

Studying the Development of Complex Society: Mesopotamia in the Late Fifth and Fourth Millennia BC

Mitchell S. Rothman¹

Inca specialist D'Altroy (2001, Uruk Mesopotamia and Its Neighbours: Cross-Cultural Interactions in the Era of State Formation, School of American Research, Santa Fe, NM, p. 445) has written, "Uruk Mesopotamia has stood as the model for the study of the rise of the state for several decades." Work on this problem of the origin of complexity has remained one of the foci of scholarly research even these several decades after the completion of many of the classic and key studies of Uruk culture and its neighbors in adjoining areas. At the same time, the questions asked, the size and richness of the empirical record, and the interpretations of various scholars have undergone significant change. These changes parallel scholarly trends in studies of similar phenomena in other areas of the world. This article reviews key questions that are currently being asked about societal complexity with a primary focus on the cultures and societies of late fifth and fourth millennia BC Mesopotamia. In doing so, new perspectives and interpretations on perhaps the earliest complex societies are synthesized and assessed.

KEY WORDS: Greater Mesopotamia; social evolutionary theory; Uruk /late chalcolithic period.

INTRODUCTION

The study of the origin and nature of societal complexity is itself complex, because the foci of study have shifted, and scholars have reflected differing intellectual orientations in interpreting similar aspects of the empirical record. As such, this topic involves not only a review of research and results but also a kind of history of thought on the topics to be discussed.

¹Social Science Division, Widener University, Chester, Pennsylvania 19013-5792; e-mail: rothman@pop1.science.widener.edu.

As a starting point, we need to define complexity. Complexity describes a process during which a social transformation occurs to a qualitatively and quantitatively different kind of economic, governmental, and religious interdependence among people living in close contact in a multisite society. At the heart of that interdependence is the functional “segregation” (the amount of differentiation and specialization) and “centralization” (the degree of linkage between the various subsystems and the highest-order controls in society) of the members of these societies (Flannery, 1972, p. 409; also see Blanton *et al.*, 1993, pp. 21–22; Rothman, 1994a). It also involves the interactions of a variety of distinct groups based on dimensions like ethnicity, social rank, gender, occupation, etc. As a practical shorthand, I agree with the definition of complexity presented by Stein (1998, p. 1): “I use the term ‘complex society’ as a deliberately broad concept meant to subsume empires, states, and those early forms of hierarchically organized polities that are generally (but not without debate . . .) called ‘chiefdoms’.”

For Mesopotamia, as for many other societies, the factors that many scholars cite as keys to understanding the evolution of complexity include (1) environmental determinates of food production and consequently of settlement pattern and social organization; (2) political hierarchy (administrative or bureaucratic development, centralization); (3) social organization (power distribution, heterarchy, ranking and social stratification, multivocal approaches); (4) exchange, colonialism, influence, emulation, and other modalities of cross-cultural contact; (5) scale (geographic, population, and organizational); (6) urbanism; (7) mobilization of labor for economic, military, and social functions; (8) economic specialization; and (9) development of great-tradition religion as a tool of control, a unifying element, and as an ideological map that generates behavior. How these various factors are weighted and the relationships emphasized among them, again, derive from the particular analytical approach taken by different scholars.

Chronologically, for the Mesopotamian data set described here, I am speaking of the late fifth and fourth millennia BC. The seeds of societal complexity began long before this in the Halaf and continued through the Ubaid period, but it is in the Late Chalcolithic, Uruk, or LC1-5 period that the rate of change accelerated and the first state-level societies appeared. This period’s chronology, which has been much worked over (Table I), is still typified by various nomenclatures and long periods that may conflate some important changes. Nonetheless, recent chronological schemes (see Rothman, 2001a) have been based on radiocarbon dates that give it some consistency. There is an emerging agreement on the outlines, if not the details, of the temporal framework for Mesopotamia at this time.

The area that defines the Mesopotamian region in this period (see Rothman, 1994a, for definition of region) is the basin of the Tigris and Euphrates Rivers and their tributaries, the Orontes, Khabur, Greater and Lesser Zab, Diyala, Karkeh, Karun, and Ab-i Diz Rivers. This area covers all of modern Iraq, northern Syria, southeastern Turkey, and western Iran (Fig. 1).

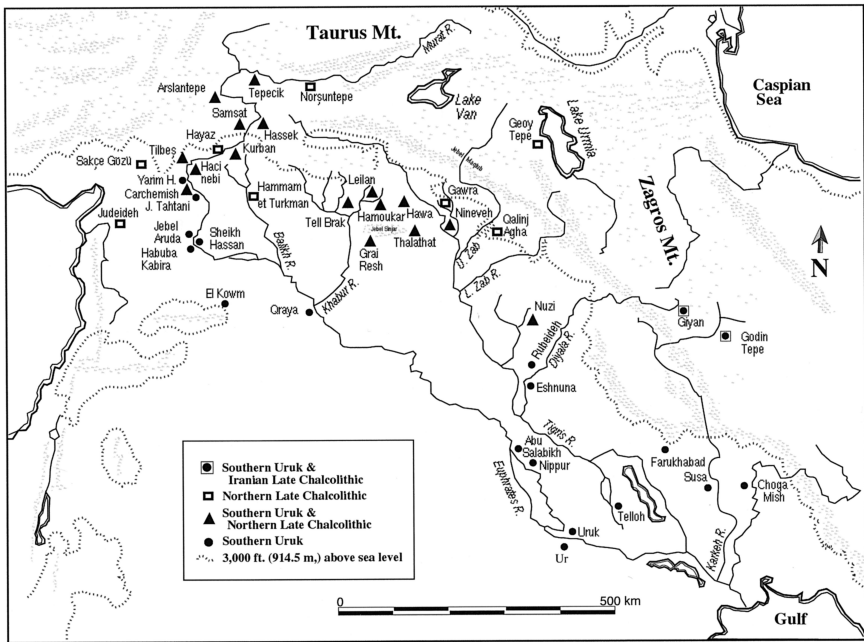


Fig. 1. Major sites in Mesopotamia during the fifth and fourth millennia BC.

ENVIRONMENTAL DETERMINATES OF FOOD PRODUCTION, SETTLEMENT PATTERNS, AND SOCIAL ORGANIZATION

The early research on the origins of complexity in Mesopotamia was largely that of Adams. In his landmark 1981 book, *Heartland of Cities*, the focus was on the southern alluvium and the effect of irrigation agriculture on settlement and urban organization. His approach was to look at “institutional forms and trends of growth . . . Emphasizing basic similarities in structure rather than the many acknowledged formal features by which each culture is rendered distinguishable from all others, it seeks to demonstrate that both the societies in question [Uruk Mesopotamia and central Mexico] can usefully be regarded as variants of a single processual pattern” (Adams, 1966, p. 1).

That growth was first and foremost a question of agricultural innovation, which concentrated population along rivers and their larger tributaries, as these were the sources of irrigation water. As he writes, “natural forces contributed importantly to the dynamics of Uruk settlement” (Adams, 1981, p. 63). Parenthetically, this approach also incorporates Adams’ interest in technology and its effects on societal evolution (Adams, 2000a).

Two of these natural factors were variability in the topography for exploitation and periodic shortages. Culminating with new satellite imaging (Pournelle, 2001), it was becoming more and more evident that the south was not a uniform environment, but a very patchy one with areas of prime, irrigation-watered agricultural land, marsh, and scrubby pasture (see also Kouchoukos, 1998, pp. 204–219). The use of these environments by varying groups created a pastiche of pastoral, agricultural, and marsh-utilizing groups who had to be integrated to some degree into cooperating networks formally or informally. In times of political trouble, the resiliency of portions of the population was assured by their ability to move from one niche to another (Adams, 1978).

Periodic flooding or drought was another key factor. “In the largest sense, Mesopotamian cities can be viewed as an adaptation to this perennial problem of periodic, unpredictable shortages. They provided concentration points for the storage of surpluses, necessarily soon walled to assure their defensibility. The initial distribution of smaller communities around them suggested primarily localized exploitation of land, with much of the producing population being persuaded or compelled to take up residence within individual walled centers rather than remaining in villages closer to their fields” (Adams, 1981, p. 244). Dendritic irrigation canals with their managerial requirements, a technology Wittfogel (1981) proposed as the basis of despotic state rule, were post-Uruk in date for the south, with the possible exception of the Susiana plains of southwestern Iran.

Although the storage function of southern Mesopotamian cities would be one of the prime causes of their development, Adams sees the institutions of the cities as a necessary corollary for “unifying what originally were socially and culturally heterogeneous groups” (Adams, 1981, p. 244). “In a way, Mesopotamian cities can almost be said to be coterminous with the underlying conditions for civilized life as it materialized there. At the heart of cities were large, interlocking institutions administered by relatively self-conscious elites . . . Only in cities were to be found the monumental repositories of religious belief and traditions . . . [and] the capacities for abstract thought and hence for complex long-range decision-making” (Adams, 1981, p. 248). “Status display, ritual, and administrative requirements surely reached their highest levels [in the late fourth millennium BC]—always remembering that the three were ‘embedded’ in one another rather than differentiated” (Adams, 1981, p. 80).

The approach that Adams takes, emphasizing the natural environment of agricultural production, has echoes in landscape archaeology, which emphasizes the natural world, the built environment, and human perceptions of space as a basis for reconstructing the past (Kouchoukos, 1998, pp. 4f.). It also brought issues of climate change to the table (Hole, 1994). Understanding change in natural landforms, climate, population size, and land use is the basis of landscape archaeology (see Wilkinson and Tucker, 1995, p. 89). The increasing sophistication of these techniques promises much more detailed understanding of settlement change

(Wilkinson, 2000). Others have begun to analyze the period and place under discussion here with a landscape approach. "The organization of space in southern Mesopotamia changed rapidly throughout the Uruk period and any interpretation of the appearance of Uruk-related materials throughout greater Mesopotamia must comprehend the causes of these changes. Such an argument is made compellingly by Johnson (1988/1989), who finds evidence for competition and fragmentation in later Uruk society. It is argued here, however, that more fundamental causes of spatial change lie in the relationship of Uruk Society to its environment" (Kouchoukos (1998, p. 251).

Many others emphasize the natural environment as a baseline for investigating the origin of complexity. Examples of these include Lupton (1996) and Pollock (1999) in general, Wright (1998, 2001) for Susiana, Algaze (2001a) for southern Mesopotamia, and Rothman (2002a,b) for northeastern Iraq. McCorriston (1997) investigates the relationship between environment and a shift from linen to wool in cloth making to understand critical population movements in the fourth millennium. Stein (1994) analyzes the social organization of northern rainfall-agriculture societies (versus irrigation societies) in the preceding Ubaid period as the result in part of the differing natural environments.

There is a gap, however, between those emphasizing environment and those emphasizing the development of centralization and administrative forms of social organization, the next approach I assess. This is clear in Adams' critiques of Wright and Johnson's work (Adams, 1981, pp. 76f.) and of a recent volume, *Archaic States* (Feinman, 1998). Adams questions the quality of the empirical evidence and the focus on hierarchical administration in the former and the contributors' lack of focus on environmental issues in the latter (Adams, 2000b, p. 192). Adams' and related approaches have themselves been questioned, because although they specify the conditions, particularly natural, for change, they are unable to explain the mechanisms of change (Rothman, 1994a).

POLITICAL HIERARCHY, CENTRALIZATION, AND INFORMATION PROCESSING

The attempt to explain the mechanisms of change was crystallized by a student of Adams, Henry Wright (1969, 1977a,b, 1994, 1998, 2001), and Wright's student, Greg Johnson. Theirs is a formal investigation of the origin of state-level political and economic complexity (Johnson, 1973; Wright, 1977a,b, 1998, 2001; Wright and Johnson, 1975, 1985). Wright and his students and contemporaries worked within the neo-evolutionist school of anthropology. Using Service (1962; Sahlins and Service, 1960) and Fried (1967) as their theoretical foundation, they and most of their contemporaries were seeking to explain general processes of change. Those changes would result in a universal sequence of development from smaller, less hierarchically, more kinship-based organizations to ones structured

by administratively organized polities regulated by rulers at the political center who had authority and control over various aspects of their society's members' lives.

Flannery (1972) added aspects of formal systems theory to the list of explanatory elements. He wrote, "An explanation of the rise of the state then centers on the ways in which the processes of segregation and centralization take place. This explanation requires that we distinguish carefully between (1) such *processes*, (2) the *mechanisms* by which they take place, and (3) the *socioenvironmental stresses* which select for these mechanisms. I suggest that mechanisms and processes are universal" (Flannery, 1972, p. 409). These changes occur through the forming of institutions that leave identifiable material remains.

At the same time Flannery allowed for conscious behavior. Those with their hands on the controls of the society could develop strategies that are "system serving," which are for the good of the general society, or "self-serving," which may hurt the society by concentrating resources in fewer and fewer hands, thus creating new internal stresses. In his attempt to explain the control mechanisms themselves, Flannery also looked at various possible configurations of hierarchical governance (Flannery, 1972, pp. 410–421). The most important of these for this discussion is "promotion," the creation of a new hierarchical level or the movement of a control task to that higher administrative level.

This neo-evolutionist school required a comparative method. It is in this light that Wright and Johnson focused on one element of social and political structure to serve as a yardstick for comparison. They wrote that a state "will be defined as a society which is primarily regulated through a differentiated and internally specialized decision making organization which is structured in minimally three hierarchical levels, with institutionalized provision for the operation and maintenance of this organization and implementation of its decisions" (Johnson, 1973, p. 2).

Because it was clear that states evolved in varied sets of natural environments and human conditions, a comparative method would require one common set of variables to act as the yardstick for comparison. If the core control structures of tribes, chiefdoms, and states could be clearly specified in terms of these same variables, then the potentially very different causes and effects of increasing administrative elaboration could be studied. That is to say, although the complex societies of Mesoamerica and Mesopotamia were quite different in their detail and date, the commonalities at their political cores could serve as a basis to look for further commonalities and differences in evolutionary trajectories.

That commonality could be boiled down to the information-processing potential of a given society's core political institutions. In this Wright and Johnson shared ethnographers' definition of organization. "Kinship structures define boundaries of membership by relationships of marriage and parentage. . . . Community structures define boundaries of membership primarily by common residence in a territory (or, metaphorically, by common adherence to a profession). . . . Administrative structures define boundaries of membership largely by contract (as in bureaucracy) or

by traditional claims to personal service . . . and depend on a hierarchical branching structure of super- and subordination to channel communication downward of plans and upward of reports" (Wallace, 1971, p. 1).

From an empirical point of view, the development of such systems required a data set encompassing whole systems, that is, areas with many interrelated sites or polities. The extensive surveys of the Susiana plains of southwestern Iran conducted by Wright and his students and their targeted excavations were keys to investigating the mechanisms of societal evolution. Looking for an empirical representation of hierarchical information processing and control, and no doubt with the words of Adams ringing in their ears, they sought to classify settlement patterns themselves. Their influential idea was that at least three tiers of settlement within one settlement system represented an underlying administrative structure with at least three levels of hierarchy. The logic of this equation was that the largest sites were more than agglomerations of people. As Blanton (1976) writes, cities are places where unique and specialized functions like leadership centers, markets, specialized craft production (often mass-production), state or great-tradition (see Redfield and Singer, 1954) religion, and symbolism of the state (palaces, cultural museums, mortuary installations, royal display, etc.) are found. Towns and villages then become sources of labor, food production, and secondary markets for the exchange of labor, foodstuffs, and durable goods produced in cities.

For systems based on irrigation agriculture like Susiana or southern Mesopotamia, this equation appears to work. For areas of rainfall agriculture, the equation of size, urbanization, and central place are less easy to make (Çevik, 2003; Rothman, 2002b, pp. 5–6; see "Scale and Urbanism" below).

Johnson (1980), however, had already begun to use newer, more sophisticated measurements of the nature of system interaction: rank-size and gravity models. Rank-size models graph site sizes against the distance between pairs of sites. It is a measurement of "the degree of system integration. . . [where system integration] refers to the degrees of independence between different parts of a system. Following Kowalewski *et al.* (1983, p. 35), interdependence is defined as the total amount of flow of matter, energy or information between system components" (Lupton, 1996, p. 9). Johnson used these methods to reaffirm his earlier ideas of central places and also to warn that "as further settlement pattern data are analyzed, regional patterns of Uruk development will appear even more variable than they do at this time" (Johnson, 1980, p. 255). In fact, Lupton's use of rank-size along with carrying capacity analysis shows just such variability for northern Mesopotamia (Lupton, 1996).

To make their case, however, Wright and Johnson needed to establish what the flow of matter, energy, and information was and, specifically, what leaders of new hierarchical administrative levels controlled; again, what specifically the mechanisms were. The central place of Susa had been under excavation by the French for almost a century, and a competing center at Choga Mish also was being

excavated (Delougaz and Kantor, 1996). Wright and Johnson therefore excavated two village sites, Sharafabad and KS-54 (Wright, 1998). What they concluded was that neither was self-sufficient economically. Essential durable goods such as pottery and stone tools were evidently mass-produced elsewhere, possibly at centers like Susa, Choga Mish, and Abu-Fanduweh, leading to ever-increasing administrative needs and administrative promotion in Flannery's terms (see above). "It is clear that goods and labor were extracted from rural producers, probably to support rural elites, and other elite and ordinary town dwellers. Figures with complementary hierarchical roles in a system of control acted to control the movement of labor or the flow of goods, as well as to keep records of transactions" (Wright, 1998, pp. 196–197). Sites of different sizes, the contrast of .5-ha Sharafabad to 3-ha KS 54, indicated differing degrees of administration and rank, represented by public buildings and access to exotic and presumably socially valued goods such as lapis lazuli or gold (Wright, 1998, p. 180). Of particular importance in this regard was the excavation of a large trash pit, through which seasonal changes in behavior, including administrative, domestic, agricultural, and the like, could be traced (Wright *et al.*, 1980). Rothman (1987), however, asked whether pottery was key to central control. Based on mathematical graphing of pottery distributions, the control of the choke points of irrigation systems was more important (Rothman 1987). Still, the outlines of mechanisms for centralization and promotion do seem clear.

Wright (1969) and others (Oppenheim, 1958) also recognized early on that the most direct way to analyze the administrative functions of sites was by investigating indigenous administrative hardware: seals, their clay sealings, and tablets. Seals and their clay sealings were used to restrict access to goods or raw materials locked in jars, boxes, baskets, sacks, or rooms (Feroli and Fiandra, 1979, 1983, 1994; Rothman, 1994b,c). Only those authorized to break a seal with a person's or institution's seal design could access the material locked inside.

The earliest known writing system was recovered from levels at the very end of the Uruk period (Uruk-Warka IVA, LC5, or Late Uruk). Early evolutionary theorists considered writing as one key to "civilization" (Childe, 1974; Morgan, 1985 [1877]). The first writing was found exclusively in the south. However, the earliest tablets were simply numerical counters, sometimes with an ideogram of a particular good (Nissen, 1988, 2001; Nissen *et al.*, 1993, p. 13). As they developed they became writing (the representation of spoken language with visible signs) and were capable of describing complex transactions, stories, and ideas. Whereas the connection Schmandt-Besserat (1992) makes between clay tokens and writing is now disputed (Baines and Yoffee, 1998, p. 215; Lieberman, 1980; Michaelowski, 1990), tokens in the shape of particular goods probably played some role in prehistoric administration.

So for most of the period discussed here, the only types of administrative hardware available for study are seals and sealings. The assumption at first was that *all* sealings represented formal administration. Some sealing behavior,

however, is evident two millennia before the LC1-5 or Uruk period in the Halaf period (von Wickede, 1990), at a time when few would see more than the beginning of a coordinating role for some individuals and groups. The simple equation of sealing behavior and administration is therefore questionable. At the same time, the use of sealing as an administrative tool in some cases is indisputable. In the central or Eanna district of the type site of the period, Uruk-Warka, centralized economic control “is suggested by the recovery in dump areas of thousands of sealed clay fasteners and inscribed clay tablets, both of which have to be interpreted as means of controlling economic transactions” (Nissen, 2001, p. 155). As Frangipane writes, “in the later [late fourth millennium] period of economic and political centralization, it was probably the elites who used the clay-sealing control system in their own family environment who then employed it centrally. By doing so, they gave this technology an enormous impetus, enabling it to achieve its full potential with the addition of new instruments (spherical bullae, complex tokens, and tablets). Evidence of the relation that existed between the adoption of these procedures in the family environment, their particular development in elite contexts, and their further enhancement into the public early state sphere comes not only from the large concentrations, often associated with mass-produced bowls in the Late Uruk centers, like Uruk [Warka] itself, Susa, and Arslantepe, but also from the substantial quantities of these materials found in the residential quarter of elites on the sites of Jebel Aruda” (a city of southerners planted in northern Mesopotamia in the late fourth millennium) (Frangipane, 2000, pp. 228–229).

Fiandra and Ferioli (1979) began the systematic study of the administrative use of sealings. They recognized a critical fact about their administrative function: wherever administrators used sealings as locks, they were retained for audits (Ferioli and Fiandra, 1994). Similarly, after tablets came into use *parallel to*, not entirely replacing, sealings, the seal took on the role of verifying the authority of the distributor of goods, or in private matters of the recipient, much like a modern signature (Fiandra, 1979, p. 31). These devices did not merely seal the goods or raw materials against unauthorized access, they were actually counting devices, whereby administrators could record inputs of goods and raw materials from particular sources—persons or offices—and also regulate outflows.

Other than in their use to seal storeroom doors, researchers have argued that they represent controlled interactions between sites. A late type of sealing, the bullae, illustrates this point. Although some researchers refer to all sealings as bullae, this classification is properly left for sealed hollow clay balls with clay counters inside. There would be no reason to create such a record without the need to transfer goods, perhaps a herd of sheep, over considerable distances. One such bulla found in the southeastern Turkish site of Hacinebi can be chemically traced to Susa in southwestern Iran (Blackman, 1999). Nissen proposes that the change in the shape of seals from the earlier stamp to the later cylinder indicates changes in the scope of administrative systems: “[the cylinder seal] allowed the

entire surface to be imprinted, making it very obvious from a short glimpse whether the fastener had been tampered with. In other words, when stamp seals were used, protection was tied to the general familiarity with everyone who used a seal—and a high degree of familiarity is characteristic of small groups. In contrast, the new kind of protection was an impersonal one. . . . The appearance of cylinder seals indicates that more people than before were engaged in economic life” (Nissen, 2000, p. 212), and the area encompassed was wider.

The whole system is nowhere clearer than at Arslantepe (Ferioli and Fiandra, 1979; Frangipane, 1994, 2000; Frangipane and Palmieri, 1983) in the north. Ironically, southern Mesopotamia, although the probable locus of the first cities and states, has provided us with little evidence of emerging complex society other than at Uruk-Warka with its early writing (see below). At Arslantepe excavators found clumps of sealings in the size and shape of ancient baskets, dumped in an abandoned room of its palace near sealed storerooms. Although excavators recovered only the administrative core, the temple–palace complex, this administrative center was clearly involved in the collection and directed redistribution of goods. These goods might have been used for immediate consumption by an elite group or the broader residents of the site, as rations for labor, for storage, or in exchange for political favors. The goods received were surely tribute owed to a leadership group at the center (Wright, 2000).

The directed redistribution at Arslantepe was carried out through two storerooms in the palace: A340 and A365 (Frangipane, 1994). Room A365 was filled with large pithoi but had no sealings. Room A340 had vessels of various sizes, but also 200 sealings, clay sealing blanks, and bunches of conical bowls (as well as cooking pots and grinding stones). Room A365 was surely a storeroom accessible only by officials. One whole section of dumped sealings in room A206 are of the door-lock type (Ferioli and Fiandra, 1994, figure 6). The other room, A340, was the disbursement station. Large pithoi were in one corner, and the broken sealings and sealing blanks were in another. Those sealings were mostly from sacks or basketry and rope, probably from sealing transportable containers. Among the 220 sealings recovered, 70 had “readable” designs. Of these 70, only 32 were individual designs. These same designs were found on the top of the room A206 trash; only two were found elsewhere on the site. We are most probably seeing the remains of the office of the comptroller of rations.

The formality of the sealing process is also evident at Arslantepe. Ferioli and Fiandra (1994, p. 150) demonstrate the step-by-step procedure. First, the seal was placed on the controlled items in their containers. This probably happened in some central place, a storehouse, or other centrally controlled locale. Second, when the items in sealed containers reached their final location, an authorized official removed the sealing. The sealings were then placed in a container. That this happens is clear from the room A206 dump. From historic times, we know that documents of certain types were placed in baskets with a subject tag. Third,

these containers were removed to another location for auditing. Auditing rooms from third and second millennium Mari and Hamad in Syria demonstrate this part of the process. Finally, after audits, the sealings were discarded. In Wright's terms, we certainly are seeing at least three hierarchical levels of control represented in this system: the initial sealers, the disbursement department, and the head of the organization who sets the policies on what is to be collected from whom and what is then redistributed to others. Frangipane considers Arslantepe in its VIA stage a state (Frangipane, 2001).

The development of this administrative system is clear at another northern site of the earlier LC1-3, Tepe Gawra. Tepe Gawra was a small center in the piedmont zone of northeastern Iraq (Rothman, 2002b). Gawra demonstrates trajectories of change in the administration of its polity from its level XII at the intersection of the Ubaid and Uruk period levels, LC1, ca. 4300 BC, to level VIII, at the beginning of the so-called Uruk expansion, LC3, 3700 BC (see below). Because of the wide horizontal exposure of its many levels, it was possible to discover the functions of its many buildings and open spaces and to map the distribution of seals and sealings to determine what was administered and by whom.

Excavated areas of level XII included a series of extended family houses, a central storehouse (perhaps for grain), and an area for the sorting, storage, and presumably exchange of craft goods (Rothman, 2002b, figure 5.13). In other words, although the primary organizing principle of the settlement was extended family or kinship based, evidence of exchange networks beyond the site, and even beyond the immediate area, is clear (see Frangipane, 2000, pp. 226f. for comparison). The storage areas with manufactured goods, often exotic to the immediate Gawra area, demonstrate this. In addition, a recent chemical analysis of sprig ware and impressed ware (Rothman and Blackman, 2003; see also Rothman, 2002b, pp. 55–56, plates 7, 9, 13, and 15) indicates that a central manufacturing center or centers of these pottery types existed between Gawra and Shelgiyya on the Tigris north of modern Mosul (sprig ware) and between Brak in the Khabur and Gawra (impressed ware). Despite this, the distribution of seals and sealings in XII is very generalized, covering all functional areas. Little that looks like hierarchy or regulation existed at the beginning of the LC1 or Ubaid/Uruk transition. Rather a corporate or system-sustaining organization (see below) is evidenced.

By Phase XI of level XI/XA, 4000 BC, a marked difference in function and organization is evident. Excavators recovered a central temple facing out on the countryside, indicating a role for the site in its larger polity. Houses as a rule were smaller than those of level XII, and they were not in a tripartite shape like those of previous periods. Excavators recovered clearly specialized activities in nondomestic buildings. These specialized functions included a weaving shop, a woodworking shop, a kiln area, and a building with military and social functions. Unlike level XII, the distribution of seals and sealings in good provenience was limited mostly to the special-function buildings. Levels X and IX at Gawra

evidence a diminution of specialized economic activity and the dominance of Gawra's religious and social functions. The distribution of seals and sealings, including for the first time, an often-repeated single seal (Rothman, 2002b, plate 51, seal 2003), clustered around those two functions (Rothman, 2002b, figure 5.53). Few seals or sealings were recovered from the clusters of small residences with small-scale craft and domestic activity (Rothman, 2002b, figure 5.53). Thus one of the functions of the site nearer the beginning of the fourth millennium became a basis for a newly elaborated administrative structure.

That structure would undergo marked change in Gawra level VIII. In VIII religious and social functions continued, isolated on the eastern half of the mound. On its western half, economic production for exchange, especially knapping of exotic obsidian, was revitalized. Residences all but disappeared, leaving only the specialized functions of a center, including a central warehouse. The distribution of seals and sealings reflected this change, including what looks like promotion to a new hierarchical level of control associated with a central storehouse. A single stamp seal was impressed on containers that were opened in every institution on the mound. Many sealings with this bull, dog and, snake seal (Rothman, 2002b, plate 58, number 2939) were concentrated near the warehouse. In other words, what the distribution of sealings implies is that a central administrator or comptrollers were receiving sealed goods at the center, opening them, repackaging them, and then sending them to each institution: religious, sociopolitical, and economic. The recording function of the clay-sealing locks may be best illustrated by the fact that a single-jar sealing was recovered in two pieces, one by the warehouse and one in the temple's side room, as if it were a modern tear-off receipt. The comptroller who broke the sealing would keep one piece, and the other piece would be sent to its allotted destination as verification of payment and as a record of the source.

The iconography of the seals also indicates changing political structure (Pittman, 1994). Esin (1994, p. 79) demonstrates that the design may match the office and not an individual person alone; the same identical design is found on seals of different size's at Değirmentepe, a late Ubaid site in eastern Turkey. There also seem to have been some design subjects (predation scenes, lines of herd animals) that are distinct to manufacturing, on the one hand, and religion and chiefly authority, on the other (Rothman, 1994b). The seal designs of LC1-3 emphasize natural and ritual scenes or animals. Later LC4 and 5 seals show "commanding figures in charge of ritual, judgement, battle, and other aspects of life" (Wright, 2001, p. 142), and also scenes of large-scale craft and storage activities, presumably under central control (Dittman, 1986; Pittman, 1993).

The written texts of LC5 south also provide evidence of the promotion Flannery postulates and that Wright sees as the political core. Eighty percent of all tablets recovered from this period were receipts and debits. "The remaining ones belong to the genre of so called Lexical Lists (Englund *et al.*, 1993). We assume that Eanna was not only the area where these controls were administered, but that it

was also there where the economic transactions took place . . . Specifically, this is shown by one of the 'Lexical Lists,' the so-called 'Title's and Professions' List.' In that series of tablets the entries for each occupation are apparently ordered by rank. After an opening title that later on is equated with 'king,' we find a number of titles that may be loosely translated as heads of departments. Among others, the fields of responsibility mentioned are law or justice, the city, barley, plough and labor-force. It seems that we are dealing with a ranked, well-organized [hierarchical] administration" (Nissen, 2001, pp. 155–156).

The efforts of Wright, Johnson, and many others have done much to elucidate the development of complexity, its political mechanisms, and their economic corollaries. Yet in addition to the critiques of Adams, other critics have expressed broad dissatisfaction with the use of Service's model of evolutionary steps by those concentrating on centralization, hierarchy, and information processing (Feinman and Neitzel, 1984; Yoffee, 1993). Even the processual model that informs the work of researchers so far described has come under attack (Hodder, 1991; Shanks and Tilley, 1987). The result of these critiques has been, as Stein (2001a, p. 355) writes, a changing research paradigm from the universal development of societal complexity to the dynamics of how particular complex societies functioned and their broader social organization.

SOCIAL ORGANIZATION AND HISTORY

Most researchers would agree that "the critical component of the concept of organizational change is the term organization. Organization refers to the components of a system and the interaction between the components. In this sense, human behavior at all levels—individual, group, and societal—is organized" (Plog, 1977, p. 24). For many researchers, the study of organization had shifted from centralization processes to "socioculturally constructed categories of difference . . . at different scales," state, household, gender, class, ethnicity (Pollock, 1999, p. 218; see also D'Altroy, 2001, p. 449).

In many ways this approach finds its theory in postprocessual history. History, according to its exponents, is more than a sequence of events with their consequences, the *outside* view. "History in the sense intended here involves also getting at the *inside* of events, at the intentions and concepts through which the subjectivities of actors are constituted. The historian talks of actions, not behaviour, movements or events" (Hodder, 1991, p. 80). History is also an appropriate term for these proponents of an alternative approach, as many of them have a background in textual studies.

With a concentration on the administrative, centralizing core largely rejected, these researchers propose that administrative organizations are one of a number of sometimes competing, and sometimes cooperating, institutions. Elizabeth Stone has made the point that the administrative core of the city is but one modality for organizing behavior (Stone and Zimansky, 1995). Certainly, there is evidence of all

three forms of organization—kinship, community, and administrative—in ancient Mesopotamia, as there continues to be today. For example, the administrative core of ancient southern Mesopotamia was defined by the institutions of palace and state religion, the temple. The ancient city, however, had some sort of citizens' council as well. As Oppenheim wrote of this early organization, "Constituted as an assembly, the community of citizens, though as a rule [made up of] only the old, rich, and privileged [citizens], administered the city under a presiding official" (Oppenheim, 1977, pp. 111–112). This was not a democracy like the town meetings of New England, but was distinct from the institutions of kingship and state religion, yet not totally independent of them. The palace and temples would later in the Old Babylonian period give land to these individuals as quasi-offices in exchange for service and loyalty (Stone, 1987). It also was distinct from clearly kinship-organized clans or lineages inside and, even more commonly, outside the city.

The distinction here is encapsulated by the idea of "heterogeneity" (Stein, 1998). "While hierarchy undoubtedly characterizes power relations in some societies, it is equally true that coalitions, federations, and other examples of shared or counterpoised power abound" (Crumley, 1995, p. 3). Even within the confines of a society typified by administrative forms of social organization, there can be a series of different administrative organizations. The creation and re-creation of social identities and agency become essentially important for understanding "how complex societies function and evolve" (Stein, 2002, pp. 905f.).

Yoffee (Baines and Yoffee, 1998) has sought to reconstruct ancient Mesopotamian social organization in terms of wealth and power. In this approach, the dynamic of Mesopotamian society is a competition to control resources. Comparing Egypt to Mesopotamia, Yoffee and Baines envision the head of state, the king, as a lord whose basic power is in acquisition of arable land and the mobilization of labor to cultivate it. The competition among emerging city-states, as opposed to territorial states like Egypt, fostered a set of conditions, organizations, and actions particular to Mesopotamia. The resulting differences in wealth defined much of Mesopotamia's social organization.

One of the oddities of the study of the fourth millennium in Greater Mesopotamia is a lack of cemeteries. In the following Early Bronze Age many would be found. For those interested in wealth and power, their lack in the fourth millennium presents an evidentiary problem. The LC 2-3 graves at Tepe Gawra are an exception (Peasall, 2002; see also Forest, 1983). Peasall demonstrated that concomitant with the administrative elaboration described above were the first signs of significant social differentiation, represented in burial types and mortuary goods at the site.

This focus on heterogeneity and strategy also has led some to question whether large parts of ancient populations have been ignored (Pollock, 1999, pp. 218f; Pollock and Bernbeck, 2000). Those taking this position call for a more multivocal analysis of the past. In addition, they question processual approaches to

investigating changing social organizations (Bernbeck and Pollock, 2002). They call for a new kind of history, which would be written not based on many of the categories of organization described above (Hodder's outside point of view) but rather on a kind of ethnographic, emic (in Hodder's terms, inside) point of view of the participants. "We claim that it is not only possible but necessary to make an epistemological break by distancing oneself from purely objectivist goals and include internal views (the plural here is of prime importance). For late fourth-millennium Mesopotamia, we hope to have shown that each of the spheres of life that we discussed had a specific material way of life and lifeworld of its own, and, furthermore, that concepts of time varied from one sphere to another. . . . a history would be more comprehensive in that a number of different, partial perspectives would be combined with an omniscient view. It would be less cohesive, in that it would be multivocal and ridden with contradictions that stem from a variety of partial views included in one and the same account of a historical period. In this way, constructive and deconstructive elements of historiography could be combined in an approach that could potentially be applied to other historical periods as well. Such an approach would enhance the foreignness of the Uruk past. It would end the currently dominant projection of present values onto the late fourth millennium, and at the same time create an "alterity" that is, in all its lack of cohesiveness, more realistic than a utopia" (Bernbeck and Pollock, 2002, p. 203).

A different approach by Forest (1996) combines a structuralist interpretation of archaeological remains with a return to the ideas of population pressure and status through seniority to explain the origin of the state. Forest sees artifacts, particularly their variations in style, as a way people code symbolic messages about society and their place in it. He interprets variations in these styles as coding universal mental maps about maleness versus femaleness, junior or subservient and senior or dominant status, much like the structuralist analysis of Levi-Strauss. As a baseline, he sees the beginning of the evolution of the state in small agricultural communities. Because of scalar stresses of population growth and the inherent principle of seniority, these societies would of necessity generate new social structures, starting with chiefdoms made up of the senior members of each village as a coordinating mechanism, that is, as opposed to regulation with its inherent authority structures. In his approach, he ignores adaptation to environment.

Even within what most would consider a processual school, questions of motivation and conscious strategies have emerged. Where these types of organization existed, they also may have different goals, even if in some sense they are at the same level of administrative elaboration. This idea of different goal-oriented types of organization is called dual evolution (Blanton *et al.*, 1996). It has been applied (with some reservations) to the development of prehistoric Mesopotamian administrative organizations at Tepe Gawra (Rothman and Peasnell, 1999). The theory states that there are broadly two sets of goals and their concomitant strategies used by administrative organizations: corporate, on the one hand, and exclusionary or

network, on the other hand. In corporate strategies the administrative organization is a necessary coordinating or regulating body that is nonetheless dedicated to the common good rather than taking advantage on behalf of its own socially and economically stratified members. An exclusionary or network strategy emphasizes the amassing of status, privilege, wealth, and political power for a limited “elite” group, in part by reaching beyond their political boundaries to establish economic relations of direct benefit to their in-group and in part by mobilizing the labor of their local population. Flannery’s idea (Flannery, 1972) of “system-serving” versus “self-serving” orientations also has been used in a similar manner (Frangipane, 2000).

Among those socially constructed categories that have reemerged as of interest is ethnicity. Early 20th-century archaeologists were almost exclusively concerned with ethnic groups and diffusion. Speiser excavated Tepe Gawra (see above) to address “the Sumerian question” of the origins and interactions of this first truly literate group (Speiser, 1935, pp. 185f.). The recognition (see below) that one dynamic of the fourth millennium on a regional scale was cross-cultural contact has led to attempts to identify ethnic differences in stylistic terms (Emberling, 1997; Pearce, 1999; Pittman, 2001).

As discussed above, the approaches just described represent a focus on motivation and individual action. Wright himself now acknowledges the utility of this element: “If we are to evaluate processes in larger cultural entities and over longer spans of time, archaeologists have to monitor individual decision making and action. Critics may argue that this is unattainable or impractical. It is sometimes said—I myself have said (Wright, 1980)—that archaeological records and documentary records are incommensurate, that archaeological garbage samples represent aggregate community action over long periods of time, and that only written texts represent the statements of specific actors about perceptions and decisions over short periods of time. I have come to believe that such statements result from archaeologists’ failure to use both their imaginations and adequate archaeological methods” (Wright, 1998, p. 175).

In general, however, Wright points to one of the key problems of the approaches I have subsumed under the rubric social organization and history. Many of these approaches are at this point more polemics than substantive research. Although they present new ways to view the evolution of complexity, it remains unclear what data they can develop to verify their conclusions (Stein, 1998, pp. 26–27). This is particularly so with approaches that stress the emic, inside, or meta-physical view (the last, Charvat, 2002). As with the structuralist school they come from, at times verification derives more from mere acceptance rather than from empirical proofs (Rothman, 2002c).

Yoffee’s description of the development of states provides no mechanisms of change other than competition, which surely must be different over the two millennia he describes (Baines and Yoffee, 1998, pp. 214–215). Rothman (1994a,

2001b) also has questioned whether the term “elite” is too broadly and readily applied. The term itself may obscure important social variations, that is, different kinds of elites or ranked individuals and groups. The interaction of different elites may well be another significant cause for change.

In addition, the new categories of heterogeneity and corporate/exclusionary overlap any number of the older tribe, chiefdom, and state categories, potentially leading to terminological confusion (Brumfiel, 1995). One of the key factors less notable among these scholars is contact among varying groups outside the polity they are studying.

EXCHANGE, COLONIALISM, INFLUENCE, EMULATION, AND OTHER MODALITIES OF CROSS-CULTURAL CONTACT

More than any other factor, cross-cultural contact within the Mesopotamian region was fostered by material exchange. Trade and exchange of resources, goods, and ideas has long been seen as a primary means of diffusing culture. Modern treatments on the effect of exchange have shown the complexity of monitoring and explaining these relationships (Adams, 1974). Every approach from Marxist (Zagarell, 1986) to deconstructionist has been applied to exchange systems.

It was a particular pattern of artifact distribution tied to exchange, however, that catalyzed research on the period of the development of complex societies, in particular the state, and proposed the region as the appropriate unit of analysis. Traditionally, scholars cite a sharp cultural break between the alluvial south and steppe, or hilly, north and east, in effect between irrigation and rainfall-agriculture zones in Greater Mesopotamia. This break is marked by artifact style (Perkins, 1949). Our knowledge of one side of this dichotomy, northern Mesopotamia, has changed rapidly in the last quarter century. Dam salvage projects on the Upper Euphrates (in Syria the Tabqa and Tishreen dams and in Turkey the Carchemish, Birecik, and Karakaya dams) and on the Tigris (Eski Mosul in Iraq and the Ilisu and Batman dams in Turkey) have produced a flood of new information on the late fifth and fourth millennia, resulting, ironically, in a greater density of well-excavated data for the north than exists for the south. In the south, most information comes from older excavations, often conducted by those more interested in architectural history than in social or economic organization (Nissen, 2001) and certainly not in evolutionary change.

In particular, excavators revealed an unexpected distribution of distinctly southern-styled pottery in northern sites. Algaze (1986, 1989, 1993a, 2001b) has interpreted this pattern of distribution of southern artifacts in the north and east as evidence of a colony-based world system, which has been dubbed the Uruk Expansion. He believes that this world system represented an informal economic domination of the north by the south, a precursor to a modern imperialist system. In his model, evolving states of the southern alluvium by their very nature expanded their economic domain into northern and eastern (the latter in the Western Zagros)

areas, because the south was resource poor. Raw materials and routes to other, more distant resource extraction points were in the hills of the north and east.

Some of the resources in question were obsidian, gold, silver, copper, lead, precious and semiprecious stones, and timber for large-scale construction. Algaze also includes slaves, because later texts mention them (Algaze, 1993a, pp. 74f.). For the most part, this trade was in high-valued, low-bulk “luxury” goods rather than high-bulk economic necessities like grains.

The pattern of sites with southern artifact styles formed dendritic patterns (Algaze, 1993a, figure 47). The choke points on these dendritic paths began in the steppes of northern Mesopotamia, themselves some distance from resource extraction points. Sites in the Syrian steppe, many with almost exclusively southern artifact styles such as Habuba Kabira (Strommenger, 1980), Jebel Aruda (van Driel, 1980), and Sheikh Hassan (Boese, 1995/1996, 1995), represent these first choke points, as may Nineveh on the Tigris (Algaze, 1986). Moving into the extraction areas themselves, southern emplacements within indigenous northern sites represented the second set of choke points. Hacinebi (Stein, 1999b, 2001b; Stein *et al.*, 1996), Hassek Höyük (Behm-Blanke, 1992), Tepecik (Esin, 1982), and Godin Tepe (Badler, 1989; Weiss and Young, 1975) may represent this second set (Fig. 1). The final set of sites in the hills barely exhibit southern artifacts. Arslantepe (Frangipane, 2001) on the Euphrates and perhaps Sialk (Amiet, 1985, p. 297) are two possibilities. Through the influence of the traders at the choke point sites, they funneled goods into the dendritic networks of each of the southern states.

Recent reassessments of the chronology of the late fifth and fourth millennia BC have altered Algaze’s theory in one respect. At the time he originally proposed his theory, the entire expansion was believed to have occurred in Late Uruk or LC 5, 3200–3050 BC (see Table I). Now, however, the beginning of the Uruk expansion is dated to LC3 or Early Middle Uruk at about 3700 BC (Gut, 1995; Rothman, 2001a; Wright and Rupley, 2001). This redating implies that there were at least three stages: (1) an initial one of small colonies within indigenous populations; (2) a second with more widely scattered emplacements including one possible fortress on the steppes, Sheikh Hassan; and (3) a third with the founding of large southern towns in the lightly settled area just north of the Middle Euphrates. An anonymous reviewer of an earlier draft of this article suggests that I am wrong to follow Schwartz (2001) in seeing this area of the Euphrates as largely unoccupied in LC 4 and LC 5. Alluviation could have caused pre-Bronze Age sites to be buried. One wonders, then, why Habuba Kabira itself was not buried. After all, Schwartz and I are referring to contemporaneous LC 4/5 sites. This redating does not of itself alter Algaze’s theory. It means that the Uruk expansion must be seen as part of a longer developmental process.

For our purposes here, Algaze’s theory is important in explaining the development of complexity in a regional context. His own model emphasizes development in the south, because he felt that southern states, as the core of a world system,

reaped the greatest benefits. Southern leaders in various city-states designed and administered this entire system. For the northern and eastern peripheries, little would change in their economies as a whole, according to Algaze. They were only providing raw materials and simple products. On the other hand, as in any traditional colonial system, the southerners would be converting imported raw materials into products for exchange within the southern core and for export back to the north. "If, as Jacobs argues, a key cause of development is imports added to capital and labor which produce value-added exports, then southern Mesopotamian societies had a substantial and irrevocable advantage over peripheral polities in that both labor and capital (agricultural and pastoral, and piscatorial surpluses and status-marking exotics) were more easily mobilized and redistributed in the south than elsewhere because of the inherent superiority of southern water-borne transport systems" (Algaze, 2001a, pp. 214–215). Certainly, "changes in administrative or generally ranked organization are catalyzed only when regulation of long-distance exchange (trade) and production is one of the primary needs served by administrative forms of social organization" (Rothman and Blackman, 2003, p.18). For Algaze, then, this acquisition of exotic goods is key both to general economic wealth and to the development of administrative hierarchy.

Many disagree with details in Algaze's analysis, particularly the degree of southern control of the networks (for example, Frangipane, 2001; Johnson, 1988/1989; Rothman, 1993, 2001b; Schwartz, 2001; Stein, 1990, 1999a,b, 2001b; Wright, 1995, 2001). Still, the power of Algaze's model is that it brings to the table questions about the evolution of complex societies, of societal dynamics, and archaeological interpretation in one neat package. In doing so, it puts the processual and social organization or history approaches described above in the same heuristic frame. He shows how power and wealth are accumulated and used. He allows for looking at quite distinct groups—rich and poor, urban and rural, male and female, powerful and powerless, ethnically northern and southern (Uruk)—and the way their behaviors form distinct social realities. He opens a door to again look into the evolution of political hierarchies and the control of labor and goods, as Wright and Flannery did.

For example, Algaze's model fits the idea of a self-serving or network exclusionary system with the development of core elites based in part on trade. Algaze points specifically to products that would mark a self-serving, exclusionary pattern. "Thus, the ability to acquire, display, and distribute exotic imports becomes crucial to the success of self-aggrandizing leaders in legitimizing their unequal access to resources and power. Those imports become, in short, central to the very reproduction of the social order. More specifically, in the Uruk case the flow of status-validating imports had to be maintained at all costs since an interruption would have led to a loss—no doubt unacceptable—of legitimacy for Uruk urban elites" (Algaze, 2001b, p. 59). The development of the dendritic trading network under the control of centralized leaders in the more powerful city-states therefore

met these ideological needs of state elites to symbolize their new social roles. Since the prevailing images of the gods in LC 1-5 were as providers from afar (Jacobsen, 1976), this also may represent a kind of sanctification (see Drennan, 1976 for discussion of religious sanctification as a basis of political authority, and below).

At the same time, Algaze raises many questions that his theory cannot adequately address. By arguing that the Mesopotamian region is a world system with the south at its core, he contradicts evidence of increasing complexity in the north before the Uruk Expansion (Algaze, 2001b; Frangipane, 1997, 2001; Lupton, 1996; Rothman, 1993, 2002b; Stein, 1999). The world-systems model as a working model by its very nature ignores the indigenous development that results from exchange (Kohl, 1989; Stein 1999a). As I argue for Gawra (Rothman, 2001b), Frangipane (2001) does for Arslantepe, and Stein (2002) does in general, the increased exchange and the ramifying network of contacts represented by the Uruk expansion presents a means for local northern and eastern leaders to extend their authority. At the same time it would cause further hierarchical promotion and administrative elaboration in the periphery that had already started before intensification of contact. As Adams (1974, p. 244) writes, "The common feature in these accounts [of trade between Europeans and Native American tribes], and their significance for the wider study of trade, is the emphasis they attach to a connective network of interaction. We learn that involvement in trade can bring in its wake rapid, massive changes in the structure and technological equipment of a society, as well as in associated patterns of motivation, mobility, and leadership. The net effect is an intensification of the society's interactions with distant as well as neighboring groups. These changes go forward at differing rates, of course, and lead to configurations which are neither uniform nor stable."

These networks are one essential datum that needs more study (Nissen, 2001; Rothman, 2002b). Although trading patterns have been investigated with chemical studies of the sources of raw materials (for example, Schwartz *et al.*, 1999; G. Wright, 1969), understanding the effects of exchange requires closer monitoring of the movement and potentially differential consumption of trade goods. In the end, even if the network is somewhat, although not completely, asymmetrical—northern styles like the hammerhead bowl are found in Susiana (Wright, 2001)—looking at the world from a purported core distorts the view of northern politics and economics (Stein, 1998). The world-systems model also overlooks the possibility that southern settlers, even if they did conduct trade, did not settle in the north primarily for that purpose. Johnson (1988/1989) argues that some settlers (colonists) fled the disruption that undoubtedly accompanied major social changes in their southern hometowns (Wright, 2001, pp. 143–144).

Other elements of Algaze's model involving scale and urbanism are discussed below. One of the interpretive issues Algaze's model has raised, however, is the equation of pottery, culture, and people, or at least colonial control. Supporters

of this equation propose that the preceding Ubaid period saw the emergence of a regional *oikumene* or overriding cultural identity based on common pottery styles. In the same way, they argue that the presence of Uruk-styled pottery at centers means southern presence and control. For example, Hassek Höyük is a walled village of the LC4/5 period (Behm-Blanke, 1992). It sits along a natural route into the hilly country of southeastern Turkey and the copper mines at Ergani. Because it had seemingly southern pottery and would have been a natural spot for a southern outpost, it has been interpreted as such, an emplacement in the expansionary process. A new study reveals, however, that the pots are locally made versions of Uruk pottery, using traditional northern potting techniques (Helwing, 1999). A neutron activation study of “Uruk” pottery at Kurban Höyük shows local sources of clay (Evins, 1989). The pottery of one of the most sophisticated northern centers, Arslantepe, reveals few southern pottery types and northern potting techniques in the few that existed. In fact, Stein and Özbal (2001) dispute the existence of the Ubaid *oikumene*, because local, northern pottery styles outweigh more universal Ubaid pottery styles in the north by a wide majority. Even if it were more common, Nissen (2001, pp. 168–70) attributes the Ubaid style not to a cultural *oikumene* but rather to the diffusion of the tournette or slow wheel, which promoted a certain painting style.

If the relations between the south and north were much less administratively structured or controlled, what does the presence of “southern” pottery alone really mean? Although pottery shape, function, and style are one of our most commonly used indicators of relatedness, exchange, status, and the like, it is equally clear that the cultural meanings of relatedness vary in time and space. Is it possible that the southern styles represent not domination but emulation by the very new northern leaders who are building their administrations on a network strategy of controlling exchange with outsiders? This would be a case of emulation or, as Winter (1977) calls it, receptivity. In this process, symbols are taken into a culture’s symbolic vocabulary from a foreign source, but they are somewhat reinterpreted within the meaning systems of the indigenous culture. In a study of the effect of culture contact and imperial expansion in the Ramesside period in Egypt, Higginbotham (2000, p. 132) develops a measurement of elite emulation versus political domination. She predicts that six conditions will be met under circumstances of elite emulation, that is, political independence during stress from a powerful foreign power. These include (1) a restricted set of emulated styles, not the full corpus, (2) primarily prestige items among the emulated styles, (3) variations of the original style as well as some direct copies or imports, (4) a lack of native settlement among the emulating population, (5) emulated items in consciously symbolic contexts like funerary goods, and (6) the percentage of emulated items would decline as one traveled further from the source of emulation. In both her case and ours number 4 is not necessary or the case. Also, many of the possibly emulated pottery styles are not obvious prestige goods, for example, droopy spouted jars. Otherwise her predictions seem to work for sites from the northern steppe and piedmont to the Taurus gates.

Elite emulation, however, speaks only to the initial stages of contact. In addition, through-time emulation may not be limited to an elite group. For example, an accent like the one most Americans equate with Brooklyn, New York, was first adopted by upper class New Yorkers from the noble classes in London as a class affectation (Labov, 1972, pp. 143–145, 171–178). Over time, it was emulated by merchant and working class New Yorkers, and its meaning went from upper-class affectation to lower-class or local identity marker. As mentioned above, the Uruk Expansion was actually hundreds of years long. Frangipane's claim that the north was "Urukized" stylistically in LC5 (Frangipane, 2002, p. 130) may represent not domination but a long process of emulation. Algaze (personal communication, 2003) disagrees with this interpretation because of remaining pockets of secondary settlements that retain exclusively northern pottery styles.

The issue of the nature and effects of cultural contact as represented in artifact style remain to be explicated fully. Studies using principles of linguistics may be very useful in this case, as language encodes many of the same key variations as artifact style. Those include variations in wealth, gender, power, occupation, and degree of contact.

Also, Stein and others illustrate that a broader investigation of style and function may be a check on pottery style. Analysis of not only pottery (Pearce, 1999) but animal butchering patterns (Bigelow, 1999), administrative and agricultural tools, stone knapping (Edens, 1999), and the like illustrate the use of a broader set of variables to check whether people with traditions foreign to an area are present at particular times (Stein, 1999c).

SCALE AND URBANISM

Another factor that affects culture change is scale, both in population size and geographic extent (Feinman 1994, 1998; Johnson, 1982). As already mentioned above, Forest built his theory of the origin of the state on the scalar stress of population growth. Various researchers have tried to estimate minimal population sizes for various levels of complexity (Baker and Sanders, 1972; Johnson and Earle, 1987). Whether the variable of size is population or geographical extent, one equation underlies the study of scale and social complexity: "if a society does increase significantly in size, and if at the same time remains unified and integrated, it must elaborate its organization" (Carneiro, 1967, p. 239).

As part of his model Algaze cites the importance of urban growth and geographic expansion as keys to the "take-off" of these societies. Cities for him are the seats of leadership and social integration, administrative elaboration, and markets for long-distance trade. This along with a synergy of high agricultural productivity, efficient transportation systems on local waterways, population density, and a lack of locally available raw materials explains the political and economic development of southern Mesopotamia (Algaze, 1993b, 2001a,c). By the same token, it explains superiority of the south over the north, which had less dense, more

dispersed settlement, was dependent on overland transport, and had easy access to raw materials in many localities.

The key example of a core state in Algaze's paradigm is Uruk-Warka and its incorporated countryside of as many as 122 smaller sites (Adams and Nissen, 1972, p. 18). This city has been under excavation for more than a century by a German archaeological mission to Iraq, although the quality of recording has deprived us of data to answer many questions (Nissen, 2001, 2002). Excavation at the site focused on its central portion, an area enclosed by a *temenos* wall (see plate, Nissen, 2002, p. 2). "Assembly halls" or large, clearly public buildings fill this district (Nissen, 2001, p. 155). Some, such as the Anu temple, probably had cultic functions. Based on earlier periods, the 9-ha central district was called Eanna after the goddess of the city. Excavators estimate that these large public buildings may have risen 10 m above the surface of Eanna, which was already 2 m higher than the remaining mound, making them visible throughout the city and the plains beyond. Including this special public area, the city itself expanded to 250 ha by LC5 (Late Uruk). There was no contemporary city even half its size, and many important fourth-millennium sites like Susa, Nineveh, Tell al-Hawa, Tell Brak, and so forth encompassed much less than half its area. If there was a primate center in the Uruk period (for its excavators, Archaic or Uruk-Warka IV) period, Uruk-Warka was certainly it. With its size, evidence of large-scale, administratively controlled production and exchange systems, the complexity of that administrative organization outlined in early texts (see above), and labor-intensive secular and sacred building projects in Eanna, the Uruk-Warka polity certainly fits anyone's definition of a state.

The portrayal of the southern social landscape, however, certainly does not apply to most northern Mesopotamian settlement systems in terms of scale. Urbanism defined in terms of the size of the central settlement does not appear in the north until the mid-late third millennium. Even the larger sites then were not necessarily part of dense settlement systems. The one exception may be Tell Brak in the Khabur Basin area along north-south and east-west trade routes. In the LC3 or early Middle Uruk period, it may have been on the order of 130 ha (Oates and Oates, 1997), only half of LC5 Uruk-Warka (the size of Uruk-Warka prior to Uruk IV, or LC5, is unknown).

More important than size alone, Stein's portrayal of northern, pre-LC1 Ubaid indicates a different rationale and strategy for northern leaders. It was more corporate in dual-evolutionary terms, at least in the sense that northern leaders emphasized their kinship ties with those they coordinated. The mobilization of labor was based on staple finance of bulk necessities rather than status-marking wealth finance of exotic luxury goods, as Algaze interprets the south. There was little conscious marking of status. Competition among centers, that is, warfare, was rare (Stein, 1994). Religious ritual (see below) also played a major role. As the first signs of long-distance exchange in exotic materials and goods and also coordination of

exchange and storage—a network strategy—emerged in the LC1, so did warfare (Rothman, 2002b, pp. 90–91).

At the same time, it is necessary to distinguish a center from a city. As Rothman (2002b) points out, a site even as small as 1-ha Tepe Gawra can be a center (see also Çevik, 2003). That is, it can have centralized production, religious, and administrative functions even in a small polity with a small population. This supports the argument of Kowalewski *et al.* (1983) that centers often serve to mediate exchange with other centers. Leaders at centers can utilize a strategy that attempts to funnel all exchange through the center (a closed situation) or permit much more openness of subsidiary settlements to enter independent exchange networks. Gawra never reached the scale or complexity of a state-level society. Still, although Uruk-Warka is certainly an example of a city and a state, Arslantepe can be argued to have had state-level functions within the context of a much smaller preurban center (Frangipane, 2001, 2002). Parenthetically, Butterlin (2003) questions the utility and reality of the term city-state, preferring “protourbaine.”

Some scholars question even the image of the south created by Uruk-Warka. Pollock (2001) argues that the northern part of the southern Mesopotamian area near Nippur and Adab never developed the degree of centralization or administrative control of an Uruk-Warka. Production of mundane goods like chipping stone remained a largely household function. Although it shared many of the qualities that Algaze cites as the cause of contemporaneous southern city-states’ take-off, the same evolutionary trajectory is not apparent there. Nippur and Adab, according to Pollock, were also much more stable in population and politics than Uruk-Warka and other southern city-states and less warlike. Adams (1978) and Wright (2001) discuss the issue of stability, and Carneiro (1967) cites stability as one precursor of administrative promotion, but it needs more formal explication in this context.

In addition to scale in population terms, Algaze argues for scale in the geographical area of control. The Uruk Expansion is a network of administered trade that covers the region. Stein (1999a) argues that this tenet of Algaze’s theory is untenable. Using a distance–parity model, he shows how difficult it would be to maintain control over an area that represents months of travel time on foot. Even the domestication of the donkey (Wright, 2001), which made long-distance exchange possible, would not be of much use in an attempt to control distant populations and traders. Travel south on the Tigris and Euphrates would speed up transport, but the difficulties of navigating up the rivers made water transport of trade goods implausible. Also, Rothman (1993) asks how such distant control could be accomplished without the threat of military force, a factor Algaze rejects, favoring a peaceful, economic domination.

In general, most exchange and urbanization models assume some stability of populations. Southerners were from and lived in the south and vice versa for northerners. Hacinebi, as discussed above, leaves open the possibility that people crossing the north-south cultural zones retained their cultural distinctiveness. Yet

after “colonies” were founded and as they developed, did new generations meld into local traditions? How large were populations, whether nomadic or landless, that were on the move in frequent times of instability? More and more scholars are asking whether, alternatively, we are looking at a more mobile population, which adapted to new surroundings. “The most significant factor of the Late Uruk phenomenon was, therefore, not so much the stimulation of secondary states under the southern influence as the maximum establishment of that capillary and intense set of mutual relationships between different components based on the capacity of the Mesopotamian populations to shift around the vast territory lying between the Tigris and the Euphrates” (Frangipane, 2002, p. 130).

Questions of scale are certainly important to understand the evolutionary of complexity. As more of the region receives quality site and environmental surveys, the possibility of discussing scale will become more and more possible. The relation between size and complexity, however, remains itself complex. Among other remaining issues in monitoring scale is a method to measure it. Questions of population movement, especially whether we can talk of distinct cultural units, need further research.

LABOR AND ECONOMIC SPECIALIZATION

Similarly, questions of the sources, types, and mobilization of labor remain only provisionally understood (D’Altroy, 2001, pp. 468f.). Much has been written about labor from texts of the mid-third into second millennia BC (for example, Evans, 1962, 1963; Weitemeyer, 1962). For those periods labor, especially on palace and temple agricultural estates (and private farms), was a conscious concern of rulers and record keepers.

Our image of the centralized nature of Uruk-Warka is enhanced by evidence of large-scale economic activity under the watchful eyes of those who controlled the central district of the city. As Pittman writes (1993, p. 243), “the images [in the sealings of the Late Uruk] when read closely show us the monitoring of the production and the feeding of a labor pool who produced commodities. . . . We also see the counting of capital investments such as animals on the hoof and the deposition of grain in the granary.” Evidence from the designs of these seals and sealings and the earliest written records (see above) also indicate that centralized production of textiles with female *corvée* labor was common at least at Uruk-Warka and other smaller centers like Susa in southwestern Iran (Algaze, 1993a, p. 118). Within the Eanna district, “large, plaza-like open spaces may have served to accommodate large numbers of people. Apart from its assumed cultic/public function, Eanna is thought to have served as an economic center as well. On the one hand, this is indicated by spaces within Eanna that served as workshops. Remains of kiln installations, which were interpreted as metal working installations, . . . indicate their workshop function” (Nissen, 2001, p. 155). These kilns also may have been

used for pottery firing, given the massive numbers of ceramics recovered from the city center alone.

At LC2 Gawra, however, specialization of craft production of textiles, wood-working, bead making, clay firing, and seal carving also are evident. The degree of administrative control of specialized production and labor varied greatly, as did exchange. Although seal design may, as already mentioned, indicate some bifurcation of controlling entities at Gawra phase XI, neither in sealing distribution nor burial types and grave goods is social ranking or significant hierarchical promotion indicated. No one is claiming a high degree of either centralization or power for its leaders based on its specialized production. The presence of specialized production does not in itself indicate the need for administrative regulation. Perhaps scale as a causal factor also should apply to specialization in economic activity as well as to population size and geographical extent.

Beyond the workers in the probably state-run enterprises of Uruk-Warka, mobilization of labor is necessary for a host of other activities from military service to building (Wright, 2001), cultivating fields and raising animals, and supporting large-scale religious ritual. How this labor was harnessed, by whom, and for what purposes is still difficult to determine and is often ignored in the literature.

One approach to documenting labor mobilization is to map the distribution of a uniquely ugly pottery type, the beveled rim bowl (Nissen, 1974). These are crude, straw-tempered, low-fired, hand- or mold-made bowls. The most commonly held view is that they were ration bowls (Nissen, 1974; Wright, 2001, p. 141) and were designed in a variety of standard sizes (Johnson, 1973, pp. 135–139) or were used with standard-sized ladles to distribute predetermined portions for corvée laborers and dependents. Others see them as salt-making bowls (Buccellati, 1990), bread-baking bowls (Beale, 1978), or as elite banquet ware (Forest, 1987). In fact, they and their functional cousins, the wide flower pot and conical cup, are used for a variety of purposes (Rothman, 2002b, p. 65). The key factor, though, in interpreting these bowls may be that they often were discarded in the thousands, even tens of thousands. Their distribution relative to other pottery types may be a way to monitor the loci of state activity (Rothman, 1987). Because beveled rim bowls are one of the first pottery types found both north and south at the beginning of the Uruk expansion in LC3 (Wright, 2001, p. 125), they could indicate a regionwide pattern of labor recruitment. Still, more work needs to be done both on the functions of these and other pottery types and on the whole issue of labor and its relation to social organization, ethnicity, status identification, and particularly centralized control networks.

RELIGION, GREAT AND SMALL

As much as cities and writing, religion was a major concern of early Mesopotamian archaeologists (Frankfort *et al.*, 1951). By the time Adams (1981)

reviewed the work of Wright and Johnson, he had to ask why religion was ignored in the search for the causes of social evolution. He was quickly answered by a study of the great *massif* (or platform) at Susa in LC1 (Hole, 1983). There Hole demonstrates how religious ideology, the mobilization of labor in the service of god and community, and the use of pottery style and mortuary behavior to signify new statuses and reward political allies combined to catalyze growth, functional segregation, and the development of leadership in Susiana. As Adams (1981, p. 80) argued, all of these factors were embedded in one another.

Still, the role of prehistoric Mesopotamian religion in the evolution of societal complexity has remained understudied. Even the “metaphysics” section of a volume on Mesopotamian prehistory on has no mention of religion (Charvat, 2002). In fact, the only full analysis of Mesopotamian religion in relation to societal evolution is for later, historical periods (Pollock, 1999, Chap. 7). This conundrum may be related to the emphasis, particularly in prehistory, on economics and politics. “I am struck by the marked differences in the ways organized religion and ceremony are treated in Uruk and in the early states of the Americas. In the Andes and Mesoamerica, ideology is often treated as a vigorous, active aspect of early complex society . . . Economic activities are only of peripheral interest . . . In contrast, with the partial retreat of the theocratic model of early Mesopotamian societies, Uruk temples seem to be analyzed predominantly for their roles as economic enterprises” (D’Altroy, 2001, p. 462).

The theocratic model D’Altroy refers to is that of Falkenstein (1974), who argued that for early historic periods in Mesopotamia the temple and palace were really one institution with a kind of priest-king at its head. Further analysis of contemporary texts contradicts this model (Yoffee, 1995, pp. 289–290).

Scholars of early historic periods in Mesopotamia usually have analyzed religion as means to sanctify leaders and justify economic changes. In the truly revolutionary transition from largely kinship organized society of the pre-Uruk to the state societies of the fourth and even more clearly the third millennia, leaders needed a public rationale for their political and economic authority. Association with the gods provided one such rationale. Thus Moorey (1976) explains the death pits from third millennium Ur as a way to associate kings with divine authority. Each year the religious ritual mating of the goddess Inanna and her consort Dumuzi would be performed with human actors as divinely possessed stand-ins for the gods. Moorey proposes that those buried on the central biers of the death pits were these human stand-ins, in effect, the gods themselves. From texts we know that many of the actors were close relatives of the king. In this way, the king and his household (the real meaning of Sumerian *è.gal* is the great household, not the political institution of the palace) were associated with the fertility of the soil and thus were authorized to act on the gods’ behalf. It is perhaps appropriate that the architectural plans for early temples and palaces derive from the architectural plan of extended family dwellings, the *mittelsaal* or tripartite form (Oates, 1987, p. 379).

Even in the absence of a king, religion was used in the northern 'Ubaid to help mobilize labor for chiefly ends (Stein, 1994). At that earlier stage of development, however, religious ideology created an image of the chief as having the same beliefs and status as most members of his polity, not as being of higher rank. In any case, we must remember that just because politicians use religion for their own political ends, it does not mean that they do not subscribe to that ideology. It does mean that their view of their society and particularly their role in society are determined by ideology.

Another rationale for religious practice is its integrative function. As Carneiro (1967) stated, the necessity of administrative elaboration occurs in a unified and somewhat stable society. Adams (1981) asserts that one of the early problems in southern Mesopotamian organization was to bring together disparate groups. These were the groups that developed adaptations to agrarian, pastoral, and riverine environments. The integration of distinct groups may begin with a ritual appeal. The formation of a coherent community that would subscribe to a common religious ideology is a prerequisite for the effectiveness of ideology in politics (Hole, 1989). I proposed that the building of a temple facing east to the hills at the edge of the mound in Gawra phase XI was a conscious strategy to bring both villagers and pastoral nomadic groups into the orbit of the leaders of Gawra (Rothman, 2001b, pp. 357–360). This strategy also entailed economic exchange and specialized craft production. Yet in early LC2, grave goods provide little evidence of ranking or stratification. It was in later LC2, Gawra X, and Gawra XI, when religion and administration were *the* main functions of the site, that the rich tombs of Gawra were constructed and filled.

One of the problems in assessing the roles of religion in prehistoric times has been analytical. The sources for studying religion—temples and images from seals and sealings—are open to many interpretations. Forest (2003), for example, claims that none of these early buildings were fully religious in the sense we think of places of worship today. The tendency of earlier archaeologists to call every large building a temple or a palace did not help (for example, see Rothman 2002a, pp. 73–74).

D'Altroy (2001, p. 463) calls for study of rituals as reflected in temple architecture and its contents. He writes, "My image of Uruk institutional ceremonial activity is that it was spatially and socially exclusionary, directed toward enclosed areas and building interiors, and performance-oriented rather than participatory, at least with respect to the general populace." This conclusion is supported to some degree by the size of the main rooms of the temples. Although Nissen (2001, p. 155) calls the clearly public buildings in Eanna "assembly halls," most temples would accommodate very few individuals. Many excavators assumed that the platforms found in the main, central room of these temples were where sacrificial animals were burned. Margueron (2003), however, claims that all temples were two-story buildings, which would make burned sacrifice suffocating. He suggests

that sacrificial rituals and all public ceremonial display happened outside the temple.

Nonetheless, the *evolution* of temple architecture has the potential to reveal meaningful patterns relating religion, ideology, and social action. Oates (1987) asserts that the differing traditions of building temples either one on top of the other as at Eridu or consciously not overlapping as at Gawra represents different ideologies. Similarly, the placement of contemporary temples at high and low places on the mound at Uqair and Uruk-Warka may, according to Oates, indicate that the ancients recognized differences between state religion and older folk religion at the same center. Other scholars are beginning to write analyses of temple architecture and the ritual that might have taken place there from artifactual remains (Forest, 1999). Certainly, the very presence of specialized temple districts on hillsides at the LC5 Syrian “colony” sites of Habuba Kabira/Qannas (Stommenger, 1980) and Jebel Aruda (van Driel, 2002) indicates the importance of religion as part of the whole social and ideological fabric of ancient societies.

As difficult as it may be to tease ideology out of temple buildings, the other prehistoric source, images of ritual or the supernatural on seals and their sealings, may be even more difficult but also more rewarding. One of the few comprehensive studies of religion from seal imagery is that of Frankfort (1939). His goal was not the study of complexity but simply a catalogue of religious imagery. Since Frankfort’s study, little more has been done. Surprisingly, even those who seek an inside view question the reliability of seal images to discover native ideology (Bernbeck and Pollock, 2002). Yet pieces of this puzzle must be in those images. For example, Pittman (2001) classifies LC1 and early LC2 seal images as being “shamanistic” because of the many images of bird-headed individuals performing various actions. Our art-historical colleagues have done quite a lot to interpret these images according to their meaning set. Still, we need ways to collaborate with them that makes the meaning of the whole set of images relevant to the search for a native view of their world as it changes. Perhaps it is best done through an analysis of the very changes in seal images through time. We may have difficulty interpreting a set of contemporaneous images for their religious content *per se*, but changes like those Wright found (see above) may give us an outline of native ideology in relation to other aspects of the social order. In addition to seals, images of the supernatural appear on walls such as those on the palace complex of Arslantepe VIA (Frangipane, 2001, figure 9.9, 1997, figure 14) or in statues, such as the eye idols of Tell Brak (Oates and Oates, 1976, p. 117). Frangipane (1997, pp. 62f.) has argued that the Arslantepe images along publicly accessible corridors of the palace fulfill a function of sanctifying leaders. This question of prehistoric religion and ideology has barely been touched by prehistoric archaeologists, but it needs to be if we are to gain a full picture of the variables that led to societal complexity.

One place to start may be the insightful work of ethnographers. My section titled “Religion, Great and Small” refers to one often-ignored ethnographer, Redfield. His interest in religion and urbanism is especially relevant to the

development of complexity at issue here. "The city may be imagined as that community in which orthogenetic and heterogenetic transformations of the folk society have most fully occurred. The former has brought about the Great Tradition and its special intellectual class, administrative officers and rules closely derived from the moral and religious life of the local culture, and advanced economic institutions, also obedient to these local cultural controls Insofar as the city has an orthogenetic role, it is not to maintain culture as it was; the orthogenetic city is not static; it is the place where religious, philosophical and literary specialists reflect, synthesize and create out of the traditional material new arrangements and developments that are felt by the people to be outgrowths of the old. . . . Insofar as the city has a heterogenetic role, it is a place of conflict of differing traditions, a center of heresy, heterodoxy, and dissent, of interruption and destruction of ancient tradition" (Redfield and Singer, 1954, pp. 58–59).

CONCLUSION AND PROSPECTS

The foregoing discussion has surely shown the methodological, theoretical, and empirical complexity of studying the origin of societal complexity in Mesopotamia. Despite decades of analysis and even more of data collection and theorizing, a plethora of approaches and heuristic techniques have been brought to bear on the late fifth and fourth millennia in Greater Mesopotamia. These decades have generated a significant body of empirical data and great intellectual progress in analyzing it. They also have left much more work to do. I now look at what is common to the approaches I have described and offer some prospects and directions for future work.

The first step is to begin creating a sort of unified field theory, as the hard sciences have attempted to do. The distinctions drawn among various approaches are at many points more polemic than real. The landscape archaeology of Adams and others does not really contradict the approaches of those trying to explicate evolutionary mechanisms, as Algaze's model illustrates. Most of those who criticize the work of Wright and others build their analyses on the foundation he laid and continue to use chiefdom and state as terms, because they conveniently provide a sociocultural context for their analyses. The goals seem somewhat different, but many of the variables are the same. Flannery pointed the way we might begin such a heuristic quest in 1972 (p. 409) when he suggested that explanation required us to distinguish among "(1) such *processes*, (2) *the mechanisms* by which they take place, and (3) the *socioenvironmental stresses* which select for these mechanisms." A critique of step models states that "the study of long-term change requires simultaneous consideration of at least three dimensions: specific trajectories of change, socioenvironmental stresses, and the social properties of human groups and groupings" (Feinman, 1998, p. 113). The differences in emphasis are clear, but so are the similarities. A model Stein and I proposed, the organizational dynamics of complexity, shows how it is possible to bring together many of the

elements of these processual approaches (Stein and Rothman, 1994). The result may yield “fuzzy models” (Stein, 1998, p. 27), which integrate analysis of centralizing processes with the results of internal cooperation and conflict among interest groups. In addition, a more nuanced look at what constitutes elites of various kinds would move this analysis forward.

The critics of Service’s step model were certainly correct in saying that if its endpoint is classification—this society is a state, that one a chiefdom—it is static and limiting. For the most part, however, that was never the agenda of those who needed to find a way to compare one society to another in order to discover patterns in the underlying mechanisms of change. Similarly, those who championed the use of a political yardstick for comparison have acknowledged motivation, strategy, and individual and group behavior in fleshing out the particular societies under study, as some of the same critics have advocated.

Some have tried to distinguish different goals for the evolutionary study of society or societies. Cultural evolution is about “shared beliefs, values, cosmologies, ideologies, customs and traditions that distinguishes one group of people from another group,” that is divergent evolution. Social evolution refers “to the reorganization of a society at different levels of complexity . . . Such a change can take place without thoroughly transforming its culture” (Flannery, 1995, pp. 3–4). Whether formulated this way or as specific versus general evolution (Sahlins and Service, 1960), can one hope to do the latter without the data that informs the former (see Stein, 1998, pp. 25–26)?

As for the postprocessualists, perhaps Hodder (1991) protests too much that archaeology was mistaken to adopt anthropology as its theoretical foundation. His insider or emic view (see Rothman, 2002c) would surely be more familiar to an ethnographer than to an Oxford don of history. There are more theoretical tools within anthropology to accomplish his stated ends than in any other discipline. Archaeologists will always, odds are, be more concerned with economics than ideology, simply because what remains in the ground for us to find is more directly related to economic behavior and technology than any other aspect of society. Part of our agenda for the future has to be to find new techniques and methods to elucidate those harder to find factors such as ideology (see Charvat, *in press*, for a first attempt). We do need more multivocal analyses from both bottom-up and top-down perspectives (Stein, 2002). At the same time, those who seek an insider’s view need more than faith in the rightness of their analyses. Verifiable techniques with good empirical data are required if we are to move forward. No ideological or symbolic analysis will succeed if it is not built on the empirical base derived from the processual method. We need to avoid theoretical approaches where outcomes are all but predetermined by modern political agendas (Lamberg-Karlovsky, 2001).

We also must determine the proper units and scales of analysis. Despite the flood of research it generated and its proper reminder always to see change in a regional context, I believe that world-systems theory takes us in a direction that

will ultimately fail to explain the origins of complexity in the Mesopotamian or any other case. Evolution is ultimately local, although local responses are conditioned and affected by interactions in larger intra- and interregional contexts (Rothman, 2001a). It would therefore be more useful to look at the nature of overlapping networks not only of material exchange but cultural interchange and political influence, as Nissen (2001) and Rothman (2001b) suggest. These networks may be asymmetrical, as the world-systems model predicts, but they are not unidirectional (Stein, 2002). Issues of power may be approachable by comparing the way different local systems organize exchange, production, labor, building, and administrative systems. It would be good to heed Feinman's plea to look at scale and social boundaries in this regard (Feinman, 1994). That is in a way represented in the most recent thinking of researchers like Frangipane (2001), Nissen (2001), Pollock (2001), and Rothman (2001b), who see constantly shifting populations in Late Chalcolithic/Uruk Mesopotamia rather than discreet cultural or ethnic packages isolated in particular geographic zones. Analyses of scale and boundaries also should extend beyond population and geographical area to the differing spheres of economic, political, and military interaction (Hall and Chase-Dunn, 1996).

Another way to approach the comparative elements of understanding the evolution of complexity in addition to more traditional approaches may be to classify and compare characteristics of long-term trajectories of change that encompass tribes, chiefdoms, and states without segregating them into types (Rothman, 2000). Baines and Yoffee (1998) attempt to do this, but they are limited by an emphasis on issues of wealth and power.

In addition to the various areas that need further work enumerated in the sections above, this will depend on an adjustment of our fieldwork organization. One reason the work of Wright and others has been so influential is the database on which it was built. Not only did they conduct a complete survey of sites on the Susiana plains, but archaeologists also conducted extensive excavation of centers, towns, *and* villages. The many dam salvage surveys in northern Mesopotamia have added tremendously to our knowledge base, even though they have focused on sites by the rivers without permitting broader survey of the surrounding plains and uplands. Similarly, the necessity of speed in salvage excavation has meant small samples from many sites. My own work on Tepe Gawra has convinced me that our more nuanced approaches to the evolution of complexity cannot fully succeed without broad horizontal exposures. We need to continue developing techniques for remote sensing and microanalysis to enrich traditional archaeological methods.

How can we hope to talk about multivocal groups without sampling the areas of settlements used by each subgroup of ancient polities, not to mention all the settlement types in one polity? How can we analyze ancient cultural systems without extracting many kinds of data from these contexts? This may mean that the day of the entrepreneurial archaeologist should give way to a coordinated team of archaeologists in particular locales. The project of the Oriental Institute

in the Hatay of Turkey provides a recent example. Teams of archaeologists with coordinated questions, techniques, and recording methods at settlements of all sizes and types in one area might give us a database commensurate with our questions and theoretical approaches. In the United States, this will mean some reorganization at research institutions and new ways of funding research. If we want truly to understand the origins of complexity, our data must be able to live up to our theory.

REFERENCES CITED

- Adams, R. M. (1966). *The Evolution of Urban Society*, Aldine, Chicago.
- Adams, R. M. (1974). Anthropological perspectives on ancient trade. *Current Anthropology* 15: 239–258.
- Adams, R. M. (1978). Strategies of maximization, stability, and resilience in Mesopotamian society, settlement, and agriculture. *Proceedings of the American Philosophical Society* 122: 329–335.
- Adams, R. M. (1981). *Heartland of Cities*, University of Chicago Press, Chicago.
- Adams, R. M. (2000a). Accelerated technological change in archaeology and ancient history. In Feinman G., and Manzanilla, L. (eds.), *Cultural Evolution: Contemporary Viewpoints*, Kluwer Academic, New York, pp. 95–117.
- Adams, R. M. (2000b). Scale and complexity in archaic states. *Latin American Antiquity* 11: 187–193.
- Adams, R. M., and Nissen, H. (1972). *The Uruk Countryside*, University of Chicago Press, Chicago.
- Algaze, G. (1986). Habuba on the Tigris: Archaic Nineveh reconsidered. *Journal of Near East Studies* 45(2): 125–137.
- Algaze, G. (1989). The Uruk expansion: Cross-cultural exchange in the early Mesopotamian civilization. *Current Anthropology* 30: 571–608.
- Algaze, G. (1993a). *The Uruk World System*, University of Chicago, Chicago.
- Algaze, G. (1993b). Expansionary dynamics of some pristine states. *American Anthropologist* 95: 304–333.
- Algaze, G. (2001a). Initial social complexity in southwest Asia. *Current Anthropology* 42: 199–233.
- Algaze, G. (2001b). The prehistory of imperialism. In Rothman, M. (ed.), *Uruk Mesopotamia and Its Neighbors: Cross-cultural Interactions in the Era of State Formation*, School of American Research Press, Santa Fe, NM, pp. 27–84.
- Algaze, G. (2001c). The Sumerian take-off. Paper presented at the 100th Annual Meeting of the American Anthropological Association, Washington, D.C.
- Amiet, P. (1985). La période IV de Tépé Sialk reconsidérée. In Huot, J. L. (ed.), *De L' Indus aux Balkans: Recueil a mémoire de Jean Deshayes*, Éditions Recherche sur la Civilisations, Paris, pp. 293–312.
- Badler, V. (1989). Social structure changes suggested by artifact assemblages of Godin V and VI. *Paléorient* 15(1): 288–289.
- Baines, J., and Yoffee, N. (1998). Order, legitimacy, and wealth in ancient Egypt and Mesopotamia. In Feinman, G., and Marcus, J. (eds.), *Archaic States*, School of American Research Press, Santa Fe, NM, pp. 199–260.
- Baker, P., and Sanders, W. (1972). Demographic studies in anthropology. *Annual Review of Anthropology* 1: 151–178.
- Beale, T. (1978). Bevelled rim bowls and their implications for change and economic organization in the later fourth millennium B.C. *Journal of Near Eastern Studies* 37: 289–313.
- Behm-Blancke, M. (1992). Hassek Höyük: Eine Uruk Station im Grenzland zu Anatolien. *Nürnberger Blätter zur Archäologie* 8: 82–94.
- Bernbeck, R., and Pollock, S. (2002). Reflections on the historiography of 4th millennium Mesopotamia. In Hausleiter, A., Kerner, S., and Müller-Neuhof, B. (eds.), *Material Culture and Mental Spaces, Alter Orient und Altes Testament, Festschrift for Hans Nissen*, Ugarit-Verlag, Münster, Germany pp. 171–204.

- Bigelow, L. (1999). Zooarchaeological investigations of economic organization and ethnicity at Hacinebi. In Stein, G. (ed.), *The Uruk Expansion: Northern Perspectives from Hacinebi, Hassek Höyük, and Tepe Gawra; Paléorient* 25: 83–90.
- Blackman, M. J. (1999). Chemical characterization of local Anatolian and Uruk styled Sealings from Hacinebi. In Stein, G. (ed.), *The Uruk Expansion: Northern Perspectives from Hacinebi, Hassek Höyük, and Tepe Gawra; Paléorient* 25: 51–56.
- Blanton, R. (1976). Anthropological studies of cities. *Annual Review of Anthropology* 5: 249–264.
- Blanton, R., Kowalewski, S., Feinman, G., and Finsten, L. (1993). *Ancient Mesoamerica: A Comparison of Change in Three Regions*, 2nd ed. Cambridge University Press, Cambridge, UK.
- Blanton, R., Feinman, G., Kowalewski, S., and Peregrine, P. (1996). A dual-processual theory for the evolution of Mesoamerican civilization. *Current Anthropology* 37: 1–14.
- Boese, J. (1995). *Ausgrabungen in Tell Sheikh Hassan*. Vorläufige Berichte über die Ausgrabungskampagnen 1984–1990 und 1992–1994, Druckerei und Verlag, Saarbrücken.
- Boese, J. (1995/1996). Tell Sheikh Hassan in Nordsyrien. Eine Stadt des 4 Jahrtausends v. Chr. am Euphrat. *Nürnberger Blätter zur Archäologie* 12: 157–172.
- Brumfiel, E. (1995). Heterarchy and the analysis of complex societies. In Ehrenreich, R., Crumley, C., and Brumfiel, E. (eds.), *Heterarchy and the Analysis of Complex Societies*, Archeological Papers No. 6, American Anthropological Association, Washington, DC, pp. 125–131.
- Buccellati, G. (1990). Salt at the dawn of history: The case of the bevelled rim bowls. In Matthiae, P., van Loon, M., and Weiss, H. (eds.), *Resurrecting the Past: A Joint Tribute to Adnan Bounni*, Nederlands Archeologisch-Historisch Instituut te Istanbul, Leiden, The Netherlands, pp. 17–40.
- Butterlin, P. (2003). *Le temps proto-urbain de Mésopotamie*, CNRS éditions, Paris.
- Carneiro, R. (1967). On the relationship between size of population and complexity of social organization. *Southwest Journal of Archaeology* 23: 234–243.
- Çevik, O. (2003). *The Urbanization Process in Anatolia*, Ph.D. Dissertation, Ege Üniversitesi, Izmir, Turkey.
- Charvat, P. (2002). *Mesopotamia Before Prehistory*, 2nd edn., Routledge, London.
- Charvat, P. (in press). *The Iconography of Pristine Statehood: Painted Pottery and Seal Impressions from the Site of Susa, Southwestern Iran*, Karolinum, Prague.
- Childe, V. G. (1974). The urban revolution. In Sabloff, J., and Lamberg-Karlovsky (eds.), *The Rise and Fall of Civilizations*, Cummings, Menlo Park, CA, pp. 6–14. (originally published 1950)
- Crumley, C. (1995). Heterarchy and the analysis of complex societies. In Ehrenreich, R., Crumley, C. and Levy, J. (eds.), *Heterarchy and the Analysis of Complex Societies*, Archeological Papers No. 6, American Anthropological Association, Washington, DC, pp. 1–15.
- D'Altroy, T. (2001). A view of the plains from the mountains: Commentary on Uruk by an Andeanist. In Rothman, M. (ed.), *Uruk Mesopotamia and Its Neighbors: Cross-Cultural Interactions in the Era of State Formation*, School of American Research Press, Santa Fe, NM, pp. 445–476.
- Delougaz, P., and Kantor, H. J. (1996). *Chogha Mish I: The First Five Seasons of Excavations. 1961–1971*, Alizadeh, A. (ed.), Oriental Institute Publications 101, Oriental Institute, Chicago.
- Dittman, R. (1986). Thoughts on the changing pattern of administrative control from Liste-Uruk to Proto-Elamite period at Susa. In Finkbeiner, E., and Röhlig, W. (eds.), *Gemdet Nasr Period or Regional Style? Beihefte zum Atlas*, Tübingen, Germany, pp. 332–366.
- Drennan, R. (1976). Religion and social evolution in Formative Mesoamerica. In Flannery, K. V. (ed.), *The Early Mesoamerican Village*, Academic Press, New York, pp. 345–363.
- Edens, C. (1999). The chipped stone industry at Hacinebi. In Stein, G. (ed.), *The Uruk Expansion: Northern Perspectives from Hacinebi, Hassek Höyük, and Tepe Gawra; Paléorient* 25: 23–34.
- Emberling, G. (1997). Ethnicity in complex societies: Archaeological perspectives. *Journal of Archaeological Research* 5: 295–344.
- Englund, R., Nissen, H., and Damerow, P. (1993). *Die Lexicalische Listen der Archaischen Texte aus Uruk*, Gebr. Mann, Berlin.
- Esin, U. (1982). Die kulturellen Beziehungen zwischen Ostanatolien und Mesopotamien sowie Syrien anhand einiger Grabungs- und Oberflächfunde aus dem oberen Euphratall im 4 Jahr von Christ. In Nissen, H. (ed.), *Mesopotamien und Seine Nachbarn*, Dietrich Reimer, Berlin, pp. 13–22.
- Esin, U. (1994). The functional evidence of seals and sealings at Değirmentepe. In Ferioli, P., Fiandra, E., Fissore, G., and Frangipane, M. (eds.), *Archives Before Writing*, Scriptorium, Torino, Italy, pp. 59–82.

- Evans, G. (1962). The incidence of labour-service in the Old Babylonian period. *Journal of the American Oriental Society* 83: 20–27.
- Evans, G. (1963). The incidence of labour-service at Mari. *Revue d'Assyriologie et d'Archeologie Orientale* 57: 65–78.
- Evins, M. (1989). The Late Chalcolithic period in the Karababa Basin, southeastern Turkey. In Rothman, M. (ed.), *Out of the Heartland: The Evolution of Complexity in Peripheral Mesopotamia During the Uruk Period*; *Paléorient* 15: 281–282.
- Falkenstein, A. (1974). *The Sumerian Temple City*, M. De J. Ellis, (trans.), Undena, Malibu, CA.
- Feinman, G. (1994). Social boundaries and political change: A comparative perspective. In Stein, G., and Rothman, M. S. (eds.), *Chiefdoms and Early States in the Near East*, Prehistory Press, Madison, WI, pp. 225–236.
- Feinman, G. (1998). Scale and social organization: Perspectives on the archaic state. In Feinman, G., and Marcus, J. (eds.), *Archaic States*, School of American Research Press, Santa Fe, NM, pp. 95–134.
- Feinman, G., and Neitzel, J. (1984). Too many types: An overview of pre-state societies in the Americas. In Schiffer, M. B. (ed.), *Advances in Archaeological Method and Theory*, No. 7, Academic Press, New York, pp. 39–102.
- Ferioli, P., and Fiandra, E. (1979). The administrative functions of clay sealings in protohistorical Iran. In Gnoli, G., and Rossi, A. (eds.), *Iranica*, Instituto Universitario Orientale, Napoli, Italy pp. 307–312.
- Ferioli, P., and Fiandra, E. (1983). Clay sealings from Arslantepe VIA: Administration and bureaucracy. *Origini* 12: 455–509.
- Ferioli, P., and Fiandra, E. (1994). Archival techniques and methods at Arslantepe. In Ferioli, P., Fiandra, E., Fissore, G., and Frangipane, M. (eds.), *Archives Before Writing*, Scriptorium, Torino, Italy, pp. 149–161.
- Fiandra, E. (1979). The connection between clay sealings and tablets in administration. In Härtel, H. (ed.), *South Asian Archaeology*, Dietrich Reimer Verlag, Berlin, pp. 29–43.
- Flannery, K. V. (1972). The cultural evolution of civilizations. *Annual Review of Ecology and Systematics* 3: 399–426.
- Flannery, K. V. (1995). Prehistoric social evolution. In Ember, C., and Ember, M. (eds.), *Research Frontiers in Evolution*, Prentice-Hall, Englewood Cliffs, NJ, pp. 1–26.
- Forest, J.-P. (1983). *Les pratiques funéraires en Mésopotamie du 5e millénaire au début du 3e. étude de cas*, Memoire 19, Editions Recherche sur les Civilisations, Paris.
- Forest, J.-P. (1987). Les bevelled rim bowls: nouvelle tentative d'Interprtation. *Akkadica* 53: 1–24.
- Forest, J.-P. (1996). *Mésopotamie. L'apparition de l'état VIIe-IIIe millénaires*, Méditerranée, Paris.
- Forest, J.-P. (1999). *Les premiers temples de Mésopotamie*, BAR International Series 765, Oxford.
- Forest, J.-P. (2003). Gawra et la dynamique évolutive en Mésopotamie du Nord. Paper presented at Journée consacrée à Tepe Gawra, centre proto-urbaine de Haute-Mésopotamie, 3 June, Université de Versailles, San Quentin-en-Yvelines.
- Frangipane, M. (1994). The record function of clay sealings in early administrative systems as seen from Arslantepe-Malatya. In Ferioli, P., Fiandra, E., Fissore, G., and Frangipane, M. (eds.), *Archives Before Writing*, Scriptorium, Torino, Italy, pp. 125–137.
- Frangipane, M. (1997). A fourth millennium temple/palace complex at Arslantepe-Malatya: North-south relations and the formation of early state societies in the northern regions of southern Mesopotamia. *Paléorient* 23: 45–73.
- Frangipane, M. (2000). The development of administrative systems from collective to centralized economies in the Mesopotamian world. In Feinman, G., and Manzanilla, L. (eds.), *Cultural Evolution: Contemporary Viewpoints*, Kluwer Academic, New York, pp. 215–234.
- Frangipane, M. (2001). Centralization processes in greater Mesopotamia. In Rothman, M. (ed.), *Uruk Mesopotamia and Its Neighbors: Cross-cultural Interactions in the Era of State Formation*, School of American Research Press, Santa Fe, NM, pp. 307–348.
- Frangipane, M. (2002). “Non-Uruk” developments and Uruk-linked features on the northern borders of greater Mesopotamia. In Postgate, N. (ed.), *Artefacts of Complexity: Tracking the Uruk in the Near East*, British School of Archaeology in Iraq, Wiltshire, England, pp. 123–148.
- Frangipane, M., and Palmieri, A. (1983). A protourban centre of the Late Uruk period. *Origini* 14(2: 5): 287–454.

- Frankfort, H. (1939). *Cylinder Seals*, Greg Press, London.
- Frankfort, H., Frankfort, H. A., Wilson, J., and Jacobsen, T. (1951). *Before Philosophy*, Penguin, Baltimore.
- Fried, M. (1967). *The Evolution of Political Society*, Random House, New York.
- Gut, R. (1995). *Das prähistorische Ninive: zur relativen Chronologie der frühen Perioden Nordmesopotamiens*, Phillip von Zabern, Mainz am Rhein.
- Hall, T., and Chase-Dunn, C. (1996). Comparing world-systems: Concepts and hypotheses. In Peregrine, P., and Feinman, G. (eds.), *Pre-Columbian World Systems*, Prehistory Press, Madison, WI, pp. 11–25.
- Heinrich, E. (1982). *Die Tempel und Heiligtümer im Alten Mesopotamie*, Walter De Gruyter, Berlin.
- Helwing, B. (1999). Cultural interaction at Hassek Höyük, Turkey: New evidence from pottery analysis. In Stein, G. (ed.), *The Uruk Expansion: Northern Perspectives from Hacinebi, Hassek Höyük, and Tepe Gawra*, *Paléorient* 25: 91–99.
- Higgenbotham, C. (2000). *Egyptianization and Elite Emulation in Ramesside Palestine*, Brill, Leiden. The Netherlands.
- Hodder, I. (1991). *Reading the Past*, 2nd ed., Cambridge University Press, Cambridge, UK.
- Hole, F. (1983). Symbols of religion and social organization at Susa. In Young, T. C., Smith, P., and Mortensen, P. (eds.), *Beyond the Hilly Flanks*, Oriental Institute, Chicago, pp. 315–344.
- Hole, F. (1989). Patterns of burial in the fifth millennium. In Henrickson, E., and Thuesen, I. (eds.), *Upon This Foundation: The Ubaid Reconsidered*, Carsten Niebuhr Institute Publication No. 10, Copenhagen, Denmark, pp. 149–180.
- Hole, F. (1994). Environmental instabilities and urban origins. In Stein, G., and Rothman, M. S. (eds.), *Chiefdoms and Early States in the Near East*, Prehistory Press, Madison, WI, pp. 121–152.
- Jacobsen, T. (1976). *Treasures of Darkness*, Yale University Press, New Haven, CT.
- Johnson, A. W., and Earle, T. (1987). *The Evolution of Human Societies: From Foraging Groups to Agrarian States*, Stanford University Press, Stanford, CA.
- Johnson, G. A. (1973). *Local Exchange and Early State Development in Southwestern Iran*, Anthropological Papers No. 51, Museum of Anthropology, University of Michigan, Ann Arbor.
- Johnson, G. A. (1980). Spatial organization of early Uruk settlement systems. In *Colloques Internationaux du CNRS, L'Archeologie de l'Iraq*, Editions du C.N.R.S., Paris, pp. 233–263.
- Johnson, G. A. (1982). Social organization and scalar stress. In Renfrew, C., Rowlands, C., and Seagraves, B. (eds.), *Theory and Explanation in Archaeology*, Academic Press, New York, pp. 389–421.
- Johnson, G. A. (1988/1989). Late Uruk in greater Mesopotamia: Expansion or collapse? *Origini* 14: 595–611.
- Kohl, P. L. (1989). The use and abuse of world systems theory: The case of the pristine West Asian state. In Lamberg-Karlovsky, C. C. (ed.), *Archaeological Thought in America*, Cambridge University Press, Cambridge, UK, pp. 218–240.
- Kouchoukos, N. (1998). *Landscape and Social Change in Late Prehistoric Mesopotamia*, PhD Dissertation, Yale University, New Haven, CT.
- Kowalewski, S., Blanton, R., Feinman, G., and Finsten, L. (1983). Boundaries, scale, and internal organization. *Journal of Anthropological Archaeology* 2: 32–56.
- Labov, W. (1972). *Socio-linguistic Patterns*, University of Pennsylvania Press, Philadelphia.
- Lamberg-Karlovsky, C. (2001). Review, Pollock, *Ancient Mesopotamia*. *American Anthropologist* 103: 226–228.
- Lieberman, S. (1980). Of clay pebbles, hollow clay balls, and writing: A Sumerian view. *American Journal of Archaeology* 84: 339–358.
- Lupton, A. (1996). *Stability and Change. Socio-political Development in North Mesopotamia and South-East Anatolia 4000-2700 B.C.*, BAR International Series 627, Oxford.
- Margueron, J. (2003). Quelques observations sur la question des temples au début du I^{er} millénaire. Paper presented at Journée consacrée à Tepe Gawra, centre proto-urbaine de Haute- Mésopotamie, 3 June, Université de Versailles, San Quentin-en-Yvelines.
- McCorriston, J. (1997) The fiber revolution. *Current Anthropology* 38: 517–549.
- Michalowski, P. (1990) Early Mesopotamian communicative systems: Art, literature, and writing. In Gunter, A. (ed.), *Investigating Artistic Environments in the Ancient Near East*, Smithsonian Institution, press Washington, DC, pp. 53–69.

- Moorey, R. (1976). What do we know about the people buried in the royal cemetery? *Expedition* 20(1): 24–40.
- Morgan, L. H. (1985 [1877]). *Ancient Society*, University of Arizona Press, Tucson.
- Nissen, H. (1974). Zur Frage der Arbeitsorganisation in Babylonien während der Späturuk-Zeit. *Acta Antiqua Academiae Scientiarum Hungaricae* 22: 5–14.
- Nissen, H. (1988). *The Early History of the Ancient Near East*, University of Chicago Press, Chicago.
- Nissen, H. (2000). A Mesopotamian hierarchy in action in ancient Uruk. In Diehl, M. (ed.), *Hierarchies in Action; Cui Bono?*, Southern Illinois University Press, Carbondale, pp. 210–220.
- Nissen, H. (2001). Cultural and political networks in the ancient Near East during the fourth and third millennia BC. In Rothman, M. (ed.), *Uruk Mesopotamia and Its Neighbors*, School of American Research Press, Santa Fe, NM, pp. 149–180.
- Nissen, H. (2002). Uruk: Key site of the period and key site of the problem. In Postgate, N. (ed.), *Artefacts of Complexity: Tracking the Uruk in the Near East*, British School of Archaeology in Iraq, Wiltshire, England, pp. 1–16.
- Nissen, H., Damerow, P., and Englund, R. (1993). *Archaic Bookkeeping*, University of Chicago Press, Chicago.
- Oates, D. (1987). Different traditions in Mesopotamian temple architecture in the fourth millennium B.C. In Huot, J.-L. (ed.), *Préhistoire de la Mésopotamie*, Colloques Internationaux, Editions du CNRS, Paris, pp. 379–383.
- Oates, D., and Oates, J. (1976). *The Rise of Civilization*, Elsevier Phaidon, Oxford.
- Oates, J., and Oates, D. (1997). An open gate: Cities of the fourth millennium BC (Tell Brak 1997). *Cambridge Archaeology Journal* 7: 287–307.
- Oppenheim, A. L. (1958). An operational device in Mesopotamian bureaucracy. *Journal of Near Eastern Studies* 17: 121–128.
- Oppenheim, A. L. (1977). *Ancient Mesopotamia: Portrait of a Dead Civilization*, University of Chicago Press, Chicago.
- Pearce, J. (1999). Investigating ethnicity at Hacinebi: Ceramic perspectives on style and behavior in 4th millennium Mesopotamian-Anatolian interaction. In Stein, G. (ed.), *The Uruk Expansion: Northern Perspectives from Hacinebi, Hassek Höyük, and Tepe Gawra*; *Paléorient* 25: 35–42.
- Peasnell, B. (2002). Burials from Tepe Gawra. Appendix A. In Rothman, M., *Tepe Gawra: The Evolution of a Small, Prehistoric Center in Northern Iraq*, University of Pennsylvania Museum, Philadelphia.
- Perkins, A. (1949). *The Comparative Archaeology of Ancient Mesopotamia*, University of Chicago Press, Chicago.
- Pittman, H. (1993). Pictures of an administration: The Late Uruk scribe at work. In Frangipane, M., Hauptmann, H., Liverani, M., Matthiae, P., and Mellink, M. (eds.), *Between the Rivers and Over the Mountains*, Università di Roma “La Sapienza,” Rome, pp. 235–246.
- Pittman, H. (1994). Towards an understanding of the role of glyptic in the administrative systems of proto-literate greater Mesopotamia. In Ferioli, P., Fiandra, E., Fissore, G., and Frangipane, M. (eds.), *Archives Before Writing*, Scriptorium, Torino, Italy, pp. 177–204.
- Pittman, H. (2001). Mesopotamian intraregional relations reflected through glyptic evidence in the Late Chalcolithic 1–5 periods. In Rothman, M. (ed.), *Uruk Mesopotamia and Its Neighbors*, School of American Research Press, Santa Fe, NM, pp. 403–444.
- Plog, F. (1977). Explaining change. In Hill, J. (ed.), *Explanation of Prehistoric Change*, University of New Mexico Press, Albuquerque, pp. 17–58.
- Pollock, S. (1999). *Ancient Mesopotamia: The Eden That Never Was*, Cambridge University Press, Cambridge, UK.
- Pollock, S. (2001). The Uruk period in southern Mesopotamia. In Rothman, M. (ed.), *Uruk Mesopotamia and Its Neighbors: Cross-cultural Interactions in the Era of State Formation*, School of American Research Press, Santa Fe, NM, pp. 181–232.
- Pollock, S., and Bernbeck, R. (2000). And they said, let us make Gods in our image: Gendered archaeology in ancient Mesopotamia. In Rautman, A. (ed.), *Reading the Body: Representations and Remains in the Archaeological Record*, University of Pennsylvania Press, Philadelphia, pp. 150–164.

- Pournelle, J. (2001). Founded on sand: Using satellite photography toward a new understanding of 4th/5th millennium BC landscapes in the Warka area, Iraq. Paper presented at the 100th Annual Meeting of the American Anthropological Association, Washington, DC.
- Redfield, R., and Singer, M. (1954). The cultural roles of cities. *Economic Development and Cultural Change* 3(1): 53–73.
- Rothman, M. S. (1987). Graph theory and the interpretation of regional survey data. *Paléorient* 13/2: 73–92.
- Rothman, M. S. (1993). Another look at the “Uruk expansion” from the Tigris piedmont. In Frangipane, M., Hauptmann, H., Liverani, M., Matthiae, P., and Mellink, M. (eds.), *Between the Rivers and Over the Mountains: Anatolia, Transcaucasia and Syro-Mesopotamian Regions in Prehistory*, Università di Roma, Rome, pp. 163–177.
- Rothman, M. S. (1994a). Introduction part I: Evolutionary typologies and cultural complexity. In Stein, G., and Rothman, M. S. (eds.), *Chiefdoms and Early States in the Near East*, Prehistory Press, Madison, WI, pp. 1–10.
- Rothman, M. S. (1994b). Seal and sealing findspot, design audience, and function: Monitoring changes in administrative oversight and structure at Tepe Gawra during the fourth millennium BC. In Ferioli, P., Fiandra, E., Fissore, G., and Frangipane, M. (eds.), *Archives Before Writing*, Scriptorium, Torino, Italy, pp. 97–119.
- Rothman, M. S. (1994c). Sealings as a control mechanism in prehistory. In Stein, G., and Rothman, M. (eds.), *Chiefdoms and Early States in the Near East*, Prehistory Press, Madison, WI pp. 103–120.
- Rothman, M. S. (2000). Evolutionary theory in archaeology at the millennium. Paper presented at the 65th Annual Meeting of the Society of American Archaeology, Philadelphia.
- Rothman, M. S. (2001a). The local and the regional: Introduction. In Rothman, M. (ed.), *Uruk Mesopotamia and Its Neighbors: Cross-cultural Interactions in the Era of State Formation*, School of American Research Press, Santa Fe, pp. 3–26.
- Rothman, M. S. (2001b). The Tigris piedmont and eastern Jazira in the fourth millennium B.C. In Rothman, M. (ed.), *Uruk Mesopotamia and Its Neighbors: Cross-cultural Interactions in the Era of State Formation*, School of American Research Press, Santa Fe, NM, pp. 349–402.
- Rothman, M. S. (2002a). Tepe Gawra: Chronology and socio-economic change in the foothills of northern Iraq in the era of state formation. In Postgate, N. (ed.), *Artefacts of Complexity: Tracking the Uruk in the Near East*, British School of Archaeology in Iraq, Wiltshire, England, pp. 49–77.
- Rothman, M. S. (2002b). *Tepe Gawra: The Evolution of a Small Prehistoric Center in Northern Iraq*, University Museum Publications, Philadelphia.
- Rothman, M. S. (2002c). Deconstructionism, positivism, and archaeological interpretation: Response to Bernbeck and Pollock. In Hausleiter, A., Kerner, S., and Müller-Neuhof, B. (eds.), *Material Culture and Mental Spaces*, Alter Orient und Altes Testament, Festschrift for Hans Nissen, Ugarit-Verlag, Münster, Germany, pp. 215–228.
- Rothman, M., and Blackman, M. J. (2003). The manufacturing centers of Sprig Ware in the late fourth and early fifth millennia BC: Results of chemical analysis. *Al Rafidan* 24: 1–24.
- Rothman, M. S., and Peasnell, B. (1999). Societal evolution of small, pre-state centers and polities: The example of Tepe Gawra in northern Mesopotamia. In Stein, G. (ed.), *The Uruk Expansion: Northern Perspectives from Hacinebi, Hassek Höyük, and Gawra*. *Paléorient* 25: 101–114.
- Sahlins, M., and Service, E. (1960). *Evolution and Culture*, University of Michigan Press, Ann Arbor.
- Schmandt-Bessert, D. (1992). *Before Writing*, University of Texas Press, Austin.
- Schwartz, G. (2001). Syria and the Uruk expansion. In Rothman, M. (ed.), *Uruk Mesopotamia and Its Neighbors: Cross-cultural Interactions in the Era of State Formation*, School of American Research Press, Santa Fe, pp. 233–264.
- Schwartz, M., Hollander, D., and Schwartz, G. (1999). Reconstructing Mesopotamia exchange networks in the 4th millennium BC. In Stein, G. (ed.), *The Uruk Expansion: Northern Perspectives from Hacinebi, Hassek Höyük, and Tepe Gawra*. *Paléorient* 25: 67–82.
- Service, E. (1962). *Primitive Social Organization*, Random House, New York.
- Shanks, M., and Tilley, C. (1987). *Re-Constructing Archaeology*, Cambridge University Press, Cambridge, UK.
- Speiser, E. A. (1935). *Excavations at Tepe Gawra*, volume I, University of Pennsylvania Press, Philadelphia.
- Stein, G. (1990). On the Uruk expansion. *Current Anthropology* 31: 66–67.

- Stein, G. (1994). Economy, ritual, and power. In Stein, G., and Rothman, M. S. (eds.), *Chiefdoms and Early States in the Near East: The Organizational Dynamics of Complexity*, Monographs in World Prehistory 18, Prehistory Press, Madison, WI, pp. 11–22.
- Stein, G. (1998). Heterogeneity, power, and political economy: Some current research issues in the archaeology of Old World complex societies. *Journal of Archaeological Research* 6: 1–44.
- Stein, G. (1999a). *Rethinking World Systems*, University of Arizona Press, Tucson.
- Stein, G. (1999b). Material culture and social identity: The evidence for a 4th millennium BC Uruk Mesopotamian colony at Hacinebi, Turkey. In Stein, G.(ed.), *The Uruk Expansion: Northern Perspectives from Hacinebi, Hassek Höyük, and Tepe Gawra*; *Paléorient* 25: 11–22.
- Stein, G., (ed.) (1999c). *The Uruk Expansion: Northern Perspectives from Hacinebi, Hassek Höyük, and Tepe Gawra*; *Paléorient* 25(1).
- Stein, G. (2001a). Understanding ancient state societies in the Old World. In Feinman, G., and Price, D. (eds.), *Archaeology at the Millennium: A Sourcebook*, Kluwer Academic, New York, pp. 353–379.
- Stein, G. (2001b). Indigenous societal complexity at Hacinebi (Turkey) and the organization of colonial contact. In Rothman, M. (ed.), *Uruk Mesopotamia and Its Neighbors: Cross-cultural Interactions in the Era of State Formation*, School of American Research Press, Santa Fe, NM, pp. 265–306.
- Stein, G. (2002). From passive periphery to active agents: Emerging perspectives in the archaeology of interregional interaction. *American Anthropologist* 104: 903–916.
- Stein, G., Bernbeck, R., Coursey, C., McMahon, A., Miller, N., Mısır, A., Nicola, J., Pittman, H., Pollock, S., and Wright, H. (1996). Uruk colonies and Anatolian communities: An interim report on the 1992–1993 excavations at Hacinebi, Turkey. *American Journal of Archaeology* 100: 205–260.
- Stein, G., and Özbal, R. (2001). A tale of two oikumene: Variation in the expansionary dynamics of Ubaid and Uruk Mesopotamia. Paper presented at the 100th Annual Meeting of the American Anthropology Association, Washington, DC.
- Stein, G., and Rothman, M. S. (eds.) (1994). *Chiefdoms and Early States in the Near East: The Organizational Dynamics of Complexity*, Monographs in World Prehistory 18, Prehistory Press, Madison, WI.
- Stone E. (1987). *Nippur's Neighborhoods*, Studies in Ancient Oriental Civilization No. 44, Oriental Institute, Chicago.
- Stone, E., and Zimansky, P. (1995). The tapestry of power in a Mesopotamian city. *Scientific American* 269: 118–123.
- Strommenger, E. (1980). *Habuba Kabira: eine Stadt vor 5000 Jahren*, von Zabern, Mainz.
- van Driel, G. (1980). The Uruk settlement on Jebel Aruda: A preliminary report. In Margueron, J. (ed.), *Le Moyen Euphrate*, Brill, Leiden, The Netherlands, pp. 75–93.
- van Driel, G. (1983). Seals and sealings from Jebel Aruda 1974–1978. *Akkadica* 33:34–62.
- van Driel, G. (2002). Jebel Aruda: Variation on a Late Uruk domestic theme. In Postgate, N. (ed.), *Artefacts of Complexity: Tracking the Uruk in the Near East*, British School of Archaeology in Iraq, Wiltshire, England, pp. 191–206.
- von Wickede, A. (1990). *Prähistorische Stempelglyptik in Vorderasien*, Profil Verlag, Munich.
- Wallace, A. (1971). *Administrative Forms of Social Organization*, McCaleb Module in Anthropology 9, Addison-Wesley, Reading, MA.
- Weiss, H., and Young, T. C. (1975). The merchants of Susa: Godin V and plateau-lowland relations in the late fourth millennium B.C. *Iran* 13: 1–17.
- Weitemeyer, M. (1962). *Some Aspects of Hiring of Workers in the Sippar Region at the Time of Hammurabi*, Munksgaard, Copenhagen, Denmark.
- Wilkinson, T. J. (2000). Regional approaches to Mesopotamian archaeology: The contribution of archaeological survey. *Journal of Archaeological Research* 8: 219–267.
- Wilkinson, T. J., and Tucker, D. J. (1995). *Settlement Development in the North Jazira, Iraq*, British School of Archaeology in Iraq, Warminster, England.
- Winter, I. (1977). Perspective on “local style” of Hasanlu IVB: A study in receptivity. In Levine, L., and Young, T. C. (eds.), *Mountains and Lowlands*, Undena, Malibu, CA, pp. 371–386.
- Wittfogel, K. (1981). *Oriental Despotism*, Vintage, New York.
- Wright, G. (1969). *Obsidian Analyses and Prehistoric Near Eastern Trade: 7500 to 3500 B.C.*, Anthropological Papers No. 37, Museum of Anthropology, University of Michigan, Ann Arbor.

- Wright, H. T. (1969). *The Administration of Rural Production in an Early Mesopotamian Town*, Anthropological Papers No. 38, Museum of Anthropology, University of Michigan, Ann Arbor.
- Wright, H. T. (1977a). Toward an explanation of the origin of the state. In Hill, J. (ed.), *Explanation of Prehistoric Change*, University of New Mexico Press, Albuquerque, pp. 215–230.
- Wright, H. T. (1977b). Recent research on the origin of the state. *Annual Review of Anthropology* 6: 379–397.
- Wright, H. T. (1980). Past mastery. *Comparative Studies in Society and History* 22: 222–226.
- Wright, H. T. (1994). Prestate political formations. In Stein, G., and Rothman, M. (eds.), *Chiefdoms and Early States in the Near East*, Prehistory Press, Madison, WI, pp. 67–84.
- Wright, H. T. (1995). Review of G. Algaze, *The Uruk World System*. *American Anthropologist* 97: 151–152.
- Wright, H. T. (1998). Uruk states in southwestern Iran. In Feinman, G., and Marcus, J. (eds.), *Archaic States*, School of American Research Press, Santa Fe, NM, pp. 173–197.
- Wright, H. T. (2000). Modeling tributary economies and hierarchical polities: A prologue. In Feinman, G., and Manzanilla, L. (eds.), *Cultural Evolution: Contemporary Viewpoints*, Kluwer Academic, New York, pp. 197–213.
- Wright, H. T. (2001). Cultural action in the Uruk world. In Rothman, M. (ed.), *Uruk Mesopotamia and Its Neighbors: Cross-cultural Interactions in the Era of State Formation*, School of American Research Press, Santa Fe, NM, pp. 123–148.
- Wright, H. T., and Johnson, G. (1975). Population, exchange, and early state formation in southwestern Iran. *American Anthropologist* 77: 267–289.
- Wright, H. T., and Johnson, G. (1985). Regional perspectives on southwest Iranian state development. *Paléorient* 11: 25–30.
- Wright, H. T., and Rupley, E. (2001). Calibrated radiocarbon age determination of Uruk related assemblages. In Rothman, M. (ed.), *Uruk Mesopotamia and Its Neighbors: Cross-cultural Interactions in the Era of State Formation*, School of American Research Press, Santa Fe, NM, pp. 85–122.
- Wright, H. T., Miller, N., and Redding, R. (1980). Time and process in an Uruk rural center. In *Colloques internationaux du C.N.R.S. L'Archeologie de L'Iraq*, Editions C.N.R.S., Paris, pp. 265–284.
- Yoffee, N. (1993). Too many chiefs (or safe texts for the '90's). In Yoffee, N., and Sherratt, A. (eds.), *Archaeological Theory: Who Sets the Agenda*, Cambridge University Press, Cambridge, UK, pp. 60–78.
- Yoffee, N. (1995). Political economy in early Mesopotamia. *Annual Review of Anthropology* 24: 281–311.
- Zagarell, A. (1986). Trade, women, class, and society in ancient Western Asia. *Current Anthropology* 27: 415–430.

BIBLIOGRAPHY OF RECENT LITERATURE

- Abu al-Soof, B. (1985). *Uruk Pottery*, State Organization of Antiquities and Heritage, Baghdad.
- Adams, R. M. (1988). Contexts of civilization's collapse: A Mesopotamian view. In Yoffee, N., and Cowgill, G. (eds.), *Collapse of Ancient States and Civilizations*, University of Arizona Press, Tucson, pp. 20–43.
- Adams, R. M. (2002). Steps toward understanding the Mesopotamian Plain. In Hausleiter, A., Kerner, S., and Müller-Neuhof, B. (eds.), *Material Culture and Mental Spaces*, Alter Orient und Altes Testament, Festschrift for Hans Nissen, Ugarit-Verlag, Münster, Germany, pp. 33–48.
- Akkermans, Peter M. M. G. (1989). Tradition and social change in northern Mesopotamia during the later fifth and fourth millennium. In Henrickson, E., and Thuesen, I. (eds.), *Upon This Foundation: The Ubaid Reconsidered*, Museum Tusculanum Press, Copenhagen, Denmark.
- Algaze, G. (1990). *Town and Country in Southeastern Anatolia*, Vol. 2, Oriental Institute, Chicago.
- Algaze, G. (1999). Trends in the archaeological development of the upper Euphrates Basin of southeastern Anatolia during the Late Chalcolithic and Early Bronze Ages. In del Olmo Lete, G., and Montero Fenollós, J. L. (eds.), *Archaeology of the Upper Euphrates: The Tishreen Dam Area*, Editorial Ausa, Barcelona, pp. 535–572.
- Algaze G., Breuninger, R., and Knudstad, J. (1994). The Tigris-Euphrates archaeological reconnaissance project: Final report of the Birecik and Carchemish dam survey areas. *Anatolica* 20: 1–96.

- Anastasio, S. (1995). *The Archaeology of Upper Mesopotamia*, Brepols, Turnhout, Belgium.
- Bachman, F. (1998a). Ein 'Habuba Kabira Süd Horizont am Tell Sheikh Hassan?' *Mitteilungen der Deutschen Orient Gesellschaft zu Berlin* **130**: 51–67.
- Bachman, F. (1998b). Das keramisches Inventar eines Urukzeitlichen Gebäudes in Tell Sheikh Hassan/Syrie. *Subartu* **4**: 89–129.
- Badler, V. (2002). A chronology of Uruk artifacts from Godin Tepe in central Western Iran and its implications for the interrelationships between the local and foreign cultures. In Postgate, N. (ed.), *Artefacts of Complexity: Tracking the Uruk in the Near East*, British School of Archaeology in Iraq, Wiltshire, England, pp. 79–110.
- Ball, W. (1990). Tell al-Hawa and the development of urbanization in the Jazira. *Al Rafidan* **11**: 1–28.
- Ball, W. (1997). Tell Shelgiyya: An Early Uruk sprig ware manufacturing and exporting centre on the Tigris. *Al Rafidan* **18**: 93–101.
- Ball, W. (in press). *Ancient Settlement in the Zumar region, volume I, Excavation Reports*, BAR International Series 1096 and British School of Archaeology in Iraq, Warminster, England.
- Behm-Blancke, M. (ed.) (1992). *Hassek Höyük: Naturwissenschaftliche Untersuchungen und lithische Industrie*, Ernst Wasmuth Verlag, Tübingen, Germany.
- Bernbeck, R. (1999). Landflucht und Ethnizität im Alten Mesopotamien. In Kühne, H., Bernbeck, R., and Bartl, K. (eds.), *Fluchtpunkt Uruk: Archäologische Einheit aus Methodischer Vielfalt*, Rahden/Westf., Verlag Marie, Leidorf, pp. 296–310.
- Beyer, D. (1998). Evolution de l'espace bati sur un site de la vallée du Khabur au I^{er} millénaire: les fouilles françaises de Mashnaqa. In Fortin, M., and Aurenche, O. (eds.), *Espace naturel: espace habité en Syrie du Nord (10e-2e millénaires av. J.-C.)*, *Bulletin of the Canadian Society for Mesopotamian Studies* **33**: 139–148.
- Boehmer, R. M. (1999). *Uruk: Früheste Siegelabrollungen*, Philip von Zabern, Mainz, Germany.
- Butterlin, P. (1999). Les modalités du contact: chronologies et espaces de l'expansion urukéenne dans le secteur Birecik. In Stein, G. (ed.), *The Uruk Expansion: Northern Perspectives from Hacinebi, Hassek Höyük, and Tepe Gawra*, *Paléorient* **25**(1): 127–138.
- Butterlin, P. (1998). Espaces urukéenne de Syrie du Nord: problèmes de cartographie et méthodologie. In Fortin, M., and Aurenche, O. (eds.), *Espace naturel, espace habité en Syrie du Nord (10e-2e millénaires av. J.-C.)*, *Bulletin of the Canadian Society of Mesopotamian Studies* **33**: 139–149.
- Charvát, P. (1988). Archaeology and social history, the Susa sealings 4000–2350 BC. *Paléorient* **14**: 57–63.
- Cioffi-Revilla, C. (2000). The first international system: Preliminary polity data set of the West Asian macro social system in southern Mesopotamia, 6000–1500 BC. Paper presented at the International Studies Association Annual Meeting, Los Angeles.
- Connan, J., and Deschesne, O. (1996). *Bitumen at Susa*, Musée du Louvre, Département des Antiquités Orientales, Paris.
- Crabtree, P. (1990). Zooarchaeology and complex societies: Some uses of faunal analysis for the study of trade, social status, and ethnicity. *Archaeological Method and Theory* **2**: 155–205.
- Dornemann, R. (1997). Qarqur. In Meyers, E. (ed.) *The Oxford Encyclopedia of Archaeology in the Near East*, Oxford University Press, New York, pp. 370–371.
- Eidem, J., and Warburton, D. (1996). In the land of Nagar: A survey around Tell Brak. *Iraq* **58**: 51–64.
- Emberling, G., Cheng, J., Larsen, T., Pittman, H., Skuldbqel, T., Weber, J., and Wright, H. T. (1999). Excavations at Tell Brak 1998. *Iraq* **61**: 1–41.
- Emberling, G., and McDonald, H. (2001). Excavations at Tell Brak 2000. *Iraq* **63**: 21–54.
- Englund, R. (1998). Texts from the Late Uruk period. In Attinger, P., and Wafler, M. (eds.), *Mesopotamien: Späturuk-Zeit und Frühdynastische Zeit*, Universitätsverlag, Freiburg, Switzerland, and Vandenhoeck and Ruprecht, Göttinger, Germany, pp. 15–236.
- Esin, U. (1989). An early trading center in eastern Anatolia. In Emre, K., Mellinck, M., Hrouda, B., and Özgüç, N. (eds.), *Anatolia and the Ancient Near East, Studies in Honor of Tahsin Özgüç*, Türk Tarih Kurumu Basımevi, Ankara, Turkey, pp. 135–141.
- Flannery, K. V. (1999). Chiefdoms in the early Near East: Why it's so hard to identify them. In Alizadeh, A., Majidzadeh, Y., and Shahrnizadi, S. (eds.), *The Iranian World*, Iran University Press, Tehran, Iran, pp. 44–58.

- Forest, J.-D. (1999). L'expansion Urukéenne: notes d'un Voyager. In Stein, G. (ed.), *The Uruk Expansion: Northern Perspectives from Hacinebi, Hassek Höyük, and Tepe Gawra; Paléorient* 25: 141–150.
- Frangipane, M. (1997). Arslantepe-Malatya: External factors and local components in the development of an early state society. In Manzanilla, L. (ed.), *Emergence and Change in Early Urban Societies*, Plenum, New York, pp. 43–58.
- Hauptmann, A., Hess, K., Wright, H., and Whallon, R. (1998). Evidence of fourth millennium BC silver production at Fatmall Kalecik, East Anatolia. *Metallurgica Antiqua* 8: 57–67.
- Helms, M. W. (1988). *Ulysses' Sail: An Ethnographic Odyssey of Power, Knowledge, and Geographical Distance*, Princeton University Press, Princeton, NJ.
- Helms, M. W. (1993). *Craft and the Kingly Ideal*, University of Texas Press, Austin.
- Henrickson, E. (1994). The outer limits: Settlement and economic strategies in the central Zagros during the Uruk era. In Stein, G., and Rothman, M. (eds.), *Chiefdoms and Early States in the Near East: The Organizational Dynamics of Complexity*, Monographs in World Prehistory 18, Prehistory Press, Madison, WI, pp. 85–102.
- Kohlmeyer, K. (1996). Houses in Habuba Kabira-South, spatial organisation and planning of Late Uruk residential architecture. In Veenhof, K. (ed.), *Houses and Households in Ancient Mesopotamia*, Nederlands Historisch-Archaeologisch Instituut te Istanbul, Leiden, The Netherlands pp. 89–103.
- Kohlmeyer, K. (1997). Habuba Kabira. In Meyers, E. (ed.), *The Oxford Encyclopedia of Archaeology in the Near East*, Oxford University Press, New York, pp. 446–448.
- Lebeau, M. (2000). Stratified archaeological evidence and compared periodizations in the Syrian Jezirah during the third millennium B. C. In Marro, C., and Hauptmann, H. (eds.), *Chronologies des Pays du Caucase et de L'Euphrate aux IV^e–III^e Millénaires*, DeBoccard, Paris, pp. 167–192.
- Liverani, M. (1998). *Uruk: la prima città*, Laterza, Roma-Bari.
- Lyonnet, B. (1997). Questions sur l'origine des porteurs de pots en Haute-Mésopotamie du VI^e au milieu du II^e Millénaire. *Florilegium marianum* 3: 133–144.
- Margueron, J. (1980). *Le Moyen Euphrate: zone de contacts et d'échanges*, Brill, Leiden.
- Matsutani, T. and Nishiaki, Y. (1995). Preliminary report on the archaeological investigations at Tell Kosak Shamali, the Upper Euphrates, Syria: The 1994 Season. *Akkadica* 93: 11–20.
- Matthews, R. J. (1996). Excavations at Tell Brak, 1996. *Iraq* 58: 65–77.
- Matthews, R. J. (2002). *Secrets of the Dark Mound: Jemdet Nasr 1926–28*, British School of Archaeology in Iraq, Wiltshire, England.
- Morandi Bonacossi, D. (1998). The beginning of the early Bronze Age at Tell Shiukh Fawqani in the upper Syrian Euphrates. Paper presented at the First International Conference on the Archaeology of the Ancient Near East, Rome.
- Nichols, D. L., and Charlton, T. H. (1997). *The Archaeology of City-States: Cross-Cultural Approaches*, Smithsonian Institution Press, Washington, DC.
- Oates, J. (1993). Trade and power in the fifth and fourth millennia BC: New evidence from northern Mesopotamia. *World Archaeology* 24: 403–422.
- Oates, J. (2002). Tell Brak: The 4th millennium sequence and its implications. In Postgate, N. (ed.), *Artefacts of Complexity: Tracking the Uruk in the Near East*, British School of Archaeology in Iraq, Wiltshire, England, pp. 111–122.
- Özbal, H. (1996). Chemical analysis of a copper chisel from Hacinebi Tepe. *Anatolica* 22: 109–110.
- Özbal, H., Adriaens, A., and Earl, B. (1999). Hacinebi metal production and exchange. *Paléorient* 25: 57–65.
- Peltenburg, E., Bolger, D., Campbell, S., Murray, M., and Tipping, R. (1996). Jerblus Tahtani, Syria. 1995. Preliminary Report. *Levant* 28: 1–25.
- Pittman, H. (1999). Administrative evidence from Hacinebi Tepe. In Stein, G. (ed.), *The Uruk Expansion: Northern Perspectives from Hacinebi, Hassek Höyük, and Tepe Gawra; Paléorient* 25: 43–50.
- Pollock, S. (1987). Abu Salabikh, the Uruk mound 1985–86. *Iraq* 49: 121–141.
- Pollock, S. (1990). Archaeological investigation on the Uruk mound, Abu Salabikh, Iraq. *Iraq* 53: 85–93.
- Pollock, S. (1992). Bureaucrats and managers, peasants and pastoralists, imperialists and traders: Research on the Uruk and Jemdet Nasr periods in Mesopotamia. *Journal of World Prehistory* 6: 297–336.

- Pollock, S., Pope M., and Coursey, C. (1996). Household production at the Uruk mound: Abu Salabikh, Iraq. *American Journal of Archaeology* **100**: 683–698.
- Potts, D. T. (1997). *Mesopotamian Civilization: The Material Foundations*, Cornell University Press, Ithaca, NY.
- Roaf, M. (1990). *Cultural Atlas of Mesopotamia and the Ancient Near East*, Facts-on-File, New York.
- Rosen, A. M. (1997). Geoarchaeology of Holocene environments and land-use at Kazane Höyük, southeast Turkey. *Geoarcheology* **12**: 395–416.
- Rothman, M. S. (in press). The archaeology of early administrative systems in Mesopotamia. In Stone, E. (ed.), *Adams' Festschrift*, Cotsen Institute of Archaeology, University of California, Los Angeles.
- Rothman, M. S. (2000). The commoditization of goods and the rise of the state in Mesopotamia. In Haugerud, A., Stone, P., and Little, P. (eds.), *Commodities and Globalization*, University Press of America, Lanham, MD, pp. 163–178.
- Rothman, M. S. (2002). Late Chalcolithic Mesopotamia. In Peregrine, P., and Ember, M. (eds.), *Encyclopedia of Prehistory*, Vol. 8, Kluwer Academic, New York, pp. 261–270.
- Rothman, M. S., and Blackman, M. J. (1990). Monitoring administrative spheres of action in late prehistoric northern Mesopotamia with the aid of chemical characterization (INAA) of clay sealings. In Miller, N. (ed.), *Economy and Settlement in the Near East*, MASCA Supplement, University Museum, Philadelphia, pp. 19–45.
- Rothman, M., Ergeç, R., Miller, M., Weber, J., and Kozbe, G. (1998). Yarım Höyük and the Uruk expansion: Part I. *Anatolica* **24**: 65–99.
- Roux, V., and Courty, M.-A. (1997). Les bols élaborées au tour d'Abou Hamid: rupture technique au 4^e millénaire avant J.-C. dans le Levant-Sud. *Paléorient* **23**: 25–43.
- Roux, V., and Courty, M.-A. (1996). Ceramic provinces along the middle and upper Euphrates: Late Chalcolithic–Early Bronze Age. A diachronic view. *Baghdader Mitteilungen* **27**: 13–37.
- Schmidt, K. (2002) *Norsuntepe, Kleinfunde II*, Verlag Phillip von Zabern, Mainz, Germany.
- Stein, G. (1998). World system theory and alternative modes of interaction in the archaeology of culture contact. In Cusick, J. (ed.), *Studies in Culture Contact: Interaction, Culture Change, and Archaeology*, Occasional Paper 25, Center for Archaeological Investigations, Southern Illinois University, Carbondale, pp. 220–255.
- Stein, G., Edens, C., Pearce, J., Boden, K., Laneri, N., Özbal, H., Earl, B., Adriaens, M., and Pittman, H. (1998). Southeast Anatolia before the Uruk expansion: Preliminary report on the 1997 excavations at Hacinebi. Turkey. *Anatolica* **24**: 143–193.
- Sürenhagen, D. (1976). *Keramik-produktion in Habuba Kabira-Süd*, Verlag Bruno Hessling, Berlin.
- Sürenhagen, D. (1986). The dry farming belt: The Uruk period and subsequent developments. In Weiss, H. (ed.), *The Origins of Cities in Dry-Farming Syria and Mesopotamia in the Third Millennium BC*, Four Quarters, Guilford, CT, pp. 7–43.
- Sürenhagen, D. (1999). *Untersuchungen zur Relativen Chronologie Babyloniens und Angrenzender Gebiete von der Ausgehen Ubaidzeit bis zum Beginn der Frühdynastisch II-Zeit. I Uruk und Ur*, Heidelberger Orientverlag, Heidelberg, Germany.
- Tomita, T. (1998b). Late Chalcolithic chronology in Syria and northern Mesopotamia. In Tsuneki, A., and Miyake, Y. (eds.), *Excavations at Tell Umm Qseir in Middle Khabur Valley, North Syria: Report of the 1996 Season*, Institute of History and Anthropology, University of Tsukuba, Tsukuba, pp. 141–160.
- Tsuneki, A., and Yutaka, M. (1998). *Excavations at Tell Umm Qseir in the Middle Khabur Valley, North Syria*, Department of Archaeology, University of Tsukuba, Tsukuba.
- Vallet, R. (1998). L'urbanisme colonial urukien: l'exemple de Djebel Aruda. *Subartu* **4**: 53–87.
- Vallet, R. (1997). Habuba Kabire ou la naissance de l'Urbanisme. *Paléorient* **22**: 45–76.
- van de Mieroop, M. (1997). *The Ancient Mesopotamian City*, Clarendon, Oxford.
- Wilkinson, T. J. (1990). *Town and Country in Southeastern Anatolia*, Vol. 1, Oriental Institute, Chicago.
- Wilkinson, T. J. (1995). *Settlement Development on the North Jazira, Iraq: A Study of the Archaeological Landscape*, Iraq Archaeological Reports 3, British School of Archaeology in Iraq, Aris and Phillips, Warmminster.

- Yamazaki, Y. (1999). Excavations at Tell al-'Abr. In del Olmo Lete, G., and Montero Fenollós, J.-L. (eds.), *Archaeology of the Upper Syrian Euphrates: The Tishreen Dam Area*, Proceedings of a Symposium Held at Barcelona, January 28th–30th 1998, Barcelona, pp. 83–96.
- Yener, A. (2000). *The Domestication of Metals: The Rise of Complex Metal Industries in Anatolia*, E. J. Brill, Leiden, The Netherlands.
- Yoffee, N. (1995). Political economy in early Mesopotamian states. *Annual Review of Anthropology* 24: 281–311.
- Zeder, M. (1988). Understanding urban process through the study of specialized subsistence economy in the Near East. *Journal of Anthropological Archaeology* 7: 1–55.

Copyright of Journal of Archaeological Research is the property of Kluwer Academic Publishing and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.

Copyright of Journal of Archaeological Research is the property of Springer Science & Business Media B.V. and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.