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RECONSTRUCTING THE WORLD OF ANCIENT MESOPOTAMIA: DIVIDED BEGINNINGS AND HOLISTIC HISTORY

BY

RICHARD L. ZETTLER*

Abstract

Since its inception in the nineteenth century, ancient Mesopotamian studies has recognized a division of labor between archaeologists and philologists/historians that has often skewed histories of the "land between the rivers." Recent efforts, inspired in part by the Sumerologist Thorkild Jacobsen, offer hope for more holistic histories. Three case studies—on the Inanna temple at Nippur under the Third Dynasty of Ur, abrupt climate change in the late third millennium and its social impact as reconstructed from environmental proxy data and textual sources, and the Sumerian Agriculture Group's collaborative research on subsistence—typify efforts to integrate material culture and texts.

Dès le début des études sur la Mésopotamie ancienne au 19ème siècle, un fossé s'est creusé entre les archéologues et les philologues/historiens, et les travaux historiques portant sur le "pays entre les fleuves" en ont souvent été influencés. De récents efforts, inspirés en partie par le sumérologue Thorkild Jacobsen, permettent d'espérer une histoire plus compréhensive. Trois études de cas caractérisent les efforts d'intégration des données de la culture matérielle et des documents écrits: le temple d'Inanna à Nippour sous la troisième dynastie d'Ur; le brusque changement de climat survenu vers la fin du troisième millénaire et son impact social reconstruits à partir de textes et de données indirectes dérivées de l'environnement; enfin la recherche en interdisciplinaire du Sumerian Agriculture Group sur les ressources alimentaires.

Keywords: Ancient Mesopotamia, Inanna temple at Nippur, Tell Leilan, climate change, Mesopotamian subsistence

The invention of writing in southern Mesopotamia in the late fourth millennium B.C., whatever its short or long-term consequences for that society, radically transformed the "character and potentialities" of the archaeological record (Adams 1981: 131), and impacted the analytical methodologies of those who today labor to reconstruct the culture(s) of the land between the Tigris and Euphrates Rivers (fig. 1). The existence of a rich corpus of texts in languages that had to be deciphered, e.g., Sumerian and Akkadian, stimulated a compartmentalization

*** Richard L. Zettler, Department of Anthropology, University of Pennsylvania Museum, 33rd and Spruce Streets, Philadelphia, Pennsylvania 19104, USA. rzettler@sas.upenn.edu**

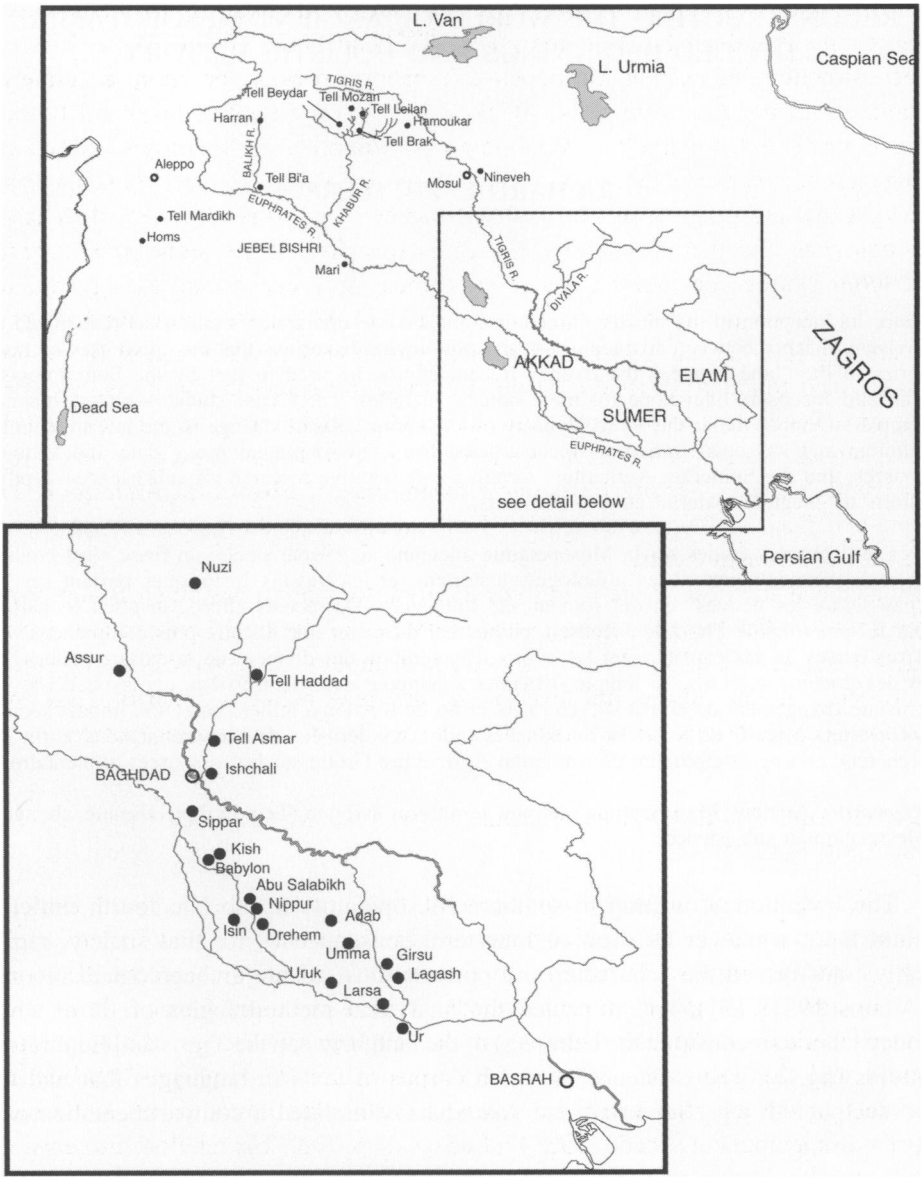

Figure 1: Map of places referred to in Mesopotamia

of "praxis" in which archaeologists, on the one hand, and philologists and historians, on the other, staked out their respective territories and discouraged "trespassing" (Brinkman 1984a: 170). Yet such a division of labor, however seemingly practical, has had regrettable consequences, all too often skewing reconstructions of ancient Mesopotamia's historic periods, or, more accurately, literate societies (Postgate 1984: 4). Working within a politico-historical framework derived from ancient Mesopotamian sources, archaeologists have to engage documentary sources, but by and large are poorly trained in ancient languages and are perforce uninformed "consumers" of textual data. For their part, philologists and historians have written history from texts alone and ignored material culture. Yet written sources document only part of the Mesopotamian past and have inherent limitations. As Civil (1980) noted more than twenty years ago in an article that garnered more attention than he ever anticipated (or so he once confided), texts do not provide modern readers the background information needed to comprehend them and seldom elaborate core cultural activities, whose details would have been common knowledge. Moreover, texts are inherently biased, reflecting, for example, the interests of urban elites. Archaeological remains "flesh out" or enrich textual data and add new dimensions to text-based historical reconstructions.

Whatever the past of the field, recent efforts to meld archaeological and written sources offer hope for more holistic histories of the land between the rivers. Here I intend to explore, both in general and through case studies, the dynamic between material culture and texts or the interplay between archaeologists and philologists/historians, in reconstructing the world of historic Mesopotamia.

Excavating Archaeologists' Role in Ancient Mesopotamia's Historic Periods

Since its inception in the early-to-mid 19th century the study of ancient Mesopotamia has, in effect, recognized a "division of labor" between archaeologists and philologists/historians. In England, for example, Layard, Rassam, Loftus and Taylor toiled on ruin mounds, while Rawlinson, Hincks, Smith and others worked on the decipherment of the languages written in the cuneiform script and the publication of texts. Rawlinson himself displayed little or no interest in the material world Layard was uncovering much to the archaeologist's disappointment (Reade 1993: 42; Larsen 1996: 208). The relationship between the two closely related fields of endeavor at the time is summed up by George Rawlinson's comparison of Austen Henry Layard and his brother, Major H. C. Rawlinson (Rawlinson 1898: 151-53; see also Larsen 1996).

> Layard was a man excellently fitted for the world of an explorer and excavator . . . energetic and inured to hardship by his previous travels in wild regions. He was also familiar with Arabic and Turkish, and clever at catching up dialects. But he was not a scholar, or a man of any great culture, or of any wide reading. Probably no better pioneer could have been found for the rough work then needed in the East; and it was a happy chance which brought together two such men as him and Major Rawlinson as labourers at the same time and in the same field, but with each his own special task—each strongest where the other was weakest—Layard, the excavator, the effective task-master, the hard-working and judicious gatherer of materials; and Rawlinson, the classical scholar, the linguist, the diligent student of history, the man at once of wide reading and keen insight, the cool, dispassionate investigator and weigher of evidence.

The debate concerning the role of archaeology in the study of ancient Mesopotamia's literate societies is not much in evidence in the 20th century. The long-time editor of the Chicago Assyrian Dictionary, A. Leo Oppenheim (1977: 10-11), seemingly relegated archaeologists to working on prehistoric periods and providing occasional illustrations of ancient Mesopotamian realia although he did hold out some hope for synthetic research.

> . . . the texts on clay tablets are far more valuable, far more relevant, than the monuments that have been discovered, although the latter, especially the famous reliefs on the walls of Assyrian palaces and the countless products of glyptic art, offer welcome illustration to the wealth of factual information contained on clay tablets, stelae, and votive offerings. The archaeologist's contribution toward the elucidation of the Mesopotamian past bears primarily on that crucial millennium or more which preceded the earliest written documentation (i.e., before 2800 B.C.), and which only field and comparative archaeologists are able to scan and to articulate through their intricate network of horizons and stratified levels. (In exceptional instances, however, and in small sites, the interplay of the archeologist and the epigrapher in Mesopotamia can yield important results.)

More recently, Robert McC. Adams, Hans J. Nissen, and J. N. Postgate have published more balanced views. Adams (1981: 131), an anthropologist, largely responsible for settlement surveys of the southern floodplain and adjacent regions, emphasized the complementarity of textual and archaeological data *stricto senso* and the role that archaeological survey could play in enriching text-based reconstructions of settlement and land use in historic periods. In publications, such as his seminal *Heartland of Cities*, Adams drew heavily on specialized historical literature. Some years after the publication of *Heartland of Cities* he argued explicitly that social scientists and humanists (language specialists/historians) often have different research priorities and that anthropologists have to command the whole of the ancient Mesopotamian record, both texts, often the "primary part" of the record for historic periods, as well as archaeological sources (1991: 41-2). Adams specifically advocated altered patterns of graduate education and interdisciplinary collaboration.

Nissen, an archaeologist with an extensive background in ancient languages,

took a position not radically different from Adams, perhaps not surprising given their collaboration in surveys around Uruk/Warka. He stressed the limitations of textual sources and posited a largely independent role for archaeology in "extending" text-based history, in particular by reconstructing settlement patterns (Nissen 1983: 3-5; 1988: 2-4). Even while emphasizing the usefulness of prehistorians' methods, e.g., botanical and faunal studies, he insisted on the priority of documentary evidence for reconstructing early Mesopotamian politics, society and economy. For his part, Postgate, a language specialist/historian, as well as an active field archaeologist, suggested that archaeologists and philologists

Figure 2: Chronology of Ancient Mesopotamia

	South		North
Years BC			
	Prehistoric or "Preliterate" Periods		
5500-4000	Ubaid[1]		
	Proto-literate Periods[2]		
4000-3100	Early, Middle and Late Uruk		
3100-2900	Jemdet Nasr		
	Historic or "Literate" Periods		
2900-2350	Early Dynastic I (II) and III		
2334-2154	Dynasty of Akkad[3]		
2112-2004	Third Dynasty of Ur (Ur III)		
			Old Assyrian
2017-1595	Isin-Larsa/Old Babylonian		
1530-1155	Kassite		Middle Assyrian
1157-626	Post-Kassite		
			Neo-Assyrian
625-539	Neo-Babylonian		
538-331	Achaemenid		

[1] Corrected radiocarbon dates put the earliest phases of the Ubaid in the later half of the seventh millennium B.C. See Valladas, Evin and Arnold 1996: 382.

[2] For the term "proto-literate," see Delougaz and Lloyd 1942: 8, n. 10.

[3] I have maintained the conventional Middle Chronology dates for southern Mesopotamia's historic dynasties (Brinkman 1977).

could carry on a productive dialogue about the "material world" of early Mesopotamian society and economy (1984: 15 and 1992: xxii-xxiii).

The key problem for archaeologists, as well as philologists/historians, researching Mesopotamia's protohistoric and historic periods (fig. 2) is the dynamic between material culture and writing (or artifact and text). And yet in a field with an institutionalized division of labor, integrating the two complementary data sources to produce a holistic picture is a challenge that few have taken up. The Sumerologist Thorkild Jacobsen long demonstrated a keen appreciation for the value for both strands of data (e.g. 1953). Jacobsen directed excavations at Ishchali, ancient Neribtum, in the 1930s and doubled as field epigrapher. At Nippur in 1953-54, Jacobsen produced a unique tablet catalogue that included detailed sketches showing the findspots of the tablets. Moreover, Jacobsen conceived and developed archaeological surface survey as a field method for reconstructing the ancient courses of rivers and canals (1954; 1960; cf. Adams 1965: 119 and 1981: xx). Penelope Weadock's dissertation on Ur's *giparu*, a building that housed the temple of Ningal, wife of the moon god, Nanna, as well as the residence and burial place of the en-priestess (1958; also 1975), written under Jacobsen's supervision, was one of the first major efforts to incorporate archaeology and texts. Some years later McGuire Gibson combined artifacts, pictorial evidence and texts in *The Mace, the Axe and the Dagger in Ancient Mesopotamia* (1964), an MA thesis he produced at least in part under Jacobsen's supervision; Gibson has remained a forceful proponent of integrating archaeological and textual data, both in his own research (e.g., 1972), as well as in seminars he has offered and dissertations he has supervised. Equally significant (though perhaps more symbolic than substantive), Gibson was also the first of Nippur's post-World War II Field Directors to log tablets in the general register of artifacts rather than in a separate catalogue maintained by the epigrapher.

By the late 1970s and early 1980s studies that explicitly sought to "integrate" archaeology and texts began to appear. The majority of such studies, whether by archaeologists or philologists/historians, dealt with particular buildings (or groups of buildings), attempting to establish the findspots of tablets, and correlating the findspots and contents of texts. Some emerged from recent archaeological projects that meticulously recorded findspots, while others revisited older excavations, for which findspot information was more or less detailed. The list includes, among others, Aage Westenholz' work on Akkadian Nippur (1987); Zettler's analysis of the temple of Inanna under the Third Dynasty of Ur (1992); Ellis' study of the Old Babylonian Ishtar Kittitum temple at Ishchali (1983 and 1986); Gasche's work on the Ur-Utu house at Tell ed-Der, Sippar Amnanum; Stone's reconsideration of Nippur Areas TA and TB (1979, 1981 and 1987; but see also Charpin 1989 and 1990; Postgate 1990; van Driel 1990); Charpin's detailed

analysis of Ur Areas EH and EM (1986), as well as Van De Mieroop's (1992) and Brusasco's (1999-2000) complementary studies; and, Reichel's PhD dissertation on the Gimil-Sin Temple and the Palace of the Rulers at Tell Asmar, ancient Eshnunna (2001b). Papers from a round table on the end of archives in Mesopotamia that appeared in 1995's *Revue d'Assyriologie* contain interesting and related studies.

Among other notable studies, Brinkman's close scrutiny of site survey data, by and large the domain of anthropological archaeology, provided a unique politico-historical perspective on the demographics of settlement on the southern floodplain in the late second and early first millennia, roughly 1150-625 B.C. (1984a; also 1984b: 3-15). Winter's investigations of the interplay between texts and imagery, focusing primarily, though not exclusively, on Assyrian reliefs and statuary, enriched our understanding of the complexity of ancient Mesopotamian communication systems (e.g., 1981; 1983; 1985; 1986; 1987; 1997), as has Bahrani's deconstructivist, post-colonialist approach (e.g., 1995).

Postgate's *Early Mesopotamia* (1992) and (to a lesser extent in terms of its originality) Potts' *Mesopotamian Civilization: The Material Foundations* (1997) are the only syntheses that integrate archaeological and textual data. Moorey's *Ancient Mesopotamian Materials and Industries: The Archaeological Evidence* (1994) covers somewhat more restricted grounds, but effectively incorporates textual information.

The segregation of academic training and practice is still deeply embedded in ancient Mesopotamian studies as the title of the recently published *Cuneiform Texts and the Writing of History* (Van de Mieroop 1999) implies, but efforts such as those cited above have had a constructive impact on the field and prodded it to produce more holistic reconstructions. In the pages that follow I will introduce a number of case studies, successful to varying degrees, in integrating material culture and textual data.

Case Studies

The Inanna Temple at Nippur

The salient feature of our written sources for ancient Mesopotamia is the fact that the overwhelming majority are excavated artifacts with contexts in the three-dimensional soil matrices of archaeological sites just like any other finds. Though texts admittedly provide information independent of context, findspots are, nevertheless, an essential part of clay tablets' information content. The loss of context, whether through looting or ignorance, can skew historical reconstructions as I illustrated elsewhere (Zettler 1992: 2-3; 1996: 83-84). More

constructively, however, methodical explication of findspot information can enrich our understanding of ancient Mesopotamia, both the "microcosms" of particular buildings or group of buildings and the "macrocosms," for example, of early Mesopotamian society and economy. My own study of the Level IV Inanna temple at Nippur (1992), reconstructed by Shulgi, second king of the Third Dynasty of Ur, will perhaps illustrate both the import and ambiguities of putting texts in context.

Texts and Buildings—The Level IV temple, uncovered in the third (1951-52), fourth (1953-54), fifth (1955-56) and sixth (1957-58) field seasons, was poorly preserved. Only its front (northwestern) wall and northeastern corner were intact; the remainder had been largely destroyed by Parthian construction activities in the second century (see below). The building's condition prompted Richard C. Haines, Nippur's field director (and architect) at the time, to write jokingly to Carl H. Kraeling, Director of the Oriental Institute, in a letter dated January 25, 1956, "The [Level IV] plan looks better on paper than in actuality and is a reconstructor's dream. To paraphrase, I've never seen a building where so little will look like so much after it is drawn in good black ink." Despite the state of its preservation, 200 or so clay tablets, 155 clay sealings, many with impressions of inscribed seals, stamped bricks and various other inscribed artifacts were found in primary contexts on the floors of various rooms. However, only Thorkild Jacobsen's tablet catalogue from the fourth season (1953-54) provided detailed notes, with plans, showing the findspots of the tablets.

My reconstruction of the functioning of rooms or complexes of rooms in the Inanna temple was based largely on criteria such as circulation and room arrangement patterns (Zettler 1992: 57-90). The few tablets found in situ provided only limited insights, though did help in identifying rooms in the northeast corner of the building as the temple's "chancery."

The overwhelming majority of the tablets recovered in the Inanna temple excavations were found in secondary contexts in the fill of a platform the Parthians built as the substructure for their temple (Crawford 1959: 77-78). The Parthians apparently cleared the existing site of the temple roughly to the level of Shulgi's building. They then laid out a rectangular retaining wall, and backfilled the soil and debris they had previously turned up. Approximately 1700 tablets were found in discrete "pockets" in the platform's fill, including a small number of Early Dynastic and Akkadian texts (Goetze 1968); nearly 1000 economic texts, as well as more than 150 literary and lexical texts (see now Rubio 1999), dating to the Third Dynasty of Ur; roughly 400 Isin-Larsa texts recording *sattukku* (fixed and regular)-offerings and their redistribution (Sigrist 1984); 50 or so Kassite economic texts; and, a few Neo-Assyrian (Goetze 1963), Neo-Babylonian or Achaemenid, and Seleucid documents.

As regards the larger corpora, economic texts dating to the time of the Third Dynasty of Ur (the literary and lexical texts as well) were found throughout the fill of the Parthian platform, but ninety percent came from the center of the platform. I argued that they were part of the temple's archive because a few carried the notation é-^{d}Inanna, but also because of their prosopography and/or because scribal hands, as well as text type and format, could be related to tablets found in situ in the Level IV building.

Analysis of the texts found in situ in the Level IV building and those from the fill of the platform permitted a detailed reconstruction of the temple's economic underpinnings and its administration, demonstrating, for example, that the temple was dominated by one of Nippur's elite families that included the successive governors of the city (Zettler 1992: 91-238). The texts also illustrated some of the links that existed between the temple of Inanna and other temples, and detailed, for example, the economic interactions between the temple and a local merchant, Lugal-usur (Zettler 1992: 220-26), as well as the temple's utilization of Nippur's craftsmen such as smiths (Zettler 1990; 1992: 226-31).

The Isin-Larsa texts recording *sattukku*-offerings were found in the center of the northwestern part of the platform (Sigrist 1984: 3-6). Goetze characterized them as Ninurta temple records, and Sigrist maintained the identification (though see 1984: 191-92). Their link to the Ninurta temple derives from the priority of Ninurta (or the temple of Ninurta) in the list of offerings in one subgroup of the texts, as well as the occurrence of a Ninurta temple cult place (é-igi-šu-kalam-ma) and cult weapons (Sigrist 1984: 22, 141, 150).

Crawford accounted for Ninurta temple records in the platform by suggesting that in the second century the southeastern end of the Inanna temple area was preserved to a greater height than the northwestern (1959: 77-78). The Parthian builders, therefore, moved debris from the southeast to northwest as far as needed to provide for the platform. However, not enough fill was available in the area, so they brought additional dirt from elsewhere, the Isin-Larsa *sattukku*-offering texts in it. I built on Crawford's reconstruction, suggesting that the Ninurta temple lay north of the temple of Inanna (Zettler 1992: 16-17). Westenholz (1987: 97-98) and Gibson (1993: 15) subsequently localized the Ninurta temple on Nippur's West Mound.

In his detailed review of my book, van Driel muddied the otherwise neat picture drawn up to then (1995). He argued that the economic texts of the Third Dynasty of Ur from the platform probably included Ninurta temple records, basing his arguments on the economic ties between the Ninurta and Inanna temples in that period, as well as on the Isin-Larsa *sattukku*-offering texts, supposedly from the Ninurta temple, in the platform fill. Van Driel in particular identified 6 NT 398 and 6 NT 437 as Ninurta temple records. Both are sealed

tablets recording the receipt of grain rations by the Inanna temple's chief administrator from the Ninurta temple's chief administrator. Such receipts would have been sealed by the recipient and then handed over to the person who disbursed the grain.

Despite van Driel's suggestion, I maintain that all of the Third Dynasty of Ur tablets from the platform are Inanna temple records. His suggestion that 6 NT 398 and 6 NT 437 were Ninurta temple records ignores the fact that both the Ninurta temple and the Inanna temple would have required copies of such receipts as the monthly accounts of the Inanna temple's chief administrator unequivocally demonstrate (Zettler 1992: 167-71). Rather than casting doubts on the attribution of the Third Dynasty of Ur texts found in the platform, van Driel might just as readily have challenged the attribution of the Isin-Larsa *sattukku*-offering texts to the Ninurta temple. Their link to the Ninurta temple is highly questionable (Kraus 1985: 533-34).[4]

If the Isin-Larsa *sattukku*-offering texts are not Ninurta temple records, what institution drafted them? What weight should we give to content and context in answering the question? Large numbers of tablets found together in secondary contexts commonly prove to be coherent corpora, presumably taken from a single site and redeposited. The tablets from the time of the Third Dynasty of Ur that Woolley found below the Kassite floors of rooms to the south of é-dub-lá-mah courtyard at Ur provide a good example of such homogeneous tablet lots in secondary contexts (Jacobsen 1953). Where the content and attribution of a corpus of texts is questionable—as it is in the case of the Isin-Larsa *sattukku*-offering tablets—shouldn't archaeological context and associated finds be weighed as factors in their identification? No one who reviewed Sigrist's publication (1984) raised context as a relevant factor in the identification of the Isin-Larsa *sattukku*-offering texts (see, for example, Kraus 1985: 533-34; Krebernik 1990; Postgate 1986). However, I see no reason that those texts could not be Inanna temple records. Far from being self-sufficient households, Nippur's temples were linked economically, at least at the time of the Third Dynasty of Ur, and the Inanna temple and Ninurta temple had close ties, as van Driel noted.

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[4] For example, it is worth calling attention to the fact that é gu-la, literally, the "big house," occurs first in the list of offerings in all of the subgroups of *sattukku*-offering texts that Sigrist defined (and not the Ninurta temple). Ninurta (or the temple of Ninurta) occurs at the head of the list of offerings in only a handful of one subgroup, five-columned *sattukku*-offering texts. Because of their alternation in the five-columned texts, Sigrist argued that the term é gu-la must be a generic name for Ninurta's temple. However, the cult place called é gu-la has no demonstrably independent association with Ninurta's temple, as it does, for example, with Ninlil's (see George 1993: 96-97); so, Sigrist's logic is circular reasoning.

So, too, the Inanna temple had yearly expenditures characterized as sá-dug$_4$ or *sattukku*. If similar conditions continued into the Isin-Larsa and Old Babylonian periods (see Sigrist 1984: 191-92 and Robertson 1992 on economic ties among Nippur's temples in the Isin-Larsa and Old Babylonian periods), the *sattukku*-offering texts might in fact record some portion of those distributions for which the Inanna temple was responsible.

Early Mesopotamian Society and Economy—Individual buildings like the Inanna temple or groups of buildings can be utilized as "building blocks" in reconstructing Mesopotamian society and economy more generally. As one such building block, the Inanna temple stands out as the only excavated temple, with archival documentation, for the period of the Third Dynasty of Ur. The Inanna temple's unique position in a period for which we have more texts than any other in Mesopotamia's long history raises critical questions about the biases of the archaeological and documentary record. Such questions about our "sample" are not just fundamental for reconstructing particular periods of time, but also for comparing periods and understanding longer-term trends.

For example, in his semi-popular *The Babylonians*, Saggs repeated a long-standing "axiom" of early Mesopotamian documentary history, namely that under the Third Dynasty of Ur, the economy was dominated by the state and the private sector was of "little significance." With the collapse of the Third Dynasty of Ur, the private sector of the economy came to have an increasing importance (Saggs 1995: 95).

Several years prior to Saggs' publication, Postgate had alluded to the seeming growth of the private sector of the economy in the Isin-Larsa/Old Babylonian periods. However, he eschewed such generalizations because of the difficulties of assessing the significance of biases in the documentary record (1992: 292). More recently, Baines and Yoffee took cognizance of what they termed "systematic biases" of our documentary sources from successive periods. While allowing that those biases could result from accidents of discovery, they noted that most scholars believed that the biases are not so much biases as reflections of the "cultural and organizational emphases of distinct periods and important differences between them" (1998: 210), including Yoffee himself (1995: 297-98). Both Postgate and Yoffee take reasonable positions. However, a review of excavated remains of the late third and early second millennia suggests that generalizations of the sort Saggs reiterated reflect not so much "economic reality" as disparities in the archaeological and documentary record from one period to the next. And perhaps appropriately philologists and historians are beginning to challenge Saggs' characterization at least of the Third Dynasty of Ur (see, for example, Neuman 1992; van Driel 1994; Garfinkle 2000).

Excavated remains attributable to the Third Dynasty of Ur are dominated by monumental architecture, for example, Urnamma's ziggurat complex at Ur and surrounding buildings such as the "palace," é-hur-sag, the royal mausolea, etc. The overwhelming majority of textual sources come from central state or provincial administrative archives (see, for example, Sallaberger 1999). Because the bulk of the tablets come from older excavations, secondary contexts (as at Ur) or illicit digging their identification as state records is based largely on content. However, excavations at Tello (ancient Girsu) and Tell Asmar provide archaeological support for their attribution to state archives. In his eighth campaign at Tello in 1894 de Sarzec uncovered more than thirty thousand tablets in situ in two discrete groups of rooms in the Tell des Tablettes just south of the mound's prominence (Heuzey 1884-1912: 435-39). The tablets were in distinct rows and stacked five to six deep on low benches that flanked the walls and stood in the center of some of the rooms, as well as on the floors. In addition to the tablets, de Sarzec found a series of weights in the rooms. Inscribed pivot stones found nearby linked the rooms to the provincial governor's palace (Heuzey 1884-1912: 445; Thureau-Dangin 1898: 99-102; Cros 1914: 237-49). The tablets from Tell Asmar were associated with the Palace of the Rulers, a structure that can be traced back in time to the reign of Shulgi; the largest number come from the economic sector of the building north of the courtyard and palace chapel (Reichel 2001a: 114-16; 2001b: 43-56).

Only the site of Nippur has yielded archaeological and documentary sources for the Third Dynasty of Ur from a diversity of contexts, including the Inanna temple (discussed above) and houses. The University of Pennsylvania expedition uncovered burned houses that contained large numbers of tablets on the southern tip of the West Mound (Mound X) in 1890 (Peters 1895: 453; 1904: 184-85). Peters' architectural notes include no plans and the single photograph (Peters 1895: 453, fig. 59; 1904: following p. 188) is not particularly revealing. Moreover, while Peters noted the approximate number of tablets found day by day, he did not record tablets by findspots. Except in a few cases, we cannot determine specifically which tablets came from the houses. Nevertheless, the bulk of the roughly 2000 tablets dating to the Third Dynasty of Ur from Penn's excavations probably came from Mound X. They stand apart from contemporary administrative records; they are often described as "private" in character (e.g., Neuman 1992; van Driel 1994) and their Sumerian shows peculiarities (Sauren 1969) that may reflect their setting outside the administrative bureaucracy.

Fifty years later the Joint Expedition uncovered a large, complex and well-planned building dubbed House J in the lower levels of Area TB on the southern tip of the east mound known as Tablet Hill or the Scribal Quarter (McCown

and Haines 1967: 43-53). John Sanders, Nippur's architect for many years, accepted the excavators' identification of the building as a house, but tried to account for its size and the multiplicity of courtyards by suggesting that it served as the residence of an extended family (1981: 63-65). Heinrich dubbed it a palace (1984: 47-48). In re-analyzing House J's architecture and artifacts, including more than twenty-seven clay sealings and seventy-five tablets, scribal exercises and economic records, I suggested that it was more likely an "official residence," that served both as a house and functioned within the state or provincial administration. It's occupant, Ur-Suen, a supervisor of plowing oxen, played a role in land management and agricultural production (Zettler 1991).

The limited range of excavated remains for the Third Dynasty of Ur stands in marked contrast to the arguably more balanced sample of public buildings and houses for the succeeding Isin-Larsa and Old Babylonian periods. The most prominent remains dating to the first half of the second millennium include palaces at Mari (Parrot 1958, 1959), Tell Asmar (Frankfort, Lloyd and Jacobsen 1940; Reichel 2001b), Senkereh, ancient Larsa (Parrot 1933; 1968; Margueron 1970), and Uruk,[5] as well as temples such as Ishchali's Ishtar Kittitum temple (Hill, Jacobsen and Delougaz 1990; Ellis 1986). They also include substantial exposures of houses at Tell es-Sib/Tell Haddad, ancient Me-turan (Postgate and Watson 1979; Roaf and Postgate 1981; Killick and Roaf 1983; Killick and Black 1985; Cavigneaux and al-Rawi 1993); Abu Habba or Sippar Yahrurum (Harris 1975; al-Jidr 1986; Gasche and Janssen 1997); Tell ed-Der (Gashe 1981); Nippur (Hilprecht 1903: 508-32, with plan p. 523; Geere and Fisher nd; Stone 1987; Franke 1987); and Ur (Woolley and Mallowan 1976; Charpin 1986; Van De Mieroop 1992; Brusasco 1999-2000). The domestic remains have provided a wealth of artifacts, including a large number of clay tablets, economic-administrative and legal, as well as literary and lexical texts. For example, several houses uncovered on Tablet Hill by the University of Pennsylvania in January-February 1900 yielded approximately seventeen thousand tablets and fragments (Haynes nd). Tell ed-Der's Ur-Utu house contained some 2000 texts and fragments (De Meyer, Gasche and Tanret 1984: 21-25; van Lerberghe 1991).

Given the disparity in the distribution of our archaeological and documentary sources attributable to the late third millennium and the first half of the second millennium, comparisons between society and economy under the Third

[5] The Sinkashid Palace has been published piecemeal. For a summary description, see Heinrich 1984: 63-66. For a detailed bibliography, Finkbeiner 1993: 117-19 and for additional text publications, Sanati-Müller 1993; 1994; 1995; 1996; 2000a and 2000b; also Blocher 2000.

Dynasty of Ur and the Isin-Larsa/Old Babylonian periods appear futile. Postgate (1992: 292) may be right in suggesting that we leave "time and future excavations" to provide additional data before we draw any conclusions as to long-term trends in early Mesopotamian society and economy, at least for the third and early second millennia.

Parenthetically, the overwhelming majority of the literary and lexical texts from Isin-Larsa and Old Babylonian houses are writing exercises, indicating that scribal training was carried on largely in "private" houses. If the same were true for earlier periods, the paucity of houses attributable to the Third Dynasty of Ur might equally explain the late third millennium "gap" in the Sumerian literary and lexical tradition (Cooper 1983: 11-12; Michalowski 1995).

Summary—In terms of methodology, my study of the temple of Inanna highlighted the problems involved in "integrating" disparate data sets. Where large numbers of finds including clay tablets and other inscribed artifacts are found in situ on floors in well-preserved architectural contexts, architecture, small finds and written documentation can be exploited to reconstruct a detailed and coherent picture of the functioning of rooms, complexes of rooms or whole buildings. Where such conditions do not exist, as in the case of the Inanna temple, with large number of tablets found in secondary contexts, the analysis of archaeological and written sources tend to become discrete efforts. The secondary contexts from which the majority of the tablets found in the course of the Inanna temple excavations, whether from the time of the Third Dynasty of Ur or later, introduces a degree of uncertainty in their identification and links to particular institutions. That uncertainty, in its turn, highlights the more substantial ambiguities unprovenienced texts raise.

Whatever its implications for our understanding of the functioning of a temple building, the Inanna temple highlighted the biases of the "text-archaeological" record, even for richly documented periods and their relevance for understanding the longue-durée of Mesopotamian history. And the recent "(re)-discovery" of records from Garshanna, a rural estate near Umma belonging to Shu-Kabta, a general and physician, and his presumed wife, Simat-Ishtaran, a sister of the Shu-Suen, fourth ruler of the Third Dynasty of Ur, only re-emphasizes the gaps in our knowledge (Owen 2002). While we may never be able to redress the biases of our data for reconstructions of longer-term trends in Mesopotamian history, we can at least include a palliative assessment of the representativeness of the archaeological and documentary sample in historical accounts.

Climate Change and the Collapse of Late Third Millennium B.C. Historic Dynasties

Since the early to mid-1990s Harvey Weiss, Marie-Agnes Courty and collaborators working at Tell Leilan in the Khabur drainage basin of northeastern Syria have argued for an abrupt climate change beginning ca. 2200 (and lasting 250-300 years), whose characteristics included major aridification, a radical increase in airborne dust, cooling, forest removal, land degradation (indicated by the appearance of small burnet or *Sanguisorba minor* pollen in the Lake Zeribar core), possible alterations in seasonality, as well as flow reductions in the area's four major river systems due to reduced or displaced Mediterranean westerlies and Indian monsoons (Weiss, et al. 1993; Weiss 2000b: 83-84). The drought led to widespread abandonments and the displacement of northern Mesopotamian populations, both settled and transhumant, including Hurrians, Gutians and Amorites. It precipitated the collapse of the Akkadian imperial economy, dependent on the dry farming production of the Khabur, and led inexorably to the collapse of the dynasty, with the Gutians seizing (at least parts of) the weakened southern Mesopotamian core (Weiss, et al. 1993: 1002). While the Third Dynasty of Ur eventually reunited the cities of the south, aridification and reduced river flow made even irrigation agriculture unstable over the long run. The resulting scarcities engendered the painstaking bureaucratic accounting procedures commonly noted as a hallmark of the Third Dynasty of Ur in general histories (Weiss 2000b: 88-89). At the same time, the migrations of populations from the north, including the Amorites, against whom Shulgi and later Shu-Suen, built walls (Sallaberger 1999: 159 and 169), continued and are reflected in survey data (Weiss 2000b: 88-89). These population movements caused disruptions and (presumably) further stressed scarce resources, leading to agricultural and economic collapse. Weiss added that one possible explanation for the failure of Ur III agriculture is suggested by an "arid flicker" in the Greenland ice core (GISP2) record (Weiss 2000b: 89).

The abrupt climate change that Weiss has postulated was not an isolated phenomenon, but caused disruptions—including social collapse—in an area stretching from the Aegean and Egypt to the Indus, and can equally be documented for parts of the New World as well (Weiss 2000b). De Menocal recently excerpted Weiss' data and reconstruction in his review of responses to prolonged environmental stresses such a multidecadal-to-multicentury droughts in both the Old and New Worlds (2001).

Weiss founded his reconstruction of palaeoclimate on proxy indicators such soil micromorphological data from Tell Leilan and other sites in the Khabur, lake and marine cores, the Greenland Ice Sheet Project 2 ice cores, etc. (Weiss,

et al. 1993: 999-1002; Weiss 2000b: 78-83). And in article after article he has attempted to meld a varying array of written sources and archaeological data to build a "consilience of inductions" to support his reconstruction and the impact of abrupt climate change (Weiss 2000a: 209-211). I will focus largely, though not exclusively, on Weiss' use of textual data here.[6]

First, in dealing with written sources Weiss has employed questionable translations of Sumerian terms and drawn unsupportable inferences from literary texts. For example, with regard to the latter, Weiss has cited references to "natural disasters" such as drought, wind turbulence, harvest collapse, Euphrates flow reductions and "flaming potsherds" in literary texts such as the Curse of Akkade (CA), the Lamentation over the Destruction of Ur (hereafter LU) and the Lamentation over the Destruction of Sumer and Ur (hereafter LSUr) to support abrupt climate change (Weiss 1997: 719; Weiss 2000a: 209-11). He particularly emphasized an implausible reconstruction of the phrase "flaming potsherds raining from the sky" in CA, l. 175, presumably because CA's composition no later than the time of the Third Dynasty of Ur (Cooper 1983: 11-12; Attinger 1984: 117), not long after the onset of drought, would give it substantial historical weight. He interpreted the phrase as suggestive of volcanic activity, postulated at the time he was writing, to have provoked abrupt climate change.

Weiss lamented the fact that philologists had generally dismissed references to natural disasters as "poetic metaphor," but failed to acknowledge that Assyriologists have expressed strong reservations on methodological grounds against utilizing literary compositions to reconstruct the history of the periods they purport to describe. Liverani (1993), for example, argued that the "historiographic" traditions concerning Sargon and Naram-Suen cannot be utilized in writing the history of the Dynasty of Akkade, but were meaningful within the political debates of the era(s) in which they were composed, namely, the Isin-Larsa/Old Babylonian periods. Michalowski and Tinney are more categorical in arguing that compositions such as CA, LU and LSUr are not meaningful records of historical events, but literary constructions (Michalowski 1989: 9-10; Tinney 1995; 1996: 7-8), and so cannot be simply mined for historical data, at least in the absence of independent supporting sources. As Tinney noted in com-

[6] Note that Marie-Agnes Courty has changed her interpretation of the Tell Leilan and Abu Hjeira soil micromorphological data, as well as its dating, and broadened her analyses to include other archaeological sites and natural soils across Syria (1998, 1999 and 2001). She now argues that the data point to an explosive cosmic collision involving a high energy air blast, high speed ejection of dust plumes, wide dispersion of atmospheric aerosols, violent swirls, sand and hail storms and devestating rains, and places it somewhere in the 2600-2300 time range (1998, 1999 and 2001; also the abstract of a recent paper at the Third International Congress on the Archaeology of the Ancient Near East, www.web26.net/3ICAANE).

paring copies of contemporary inscriptions describing the Great Rebellion against Naram-Suen and Old Babylonian literary tales of the same events, perhaps the most effective approach to both historical inscriptions and literary reworkings is "to examine texts with a view to learning not what they tell us about the events they purport to describe, but what they tell us about themselves and the reasons for describing these events in a given way" (1995: 2; but see Westenholz 1999: 20-24).

Second, Weiss' climate-triggered historical scenario raises the thorny problem of the absolute chronology of the historically attested dynasties of the third and early second millennia. Weiss has based his "precise' date of 2200 for abrupt climate change on the Tell Leilan radiocarbon dates (Weiss, Courty, et al. 1993), but Mesopotamian absolute chronology for the third and early second millennia is "alarmingly flexible" (Reade 2001: 1). Absolute chronology is still based by and large on textual sources, in particular later copies of astronomical observations of Venus made during the reign of Ammiṣaduqa, Hammurabi's fourth successor and penultimate king of the First Dynasty of Babylon. If the data are reliable, the observations provide a series of possible dates dubbed the high, middle and low chronologies for the end of Hammurabi's dynasty. The high chronology puts its dénouement at 1651, the middle at 1595 and the low at 1531.[7] King and year name lists, dated administrative texts, and royal inscriptions, then, permit the reconstruction of an unbroken succession of Mesopotamian rulers from the First Dynasty of Babylon to the beginning of the Third Dynasty of Ur. The absolute dating of Sargon's dynasty depends, in large part, on the number of years assigned to the so-called Guti interregnum, that is, the time between Sharkalisharri's death and Urnamma's succession. Sources such as the Sumerian Kinglist, that insert a period of chaos and two kings of Akkade, the Fourth Dynasty of Uruk, Gutian kings and the Fifth Dynasty of Uruk into

[7] The number of radiocarbon dates for southern Mesopotamia's early historic dynasties is small (see Porada, et al. 1992: Additions and Corrections; Rauert 1981; Gasche 1989: 105, n. 257; also, dates from secure Akkadian contexts at Tell Brak in Oates, Oates and McDonald 2001: 373-78). Dendrochronology dates from buildings at Acemhöyük and Kültepe that can be linked to the Assyrian king Shamshi-Adad now seem to "favor" the middle chronology, but cannot conclusively rule out low(er) chronologies (Manning, et al. 2001). In any case, dendrochronology carries with it variables over which we have little or no control, the use and reuse of timbers in construction (see Reade 2001: 10-11). Moreover, until sites like Acemhöyük are fully published we will not be able to assess the stratigraphic contexts of the clay sealings linked to Shamshi-Adad. In one publication, for example, the excavator describes bullae from Sarikaya Room 42 as found "in scattered groups as a result of secondary disturbance" and those in Room 6 as "near the walls at a level 1 to 2 meters above the floor" (Özgüç 1980: 61-62). Even with one of the bullae adhereing to the building's wall, the excavator's hypothesis that the sealings had been stored on shelves cannot be disproved, but seems implausible.

the "interregnum," give it 80-120 years (Jacobsen 1939). Hallo has more convincingly argued that the period should be no more than 40 (or at most 50) years (1971: 713-14). Hallo's "interregnum" is based on coincidence among several strands of data, especially the lengths of the reigns of Akkade kings who succeeded Sharkalisharri, the Fourth and Fifth Dynasties of Uruk, Gudea's dynasty at Lagash, etc.

In his historical scenario Weiss has adopted the middle chronology in Brinkman's appendix to Oppenheim's *Ancient Mesopotamia* (1977: 335-48), which has come to be cited more out of convenience than conviction by archaeologists and historians, and the 80 years he assigned to the Gutian interregnum. Brinkman's chronology places Sargon's accession at 2334, his successors, Naram-Suen and Sharkalisharri, under whom the dynasty presumably collapsed, at 2254-2218 and 2217-2193, respectively, and the Third Dynasty of Ur at 2112-2004. However, Brinkman noted that if Hallo's 40 year Gutian interregnum is correct then the Dynasty of Akkade would have to be dated 2293-2113. The middle chronology, however, is under attack, with various scholars arguing strongly in favor of a low(er) chronology and for various reasons. Without going into detail, Boese has placed Sargon's accession at shortly after 2250 (1982), Gasche, Armstrong, Cole and Gurzadyan at 2200 (1998) and Reade at 2180 (2001), with the Third Dynasty of Ur moved according. Gasche, et al., for example, placed Urnamma's accession at 2018 and the end of Ibbi-Suen's eighteen year reign at 1911 B.C. While such shifts in absolute chronology still leave the Dynasty of Akkade and the Third Dynasty of Ur within the period of prolonged drought Weiss has posited, they nevertheless impact the details of his historical scenario.

Third, Weiss has failed to demonstrate his central contention, namely that the Dynasty of Akkade, was *economically dependent* on the Khabur as its "breadbasket," and, more generally, in espousing the causality of climate change, Weiss has largely neglected the possible role of many other factors in the collapse of the Dynasty of Akkade. Moreover, he has exaggerated the extent of abandonment in northern Mesopotamia, and overstated the weight of survey data for documenting an influx of northern populations into the south.

Economic Dependence—In describing the genesis of the Akkadian "empire," Weiss argued that by late Early Dynastic III times the population of the southern floodplain had reached its limits. Under Sargon's successors, increasing demand led inexorably to the "imperialization" of northern Mesopotamia's rainfall-based agricultural production (Weiss and Courty 1993: 147). While the rulers of the Dynasty of Akkade, whose capital city probably lay on the northeast fringes of the floodplain in the vicinity of modern Baghdad (Wall-Romana 1990; but see Westenholz 1999: 31-43), may well have perceived the Khabur as their "back-

yard," Weiss has failed to document the large-scale transport of grain from north to the south. He has also failed to demonstrate that transporting grain overland from the Khabur to Nineveh and then to Akkade on packasses, as he recently suggested (mistranslating a line from the Curse of Akkade[8]), was economically viable. Equids engaged in hard work over an extended period of time need both grain and straw/chaff (as well as water) to be fed adequately (Engels 1978: 126-27; Jordan 1905: 367-78, esp. 374-78). Given maximum loads of 100 kg. the donkeys transporting the grain over the 20-30 day trip Weiss envisions would have consumed the bulk of the cargoes. River transport would make more sense for heavy cargoes, but little or no evidence exists to document the movement of grain either down the Tigris, a precarious, though not impossible undertaking, or down the Khabur and the Euphrates to Akkade (though see Weiss and Courty 1993: 148, n. 73; Loretz 1969: no. 68).

The Collapse of the Dynasty of Akkade and Its Aftermath—For at least the end of the fourth and much of the third millennia, the southern Mesopotamian floodplain was divided into 30 or so competing city-states (or shifting coalitions of city-states), each with their particularistic traditions, but sharing a common cultural identity (Postgate 1992: 34). Rulers of various city-states periodically claimed an ill-defined hegemony expressed in the honorific "King of Kish." Conventional accounts suggest that Sargon, whose origins are shrouded in myth, but who was originally a high-ranking functionary of Ur-Zababa, king of the city-state of Kish, ended this state of affairs (for a recent history of the Dynasty of Akkade with bibliography, see Westenholz 1999: 29-59). He founded a new capital city, Akkade, and eventually defeated Lugalzagesi, king of Umma, who dominated the disparate cities of the south and, indeed, expressed some claims to wider-ranging hegemony (Bauer 1998: 493-95). Sargon united the cities of the floodplain, north and south, and initiated a program of imperial expansion that climaxed under his grandson, Naram-Suen, though our evidence for Akkadian "contacts" with distant lands, particularly when stripped of modern commentaries, is sparse at best (Michalowski 1993: 73). The Akkadian or Sargonic

[8] Weiss is citing CA, l. 50, part of the opening section of the composition that describes Akkade's rise; it portrays Akkade's patron deity, Inanna, as opening the city's gates and all the lands bringing agricultural produce and exotic goods to her. The Sumerian reads elam^{ki} su-bir$_4^{ki}$ anše bara$_2$ lá-gim níg mu-na-ab-lá-lá, "Elam and Subir carried goods (to/for her, that is, Inanna) like packasses, or, literally, donkeys loaded with sacks" (Cooper 1983: 53; Attinger 1984; *Sumerian Dictionary*, sub bara$_2$ B). Weiss changed the translation to "Elam and Subir carried goods to her with packasses." While his reading fits his scenario, the Sumerian will not support the translation "on or with packasses."

"empire" collapsed under Naram-Suen's successor, Sharkalisharri. A period of chaos, epitomized by the Sumerian Kinglist's phrase, "Who was king, who was not king?" ensued. However, the last two dynasts, Du-Du and Shudurul, stabilized the political situation and ruled a much reduced realm for nearly forty years.

Historians have generally attributed the collapse of the Dynasty of Akkade to various factors. While noting the paucity of our sources, Glassner (1984; 1994), for example, suggested that political troubles brought on by wars over succession, as well as perhaps the dynasty's "exhaustion," were accompanied by an economic—or more accurately for preindustrial societies, agrarian—crisis that would have generated a certain social disquiet. Incursions of the Guti, from the mountains of the northeast, whom the Mesopotamians themselves saw as responsible for the fall of Akkade, then would not have been so much a contributing factor, but a reflection of the Dynasty's weakness.

Yoffee has also summarized the factors behind the Dynasty's collapse (1991: 46-49; 1995: 292-94). He argued that unification of the formerly independent city-states of the southern floodplain created an inherently unstable polity, generating an "uneasy" power sharing between local elites and royal appointees particularly apparent in the redistribution of provincial lands to royal officials and the requisitioning of labor and resources. The signs of instability are reflected in rebellions by city-states at the death of one ruler and accession of his successor. Old Babylonian copies of the inscriptions of Rimush, Sargon's son and immediate successor, for example, commemorate his victories over the cities of Sumer, Ur and Umma, Adab and Zabalam, Umma and Kidingirra, as well as over Kazallu in the northern part of the floodplain. Rimush also gives the numbers of those captured and killed (Gelb and Kienast 1990: 191-219). Naram-Suen faced widespread revolts by coalitions led by Iphur-Kish, king of Kish, and Amar-girid, king of Ur (Jacobsen 1978-79; Gelb and Kienast 1990: 226-43; Tinney 1995). Increasing demands imposed by the royal authority, provoked perhaps in part by imperial ambitions, eventually led to massive resistance by city-states that brought down the power of the Akkade dynasts.

Yoffee cited certain external factors as contributing to the collapse of the Dynasty of Akkade as well. He suggested that the Dynasty was "overextended," and resurrected Speiser's argument that the projection of Akkadian military power in distant regions "galvanized" local populations such as the Guti, inducing them to form alliances and conduct "guerilla" operations against the Akkadians. At least the Gutians were eventually successful in penetrating the core of the "empire."

Whatever the factors involved, with the disintegration of Akkade's power,

the southern city-states reasserted their independence, probably during the reign of Sharkalisharri (for a summary history with updated bibliography, see Sallaberger 1999: 132-34). The Sumerian Kinglist and a handful of royal inscriptions provide documentation for the Fourth and Fifth Dynasties of Uruk (Steible 1991b: 319-32; Frayne 1993: 274-96), who ruled contemporary with Du-du and Shu-durul. Royal inscriptions (Edzard 1997; Steible 1991a: 121-430), as well as administrative texts deriving from the French excavations at Tello provide an extensive record for a dynasty ruling the city-state of Lagash, kings not included in the Sumerian Kinglist (for a general and positivist, if somewhat outdated, account, see Bottero 1967: 120-26; also Sollberger 1954/56). The so-called Second Dynasty of Lagash included Gudea, who undertook extensive temple building projects, in connection with which he imported rare raw materials, including stone for statues of himself, and battled Anshan and Elam. If the Gutians held any enduring power it would appear to have been in the area near Umma. Old Babylonian copies of an inscription of Utu-hegal, sole king of the Fifth Dynasty of Uruk, record that he defeated Tirigan, expelling the Gutian from the south (Frayne 1993: 283-93).

Urnamma, Utu-hegal's military commander at Ur, and his son Shulgi eventually succeeded in (re)uniting the city-states of the floodplain and building a highly structured "bureaucratic" state (for a recent detailed account of the Third Dynasty of Ur, see Sallaberger 1999). The kings of the Third Dynasty campaigned extensively in the mountains to the north and northeast of the floodplain, only one time against Anshan in the southeast (Tal Malyan in Iran's Fars Province), with booty and self-defense being motivating factors (Sallaberger 1999: 156-159); set up a sort of militarized "buffer zone" in the area immediately east of the Tigris (Steinkeller 1991: 24-33); and built walls to block access to the floodplain from the north and west (Sallaberger 1999: 159). The Ur dynasts maintained effective relations with distant polities by means of royal marriage alliances (Sallaberger 1999: 151-61). Those alliances included not only Nineveh on its northeastern frontier (see below), but also Tell Hariri (Mari) on the Euphrates to the northwest (Durand 1985: 156-57; Boese and Sallaberger 1996; Sharlach 2001).

Early in the reign of Ibbi-Suen, the fifth king of the dynasty, dated administrative texts from provincial capitals and administrative centers like Puzrish-Dagan came to an end, and the southern city-states again asserted their independence in a time-honored tradition (Sallaberger 1999: 174-78). Ibbi-Suen was isolated in effective control only of the territory around his own capital city. Texts document grain shortages and staggering inflation for staple goods, as well as famine. Some Amorites threatened on the northwestern frontier, but

Elamites eventually dealt a death blow to the Ur dynasty. The southern city states remained independent (or in small coalitions) until the time of Hammurabi of Babylon in the eighteenth century.

The reasons for the collapse of the Third Dynasty remain elusive. Jacobsen and Adams suggested that salinization led to the substitution of barley for wheat and diminishing surpluses presumably under natural conditions of agriculture on the floodplain (Jacobsen and Adams 1958); Adams argued that maximization of the agricultural regime under the Third Dynasty would have led to shortened fallow periods and salinization (1981: 151). However, Powell has challenged, if not necessarily disproved, their assertion (1985). Yoffee cited long-standing centrifugal tendencies of the southern city-states, and likewise suggested the "unproductive, gigantic bureaucracy" as a contributory factor (1995: 294-96), a view Hallo (1971) and Postgate (1992: 42) had earlier espoused (though such views may reflect modern perceptions of "bloated" and inflexible bureaucracies rather than Mesopotamian perspectives). Yoffee also dismissed later Mesopotamian traditions and some modern accounts that Amorite incursions were responsible for the Dynasty's fall (Kamp and Yoffee 1980; Yoffee 1991: 50-51). More recently, Sallaberger noted the coincidence between a textually-documented increase in the percentage of land cultivated in the Lagash-Girsu area, the floodplain's "breadbasket," from late in the reign of Shulgi to the early years of Ibbi-Suen (Civil 1991: 39-40 and 43) and the decline in production (or at least lack of grain). He postulated ecological dynamics such as river shift or salinization (1999: 176-77).

Weiss has chided text-based historians for working, in effect, with blinders on, and failing to grapple with his reconstruction of the genesis of the Akkadian empire, abrupt climate change and its wide-ranging impact (Weiss 1997: 719). Yet Weiss himself has failed to take into account the longue durée of early Mesopotamia history. The norm of political organization in early Mesopotamia, that is, the third and early second millennia, was the city-state, and unification under the Dynasty of Akkade, the Third Dynasty of Ur or even Hammurabi and his son and successor, Samsuiluna, are anomalous eras and lasted for a total of no more than two hundred thirty years out of more than a millennium (Michalowski 1991: 46). Those polities, in effect, contained the seeds of their own destruction. The Dynasty of Akkade, for example, had inherent structural weakness, perhaps exacerbated by expansion policies, and its disintegration can be readily explained utilizing textual sources.

Moreover, the Dynasty of Akkade's fall did not lead to social collapse, but the re-emergence of normative political organization. The southern cities reasserted their independence, and if we know little about the period between

the death of Sharkalisharri and the accession of Urnamma, it may be due more to accidents of discovery than because of widespread "collapse." The extensive French excavations at Tello produced relevant remains dating right through the period.

The challenge Weiss has rightly posed for historiography is to integrate all data, whether derived from texts, excavations or geomorphology or soil micromorphology, into narratives of the ancient Mesopotamian past. Even so, perhaps the disintegration of the Dynasty of Akkade and its successors is a far less interesting problem from an historical perspective than understanding the formative processes of unification (see Michalowski 1991).

Late Third Millennium Abandonment of the Khabur and Northern Mesopotamia— Recent work at sites such as Tell Brak and Hamoukar are pushing back the horizons of northern Mesopotamian urbanism, but excavations carried out in northern Iraq, Syria and southeastern Turkey over the last twenty-five to thirty years have demonstrated that complex urban, literate states flourished there by the mid-third millennium B.C. (Schwartz 1994).

Archival texts found in the burned Royal Palace G at Tell Mardikh (ancient Ebla) provide a glimpse of the north in the mid-third millennium, suggesting a political situation not radically different from that in the better documented eighteenth and seventeenth centuries (Archi 1993: 470; Klengel 1992: 44-79). Though roughly contemporary and somewhat later texts from Mari, Tell Beydar and Tell Brak are now fleshing out our picture of Syria in the mid-to-late third millennium, the Ebla texts suggest that by the early twenty-fourth century northern Mesopotamia was a highly urbanized society. Extensive city-states, 20-30 km apart and encompassing on average 800 km^2 each, were gradually brought through military action and treaties into larger regional entities dominated, for example, by Ebla, located just south of Aleppo, Mari, located on the Euphrates near the Syria-Iraq border, and Tell Brak, ancient Nagar, near modern Hassake on the Khabur (Archi 1993: 466-68; 1995: 115; 1998). In addition to Mari and Nagar (Matthews and Eidem 1993; Archi 1998; Eidem 1998; and Eidem, Finkel and Bonechi 2001), the Ebla texts contain references to other important northern Mesopotamian states: Harran on the upper reaches of the Balikh (Archi 1988); Emar near modern Meskene on the "big bend" of the Euphrates (Archi 1990a); and Tuttul (Tell Bi'a) at the confluence of the Euphrates and the Balikh (Archi 1990b). They also include references to an array of smaller polities linked to the more powerful states through socio-political and economic ties.

While transhumant populations existed in the area, the Ebla texts contain few references to nomadic pastoralists such as the Martu (Amorites), some of whom appear to have existed in the area of Ibal, not far from modern Homs and in

the Jebel Bishri, along the west bank of the Euphrates between the confluences of that river and the Balikh and Khabur (Archi 1985; 1993: 470; Bonechi 1991: 71-73).

Weiss and collaborators argue that the 2200 abrupt climate change radically altered northern Mesopotamia's urban landscape, leading to a widespread abandonment across the region. For example, they initially noted that drought led to the abandonment of Tell Leilan and estimated that the intensively surveyed Tell Leilan region suffered a net loss of roughly 182 hectares of built-up site area or a displacement of 14,000 to 28,000 persons (Weiss, Courty, et al. 1993: 1002). Whatever the situation around Tell Leilan, archaeological remains and textual documentation have revealed that their picture is exaggerated. Large parts of the Khabur and northern Mesopotamia continued to be occupied in the late third millennium (for a summary, see Oates, Oates and McDonald 2001: 392-94).

For example, though the archaeological data have not been fully published, Tell Mozan, ancient Urkesh (Buccellati and Kelly-Buccellati 1996: 1), near Amuda to the east of Tell Leilan, continued to be occupied and was part of the Hurrian "kingdom of Urkesh and Nawar" (Matthews and Eidem 1993: 203-05; Salvini 1998: 108-111). Southern references to Urkesh may record distributions in connection with a state visit of its ruler to the south in Amar-Suen year 3 (Langdon 1913-23: 240 and pl. 21: 14; de Genouillac 1911: pl. 39: 5562; Gelb 1944: 114).

The recently published final report on the third millennium remains at Tell Brak, a center of Akkadian imperial administration, indicates that the whole of the site (40-60 ha) continued to be occupied in the post-Akkadian period or Phase N (Oates, Oates and MacDonald 2001: 392-94), as the excavators claimed many years ago (Oates and Oates 1994: 167-176). Arguably more important, the Brak excavations have established for the first time a well-stratified and dated corpus of pottery, with distinctive "post-Akkadian" ceramics and links to both the "big bend" of the Euphrates, e.g., collar-rimmed goblets (Oates, Oates and MacDonald 2001: fig. 423: 749), and southern Mesopotamia, e.g., ridged-shouldered jars and wide-mouth vessels with shoulder spouts (Oates, Oates, and MacDonald 2001: 176-77; fig. 425: 816-18 and fig. 426: 820), that can be utilized to identify late third millennium remains at other sites.

For example, the University of California at Berkeley's "gully cut" (Area KG) on the northeast side of Kuyunjik, ancient Nineveh, has yielded such post-Akkadian pottery in trash deposits outside the city's walls (McMahon 1998). Though textual references to Nineveh are not common in the administrative records of the Third Dynasty of Ur, the few references that do exist attest to

Nineveh's importance. As noted above, the Ur dynasts maintained effective relations with northern polities by means of royal marriage alliances, and Ti'amat-bashti, a sister of Tish-atal, king of Nineveh, was probably one of Shu-Suen's wives (Wilcke 1988; Sallaberger 1999: 161). She likely brought the cult of the Hurrian Ishtar, Sha(w)ushka, with her from Nineveh. Tish-atal himself made a state visit to the south in Shu-Suen year 3 (Whiting 1982: 173-78).

Population Movements from North to South (?)—Weiss cites data from settlement surveys of the floodplain as documenting a large-scale influx of northerners into the south in what he termed the "post-Akkadian Ur III time" (Weiss 2000b: 88-89). However, Weiss' representation of the chronological precision of the survey data, and the extent to which the results can be utilized for wide-ranging historical reconstructions are dubious (see, for example, Adams and Nissen 1972: 37).

The problems with survey data for the late third and early second millennia relate broadly to the ceramic indicators for the early historic dynasties. Adams specifically noted the problem of distinguishing Early Dynastic from Akkadian, Akkadian from the Third Dynasty of Ur and Third Dynasty of Ur from Isin-Larsa in surface collections, and in presenting his results he in fact lumped together settlements dating to the Third Dynasty of Ur and the succeeding Isin-Larsa periods (Adams 1981: 142-43). Adams accepted the fact that his survey results lacked as fine-tuned a chronology as he might have liked, but he saw the deficiency as a trade off for his "study's emphasis on wide geographic coverage and hence rapidity of application" (Adams 1972: 37-39; 1981: 143).

Adams calculated total assumed site areas of 1659 ha for the late Early Dynastic, 1416 ha for the Akkadian, 2725 ha for the Third Dynasty of Ur and Isin-Larsa periods, and 1791 ha for the Old Babylonian periods. The Third Dynasty of Ur and Isin-Larsa periods together cover about 330 years, and not all of the sites he recorded would have been occupied at the same time. Although the difference between total area occupied in the Third Dynasty of Ur-Isin-Larsa period and the areas occupied in the preceding Akkadian and following Old Babylonian periods must be understood within these considerations, Adams argued that there was a "sharp increase in the numbers of sites in every size category" for the late third and early second millennia (Adams 1981: 143).

However, since Adams completed his surveys, excavations have considerably refined our knowledge of the ceramic sequence for Mesopotamia's early historic dynasties, making it possible to re-assess the time range of the ceramic indicators he utilized for the Akkadian, Third Dynasty of Ur/Isin-Larsa and Old Babylonian periods (see Adams 1965: 127-29; Adams and Nissen 1972: 103-04; Adams 1981: 170-71). In general, the index fossils Adams utilized for the Akkadian

period are late Akkadian, Third Dynasty of Ur and early Isin-Larsa in date (see preliminarily Gibson and McMahon 1995). It might have been possible to isolate sites dating to the Third Dynasty of Ur utilizing the so-called "band-rim bowl" (or one other type) in combination with longer-lived types, but Adams did not include the "band-rim bowl" as an index fossil (Gibson and McMahon 1995: 8, 16). Adams' Third Dynasty of Ur and Isin-Larsa period falls largely in the Isin-Larsa period. The "flaring carinated bowl with grooved rim" that he utilized as an index fossil for the time period is a long-lived type. It spans the late Akkadian and Third Dynasty of Ur through Old Babylonian periods, with even later derivatives, and has significant variations over time (Gibson and McMahon 1995: 16). It could be used to identify occupations dating to the Third Dynasty of Ur, but only when co-occurring with ceramic indicators Adams otherwise employed for the Akkadian period.

In short, the "sharp increase in the numbers of sites in every size category" that Adams documented occurred presumably in the early second millennium, after the time of the putative large-scale migrations from north to south that Weiss postulated as a cause for the end of the Third Dynasty of Ur state. The factors behind the increase in the numbers of sites remain open to question.

Summary—Weiss's work at Tell Leilan over the last ten years or so and, in particular, the data he has adduced for late third millennium abrupt climate change, its impact on dry farming production and settlement in the Khabur drainage basin, as well as its contributory role in the disintegration of the Dynasty of Akkade, have contributed significant insights into our understanding of the dynamics of the relationship between northern and southern Mesopotamia, a theme that he initiated with his work at Tell Leilan. In particular, his explanation of the Dynasty of Akkade as politically dominant and economically dependent on the Khabur's dry farming production has turned conventional pictures of the surplus producing irrigation agricultural regime of the southern floodplain "on its head." Yet perhaps his reconstruction of the genesis of the Akkadian empire is not so far-fetched. Whether the population of the southern floodplain had reached its limits by late Early Dynastic III times remains questionable, if not impossible to demonstrate. However, Akkade's location on the northeastern periphery of the southern floodplain would have put the Khabur in its backyard geographically and made the Khabur a critical economic resource. Perhaps as Weiss himself concluded, the "jejune" cuneiform record for early historic Mesopotamia missed, among others, the "structure and goals of Akkadian imperialism" (Weiss 2000b: 91-92).

On a broader methodological level, Weiss has called particular attention to geomorphological, soil micromorphological, lake and marine cores, as data

sources critical for reconstructing natural and anthropogenic phenomena. And his insistence on integrating information derived from those sources with archaeological and textual data at least aims at holistic historical reconstruction, even if, his attempts to fully articulate hard climatological data with more inconsistent documentary and archaeological records are still far from convincing (Reycraft and Bawden 2001: 7).

Mesopotamian Subsistence: Archaeological and Historical Perspectives

Mesopotamia has been described as the world's first "urban" civilization and dubbed "heartland of cities" (Adams 1981). Surface surveys, despite their limitations, provide rough demographic data, suggesting that in the latter part of the Early Dynastic period roughly eighty percent of the population lived in "urban" settlements 40 ha (ca. 100 acres) or more in area, while a mere ten percent lived in "non-urban" settlements smaller than four hectares (10 acres). The urban population remained "disproportionately" high through the mid-second millennium (or Old Babylonian period), though the percentage of the population living in small settlements had increased threefold by that time (Adams 1981: 138). At least until recently, with the initiation of salvage projects, archaeologists working in Mesopotamia have focused their efforts largely on "urban" sites. For example, until the Hamrin Dam salvage project began in 1977 and 1978, the major excavations in Iraq (aside from prehistoric sites and the Directorate-General of Antiquities' ongoing and salvage projects) were Seleucia, Sippar (Abu Habba), Tell ed-Der, Nippur, Isin, Larsa, Uruk/Wark and al-Hiba (Lagash). Abu Salabikh was the only relatively "small" site under excavations (Postgate 1977). As might be expected, our textual corpora, too, whether excavated or looted, derive largely from urban centers.

Weiss' work on abrupt climate change has forcefully reminded us that however "urban" Mesopotamian civilization was founded on highly productive irrigation and dry farming agriculture, complemented by animal—primarily sheep and goat—husbandry and the exploitation of wild animals in more marginal areas (Zeder 1994). Lexical, literary, and legal and administrative/economic texts provide a wealth of data on subsistence activities. The canonical lexical series HAR-ra = *hubullu* includes lists of trees, reeds and reed objects, domestic and wild animals, plants, fish and birds, beer, barley and its products, honey and other foodstuffs (Oppenheim 1977: 247). The didactic literary composition known as the Farmer's Instructions describes how to cultivate cereals from the spring flood season in April-May, through tilling and sowing, until the end of the harvest the following spring (Civil 1994). The large number of administrative texts from the Third Dynasty of Ur from Tello provide substantive insights

about how at least the "great organizations," that is, temples and palaces, organized cereal production, as well as data on seeding rates, yields, etc. (for example, see Maekawa 1984; also Maekawa's articles in *Acta Sumerologica*), animal husbandry (Maekawa 1983) and horticulture (e.g., Zettler 1992: 134-37).

However rich the data on subsistence, textual sources have not necessarily been effectively utilized. Those who publish texts have all too often been wholly engrossed in "essential philological preliminaries of copying and translating the texts, and establishing the grammar and lexicon of the languages involved" (Postgate 1984: 1), and often oblivious to the material world. I. J. Gelb's "Sumerian and Akkadian Words for 'String of Fruit'" represents a case in point. In a sidebar to his article Gelb argued that the Sumerian term hashur should not be translated "apple," but "apricot" (1982). He based his argument, at least in part, on the fact that apricot trees grow well on the southern alluvium and appeared to be a much more important fruit in modern Iraq than apples (apples grow optimally at higher altitudes). Gelb also noted that apricots, dried or fresh, were more likely than apples to have been strung on strings, as hashur is commonly characterized in texts. In the last paragraph of his article Gelb observed, presciently, that he should know better than to get drawn into the debate about the identification of the names of fruit trees. Shortly after Gelb mailed his draft, he discovered a note on food remains from the Royal Cemetery of Ur that included small crab apples cut in half when fresh, threaded on a string and dried (Ellison, Renfrew, Brothwell and Seeley 1978: 167-77). He eventually wrote a short addendum to his work that effectively refuted his own conclusion (Gelb 1982: 484).

So, too, philologists have commonly assumed that the textual record mirrors the totality of ancient Mesopotamia, as, for example, Oppenheim's observation on the consumption of fish makes clear (1977: 46).

> The fish in rivers, swamps, lakes, and the sea were used on a large scale as food dried or preserved in salt only up to the middle of the second millennium B.C., and that with markedly decreasing frequency. The economic texts up to the early Old Babylonian period enumerate large quantities of a variety of fish in contexts that indicate the importance of the fishing industry for the community. The lexical texts corroborate the popularity of fish with their endless lists of fish names. Late and Assyrian texts, however, rarely speak of fish and fishing. The word fisherman even came to denote, in Neo-Babylonian Uruk, a lawless person.

Oppenheim's contention that ancient Mesopotamians ate less and less fish over time seems implausible in a riverine environment like southern Mesopotamia, and Postgate's explication of the possible significance of a not dissimilar observation that fruit, common in Ur III administrative texts, disappears in sources of the succeeding Isin-Larsa and Old Babylonian periods illustrates the risks of

quantifying textual references (1987: 125-27). Postgate postulated several possible explanations for the relative rarity of fruit in Isin-Larsa/Old Babylonian sources. Perhaps fruit was no longer (or less commonly) grown or imported because of the deterioration in the administration of irrigation, on which fruit trees were particularly dependent, in the wake of the Third Dynasty of Ur's disintegration. Or, perhaps the relatively rarity of fruit may be due to multiple biases in the textual record (or existing sample of the textual record) for the earlier second millennium. Postgate concluded that the rarity of fruit was probably a reality, but his argument was based on an absence of evidence, and his discussion highlights the value of archaeological—in particular faunal and botanical—remains in enriching text-based observations on subsistence.

The Sumerian Agricultural Group (SAG), an informally-constituted and elastic body set up in the early 1980s, demonstrated the utility of interdisciplinary collaboration between botanists, archaeobotanists, archaeologists, ethnoarchaeologists and cuneiformists in elucidating the real world of early Mesopotamian subsistence activities. Over the course of its existence SAG had six summer meetings, discussing cereals, pulses and oil seeds, alliaceous vegetables, cucumbers, fruit trees, irrigation and cultivation techniques, and domestic animals (Powell 1999). The proceedings of the meetings were published with exemplary speed in the *Bulletin of Sumerian Agriculture*. Though its editors, J. N. Postgate and Marvin Powell, initially bemoaned the fact that SAG served more to cast doubt on conventional translations given in Assyriological literature than to establish convincing alternatives, the wide-range of information that SAG brought to bear on subsistence problems was ground-breaking.

SAG's first meeting brought together cuneiformists with a group of archaeobotanists. Though all of the contributions, however seemingly basic, were highly informative, Naomi F. Miller's short paper, excerpted from her then recently completed dissertation on the botanical remains from Malyan (1982), and G. C. Hillman's lengthier contribution stand in interesting contrast. Miller argued that carbonized seeds in the archaeological record derived largely from the use of dung fuel (1984a), and she subsequently expanded her argument in various articles (1984b; Miller and Smart 1984). Hillman elaborated his own suggestion put forth a few years earlier (1981) that carbonized plant remains resulted from the deliberate burning of crop processing debris (1981; 1984; 1985). Miller and Hillman continue to disagree (e.g., Miller 1996; Hillman 1997), but Miller's work has alerted archaeologists and philologists/historians alike that charred botanical remains from archaeological sites, particularly those in areas where alternative fuel sources were lacking, more likely reflect patterns of animal rather than human consumption. Though context and the content of samples are critical factors in

determining the sources of charred botanical remains, (Miller 1997a: 103-04; 1997b), even carbonized clean barley stored in jars could be intended as winter fodder for animals (see below).

SAG's meeting on irrigation and cultivation techniques, held at Leiden in 1987, brought together archaeologists and archaeobotanitsts, an anthropologist (Robert C. Hunt) who studied irrigation and hydraulic management in parts of the world as diverse as Mexico and Egypt, and irrigation engineers from British consulting firms with experience of traditional (1950s) irrigation systems in Iraq. One important question raised was the relevance of the latter's observations to understanding early Mesopotamian irrigation systems. The question was stimulated by the Sumerian term nag-ku$_5$, discussed by Steinkeller (1988) and Waetzoldt (1990) among others. The nag-ku$_5$ is a lateral reservoir or pond to which excess flood waters could be diverted. In southern Mesopotamia the floods of the Tigris and Euphrates come at the time of the spring harvests and so pose distinct challenges for farmers. Though not its primary function, once the floods had subsided, stored excesses could be used for irrigation (Civil 1994: 132-34). As Postgate noted, nag-ku$_5$'s do not correspond to any elements of the traditional irrigation system; so, we perhaps have to reckon with an ancient irrigated landscape somewhat or perhaps even radically different from that of the 1950s (1988: ix).

Parenthetically, though not included in the *Bulletin of Sumerian Agriculture*, Miguel Civil presented a preliminary edition of the Farmer's Instructions, a text he had been working on intermittently for years, at the Leiden meeting. Discussions at the meeting and subsequent detailed comments from some participants doubtless enriched the published edition that appeared some years later. Civil's *Farmer's Instructions* (1994) stands as a paradigm for the reconstruction of the realia of ancient Mesopotamian subsistence from textual sources.

The last of SAG's annual meetings in 1990 and 1993 focused on domestic animals, in particular, caprids and cattle, and were enlivened by the participation of Edward Ochsenschlager. While taking part in the excavations at al-Hiba, on the edges of the marshes near Shatra in southern Iraq, from 1968 to 1990, Ochsenschlager had been able to conduct informal ethnoarchaeological work in nearby villages, and he contributed papers on sheep (1993a) and village weavers (1993b), as well as on water buffalo (Ochsenschlager and Gustav 1995), at the meetings.

Ochsenschlager's papers document the sort of small-scale animal husbandry that probably existed in ancient Mesopotamia, if outside the purview of cuneiform records, and doubtless offered a healthy dose of reality to discussions, as

the organizers intended. Among other observations, Ochsenschlager described the use of dung, often mixed with straw (or in the case of water buffalo straw and crushed reeds) as fuel, corroborating Miller's suggestion offered nearly ten years earlier. He also described the winter fodder feeding of animals with barley. Ochsenschlager noted that for four months of the year, when little or no pasturage exists, sheep have to be grain fed, normally two handfuls of barley twice a day. The period during which the animals have to be grain fed can be shortened to two or three months for those with land on the edge of the marsh or with irrigated ground. The lack of sufficient pasturage, especially in the fall, which results in prolonged and costly supplemental feeding of animals, provides a major limitation on the growth of sheep herds. Ochsenschlager's observations on winter grain feeding and constraints on herd size support the underpinnings of recent efforts to integrate animals into reconstructions of human occupation and agricultural production, particularly for the dry farming and more marginal areas of northern Mesopotamia (e.g., Miller 1997b; Danti 2000; Wilkinson 2000).

By way of summary, Naomi F. Miller's investigation of plant ornaments on Pu-abi's "diadem" from the Early Dynastic Royal Cemetery of Ur recently confirmed the utility of SAG's interdisciplinary approach to the natural world of ancient Mesopotamia for elucidating even long-standing enigmas (2000). The "diadem" was found in Pu-abi's tomb chamber; it had apparently been on a wooden table to the left of her bier, near her head. Woolley described the find as follows in his final report on the excavations (1934: 89).

> There were thousands of very small lapis-lazuli beads which lay against a strip of white powdery material the fibrous texture of which suggested leather; this must have been the background to which the beads were sewn. Against this blue field there had been attached small ornaments of gold which in spite of the decay of the background still kept their order and to some extent their spacing and so could be replaced with tolerable accuracy. There are four pairs of animal figures, stags, bearded bulls, gazelles, and rams, small eight-petalled rosettes, ears of wheat, clusters of three pomegranates with their leaves, plants with stems of gold leaf over silver, and with gold, lapis, or carnelian pods, palmettes of twisted gold wire, the last found always inverted and so apparently hanging downwards . . .

In Woolley's reconstruction the so-called "ears of wheat" and "plants with stems of gold leaf over silver, and with gold, lapis, or carnelian pods" were affixed to the bead backing in an upright position, despite the fact that the loops suggested that they were dangling ornaments. Woolley likely restored the pieces as he had seen them in the ground, but was no doubt influenced by his interpretation of some of the ornaments as "ears of wheat." Seeing the two components of the diadem as "dangling ornaments," Miller noted that the "ears of

wheat" were more likely hanging inflorescences and their morphology suggested the inflorescence of a date palm, a "much-branched spadix," probably describing the male flowering branch. Miller suggested that the ornament was probably to be identified with the Sumerian term á-an šu-ša-lá.

The identification of the "plants with stems of gold leaf over silver, and with gold, lapis, or carnelian pods" as the fruiting inflorescence of a date palm followed from the recognition of the "ears of wheat." Miller noted that the plants resembled a "bunch of some sort of fruit" and suggested that their ellipsoidal shape was consistent with dates. Since dates ripen from the tip toward the main step, the carnelian bead at the tip of the ornament would represent the first ripe date of the bunch. Dates were found in Royal Cemetery, and Miller noted the close connection in Sumerian mythology between dates, the goddess Inanna and fertility.

Miller likewise corrected Woolley's identification of the third plant ornament as pomegranates, identifying them as apples based on the morphology of the fruit and leaves. She noted that some species of apples have several fruits in terminal clusters like those on Pu-abi's diadem. Though the significance of apples remains to be investigated, as noted above, dried apples that had been strung on strings were found in the graves in the Royal Cemetery.

Though Pu-abi's 'diadem" was probably not a "diadem" but several discrete items, likely part of a coordinated ensemble of jewelry (Pittman 1998: 92-94), Miller has taken the first and biggest step, namely, plausibly identifying the plants, in elucidating the meaning of the imagery. Her work challenges colleagues, archaeologists and zooarchaeologists, art historians and philologists alike, to weigh in with a comprehensive explication of the symbolism of the ornaments that had graced Ur's queen in her life.

Conclusion

Historic Mesopotamia has been an established focus of research in universities for more than a hundred and fifty years now. In the mid-nineteenth century, philological and literary studies, as a well-established and respectable part of the academic tradition (Larsen 1996: 147), held the dominant hand in efforts at reconstructing the ancient cultures of the land between the rivers. Archaeology, then in its infancy, could offer, as Oppenheim would have it, little more than "welcome illustration to the wealth of factual information contained on clay tablets" (1977: 10). The segregation of academic training and practice that is a product of the field's nineteenth century roots remains today a deeply embedded part of its past. Nevertheless, over the last twenty-five years efforts, arguably stimulated

by Thorkild Jacobsen, have been made toward producing more holistic histories that integrate archaeological and textual data. The case studies I have detailed above remind us that neither archaeologists nor philologists/historians can afford to think and work in rigidly bounded confines (at least not without paying a price that skews the ancient past). Clay tablets come out of the ground and have contexts in the archaeological record that are integral to their interpretation. Assessing the representativeness of our sample of that one strand of evidence is critical to the reconstruction of longer-term trends in ancient Mesopotamian history. At the same time, as both Harvey Weiss' discussion of abrupt climate change and the Sumerian Agriculture Group forcefully reiterate, bringing together all available strands of data can challenge long-held translations or historical scenarios and markedly enrich our picture of the ancient past. While the nature of the data and analytical methodologies, research problems, and complexities of interpretation in the two fields are perhaps too demanding for any one person to be equally an archaeologist and philologists/historian, broader academic training that makes archaeologists informed consumers of textual data and encourages philologists/historians to grapple with the "nitty-gritty" of survey data, site reports, etc., as well as collaborative efforts such as the Sumerian Agriculture Group and those Hermann Gasche and colleagues have fostered (Gasche, et al. 1998; Gasche and Tanret 1998b), can go some distance toward promoting a dialogue that can invigorate our reconstruction of historic Mesopotamia. Furthermore, even inferences about preliterate Mesopotamia depend on a holistic historical archaeology of Mesopotamia, since cuneiform sources provide a rich source of analogies on which prehistorians are fundamentally dependent (see, for example, Andrén 1998: 131-34; Postgate 1992: xxii).

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