Pivoting East: Çadır Höyük, Transcaucasia, and complex connectivity in the Late Chalcolithic

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ABSTRACT – *The investigation of 'complex connectivities' as defined by Tomlinson (*1999*) is a critical element in the understanding of how the modern globalisation model has been repurposed by archaeologists to explain mechanisms at work in the archaeological past. This study applies Tomlinson's network of complex connectivities to interpret evidence to the contemporary Kura-Araxes culture in Transcaucasia, and the north-central Anatolian plateau in the second half of the fourth millennium BCE, known as the Late Chalcolithic period, all taking place in the context of the vast Uruk system in Mesopotamia in the globalised background. We focus on the site of Çadır Höyük, on the north-central Anatolian plateau. The occupants of this rural settlement experienced some dramatic changes in the later fourth millennium, including substantial reorganisation of their village plan, expansions and contractions in socio-economic activity and long-distance trade, more elaborate burials, and possibly the evolution of new socio-political and religious ideologies. Here we explore the increasing evidence that socio-economic 'complex connectivity' with Transcaucasia, as well as with Mesopotamia, played some role in the substantial modifications and internal dynamics at Late Chalcolithic Çadır Höyük.*

KEY WORDS – *Late Chalcolithic Anatolia; complex connectivity; Transcaucasia; Kura-Araxes Culture; Uruk system*

Zasuk proti vzhodu: Çadır Höyük, Transkavkazija in kompleksna povezljivost v pozni bakreni dobi

IZVLEČEK – *Preučevanje 'kompleksne povezljivosti', kot jo je definiral Tomlinson (*1999*), je ključno za razumevanje načina, kako so arheologi spremenili model moderne globalizacije za to, da bi lahko razlagali mehanizme, ki so delovali v arheološki preteklosti. V članku uporabljamo Tomlinsonovo mrežo kompleksnih povezljivosti pri razlagi dokazov o sočasnosti kulture Kura-Araxes v Transkavkaziji ter v severnem centralnem delu Anatolije v drugi polovici četrtega tisočletja pr.n.št. oz. v času pozne bakrene dobe, in sicer v okviru širšega globalnega konteksta sistema mesta Uruk v Mezopotamiji. Osredotočamo se na najdišče Çadır Höyük v severni centralni Anatoliji. Prebivalci te ruralne naselbine so bili konec četrtega tisočletja priča dramatičnim spremembam, ki so vključevale veliko reorganizacijo načrta vasi, širitve in krčenja družbeno-ekonomskih aktivnosti in menjave na dolge razdalje, bolj izpopolnjene načine pokopa in morda evolucijo novih družbeno-političnih in verskih ideologij. Raziskujemo tudi dokaze o tem, da je imela družbeno-ekonomska 'kompleksna povezljivost' s Transkavkazijo in Mezopotamijo pomembno vlogo pri bistvenih spremembah in notranji dinamiki na pozno bakrenodobnem najdišču Çadır Höyük.*

KLJUČNE BESEDE – *Anatolija; pozna bakrena doba; kompleksna povezljivost; Transkavkazija; kultura Kura-Araxes; sistem Uruk*

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Introduction

The archaeological exploration of past globalisations is couched in terms of the socioeconomic, sociopolitical, and ideological interconnections, termed 'complex connectivities' (*Tomlinson 1999*), that link disparate regions into an experiential 'globalized world.' Globalisation has recently been a major theme in the archaeology of complex societies, and John Tomlinson's idea of complex connectivities offers a productive way to conceptualise interconnections identified in the archaeological record. This study applies Tomlinson's model to interpret evidence that such connectivities linked Transcaucasia and the north-central Anatolian plateau, networked within the long reach of the Mesopotamian Uruk system. Our research suggests that well-established exchange systems spurred the creation of new networks that reached far into rural areas not generally recognised in previous work on prehistoric globalisation events.

Our case study focuses on the site of Çadır Höyük, on the north-central Anatolian plateau (Fig. 1), which boasts an occupational history spanning 6000 years (*c.* 5200 BC to the 13th century AD). The occupants of this rural settlement introduced, and weathered, many changes to their lives and livelihoods over these millennia. Some of the most dramatic of these occurred in the fourth millennium BC, known as the 'Late Chalcolithic' period on the plateau. Modifications included substantial reorganisation of village plans, expansions and contractions in socio-economic activity and long-distance trade, more elaborate burials, and possibly the evolution of new socio-political and religious ideologies. Our research has focused on identifying the underlying reasons for these considerable modifications at Late Chalcolithic Çadır which emerged out of internal dynamics within the community.

The fourth millennium BC is a consequential time in the cultural history of Southwest Asia; the Mesopotamian Uruk period includes the world's first urban literate societies and the establishment of complicated networks of trade and resource acquisition spanning much of the region, including south-eastern Anatolia and the site of Arslantepe. The expansion of the Uruk system corresponds with the rapid and dramatic changes that occurred at Çadır Höyük, which lies far from the Uruk centre in southern Mesopotamia. Contemporary with the rise and expansion of the Uruk system is the development of the Kura-Araxes culture in Transcaucasia. Material and conceptual elements of this culture begin to appear at eastern and south-eastern Anatolian sites in the second half of the fourth millennium. Examples of Kura-Araxes culture also appear at Çadır Höyük at this time, providing an excellent case study to assess the unexpected geographic extent of the complex connectivities of goods, ideologies and, probably, people associated with both the Uruk and Kura-Araxes cultural entities.

Complex connectivity and past globalisations

For decades, scholars have sought to identify the mechanisms that created today's globalisation. One of the most important of these mechanisms is complex connectivity, a term coined by Tomlinson (*1999*), that describes the deeply-embedded systems of interaction that criss-cross a globalised world. In recent years, a number of archaeologists have noted that the complex connectivity of today's world can also be found in the archaeological past, signalling the presence of past globaliations (*LaBianca, Scham 2006; Jennings 2011; Hodos 2017a*). Complex connectivity is very similar to the well-known models that arise from interregional interaction systems (*Schortman 1989; Boyd, Richerson 1985; Schortman, Urban 1992; Lightfoot 1995; Cusick 1998;*

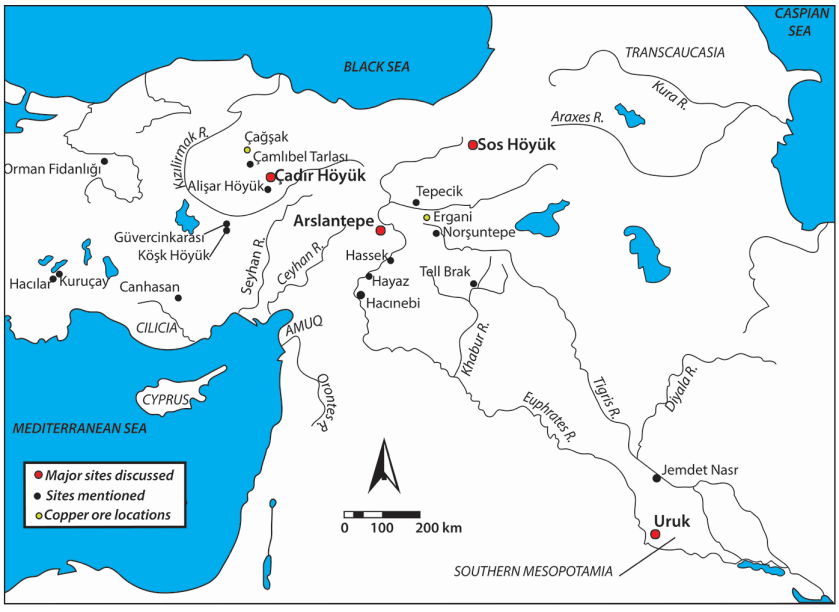

Fig. 1. Map of sites and regions discussed in the text.

Parker 2006; Steadman 1995; 1996). Tomlinson seats connectivity in the modern globalised world within the cultural realm: it is an 'ever-densening network of interconnections and interdependencies that characterize material, social, economic and cultural life' (*Tomlinson 2012.352*). While these connectivities may affect every aspect of life, Tomlinson asserts that it is the economic sphere that is most affected (*2012.353*); although Tomlinson's research focuses on the modern globalised world, the level of impact that economic interaction, or connectivity, has on interactive cultures cannot be understated in the past or present world. Critiques of Tomlinson's model note that complex connectivity in the modern world can, and often do, lead to cultural imperialism (*Xue 2008*). It is not cultural imperialism that is argued here, but rather the efficacy of economic interactions, through complex connectivity, that were at work in the Late Chalcolithic Çadır Höyük community. Such interactions may have initially emanated from centres such as Uruk and Arslantepe in south-eastern Anatolia, but they soon blossomed into new far-reaching tendrils of connectivity, linking regions previously untapped, into Tomlinson's 'ever-densening network of interconnections' that defines complex connectivity. It is these that reached onto the north-central Anatolian plateau and into Transcaucasia.

Archaeologists who apply the globalisation model to past systems describe the mechanisms within such systems as occurring within the known, and reachable, world, depending on transport technologies (see discussions in *Hodos 2017b; Jennings 2011*). Within such parameters, the fourth millennium BC Uruk system can, and has been, defined as an ancient globalisation (*Jennings 2011.57–76; Hodos 2017c; Kardulias 2014*). The Uruk system relied on a network of complex connectivity to acquire and distribute a wide variety of resources and goods (*Algaze 1993a; Frangipane* et al. *1993*). By the mid-fourth millennium BC, Uruk trade networks had been established with the Levant and the Amuq region along the Syro-Lebanon coast, south-eastern and eastern Turkey, and with western and north-western Iran (*Gopnik* et al. *2016; Minc, Emberling 2016; Stein 2002; Gerritsen* et al. *2008; Sağlamtimur, Ozan 2012*). These trade networks spurred residents in these outlying regions to develop new spheres of interaction even farther afield from their own regions to meet supply and demand needs within, and connected to, the Uruk system. These new exchange networks benefitted not only southern Mesopotamian centres such as Uruk, but also settlements in these outer regions. Çadır's specific interaction with this Uruk globalisation has been explored in more detail elsewhere (*Steadman* et al. *2019*).

Largely simultaneously with the Uruk system was another interaction network that encompassed the Kura-Araxes culture in Transcaucasia, and eastern and south-eastern Anatolian sites such as Sos Höyük and Arslantepe by the second half of the fourth millennium. It is likely that this exchange network was a product of both organic circumstances, especially the migration of peoples across, and out of, the Kura-Araxes region into Anatolia, as well as the heightened connectivity occurring as a result of the Uruk globalised system. The exchanges of goods, technologies, and possibly people, between Transcaucasia and eastern/south-eastern Anatolia also appear to have reached farther west, to sites such as Çadır Höyük on the north-central Anatolian plateau. It is this aspect of complex connectivity, tangentially related to the Uruk system, that is the focus of the remainder of this study. The interactions between Arslantepe and the Kura-Araxes region are first detailed, followed by the evidence for Çadır Höyük's involvement in this fourth millennium network of connections.

Arslantepe, Transcaucasia, and fourth millennium connectivity

The expansion of the Kura-Araxes culture of Transcaucasia into south-eastern Anatolia, as well as western Iran, occurred in the fourth millennium BC, contemporaneous with the northward movement of Uruk influence into these regions. The multi-regional complex connectivities generated by these interactions are well represented at the Anatolian site of Arslantepe, located high in the Euphrates Valley in the Malatya region.

Arslantepe, Transcaucasia and the Uruk system

Arslantepe, the seat of an indigenous south-eastern Anatolian polity, consistently interacted with the growing Uruk system to its south in the mid-later fourth millennium, while concurrently establishing links with the Kura-Araxes culture in Transcaucasia. As is discussed below, the Kura-Araxes culture was also involved, at least on a socio-economic level, with residents at Sos Höyük, in eastern Anatolia (*Işıklı 2015a*). Arslantepe stands as a vital link in the connectivity between the Uruk system and inter-regional interaction with Transcaucasia.

By the earlier fourth millennium, the site of Arslantepe (period VII, *c.* 3900–3400 BC) had established

long-distance exchange networks and built a sophisticated socio-economic structure. Large ceremonial buildings indicate a high level of indigenous social organisation (*Frangipane 2003, 2009; Frangipane* et al. *2017*). Several hundred sealings demonstrate long-distance contacts with centres such as Tell Brak and other areas of Mesopotamia (*Frangipane* et al. *2017*). The presence of numerous mass-produced bowls suggests a food distribution programme, perhaps in the context of feasting or for ceremonies (*Frangipane 2003; 2012*). Products acquired from the outlying lands appear to have been collected at Arslantepe, perhaps for redistribution (*Frangipane 2010; 2012*). Residents there acquired their obsidian from a wide variety of places, including central and south-eastern Anatolia, and possibly from as far away as Transcaucasia (*Fornaseri* et al. *1975; Frahm* et al. *2016*).

By the mid-fourth millennium BC, the Uruk system began to expand across Mesopotamia and into other regions such as Iran and south-eastern Anatolia (*Algaze 1993a; 1993b; 2001; 2008; Frangipane 2001; Rothman 2001; 2004*). The Arslantepe period VIA (*c*. 3350–3000 BC) largely coincides with the Late Uruk phase (*c*. 3300–3000 BC), during which time Arslantepe interacted economically with the Uruk system. Evidence of trade with Uruk or Uruk-influenced centres is present at Arslantepe in the form of Late Uruk or Uruk-style vessels and the growth in numbers and styles of metal objects, the latter likely made possible through trade contacts that brought additional raw resources to Arslantepe and new metallurgical techniques and styles (*Frangipane 2002; 2011*). The increase in the volume of trade goods moving across the region triggered the further expansion of exchange networks.

Textile production at Arslantepe also reflects a connection with the Uruk system. The presence of caprines substantially increases at Uruk sites such as Hacınebi, Hassek Höyük, and Hayaz Höyük at this time (*Stein 2001b; Pollock 1999; Boessneck 1992; Zeder 1998; Vila, Helmer 2014*), suggesting caprine management strategies focused on secondary products, including wool. The same transition from an economy focused on cattle and pigs to caprines occurs at Arslantepe (*Bartosiewicz 1998*), suggesting an increase in textile production throughout the regions connected to the Uruk system.

It is during the last third of the fourth millennium that ties between Arslantepe and Transcaucasia begin to appear (*Frangipane 2011; 2015; Işıklı 2015a; Palumbi 2008a; 2008b; 2011; Sagona 2011; Sagona, Sagona 2000; Wilkinson 2014*). Trade networks, perhaps fuelled in part by nomadic pastoralists from the northeast (*Rothman 2003; Sagona 2013*), connected the Caucasus cultures with both Arslantepe and eastern Anatolian sites such as Sos Höyük (*Işıklı 2015b; Palumbi 2008a*), moving material goods such as ceramics (in the form of vessels and portable hearths), and technologies such as metalcraft, between the regions. By the end of the fourth millennium, when the Uruk system's influence was declining, there is some evidence to suggest that Transcaucasian cultures not only settled at Arslantepe, but also became prominent members of the elite class (*Frangipane 2015*).

Transcaucasia and the Kura-Araxes culture

The Kura-Araxes culture, also known as the Early Transcaucasian Culture, had originated in the Transcaucasia region at least by the mid-fourth millennium, if not several centuries earlier (*Palumbi, Chataigner 2014; Marro* et al. *2014; Rova 2014; Sagona 2014; Wilkinson* et al. *2012*). Kura-Araxes culture is characterised by an assemblage of material culture that includes ceramic and metal types, domestic architectural norms, and ritual behaviour (*Sagona 1984*). Only the material culture relevant to the present discussion will be presented in this section.

The Kura-Araxes ceramic assemblage (known as Khirbet Kerak in the Levant) consists of highly burnished vessels, typically black on the exterior and ranging from buff to orange on the interior; in south-eastern Anatolia, it is referred to as Red-Black Burnished Ware (RBBW) (*Palumbi 2003; 2008a*). Decorations include raised patterns on the exterior, usually in the form of rectilinear motifs, as well as post-firing incised patterns. The presence of Kura-Araxes style vessels at sites such as Arslantepe, and Sos Höyük in eastern Anatolia, at least by the mid- to late fourth millennium, demonstrates contacts between these regions (*Abay 2005; Sagona 2003; Palumbi, Chataigner 2014*). Whether the ceramics themselves (perhaps with contents) were transported, Kura-Araxes potters made them at these settlements, or the ceramic styles were simply emulated by local potters, is a topic of continuing research (*Batiuk 2005; Batiuk, Rothman 2007; Iserlis* et al. *2010; Kibaroğlu* et al. *2011; Schwartz* et al. *2009*). The interaction, however, is clearly attested on the basis of the ceramic evidence.

Kura-Araxes culture is also known for its advanced copper metallurgical expertise, which developed at

least in the fifth millennium BC and probably earlier (*Courcier 2014; Kohl 2007; Roberts* et al. *2009; Wilkinson 2014*). Products included a variety of spear points and daggers, axes, and personal ornaments such as earrings, hair-spirals, and double-spiral pins (*Huot 1969, 2009; Sagona 1984; Wilkinson 2014.169–170*). Kura-Araxes-style metal items are found in a variety of locations outside Transcaucasia, most notably in a 'royal' tomb at Early Bronze I Arslantepe, but also in the Amuq and Levant (*Batiuk 2005; 2013; Greenberg 2007; Iserlis 2009*). As is the case with Kura-Araxes style ceramics, explanations for the mode of transmission of these metal objects vary. One view is that Kura-Araxes nomadic pastoralist populations moved westward and south- westward (as well as into northern Iran), carrying with them their metallurgical knowledge, techniques, and styles (*Batiuk 2005; 2013; Rothman 2004;* but see *Philip 1999*). Recent work on transportation technologies (*Sagona 2013*) broadens the description of such groups to include agro-pastoralists or even migrant communities of farmers.

Research on the location of copper ore sources for Kura-Araxes style metal items has been uneven due to the difficulty of identifying evidence of ancient mining (*Wilkinson 2014.158*). Rich copper ore sources have been located across northern Iran and Transcaucasia, as well as in south-eastern Anatolia (at Ergani), and on the north-central Anatolian plateau and Black Sea littoral (*de Jesus 1978; 1980; Wagner, Öztunalı 2000*). While Transcaucasian sources would seem the logical choice for exploitation by Kura-Araxes cultures in this region, migrant communities must have maintained exchange networks that provided access to the more distant sources across western Asia.

A final element recognisable as Kura-Araxes is their ritual behaviour and associated material culture. As is true in most cultures, ritual behaviours were associated with burial in the Kura-Araxes culture. A recent study (*Poulmarc'h* et al. *2014*) identified six different burial methods, including pit tombs marked by a covering of stones. The pit tombs usually contained primary deposits, and a number of these burials contained grave goods such as ceramics or metal objects, most often jewellery.

In addition to burials, household ritual was important in Kura-Araxes culture. Often present inside Kura-Araxes homes were fire installations, sometimes associated with raised platforms; ash and burned ceramics were also associated with these installations. The centre of the household ritual was the interior hearth (*Sagona 1998; Sagona, Sagona 2009; Simonyan, Rothman 2015; Wilkinson 2014*). Hearths built into the floor of Kura-Araxes homes were circular or three-lobed, and constructed of clay. The focus of Kura-Araxes ritual must have included the element of fire; possibly the sacrifice of plants and animals was also performed (*Simonyan, Rothman 2015*), although evidence for this activity is not as robust. Material culture associated with these hearths, often buried around them, include small figurines of animals such as sheep or bull, and very occasionally, humans. Vessels located near hearths in some Kura-Araxes contexts contained burned remains of wheat and barley, indicating 'worshippers were burning, not so much cooking, these plant remains' (*Simonyan, Rothman 2015.32*). The built-in hearths are most often found in the Kura-Araxes Transcaucasian region, but they have also been discovered in eastern Anatolia at Sos Höyük and elsewhere (*Sagona 2000; Sagona, Sagona 2009; Hopkins 2003.81; Takaoğlu 2000*) and in the south-eastern Anatolian site of Norşuntepe (*Hauptmann 1982*).

In addition to built-in hearths, the Kura-Araxes culture also employed portable hearths known as 'andirons.' These portable hearths were usually rectangular or u-shaped, and were often decorated with imagery representing bulls (*Smororzewska 2004*). In addition to their presence at many Kura-Araxes settlements, these portable hearths were found at sites in eastern Anatolia, including Sos Höyük (*Sagona 1998*) and in the southeast at Arslantepe, as well as at a number of other sites (*Koşay 1976; Kelly-Buccellati 2004; van Loon 1978*), especially in the very late fourth, and very early third, millennia. Fragments of andirons exhibiting this type of decoration were also found during survey expeditions in the Konya Plain on the southern Anatolian plateau (*Mellaart 1963*). Elements of Kura-Araxes household ritual certainly included fire, but may also have encompassed cooking and cuisine, as well as the broader context of agro-pastoralism.

Çadır Höyük pivots East

The Çadır Höyük mound and surrounding terrace cover roughly 20 hectares. The site rests on major east/west and north/south trade routes that operated throughout the site's occupation. With the exception of the Alişar Höyük excavations by Hans Henning von der Osten (*1937*) in the 1930s and recent work at Late Chalcolithic Çamlıbel Tarlası by Ulf-Dietrich Schoop (*2007; 2008; 2015*), there are no other

extensively excavated contemporary sites on the north-central plateau. Our most intensive work on the prehistoric periods has taken place on the lower southern slope of the mound in trenches LSS 3–5, LSS 8–10, and SES 1–2 (see Fig. 2). Previous reports have offered detailed description of findings from these areas (*Steadman, McMahon 2015; 2017; Steadman* et al. *2007; 2008; 2013; 2015; 2017*); only findings relevant to the present discussion will be offered here.

Two main occupational phases are relevant to this discussion. The earliest horizontal exposure at Çadır is known as the 'Agglutinated' phase, which begins at some time in the earlier fourth millennium (excavations of its earliest extent are not yet completed) and extends to roughly 3600 BC. This occupation corresponds with the Early Uruk period, prior to the major expansion of this system and the full extent of its complex connectivity; the Agglutinated phase also pre-dates the firm establishment of the Kura-Araxes culture. The second Çadır occupational phase is termed the 'Burnt House and Omphalos Building,' *c.* 3600–3200/3100 BC. This phase corresponds with the Middle and earlier part of the Lake Uruk periods, when this system was at its height; it is contemporary with the rise and spread of Kura-Araxes culture into eastern and south-eastern Anatolia.

The Pre-Kura-Araxes period at Çadır Höyük

When we began Chalcolithic excavations in the 1990s, we expected to discover small rooms built in attached layouts, with internal courtyards, like the architecture known from contemporary settlements to the south. However, this architectural footprint did not come to light at Çadır until our 2015 and 2016 excavations, in what is now the Agglutinated phase, *c.* 3700–3600 BC (based on Deep Sounding Beta #134069, see Table 1). The settlement plan at Çadır conforms to what is generally found at other Middle and Late Chalcolithic settlements such as Hacılar II (*Mellaart 1970*), Canhasan 1 (*French 1998*), and Güvercinkayası (*Gülçür 1997*).

The Agglutinated phase offered an architectural plan with seven separate rooms or spaces (Fig. 3), mostly single-celled, with some built-in storage bins (constructed of mudbrick or packed mud). While the discussion here focuses on the eastern half of the settlement, which has been more extensively excavated, our 2017 excavations indicated that a similar domestic compound, underlying the 'Omphalos Building' (see below), will be found in this area. The exterior walls were substantial enough to support a roof sufficient for rooftop activities, or even a second storey. Internal and external courtyards provided work areas outside the homes, and a forecourt separated the complex from a street that ran through the cen-

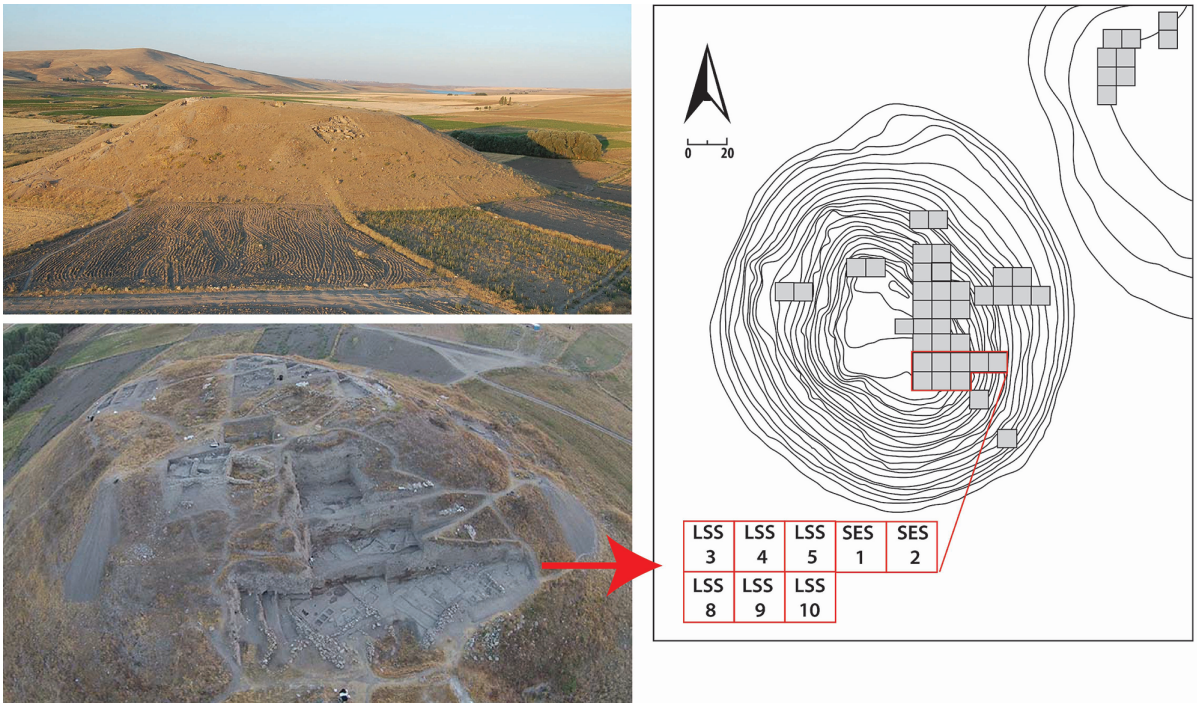

Fig. 2. Top left: view of the Çadır Höyük mound looking southwest; right: topographical map of Çadır Höyük and location of excavated trenches discussed in text; bottom left: aerial view of Çadır showing southern slope excavated areas discussed in text.

tre of the settlement. At the time of construction, residents buried infants, in whole or partial storage jars, within walls, emplaced at corner junctions (Fig. 4). No burial gifts were found in these interments.

Subsistence data for this phase suggest that residents cultivated crops such as hulled wheats and lentils, also the norm at other Late Chalcolithic settlements on the plateau. The faunal data suggest a strong reliance on caprines, as sheep and goat made up roughly 80% of the assemblage; other species present include cattle and domestic pig. Evidence suggests residents were engaged in small-scale agro-pastoralism sufficient to support the households at Çadır.

The material culture for this period indicates most items were locally produced for household use. Metal is rare, with the only recognisable piece thus far being a (broken) loop-headed pin; a few small individual metal fragments make up the rest of the metal assemblage. Lithic production appears sufficient for household use. Analyses for this phase are ongoing, but data from 2017 suggest that the total number of lithics (including partially or wholly completed tools and flakes) would number fewer than 190, with the percentage of obsidian reaching approx. 55%. Agglutinated residents exploited two clay sources to make their pottery. Surface treatment included slip and burnish, and firing resulted in colours ranging from black to buff and orange. Decoration was rare, the most common being three diagonal white lines on the shoulder or body. Forms included bowls, sometimes with carination below the rim, narrow-necked jars, hole-mouth jars, and large coarse cooking vessels. Also common were large storage vessels.

Çadır Höyük in the first half of the fourth millennium appears to be an agro-pastoral settlement with architectural planning and socio-economic pursuits similar to those practiced at contemporary settlements on the southern plateau. Trade, while almost certainly present, may have been local or perhaps regional, but evidence for long-distance trade, with the exception of the acquisition of obsidian from Cappadocia, has not been found. Metal items were rare and metallurgy not attested. Other household goods were produced on a household-level scale; ritual activity is represented by infant burials within the architecture, but evidence for community-wide ritual practice is lacking.

Çadır Höyük in the second half of the fourth millennium BC

Starting in the mid-fourth millennium, the Çadır settlement began to experience some dramatic changes in its settlement plan, socio-economy, and perhaps in the practice of religion and ritual. These changes may have resulted from increased connectivity both with Transcaucasia and also with exchange networks integrated with settlements such as Arslantepe, which was intertwined with the expanding Uruk system. This 'Burnt House and Omphalos Building' phase spans much of the second half of the fourth millennium (*c.* 3600–3200 BC based on radiometric dates).

The Burnt House and Courtyard complex (Fig. 5) is named for a hearth fire that destroyed the area. The Burnt House is free-standing, unlike architecture in the previous Agglutinated phase; the same is true of other structures in this phase, discussed below. Some Burnt House walls made use of previous Agglutinated walls; in other cases, rooms were filled in with mudbrick to create a 'Southern Courtyard', which featured several hearths, a bread oven, a kiln, and evidence of ceramic production based on the presence of unbaked clay ovoids (clay ready for working), burnishing stones, and ochre, used for paint, located in a storage bin (*Steadman* et al. *2013*). The Southern Courtyard may have served as a community production area connected to, perhaps controlled by, residents of the Burnt House. The Burnt House private courtyard was west of the house; it contained baskets of sto-

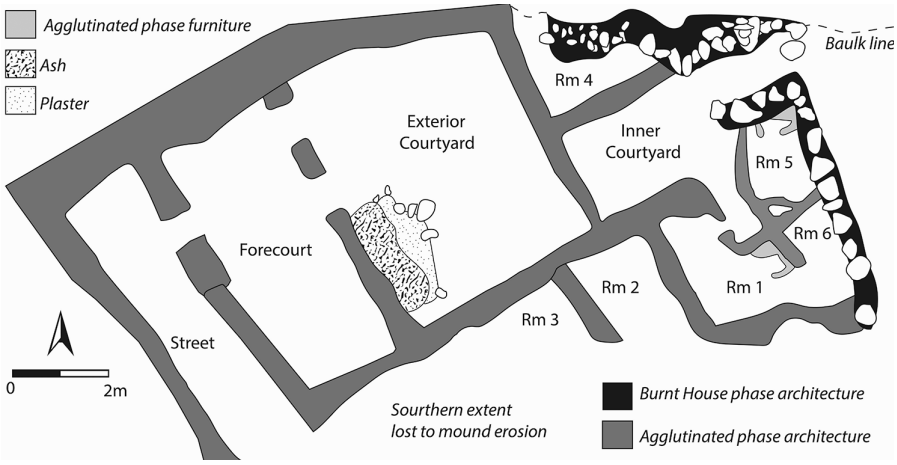

Fig. 3. Plan of Agglutinated occupational phase in trenches SES 1 and LSS 5.

Relevant ^{14}C dates from Çadır Höyük contexts

Sample #	Trench	Context	2σ max cal age (cal age intercept) min cal age
PRE-AGGLUTINATED PHASE (Deep Sounding)			
Beta #146707	LSS 5	F43 (DS) fill from stone wall *c.* 1m beneath Agglutinated Courtyard	5220–4940 BC (7170–6890 cal BP)
Beta #146710	LSS 5	L65 (DS) burned area just below F43-F44 stone walls	4520–4480 BC (6670–6430 cal BP)
AA84957	LSS5	L62 (DS) fill above L65	^{14}C age uncal BP 5829 ± 56
AGGLUTINATED PHASE			
Beta #134069	LSS 5	L46 (DS) from Agglutinated Outer Courtyard	3705–3620 BC (5655–5570 cal BP)
BURNT HOUSE / OMPHALOS BUILDING PHASE			
Beta #134066	LSS 5	L53 – roofing material of Burnt House/Courtyard	3780–3505 BC (5730–5455 cal BP) 3435–3380 BC (5385–5330 cal BP)
Beta #146714	LSS 5	F56/L71 wooden beam from Burnt House/Courtyard	3670–3360 BC (5620–5310 cal BP)
Beta #391301	SES 1	L139 inside Non-Domestic Building	3625–3590 cal BC (5575–5540 cal BP) 3525–3485 cal BC (5475–5435 cal BP)
Beta #159391	LSS 4	L69 fill between floors of Omphalos Building	3650–3340 BC (5600–5290 cal BP)
Beta #159391	LSS 4	L42 courtyard between second Omphalos Building structure and Burnt House	3485–3475 BC (5435–5423 cal BP)
Beta # 391309	LSS 3	L94 Enclosure Wall	3335–3210 cal BC (5285 cal BP)
TRANSITIONAL / EARLY BRONZE I PHASE			
Beta #363831	SES 1	F107 transitional period courtyard	3100–2920 cal BC (5050–4870 cal BP)
Beta #363830	SES 1	L112 transitional period courtyard	3350–3080 cal BC (5300–5030 cal BP) 3060–3030 cal BC (5010–4980 cal BP)
Beta #363865	USS 10	L 50 feature in EB industrial area	3090–2910 cal BC (5040–4860 cal BP)
Beta #363833	USS 10	L49 from inside large oven	3090–3060 cal BC (5040–5010 cal BP) 3030–2910 cal BC (4980–4860 cal BP)

Tab. 1. Selected radiocarbon dates relevant to the discussion.

red grain, evidence of lithic production, a number of complete vessels for storage, cooking, and consumption, and evidence of textile production (discovered in collapsed roofing materials, suggesting the roof or a second storey served as a work area) (*Steadman* et al. *2007; 2008*). The Burnt House occupants did not appear to lack material goods, having access to both trade items and high-quality household goods. A child burial was cut into one of the Southern Courtyard walls, thus belonging to this phase. It was not inside a jar, but it did include our first example of a burial good (excavated in 2016); a bronze earring was buried with the child (probably under 5 years of age).

Just behind, and connected to, the Burnt House was another structure named the 'Non-Domestic Building' (Fig. 5). This was a substantial structure, at least 5 x 5m in area, built of stone and mudbrick walls, completely devoid of any domestic materials (*e.g.,* hearth, cooking/storage vessels, *etc*.). Inside the building was a semi-circular mudbrick feature with a posthole in the centre; just to its west were two small holes with large rocks next to them (Fig. 6a). One of these

Fig. 4. Photo of infant burial within storage jar (F164) built into Agglutinated phase architecture.

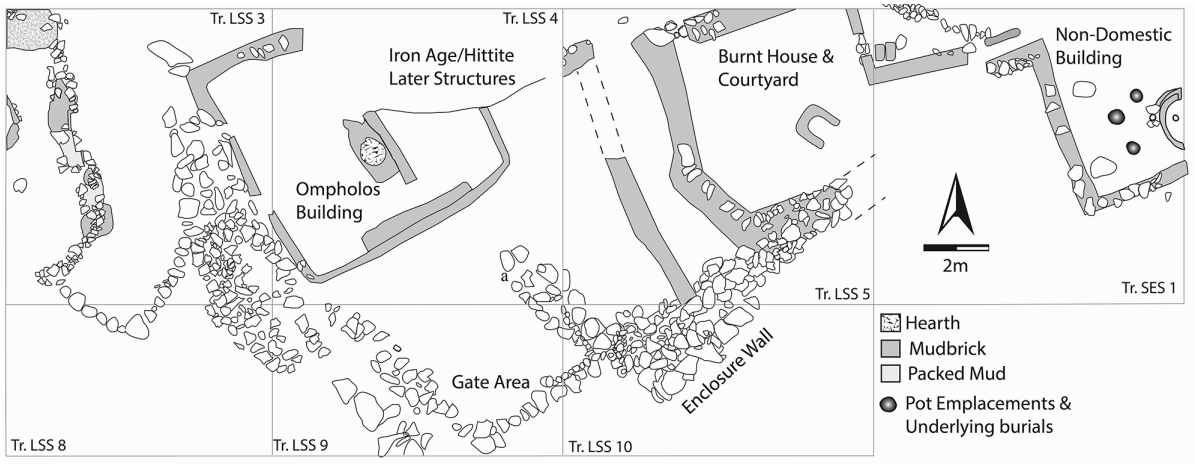

Fig. 5. Plan of the Burnt House and Courtyard and Omphalos Building Phase at Çadır Höyük.

contained seeds; the other was damaged by rodent activity, but may also have contained seeds. Beyond these were three circular depressions, pot emplacements, two of which were above infant/child burials (Fig. 6b–c). One burial was covered by a broken 'fruit stand' bowl (Fig. 6b), a vessel used in rituals, the other by a black burnished storage vessel. A third child burial was also buried within a storage vessel in the south-west quadrant of the room. The room was largely devoid of objects; those that were present were distinctly non-domestic; for instance, found within the room was a copper axe head (Fig. 7), the finest example of metallurgy recovered from the site. Near the doorway, a crystal amulet was discovered, and finally, a small unbaked clay figurine, apparently female, also came from inside the building.

The Burnt House area contained far more numerous examples of metal objects than in the previous Agglutinated phase. Nearly 20 individual metal items, consisting of pins, needles, and jewellery, were recovered from the house and courtyard; these are in addition to the fine axe head found in the Non-Domestic Building. Analyses have not yet provided sourcing for the metal; preliminary analysis suggests differing levels of arsenic, nickel, and zinc in the ores, perhaps indicating that the finished products came from a variety of ore sources.

Across the Late Chalcolithic settlement, the number of lithics increased dramatically as compared to the Agglutinated phase. There was a four-fold increase in the number of lithics, with nearly 800 whole and partial tools and flakes recovered. The percentage of obsidian rises slightly (58%), but the overall volume of lithics present, primarily in the Burnt House/Courtyard area (*i.e.* the percentage in the assemblage is largely consistent, with 55 and 58%, respectively, but the amount of obsidian acquired increases dramatically), indicate a substantial increase in the acquisition and production of materials. P-xrf analysis of obsidian from this phase indicates that at least four different sources were exploited, although the actual location of these sources has yet to be determined. Intensification in the acquisition of obsidian might have involved the exploitation of new sources to the east and southeast in Transcaucasia and Arslantepe or more frequent use of Cappadocian sources, either increasing the possibility of encountering exchange networks connected to Arslantepe, and other regions of the Uruk system. There is also a change in the ceramic assemblage in this phase; a greater variety of forms and decoration make their appearance in the Burnt House/Omphalos Building phase. The 'Omphalos Bowl' becomes a prominent feature, as do the 'fruit stands', which may have been primarily dedicated to ritual rather than daily use. Incised decoration, sometimes with white in-fill, becomes much more frequent; also common is the application of red paint (ochre-based) applied after firing. This is found on a variety of vessel types, usually at the rim, but occasionally in lines and geometric figures on the bodies of larger vessels.

Herd management strategies also change in this phase. Sheep and goat remain prominent, representing 72% of the livestock; sheep now outnumber goat by close to a 2:1 ratio. Biometric data show that large-sized, presumably male, sheep were common, a pattern interpreted to represent wool production at other sites (*Arbuckle 2015*; and see *Schoop 2014*). This is supported by slaughter patterns; sheep were culled as adults rather than as juveniles, again suggesting wool was an important goal of pastoral production (*Arbuckle* et al. *2009*). Livestock were also used for secondary products at Uruk system sites in

Fig. 6. a photo of the Non-Domestic Building with semi-circular mudbrick feature, postholes, and excavated pot emplacements; b photo of broken fruit stand bowl placed over infant burial under pot emplacement; c photo of child burial under broken ceramics beneath pot emplacement.

the southeast (*Boessneck, von den Driesch 1976; Pollock 1999; Stein 2001*) and in Transcaucasia (*Obermaier 2006*). Besides the production of hulled wheats and lentils which continue into the Burnt House/Omphalos phase, a significant quantity of flax (*Linum usitatissimum*) was recovered from the Burnt House and Southern Courtyard area; it may have been used for cooking or oil production, but given the textile producing tools found in the Burnt House, it may have also been used in weaving activities (along with the wool).

West of the Burnt House complex is the Omphalos Building; just to the south of this structure is the gate complex associated with the Enclosure Wall. The Omphalos Building was constructed by the mid-fourth millennium (*c.* 3500–3400 BC), with two structural reorganisations over the next several centuries. The earliest layout featured a large singular room; an organic partition may have separated the space into two halves (*Steadman* et al. *2017*). Sitting on the mud-plaster floor of this structure was a collection of ceramics, mainly storage vessels and smaller bowls. Perhaps a century later, a mudbrick wall was built to divide the room into two (see Fig. 5). Phytoliths recovered from the floor of the westernmost room revealed a shelf pattern; scattered among the phytoliths were dozens of broken vessels. Some showed signs of use, including burning, others appeared freshly made. Furniture features in this building consisted of a bench and a mudbrick platform within which a small fire installation had been placed. It was perhaps meant to heat the room, or food, or may have served another purpose. This building was almost certainly involved in ceramic distribution to the community, and perhaps beyond. A substantial kiln, located in the courtyard east of the Omphalos Building, and a collection of areas in the courtyard dedicated to the storage of ceramic production items (quartz used in temper, ochre, and clay ovoids; see *Steadman, McMahon 2017*) support this interpretation.

The entire Late Chalcolithic settlement was enclosed by a wall and gate system that stretched from just south of the Burnt Courtyard to around the western wall of the Omphalos Building (see Fig. 5). The gate leading into the settlement was centred in the Enclosure Wall and was flanked by two small rooms (*Gorny* et al. *2002; Steadman* et al. *2008*). It was perhaps built in conjunction with the Burnt House, and may have made use of an earlier (Agglutinated phase) mudbrick wall surrounding the settlement. For at least two centuries, it provided a grand entrance to the Late Chalcolithic settlement at Çadır.

It is the material culture found in and near the Omphalos Building that, in concert with increased exploitation of obsidian and textile production, offers

some of the strongest evidence of Çadır's connectivity with regions and cultures to the east. The first item of note was a small clay quadruped (likely bull) figurine (Fig. 8), somewhat burnt, found inside the two-roomed Omphalos Building. This, and the tiny female figurine found in the Non-Domestic Building constitute the earliest figurines yet discovered at the site. The second item to mention was also recovered from the Omphalos Building, from a 'box' dug into the floor. From this box, we recovered most of the pieces of a squared ceramic vessel open at both top and bottom. It was heavily decorated with incision and white in-fill; protruding from one of the corners was a bull's head with a decorative triangular motif embedded in the forehead (Fig. 9). Based on correlation with similar discoveries in Transcaucasia, at Sos Höyük, and elsewhere in the southeast, we are fairly certain this item was an 'andiron' or portable hearth. A lack of burning on this vessel indicates it was never used for cooking. Its placement in a 'box' cut into the floor of the Omphalos Building suggests it may have been a specialised object (it is unclear if the box was easily accessible, *e.g.*, covered by a wooden plank or flat stone; it was not plastered over). Though found in Anatolia, andirons are thought to have originated among the Kura-Araxes culture and been transported westward. Just outside the Omphalos Building, near the gate, a very fine double-spiral headed pin was discovered (Fig. 10). The metal contains a significant amount of arsenic, but little zinc and no nickel, suggesting it may have come from a different ore source than many of the other metals recovered from this phase. The pin is largely unique on the north-central plateau, but has very close parallels to examples at Arslantepe, Norşuntepe, and sites to the east in Van and Transcaucasia (*Huot 2009; 2014; Frangipane 2014; Marro 2011; Rova 2014; Sagona 1981*). Recent work has suggested such pins made their way as far east as the Indus Valley (*Miller 2013*) and as far west as Orman Fidanlığı (*Efe, Fidan 2006; Fidan* et al. *2014*).

The final set of material culture that points toward Transcaucasia comes from the 2017 excavations. A total of three infant/child burials were recovered from the courtyard area in front of the Omphalos Building, just to the west of the gate entryway. Two additional burials were discovered in 2000 when the gate was excavated, although it is as yet unclear if they are related to the three excavated in 2017. All of the burials were contained in, or covered by, typical Late Chalcolithic storage jars (Fig. 11). Several factors make these burials stand out as different from those found in the Burnt House area and Agglutinated phase. First, they are not built into, or apparently associated with, a building. Secondly, a layer of stones, mostly flat, was laid over the burials, particularly the three discovered in 2017 (one burial was missing a covering stone, but this may have been removed in previous excavations as part of nearby gate tumble). The stones created a type of 'flagstone patio' over the burials. An additional element is a slight mounding of the burials, especially near the apex of the triangle, which received additional fill underlying the burial in order to elevate it. The final unusual factor is also the most remarkable. Each of the three burials discovered in 2017 contained a minimum of five items of metal jewellery (Fig. 12) given as burial goods. In addition to the jewellery, one of the 2017 burials had a bowl placed with the child; initial examination suggests the bowl may have held a food item (Fig. 12). The copper jewellery (not yet analysed, as these burials were found in the very last days of the 2017 season) is in the form of wrist and ankle bracelets and hair spirals (Fig. 13a–c). It should be noted that the double-spiral pin was also found near one of the other burials discovered in 2000, but it is unclear whether the two were associated. The 2017 burials were by far the most remarkable, and unique, thus far recovered in the Çadır Höyük excavations.

Fig. 7. Photo of the copper axe found in the Non-Domestic Building.

Fig. 8. Photo of the zoomorphic (bull?) figurine found in the Omphalos Building.

Discussion: complex connectivity

The residents at mid- and late fourth millennium BC Çadır Höyük saw some substantial changes in their settlement and lifestyle. A new town plan, with public, or at least non-domestic, buildings, and a wall and gate were coupled with a much more robust socio-economy and possibly the organisation of labour. These changes, it is argued here, were in part generated by the increased complex connectivity emanating both from the Uruk system to the south (*Steadman* et al. *2019*), and the rise of the Kura-Araxes culture to the east. The material culture at Çadır illustrating these connections was described above within their archaeological contexts. Here we elucidate the material culture specifically with regard to evidence for complex connectivity with both the Kura-Araxes region and Arslantepe in south-eastern Anatolia.

Specific, traceable, points of connectivity stemming from the increased exchange of goods between the Çadır settlement and these regions include metals and obsidian. In the earlier Agglutinated phase, obsidian constituted 55% of the lithic assemblage (over 100 tools and flakes of the nearly 190 collected). In the Burnt House phase, the percentage of obsidian remains nearly the same (58%) but the quantity is significantly higher, over 400 tools and flakes of the nearly 800 collected. This indicates a significant increase in obsidian acquisition, which in turn suggests a more robust exchange system allowing residents to access higher quantities of this desirable material. Analysis shows four different flows represented at Çadır during the Burnt House phase; some of these sources may have been located farther afield than Cappadocian sources, raising the opportunity for connectivity with residents from elsewhere, including Arslantepe, and possibly Transcaucasia. The obsidian evidence, at its most basic, indicates a much denser movement of goods such as this resource in the later centuries of the fourth millennium.

The dramatic increase in the presence of metals at Çadır is even more convincing proof of increased exchange and thus connectivity. Metal ore sources for Çadır's assemblage have yet to be traced. At present, we do not have good evidence for metalworking in this phase, and thus it is likely that objects were obtained in completed form through exchange. There is a small copper ore source on the north-central plateau, although evidence for mining there is not indicated. Larger, exploited sources are found in Transcaucasia and south-eastern Anatolia at Ergani. The presence of significant numbers of metal objects in this phase of occupation at Çadır are a strong indicator of connectivity with distant regions such as the Uruk frontier, but especially Transcaucasia, given the nature of some of the metal items, discussed in more detail below.

Fig. 9. Photo of the bull-headed ceramic object found in a box within the Omphalos Building floor. This object demonstrates stylistic similarities to portable hearths (andirons) found to the east in Kura-Araxes contexts.

A final indicator of a more vigorous socio-economy and engagement with actors beyond the settlement is evidenced by an increase in both textile and ceramic production. The large kiln associated with the Omphalos Building, and a smaller one in the Southern Courtyard, and the presence of clay ovoids and materials associated with ceramic production in both locations suggests a production scale beyond what is needed for household use. The dozens of varied vessels in the Omphalos Building may have served as products in a ceramic distribution centre for the settlement and the region, and perhaps some of these ceramics and their contents made their way to destinations farther away. That some of these vessels had been burned and returned to the building is interesting. Kura-Araxes ritual calls for the burning of plants in bowls at or near hearths.

Fig. 10. Photo and drawing of double-loop pin from Çadır Höyük from the late Omphalos Building phase.

The increase in textile production at Uruk-period sites was discussed above; Ulf-Dietrich Schoop (*2014*) has also carefully identified an increase in wool-based textile production in the Late Chalcolithic on the Anatolian plateau and at points south and southeast. At Çadır Höyük, a similar increase in wool- and probably flax-based textile production, based on archaeobotanical, archaeozoological, and material evidence in the Southern Courtyard, dates to the same period. It is difficult to gauge the scale of production, except to note that it is far greater than in the preceding Agglutinated phase. The textiles produced may have been sufficient only to serve the Çadır population and surrounding regions, but again, like ceramics, some of these may have been destined for a larger exchange network. The production of textiles may have been based solely within individual households, allowing for surplus goods (not needed by household residents) to enter the exchange system and increase each household's access to trade goods (see *Schoop 2014* for discussion of this type of system). The Southern Courtyard at Çadır, however, may have also served as a small 'production area' for food, including bread, and possibly textiles; this courtyard, adjacent to the Burnt House, may have been controlled by those residents, and the products of labour by those working in there may have benefitted both workers and Burnt House residents alike.

In addition to the increase in exchange systems in the later centuries of the fourth millennium BC, evidence at Çadır suggests that complex connectivity probably played some role in the architectural and socio-economic (and possibly socio-political) changes taking place at Çadır at this time. Most of these changes probably stemmed from organic developments at the settlement in response to the larger global occurrences of increasing trade and exchange emanating from the Uruk system to the south and regions within, and connected to, the Uruk system. However, it is also the case that Çadır clearly appears to have been 'pivoting east' to Transcaucasia, driven in part through the elements of connectivity described just above; the evidence to support this is surprisingly strong.

The most circumstantial evidence comes from the Non-Domestic Building and the seeds deposited in the hole next to the semi-circular mudbrick feature. We believe this structure was indeed dedicated to ritual use, and the presence of the seeds suggests the practice of ritual associated with the agrarian cycle. As noted in the Kura-Araxes section above, instances of burned grains have been found in association with Kura-Araxes ritual activities, especially in association with hearths (*Simonyan, Rothman 2015.32*). However, the presence of grain products in a ritual area in the Late Chalcolithic is not surprising in any context and cannot be used as concrete evidence for

Fig. 11. Top: photo of the Omphalos Building area (the red arrow indicates the location of the three infant/child burials); bottom: close-up photo of the three infant/child burials with their storage vessel covers and stone layer above.

connectivity. A second item worth mentioning is the small animal figurine found in the Omphalos Building. Animal figurines, including bulls, have been found in Kura-Araxes contexts. It is the earliest evidence of a zoomorphic figurine at Çadır (we have several dating to the Early Bronze I period, and a number from Hittite contexts). Given that bull imagery was common in the Neolithic on the plateau, this figurine may indicate nothing more than local ideologies, but its singularity in the Omphalos Building is notable.

Stronger evidence comes from the fireplace in the Omphalos Building. This fire installation inside the middle architectural phase of this structure is the only interior hearth/fireplace discovered in the prehistoric contexts at Çadır, whether in the Agglutinated or Burnt House phases. Hearths and ovens were typically *outside* in internal or external courtyards, making the internal fireplace in the Omphalos Building a unique occurrence. As described above, it does not appear to have been used for full-scale cooking. It was in a 'bench' or platform, raised above the floor; next to it were phytoliths, suggesting a mat once rested there, perhaps for placing food or bowls. It may have been used simply to heat the room, but the importance of the hearth as a central place for ritual in Kura-Araxes settlements, and the uniqueness of the Omphalos Building installation, evokes inference of the ideological. The presence of burned vessels is also notable (see above).

The strongest evidence for connectivity between Çadır and Transcaucasia comes from the infant/child burials and the examples of metal from the Burnt House/Omphalos Building phase. The least of these is the axe found in the Non-Domestic Building. While Kura-Araxes settlements had similar objects, there is nothing particularly distinctive about them or the Çadır example that would certify interaction. Far more suggestive is the double-spiral pin found near the gate (and near one of the infant burials) in this phase. The intricacy of workmanship, and its parallels with examples from Arslantepe (which have been identified as Kura-Araxes in origin) and from Kura-Araxes sites, all but proves that this pin did not originate at Çadır, but came from elsewhere, perhaps as far away as Transcaucasia. Finally, the metal objects from the infant/child burials in the Omphalos Building courtyard are indicative of interaction. Parallels with Kura-Araxes examples of both ankle and wrist bracelets are clear (*Rova 2014; Sagona 1994*). Most importantly, however, are the hair-spirals, which are nearly exact copies of those found in Kura-Araxes contexts. Not just the form and style of the objects themselves, but the quantity of metal objects in these caches within the burials are absolutely unique at Çadır. It would appear that metal objects became an important element in this phase of the Çadır occupation, perhaps due to their availability through connectivity with metal-bearing and metal-producing cultures to the east.

From the material culture assemblage, by far the most telling item is the bull-headed andiron found inside the Omphalos Building. Portable hearths were very much part of the important household and rit-

ual equipment associated with the Kura-Araxes culture, and their presence at sites such as Arslantepe, Sos Höyük, Norşuntepe and elsewhere have indicated to archaeologists that Kura-Araxes people, or at least their objects, were present at these sites (*Smogorzewska 2004*). The form, style, and decorative elements set this object apart from any others at Çadır, and its location in a floor 'box' would suggest it was not used in daily activities, but was meant for specialised purposes. Andirons were also found at the nearby site of Alişar Höyük (*von der Osten 1937. 270*), and the bull head is similar to one discovered at the nearby site of Camlıbel Tarlası (*Schoop 2015*). The presence of andirons, or their associated pieces, at several sites on the north- central plateau would suggest that there was some relatively structured exchange between this region of the plateau and cultures to the east, at least as far as Sos Höyük, and perhaps reaching all the way to Transcaucasia.

Fig. 12. Photo of one of the three burials, with red arrows indicating the location of copper jewellery (two additional pieces were found beneath the remains. Note the small bowl with evidence of a food offering).

Finally, the three infant/child burials in the Omphalos Building courtyard must be included as possible evidence of connectivity. As described above, several elements set them apart from earlier infant burials, which were associated either with architectural elements or with the Non-Domestic structure. These stand alone, located within the corner of the courtyard and near the entrance of the gate. A very unusual element is the placement of the stones above the graves, something entirely unique at Çadır. As noted above, mounding and stones placed above graves are common elements in Kura-Araxes graves. It was with these burials that the caches of metal burial goods were found; one appears to have also been given a bowl/food offering. These features set them apart as unusual; however, each burial was covered by a local Late Chalcolithic storage jar, commensurate with earlier and other contemporary burials. The extraordinary mortuary activity associated with these children features a mix of cultural elements, both from Çadır itself and from burial styles and goods seen in Kura-Araxes contexts. Why they received such unusual attention is a question we must seek to answer as our research continues. At present, we can only acknowledge that these burials, and associated material culture from them and elsewhere in this phase, demonstrate that Çadır Höyük was linked to the complex connectivity between the Uruk system, Transcaucasia, and the Anatolian plateau in the later fourth millennium BC.

Fig. 13. Photos of the copper jewellery discovered in the three infant/child burials. a photo of the entire cache; b photo of a double bracelet; c photo of a hair spiral.

Conclusion

Recent efforts to identify past complex systems as 'globalisations' have led to new avenues for understanding how these ancient systems worked and how vast their interconnections may have been. The focus here was to demonstrate that some type of interaction between Çadır Höyük and Transcaucasia was taking place in the later fourth millennium BC, allowing residents at this settlement to 'pivot east,' for new connections. The Çadır Höyük data were examined within the context of the larger 'globalised Uruk system' and specifically the elements of complex connectivity as the mechanism that links far-flung areas within a globalised world, as well as drawing in regions existing beyond that world, such as Transcaucasia. In addition to dramatic architectural and socio-economic changes at the Çadır settlement in the later fourth millennium, the material culture directed us to identify what types of connectivities might have brought new luxury items and ostensibly new behaviours to the Late Chalcolithic inhabitants of Çadır Höyük. That process of analysis demonstrated links with eastern and south-eastern Anatolia, which in turn had engaged in interactions and exchange with both the Transcaucasian Kura-Araxes culture and the Mesopotamian Uruk system. All of these coalesced to create a set of interlinked complex connectivities between quite disparate regions, including the north-central Anatolian plateau.

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