Journal of Anthropological Archaeology 48 (2017) 295–308

Contents lists available at ScienceDirect

Journal of Anthropological Archaeology

journal homepage: www.elsevier.com/locate/jaa

Linking agriculture and exchange to social developments of the Central Asian Iron Age

Robert N. Spengler III[a,b,*], Naomi F. Miller[c,a], Reinder Neef[d], Perry A. Tourtellotte[e], Claudia Chang[e,a]

[a] Institute for the Study of the Ancient World, New York University, New York City, NY, United States
[b] Max Planck Institute for the Science of Human History (Max-Planck-Institut für Menschheitsgeschichte), Jena, Germany
[c] The University of Pennsylvania Museum, University of Pennsylvania, Philadelphia, PA, United States
[d] Head Office, German Archaeological Institute, Berlin, Germany
[e] Anthropology Department, Sweet Briar College, Sweet Briar, VA, United States

ARTICLE INFO

Keywords:
Iron Age
Central Asia
Agriculture
Social complexity
Exchange
Grain surplus
Scythians
Millet

ABSTRACT

Central Asia is commonly referred to as a pastoral realm, and the first millennium B.C. is often thought to mark a period of increased mobility and reliance on animal husbandry. The economic shift of the first millennium B.C. is usually interpreted as a transition toward specialized pastoralism in Central Asia, and the point in time when the Central Asian 'nomads' or Scythians appear. However, in this paper, we present evidence for farming, including the introduction of new crops, at four archaeological sites across the Talgar alluvial fan of southeastern Kazakhstan. In addition, we contrast this data with piecemeal evidence for agriculture at three other sites in the broader foothill ecocline of eastern Central Asia. Collectively, these data show that the people in this region were cultivating free-threshing wheat and hulled barley (long-season grain crops), as well as broomcorn and foxtail millet. There is also evidence for viticulture. These data warrant a reevaluation of the 'nomad'-based model for Iron Age economy in this region. This article highlights the need for further investigation into the links between agricultural intensity leading to grain surpluses, increasing exchange through Eurasia, cultural stratification, craft specialization, and population growth among peoples in the foothills of eastern Central Asia during the first millennium B.C.

1. Introduction

The long-held model for economic development through time in northern Central Asia (Kazakhstan, Uzbekistan, Tajikistan, and Kyrgyzstan) is marked by a key transitional point during the early Iron Age, starting around 800 B.C., as indicated by major social and demographic shifts. Researchers have long believed that this transition was precipitated by a significant change toward an economy dominated by highly mobile pastoralism, as the point of origin of the highly specialized 'steppe nomad' societies of Central Asia (Chernikov 1960; Cribb 1991; Davis-Kimball et al., 1995; Golden 2011; Gryaznov 1955; Khazanov 1994; Kuzmina 2000, 2008). While the linear evolution aspect of this traditional model has been rejected by scholars, many of them continue to focus on pastoralism as the driving force for change. During the late first millennium B.C., elaborate burials with rich deposits of grave goods become a hallmark of the archaeological record, illustrating both an increasing prominence in the level of social hierarchy and craft specialization (Davis-Kimball et al., 1995 and references therein). In direct opposition to the traditional economic model, we argue that people across the mountain foothill zone shifted their economy more toward agricultural pursuits in the early Iron Age, while maintaining some level of pastoral investment, a novel view first proposed by Chang et al. (2003; see also Chang 2017). We also argue that local economies became more diverse and people shaped their investment in agricultural pursuits to suit local ecological constraints. For example, at sites in less arable settings such as Begash, Mukri, and Kyzyl Bulak, the evidence for agriculture is less pronounced, and where present, seems to be dominated by drought-tolerant low-investment crops, specifically the millets. Occupants of these sites may have cultivated small plots of broomcorn (*Panicum miliaceum*) and foxtail millet (*Setaria italica*), which adapt more easily to a mobile pastoral economy, or obtained them through exchange with neighboring peoples. However, at sites on rich alluvial soils where rainfall in the summer months was high and glacial melt streams could easily be diverted for irrigation, such as at Tuzusai, Taldy Bulak 2, Tseganka 4 and 8, and Kyzyltepa (Fig. 1), agriculture was intensified. At this time, new agricultural

* Corresponding author at: Max Planck Institute for the Science of Human History (Max-Planck-Institut für Menschheitsgeschichte), Jena, Germany.
E-mail address: spengler@shh.mpg.de (R.N. Spengler).

http://dx.doi.org/10.1016/j.jaa.2017.09.002
Received 22 May 2017; Received in revised form 21 August 2017

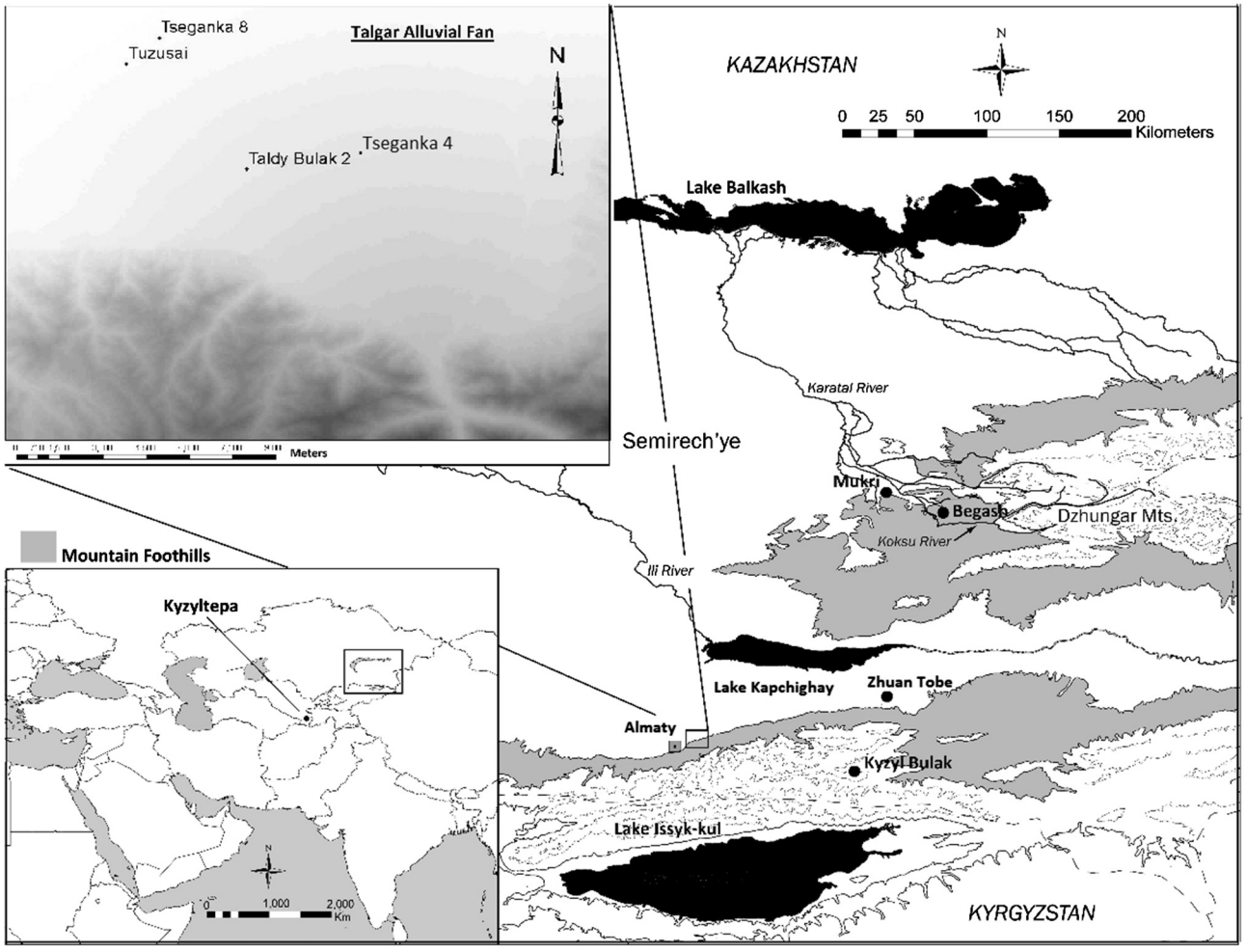

Fig. 1. Map of the eastern Central Asian foothills, focusing on southern Kazakhstan, with an inset map of the Talgar Alluvial fan with topography illustrated; on the main map the mountain foothills are highlighted in grey and all key sites from the text are indicated.

resources were incorporated into the economic repertoire, such as new varieties of free-threshing wheat (*Triticum aestivum*), hulled barley (*Hordeum vulgare* var. *vulgare*), foxtail millet, and grapes (*Vitis vinifera*), all of which also appear to have been cultivated more intensely through irrigation and expanded in cultivated area. While not covered in the scope of this paper, farming communities across southern Central Asia and the Iranian Plateau intensified their irrigation practices at this time, notably more readily incorporating water-demanding crops, such as free-threshing wheat, cotton (*Gossypium* sp.), and arboreal fruits (Miller et al., 2016). While the political driving factors of these irrigation practices may vary across the desert oases, during the second half of the first millennium B.C. more elaborate irrigation systems were implemented by people from the Murghab (Spengler et al., 2016b) to Khorezm (Brite et al., 2017). Furthermore, storage pits, while an understudied topic in this part of the world, are characteristic of many of these sites and attest to grain surplus; at the Talgar sites these storage pits are often two meters in diameter and some are plaster lined (Chang et al., 2002).

Over the past few years, many scholars have stepped away from simplistic models of economy in Central Asia, noting the broad diversity in economic practices that underline the prehistory of this part of the world. While Central Asia was long viewed as the pastoralist realm, the new literature is embracing a more complex economic system that relied on farming as well as herding. Local ecological factors likely played a significant role in the decision to invest more in farming over pastoralism or vice versa. For example, a number of scholars have shown that farming was either non-existant or limited during the second millennium B.C. on the western steppe (Hanks 2010; Anthony et al., 2005), whereas new data are showing that farming was prominent in the eastern steppe, especially in arable mountain valleys (discussed in this paper). Economic diversity has been an important characteristic of Eurasian economies through time, and this diversity was likely as important a factor in these social developments as the intensification of farming was. All aspects of economic production, including mobile pastoralism, need to be taken into consideration when discussing the social developments of the late first millennium B.C. In this paper we focus on farming, in part because it has been largely overlooked, but also because the data suggest that it was an important aspect in the economy of several key regions of Eurasia. In addition to identifying a diverse array of adaptive stratagies across Eurasia, scholars are noting increasingly more “complex” cultural traits of the third and second millennia B.C. (Hanks 2010; Frachetti et al., 2017). There is no doubt that the origins of social stratification, household-level craft specialization, the trans-Eurasian exchange, and larger political constructs lay in the Bronze Age (Frachetti 2012; Honeychurch 2013; Rogers 2017). This paper does not seek to identify the ‘origins’ of complex social systems – a popular theoretical topic over the past few decades and an impossible endeavor if you reject linear evolution models and see all human social groups as being ‘complex’. However, in building on the research into social complexity in Central Asia over the past three decades, we are able to discuss the driving factors behind specific cultural changes that took place during the first millennium B.C. These factors include a diverse array of adaptive strategies, such as increased rates of food production, largely through a greater focus on farming,