- 1973 "Les tablettes proto-élamites de l'Acropole (campagne 1972)," *Cahiers de la Délégation Archéologique Française* 3, 93-107
- 1978 "Le matériel épigraphique des couches 18 à 14 de l'Acropole," *Paléorient* 4, 193-195
- Immanuel Wallerstein
- 1974 *The Modern World System I: Capitalist Agriculture and the Origins of the European World-Economy in the Sixteenth Century* (New York: Academic Press)
- 1980 *The Modern World System II: Mercantilism and the Consolidation of the European World-Economy, 1600-1750* (New York: Academic Press)
- 1989 *The Modern World System III: The Second Era of Great Expansion of the*

Capitalist World-Economy, 1730–1840's (New York: Academic Press)

Harvey Weiss

- 2003 “Ninevite 5 Periods and Processes,” in E. Rova & H. Weiss, eds., *The Origins of North Mesopotamian Civilization: Ninevite 5 Chronology, Economy, Society* (= Subartu 9; Brussels: Brepols) 593–624

Harvey Weiss & Theodore Cuyler Young

- 1975 “The Merchants of Susa,” *Iran* 13, 1–18

Norman Yoffee

- 1993 “Mesopotamian Interaction Spheres,” in N. Yoffee & J. J. Clark, eds., *Early Stages in the Evolution of Mesopotamian Civilization: Soviet Excavations in Northern Iraq* (Tucson: University of Arizona Press) 257–270

Paul Zimansky

- 1993 Review of Denise Schmandt-Besserat, *Before Writing*, *Journal of Field Archaeology* 20, 513–517

本书的出版得到北京大学东方学研究院
韩国后援会的资助，谨表谢意。

《东方研究》编辑委员会

主 编 张玉安

副主编 唐孟生 湛 如

编 委 李 强 李 政 陈 明
姜永仁 姜景奎 蒋和平
裴晓睿

执行主编 拱玉书 陈贻绎



2006

东方文学研究中心
北京大学
东方学研究院

Special Issue of Oriental Studies

A Collection of Papers on Ancient Civilizations
of Western Asia, Asia Minor and North Africa

经济日报出版社

古代东方文明专辑

东方研究

Oriental Studies

目 录

Contents

前 言

Foreword

Assyriology

- Robert K. Englund: An Examination of the "Textual" Witnesses to Late Uruk World Systems 1
- Yushu Gong: Graph Typology of Ancient Chinese and Sumerian Writing Systems—A Comparative Perspective 39
- John Huehnergard: Comments on Yushu Gong: "Graph Typology of Ancient Chinese and Sumerian Writing Systems—A Comparative Perspective" 109
- Paul-Alain Beaulieu: Berossus on Late Babylonian History 116
- Yuhong Wu: Babylonian Civil Juridical System in the Eanna Temple District of Uruk under Cyrus and Cambyses of the Old Persian Empire 150

Archaeology

- Arnulf Hausleiter: Tayma, Northwest Arabia.
The Context of Archaeological Research 158

亚述学

- 刘 健:乌鲁克晚期国家起源诸要素探析 181
- 曹明玉:两河流域地区争斗场景滚印的初步考察 194

赫梯学

- 李 政:论赫梯历史上基祖瓦特那条约的类型 246
- 易建平:论赫梯王权的性质 258

埃及学

- 颜海英:古埃及早期文字中的六书 275
- 王海利:论古埃及公主不外嫁 295
- 李宏艳:论古代埃及的成文法 307

犹太学

- 陈贻绎:希伯来语《圣经》中文译本中的若干翻译问题举例 326

其 他

- 魏丽明:《吉尔伽美什》史诗在中国——译介、研究与影响 333
- 缩 写 349