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Isotopic evidence for ceremonial provisioning of Late Bronze age khirigsuurs with horses from diverse geographic locales

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ABSTRACT

Khirigsuurs are communal ritual and mortuary monuments that featured prominently on Late Bronze Age pastoralist landscapes of the Mongolian steppe through the mid-late second millennium to early first millennium cal BC. Khirigsuurs sustained ceremonies that legitimized the relationship between the deceased and the participants, facilitated the formation of new alliances, and emphasized integration and cohesion between mobile pastoralist communities through monument building, ritual horse slaughter, and feasting. Horses played a prominent role in ceremonial activities conducted at khirigsuurs, their heads and hooves regularly deposited in small stone satellite mounds as part of publically visible ceremonies associated with mortuary celebrations that simultaneously integrated mobile pastoralist communities. Here, strontium and oxygen isotopic analyses of sequentially sampled teeth of horses from khirigsuurs located in the Khanuy Valley, a major center of monumental activity situated north of the Khangai mountains in Mongolia, indicate horses from distant locales were ceremonially placed in khirigsuur satellite mounds, while patterned seasonal variation in carbon isotopes suggests horses were fodder provisioned during the winter months. These isotopic data suggest horses were well cared for, reflecting their status as a prestige animal, and were key to facilitating regionally integrative ceremonial activities conducted at khirigsuurs that brought together people from geographically distant mobile communities.

1. Introduction

The Late Bronze Age (ca. 1400–700 cal BC) in Mongolia heralded the formation of monumental landscapes, initial use of horses for riding, and intensification in domesticated livestock herding, developments that together increased interaction between mobile pastoralist communities and facilitated nascent formation of local political structures. It also corresponds to a time when horses became an integral part of ceremonies conducted at impressive ritual and mortuary *khirigsuurs*, large stone monuments that promoted nascent leadership through inclusive multi-local gatherings and communal feasting events (Honeychurch, 2015; Houle, 2010; Taylor et al., 2017; Wright, 2007). Khirigsuurs consist of large stone mounds encompassed by rectangular or circular stone fences, as well as numerous satellite features including smaller heaps of stones and small stone circles (Fig. 1). The expansive distribution of khirigsuurs over the northern Gobi steppe-desert and the forested steppe of central and western Mongolia, as well as their dense concentrations on distinctive landscape features and high visibility, highlights their importance as major structuring elements of Late Bronze Age societies, while the architectural grammar shared between khirigsuurs strongly suggests that knowledge sets pertaining to the use and ceremonial function of these monuments were shared between individuals and mobile communities across this vast landscape (Wright, 2014). At the same time, the considerable size and volume of stone material used to build khirigsuurs also indicate that their initial construction involved a coordinated and inclusive effort by dispersed multi-local communities (Houle, 2010; Wright, 2007).

The primary components of khirigsuurs, including the central mound and associated fence, were likely assembled in one construction event or built up over a fairly short period of time (Houle, 2016). Although not all khirigsuurs have human burials under the central mound, many do contain mortuary remains to suggest that khirigsuur construction took place as part of ceremonies involved with the celebration of the dead interred in cists or shallow pits

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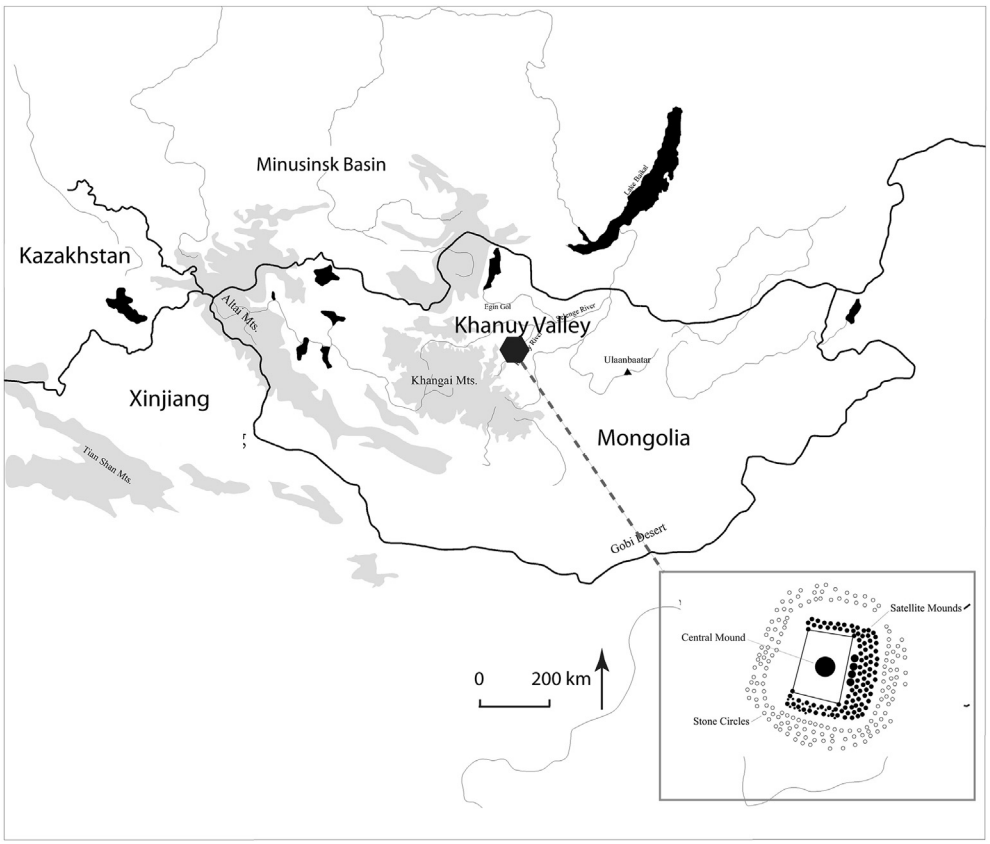

Fig. 1. The location of Khanuy Valley (48°06′05″ N, 101°02′10″ E) in the predominantly C_3 steppe of north-central Mongolia. Inset indicates schematic of a khirigsuur monument including the central mound feature, stone fence surrounding the central mound, satellite mounds containing the skulls and extremities of horses, and stone circle containing calcined mammal remains.

underneath the central mound feature. In this context, khirigsuurs would have not only served to integrate spatially disparate mobile communities (Wright, 2007, 2014) but also broadcast symbolic information relating to specific individuals (Houle, 2016). While mortuary functions that attributed a single individual to specific khirigsuurs may have signaled nascent social differentiation during the Late Bronze Age (Houle, 2010; Honeychurch, 2015), the absence of wealth items and, in some regions including central Mongolia, also human remains, strongly suggests that khirigsuurs were not conspicuous expressions of institutionalized power and prestige centered on charismatic individuals but places for transegalitarian interaction (Wright, 2014).

The extensive architectural elaboration visible in many khirigsuurs, including placement of satellites outside of the primary central mound and fence, also indicates that these monuments supported multi-stage ceremonies, some of which may have taken place some time after initial monument construction and associated mortuary activities but were still linked to the ideological content embodied in khirigsuurs (Wright, 2007, 2014). Satellite features included both stone rings, which contain calcined animal parts possibly feasting debris (Broderick et al., 2014; Frohlich and Bayarsaikhan, 2009; Wright, 2014) or remains from cremation activities (Allard and Erdenebaatar, 2005), and small stone mounds covering the head, cervical vertebrae and hooves of a horse (Allard and Erdenebaatar, 2005). The heads and hooves of ritually slaughtered horses deposited in satellite mounds may have been an important part of ceremonies memorializing the deceased buried under central mounds or were used as part of publically visible ceremonies that served to legitimize the social relationship between the deceased and the participant (Fitzhugh, 2009).

Alternatively, the iterative architectural elaboration and regular ceremonial activities involving feasting and deposition of animal offerings that took place at khirigsuurs would have promoted group-oriented social integration of mobile communities while downplaying leadership aggrandizement (Honeychurch, 2015; Houle, 2010; Wright, 2007, 2014). While the systematic ordering of satellite mounds in fields or rings may indicate the mounds and their contents were installed in a single construction event (Fitzhugh, 2006) or added over a short period of time (Houle, 2016), it may also demonstrate the use of prescribed organizing principles that ordered later additional constructions that took place over longer durations (Wright, 2007, 2014). Asynchronous temporality of satellite mound construction would have re-contextualized social and ritual frames of reference and imparted variation in reasons and meaning underscoring horse sacrifice (Taylor, 2016).

Regardless of the temporal span of satellite construction, the satellite mounds and associated horses were often substantial in number. While some khirigsuurs included only ca. half a dozen mounds, they more typically included between 12 and 40 mounds, and some as many as 150. Some very exceptionally large khirigsuurs fielded massive numbers of satellite mounds, including Urt Bulagyn where 1752 mounds are present (Allard and Erdenebaatar, 2005) and KYR 40 where over 3200 mounds were constructed (Seitsonen et al., 2014). Here, we explore if khirigsuurs were ceremonially furnished with horses supplied by pastoralist communities local to the monument or provisioned by more distant social groups participating in ceremonies conducted at khirigsuurs either as part of socially inclusive integration or politically motivated

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