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Petrographic and geochemical investigations of the late prehistoric ceramics from Sos Höyük, Erzurum (Eastern Anatolia)

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ABSTRACT

Ceramics from the late prehistoric periods at Sos Höyük, in Eastern Anatolia, located along a thoroughfare that connects the Trans-Caucasus, Iran and central Anatolia, were subjected to petrographic and X-ray fluorescence analysis in order to characterise the clay groups, with a view to determining provenance and production patterns. Dominated by Kura-Araxes Ware, the data from the sequence at Sos Höyük were compared with the previous studies from the neighbouring regions to understand commonalities in pottery production. The analyses reveal a local production of vessels, most probably for household use. Although Sos Höyük potters shared similarities in the procurement pattern of raw clays and production technique with their neighbours, differences can be also recognized.

1. Introduction

During the period from about 3500 to 2000 BC, the ancient near Eastern world was divided into a number of 'culture provinces' each distinguished by a series of distinct attributes, including settlement patterns, artefactual assemblages, and socio-economic practices. Arguably, the best known of these culture provinces occupied the alluvium of Mesopotamia, whose specific set of circumstances led to the rise of urban communities, the invention of writing and the establishment of city–states, to mention but a few achievements.

North of Mesopotamia, in the rugged mountains of Eastern Anatolia and the southern Caucasus, was the homeland of a markedly different culture province, known variously (and confusingly) as Kura-Araxes (a designation referring to the drainage basin of the Kura and Araxes rivers in Trans-Caucasia), Early Trans-Caucasian, and Karaz (Burney and Lang, 1971; Koşay and Turfan, 1959; Kushnareva, 1997; Kohl, 2007; Marro et al., 2009; Sagona and Zimansky, 2009). Represented for the most part by literally hundreds of modestly sized hamlets, this culture province nonetheless occupied a vast area, the largest in the prehistoric near East. Stretching from the shores of the Caspian Sea to the banks of the Turkish Upper Euphrates river, and from the Caucasus mountains down either side of the arc of the Fertile Crescent to western Iran and northern Israel (where it is known as Khirbet Kerak), its geographical distribution alone has demanded attention (Fig. 1). No less intriguing is the longevity of the Kura-Araxes culture complex, spanning at least a millennium and a half (c. 3600/3500–2000 BC) in certain regions (Sagona, 2004).

Archaeometry has the potential to clarify several key questions relevant to the Kura-Araxes complex, especially with regard to technical and technological links of its disparate artefact assemblages. This paper focuses on the interpretation of analytical data of ceramics from Sos Höyük, near Pasinler, in northeastern Turkey (Fig. 1). Located between the Euphrates River and the Trans-Caucasus, the site has yielded one of the main stratified sequences of the Kura-Araxes complex well anchored by a suite of radiocarbon dates.

2. The Kura-Araxes culture complex

The internal dynamics of this enduring and widespread complex remains largely elusive. Socially and economically, it is represented for the most part by mountain communities who practiced small scale, mixed farming with varying levels of pastoralism. Where exactly the complex began and how it spread are, however, issues that are still much debated. Even so, the picture that is emerging is one of a 'Kura-Araxes *Oikumenai*' formed from the conflation of

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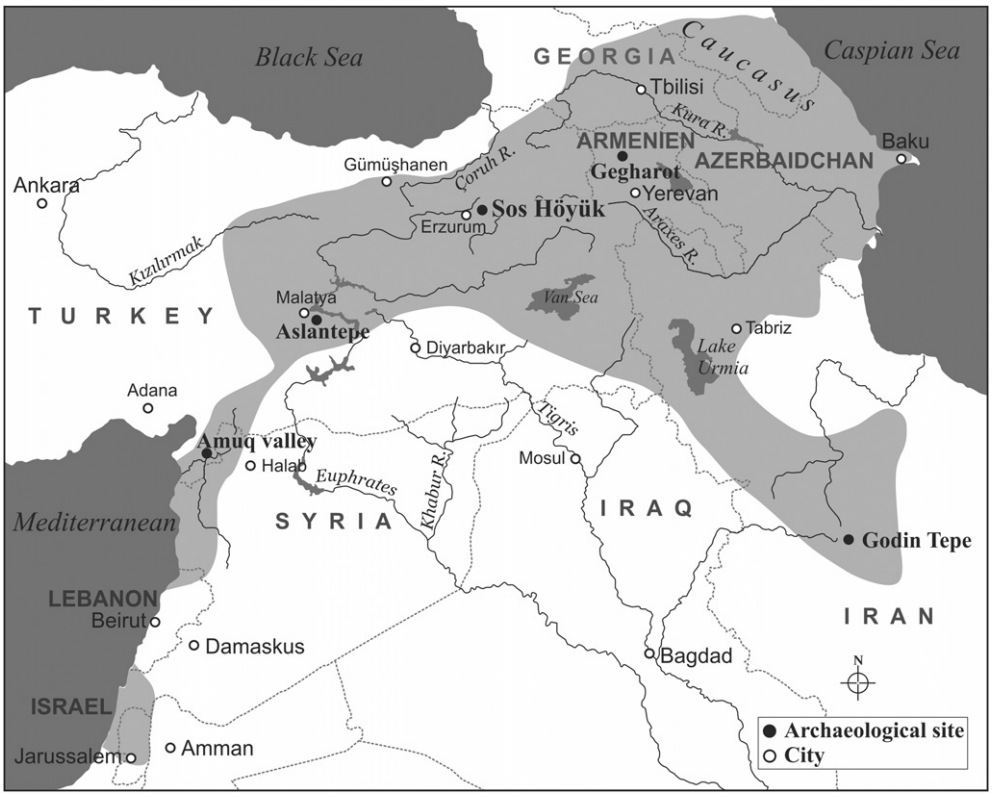

Fig. 1. Map of Anatolia and Near East illustrating the distribution area of Kura-Araxes culture province.

diverse elements found within the cultural matrix of the highlands of Eastern Anatolia and the Trans-Caucasus. Whereas this phenomenon may be explained in part by a migration of people, it must also reflect considerable cultural interaction and a certain degree of tenacity to adhere to fundamental social norms (Palumbi, 2003; Sagona, 2004; Batiuk and Rothman, 2007).

We are well acquainted with the Kura-Araxes material culture, which lends itself to the notion of a cultural 'package'. The distinctive spatial arrangement of fitments and furnishings within the home, including a large central hearth embedded into the floor, the popularity of portable horse-shoe-shaped hearths, standardized horned animal figurines manufactured from clay, and a limited range of arsenical copper tools and ornaments are among the typical components of the package (Fig. 2).

It is, however, the pottery that has attracted the most attention. Fired to a red and black colour, vessels often bear highly burnished surfaces, sometimes almost mirror like, and eye-catching ornamentation. The earliest containers were occasionally scratched after firing with geometric designs, but in time they were ornamented with bold motifs, either applied or incised, and occasionally excised. Unlike contemporary ceramic assemblages further south, in Mesopotamia, Kura-Araxes pottery was built by hand. Most likely the product of domestic workshops, the Kura-Araxes repertoire is noted for the nuances of its morphological traits, which have formed the framework of the varying chronologies.

3. Sos Höyük and its pottery

Sos Höyük is an ancient mound (150 × 120 m) located between Erzurum and Pasinler on the main thoroughfare that links Turkey with Iran and the Trans-Caucasus. Rising some 12 m above the surrounding plain, the first village was established about 3500 BC on a rocky knoll overlooking the Çoğender stream immediately to the north. Today much of the mound has disappeared owing to the expansion of the modern village of Yiğittaşı that encircles it. Nonetheless, restricted excavations carried out from 1994 to 2000 and directed by A. Sagona and C. Sagona revealed a detailed cultural sequence supported by almost 70 radiocarbon dates (Sagona, 2000; Sagona and Sagona, 2000).

The earliest level, Sos Höyük VA (3500/3300–3000 BC), has provided significant information on the genesis of the Kura-Araxes (or Early Trans-Caucasian) horizon (Kiguradze and Sagona, 2003). A large stone-wall encircled the village, comprising round and rectilinear houses, each furnished with fixed and portable hearths. Early forms of Kura-Araxes pottery were found in association with local ceramics and a few fragments Trans-Caucasian 'Sioni-like' Ware, which point to an active network of communication across the highlands (Palumbi, 2003). During the Early Bronze Age (Periods VB–D: 3000–2200 BC), the settlement was part of the Kura-Araxes phenomenon. New mortuary practices characteristic of the Early Kurgan period of the southern Caucasus were introduced around 2500 BC. Graves comprised a deep shaft covered by a heap of stones and contained, amongst other goods, Martkopi and Trialeti pottery (Parr et al., 1999; Sagona, 2000).

One of the most remarkable features of Sos Höyük is the unequivocal continuation of the Kura-Araxes horizon well into the second millennium BC, which is represented by Middle Bronze Age deposits (Periods IVA–B: 2200–1500 BC). A rich assemblage of bone tools and developed forms of pottery point to a thriving craft industry during that period. Although the upper levels are not the focus of this paper, it should be noted that the sequence at Sos Höyük continues into the Late Bronze Age (Period III: 1500–1100 BC) and the Iron Age (Periods IIA–IIB: 1100–330 BC) through to the Post-Achemaenid period (Period IIC: 330–150 BC), and, after