

Archaeology of the Eurasian Steppes and Mongolia

Bryan Hanks

Department of Anthropology, University of Pittsburgh, Pittsburgh, Pennsylvania 15260;
email: bkh5@pitt.edu

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pastoralism, horse domestication, warfare, steppe empires, complex societies

Abstract

International interest in the prehistory and archaeology of the Eurasian steppes and Mongolia has increased dramatically since the collapse of the Soviet Union in 1991. This article surveys important new evidence and interpretations that have emerged from several collaborative projects in the past two decades. A particular emphasis is placed on issues that are crucial to regional studies in the steppe ecological zone; however, it also is suggested that steppe prehistory must come to play a more significant role in developing more comprehensive understandings of world prehistory. Key developments connected with the steppe include the diffusion of anatomically modern humans, horse domestication, spoke-wheeled chariot and cavalry warfare, early metal production and trade, Indo-European languages, and the rise of nomadic states and empires. In addition to these important issues, thoughts are offered on some of the current challenges that face archaeological scholarship in this region of the world.

INTRODUCTION

It is an unfortunate fact that, of the numerous introductory textbooks published on world prehistory and archaeology in the Anglo-American market, few if any provide any detail on the Eurasian steppe region. In fact, if one glances at the world maps in any of these books it would seem that nothing significant to prehistory had ever occurred in the northern Eurasian region, including the vast steppe zone. Notable exceptions to this include well-known Upper Paleolithic sites in Eastern Europe such as Mezhirich and Kostenki and sites in northeastern Eurasia such as Mal'ta and Dyuktai Cave (**Figure 1**). Although this limited view of the archaeology and prehistory of the steppe region may have been acceptable at the height of the Cold War era, we have, since 1991, been living in a very different geo-political atmosphere. Archaeological field work in the regions of the former Soviet Union has been a distinct reality for many international scholars, and their collaborative programs of research have produced significant new discoveries. Nevertheless, the data, theories, and models stemming from such work have circulated primarily among specialists of these regions and have infrequently entered the mainstream consciousness of archaeologists working in other parts of the world. One need only turn to the textbooks used in survey courses on world prehistory for clear evidence of this notion.

Regrettably, this problem extends beyond the classroom and is of more serious concern in terms of comparative understandings of the various trajectories of development that have shaped the human past and more recent present. For example, anthropological archaeology in North America, which has favored global comparative study, has rarely enlisted case studies from the vast steppe region in the study of the evolution of village and urban life, the emergence of complex societies, innovation and diffusion of new technologies, conflict and warfare, and the rise of early states. This exclusion has occurred for various reasons; one of the most significant reasons is the earlier lack of publications in languages other than Russian

and other regional languages. This situation has changed substantially in the past two decades as important new publications in other languages have been produced. Many of these have stemmed from productive international conferences held in the territories of the former Soviet Union, Europe, Asia, and the United States (e.g., Boyle et al. 2002, Bemmann et al. 2009, Hanks & Linduff 2009, Jones-Bley & Zdanovich 2002, Levine et al. 1999, Mei & Rehren 2009, Peterson et al. 2006b, Popova et al. 2007). What has emerged from this new scholarship is a clear sign that the archaeology of the Eurasian steppe zone contributes in significant ways to both regional scholarship and broader anthropological interpretations of human change and development in the past. As we enter the twenty-first century, the steppe region and adjacent territories must figure more prominently in the pursuit of refined models and theories for the human past and contribute more visibly to the development of global heritage. One important, recent contribution to this literature has been the publication of Eurasian steppe developments within comparative discussions on early social complexity and the emergence of early states (Grinin et al. 2004, 2008). These publications, part of a series titled, "Social Evolution and History Monographs," have been published in Russia in English and have included chapter contributions by several international scholars. Other publications, notably those by Nikolai Kradin, have emphasized the importance of steppe pastoralist sociopolitical developments and offered important new models that contribute productively to comparative discussions on anthropological archaeology (Kradin 2002, Kradin et al. 2003). Such publications are forcing the door open to broader theoretical discussions of Eurasian steppe archaeology and history.

As a specific aim, this article offers a concise chronological survey of several recent projects and publications in Eurasian steppe prehistory, starting with anatomically modern human settlement in the Upper Paleolithic (~40,000 B.P.) and extending through to the Xiongnu confederation (~155 A.D.) (**Table 1**). The

Table 1 General chronology of periods and archaeological sites discussed in text

Archaeological period	Approximate date range	Key developments discussed
Upper Paleolithic	46,000 to 10,000 B.P.	Peopling of northern Eurasia, accelerator mass spectrometry (AMS) dating
Mesolithic-Early Neolithic	10,000 to 6000 B.C.	Complex hunter-gatherer adaptations
Neolithic-Eneolithic	10,000 to 3500 B.C.	Horse domestication, Indo-European Languages
Bronze Age	3500 to 1200 B.C.	Metallurgy, spoke-wheeled chariots, inter-regional trade, stone monuments
Final Bronze–Early Iron Age	1200 to 300 B.C.	Mobile pastoralism, large-scale kurgans, cavalry warfare
Xiongnu Politics	500 B.C. to A.D. 155	Regional surveys, China-steppe interaction, elite tombs

selected topics and sites covered are restricted to the grassland steppe and adjacent arid steppe and forest-steppe ecological zones. Owing to space limitations, it is not possible to discuss more than two or three case studies for each defined chronological phase. Therefore, all the case studies chosen represent important recent research undertaken in the steppe region by international teams and an overview of new data and interpretations emerging from such work. More specifically, projects that are relatively well published in English have been selected to be useful to nonregional specialists. Unfortunately, presenting such a broad chronological overview severely limits the space available for more detailed discussion of one or more of the periods; however, the aim here is to provide a point of departure for nonspecialists and an up-to-date outline of the current state of archaeological research in the steppe region that is international in scope. Scholars seeking more in-depth theoretical treatments and culture history overviews should consult the numerous conference volumes and other more recent publications that focus on specific regions and time periods cited throughout the article.

The first part of the following discussion chronicles recent discoveries in the greater Eurasian steppe zone, stretching from Ukraine in the west to the far eastern region of Russia. The second part focuses more specifically on recent archaeological projects in the region of present-day Mongolia. Mongolia emerged recently as an extremely vibrant area of archaeological study, and several successful interna-

tional projects are based there. Thus, a variety of new evidence is emerging that is having a clear impact on how prehistoric and early historic developments in the Mongolian region relate to adjacent territories and developments in China, Central Asia, and Russia. The article concludes with a more personal reflection on the changing nature of scholarship in the steppe region and outlines some of the critical issues that continue to challenge research in the region.

THE EURASIAN STEPPES

Upper Paleolithic (~46,000 to 10,000 B.P.)

Archaeological evidence from the vast steppe territory has played an important role in our understanding of late glacial environmental change and the spread of anatomically modern humans throughout northern Eurasia. Upper Paleolithic habitation sites in the Eastern European plain associated with the Eastern Gravettian complex (e.g., Mezhirich, Kostenki, Dolní Věstonice) have become well known to foreign scholarship (Hoffecker 2002). Archaeological evidence from these sites has indicated an amazing adaptation to the inhospitable Pleistocene environments of the open plains of northern Eurasia and has produced some of the earliest evidence for fired clay animal and female figurines (Soffer & Vandiver 1997). Recent analysis of burnt clay objects from sites such as Pavlov I (Czech Republic), originally recovered during excavations of the early Soviet

Microblade industry: a lithic industry widespread in Eurasia and North America where small blades were often attached to slotted antler or bone

Period, have revealed evidence of corded fiber impressions (Adovasio et al. 1996). Additional research has produced more evidence of early perishables, such as textile and basketry production by 28,000 B.P., connected with additional finds from Central Europe, France, and Russia (Soffer et al. 2000). These studies have indicated that such technologies were much more widespread across Europe and the western steppe region during the late Pleistocene than previously thought.

Another significant development in the scholarship of the Upper Paleolithic has been the achievement of several large-scale radiocarbon dating programs. This new data has provided the opportunity to reassess not only previous dates for many known sites but also to understand better the sequences of occupation and to develop new demographic models relating to early colonization processes across the vast northern Eurasian plains. Whereas recent excavation programs focusing on habitation sites in far northeastern Siberia have connected importantly with the peopling of the Americas (Goebel 2004), other studies have sought to develop better understandings of Paleolithic occupation of the East European Plain (Dolukhanov et al. 2001, 2002), Southern Siberia, and the Russian Far East (Kuzmin & Orlova 2000, Kuzmin & Keates 2005).

These areas played a key role in what have been conceptualized as pulses of occupation and reoccupation by late Upper Paleolithic groups in response to changing environmental conditions, particularly for the extreme conditions of the Late Glacial Maximum (LGM) (~20,000–18,000 B.P.). For example, Goebel has argued that this period saw a sharp decline in human population in Siberia, and it was not until 18,000 B.P. with the retreat of glacial fields, less extreme environmental conditions, and the emergence of a microblade technology that the northern regions were once again occupied by humans (Goebel 2002). The analysis and dating of Upper Paleolithic sites such as Studenoe-2 in the Transbaikalian region of Siberia have indicated that the microblade industry appeared as early as 17,800 B.P. (Goebel et al. 2000).

A counterargument to the depopulation of Siberia in the LGM emerged in 2005 as a result of an intensive study of 437 radiocarbon dates (Kuzmin & Keates 2005). The authors of this article have suggested that investigators can model occupation sequences by applying radiocarbon dating of occupation episodes (dates from individual sites that fall within 1000 ^{14}C). Their data analysis suggests that the number of occupations in Siberia did not decline during the LGM period; rather, there was a gradual increase of occupation episodes from 36,000 to 16,000 B.P. and then a sharp increase after 16,000 B.P.

It is hoped that continued research and dating of this region in the near future will provide further assessment of these new models. The eastern and northeastern zones of Siberia will certainly continue to be critically investigated as the occupation sequences and lithic industries are of particular importance for questions surrounding the early peopling of Eastern Asia and the Americas. Nevertheless, future research focused on the Upper Paleolithic must continue to expand beyond the eastern and western limits of the northern Eurasian region (e.g., Derev'anko et al. 1998). For example, 15 Upper Paleolithic sites are known from the southern Ural Mountains region of Russia. Several of these are cave sites, such as Kapova (Shulgan-Tash) in the Republic of Bashkortostan, that have significant evidence of cave paintings and occupation sequences (Danukalova & Yakovlev 2006). Future research at sites such as these is greatly needed to develop improved models of Upper Paleolithic colonization and adaptation processes across the vast Eurasian steppe plain.

Mesolithic to Early Neolithic Hunter-Forager Societies (~10,000 to 6,000 B.C.)

The relationship of early Holocene hunter-forager groups in Europe to the appearance and diffusion of early Neolithic technologies such as pottery production and domesticated plants and animals has been a strong focus of

research within European prehistory (Cavalli-Sforza 1996, Harris 1996, Price 2000). However, such developments within the larger northern Eurasian and Eurasian steppe zones were little known to foreign scholarship during the Soviet Period. A large international project in Lake Baikal, the Baikal Archaeology Project (BAP), has recently added significantly to understandings of regional change in the southern Siberian region of Russia.

The BAP project, which is a multi-institution, multidisciplinary research program, has generated substantial data and numerous publications on the development of early Holocene communities and the nature of economic and social change that occurred during this period (see Weber et al. 2010, 2007; links to the project's Web site may be found on the University of Alberta Department of Anthropology's Web site). Research has focused intently on the excellent preserved habitation sites and large cemeteries, including the well-known Lokomotiv cemetery, which was first discovered in 1897 and subsequently excavated during the Soviet Period. This cemetery is considered to be the largest Neolithic cemetery in northern Asia and has produced well-preserved human remains with a variety of grave goods including fishing and hunting tools, other domestic artifacts, and personal adornments (Mooder et al. 2005). A major component of BAP research has focused on the detailed physical and chemical analysis of human remains from Lokomotiv and other cemeteries, including genetics, associated grave goods, and chronological phasing of burials. The picture that has emerged from this research suggests that two main groups of hunter-gatherers occupied this region of Lake Baikal: first, the Early and Late Kitoi phases from the Late Mesolithic and Early Neolithic (6,800–4,900 cal. B.C.), and second, the Serovo and Glazkovo phases from the Middle-Late Neolithic and later Bronze Age (~4,200 to 1,000 cal B.C.). A period from which no graves have been recovered occurred between ~4,900 to 4,200 cal. B.C. (Weber et al. 2002, 2005) and represents an important temporal lacuna of cemetery use that is likely con-

nected with a transition in social organization and ritual activity. Results from the BAP project continue to uncover important trajectories of hunter-gatherer adaptations in the region including the role that social identity, status, and kinship played in the emergence of social complexity.

In addition to the highly successful fieldwork and publications stemming from the project, numerous undergraduate and graduate students from North America and Russia have taken part in the project, and they have subsequently produced several theses and dissertations. The BAP stands as one of the most successful initiatives of its kind operating in the northern Eurasian region and illustrates the effective role that multidisciplinary research can play in the study of hunter-gatherer social complexity and the complex array of adaptive strategies that were connected to changing social and environmental landscapes during the Holocene.

Neolithic-Eneolithic Horse Domestication and Indo-European Languages (~6,000 to 3,500 B.C.E.)

Animal and plant domestication is one of the major transformations connected with the Neolithic of the Old World. Certainly some of the most persistent and contentious questions of this period pertain to when and where the horse was first domesticated and how the use of this animal for subsistence, traction, and riding evolved in conjunction with human social, cultural, and technological change. Much of the debate over these unknowns has focused on the Eurasian steppe region. Three recent publications connected with this area of research provide excellent overviews of the debates and useful introductions into the complexity of the archaeological data linked to early horse domestication (Drews 2004, Kelekna 2009, Olsen et al. 2006).

For much of the twentieth century, the dominant view of horse domestication and early riding was attached to theories for the emergence of the Proto-Indo-European language, its geographical "homeland," and the subsequent

Kurgan/kurhan:

Russian/Ukrainian word of Turkic origin for a funerary mound constructed of wood and earth over a burial feature(s)

spread of Indo-European languages. Marija Gimbutas (1970) was one of the most outspoken scholars in this regard. Gimbutas argued for several incoming waves of horse-riding, patriarchal warriors (kurgan culture) from the steppe region into “Old Europe,” which, she argued, brought about the destruction of the more peaceful, sedentary (and matriarchal) European societies. Important excavations during the Soviet Period at sites such as Dereivka on the Lower Dnieper River produced archaeological remains dating to the Neolithic and Eneolithic (copper age) that appeared to be linked to early horse domestication and riding. This evidence became the focus of intense scrutiny and debate in the 1980s and 1990s.

The recovery of horse bones from settlements such as Dereivka was believed to offer strong proof for the early domestication and riding of horses and their significance within cultic and ritual activities. By the 1990s, however, Gimbutas’s kurgan culture model of invading horsemen waned as a result of limited archaeological evidence for such migrations into Europe. Several scholars continued to support the theory of horse domestication and riding by the Eneolithic (Anthony & Brown 1991, Malloy 1989). Other scholars have argued that the presence of horse remains from settlement contexts might reflect forms of exploitation, such as hunting, taming, or domestication, but does not prove that horses were actually ridden at this time (Häusler 1996, Levine et al. 1999). Subsequent studies by Anthony & Brown (2000) of bit wear on the lower premolar teeth of prehistoric horse remains, coupled with experimental harnessing and bit-wear studies on modern horses, added important new data to the argument. Many scholars currently still remain unconvinced that horse riding became a significant factor in the steppe region, particularly in terms of mounted warfare, until the late second to early first millennium B.C. (Bokovenko 2000, Levine 2004, Levine et al. 2003, Renfrew 2002, and most recently, Drews 2004). Out of these debates has emerged a much greater appreciation for the fact that the trajectory of human-horse relationships developed over

a much longer period than was previously thought and that horse domestication as a complex process unfolded over several millennia (Olsen et al. 2006).

New lines of evidence have emerged very recently on the DNA of modern horses (Lindgren et al. 2004, Jansen et al. 2002, McGaherrn et al. 2006) that point toward a multiorigin, rather than diffusion from a single point, for horse domestication within the Eurasian region. Additional data are needed, and such studies will ultimately need to be connected more effectively to ancient DNA analyses of horse remains from key archaeological sites. Nevertheless, such studies, particularly when combined with additional archaeological and zoological analyses, will begin to unravel the contentious debates surrounding early horse domestication. For example, important new studies coming from Eneolithic period sites in Kazakhstan (Botai culture, 3,500 B.C.) have integrated bit wear, metric studies of horse lower limb bones (metapodials), and the detailed analysis of organic residue collected from recovered pottery vessels (Outram et al. 2009, Travis 2008). Previous studies of the horse remains from Botai culture settlements in Kazakhstan, which represent nearly 99% of all large faunal remains recovered from these sites, suggest that the Botai groups hunted horses as one of their primary sources of food (Olsen 2000, 2003). A recent study (2009) by Outram and colleagues, which uses three lines of evidence, suggests that horses at Botai were also possibly ridden and mares were exploited for their milk. The analysis of pottery residues focused on the classification of the values of fatty acids and distinguished between non-ruminant and ruminant carcass and ruminant dairy fats. Although additional supporting data are certain to be forthcoming in the near future, these lines of evidence are perhaps the strongest support yet for the model that Botai groups were utilizing horses in several different ways, including their use as a meat source and a secondary products adaptation that included milking, and on the basis of the bit-wear evidence, some horses were even being ridden.

These results are currently some of the earliest evidence available for horse taming and the initial stages of domestication for the Eurasian steppe region.

THE EURASIAN STEPPE BRONZE AGE: ECONOMY, TRADE, AND INTERACTION (~3,500–1,200 B.C.E.)

The Bronze Age of the Eurasian steppe region has been synonymous with the emergence of much larger-scale patterns of movement, interaction, and trade between regional communities and polities. International field projects and numerous recent publications in English have offered a variety of new perspectives on this period and the substantial role that it played in the broader Eurasian region (Anthony 2007, Chernykh 2009, Frachetti 2008, Kohl 2007, Koryakova & Epimakhov 2007, Linduff 2004).

One of the key developments that appeared at this time was the emergence of spoked-wheeled chariot technology. Excavations by Soviet scholars in the southeastern Ural Mountains region of Russia in the 1970s and 1980s yielded the remains of Middle Bronze Age fortified settlements, spectacular burials with lavish animal sacrifice (including domesticated horses, cattle, and sheep/goats), and in some cases the remains of chariots placed with the dead (Gening et al. 1992). As Anthony (2007) has pointed out, the excavation and publication of the eponymous settlement site of Sintashta and its associated cemetery (both situated in the Sintashta River valley) stimulated a new era in the archaeology of the steppe region (p. 371). Subsequent radiocarbon dating of other Sintashta settlements and cemeteries (~2,100–1,750 cal. B.C.) has established that the chariot technology found at these sites is among the earliest in the world (Anthony & Vinogradov 1995, Epimakhov 2005, Hanks et al. 2007, Kuznetsov 2006, Vinogradov 2003).

Another important characteristic of the settlements is evidence for smelting furnaces and copper metallurgy recovered from houses within the fortified walls (Zdanovich

& Zdanovich 2002). These data have led to strong debate over the scale of production of bronze metals, possibly for trade with polities of the Bactria Margiana Archaeological Complex (BMAC) situated well south of the Urals in the arid Central Asian region (see Hiebert 2002, Kohl 2007 for overview of BMAC). Not all scholars agree with this model, and a variety of opinions on the emergence, spread, and decline of the Sintashta archaeology pattern have been published recently (Anthony 2007; chapters by Hanks and Anthony & Frachetti in Hanks & Linduff 2009; chapters in Jones-Bley & Zdanovich 2002).

Although the exact nature and scale of Sintashta metallurgy may be debated, the Late Bronze Age Kargaly mining complex and settlement of Gorniy (see Chernykh 2004 and Kohl 2007 for overviews in English), which is located in the southwestern Ural Mountains of Russia, have yielded extraordinary evidence for intensive mining of copper ores. The Kargaly mining complex was situated within a vast deposit of copper ores distributed within an estimated 500-km² zone. The recovery of more than 2.3 million animal bones (99.8% were domestic animals, of which 80% were cattle) from a 1000-m² excavation at the Gorniy site has prompted Chernykh to suggest that this was a specialist community of miners that may have traded copper ores or smelted copper metals for subsistence goods in the form of domestic animals (see Kohl 2007, pp. 170–78 for overview in English). Recent archaeological and palynological work at the site has indicated that a peak in exploitation during the Late Bronze Age Srubnaya period (1700–1400 B.C.) gave way to a substantial decline after ~1,400 B.C. (Diaz del Rio et al. 2006). Interestingly, this evidence has been modeled as a potential decline in smelting as a result of the degradation of available resources such as timber for metal production, which ultimately led to the exploitation and trade of copper ores rather than processed metals by local groups (Vicent et al. 2006).

The trajectory that chariot technology, metals production, and more expansive trade may

have taken in the Bronze Age finds great expression in what regional scholars have called the Late Bronze Age “Andronovo Horizon.” This development is actually made up of several different archaeological cultures (e.g., Alakul’, Fydorovka) spread over a vast territory of north central Eurasia and Central Asia, and in some cases the penetration of steppe groups and/or technology and trade items into what is today northwestern China (Kuz’mina 2008, Mei 2000, Mei & Shell 2002). The excavation of well-preserved mummies in the Xinjiang region of China that have European physical features and were clothed with nonlocal forms of textiles has also initiated great discussion over migration processes at this time (Mallory & Mair 2000, Mair 1998; see Barber 1999 for textiles). Interregional trade and migration in Bronze Age Eurasia have been modeled from a variety of different perspectives, including the use of world systems theory and core-periphery dynamics (Kohl 1996, 2007; Koryakova 2002). Unfortunately, such large-scale models are often lacking more detailed regional data that connect better with local adaptations, socioeconomic change, and the mosaic of environmental landscapes that comprise the Eurasian steppe region.

In response to this lack of data, several recent projects have focused on detailed investigations of specific ecological zones and the complexity associated with both pastoralist and agro-pastoralist economies and mobility patterns within these areas during the Late Bronze Age. Recent projects in the Samara Valley region of Russia (Anthony et al. 2005; Popova 2006; Peterson et al. 2006a,b) and in South Eastern Kazakhstan (Frachetti 2002, 2004, 2008, 2009; Frachetti & Benecke 2009) have produced detailed archaeological and paleoenvironmental data. These results are providing an important window into the complexity and variability of Bronze Age steppe communities and their subsistence and productive economies. Such projects are setting a new standard for archaeological research on early pastoralist communities in the Eurasian steppe region and are beginning to overturn

the traditional model of the distinctly different worlds of the pastoralist northern steppe versus the agricultural southern sown.

Early Iron Age Societies, Mobile Pastoralism, and Mounted Warfare (1,200–300 B.C.)

Scholars of the former Soviet Union have long known that the transition from the Bronze to the Iron Age was one of sweeping social and technological change. In fact, many scholars have been quite divided over whether classic mobile pastoralism (nomadism) developed first during the Bronze Age or not until the first millennium B.C. and the emergence of the Iron Age (see Frachetti 2008, Koryakova & Epimakhov 2007, and Kohl 2007 for recent overviews of this). As outlined above, scholarship has also been quite divided over the earliest appearance of horse domestication and the rise of mounted warfare, yet evidence in the steppe zone for mounted warfare sharply increased by ~900 B.C. The excavation of numerous kurgan (burial mound) mortuary complexes throughout the steppe region, which include in many cases sacrificed horses with riding accoutrements, indicates that horse riding at this time was part of much broader changes taking place in mobile subsistence economies, sociopolitical organization, and new forms and scales of regional and interregional warfare (Hanks 2002, Parzinger 2006).

The excavation of lavishly furnished Scythian tombs in the Crimea and Ukrainian western steppe zone in the eighteenth through twentieth centuries provided a dynamic image of the Eurasian steppe Iron Age and reflected the emergence of new dimensions of social and political power connected with territorial conflict and control. Additional discoveries in the Altai Mountains by Soviet scholars Sergei Rudenko and Mikhail Gryaznov in the 1950s through 1980s brought to light well-preserved frozen burials (Pazyryk tombs) and one of the earliest and largest Iron Age burial complexes in the steppe region, which has been dated to the ninth century B.C. (Arzhan I) (Bokovenko

2006; Gryaznov 1950, 1980, 1984; Rudenko 1970). More recent discoveries by Russian and German scholars in the Altai Mountains (Arzhan II) and Minusinsk Basin of Siberia have added further evidence about the widespread development of mounted warfare, new forms of funerary and other ritual monuments, and the development of the so-called animal-style art pattern (Bokovenko 2000, 2006; Chugunov et al. 2001, 2003, 2004; Parzinger 2006).

Whereas the scholarship of the Eurasian steppe Iron Age has persistently emphasized funerary monuments, in large part because easily observable settlement evidence declines during this period (believed to be connected with nomadism), several recent field research programs have focused specifically on settlement patterning in the steppe and forest-steppe environmental zones. In particular, the work of Chang and colleagues has added importantly to our understanding of socioeconomic change in Kazakhstan connected with the emergence of the Saka-Wusun period and what appears to be an intensification of domesticated cereal production and an agro-pastoral economic regime (Chang et al. 2003, Chang & Tourtellotte 1998, Miller-Rosen et al. 2000). This is the exact period during which conventional scholarship would have us believe that groups in this region were primarily nomadic. Another project in Western Siberia has also clearly documented the diachronic development of economy and diet of Late Bronze to Early Iron Age populations at the multiphase fortified settlement site of Čiča (Privat et al. 2005). These projects have shown that the study of settlement evidence when available in the steppe region, in conjunction with funerary monuments, is absolutely crucial to the process of building more comprehensive understandings of the dynamic nature of Early Iron Age steppe societies and their social and economic foundations.

MONGOLIA

Perhaps it is due, in part, to the intense scholarly interest in China's early historic relationships with the northern periphery and Xiongnu

confederation (and later Chinggis Khan Empire) that the prehistoric past of Mongolia has only recently emerged as a topic of great interest to international scholarship (Christian 1998). In fact, a long history of archaeological field research has taken place in Mongolia, stemming from the Soviet Period, which has played a significant role in identifying early developments in the eastern steppe zone and the Altai-Sayan Mountains to the west and northwest of Mongolia (Bemmann et al. 2009, Novgorodova 1989; Volkov 1967, 1981). Although the territory of present-day Mongolia was important from the Paleolithic to Neolithic in terms of human settlement and the emergence of pastoral and agro-pastoral adaptations, most field projects in recent years have focused on the Bronze and Iron Age periods. What has emerged from this work are the further identification and documentation of numerous early mortuary complexes and other ritual monuments and some of the first systematic, large-scale regional surveys (systematic pedestrian surface collection) conducted in the Eurasian steppe zone.

Bronze and Iron Age Ritual Monuments and Regional Surveys (1,500–500 B.C.E.)

Early research by Soviet scholars led to the documentation of a wide variety of Bronze and Iron Age stone burial and ritual monuments within the Mongolia region, and these have greatly attracted international attention in recent years. Field research over the past two decades by Mongolian and international teams has led to the excavation, mapping, and radiocarbon dating of large stone monument complexes, called *khirigsuurs*, dated to the Late Bronze Age and Early Iron Age (Allard et al. 2002, Allard & Erdenebaatar 2005, Frohlich 2006). Although some of these sites have yielded poorly preserved human remains, it is unclear whether they were all constructed as funerary monuments. Recent field expeditions sponsored by the Smithsonian Institution have also led to the excavation, recording, and dating of standing

Animal-style art: a traditional form of art in the steppes often depicting cervids, felines, and fanciful hybrid animals

Khirigsuurs: Mongolian word for funerary monument or ritual construction variously made of earth and/or stones

stone monuments called deer stones in an effort to preserve these important monuments, which have unfortunately been prone to looting and destruction (Fitzhugh & Bayarsaikhan 2008, Frohlich et al. 2008). The deer stones, often adorned with stylized cervids and/or anthropomorphic images of warriors with accompanying bows, daggers, axes, and other symbols of warfare, are widely distributed within the steppe zone and have been dated from the Late Bronze Age through to the Medieval Period within the Mongolian region.

Research at larger khirigsuur sites in central Mongolia has revealed complex ritual activity that appears to have existed at a surprising scale in terms of human labor. For example, Urt Bulagyn, one of the two largest khirigsuur complexes in the Khanuy River Valley, is composed of a large central mound of stone 5 m tall and 26 m in diameter. This mound is surrounded by a rectangular fence of surface stones measuring 60 m by 90 m. Placed around the outer perimeter of the fence are 1,752 smaller stone cists. Several of these cists have been excavated and dated (1,040 to 750 cal. B.C.), and each of them contained the remains of an east-facing horse skull and/or vertebrae or leg bones of a horse (Allard et al. 2006, Fitzhugh 2009). An additional 1,100 small stone piles are situated at the periphery of the satellite stone cists, and these typically contain burnt animal bone remains. Such ritual evidence, and what appears to reflect a significant mobilization of human labor in the construction of these sites, has generated a great deal of discussion among scholars about regional social integration and the emergence of new forms of hereditary ranking and political authority (Houle 2009; Wright 2006, 2007).

In addition to research focused specifically on the mapping and excavation of stone monuments, several large regional survey projects have produced results that better substantiate diachronic settlement and human demographic patterning. An excellent example of this analysis is the multiyear Egiin Gol River Valley survey carried out in north central Mongolia from 1996 to 2000. This project employed systematic pedestrian survey to cover a 310-km² area.

As a result, 550 archaeological sites were identified that dated from the Upper Paleolithic to the mid-twentieth century (Soviet Period) (Honeychurch 2004; Honeychurch & Amartuvshin 2006, 2007). The collection of data through this project has provided, for the first time, a much better understanding of the trajectories of pastoral and agro-pastoral regimes that developed in Mongolia. Such developments can now be modeled in conjunction with local socioeconomic adaptations as well as interregional contact with sedentary states such as China. This progress is particularly significant because much discussion has been waged on the role that these sedentary states and polities had in stimulating a greater degree of sociopolitical complexity among pastoralist groups through a dependency on agricultural products (Barfield 1989; Di Cosmo 1994, 2002). Archaeological research in Mongolia is now defining a much more complex set of sequences connected with the emergence of early steppe polities in the Bronze Age, many of which set the stage for the later emergence of the Xiongnu confederation and Mongolian Empire.

Iron Age Developments and the Xiongnu Polities (500 B.C.E.–A.D. 155)

In addition to new research on the Mongolian Bronze Age, several recent field projects by Mongolian and international teams have added substantially to our understanding of the Early Iron Age (Erdenebaatar 2004) and later Xiongnu developments (Brosseder 2007, Crubézy et al. 1996, Crubézy et al. 2006, Torbat 2006). Much of this research has focused on the excavation of funerary tombs in the region and in particular on the large and richly furnished tombs of the Xiongnu elite (Miller et al. 2006). Evidence gathered from sites in both Mongolia and just across the border in Russia (Tsaraam Valley; Minyaev & Sakharovskaya 2007a,b) indicates a complex array of social and political relationships that were played out through gift exchange with the Chinese states and the appropriation of various aspects of Chinese

customs that became rearticulated through local traditions and social practices (Miller 2009). Such archaeological evidence provides an important comparative perspective when trying to interpret the historical biases connected with early Chinese texts on the Xiongnu. Archaeology is therefore in an important position to provide greater detail on local contexts relating to the cultural practices of the Xiongnu elites and also to chart the ways in which the Xiongnu confederation developed and responded to the ebb and flow of its political and economic relationship with China. Interestingly, recent survey projects and excavations have provided important evidence on the rise of urban centers by the Xiongnu period, which later came to be important components in the social, economic, and political structure of the Uighur and later Mongolian Empire (Rogers et al. 2005). Recent work at such sites as Kharkhorum is effectively extending our understanding of the long-term traditions of development that emerged out of the large-scale political networks of Mongolian expansionist states.

The scale and intensity of archaeological research and publication for Mongolia have risen considerably in the past decade. As such, Mongolia has become the setting for some of the most important and productive new research in Eurasian steppe prehistory. Whereas much of this research has traditionally been focused on the relationship between China and nomadic polities to the north, more recent research is highlighting not only the nature of external contact and social change but also internal developments within Mongolia stretching back to the Early Bronze Age. Archaeological fieldwork from this region will no doubt continue to challenge currently held views on pastoralist societal development and the emergence of large-scale steppe polities and states in the eastern zone of the Eurasian steppe.

CONCLUDING THOUGHTS

As noted at the beginning of this article, the study of the social, economic, and political developments in the steppe region has rarely fac-

tored into anthropological comparative models for understanding social evolution and change within world prehistory. Numerous archaeological projects in the past few years, some of which have been touched on here, have addressed these issues and signal an important shift in the role that the archaeology of Mongolia and the Eurasian steppes will play in the coming years. A substantial rise in the number of international publications and conferences over the past two decades also suggests that Eurasian steppe prehistory is moving more firmly into the spotlight of global prehistory and, we hope, will become more effectively recognized by scholars working in other regions of the world.

The international projects that have been outlined here do indicate, however, that there has been a more intentional focus on the archaeology of the Eneolithic through Iron Age and that these periods of study have overshadowed new research on earlier periods such as the Upper Paleolithic, Mesolithic, and Neolithic. Thus, numerous important issues and questions still remain to be addressed more effectively for the steppe zone. Such issues include the earliest sequences of northern Eurasian colonization by anatomically modern humans within the central Eurasian steppe plain in addition to the excellent research that has been achieved thus far for the western and eastern regions. Issues connected with the Mesolithic to Neolithic transition, such as changing environmental conditions and social and technological adaptations, remain to be more fully understood for many parts of the steppe zone. As noted above, the BAP has been highly successful in this endeavor, yet multidisciplinary research of this quality and intensity is desperately needed in other regions as well. In addition, numerous questions still surround the nature of plant and animal domestication and their diffusion throughout the steppe zone and adjacent territories. To date, archaeological research has indicated that numerous trajectories of adaptation are connected with pastoralist and agropastoralist economies, and such developments remain to be more fully recognized for many areas. The issues outlined here are, for the most

part, practical concerns in terms of developing and expanding the nature and scale of future archaeological research. Nevertheless, a number of other critical challenges remain to be overcome in the archaeology of the Eurasian steppe zone in the twenty-first century.

Future Goals and Challenges

As an archaeologist involved in collaborative field research in the steppe region since 1998, I have had the unique opportunity both to contribute to and to witness a dynamic transition in the nature of scholarship connected with this region of the world. Academic institutions and scholarly programs within the countries of the former Soviet Union have undergone profound change over the past 20 years, and the discipline of archaeology and the way in which field research is conducted have been radically impacted. As Trigger (1989) has noted, archaeology during the height of the Soviet Period was state sponsored, and more than 500 field expeditions were supported annually and more than 5,000 scholarly reports published (p. 207). Organized through the vast infrastructure of the Academy of Sciences, field reports and publications produced in Russian were centralized and made available through state archives. In the late 1980s, with the emergence of Perestroika and the collapse of the Soviet Union in 1991, funding for the Academy of Sciences was decimated. As Chernykh (1995) has stated, several institutes were left without even sufficient funds to cover basic utility costs for their facilities (p. 140). This situation has improved in recent years but varies substantially on the basis of the role that independent state governments play in their support of archaeology.

Nevertheless, over the past decade a number of important developments have transpired. For example, regional archaeological publications are being produced in a variety of national languages (Kazakh, Mongolian, Ukrainian, etc.), however; the emphasis on centralized information and data storage is no longer a certainty for many regions. The scale of international collaboration in field research and

publication has risen sharply and readers are encouraged to compare the projects discussed in this article with the publication by Masson & Taylor (1989) on the state of Soviet Archaeology in 1989. It is indeed remarkable how much has changed in just over two decades. One of the most prominent leaders in stimulating and supporting new forms of international collaboration is the Deutsches Archäologisches Institut (DAI) in Germany and its Eurasian Department (Eurasien-Abteilung, formed in 1995). A new branch has also recently been formed in Ulaanbaatar, Mongolia, and is further supporting German-Mongolian collaborative projects. DAI efforts in recent years have successfully funded several new programs of field research across the Eurasian steppe region, produced numerous bilingual publications, formed new journals such as *Eurasia Antiqua*, and developed several new monograph series (Parzinger 2002). DAI-sponsored collaborations have also provided an important foundation for the international exchange of students and other scholars, which is certain to play a vital role in educating the next generation of Eurasian steppe scholars both regionally and internationally.

Unfortunately, although there is much about which to be optimistic concerning recent developments, several important challenges remain. One of the most important is truly a quiet crisis and is connected with the decline of students pursuing advanced degrees and professional careers in academic archaeology in countries of the former Soviet Union. The lack of positions in universities and comparatively low salaries reflect the difficult transition that has confronted higher education in these regions. Although international collaboration may help to stimulate some growth, the reality is that the archaeological curriculum, which has traditionally been based within history departments, will need to undergo change just as other academic disciplines (e.g., economics, business, natural sciences) have done. In addition, the role that archaeology will come to play within dynamically changing socioeconomic conditions in the independent states is yet to be realized.

Unfortunately, exactly where the next generation of regional scholars in archaeology will come from is uncertain and is an increasingly pressing concern (L. Koryakova, E. Chernykh, and S. Hansen, personal communication).

The intellectual nature of archaeological scholarship has also shifted substantially since 1991 with the decline of state-sponsored and obligatory use of the Marxist ideology. And, with the fragmentation of any nation-state, what follows is often the emergence of new national, ethnocultural agendas that appropriate the past in the construction of new sociopolitical agendas for the present (Lamberg-Karlovsky 2002; Shnirelman 1998, 1999). Regrettably, traditional understandings of prehistory and history are often in the position of being (re)written during such tumultuous processes, and steppe archaeology has not been immune to this tendency. As Eurasian prehistory is drawn more effectively into global archaeology, we hope the danger of heritage appropri-

tion and misuse will become more visible on the international stage and held more accountable. This issue again connects very importantly with the education of the next generation of regional scholars and can only be challenged through the epistemological foundation and integrity of academic scholarship.

These challenges and many more will remain a reality for Eurasian steppe archaeology in the near future. Nevertheless, substantial progress has been made, and I look forward to the contribution that the archaeology of this region can make to global prehistory and the discipline of archaeology more generally. As a personal aside, I am impatiently waiting for the day when that large blank space in Anglo-American introductory textbooks fills in both to acknowledge and to address effectively the important role this region has played in the human past—something that Soviet and post-Soviet regional specialists have understood for a very long time.

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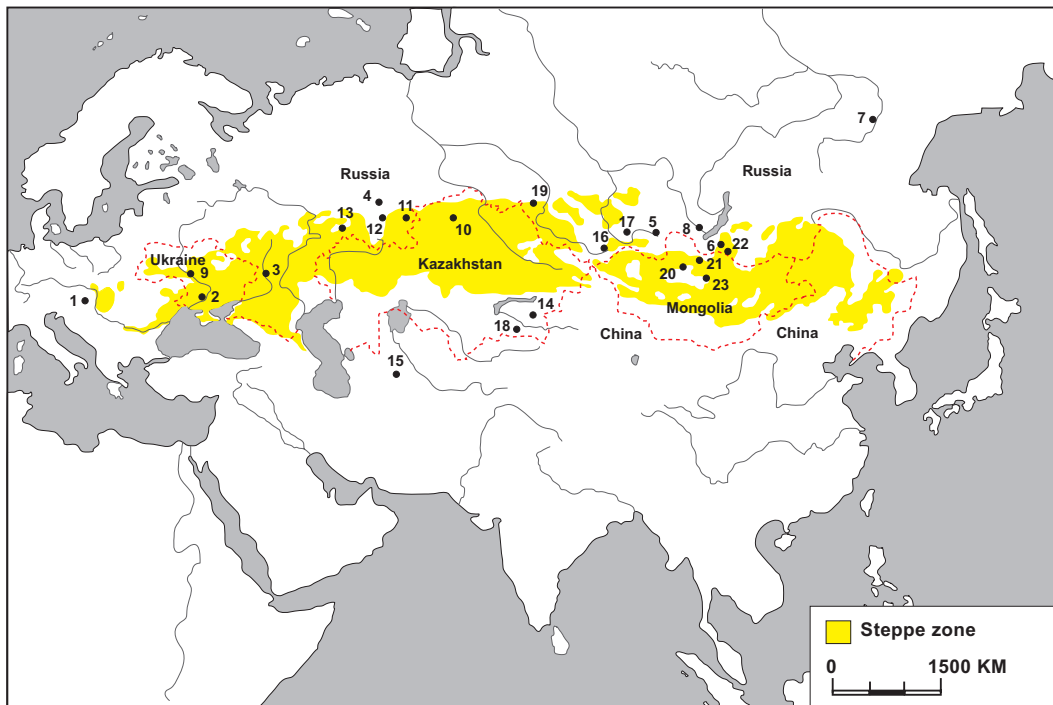


Figure 1

Upper Paleolithic Sites: 1, Dolní Věstonice and Pavlov I; 2, Mezhirich; 3, Kostienki; 4, Kapova (Shulgan-Tash); 5, Mal'ta; 6, Studenoe-2; 7, Dyuktai Cave. **Mesolithic Sites:** 8, Lokomotiv. **Eneolithic-Neolithic Sites:** 9, Dereivka; 10, Botai. **Bronze Age Sites:** 11, Sintashta; 12, Karagaly (Gorny); 13, Krasnosamarskoe; 14, Sermirech'ye Valley; 15, Bactria-Margiana Archaeological Complex. **Iron Age Sites:** 16, Pazyryk; 17, Arzhan I and II; 18, Talgar Fan; 19, Čiča; 20, Urt Bulagyn; 21, Egiin Gol River Valley; 22, Tsaraam Valley; 23, Kharkhorum.



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