

Egypt and Syro-Mesopotamia in the 4th Millennium: Implications of the New Chronology(1).

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Egyptian contacts with Uruk Mesopotamia have been an outstanding question for most of this century (Frankfort 1924, 1951; Baumgartel 1955; Kantor 1992:14-17; Smith 1992; Mark 1998). The revised 4th-millennium Syro-Mesopotamian chronology generated at the recent School of American Research Advanced Seminar "Mesopotamia in the Era of State Formation" makes possible an answer to this question.(2) A clearer understanding of the relationship between the two earliest Old World societies also permits review of the role of intersocietal interaction in the evolution of complex societies.

CHRONOLOGY

Efforts at harmonizing Egyptian and Mesopotamian chronologies have been hampered by the lack of radiocarbon dates from both areas, difficulties in coordinating Egyptian historical chronologies with radiocarbon dates, and, more recently, the impression of a single Uruk "expansion" episode toward the middle of the 4th millennium (Hassan and Robinson 1987; Boehmer 1991; Boehmer, Dreyer, and Kromer 1993. cf. Algaze 1993a:56-57). Efforts to discuss the phases of Egypt-to-Mesopotamian contact have been hampered by cumbersome terminology (Kantor 1992) and poor understanding of chronology and the impact of contacts in Egypt (Mark 1998). Further, there is a "minimalist-maximalist" divide between scholars inclined to see more local development (e.g., Hendrickx and Bavay n.d.) or more foreign contact. Egyptian chronology has improved somewhat because of improved radiocarbon dates, supported by synchronisms with the Southern Levant, and artifact seriations (e.g., Kaiser 1990, Bard 1994a, Hendrickx 1996, Wilkinson 1996). While difficulties, especially terminological, remain, these efforts have all served to lengthen the Egyptian predynastic and early dynastic periods.

The recent SAR seminar, using stratigraphic and hitherto unpublished radiocarbon data, generated a new chronology for the Uruk period (Wright and Rupley n.d.). This chronology provisionally renames the Late (here, Terminal) Ubaid through Late Uruk horizons as "Late Chalcolithic 1-5" and indicates dates from ca. 4200 to 3000 B.C. inclusively. Even more significant, it regards the "Uruk expansion" as a process of minimally 400 years, perhaps as much as 600 years, in length, consisting of at least two and possibly more phases.

The longer chronology and the suggestion of several phases of expansion, each presumably with its own political and economic characteristics and spatial extent, are key for understanding Egyptian contacts (figure 1). First, given the longer Egyptian predynastic chronology, it is simply not possible for all contacts with Uruk settlements in Syria to have taken place ca. 3400 B.C., the approximate horizon for the earlier phase of expansion. Egypt at that time, Naqada IIC-d, was "unified" by the expansion of the southern Naqada culture, but it remains doubtful that large portions of the Nile Valley were politically integrated under a single polity. Indeed, it appears that a small number of Upper Egyptian sites--Abydos, Hierakonpolis, and Naqada being the best-known--were major settlements with significant sociopolitical integration. Some Mesopotamian-inspired objects, such as decorative motifs,(3) have been dated to this earlier horizon. The most visible Uruk-inspired feature is the use of niched brick facades in mortuary architecture, primarily in the later Dynasty One and Two. A single expansion phase demanded the improbable scenario that late predynastic Egyptian society was exposed to Uruk influences in Syria which then became manifest in the Nile Valley some three to four centuries later.(4)

[Figure 1 ILLUSTRATION OMITTED]

A second phase of Uruk expansion, however, dated ca. 3100 B.C. correlates much better with Egyptian chronology and, most important, the adoption of Uruk styles and material culture in the Naqada IIIb by the emerging Egyptian national state. Dynasty Zero is understood as a period of competing southern regional leaders, from IriHor to Narmer, vying for territorial, social, and ideological control. Various techniques were used for integration, including deployment of settlements ("colonies") in the Southern Levant, notation, craft production, and use of Levantine and Mesopotamian imagery (Joffe 1991; Algaze 1993b; Brink 1992, 1996, 1998). Narmer of Dynasty One, once considered the "unifier" of Egypt, may be dated approximately 3050 B.C. and represents the culmination of the spread of southern Naqada culture into Lower Egypt. The second major phase of Egyptian contacts with Uruk settlements in Syria thus took place when a national authority both in theory and in practice was emerging in Egypt. No uncomfortable lag between the period of contact and the period of Egyptian emulation must be posited, since Uruk influence appears immediately and is most clearly manifest within the next 200 years of pharaonic rule.

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IMPACT

Two basic contact horizons, ca. 3400 and 3100 B.C., make it possible to explain the nature and significance of Uruk influence on Egypt. In the first phase of contact, as noted above, only a few large settlement sites are visible in Upper Egypt, although a number of wealthy cemeteries are known. While there is increasing evidence for large sites in Lower Egypt during Naqada II, such as Buto, these do not yet appear to have been of the same scale or complexity as their southern counterparts (Brink 1993). The earlier Uruk expansion horizon in Syria is known primarily from excavations at Tell Sheikh Hassan (Boese 1995), as well as from Qraya, Brak, and Hacinebi (Pollock and Coursey 1995), but it is not yet characterized by the complex network of sites which develops with the second phase. Thus, both partners in the earlier phase of contacts are much smaller and less integrated, and this is reflected in the eclectic finds of Uruk materials in Egypt and in the apparently total lack of reciprocal Egyptian influence on Uruk sites or on intervening regions.

A long tradition existed in Egypt of cultural contact and the integration of new styles, technologies, and symbols. Neolithic contacts between Western Asia and Egypt include the transmission of lithic technologies such as the Helwan retouch (Gopher 1993), domesticated plants and animals sometime after 6000 B.C. (Wetterstrom-1993), and maceheads (Cialowicz 1989). Chalcolithic contacts include the transfer of metallurgical technology and raw materials through the trading entrepot at Maadi (Rizkana and Seeher 1989, Seeher 1990). Uruk-related material in Egypt which may be dated to the middle Naqada II horizon includes the introduction of cylinder seals, lapis lazuli, and stylistic influences on locally produced knife handles (Crowfoot-Payne 1968; Boehmer 1974a, b; Midant-Reyes 1987; Smith 1992; Sievertsen 1992; Pittman 1996; Bavay 1997). Contacts should therefore be understood as very small-scale, probably conducted by sea via northern Levantine sites such as Byblos and possibly Ugarit (Prag 1986; cf. Contenson 1982). These were to be the vectors in the next phase of contacts as well.(5)

Given that there are still only inchoate polities in Egypt, integration of Uruk influences is selective. Cylinder seals, a quintessential Western Asia administrative device of Mesopotamian origin, have limited impact in late Naqada II Egypt. Simple seals with abstract motifs are adopted first in mid-Naqada II as display pieces (Kantor 1952, Williams 1977, Teissier 1987, Podzorski 1988; see also Kaplony 1963, Brink 1995). The late Naqada II and early Naqada III impressions from Abydos Cemetery U also illustrate the process of integrating local Egyptian motifs into cylinder seals (Hartung 1998). Access to small objects from the

Northern Levant and better-established metallurgical and technological resources in the Southern Levant and the trading entrepot at Maadi were equally important impetuses for the northward expansion of Upper Egyptian polities during the late Naqada II (Seeher 1991).

Ceramic evidence also suggests an eclectic approach to integrating local and foreign motifs. Southern Levantine features such as the unassuming ledge handle appear as the "wavy" handle on Egyptian vessels. Similarly, Uruk-style triangular lug handles and bent-spouted vessels (Petrie's "Fancy Ware," Amiran 1992) begin to appear. Some of the four-lugged vessels are decorated with boat and "mourning" motifs, both attested much earlier in Egypt (Needler 1984:pl.16). Acquisition of foreign motifs and technologies served Egyptian elites as sumptuary items, as goods for differential distribution, and also as a symbolic indication of their ritual-religious prowess (cf. M. Helms 1988, 1992). The original context and content of motifs appear to have been unimportant, and recombination of elements appears frequently, such as the appearance of boat and "mourning" motifs on vessels with both wavy and local pierced horizontal handles (Spencer 1993: fig. 22). The fusion of local pressure-flaked lithic technology with carved knife handles is another example. Finally, Naqada II witnesses the increasing elaboration of mortuary rituals, including the removal of increasing amounts of wealth from circulation as grave goods (Endesfelder 1984, Bard 1994b, Wilkinson 1996). Overall these illustrate the expansion of craft production and its connection with local elite ideology.

Other probable Syro-Mesopotamian elements in mid-to-late Naqada II art include the "master of animals" motif, winged griffins, serpent-headed panthers, and intertwined beasts (Kantor 1992:15, fig. 6; Smith 1992). All figure prominently in Uruk-period glyptic, especially from Susa, and appear in Egypt individually and in clusters in contexts such as the Painted Tomb at Hierakonpolis and the Gebel el-Arak knife handle. The incorporation of these motifs further illustrates the impact of Egypto-Mesopotamian interaction--not simply emulation by Egypt but reinterpretation of foreign iconography to fit existing and developing ideological needs (see generally Bard 1992a, Hassan 1992). Egyptian concern, for example, for the "containment of unruly" in the highly dynamic and potentially threatening social and natural environments of the Nile Valley (Kemp 1990; Baines 1995 a: 13-14) contextualizes the adoption of a heroic figure such as the master of animals by Egyptian elites. The figure in Egypt becomes invested with the social and religious role of protector of the natural and social orders, a step toward the concept of ma'at and the royal ideology of the later Early Dynastic period.(6) But adoption of

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foreign motifs and concepts in the earlier phase remains unstructured and opportunistic rather than systematic, without indication of the transmission of serious conceptual or organizational influences. Uruk iconography supplemented existing imagery and did not provide key technologies. If anything, relations with the Southern Levant were more important during this period.

The second Uruk expansion came at a most propitious time for Egypt. With increasing unification under Upper Egyptian elites, new administrative and integrative techniques became necessary (Baines 1995b). Among these were continued expansion of now canonical craft and art production in the visual environment (Davis 1989), with the addition of inscriptions and architecture. Egyptian settlements in the Southern Levant are clearly under official control, as is demonstrated by the serekhs bearing the name of Narmer found in Israel (Brink 1996, 1998). The appearance of a greater number of Uruk settlements in Syria and Anatolia brought a larger repertoire of power iconography to the attention of Egyptian elites anxious for symbols and integrative devices. The vector of Egypto-Mesopotamian contact has been at issue, with suggestions including seaborne trade via the Red Sea (Zarins 1989, Majer 1992), overland contacts via the Southern Levant (Amiran 1970), and seaborne contacts along the Levantine coast (Joffe 1993). Given the new chronology and the attribution of the bulk of settlement at Habuba Kabira to the latter phase of expansion (Vallet 1997; see also Surenhagen 1974/75), the Levantine coastal option remains the more probable.

A number of stylistic and processual similarities between Egypt and Uruk Mesopotamia may be noted in this later period. These show the deliberate process by which Uruk features were applied in Egypt. The influence of Mesopotamia on the origins of writing in Egypt remains a question best left to specialists (Ray 1986, Fischer 1989, Bard 1992b, Postgate, Wang, and Wilkinson 1995, Trigger 1998). Similarities in Egyptian and Mesopotamian ceramics for baking and brewing and the earliest written symbols representing the same have been noted by several scholars (Millard 1988, Chazan and Lehner 1990). Similar use of alcoholic beverages by elites as rations and rewards has also been suggested (Joffe 1998).

As noted above, the use of cylinder seals with figurative motifs as administrative devices is fully established during Dynasty One. In contrast to the Southern Levantine practice of sealing ceramic vessels themselves, the Mesopotamian practice of sealing clay stoppers and bullae is imitated (Joffe n.d.). The decoration of stone palettes, a local Egyptian device which began in Naqada I, reflects Uruk influences by Naqada II-III; the best-known examples

are the rosette on the Scorpion macehead (Smith 1992, Cialowicz 1997) and the intertwined beasts on the obverse of the Narmer Palette (Davis 1989:159-63, figs. 6.14-15). Egyptian imitations of Uruk-style bent-spout vessels appear in ceramic, stone, and eventually copper, as do stone imitations of four-lugged jars. These are in addition to Egyptian stone imitations of Southern Levantine ceramic forms such as one-handled pitchers and the feature of the ledge handle (Kantor 1992; el-Khouli 1978:pl. 83). The placement of local smithing scenes on palettes and maceheads and the imitation of pressure-flaked knives in copper also demonstrate expanding court control over the visual environment and craft production (Radwan 1983; Williams and Logan 1987; Davis 1992; Baines 1995b:97, 110-12).

Perhaps the most significant manifestations of this second wave of contacts are the various Egyptian adaptations of Uruk architectural features. Frankfort long ago noted the similarity between Mesopotamian and Egyptian niched brickwork (Frankfort 1924). While there has been extensive discussion of the issue, two problems have impeded a solution. The first problem has been chronological, since niched brickwork is one of the latest Uruk-like features in Egypt, appearing primarily in Dynasty One. Previously this had been regarded as at the very end of any Uruk contacts or even an Uruk presence in Syria (Kantor 1992:18). A second contact horizon ca. 3100 B.C. addresses this problem easily, since late Dynasty Zero and Dynasty One are contemporary with the major settlement horizon at Habuba Kabira, Jebel Aruda, and Hassek Hoyuk. The second problem has been more difficult: understanding the Egyptian reinterpretation of Mesopotamian temple and civic architecture as royal and, most conspicuously, funerary architecture and motifs. As noted earlier, however, Egyptian practice was to adapt foreign motifs to fit local ideological and organizational patterns. Architecture is simply the most visible manifestation of this process.

The direct origins of niched brickwork are found in the `Ubaid period in structures such as the Eridu "temples" (Safar, Mustafa, and Lloyd 1981). The style continues to be used for monumental structures into the Uruk period, the best-known being at Warka, and on a larger scale the insets and offsets of the fortification wall of Habuba Kabira may be regarded as a variant (Strommenger 1979: fig. 1) (fig. 2). Niched brickwork also appears on Uruk-period seals, especially in processional motifs (Smith 1992). In Syria the technique is imitated on the exterior of a public building at Hamman et-Turkman, a local Late Chalcolithic site and not an Uruk settlement (Algaze 1993a:100-101).

[Figure 2 ILLUSTRATION OMITTED]

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In Egypt the niched brick motif appears already in Dynasty Zero or late Naqada III on the serekh, a heraldic device depicting a facade or doorway with the Horus name of the king in a box above (Brink 1996) (fig. 3). The motif is also found on ivory boxes and inlays dated to early Dynasty One (e.g., Kroeper and Krzyzaniak 1992), as well as on royal tombstones, in the layout of palatial or temple structures (e.g., Weeks 1972), and in the superstructures of elite mortuary installations of Dynasties One and Two (e.g., Emery 1949, 1954, 1958; O'Connor 1989) (fig. 4). Niched brick motifs are employed on architecture into the Old Kingdom.

[Figures 3-4 ILLUSTRATION OMITTED]

The use of niched brickwork in palaces, tombs and funerary enclosures, and royal insignia indicates that the style was incorporated into a multifaceted series of display devices advertising royal power. As Baines notes, mudbrick was itself a prestige material (1995b:123). Temples and palaces housed and embodied the interlinked royal-religious authorities in life, as did mortuary monuments in death. Uruk architectural imagery was appreciated for its powerful visual impact and possibly for its foreign connotations. The message of the imagery, however, was Egyptian.

MECHANISMS AND SCALES OF CONTACT

What mechanisms of intersocietal contact account for the appearance of Uruk features in Egypt? At what scales did contact take place? It may be suggested that all the Uruk influences cited above could be accounted for by minimal contacts. A literal handful of individuals bringing back to Egypt a few bags of items and detailed descriptions may have been all that was necessary to inspire a highly receptive group of elites and their craftsmen. No itinerant craftsmen or diplomatic missions need be posited.(7) Reciprocal influence of Egypt on Syro-Mesopotamia as yet cannot be detected; indeed, only invisible exports may be postulated.

Both phases of Egyptian contacts with Uruk settlements in Syria likely took place via sea trade with the Northern Levant. Only isolated objects at Byblos support this suggestion (Prag 1986), but Uruk material is difficult to isolate because of the extremely poor excavation and publication techniques. The later Old Kingdom contacts with the site, however, point to the importance of the connection (Ward 1963). Southern Levantine evidence also indicates the tempo and scale of Egyptian contacts with the outside world. There is a complex progression of direct Egyptian contacts with the Southern Levant during the 4th millennium; from sporadic interaction in Naqada I

to entrepreneurs with royal affiliations similar to Babylonian *dam.gar* (Leemans 1960) or Aztec *pochteca* (Sanders 1992.) in Naqada II and early Naqada III (complemented by the appearance of Southern Levantine traders and craftsmen at Maadi) to an extensive network of royal outposts in Naqada III, which evaporated rapidly at the end of Dynasty One (Dessel and Joffe n.d.). It may be that a similar pattern held for the Northern Levant--sporadic contacts followed by entrepreneurial relationships but giving way to a small direct presence.

The Egyptian experience could be usefully contrasted with that of the various western Asian societies which came into sustained or attenuated contact with the Uruk world. While the impact of the Uruk expansions on northern Syria and Anatolia has been discussed extensively, the effect on intervening western Syrian and Levantine cultures has been difficult to gauge. Few late-4th-millennium strata have been excavated in modern times, but results of earlier deep soundings, primarily at Hama, indicate quantitatively little Uruk material, as does more recent work at sites such as Tell Nebi Mend (Thuesen 1988:112, 187; Matthias and Parr 1989; cf. Jamieson 1993). Western and southern Syria may have been outside the range of substantive contacts during either phase of Uruk expansion, a curious finding given the deep penetration of 'Ubaid culture into at least the former (Thuesen 1989).(8) The occurrence of Uruk-like pottery at desert outposts such as Jawa and el-Kowm has made little sense within the context of a single expansion phase which culminated in an apparently logical array of settlements and stations (S. Helms 1987, Betts 1991, Cauvin and Stordeur 1985). Much of this arid-zone material should be dated to the second phase of Uruk expansion or even to the succeeding centuries (McClellan and Porter 1995) and regarded as part of tenuous contacts with pastoralists rather than long-distance trade.

In the Southern Levant, contacts are reflected only by the local imitation of the Uruk bent-spout vessel and perhaps in some glyptic styles (Hennessy 1967, Amiran 1992). One tomb excavated recently at Tell Asawir contains pottery similar in style to Ninevite V and determined petrographically to originate outside of the Southern Levant alongside Naqada III and Amuq F vessels (Yannai 1995). It has recently been proposed that the spatial and demographic changes at the end of the Early Bronze I should be seen as a result or reflex of changes in the Uruk world system (Portugali and Gophna 1993), but there is no direct evidence for contacts with the Uruk world.

The lack of evidence from the Levant in particular indicates that the scale of Uruk contacts with Egypt could not have been great, since the direct presence of

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appreciable numbers of traders, craftsmen, or officials would be expected to have left some mark. International interaction during the Late Bronze Age, including trade, diplomacy, and warfare, took place overland and apparently enmeshed all Syrian and Levantine city-states (Liverani 1990). The mid-3d-millennium example of reciprocal "proto-diplomatic" contacts between late Old Kingdom Egypt and Ebla is also informative. Egyptian objects appear at Ebla Palace G, almost certainly having been transported from Byblos, and Egyptian metrology is employed, but neither the relationship nor Byblos itself is mentioned in any Eblaite text (Scandone-Matthiae 1981, 1982; Redford 1986; Archi 1987; Astour 1992).

EVOLUTIONARY CONTEXT AND CONCLUSIONS

The evolution of complex societies can no longer be studied in isolation but must be approached in an integrated fashion.(9) The relationship between Uruk Mesopotamia and late predynastic and Early Dynastic Egypt was lengthy, complex, and almost completely one-sided. Critical symbols and technologies were transmitted at times when first incipient and then developed Egyptian elites could adapt and apply them effectively. Theoretical approaches to the origins of states and civilizations have allowed for similar structural and even expansionary dynamics (Algaze 1993b), but there is little to account for highly contingent relationships between core civilizations. The above does not suggest that Mesopotamia originated or inspired Egypt. Rather, it was able to provide a contribution to a local evolutionary trajectory already under way. While that contribution was symbolically critical, it did not initiate or fundamentally redirect local patterns, such as the emphasis on mortuary behavior, elaborate animal iconography, and of course kingship ideologies, in an organizational or cultural sense. These are distinctively Egyptian.

Addressing cross-cultural linkages remains a developing area for evolutionary theory. Several categories of intersocietal interaction have been employed by archaeologists: diffusion/migration models (which may include warfare), economic models, including colonial, imperial, and "world-systems" approaches, and symbolic/ideological models (e.g., Schortman and Urban 1992, Cusick 1998). While other categories are possible, it is apparent that the study of relationships between cultures or societies mirrors basic theoretical divisions found in other areas of archaeology privileging spatial and demographic, economic, and ideational factors, respectively. An overarching question is whether any one framework is capable of characterizing accurately the variety of ancient intersocietal relationships and whether it can adequately incorporate these data into larger theories

of sociocultural evolution. Similarly, the questions of modeling interaction primarily as elite instrument or as an emergent property of social and economic systems and explaining household compliance with new sociopolitical ideological structures reflect long-standing issues of agency and process and of coercions and benefits.

No new theory of intersocietal interaction and social evolution is offered here; indeed, it may be argued that no single theory is possible. Several features of a more inclusive approach may be at least outlined. The first is the broad geographic and temporal perspective, explicit in the world-systems and Annales approaches, that will allow us to capture such far-flung, long-term, and/or evanescent relationships as are described here. At issue are the contexts and units of analysis appropriate for addressing social evolution, and the case discussed here indicates that the net should be cast widely,(10.)

A second feature is an appreciation of core civilizations as open systems whose development was contingent on inputs from both small and large neighbors (e.g., Cohen 1983). The suggestion that intersocietal relations have distinct patterns of directionality, in this case from Mesopotamia to Egypt, does not, however, indicate a hidden diffusionist agenda. Nor does it suggest a single process of world-system growth around a concept of "accumulation" (e.g., Frank and Gill 1993) or, indeed, any measurable economic motive or mechanism. Distance was an insurmountable barrier to bulk trade in the Bronze Age and in prehistory, but regimes of value were generated around the movement of specialized commodities and luxury goods whose impact and "meaning" were highly varied (Edens and Kohl 1993). Finally, a sense of directionality in the development of core civilizations and their intersocietal contacts does not necessarily entail distance thresholds with varying levels of exchange symmetry or uniform patterns of radiation into surrounding areas (cf. Renfrew 1975, Stein 1988).

Directional processes are also implicit in "civilizationist" approaches, macrohistorical and sociological studies which often regard civilizations as equivalent to world systems or posit a single or a limited number of world systems (e.g., Sanderson 1995). While such approaches may offer comparative insights, they are incapable of explaining specific patterns or relationships because they lack an archaeological or materialist orientation. As the example discussed here shows, the vectors of intersocietal contacts may be slight and sporadic but still have great resonance. Similarly, even relationships between core and periphery can have unexpected and counterintuitive elements (Joffe 1993).

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Third, in any new approach to social evolution, technologies, styles, and symbolism must be examined along with luxury and bulk goods. The renewed attention being given by archaeologists to symbolism is a valuable complement to materialist approaches, which have dominated intersocietal studies in particular (Robb 1998). A number of studies by M. Helms (1988, 1992, 1993) and Sherratt (1993, 1994, 1997) are valuable examples in these respects.

Finally, any new theoretical approach must include and account for what archaeologists do best, contending with space-time systematics and material culture. If the example of the Egyptian-Uruk relationship indicates anything it is that renewed attention to chronologies can unlock a variety of doors.

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(2.) See the abstracts and chronological chart at <http://www.science.widener.edu/ssci/mesopotamia/>.

(3) Several different types of conical clay objects from Tell el-Fara'in/ Buto called by the excavator (after the Mesopotamian terms) Mosaikstifte, Grubenkopfnagel, and Tonflaschen have been proposed as reflecting Mesopotamian inspiration (von der Way 1992, 1993, 1997; Kohler 1998; see also Moorey 1987, 1990, 1995). The suggestion that the small terracotta "cones" represent any Mesopotamian connection has been rejected by Faltings and Kohler (1996: 98-99; Faltings 1998:374-75), who sees them instead as miniature vessels imitating a Levantine Chalcolithic form called the cornet. This is highly unlikely from the Levantine perspective. Toby Wilkinson (1998, personal communication; cf. Faltings 1998:375) points out that the objects in question are distributed across 4th- and 3rd-millennium strata at the site and that most have plausible local derivation. Only the Mosaikstifte may be Mesopotamia-derived via Syria. See, for example, the use of the technique at Hassek Huyuk (Behm-Blancke 1989)

(4.) Radiocarbon dates from Abydos Tomb U-j have been used to suggest a still higher chronology for Naqada IIIa2, ca. 3300 B.c. and for the earliest hieroglyphic writing and the appearance of niched brick architecture. The two assays are Hd-12953 (4,470 [+ or -] 30 B.P.) and Hd-12954 (4,595 [+ or -] 25 B.P.), both on samples of *Acacia nilotica* (Boehmer, Dreyer, and Kromer 1993;

Gorsdorf, Dreyer, and Hartung 1998a, b). No tree-ring count could be established (since acacia is a ring-porous wood and does not form regular annual growth rings), but it is claimed that the wood used for tomb construction was typically 10-20 years old and that reuse of wood for important tombs was unlikely. All these claims are problematic, and a date between 3100 and 3200 for Tomb U-j, as initially suggested in Boehmer, Dreyer, and Kromer (1993), is to be preferred.

(5.) Von der Way and Kohler interpreted several sherds at Tell el-Fara'in/Buto as atypical examples of Amuq F "spiral reserve ware" (Kohler 1992:21-22; 1998:37-39) and regarded them as evidence of seaborne contacts with the northern Levant. More recent excavations revealed complete vessels which Faltings plausibly interprets as deriving from the southern Levantine Chalcolithic culture (Faltings 1998:366-71).

(6.) In a personal communication, John Baines notes that the level of environmental risk inherent in the flood regime of the Tigris-Euphrates Valley parallels that of Egypt, suggesting a similar conceptual foundation for the master of animals motif.

(7.) In a personal communication, Henry Wright points out that bricklaying is typically learned through apprenticeship and the repetition of motor skills. He therefore suggests the presence of Syrian craftsmen in the Nile Valley, but the possibility that such skills were learned by Egyptians resident in Syria should also be considered.

(8.) One possibility is that the pastoral and dry-farming economies in western Syria were largely redundant with those found closer to the primary Tigris and Euphrates trade routes and settlements. That Uruk settlement had some general catalytic effect on the emergence of urbanism there, however, can hardly be doubted (see, generally, Mazzoni 1991).

(9.) For an important comparative study of Egyptian and Mesopotamian civilizations, see Baines and Yoffee (1998).

(10.) Note, for example, the discovery of Uruk-like (or Proto-Elamite) bevel-rim bowls in Baluchistan and the implications for the origins of Harappan civilization (Benseval 1994).

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