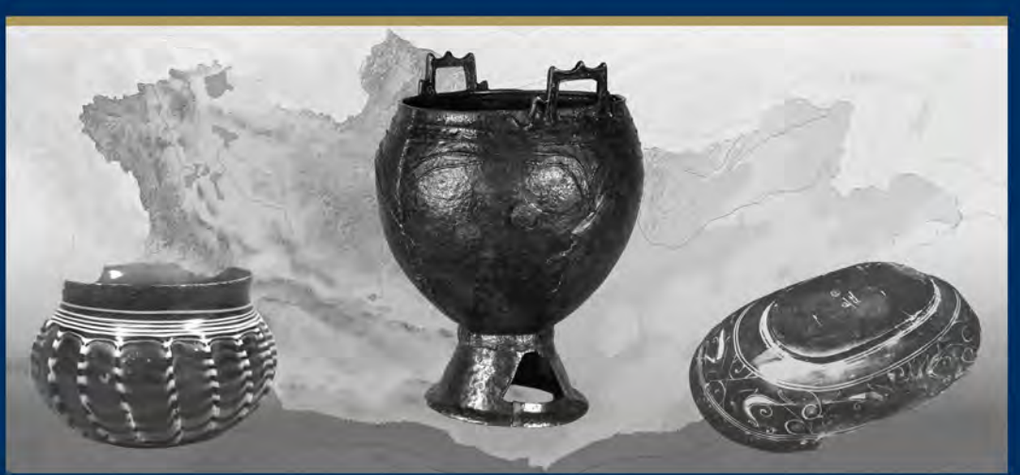
| 5 | BONN CONTRIBUTIONS TO ASIAN ARCHAEOLOGY

BCAA

Xiongnu Archaeology
Multidisciplinary Perspectives of the First Steppe Empire in Inner Asia



XIONGNU ARCHAEOLOGY

Multidisciplinary Perspectives of the First Steppe Empire in Inner Asia

Edited by
Ursula Brosseder, Bryan K. Miller

2011
Vor- und Frühgeschichtliche Archäologie
Rheinische Friedrich-Wilhelms-Universität Bonn

Bonn Contributions to Asian Archaeology

Volume 5

Edited by

Jan Bemmann

656 pages, 285 figures, 16 tables

The conference and the publication were generously financed by
Silkroad Foundation
Gerda Henkel Stiftung

Ein Titelsatz ist bei der Deutschen Bibliothek erhältlich
(http://www.ddb.de)

Desktop Publishing and Design: Matthias Weis
Translations: Authors, Emily Schalk, Daniel C. Waugh, Munkh-Ochir Dorjjugder,
Iulia Gavrilova, Ursula Brosseder, Bryan K. Miller
English language editors: Bryan K. Miller, Susanne Reichert, Daniel C. Waugh,
Image editing: Gisela Höhn
Final editing: Ursula Brosseder
Printing and binding:
Freiburger Graphische Betriebe – Freiburg
Printed in Germany

Cover illustration: Nicole Schmitt, idea Jan Bemmann

ISBN 978-3-936490-14-7

Dedicated to our Mongolian Friends on the
2,220th Anniversary of the Founding of the
First Empire on Mongol Territory by the Xiongnu

ADDRESS OF THE AMBASSADOR OF THE FEDERAL REPUBLIC OF GERMANY TO MONGOLIA

Germany is one of the most important partners of Mongolia within the European Union, and this strong relationship is reflected in the impressive vibrant exchanges and cooperation in various fields.

German scholarship is one of the leading forces in Eurasian Archaeology. With the four-day "International Conference on Archaeological Research in Mongolia", initiated and organized by the University of Bonn and the German Archaeological Institute in 2007, for the first time research teams from various countries met and discussed the state of archaeological research in Mongolia. Germany thus demonstrated its prime position of international leadership for promoting scholarly dialogues on archaeological research in Mongolia, and simultaneously furthered understanding of Central Asian history and its pan-continental influence on both East Asian and European history. By 2009, the proceedings of this conference were published in a monumental volume produced by Bonn University and funded by Gerda Henkel Foundation.

The subsequent "International Conference on Xiongnu Archaeology" held in 2008, organized by the University of Bonn and the University of Pennsylvania, focused on the culture and empire of the Xiongnu (or Asian Huns) who are thought by some scholars to be the predecessors of the European Huns. The publication associated with this conference, comprises the latest research in this field, presents directions for future studies, and demonstrates the necessity to revise existing perceptions in favor of more multi-faceted and interdisciplinary views which can relate to investigations in other parts of the world. A substantial portion of this book deals with the interaction of the Xiongnu in a broader Eurasian setting, and aims to bring this region into world-wide discussions of large political entities.

The German Embassy in Mongolia participated in the Xiongnu conference by hosting a reception and a talk by the American political analyst Claudio Cioffi-Revilla from George Mason University, USA. His research, which combines modern political modeling systems and the studies of ancient states, demonstrates a powerful connection between social dynamics of ancient and modern times. These ties between ancient states and modernity have become ever more prominent in present-day politics, as the President of Mongolia, Tsakhia Elbegdorj, has announced the year 2011 as the 2,220 year anniversary of the founding of the first Empire in Eurasia, established by the Xiongnu in the territory of present-day Mongolia in 209 BC. In accordance with prime attention to this anniversary, the Mongolian government has allocated funding to permanent establishments, such as new institutions for cultural studies and heritage preservation, and even the creation of a new, expanded exhibition hall at the National Museum especially for national treasures of the Xiongnu period.

In honor of this anniversary we are proud to present this volume to Mongolia combined with best wishes for the future.

Pius Fischer — Ulaanbaatar, June 2011

CONTENTS

MORTUARY EVIDENCE OF SOCIAL DYNAMICS

INTERREGIONAL INTERACTION

FOREWORD OF THE SERIES' EDITOR

The Xiongnu, who established "the first and most stable nomadic empire the world has ever seen" (Barfield 2001, 23), are not only the focus of the present tome, but, even more so, are held in great esteem in the self-awareness of modern Mongolia. All of the contributors are very pleased to present this book in the year 2011 in commemoration of the foundation of the first steppe empire in Inner Asia by the Xiongnu 2,220 years ago – a celebration announced by the President of Mongolia, Tsakhia Elbegdorj. It is an honor for us that the German Embassy in Ulaanbaatar has chosen this volume as the German cultural contribution to this anniversary celebration.

Like many larger endeavors, this book, too, has its own history. In the beginning, it was the idea of two younger determined scientists to assemble the leading researchers and heads of excavations involved in the field of Xiongnu archaeology at a conference in order to exchange ideas and opinions on this subject. Ursula Brosseder and Bryan K. Miller were able to gain the Silkroad Foundation (California USA) as financial supporters of their plans and the American Center for Mongolian Studies (ACMS) as local organizers of the conference in Ulaanbaatar. Thanks to the exceedingly professional and experienced work of Brian White and Enkhbaatar Demchig of ACMS, the conference on "Xiongnu Archaeology", held on October 16–18, 2008, in Ulaanbaatar, still remains a pleasant memory among the participants. The conference was planned in close and customary friendly cooperation between four institutions: the Institute of Archaeology of the Mongolian Academy of Sciences, the National Museum of Mongolia, the University of Pennsylvania and the University of Bonn. The evening receptions given by the embassies of the Federal Republic of Germany and the United States of America in Mongolia formed a distinguished backdrop, exemplifying the constant support shown by both countries to activities of archaeological researchers in Mongolia.

In general, the entire scope of research activities in a single field usually cannot be circumscribed within one conference alone, and the papers presented at the conference alone clearly would not suffice for a comprehensive work worthy of publication. Therefore, the two organizers of the conference, who are also the editors of this volume, developed the concept for a publication of the conference proceedings which would encourage previous participants to expand their respective contributions and to bring them up to date and which would acquire contributions from additional renowned researchers in this field. The result of this concept is an imposing and weighty (in the two-fold sense of the word) compendium on the archaeology and history of the Xiongnu. Represented in this tome are not only the traditional approaches, but also the most recent results of on-going field research projects and of modern scientific analyses, whose potential for future research should not be underestimated and which now enable initial insights into the spheres of herd management and nutrition.

The fact that hitherto a volume such as this had not appeared led me to include it in our series of publications at Bonn University. Research in this area certainly profits from the fact, that no other epoch in the history of Mongolia been studied archaeologically so well and has been

explored by so many international expeditions and specialists. To demonstrate simply the great international interest in the Xiongnu, let it be noted here that dissertations on the first steppe empire are either on-going or being completed at many universities in the USA, France, Switzerland, Korea, China, Russia, and of course Mongolia.

The publication of this volume was made possible by an additional contribution from the Silkroad Foundation as well as the Gerda Henkel Foundation, both of which have already provided funding for numerous projects on the archaeology of Mongolia. The two editors were responsible for editing and redaction of the volume, assisted by Cornelia Majehrke, Bonn, while Susanne Reichert, Bonn, supported the English language corrections. Image editing was in the experienced hands of Gisela Höhn, Bonn, and Matthias Weis, Bollschweil, managed the typesetting, layout and printing in his usual great competence. The volume was published by the Freiburger Graphische Betriebe.

In conclusion, I extend my sincere thanks to all participants in this endeavor for their industrious work and commitment.

Jan Bemmann April 2011

PREFACE

It is a pleasure to provide some introductory remarks for this pathbreaking volume, just as it was a great honor to have contributed concluding thoughts to the conference on which it was based. As a member of the Silkroad Foundation's Board of Advisers and editor of the Foundation's journal, I am particularly pleased to highlight the role the Foundation has played in supporting excavation of Xiongnu sites in Mongolia and in the publication of their results. The Foundation was a major sponsor of the conference in 2008 in Ulaanbaatar whose papers are being published here along with other solicited contributions on Xiongnu archaeology. Other sponsors of that conference and the current volume are credited elsewhere here; to them I express deep gratitude. Without them, this significant landmark in the advancement of Xiongnu studies could not have been passed.

The following remarks combine ones I made at the conference with my impressions from reading the pre-publication versions of most of the articles in this volume. As with any good scholarly contribution, this volume both looks back and projects ahead. That is, we find here on the one hand engagement with some of the earliest attempts to study the Xiongnu and summaries of excavations, and on the other hand theoretical and methodological perspectives which should help broaden and deepen our understanding of the Xiongnu in the years ahead.

It is clear that one of the challenges of this field of study, as with any involving a broad spectrum of international specialists, is effective communication of results and engagement with the work of others whose languages – both in the sense of the vernacular and in the broader sense of conception and methodology – may not be ones we command. While fields of study evolve and methodologies change, it often takes some time for those changes to be reflected in current practice and analysis. One may not always agree with new approaches, but surely one must actively engage them. It is precisely for this reason that events such as the First International Conference on Xiongnu Archaeology are held and their papers then published. To hold such a conference is a logical outcome of the significant fact that there are so many joint projects in Mongolia involving scholars from the host country working alongside those from many other countries. This process of collaboration has not only resulted in the production of significant new factual knowledge, but perhaps more importantly has served as the means for the sharing of ideas in ways that strengthen the foundations for further advancements in our understanding of the remarkable past of the peoples of Mongolia.

In my remarks at the closing session of the conference in 2008, I offered a few thoughts about what the future of Xiongnu studies might involve. I began with a question:

If we were to meet for a similar conference of Xiongnu specialists in ten or twenty years, what might we hope to see which has changed in Xiongnu archaeology compared to what we know in 2008?

First, what might we hope would have been accomplished in field work? I think one of our priorities should be to extend considerably the good work in field survey and mapping which

is already underway in some of the vast territories once occupied by the Xiongnu. It is clear even from low-resolution surveys that there is a huge number of sites waiting to be identified. Arguably some of them are the ones where we are more likely to find undisturbed remains. There is much we have yet to learn to contextualize individual burials both spatially and chronologically and to learn about a broad cross-section of Xiongnu society, not just those connected with the ruling elite in the central places of the Xiongnu polity.

While this may seem like a heretical thought, one might even argue that prioritizing intensive survey (such as that done in the Khanui valley) over excavation for a time would make sense, especially if it may still be difficult to ensure that excavations are carried out with necessary employment of the most advanced archaeological methods. While we are not in danger of soon exhausting the number of Xiongnu burials that might be excavated, it would be unfortunate if we did not maximize the amount of information which can be obtained from them. As several of the papers below emphasize, one of our highest desiderata is to learn more about the realities of daily life of the Xiongnu – how they interacted with their local environment, exploited resources, etc. Intensive survey has begun to provide interesting insights for the eventual answering of such questions, as now increasingly do some of the new analytical techniques for studying such artifacts as faunal remains.

In the field, we certainly might hope in ten or twenty years to have learned a lot more about Xiongnu settlement sites (for a broad, if not deep survey of settlement archaeology in Mongolia, see Waugh 2010). To date, few are known, and few have been systematically investigated. One of the most promising new developments has been to develop methodologies for identifying small "open-air campsites" (see Houle/Broderick, this volume), in contrast to the arguably much rarer walled enclosures such as Ivolga or the yet-to-be-studied Khermen (Tamir 2) – if indeed it is a Xiongnu site. The latter is huge, and to begin to learn from it would require a major commitment of resources (see Purcell/Spurr 2006). I think if I had to make the choice between excavating yet another square-ramped tomb, with the virtual guarantee of finding interesting artifacts, or undertaking a multi-year project (assuming it could be funded) at a settlement site where there is greater uncertainty as to what might be discovered, I would opt for the latter project.

The second thing I would hope we might see in the next decades is the training of additional cadres of highly skilled archaeologists and the provision of the means for their employment in the field. In particular, it seems to me that it is essential to focus on such training here in Mongolia and in the other areas where the Xiongnu material is to be found. Obviously a lot has been accomplished, where successful international collaborations have had as one very important result the sharing of ideas and new methodologies. Yet, as we know, funding for such ventures is always uncertain, and none of us would suggest it is by any means sufficient to support all that we would wish to see done. I have to wonder whether there might not be greater coordination across the range of expeditions undertaken every year in order to achieve the greatest result from limited resources.

One important contribution to the process of ensuring the highest quality of the work would be to try to enhance the technical capacity of the laboratories in which the analysis of finds should best take place. To date, as I understand it, material has often been sent out of Mongolia or Buriatiia for analysis in Novosibirsk, St. Petersburg, Paris, Seoul, or Bonn. A concerted effort to obtain funding for new equipment and the training of those to operate it might obviate the necessity of doing the analysis elsewhere. To have the resources available locally might ensure that certain kinds of analysis be done routinely, rather than be abandoned for want of the capacity to carry them out.

Another desideratum worth mentioning here concerns conservation. As recent experience has shown, e.g., in the Mongolian-American Khovd Project, having a highly trained conservator in the field, properly equipped, can make a huge difference. I have to imagine that such individuals are not only relatively few, but that obtaining their services to work at Xiongnu sites may be difficult. Presumably there is a great deal that might be done to train conservators and to improve the techniques which might be specific to the preservation of Xiongnu material. We should want to arrive at a point where the conservators would be from the host country, and not have to be lured from the outside.

The third area I would emphasize is cooperation and the sharing of information. One of the goals of our conference has been to lay the basis for greater cooperation and sharing for the future. I should note that, despite the numerous felicitous examples to the contrary, not only in Xiongnu archaeology but also in many other fields of scholarly endeavor, what is sometimes noteworthy, alas, is not the degree of cooperation amongst the experts, but rather rivalry and lack of cooperation.

We badly need a clearing house for sharing our results and making them readily available as quickly as possible. There are various projects underway for at least certain areas of Eurasian archaeology which might provide the framework for a Xiongnu-specific clearing house (see the reports published in The Silk Road 2,2, 2004). Whether this will have been realized in a decade or two is a good question, but eventually there probably will be an electronic database that will connect much of Eurasian archaeology (both past and ongoing work) through the Internet. While we should want to coordinate with such undertakings in order to adopt compatible standards, there is no reason why a Xiongnu database should not be undertaken sooner. This would require though agreement on common standards for recording and processing information and then trying to ensure that individual projects conformed to those standards.

Once that has been done, it would be possible to post excavation reports in some kind of standard format. We are well aware of the substantial delays which historically have plagued the publication of archaeological reports – indeed some of the most interesting results from excavations long ago in Mongolia have never been published, and there are numerous unanswered questions about what exactly was discovered and what the archaeological context was. The digital age now provides us with the means to get the information out in timely fashion, without incurring the kind of financial outlays which publication of archaeological reports in hard copy tends to involve. In addition, the clearing house would involve retrospective digitizing of earlier work in the field, the translation of reports so that they would be available in at least two or three major scholarly languages, the creation of a forum for ongoing discussion, a Xiongnu blog, if you wish, and presumably much more. There really needs to be an ongoing bibliography of Xiongnu studies. Since so often relevant material is published in editions that are almost impossible to obtain or are in languages not all of us read, something needs to be done to facilitate access.

What we might be aiming for here is a project that perhaps could be christened the IXP, the International Xiongnu Project, analogous to the International Dunhuang Project, based at the British Library (http://idp.bl.uk), which has already achieved so much for Dunhuang studies. Now, such an undertaking requires commitment, personnel and money. I do not have a magic solution for obtaining any of those, but Xiongnu specialists surely could start engaging in conversations about how to meet these challenges.

In conclusion, I must reiterate my optimism that the Xiongnu conference in 2008 and this volume of its papers will have a significant impact on Xiongnu studies in the future and not

result merely in a one-time exchange of ideas. I would hope that, were I around to see it in a decade or two, the field of Xiongnu archaeology would have been so transformed that it might, from my perspective of 2008 to 2010, almost seem like a foreign country.

Daniel C. Waugh December 2010

STATE OF RESEARCH AND FUTURE DIRECTIONS OF XIONGNU STUDIES

Ursula Brosseder, Bryan K. Miller

Introduction

The first documented polity of Inner Asia that may be characterized as "imperial" in nature is the Xiongnu entity mentioned in Han Chinese texts of the 3rd century BC to 2nd century AD[1]. That Xiongnu studies attract researchers from diverse fields and from many different nations attests to its rich potential. Scholarly attention is drawn toward the steppes at this time not only from the ancient accounts of powerful nomad groups but also from the ostentatious tombs of steppe elites unearthed in Mongolia and South Siberia within the last century. Historians and archaeologists alike have combined these sources into conglomerate pictures, which depict a grandiose and dominant force of imperial nomads (e.g. Batsaikhan 2002). Yet, we should not limit our considerations of the Xiongnu empire to dynastic texts and monumental tombs. Moreover, the ostensible concurrence of historical and archaeological evidence of late Iron Age eastern Inner Asia should not ignore finer regional and chronological differences that allow for a more detailed and comprehensive understanding of the dynamics of this first steppe empire.

One of the main challenges to productive archaeological investigations of the peoples, practices, and politics associated with the Xiongnu phenomenon is to surpass multi-disciplinary studies and develop truly inter-disciplinary investigations[2]. Sources of different forms or of different social lives may be analyzed separately but require a common research goal within which to frame these independent analyses so that they may be productively synthesized. This requires an integrative approach at the outset of investigation, and one which would likely lead to research outcomes that would not have been possible through any one discipline or resource. While the current state of research in the field of what might be broadly termed "Xiongnu studies" is certainly multi-disciplinary – as one may easily ascertain by the wide range of contributions in this volume – our understanding of the Xiongnu steppe polity and its constituents is only in the nascent stages of being pursued via truly inter-disciplinary investigations. The goal of this book is thus to present a comprehensive collection of the different agendas and methods

1 A plethora of dates have been given for the Xiongnu phenomenon, yet the determination of any particular dating is problematic and dependent on the definition of "the Xiongnu". In this volume, we may, however, speak of specific dates of a formal imperial polity of the Xiongnu that dominated the Inner Asian steppes from 209 BC to 91 AD.

2 The importance of *inter*-disciplinary approaches in the field of historical archaeology is emphasized in E. Isayev, Archaeology ≠ object as history ≠ text: nudging the special relationship into the post-ironic. World Archaeology 38, 4, 2006, 599–610.

of scholars engaged with records and remains of Iron Age Inner Asia in hopes that such a compilation will open avenues between disciplines and stimulate the development of integrated research.

WRITTEN RECORDS AND HISTORICAL ARCHAEOLOGY

Texts produced by Chinese chroniclers constitute the sole body of written records about the Xiongnu. Although steppe peoples did not produce any of their own texts, research on steppe societies of the Xiongnu period lies well within the realms of historical archaeology. Scholars have, at the very least, referred to general premises, if not specific information, derived from the written records in archaeological studies of the Xiongnu. As such, written records of the Xiongnu period are introduced here so as to familiarize the archaeological reader with the basic applications and limitations of the relevant texts.

The most famous sources are the Han dynastic histories, which include the "Shiji" compiled in the late 2nd to early 1st centuries BC (Sima Qian 1959), the "Hanshu" compiled in the late 1st to early 2nd centuries AD (Ban Gu 1962), and the "Hou Hanshu" compiled in the 5th century AD (Fan Ye 1965). The former two sources contain chapters which specifically address the Xiongnu empire and its constituents (chapters 110 and 94, respectively), though both sources are limited to the centuries before the Eastern Han dynasty (i.e. before 25–220 AD). The "Hou Hanshu" focuses on this later period, but events and peoples of the Xiongnu steppe polity appear scattered throughout narratives of different chapters. This later encyclopedic history provides a chapter on the "Southern Xiongnu" (chapter 89) – the entity established in the mid 1st century AD along the northern Chinese frontier by a competing claimant for the Xiongnu imperial rulership – but, unlike the previous two sources, does not contain a specific chapter on the larger northern steppe polity[3].

These texts contain valuable resources for reconstructing the social, economic, and political dynamics of the Xiongnu empire, yet they are not without their constraints. Aside from the limits to the uppermost echelons of the Xiongnu polity and the biases of the Chinese narrators (see Di Cosmo 2002), researchers face temporal, regional, and even socio-cultural confusions when using these sources, especially the "Hou Hanshu". While the "Hou Hanshu" is based on accounts that were inherited from the time of the Eastern Han, and which are no longer extant, this historical encyclopedia was compiled centuries after the falls of the Xiongnu and Han empires. Furthermore, descriptions of the political hierarchy and of significant clans and leaders in chapter 89 are not of the Xiongnu steppe empire but of the Southern Xiongnu entity[4]. In ad-

3 The "Hou Hanshu" narratives refer to the Xiongnu empire as the "Northern Xiongnu", although no steppe rulers accepted this title until the empire disintegrated. Once the Southern Xiongnu entity was established, Chinese chroniclers focused on this buffer state between the Han empire and the steppe empire further north. Little information is given for the politics of the Xiongnu empire from the establishment of Punu chanyu in 48 to the death of Youliu chanyu in 87 AD; even names of the chanyu rulers between them are unknown.

4 Although the structure of the Southern Xiongnu establishment certainly derived from the political traditions of its northern neighbor, slight differences in the ranks of royal clans or political hierarchy may be a result of regional developments or changes over time, which were then recorded for "Xiongnu" groups in northern China as they were understood in the 5th century AD.

dition, texts of the numerous dynasties that rose in the centuries immediately following the fall of the Han empire speak of "Xiongnu" groups and leaders of "Xiongnu" heritage establishing new ruling courts across northern China. Although these dynasties, alongside the Southern Xiongnu, may be discussed within the broader framework of studies of the Xiongnu phenomenon and its legacy, they should not be confused with discussions of the Xiongnu steppe empire.

Besides the dynastic histories, writings from the larger body of inherited texts of the Han empire, which address the Xiongnu empire, include the "Xinshu", or "New Book", by Jia Yi[5]. This collection of works of the early Han politician contains a chapter called simply "Xiongnu" and presents a version, rewritten much later and perhaps infused with anachronistic elements, of a proposal by the court advisor on how to undermine the Xiongnu polity and its ruler. This chapter directly addresses the political subordinates of the chanyu ruler, but is still limited to discussions of those who held significant political power. The corpus of inherited texts has also been augmented in the last century by excavated texts, discovered at Chinese frontier garrisons in the vicinity of Juyan and Dunhuang, which not only give insights into the activities of small bands of northern herder groups within the territories of the Xiongnu empire but also begin to reassess the meanings, connotations, and uses of the "Xiongnu" ethnonym as a collective term for people from the northern steppes (Giele, this volume).

In order to attain more comprehensive understandings of the social, economic and political aspects of these northern nomad groups, researchers must first come to terms with the implications of the label of "Xiongnu", which is known to us from Chinese records and too often uncritically applied as a unifying ethnonym to all material remains in the steppes. Second, researchers must address the preponderance of archaeological agendas, and even conclusions, about these Inner Asian groups that are guided by the assumptions of traditional interpretations of historical narratives. It is important, however, to note the difference between narratives contained in the original writings and subsequent narratives constructed via historical interpretation and filtering of those writings, the latter of which is often placed at odds with material remains.

The most often cited notion from the Chinese texts, whether used as the basis for a paradigm of steppe peoples or as the proverbial straw man in critiques of predominant narratives, is that of the wandering nomad. Historical narratives of the Xiongnu have characterized them as "wandering from place to place pasturing their animals…They move about in search of water and pasture and have no walled cities or fixed dwellings, nor do they engage in any kind of agriculture" (Watson 1961b, 129). The original wording of the text, however, may more accurately be translated as:

隨[草]畜牧而轉移…逐水草遷徙(毋)[無]城郭常(處)[居]耕田之業. (Sima Qian 1959, 2879)[6].

"following [grass] the livestock are pastured and shifted in migration…pursuing water and grass [they] move to change [residence]; [they] are without walled cities or constant places [of residence] or endeavors of tilling fields". There is thus a significant, and as of yet seldom noted, disparity between the meandering movements presented in the Watson translation and the de-

5 A searchable version of the "Xinshu" 新書 by Jia Yi賈誼 may be found printed in: D. C. Lau (ed.), A Concordance to the Jia Yi Xinshu (Hong Kong 1994). The collected works of Jia Yi (201–169 BC) that we know as the "New Book" is a newer edition, compiled in the late first century BC, of an original version that no longer exists.

6 A parallel version of this is written in the "Hanshu" (Ban Gu 1962, 3743). In this later instance, the noun "grass" (cao草) does appear after the initial verb "follow" (sui隨), and, in the second phrase, "do not" (wu毋) is replaced with "have no" (wu無) and "place" (chu處) is replaced with "residence" (ju居).

signed and oriented migrations recorded by the original scribes[7]. Scholars of the Xiongnu must therefore shift from archetypes of the "wandering nomad" to considerations of various degrees of mobile and pastoral lifestyles[8]. This variety is especially important when considering large states like the Xiongnu which encompassed vast territories and varied regions.

While narratives of the Chinese historians are certainly laden with overgeneralizations and misconceptions of life ways and engagements of peoples in the northern steppes (Di Cosmo 1994; 2002, 272–273), archaeological and historical scholars alike need to acknowledge the problems inherent in these phrases not only via the dispositions of ancient Chinese narrators but also due to issues of translating the original Chinese documents into modern languages – in this case, English. The use of these altered versions without taking heed of potential discrepancies may easily lead to misunderstandings of the original historical narratives and the information contained within them.

Just as material remains do not constitute a collection of readily apparent facts about past social and economic practices, so should the written records be deemed subject to interpretation or, more importantly, re-interpretation in light of further discoveries of documents or comparisons with archaeological evidence. In order to achieve more balanced and integrated historical archaeological investigations of the Xiongnu, we must incorporate the entire spectrum of material remains and consider the dynamics apparent within them as simultaneously contrasting with and correlating to narratives constructed from the historical records[9].

MATERIAL REMAINS AND ARCHAEOLOGICAL AGENDAS

Archaeological studies conducted in northern China, Mongolia, Transbaikalia, and the Russian Federation represent distinct regions of remains that have generated relatively independent scholarly circles, each of which investigate what are called the "Xiongnu", "Khünnü", "Khunnu", "Khunnu-Sarmatian", or sometimes even "Eastern Huns". Although scholars within these distinct circles are cognizant of findings and studies within other regions, they have seldom integrated data of more than one region, much less all related regions. Instead, linguistic differences and the partition of remains between national borders have perpetuated the scholarly discord, and studies continue to be constrained to micro-regional perspectives of a macro-regional entity. This book endeavors to reconcile such rifts by addressing findings within all regions and of all various types and, in turn, considering interregional differences and similarities and (re)assessing attributions of the label "Xiongnu" to these findings.

From the end of the 19th to the beginning of the 20th century, the polish doctor and anthropologist Iu. Tal'ko-Gryntsevich excavated numerous burials in Transbaikalia (Tal'ko-Gryntse-

7 An additional parallel phrase in the "Shiji" (Sima Qian 1959, 2899) and "Hanshu" (Ban Gu 1962, 3760) describes movements of the herders as "accord with periods/seasons to shift in migrations" (隨時轉移), a description which more closely corresponds to ethnographically documented scheduled patterns of mobility among herders in Mongolia.

8 See M. E. Fernandez-Gimenez, Sustaining the Steppes. A Geographical History of Pastoral Land Use in Mongolia. Geographical Review 89, 3, 1999, 315–342.

9 The dual consideration of 'contrastive' and 'correlative' contexts of correspondence for archaeological and historical data sets is outlined in A. Andrén, Between Artifacts and Texts: Historical Archaeology in Global Perspective (New York 1998).

vich 1999). He was the first scholar to classify tombs according to their method of construction, and within this typology he suggested that one particular group of an earlier phase had been built by the people known from Chinese written records as the Xiongnu[10]. Based on continued excavations in the Transbaikal area, this category was later further divided into one type of burial with "larch coffins" (Dyrestui type) and another type of "larch burial chambers" (Sudzha type)[11]. After initial discoveries by A. Ballod at the beginning of the 20th century of tombs at Noyon Uul that he labeled as belonging to an "unknown people" (see Ivanov, this volume), further excavations in the 1920s of ostentatious chamber tombs at the site confirmed the correlation of such burials to remnants of the Xiongnu, and this attribution has remained unquestioned ever since.

The number of findings in China, Russia, and Mongolia attributed to the Xiongnu grew in the 1970s and 1980s, though at that time minimal communication between archaeologists working in China and those excavating in Mongolia and Siberia was possible, not to mention within each of these scholarly circles. The body of findings grew tremendously with the political and economic changes of the 1990s, especially in Mongolia, where various international collaborative teams have since conducted numerous investigations of remains deemed to be from the period of the Xiongnu empire. As is often the case in the history of archaeological research, for which Europe may here serve as a comparative case, archaeological interpretations of existing material – namely, dating, culture-historical attribution and relations with distant regions – seem clear in the beginning. But as the corpus of information grows, the picture becomes increasingly blurred. More detailed and abundant information is unearthed to the point that the body of data must be sorted anew. In the case of northern China, recent comparative investigations have demonstrated that many of the remains unearthed in the 1970s and 1980s that were initially attributed to the Xiongnu, such as Taohongbala (Tian 1976) and Aluchaideng (Tian/Guo 1980a), are more appropriately regarded as local culture groups distinct from the material culture recognized in Mongolia and Siberia as "Xiongnu" (Wu'en 2007; 2008).

Presently, there exist four fully excavated and (almost) completely published cemeteries: Ivolga (Davydova 1996), Dyrestui (Miniaev 1998), Burkhan Tolgoi (Törbat et al. 2003) and Daodunzi (Ningxia et al. 1988). Aside from the features at these sites, thousands of tombs have been recorded in Transbaikalia (e.g. Konovalov 1976) and above all in Mongolia (Fig. 1). To the great benefit of the field, information and images from older excavations conducted in Mongolia have recently been compiled in handbooks (Xiongnu tombs 2008) and catalogues of Xiongnu archaeology, some of which appear in the present year, 2011, in honor of the 2,220 year anniversary of the Xiongnu empire[12].

In many instances, larger cemeteries, and the larger graves within them, have naturally attracted the attention of archaeologists. The most prominent interments are those which archaeologists in Transbaikalia initially identified as tombs with "larch burial chambers", tombs that still captivate the attention of archaeological expeditions (see Yun/Chang, this volume). Present classifications make a general distinction between two prevailing types of burials:

10 Iu. Tal'ko-Gryntsevich, Arkheologicheskie pamiatniki Zabaikal'ia. Trudy Moskovskago predvaritel'nago komiteta arkheologicheskago s'ezda 12, 1905; see also Ta'lko-Gryntsevich 1999, 120 p. and Miniaev 1998, 7 pp.

11 See the summarizing argumentation of G. P. Sosnovskii, Derestuiskii mogil'nik. Problem istorii dokapitalisticheskogo obshchestva 1935, 168–176. Г. П. Сосновский, Дэрэстуиский могильник. Проблемы истории докапиталистического общества 1935, 168–176, esp. 172.

12 D. Tseveendorzh/Ts. Törbat (eds.), Xiongnu Encyclopedia (Ulaanbaatar 2011). Д. Цэвээндорж/Ц. Төрбат, Хүннү судлалын толь бичиг (Улаанбаатар 2011).

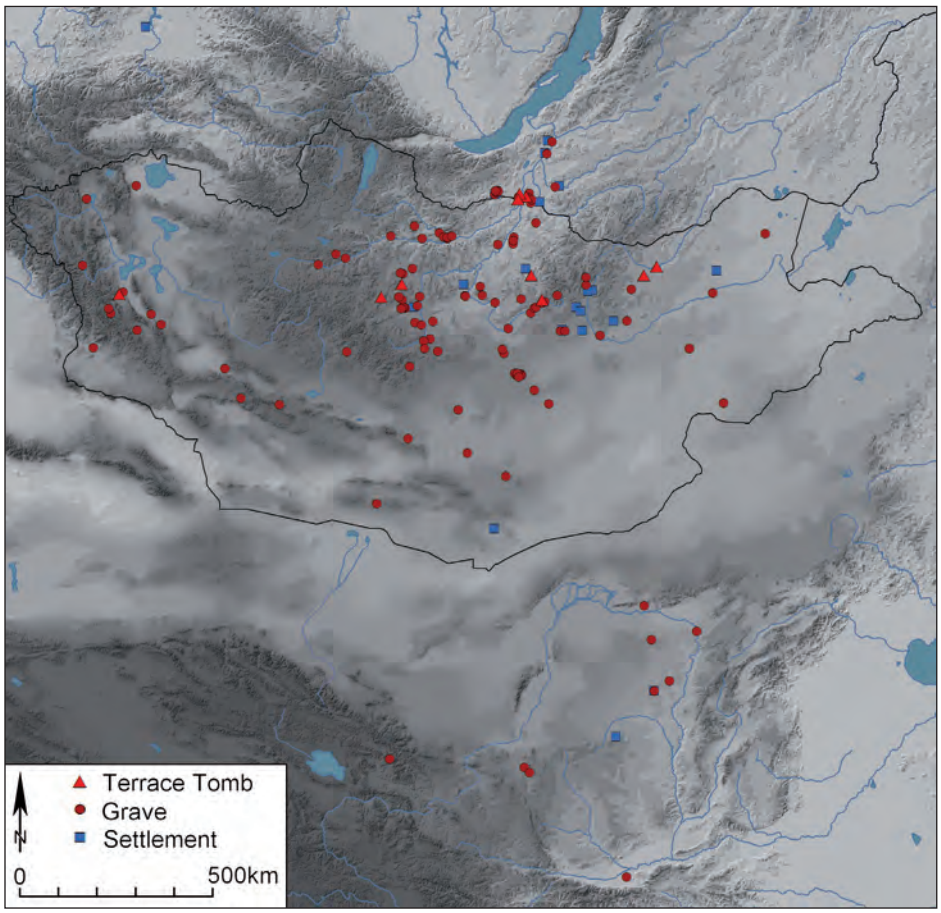


Fig. 1. Latest compilation of Xiongnu period sites by Ts. Törbat and B. Miller (after Tseveendorzh/Törbat 2011, see footnote 12).

(1) monumental ramped terrace tombs which are often flanked by smaller "satellite" burials, and (2) "circular" or "ring" burials. This division has been equated to a difference between "elite" and "commoner" graves, but such an explanation of this division is called into question not only by its simplicity and ignorance of the nature of the mortuary investments and typically luxuriant burial assemblages but also by the discovery of other lesser interments that do not qualify as either of these types. Excavations at Ivolga (Davydova 1996) and Dyrestui (Miniaev 1998) cemeteries, as well as more recent work at Baga Gazaryn Chuluu (see Nelson et al. 2009a; Amartüvshin/Honeychurch 2010) and Shombuuzyn Belchir (Miller et al. 2011), have shown that numerous burials exist that have no significant surface markings or are only marked by a small collection of stones on the surface. Such burials have thus far only been detected as a result of systematic investigations, especially paying attention to spaces between larger burials, conducted within cemeteries initially identified by the more prominent circular burials. In light of these discoveries, the previous bipartite classification of Tal'ko-Gryntsevich and others, as well as the interpretations of this classification, needs to be updated and reconsidered.

Several huge "aristocratic" cemeteries with numerous terrace tombs have been studied in Transbaikalia and central Mongolia at the sites of Il'movaia Pad' (Konovalov 1976; 2008a; 2008b), Noyon Uul (Rudenko 1969; Polos'mak et al. 2008a; 2008b; 2008c; Tseveendorzh et al.

2008; 2010), Gol Mod 1 (Mongolie 2003; Desroches/André 2007; Eröol-Erdene 2004; 2007a; 2010), and Gol Mod 2 (Miller et al. 2006), as well as Duurlig Nars in eastern Mongolia (Yun/Chang, this volume; Duurlig Nars 2009), and Takhiltyn Khotgor in western Mongolia (Navaan 1999; Miller et al. 2008; 2009b). Some cemeteries with only a handful of terrace tombs have been discovered, such as Tsaram in Transbaikalia (Miniaev/Sakharovskaia 2002; 2007a; 2007b; Miniaev/Elikhina 2009), and Orgoiton in Tuva (Nikolaev 2010). Structural and size differences between terrace tomb sites have not been fully investigated, though such differences may relate to finer socio-political distinctions within the ranks of imperial "elite", slight dissimilarities in site functions, or even regional variations within the territories of the Xiongnu empire (see Miller, this volume). What can be said of these huge terrace tombs is that they are located only north of the Gobi, mostly within central Mongolia and southern Transbaikalia. Furthermore, they are a late phenomenon of the Xiongnu, known, at the earliest, from the second half of the 1st century BC onwards (Brosseder 2009). Despite individual differences, the uniformity in their furnishings is striking, with similar repertoires of Chinese metal and lacquer vessels and textiles as well as items from Greco-Bactrian realms. Inventories from the 1920s Noyon Uul excavations have long served as the foundational collections for studying these monumental tombs, though discussions of these interments have been augmented by findings from recent excavations. Nevertheless, our fundamental understanding of these tombs will only advance once the inventories, furnishings, and structures of the more recently excavated terrace tombs at Noyon Uul, Duurlig Nars, Tsaram, and Gol Mod 1 have been fully published and studied.

Thorough excavations of terrace tomb 54 at Il'movaia Pad' (Konovalov 2008a; 2008b), tomb 7 at Tsaram (Miniaev/Sakharovskaia 2006; 2007a; 2007b; Miniaev 2009), and tomb 64 at Takhiltyn Khotgor (Miller et al. 2008; 2009b) – including satellite burials and peripheral offerings as well as entire structures of tomb pits and wooden chambers – have demonstrated that careful and comprehensive documentation allows for insights into the complexity of ritual activities conducted. A greater emphasis on ritual activities, which constitute central elements of culture and social interaction, helps to refine our comprehension of the role of terrace tombs within Xiongnu society. Studies of the creation of these tombs have more recently been complimented by studies of their destruction (e.g. Brosseder 2009), which is an equally important aspect of site formation processes (c.f. Nelson et al., this volume). Tomb 7 at Tsaram, for instance, has yielded evidence of ritual activities for the consecration of the tomb, via the deposit of a burned and broken Chinese bronze mirror in the "door" section at the end of the tomb ramp, while also exhibiting evidence of two separate instances of tomb robbing (Miniaev/Sakharovskaia 2006; 2007a; 2007b). Careful documentation of a tomb pit at Duurlig Nars provides insights into the complex methods of tomb robbing via a wooden cage-like construction used to penetrate the tomb mound and breach the burial chamber beneath (see Yun/Chang, this volume).

Despite all these efforts at terrace tombs sites, certain questions remain for which we do not presently have answers. Even though we now know the general time span of terrace tombs in Xiongnu society, we do not know, for example, the time spans of individual terrace tomb cemeteries – i.e. when these large cemeteries were first used and for how long they were in use. This is a critical issue for understanding how such necropolises were used by the local community, which buried their dead there, and by the networks of political elite that ruled and governed the polity. This would require systematic research in different areas of the large necropolises and the testing of several burial clusters with absolute dating of appropriate

materials[13]. In some of the cemeteries, for example Gol Mod 1 (Desroches/André 2007) and Gol Mod 2 (Allard et al. 2002), several places occur in the burial grounds where only "circular burials" are visible. The question remains as to whether these are synchronic interments of a different and spatially separated social group, or perhaps interments of an earlier or later period. More importantly, we must formulate testable hypotheses, beyond the simple "elite" vs. "commoner" conceptualization, as to which members of Xiongnu society were interred in those monumental cemeteries, and in particular the terrace tombs. The total counts of all burials, considered across their chronological spread, seem considerably few in relation to probable population estimates of the steppes during the centuries of the Xiongnu empire (e.g. Honeychurch et al. 2007a), and, furthermore, less than one fifth of documented "Xiongnu" burials are terrace tombs. These monumental tombs are thus most likely burial forms developed later in the Xiongnu empire to differentiate between particular groups of Xiongnu "elite" (Miller 2009).

These studies of emerging differences in mortuary arenas, and the possible bifurcation of the Xiongnu "elite", should be linked to empirical investigations of the overall social dynamics of communities manifested in mortuary arenas, which have only begun to be analyzed (e.g. Kradin et al. 2004; Honeychurch et al. 2007a; Brosseder 2007a). This requires greater attention to the more standard burial sites, as the so-called circular graves comprise the majority of recorded interments. Even more so, mortuary studies should focus efforts on smaller sites and smaller interments at the spatial and social periphery of the ostentatious tombs that characterized the beginnings of the field of Xiongnu archaeology[14]. The difficulties at hand of such investigations are obvious, as the overwhelming majority of steppe burials bear traces of destruction and burial assemblages are often grossly incomplete. This therefore demands more careful excavations, to recover as much information as possible from the disturbed burials, as well as detailed reports of the data recovered, rather than brief reports which mention only a handful of choice finds.

Mortuary remains have been the primary source not only for material cultural studies but also for physical anthropological studies of the people that occupied the steppes in the late Iron Age. Such studies have, in their long history, focused on identifying the Xiongnu population as a whole. This began as early as the studies of Iu. Tal'ko-Gryntsevich at the end of the 19th century, and has been a dominant thread of anthropological investigations through metric, nonmetric, and, more recently, DNA analyses[15]. The continual macro-regional scale of these inquiries, regardless of changes in analytical techniques, has perpetuated the basic premise that the people interred in burials attributed to the Xiongnu empire constitute a single identifiable "Xiongnu biological group". Any sets of human remains that appear to deviate from a formulated standard of a Xiongnu biological group are explained away as members of an intruding population into the ranks of the Xiongnu people, or even as evidence of "racial toleration" within Xiongnu society (Kim et al. 2010), rather than as data which might alter our understanding of the genetic makeup of the steppe populations or challenge models of the Xiongnu as constituting a coherent biological entity. Biodistance studies of human remains from these burials

13 For a discussion of appropriate and informed sampling for absolute dating of mortuary remains in the case of Xiongnu period materials, see Brosseder et al. 2011.

14 See, for example, excavations of the small hinterland cemetery of Shombuuzyn Belchir in the Mongolian Altai (Miller et al. 2011).

15 See, for example, cranial studies in D. Tumen, Antropologicheskaia kharakteristika khunnu Mongolii. In: R. S. Vasil'evskii (ed.), Drevnie kul'tury Mongolii (Novosibirsk 1985); D. Tumen, Paleaoanthropology of Ancient Populations of Mongolia. Mongolian Journal of Anthropology, Archaeology, and Ethnology 2, 1, 2006, 90–108.

could then move beyond broad models of admixture and migration and ideally refocus their attention on intra-regional and intra-site variability in the steppes that would, in principle, contest the premise of a coherent Xiongnu population and provide a finer resolution for understanding dynamics of interaction within the territories attributed to the Xiongnu empire[16].

In recent years, bioarchaeological studies of the Xiongnu have begun to incorporate other research methods and agendas explored by archaeologists in different regions of the globe to address life ways and issues of diet, health, and disease (e.g. Machicek, this volume; Nelson et al. 2009a). In particular, isotopic analyses of human samples from different regions of Iron Age Inner Asia have demonstrated that diet among steppe peoples was much more variable than stereotypical "nomadic" subsistence modes imply and included an array of intake more complex than the milk-and-meat model of consumption (Machicek 2011). For example, some reservoir effects traceable in human bones result from the intake of old-carbon which possibly indicates a diet that included fish consumption in certain areas (Brosseder et al. 2011). In addition, isotopic analyses of faunal remains allow for a more diverse understanding of herd management, and thereby subsistence strategies and economic systems (Makarewicz, this volume).

Although pastoralism was clearly the dominant portion of the steppe economy, historical and archaeological evidence also attests that agriculture was a notable component (Di Cosmo 1994), seen in agricultural tools at walled sites (e.g. Davydova 1995) as well as charred remains of grains found at small "campsites" (Wright et al. 2009). A clearer understanding of the distribution of agricultural endeavors within the territories of the Xiongnu, the ways in which agricultural products were integrated into steppe economies, and the role agricultural products played in a predominantly pastoral subsistence base are all critical issues to understanding economic dynamics of the steppes that have yet to be clarified (see also Bemmann, this volume).

In addition to subsistence economies, craft production and the distribution of products in exchange networks, are also in need of more empirical research. Initial steps that were undertaken through technical analyses of craft goods (e.g. Miniaev 1980) have led to more recent advanced materials analyses and better understandings of production and distribution systems within the realms of the Xiongnu (Mongolie 2003, 137 pp.). A study of pottery from a handful of Xiongnu sites in Transbaikalia and the Russian Altai demonstrated the use of regional clay deposits by several nearby groups, while only a limited amount of pottery appears to have moved between different regions (Hall/Miniaev 2002). Recent metallurgic analyses have demonstrated local production of foreign-style prestige goods (see Khavrin and Tishkin, this volume) and attested the presence of steel production (Park et al. 2010) in the steppes. Although iron working facilities have been discovered at permanent settlement sites (Davydova 1995), slag remnants have also been found among the remains of seasonal habitation sites (see Houle/Broderick, this volume), thus attesting to the broad distribution of iron production within the Xiongnu realms. Despite evidence for production, almost nothing is known about mining or the procurement and processing of natural ores. The only hint so far of the capabilities of mining may be in discoveries such as the wooden cage construction and the shaft technique of the looters at Duurlig Nars (see Yun/Chang, this volume).

16 See, for example, the DNA studies done on the human remains of Burkhan Tolgoi cemetery (Keyser-Tracqui et al. 2003). The importance and feasibility of smaller scale bioarchaeological investigations is presented in C. M. Stojanowski/M. A. Schillaci, Phenotypic Approaches for Understanding Patterns of Intracemetery Biological Variation. Yearbook of Physical Anthropology 49, 2006, 49–88.

Scholars are still in need of a better understanding of production, distribution, and utilization of objects among the late Iron Age groups. A structured approach couched in the paradigm of "châine opératoire" would allow for a consideration not only of the equipment, facilities, environments, and energies applied but also the skills and values that are created and employed in the endeavors of products and the social systems of "everyday life" within which they operated[17]. This would enable us to better evaluate the movement and exchange of ideas, technologies, objects and even people between and within regions of the Xiongnu.

Incorporation of habitation as well as mortuary data is necessary for a finer understanding of the networks of social and economic interaction within the steppes and with outlying regions. While the field of Xiongnu studies began with a focus on large burials, the importance of settlement data was also realized at a very early stage[18]. The first extensively excavated settlement was the walled site of Ivolga (Davydova 1968; 1995), where numerous pit houses within a three-tier concentric wall-and-ditch arrangement were uncovered. The discoveries and excavations of Dureny (Davydova/Miniaev 2003) and Boroo (Erdélyi 2001; Ramseyer et al. 2009) also attest to the existence of permanent settlement sites with houses but no walled enclosure. Most recently, studies of non-permanent habitation sites of the Xiongnu period have developed through surface and sub-surface surveys, which evaluate sherd scatters and other deposits of seasonal "occupation areas" of mobile groups in the steppes (Wright et al. 2009; Houle/Broderick 2010 and this volume). These types of sites, and the materials found therein, are adding important data for considering all manners of habitation and settlement patterns, as well as clarifying subsistence economies and craft production at more local scales. Both seasonal and permanent non-walled sites together raise the possibility of many such sites beneath the surface, which are not as obvious as those with above-surface features that more easily attract the attention of archaeologists. One may suppose, then, that a disproportionate amount of settlement research has been done on walled sites. Even so, aside from the extensive excavations at Ivolga (Davydova 1995), investigations of walled sites have been limited to test pits and trenches across only the prominent features of walls and platforms within the enclosures (e.g. Perle 1961) rather than investigating the "empty spaces" within. Danilov (this volume) has proposed a typology of these sites based on preliminary studies. Yet, for numerous walled enclosures which are likely to be attributed to the Xiongnu period, there is still lacking a collective chronology. Furthermore, there is no comprehensive or clear understanding of walled sites, especially those without visible interior structures (see Purcell/Spurr 2006; Bemmann, this volume), or of the possible activities and occupants within their vicinities. A ceramics kiln found by the riverside at Khustyn Bulag, Töv aimag (Mon-Sol 2001) yielded comparable pottery and tile sherds to those at the nearby walled site of Terelzhiin Dörvölzhin (Danilov/Tsydenova, this volume), thus demonstrating the importance of contextualizing walled sites within their greater surroundings (cf. Bemmann et al. 2011).

While some of the archaeological investigations of the past century have resulted in approximate site plans for these cemeteries and walled sites, more recent archaeological projects have begun to not only pay closer attention to site documentation (with detailed maps and precision surveys) but, furthermore, to lead the way in regional studies that contextualize individual sites of all manner within broader ritual, social, and political landscapes, as demonstrated with the

17 C. Renfrew/P. Bahn (eds.), Archaeology. The Key Concepts (London 2005) 25 pp.

18 G. P. Sosnovskii, Nizhne-Ivlginskoe gorodishche. Problem istorii dokapitalisticheskogo obshchestva 7–8, 1934, 150–156. Г. П. Сосновский, Нижне-Иволгинское городище. Проблемы истории докапиталистического общества 7–8, 1934, 150–156.

extensive and intensive surveys in Egiin Gol valley (Wright et al. 2009), Baga Gazaryn Chuluu area (Amartüvshin/Honeychurch 2010), Khanui valley (Houle, this volume), Tsenkher valley in Khovd (Miller, this volume; Williams 2008), and Orkhon valley (Bemmann et al. 2011; Bemmann, this volume). This contextualization of sites includes not only the number, distribution, and variable activities of the more prominent cemeteries and walled sites but also their relationship – whether as centers of ritual, seats of political power, hubs of craft production and exchange, or agricultural support bases – to the social, political, and economic landscapes of the Xiongnu empire[19].

Such larger deliberations also raise the issue of mapping the Xiongnu empire through the use of material remains[20]. Regional studies have begun to place distinct areas within greater discussions of the organizational nature of the Xiongnu macro-regional polity (Honeychurch/Amartuvshin 2006a; Holotová-Szinek, this volume) and, more importantly, expand these regional considerations into discussions of the extent of the Xiongnu empire and the nature of its peripheries (Miller, this volume). Associated with such investigations of the peripheries are the recently rekindled interests in explorations of sites along the frontier in the Gobi desert via the remains of Han Chinese fortresses (Amartüvshin et al., this volume; Kovalev et al., this volume). With the advantage of satellite imagery, parts of the "walled" frontier between the steppes and the southern neighbors are now becoming more visible. The presence of Chinese garrisons in the southern edge of modern Mongolia, well outside the traditionally accepted Great Wall frontier area of the Ordos in northern China, greatly alters our understanding of the extent and nature of this famous frontier and of the nature of frontiers in general[21]. Although these Han forts reconfirm the heavily militarized character of this frontier, military engagements were certainly not the only manner of interaction that took place in this region[22], and we should consider cultural and economic exchanges as well as military altercations within the peripheries of the Xiongnu empire (cf. Alconini 2005). For example, if we consider the central issue of border markets mentioned in the historical narratives of Han-Xiongnu diplomacy, did forts such as Baian Bulag (Kovalev et al., this volume) play any role in economic exchanges or perhaps even function as markets? To such inquiries archaeology can contribute evidence and perspectives that might help overcome a possible one-sided historical view. Once sites associated with the Xiongnu phenomenon (even, indirectly, Han forts and cemeteries attributed to the Xianbei and other steppe groups) and their "hinterlands" are more fully and systematically incorporated into research, we may begin to address the *limites* of the Xiongnu empire (see Scheidel, this volume), its sphere of influence, and its interactions with exterior cultures and polities. Again we could draw on the comparative case of the *limites* of the Roman empire that has been researched over a long period of time.

Studies of Xiongnu foreign relations have focused predominantly on interactions with the Han Chinese as well as non-Chinese groups within the Han empire or neighboring it. The materials employed in such studies have ranged from prestige goods to human remains, though

19 The concept of landscapes comprises political, social, ritual, habitational, and economic complexes, as well as the standard ecological and geographic understanding. See K. F. Anschuetz/R. H. Wilshusen/C. L. Scheik, An Archaeology of Landscapes: Perspectives and Directions. Journal of Archaeological Research 9, 2, 2001, 157–211.

20 For an overview of archaeological approaches to identifying and delineating imperial polities, see B. J. Parker, Archaeological Manifestations of Empire: Assyria's Imprint on Southeastern Anatolia. American Journal of Archaeology 107, 4, 2003, 525–557; and C. Glatz, Empire as network: Spheres of material interaction in Late Bronze Age Anatolia. Journal of Anthropological Archaeology 28, 2009, 127–141.

21 See contributions to the edited volume L. Rodseth/B. J. Parker (eds.), Untaming the Frontier in Anthropology, Archaeology and History (Tuscon 2005).

22 See the reassessment of this frontier zone in N. Di Cosmo, The Origins of the Great Wall. The Silk Road 4, 1, 2006, 14–19; Di Cosmo 2009.

scholars have yet to fully question the acculturative assumptions of Han Chinese goods in Xiongnu contexts (cf. Miller 2009) or, as mentioned above, to critique simplified models of population migration and admixture in biological and even cultural arguments[23]. Although recent archaeological studies have begun to reassess the nature of Han-Xiongnu interactions and their material manifestations, understandings of the Xiongnu are nevertheless still dominated by a paradigm of relations with China. A growing body of "Xiongnu" material remains along other frontiers (see Miller, this volume) and evidence of interaction between the Mongolian steppes and areas further west demonstrate the importance and complexity of interactions with other regions of Eurasia (see Brosseder, this volume). The dominant focus should thus be shifted towards a broader Eurasian perspective of interregional interaction and intraregional change.

Defining the Xiongnu

The research materials and agendas introduced above hinge upon two fundamental topics of defining the Xiongnu in space and time, which may be seen as (1) an archaeological determination of the Xiongnu and (2) periodizations of such an archaeological culture(s) associated with the Xiongnu. Before we address the issue of identifying "the Xiongnu" in the archaeological record, however, we must first literally come to terms with the nature of the historical label "Xiongnu" and how it may be considered within the realms of archaeological investigations. Abundant literature on this exact problem of has been created over the past century by archaeologists and historians who have studied the early medieval periods in Europe, where, at least structurally, the same issues are encountered. It is not our intention to give a full account of the existing relevant literature here, though a great repertoire of topics and the state of research can be found in collections such as the seminal series "Transformation of the Roman world"[24].

To begin with, the name "Xiongnu" is first and foremost a label that was used by Han court historians in discussions of diplomatic and military dealings with the northern steppe leaders and their constituents[25]. Yet, just as some historical narratives propose that "those who draw the bow" may be claimed as "all are Xiongnu" (Sima Qian 1959, 2896), so have modern scholars employed the designation of "Xiongnu" as an umbrella term not merely for the polity mentioned by Chinese chroniclers but for all of the peoples within that polity and thus have masked diversity within. The term "Xiongnu" is more a socio-political designation and does not denominate a coherent entity of people with the same language, same ethnic affiliation, a uniform biological heritage or a completely homogeneous archaeological culture (see also Di Cosmo, this volume). Regardless of summaries which might resemble so-called ethnographic descriptions of the "Xiongnu people" (Di Cosmo 2002, 255 pp.), the broad name of "Xiongnu", used in the

23 G. J. Armelagos and D. P. Van Gerven rightfully criticize worn out agendas and paradigms that are recycled even in light of newly developed analytical techniques: A Century of Skeletal Biology and Paleopathology: Contrast, Contradictions, and Conflicts. American Anthropologist 105 (2003), 1, 53-64.

24 For example, H.-W. Goetz/J. Jarnut/W. Pohl (eds.), Regna and gentes. The relationship between late antique and early medieval peoples and kingdoms in the transformation of the Roman world. Transformation of the Roman world 13 (Leiden, Boston 2003); see also Pohl 2002.

25 E. Giele (this volume) demonstrates that records kept at Chinese frontier garrisons tended to use the label "Xiongnu" only in correspondences with officials at the imperial capital, and otherwise tended to refer to "other" peoples in less cultural terms such as "(northern) barbarian" or "enemy".

Chinese texts to denote a unified macro-regional polity, should not be equated to a macro-regional unvaried ethnic group. Even Chinese historical records show instances where monolithic ethnic labels break down. They recount that some "Xiongnu" groups began to call themselves "Xianbei" as the Xiongnu steppe empire disintegrated (Fan Ye 1965, 2896). One specific example may be seen in a group called the "Yuwen Xiongnu", which eventually disappeared from the texts and was replaced by mentions of a group called the "Yuwen Xianbei"[26]. Such instances call into question the precision, much less permanence, of the name Xiongnu as a collective label, especially in light of the existence of other cultural labels that seem to retain relatively more permanence. Instead, local and intraregional variability should be addressed alongside interregional similarities and evidence of connectivity related to the historically documented Xiongnu empire.

If we take "empire" as a suitable descriptor for the Xiongnu – a term invoking the incorporation of certain political strategies and systems that united disparate groups, rather than a categorical type of polity in a developmental scheme – then we speak of a political entity among the Xiongnu groups that synthesized distinct regions and groups of varying cultural, ecological, and social features across broad territories via a formalized integrative imperial system[27]. Discussions of "the Xiongnu" may thereby be couched within investigations of systems of the steppe polity, its manifestations within local and regional social and economic developments, and the strategies which ruling groups in the steppes employed to keep some semblance of order and legitimacy over vast regions of different lands, cultures, and peoples.

In our opinion, the major problem in studying the "Xiongnu" is that archaeologists have not yet fully defined the "archaeological culture(s)" or "archaeological cultural groups" of Southern Siberia, Mongolia and Northern China in the late Iron Age[28]. Such a definition would have to start with defining and mapping types of burials, burial rites, settlements types, goods assemblages and many more cultural traits, down to single artifact types. Once such maps were created, one would have on hand an empirically conveyed foundation for defining an assemblage of such traits, which may be deemed a single "archaeological culture" and may or may not result in the identification of "cultural core(s)" and "frontiers", as well as delineating areas of greater or lesser adherence to such an assemblage of traits and thus integrating discussions of cultural, social and economic diversity within.

A significant agenda in Xiongnu research is still the integration of results from archaeological studies with results from historical studies. One key problem here is the multiple manifestations of identity and their relationship to modern scholarly interpretations of identity for individuals related to the Xiongnu phenomenon. What forms of identity are expressed by material remains and what identities are taken on by individuals that may or may not find expression in the archaeological record? For example, did the Chinese who defected into the ranks of the Xiongnu groups or the Han royal princesses who were sent as diplomatic tribute to the chanyu rulers, after years of living among the northerners, begin to identify themselves as "Xiongnu" and forsake all sense of "Han" identity? How did the steppe communities in which they lived view them?

26 J. Holmgren, Annals of Tai: Early T'o-pa history according to the first chapter of the Wei-shu (Canberra 1982).

27 Alcock et al. 2001; Goldstone/Halden 2009; Parker 2003; Scheidel, this volume; Di Cosmo, this volume.

28 See also Bemmann, this volume; Di Cosmo, this volume; Brosseder et al. 2011; on the concept of "archaeological culture" see H.-P. Wotzka, Zum traditionellen Kulturbegriff in der prähistorischen Archäologie. Paideuma 39, 1993, 25–44; Reallexikon Germanische Altertumskunde XVII (2001) 442–452 s. v. Kulturgruppe and Kulturkreis (S. Brather); S. J. Shennan, Archaeological Approaches to Cultural Identity. One World Archaeology 10 (London, New York 1989).

Biochemical or bioanthropological studies may be able to determine that such people are not originally from those areas or are not related in any way to the members of those communities, yet the determination of an individual as a biological outsider of a community is significantly less complex and less involved of a process than the determination of their exact origin. Furthermore, such issues are markedly distinct from the identities – cultural, social, political or otherwise – that those people take on.

In a converse situation, are there any individuals who may have identified themselves, or been identified by others, with the Xiongnu entity yet exhibit no elements in their burial practices or personal trappings that would indicate this? Chinese archaeologists refer to 12 of the 182 brick chamber tombs at the cemetery of Shangsunjiazhai, Datong, Qinghai province, which were constructed in typical Eastern Han style and contained assemblages of wholly Chinese goods, as being interments of "Xiongnu" people[29]. The reasoning behind this attribution lies solely in the discovery of small bronze seals, which are topped with crouched camels and bear inscriptions that designate the interred individuals as "Xiongnu chiefs" who had surrendered to the Han. If not for these seals, then archaeologists would otherwise have considered the occupants to be Han Chinese (Ma 2005, 366).

We may purport close associations between the historically attested Xiongnu political entity and a relatively homogeneous assemblage of cultural traits, as do numerous archaeological investigations of states and empires (e.g. Morris/Scheidel 2009), yet we must be cautious of exact equations between these two categories. Even more dubious, however, are the equations of cultural assemblages to ethnic and biological designations, as is demonstrated with many remains like the "Xiongnu" tombs in Qinghai. In short, researchers must refrain from interchanging a defined archaeological or material cultural group with an ethnic group, language group, or biological group. Neither should the extent of an archaeological culture necessarily be equated to strict borders of a polity, as spheres of political integration may or may not extend beyond areas of coherence of material culture. Each of these distinctions should remain separate, since they describe different conceptual categories, and should be discussed jointly only in later phases of analysis.

The second fundamental issue for Xiongnu archaeology revolves around the periodization of remains. When exactly did what we refer to as "Xiongnu material culture" come into being in northern China, Mongolia, and Transbaikalia? If, as has been recently suggested, we can trace Xiongnu material culture in Mongolia and Transbaikalia only back to the 1st century BC and onwards (Miniaev/Elikhina 2009), then how do we understand cultural and social dynamics from the 4th through the 2nd centuries BC, which is the critical period during which the Xiongnu polity emerged in the steppes and became the dominant hegemonic power in Inner Asia? And how do we account for transitions from the so-called slab grave burial culture of the early Iron Age to the "Xiongnu" material culture? Only with a more thorough chronology can we develop a fuller understanding of the emergence of a material culture that can be attributed to the Xiongnu historical phenomenon. Questions on the "origin" of the Xiongnu might then be reformatted to incorporate the possible threads of cultural traditions which have been purported to contribute to the emergence of a Xiongnu archaeological culture from the slab burial culture of central Mongolia (Törbat 2004; 2006), the various "barbarian" cultures in the Ordos

29 Qinghai sheng wenwu kaogu yanjiusuo青海省文物考古研究所, Shangsunjiazhai Han Jin mu上孙家寨汉晋墓 (Beijing 1993).

(Wu'en 2007), and perhaps even the stone slab burials of the Xiajiadian and other groups in Manchuria (Miniaev 1985; 1998). We may also then be able to address the emergence of elements of "Xiongnu material culture" in the Western Regions, or even critique claims of the emergence of Xiongnu materials further west in Ferghana or Sogdiana, and the degrees of involvement by the Xiongnu in cultural politics and political economies of the Silk Roads.

The need for periodization refers not only to the identification of beginning and end dates of material attributed to the Xiongnu phenomenon, but, more importantly, to possible sub-periods within the temporal span of the Xiongnu, in order to identify particular developments. While in the initial stages of archaeological research it was sufficient merely to date sites via Chinese imported goods such as mirrors[30], present research agendas demand refined chronologies. We may draw again on comparative cases of the Roman empire and northern "barbarians" of Europe, whose graves were sometimes furnished with Roman imported goods and in the early years of research they were used to provide *termini post quem* for those burials. Today research has progressed beyond such broad temporal determinations and a much better understanding of the circulation of the goods has shown that dating through imported goods is only helpful if we understand the cycles of distribution and the "social lives" of such objects[31]. With only *termini post quem* gained from Chinese foreign goods, we do not gain any finer understandings of an internal "Xiongnu" chronology, since we know relatively little about the duration of use and circulation of objects such as mirrors and coins. In some cases it has become evident that the time of deposition of Han Chinese mirrors in burials, determined by scientific methods of absolute dating of other materials in the burials, differs greatly from the proposed (relative) date of their original production (see Brosseder et al. 2011). The establishment of a finer relative and absolute chronology should thus become one of the prime objectives in Xiongnu archaeology and could present challenges to previous archaeological perspectives and traditional historical narratives.

Despite the presence of numerous unanswered questions, what has been accomplished thus far demonstrates that Xiongnu studies engage the most thoroughly investigated and, as of yet, best archaeologically documented case of an imperial polity in Inner Asia. The relatively significant amount of material remains presents a unique opportunity to approach the goal of Geertz's "thick" description[32], and the variety and span of evidence enables scholars to address the emergence of such polities in steppe societies, how they managed to integrate different cultures and lands, and how we, as archaeologists, define and redefine social, economic, and political complexity among mobile pastoralists.

30 For problems with this see for example the study of Lai 2006.

31 A. Appadurai (ed.), The Social Life of Things: commodities in cultural perspective (Cambridge 1986).

32 C. Geertz, Thick description. Toward an interpretive theory of culture. In: The Interpretation of Cultures. Selected Essays. Reprint (New York 2006) 3–30.

ETHNOGENESIS, COEVOLUTION AND POLITICAL MORPHOLOGY OF THE EARLIEST STEPPE EMPIRE: THE XIONGNU QUESTION REVISITED

Nicola Di Cosmo

It is generally assumed that the Xiongnu were the first steppe empire, but how did such an empire come about[1]? This is, for Inner Asian history, a "foundational" question, which, if answered, would considerably advance the field of Xiongnu studies, and more generally that of Inner Asian history. My purpose in this essay is not to provide a complete summary of our present state of knowledge regarding the Xiongnu, which, as will become apparent, is simply impossible to do at the present time, but to highlight the limitations of such knowledge and discuss the usefulness of certain assumptions and theories.

In the first part of this essay I shall illustrate some of the issues that various approaches to Xiongnu studies entail, focusing on history, archaeology, genetic studies, and anthropology. In the second part I will focus on some characteristics of the "morphology" of the Xiongnu empire, which have led me to question the usefulness of the "coevolution" thesis, or, in fact, of any thesis based on the assumption that frontier dynamics between China and the Xiongnu could be regarded as the chief "locus" of the formative stages of the Xiongnu political culture and of its imperial evolution.

History

Most of what we know about the Xiongnu as a historical phenomenon is based on Chinese sources, in particular the "Shiji", the "Hanshu" and the "Hou Hanshu", written between the second century BC and the 5th century AD[2]. The description of the Xiongnu that we receive from these written records essentially provides no account of the history of the Xiongnu prior to the establishment of their empire or the narratives of their relationship with the Qin and the Former and Later Han dynasties. Mentions of the Xiongnu in other sources, such as the "Zhanguo ce" (Strategies of the Warring States), are also extremely few.

1 Cimmerians and Scythians were also powerful steppe peoples, but on the basis of the extant sources we cannot say that these formed "empires", if, by empire, we mean a political entity that grows by integrating its constituencies into a unified and centralized structure. Among them, the Royal Scythians mentioned by Herodotus constituted probably an elite aristocratic stratum, but there is no evidence that the presence of nomadic aristocracies amounted to a politically unified empire. At the same time, it can by no means be excluded that the political culture of the Scythians was shared broadly across the steppe region.

2 For a quick reference see E. P. Wilkinson, Chinese History: A Manual. Harvard-Yenching Institute monograph series 52 (Cambridge, Mass., London 2000) 781–788.

The question of their "origin" is represented in a historical narrative that conflates at least three types of "peoples". First are the peoples that were the ancestors of the Xiongnu as the "historical enemies" of China (Xunyu, Xianyun, Rong, Di, etc.), located in the north, who had been at war with the Zhou and various states in the remote past. Secondly, we have the Xiongnu as an ethnographic "type", that is, the typical steppe nomads who lived in tents with no fixed abode, tended their animals, roamed the land in search of grass and water, and did not practice agriculture. The people who actually called themselves Xiongnu form the third type. Of them, we know also the names of three, and perhaps four clans of the royal aristocracy, the personal names of their supreme chief, "shanyu" or "chanyu", and the titles of the top positions in their government. Moreover, the Chinese written sources include a collection of "Xiongnu" words that have long been mined for hypotheses on the linguistic and possibly ethnic identity of the Xiongnu, ranging from Siberian (Ket) to Iranian and Turkic.

On the methodological level, no attempt has been made thus far to unravel the meanings of the various terms of identification that we find in the Chinese sources in reference to the Xiongnu or related peoples, such as Hu, Lin Hu, Dong Hu, Loufan, etc., and for the time being we can say remarkably little about them. For instance, was the name Xiongnu an ethnic term that later became a political term to refer to all of those "nomads", and possibly non-nomads, who were members of the Xiongnu empire? What was the relationship between "Xiongnu" and Hu, two names that at times seem to be interchangeable? And of course we have questions about the linguistic identity of the Xiongnu or regarding the relationship (ethnic, cultural or political) between Xiongnu and European Huns, which have been debated for many decades and recently revived respectively by A. Vovin (2000) and È. de la Vaissière (2005)[3].

After several decades of debates, questions related to the ethnic or linguistic identity of the Xiongnu are still unanswered. Likewise, the possibility of finding in Chinese sources clues about the "roots" of the Xiongnu phenomenon is faint at best. Over the past 30 years or so archaeological, anthropological, and, more recently, genetic explorations, have added new dimensions to our understanding of Xiongnu culture, identity, and socio-political formation. These studies have incrementally added to our knowledge of the "Xiongnu phenomenon" and opened new avenues and hypotheses of study. At the same time, the general picture of the emergence and duration of the Xiongnu empire in its historical and cultural dimensions has become far more varied and complex.

ARCHAEOLOGY

The identification of a distinct "Xiongnu culture" in archaeology depends on what is meant by "Xiongnu". If by "Xiongnu" one means a steppe culture located in a given region and within a certain historical period that coincides with the assumed Xiongnu supremacy in the same area, then, as long as certain characteristics of the material culture of its sites are broadly consistent, it is perhaps possible to speak of a "Xiongnu culture". On the other hand, no historical event or historical representation of the Xiongnu other than in very rare cases can be firmly connected

3 For a different view, which argues against the identification of Huns and Xiongnu as well as in support of a different transcription of the term Xiongnu in Middle Chinese, see Beckwith 2009, 72 and 404–405.

with an actual Xiongnu archaeological culture or population. The ethnic identification of historical peoples in archaeology is an old problem that requires theoretical awareness and sophistication[4], and the archaeology of the "Xiongnu," extended as it is over vast and diverse regions, has to pay special attention to the implications of such identifications.

If in Central Asian and eastern European archaeology the term "Scythian" is widely used to describe a specific type of steppe mounted nomadic culture that extended far beyond any identification with the historical Scythians described by Herodotus, in Chinese or Mongolian archaeology, then, a similar "all-encompassing" cultural term does not exist. Some Russian archaeologists reject the blanket term "Scythian" because it erases important differences between local cultures[5]. Yet, for the purpose of a broad typological and cultural description, with no pretence of relationship with the written records, the term "Scythian" preserves a certain usefulness. On the other hand, the proliferation of cultures identified exclusively by the names of typesites makes it difficult to recognize broad cultural complexes and phenomena at any scale that exceeds the "microregional" and local levels[6]. One could talk for instance of the "Scythian" cultures (plural) of the Urals, of the Altai, or of the Black Sea region just to indicate a familiarity of features that does, by no means, exclude local characteristics and even specific local names. Therefore, it may be possible to identify a "Scythian" element in the Pazyryk culture even when local features make such a culture unique and different from other "Scythian" sites.

In contrast, for the pre-Xiongnu cultures of northern China coeval with the nomadic, "Scythian" cultures of central Asia from the Baikal to the Black Sea, we do not have an umbrella term that would allow the recognition of broadly similar cultural features associated with the emergence of mounted nomadism. The term northern zone, "beifang diqu", often used in Chinese archaeology to indicate the emergence of early nomadic cultures, is purely geographical, and other terms drawn from the traditional written sources (Di, Rong, Hu, etc.) cannot be used as overarching cultural terms because of their specific historical associations. The absence of a term descriptive of a cultural phenomenon creates the distorting impression that the emergence of mounted steppe nomadism, amply documented in the archaeological record, and certainly connected on the basis of its material culture to a broader Eurasian phenomenon, can be reduced to a series of local expressions. Sites defined by ethnonyms such as Rong, Di, Shan Rong, Qiang and others, or simply identified by their typesite, as in the case of the Yanglang culture, are therefore disconnected from the general appearance and affirmation of pastoral nomads as new historical subjects. On the other hand, when the term Xiongnu is used to identify archaeological sites typically dating from the 3rd century BC onwards, the impression generated is that such sites – often displaying a broad range of cultural expressions – were not just culturally related but belonged to a new political configuration: the Xiongnu empire. The artificial break between pre-Xiongnu and Xiongnu cultures in northern China implied by the unwarranted attribution of a variety of ethnic terms remains one of the most insidious theoretical obstacles to understanding the evolution of the steppe nomads of ancient China. The assumption, archaeologically undemonstrated, of a late 4th or 3rd century BC break between an inaccurately identified series of pre-Xiongnu cultures and a unified Xiongnu culture prevents a clear understanding of actual breaks and continuities. Influences over long and short distances, and affinities with other cul-

4 For a review of some of the theoretical work see Emberling 1997.

5 See, for instance, the critique of the use of the term "Scythian" in Yablonsky 1995.

6 See, for instance, the study by Iu. Khudiakov (1996), in which a variety of cultures and sites of the Altai, Tuva, and Central Asia are grouped under the "Scythian" and "Hunnic" general term.

tures over a long period of time, that is, the first seven or eight centuries during which northern Chinese cultures of the steppe nomadic type seem to have evolved.

As a general term of reference, the term Xiongnu could be accepted in the same way that "Scythian" or "Hunnic" are accepted in other parts of Central Asian and Siberian archaeology. But in this case to what period should it apply? Why should it coincide necessarily with its appearance in the Chinese written records? If, on the other hand, the late and more evolved nomadic phenomenon represented historically by the Xiongnu can be taken as different from the pre-Xiongnu phase, than another term should be applied to the earlier nomadic cultures. These pre-Xiongnu cultures of northern China share essential features and collectively constitute an archaeological phenomenon certainly not identical but most likely comparable, in terms of the evolution of pastoral nomadism, with the emergence of Scythian cultures in western Eurasia, the Altai, and South Siberia.

In Mongolian archaeology, we see today yet another configuration. Here the "Xiongnu (Khünnü) period" is dated roughly from the 2nd century BC to the 2nd century AD, followed by a non-descript phase, a blank spot that continues until the "Turk" period, dated from the 6th century. First, it is necessary to bear in mind that the association between the historical Xiongnu empire and the nomadic culture that emerged in Mongolia around the 1st century BC, which is characterized by large necropolises and elite burials, has yet to be demonstrated. To the north of the Gobi desert we sense a development that enfolds the entire nomadic world and that was possibly accelerated by the Xiongnu expansion and "imperialization" of vast areas of the steppe region but that may not be necessarily fully coincidental with or causally related to it.

In various regions of Mongolia, "Xiongnu" necropolises, settlements and other sites have been documented. Some of the burials, similar to the tombs excavated by Russian archaeologists in Noyon Uul in the 1920s, are monumental in size and belonged to an "elite" that had access to vast local resources as well as imported Chinese goods (Brosseder 2009). However, this consideration does not mean that we do know in what form the Xiongnu established themselves in Mongolia. Excavated sites that, based on the diversification of burial structures, indicate the existence of an Iron Age aristocracy in whose hands political and military power was concentrated, do not automatically call for an imperial structure. Several aristocratic groups that exhibited a common idiom of taste and forms of representation of elite status might have established their independent authority over certain territories without being bound to a centralized political structure.

For instance, let us assume, following the general wisdom: the Xiongnu empire was a confederation of ethnically and linguistically diverse peoples first established in what is today Inner Mongolia, to the south of the Gobi desert. As the Xiongnu expanded territorially, their dominion would also come to include peoples in the north. Empowered by the Xiongnu, a new aristocracy, remarkably homogeneous in terms of its own social and political identity, would emerge, thereby establishing power centers across Northern Mongolia. However, their political unity, as we know from the historical records, was fragile, and in practice may have vanished with the secession of some chieftains to China already in the 1st century BC. As the Xiongnu became further fragmented during the 1st century AD, these elites may have developed into separate political entities in localized power bases. Politically speaking, they returned to what they were at the beginning of the Xiongnu expansion, but redefined themselves in terms of the imperial ideology imported by the Xiongnu. Their "grandeur" of authority, power and imperial symbolism is visible in the size of the burials and by the local and Chinese luxury goods that accompanied the deceased. It is also not to be excluded a growing Xianbei presence in Mongolia, although their archaeological presence, to my knowledge, has yet to be identified.

The fact that such "royal" burials are missing in Inner Mongolia, however, still constitutes a problem when we wish to establish a link between the Xiongnu of the Ordos and surrounding areas and the Mongolian "Khünnü". Perhaps the emergence of strong local centers of power was a Mongolian development that followed the demise of the Xiongnu south of the Gobi. At any rate, if we accept that the Xiongnu were at some point "de-imperialized" and ceased to exist as a politically unified entity, it is highly probable that the "Xiongnu" archaeological sites and necropolises in Mongolia do not represent an "empire" at all, but instead reflect the presence of aristocratic power centers that overtime may or may not have reached a high level of political cohesion. If in their imperial condition they may have retained the collective name of Xiongnu, we might assume that in their non-imperial state they reverted to sub- or pre-imperial ethnic identities, whose historical reality is unknown to us, as neither historical nor archaeological records reveal to what "political configuration" a certain excavated site in Mongolia might have belonged.

An additional problem in Xiongnu archaeology consists of the difference between two completely separate spheres. One, in today's northern China, extends across the so-called Northern Zone of Shanxi, Inner Mongolia, and Liaoning. The other embraces Mongolia and surrounding regions, Transbaikalia, Buriatiia, Tuva and eastern Kazakhstan. These two archeological macroregions have been created by two quite separate traditions, namely, the Soviet-Mongol and the Chinese archaeological schools. Each of them defines its "Xiongnu" cultures in entirely different ways, both methodologically and typologically. In China, for instance, Xiongnu sites are identified largely under the influence of the historical sources. If, for instance, a northern non-Chinese site is located in an area and dated to a period consistent with the presence of Xiongnu people, it would be classified as "Xiongnu". In the Mongolian region, on the other hand, the identification is mostly based on elements such as the typology of the site and excavated artifacts. Another important difference is in chronology.

There are also profound differences in terms of the archaeological remains and the general context. One of the most puzzling, which I have already mentioned, is the absence, in China, of monumental burials comparable with those found in Mongolia. Moreover, Xiongnu settlements in Mongolia and Transbaikalia, such as Ivolga and the more recently excavated Boroo Gol (Ramseyer et al. 2009) show a level of social complexity that has not been fully documented in China. Our current knowledge of the material culture labeled "Xiongnu" in China is based exclusively on burial excavations at Ordos sites such as Maoqinggou, Taohongbala, and Xigoupan, but the class structure as well as the economic bases of the Xiongnu are poorly reflected in the architectural structures of the tombs and unevenly in their funerary inventories.

If we take the northern Mongolian sites at Egiin Gol, which have been attributed to the Xiongnu, this little resembles either a "Xiongnu" or any "nomadic" site found in China. The people of Egiin Gol were agropastoralists living in settlements. What is remarkable about changes in the "Xiongnu" period is the spatial reconfiguration of the distribution of sites, indicating, possibly, a more cohesive polity that unified the entire valley's population (Wright et al. 2009). If that is the case, and if the Xiongnu period is characterized by basic continuity in terms of material culture and genetic heritage, then the Xiongnu impact on the area is probably to be investigated at the level of a new socio-political articulation. The changes in the ability of elites to control larger swaths of land and to re-territorialize their population according to their needs, which may include economic production, mobilization for communal labor or defense, or control of trade routes, may be regarded as a more critical transformation than demographic re-

placements, changes in the material culture, or the acquisition of luxury objects from far-flung regions. Above all, the remains at Egiin Gol and other settlements attributed to the Xiongnu period, show the inadequacy of anthropologically-derived theories (to be discussed below) based on the notion that the Xiongnu were a people whose economy was based exclusively on animal husbandry.

The advances made by Mongolian archaeology in the past ten years or so, on the other hand, appear to widen rather than reduce the gap with the Chinese side of Xiongnu archaeology, as it seems to me increasingly difficult to apply models of social or political organization developed on the basis of the necropolises, large burials, and settlements excavated in Mongolia to the Xiongnu sites excavated in the Ordos and other areas of northern China. Only further explorations and closer collaboration between researchers working on both sides of the Gobi may clarify the nature of the connections – which surely exist but may be more anthropological than cultural or political – between the two "Xiongnu" archaeologies. For the time being, the Xiongnu phenomenon in archaeology appears fragmented, and methods of analysis as well as models of socio-political evolution are far from being able to embrace all of its aspects.

GENETICS

The youngest of the disciplines that have contributed to Xiongnu studies is genetics. The cold climate and often frozen burial conditions of Mongolia and Kazakhstan have preserved the genetic material in a good state of conservation and made it possible to extract DNA material. Aside from considerations regarding the methods of analysis, which remain controversial due to the intrinsic difficulties of the science involved, and are in any case beyond my competence, a problem often encountered is the overlap between a biological notion of population, and ethnic, political or cultural concepts of "people". This problem raises the issue of the validity of historically sensitive conclusions based exclusively or primarily on genetic data.

A recent DNA study found that an individual buried in a 2,000-year-old elite "Xiongnu" cemetery at Duurlig Nars, northeast Mongolia to be "Western Eurasian", that is, associated with a European haplogroup (Kim et al. 2010). This study elicits several possible questions. For instance, what is the relationship between "Western Eurasian" and the "Xiongnu" attribution of the site? Should we take the "Xiongnu" label attributed to the provenance site as a cultural marker or as an indication of a specific population type? Should one see the presence of non-East Asian individuals in a site that culturally and chronologically is undistinguishable from other "Xiongnu" sites as evidence of a cultural diffusion that extended across racial lines? Is "Xiongnu" a socio-political label for people who, regardless of their racial identity, displayed certain characteristics of elite status and aristocratic privilege widespread across the steppes during the early Iron Age period? The authors' conclusion that the presence of this individual indicated that there was "racial toleration" in the Xiongnu empire, however, assumes the existence of an imperial structure that certainly goes beyond the evidence provided either by the genetic samples or by the archaeological context.

On the other hand, careful genetic analysis can be very helpful in marking certain broad patterns of biological diffusion that can be historically significant, such as a study (Bennett/Kaestle

2006) of ancient DNA from human remains from Linzi (Shandong) and Egiin Gol (northern Mongolia)[7]. Linzi (Liangchun site) has been dated to about 500 BC and Egiin Gol ranges chronologically from approximately the middle of the 1st century BC to the 2nd century AD. While the geneticists assume that a certain number of events have taken place in the two regions, and that various groups may have been present at different times, they are careful to state that "the exact degree to which these various cultural and linguistic groups represented biological populations is debatable, and it is unclear whether the aforementioned changes were accompanied by the movements of such biological populations" (Bennett/Kaestle 2006, 414). The conclusions presented in this study, which is one of the most attentive in separating out biological and cultural or historical phenomena, is that the population of Egiin Gol was more similar to modern East Asian peoples, while that of Linzi, based however on a smaller sample, gives entirely different results, and rather showed an affinity with the west and especially with people such as Iranians, Turks, Iraqis, Hungarians and Slovakians. The population of Egiin Gol, on the other hand, firmly relates to northern East Asian peoples, such as Mongolians, northern Chinese, Japanese, Koreans and Xinjiang Han people. In sum, the article establishes that "whatever the exact interpretation of the genetic affinities of the Egiin Gol and Linzi populations may be, it is clear that they differ significantly" (Bennett/Kaestle 2006, 430). This type of study provides excellent evidence of the dynamism that existed in northern China encompassing both the Xiongnu and the pre-Xiongnu periods. The presence of a population in 6th-century BC Shandong that is closer to a Central Asian type and that is distinctly dissimilar from the northern Chinese may point to an early penetration in northern China of what is otherwise described as a Scytho-Siberian population. This fact may have some implications for the development of nomadic cultures in north China to which the Xiongnu may have been the successors. That the population of Egiin Gol does not show distinct differences with respect to northern China is interesting, but fairly consistent with other population data of Mongolia of the same period.

Various studies emphasize the connection between "Kurgan people" who were present in Central Asia and South Siberia, in particular the region of Krasnoiarsk, in the Bronze and Early Iron Ages and "European" haplogroups, thus establishing a genetic continuum across Central Eurasia and hypothesizing a long-range diffusion of a particular type of population (Keyser-Tracqui et al. 2008, Ricaut et al. 2004). The present stage of research seems to show the existence of a "fault-line" between Western Eurasian and East Asian population groups that runs from the territory around the Baikal lake through the Altai region in Western Mongolia, down to the Gansu region in the northwest, with possible "infiltrations" of people genetically related to "European-type" South Siberian and Central Asian population as far east as Shandong. Given that the data available is still extremely scarce and that research on ancient DNA is intrinsically unstable, as the results are subject to dangers of contamination and other technical pitfalls, it will take some time before one can genetically map the regions between South Siberia, Mongolia, and north China between the 8th and the 1st century BC. Nonetheless, we do know that during this time period of time it appears that something of critical importance happened in the development of mounted cultures of the "Scythian" type in East Asia, connected possibly to demographic, political, and cultural changes. In order to learn more about such developments new research hypotheses are required that take into consideration that this region not only reacted to changes occurring elsewhere (China or the Iranian world) but also produced transformations

7 For related studies see also Keyser-Tracqui et al. 2003; 2006; 2008.

within its own cultural sphere. It would then be possible to investigate whether such societies would have advanced not just in terms of technical progress and artistic production, as is amply demonstrated, but even more significantly through the emergence of new, internally generated forms of social and political organization.

What often complicates the potential usefulness of DNA data is the tendency of scientists to confirm rather than problematize and confute existing archeological or historical conjectures. For instance, DNA data is often taken as evidence of the fact that a given population *assumed* to have been "nomadic" was more likely to follow a certain pattern of "gene flow" by conquest, war, migration or other event, when neither the nature of "nomadism," nor the nomadic character of a population, nor the existence of such historical events can be demonstrated. For instance, an influential study on DNA material from a "Scytho-Siberian" kurgan in the Altai Republic (ca. 500 BC), assumes that the population in that place belonged to "nomadic tribes" fully distinct from agricultural populations (Ricaut et al. 2004). Such an assumption, however, should be verified from data that cannot be purely biological. This study's most intriguing contribution is that it demonstrates, by examining biological evidence that a connection existed between a given area at a specific point in time and populations of other regions. The authors are also on the whole cautious about making historical assumptions. Still, one has to guard against simplifying the socio-economic context to fit biological data. Instead, DNA data is most helpful when it leads us to re-think old theories and to modify them according to a comprehensive analysis. Future genetic research, complemented with archaeological and anthropological data, should indeed contribute to formulate more accurate historical hypotheses regarding population movements and localized demographic shifts, thus allowing a critical re-assessment of existing theories.

Theoretical Approaches to Empire Formation

While historical sources, material culture, and information gathered from the excavation of settlements and burials, as well as biological data, are essential to the definition of the Xiongnu as a historical, cultural and demographic phenomenon, the mere accumulation of data cannot answer the question of the formation of the Xiongnu empire. Historical anthropologists have given us their most important contributions, by proposing a series of models that might explain the rise of the Xiongnu empire in terms of state formation and the creation of larger societies in the steppes. In the present context I will limit myself to theories of state building and to conceptual questions that have collectively contributed to a general reflection of social change and imperial formation among the steppe nomads and the Xiongnu in particular.

The foundational work of O. Lattimore (1940) assumed the existence of a sharp divide – ecological, economic, and political – between pastoral nomads and agriculturalists in northern China. The rising specialization between the two "camps" increasingly created a situation of "dependency" of the nomads upon the agriculturalists of China, leading to dynamics sometime described as "trade or raid" (Jagchid/Symons 1989), that is, of forceful appropriation by the nomads of certain goods lacking in their own economy and society. In a nutshell, the rise of nomadic empires along the northern frontier of China was seen as a dramatization of that binary relationship provoked by the unification of China.

According to a well-known theory, the steppe nomads, and the Xiongnu in particular, formed "shadow empires" when China was unified, strong, and able to provide great quantities of "tribute" to a mighty nomadic confederacy (Barfield 2001a). The extractive power of the nomads was directly proportional to the military pressure with which they would challenge China, and the need for increasing their pressure when confronted with a stronger China led to the expansion of steppe polities and to the formation, eventually, of the Xiongnu empire. Important elements of this interpretation, derived from Lattimore's theories, are the notions of a sharp demarcation between steppe and sown, of the inherent need for nomads to supplement their imbalanced economic basis by imposing a tribute on China that would provide them with the products of agriculture, such as cotton and cereals, as well as with luxury products, such as gold and silk, and of the political relevancy of this dependency. As Barfield put it: "Empires established by nomads in Mongolia were distinctive "shadow empires" that arose as secondary phenomena in response to imperial expansion by the Chinese. Their stability depended on extorting vast amounts of wealth from China through pillage, tribute payments, border trade, and international re-export of luxury goods – not by taxing steppe nomads. When China was centralized and powerful, so were nomadic empires; when China collapsed into political anarchy and economic depression, so did the unified steppe polities that had prospered by its extortion" (Barfield 2001a, 10). In other words, the nomadic world united politically when it required an equal amount of "force" to be able to extract goods from a neighbor that had become not just richer but also more powerful.

This theory has been subject to critical assessments, based on both archaeological and historical evidence[8]. M. Drompp, for instance, after a careful review of the emergence of the first and second Turk and Uighur empires, concludes that "the picture of state formation and disintegration that emerges … is more complex than the model presented by Barfield suggests. We can see the importance of a multipolar system of diplomacy and trade, rather than the bipolar model upon which Barfield relies" (Drompp 2005, 109).

P. Turchin, an evolutionary biologist and anthropologist, has critiqued the theory of a sudden emergence of the Xiongnu empire and taken issue in particular with the notion of a "unidirectional" relationship between steppe and sown whereby nomads typically unify as a reaction to the unification of China to appropriate the riches provided by a wealthier agricultural world (Turchin 2009). After close examination of Barfield's "shadow empires" theory, Turchin first points to the absence of any actual "time lag" between the unification of China and the rise of steppe empires. Secondly, he underscores the fact that in several cases steppe states came into existence when China was weak and divided. Turchin also subscribes to the notion of the "imperiogenetic" (Turchin's word) role of frontier zones, but takes a much longer time frame, which leads to a theory of "coevolutionary" development of nomadic and agricultural societies.

His model, which he applies in particular to the Xiongnu, would lead us to consider a period of time of several centuries during which on both sides along the frontier between China and the nomads increasingly more complex polities were formed. As the smaller Chinese states were gobbled up by larger and more powerful ones, so did the nomads grow into more powerful "scaled-up" societies. According to this model we should not assume that the unification of China "generated" a steppe empire that would "exploit" and extract goods from China, but that the Xiongnu empire was the product of a long-term coevolutionary process on both sides of the

8 Among the most recent critics, see Beckwith 2009, 329 and pp.

frontier that drove the formation of at least two imperial polities. Unfortunately, while we know what happened in China, the existence of a parallel development in the steppe is purely hypothetical and to my mind impossible to demonstrate on either textual or archaeological grounds.

A related area of debate concerns the kind of "polity" (if we can use that term) that was created by the Xiongnu; namely, was it a "supratribal" state or was it a more complex version of a tribal chiefdom? The state-vs.-chiefdom debate has been embraced mostly by anthropologists. The issue revolves around the development of state institutions. In particular, scholars such as N. Kradin contend that an early state should have the following characteristics: (1) access to managerial positions by some kind of merit-based or, at any rate, extra-clan and non-kin-based selection; (2) regular taxation to pay the officials' wages; (3) the creation of a specialized judicial power separate from the political one; and (4) a class of state functionaries engaged in running a state machinery consisting of services for the administration of the whole political community. The Xiongnu "state", according to Kradin, did not satisfy these requirements other than at an embryonic level, and therefore should be considered not a state but a superior kind of "chiefdom", or, as it is defined here, a "super-complex chiefdom" (Kradin 2002b).

On the other hand, it is also possible to see the "early state" of the Xiongnu as articulated into distinct military and civilian apparatuses separate from kin-based hierarchies. The top commanders and functionaries received their wages, rewards or compensation (in whatever form) from a political center headed by the "charismatic" leader. This leader, the chanyu, was in charge of rituals and ceremonies that were meant to include the whole political community. Added to the aforementioned separation of the judicial power from the strictly political and military one, it may also be possible to regard the Xiongnu polity as closer to a "state" than to a chiefdom.

Looking at this problem from another perspective, it is quite clear that the survival of the Xiongnu as a unified polity depended upon the acquisition of external resources that were redistributed by the chanyu across the top echelons of the aristocracy and presumably "trickled down" to the lower rungs of society according to position held by various people within the state machinery (Di Cosmo 1999b). It is therefore a reasonable assumption that the "state" apparatus that had come into existence was maintained financially on the basis of a redistributive principle centered on both aristocratic privilege and social function. It cannot be doubted, given the complexity of the Xiongnu empire, that it included a large number of mid-ranking positions, such as heads of smaller military units, local administrators, and superintendents in charge of postal service, supplies and various departments that serviced the court and the aristocratic establishments. These people must have been supported according to principles that could not have been exclusively based on aristocratic lineage. We do not know exactly who occupied these positions in the Xiongnu empire, as we do not know who were the people in charge of a number of the 24 "Great Dignitary" positions, or how these were assigned. These positions were most likely subject to some kind of aristocratic monopoly, but this does not mean that all important positions in the realm were filled by members of the three royal clans mentioned in the "Shiji", which apparently constituted the sole aristocracy of the empire. Given the extent of the empire, and the number of peoples that converged into it, it is highly unlikely that all military and civil positions in the government, both centrally and locally, were the private domain of such an extremely restricted elite. The point is destined to remain moot for lack of sufficient information, but it cannot be simply assumed that access to the political, military, and administrative positions was exclusively based on kin-based selection.

Whether we accept the definition of the Xiongnu as a "state" or as a "super-complex chiefdom" there should be no doubt that it was an empire, that is, a political formation that extended

far beyond its original territorial or ethnic confines and embraced, by direct conquest or by the imposition of its political authority, a variety of peoples and lands that may have had different types of relations with the imperial center, constituted by the imperial clan and by its charismatic leader. Even if the Xiongnu as a polity do not satisfy the requirements for being regarded as an "early state", they still had the political ability and military power to create a "steppe empire". In other words, there would be no contradiction between being at the same time a "chiefdom" – in terms of the level of evolution of the administrative machinery, the specific quality of the sovereign's power, and the forms in which different duties (military, fiscal, or other) were allocated to the population – and an empire.

Character of the Xiongnu Empire

Current theories encounter difficulties not only when trying to determine the nature of the Xiongnu empire, but also in explaining the quantum leap from a relatively sparse society – where agropastoral communities lived in close proximity with more specialized pastoral nomads, neither especially powerful nor especially wealthy – to the imperial expansion that took place under the Xiongnu. Let us remind ourselves that the Xiongnu empire apparently extended from the Ordos to the Baikal and from Manchuria to eastern Kazakhstan, including under its dominion Mongolia, Northern China, the "oasis-states" of the "Western Regions" (Xinjiang), the Altai, Tuva, and Transbaikalia. What remains unexplained is how the Xiongnu could forge the necessary tools (political, administrative, military and ideological) extensively documented in Chinese records, without which, arguably, their imperial rise and expansion would not have materialized. The organization of the army, the imperial rituals, the government structure and politically centralized functions of trade and diplomacy all bespeak of a political machinery and imperial, or at any rate "supratribal", ideology that so far remains unexplained as to their origin and formation.

It may be argued that, if we have in the steppe gradually more complex and larger societies, the notion of a "supratribal" leader must have emerged some time before. The inner structure of the Xiongnu empire, whether we see it as a weak and developing state or as a particularly strong and successful chiefdom, cannot have been created by Modun as he proceeded to assemble an empire, and indeed existed already, as a non-imperial political entity, under the rule of his father Tumen, whom Modun defeated and replaced. If the imperial political and administrative "tool-box" of the Xiongnu was the product of social evolution, was this product internal to the steppe world's own development – making allowances for some external contacts, but only of an incidental and non-structural nature – or was it rather a frontier phenomenon, that is, the unique result of a long interaction with China made of mutual stimuli and "feedback loops" (to use Turchin's terminology)?

In order to begin to answer this question one has to look into the institutions that most clearly characterized the Xiongnu as an empire, and see whether it is possible to trace them to a potential source. I can see only three possibilities: a preexisting, but as yet historically invisible, steppe tradition of large supratribal polities, Chinese state institutions, or an imperial model imported from the West. Since the Xiongnu phenomenon has been assumed to be the product of the interaction between China and the nomads, and because of time-honored notions of Chinese cultural influence radiating into the surrounding areas and onto non-Chinese peoples, China has

long been considered as the only "originator" of an imperial ideology and practice. Hence, in this final portion of this essay I shall consider briefly a few elements that have been presented as evidence that the roots of the Xiongnu imperial formation should be sought in China.

It is possible that the appellation "Son of Heaven", if this is what the Xiongnu words "Chengli gutu" mean, as reported in the "Hanshu" (Ban Gu 1962, 3751), was added to the title "chanyu" (meaning "magnificence") for the Xiongnu ruler at a later, "imperial" time to provide a more universal meaning to a native title, and make it "sacral" in the sense of charismatic and supratribal (Pulleyblank 2000). Can then such a development be regarded as a direct loan from the Chinese idea of the "Son of Heaven" ("Tianzi")? To phrase it differently, can the idea of a "supratribal" head be derived from an existing Chinese notion of sacral kingship?

In my view the weight of the evidence speaks against a Chinese loan for two reasons. First of all the Xiongnu word "chengli" has been long ago reconstructed, rather uncontroversially, as the Turco-Mongol divinity "tengri". It seems to me impossible that a borrowing from China could also produce a native word different from the Chinese one. Moreover, the word "gutu", which the Chinese sources render as "son", has not been satisfactorily resolved etymologically. If the non-Chinese word "tengri" existed already in a Xiongnu context, there is no reason to believe that the concept to which it is closely associated, that is, a sacral, heaven-invested concept of sovereignty, did not also exist within a non-Chinese political context prior to the emergence of the Xiongnu empire[9]. The term "chanyu", or "shanyu", has been interpreted in various ways and linguistically associated by E. Pulleyblank (1962, 91) with a later Altaic word "dārγā", which again points to a body of political terms totally extraneous to the Chinese tradition.

Possibly the most compelling argument of Chinese influence has been made by Pulleyblank (2000) and anticipated by W. Samolin (1957/58). This is based on the Xiongnu government's characteristic to have officials "paired" into a "left" and "right" position for each title, whereby the left was the higher rank. From the early Zhou dynasty down to the Warring States and finally to the Qin and Han dynasties, several state titles in China were divided into two separate posts with a left and a right denomination, whereby the left indeed took precedence and represented a higher position than the right. According to Pulleyblank, this is because the ruler in China positioned himself in the north facing south, and the officials to his left (i.e., the east), took precedence over those to his right (west), as this was the direction of the rising sun. However this arrangement is especially relevant for Chinese ritual considerations (Graham 1986, 79–80; 82–84) and is not really consistent with what we know about Xiongnu rituals. We can see from a "Shiji" reference to a ritual performed by the chanyu that officials did not sit on both sides of the ruler: "When the chanyu in the morning leaves the camp, he prays to the incipient birth of the sun, in the evening, he prays to the moon. When they sit down, their senior officials sit on the left and face north" (Sima Qian 1959, 2892). What this means is that the chanyu faced south and the senior officials, all of them, not just those "of the left", sat on the side of the rising sun (east), left of the ruler, and faced north, that is, their gaze was directed to the ruler. Hence, the denomination of the officials as "left" and "right" does not apply, as far as we can see, to ritual considerations.

Going back to ancient China, inscriptions of the Zhou period bear evidence of the left and right pairing of official titles (Shaughnessy 1999, 320). In various Warring States governments

9 Note, incidentally, that the notion of sacral kingship embodied in the term "tian" and "tianzi", while it may have already existed as a political concept in China with the Shang dynasty, was certainly modified by the introduction of the deity "tian" by the Zhou. This was an external tradition possibly associated with Central Asia. See Chen Sanping, Son of Heaven and Son of God: Interactions among Ancient Asiatic Cultures regarding Sacral Kingship and Theophoric Names. Journal of the Royal Asiatic Society 12, 3, 2002, 289–325..

this separation either prevailed in lower-rank bureaucratic positions, or was reserved to some special titles, or was a vestigial "relic" of the Zhou state. In other words, right and left pairs of officials existed at different times and in various forms in Chinese history, but does it mean that the Xiongnu mimicked this system? In fact, the Xiongnu titles do not refer to the positioning of officials to the left and right of the ruler, but to a territorial organization of the empire that does not seem to find a parallel application in China. The systematic use of officials of the left and right reflects the existence of two branches of the government charged with the administration of the left (or western) and the right (or eastern) parts of the empire (Yü 1986, 385). While we do not know exactly how these two "branches" stood in relation to each other, and whether there was "mobility" of officials between them, there is no question that it reflects a regional or territorial structure fundamentally different from the Chinese one. Among the Inner Asian empire-builders that came after the Xiongnu, in particular the Turks, left and right represented east and west, and indeed the political bifurcation of the empire of the Turks, divided into an Eastern and Western half, is the closest representation of the left-right division of titles that we find among the Xiongnu. This is a principle entirely different from the left and right connotation in Chinese titles, as they were not based on a regional or geographical principle of state administration.

A third element brought forth in support of a Chinese influence consists of one sentence in the "Shiji" in which the Xiongnu appear to follow the same color symbolism as the Chinese. Pulleyblank (2000) and Ch. Chen (1989) noted a passage in which it is said that when Emperor Han Gaozu was surrounded by the Xiongnu cavalry, their horses were white in the east, blue in the east, black in the north, and red in the south. The passage in question reads as follows: "As for the Xiongnu cavalry, its western side consisted completely of white horses, the eastern side entirely of grey-spotted horses, the northern side was entirely [made of] black horses, the southern side was only bay horses" (Sima Qian 1959, 2894). The difference in the definition the horses' natural coloration shows that the symbolic association between color and direction is indeed there, and could be connected with the Chinese system of the Five Elements. But can these associations not have existed among the Xiongnu independently of China?

K. Chang, the preeminent Chinese archaeologist, saw a shamanistic substratum in early Chinese civilization of which color-direction correlations were one aspect (Chang 1989). The same reasoning could be applied, in my view, to the shamanistic world of the Xiongnu, which possibly shared the same substratum of natural associations and color directions that we may find in early Chinese and other Asian cultures. It seems to me, therefore, that the argument that the Xiongnu simply took over Chinese symbolism could be considerably less simple, and instead reveal a shared set of associations that may go back to a more ancient cultural stratum, as far as the early Bronze Age and even the Neolithic.

The weight of the evidence is definitely against any close resemblance between the Chinese and the Xiongnu empire. The decimal system of the organization of the army has its closest, and to my knowledge only parallel in the Achaemenid empire (Dandamaev 1989, 194; Briant 2002, 19). The ritual of mixing wine with the blood of a sacrificed animal when swearing an oath and then stirring it with a "jinglu" sword takes us to a Scythian world[10], as would the habit of taking enemies' heads in battle and being then rewarded with a cup of wine, which is a known

10 A description of a ritual oath-taking ceremony, in which such a blade is used, is given in the "Han shu" (Ban Gu 1962, 3801).

Scythian ritual. The very term of the sacrificial dagger, "jinglu" in Chinese, has been reconstructed by Pulleyblank as an Iranian word (2000, 63–64).

If we are looking for the "roots" of the political culture and institutions of the Xiongnu empire, they are not going to be located in China, or at very least a Chinese origin has yet to be demonstrated. As long as we can exclude a Chinese influence in shaping the morphology of the Xiongnu empire, it is difficult to endorse a "co-evolutionary" hypothesis, and we must therefore conclude that events occurring on the Sino-nomadic frontier, even if we take the long view proposed by Turchin, cannot be the sole catalyst for the emergence of the Xiongnu empire. Our discussion points, rather, to the existence of a cultural continuum between the nomadic world to the north of China and the "Scythian" Siberian and Central Asian cultures that does, in all probability, account not only for the substantial similarities in their material cultures, but also for the possible similarities in of forms of political organization whose paths and roots remain, to date, obscure. This conjecture is undoubtedly difficult to prove, and requires historians, archaeologists and other researchers to refocus their attention and investigate more closely the cultural and political relations within the "steppe" world. However, weaning ourselves off the notion that Xiongnu and China formed an exclusive relationship, and that the interaction between them was the birthplace of all that was complex and "evolved" in the Xiongnu empire, would be a positive step forward, that would allow researchers of different disciplines to consider hypotheses that linked the genesis of the Xiongnu empire – as well as on the ethnogenesis of the Xiongnu as a people – to the evolution of political cultures in various parts of Inner Asia. How to re-orient Xiongnu studies towards a greater integration of the disciplines involved and towards the elaboration of theories of the evolution of steppe nomadic polities based on internal dynamics, progress, and transformation is one of the most important challenges for the future advancement of our knowledge of the Xiongnu and of the history of ancient nomads.

EVIDENCE FOR THE XIONGNU IN CHINESE WOODEN DOCUMENTS FROM THE HAN PERIOD

Enno Giele

Basic Observations

Since more than two millennia the accounts about the Xiongnu in the first two Chinese standard histories, the Shiji (Sima Qian 1959) and the Hanshu (Ban Gu 1962), have been the only contemporary textual sources about the customs and history of the Xiongnu people. During the last century, ever increasing archaeological finds in the area that they once inhabited, especially fortified permanent settlements, have greatly altered our perception of the Xiongnu, even though there is always the problem of cultural identification of scriptless sites with names in the historical record[1]. However, archaeology has in fact also given us new epigraphic evidence about the Xiongnu. Remnants of administrative documents written with a brush and ink onto wooden stationery have been found in large numbers at the ruins of Han period border fortifications in the westernmost parts of Gansu province, ancient Dunhuang and adjacent areas, and Inner Mongolia, ancient Juyan and adjacent areas, since the beginning of the 20th century[2]. What is more, this type of evidence has been made much more accessible by electronic databases of transcriptions that are especially important research tools in light of the scattered and fragmentary nature of these documents as well as in light of the sheer number of the fragments[3].

Reviewing this epigraphic evidence, the general impression is two-fold: At first glance it seems that there is in fact surprisingly little substantial information about the Xiongnu as a people – not a great deal, at any rate, that goes much beyond what we know from the traditional sources about their customs, manners, rituals, language, political structure, and so on, let alone about major historical events. Of course, the material is limited by the nature of the sources, being fragmentary to begin with and being originally administrative records, mostly drawn up with the help of templates by half-literate border guards, not perceptive political analyses submitted by eloquent courtiers in memorials to the throne, unless inklings of these found their way to the border in the form of semi-public dispatches, nor thoughtful musings of leaders with the

1 For the newest summaries of archaeological sources from north of China throughout the ages, see Di Cosmo 2002; Psarras 2003 and 2004; Shelach 2009.

2 The main publications for the Dunhuang documents are: Dunhuang 1991 ("DHHJ+number" documents); Hu/Zhang 2001 ("DX" documents); and for the Juyan documents: Lao 1957 (for photos) and Xie at al. 1987 (for transcriptions) ("A+number" documents); as well as Juyan 1994 ("EP+number" documents) and Wei 2005 ("ES+number" documents). See also footnote 10 below. If not otherwise noted, all transcriptions are taken from these corpora.

3 The largest public database of this kind is still that by the Wenwu 1997. The total amount of this kind of manuscripts and fragments thereof runs into the tens of thousands. Not everything is published or even counted yet. Therefore, establishing databases as well as digesting the material is a never-ending work-in-progress.

intellectual acumen of a Julius Caesar writing about his enemies[4]. Yet, given that these epigraphic sources derive from the very front lines and have almost certainly been written by people who, if not daily, at least frequently were eye-witnesses to or bearers of first-hand knowledge and daily conversations about the Xiongnu – and whose very lives depended on that knowledge – the intelligence that can be gathered through these sources still seems surprisingly scarce. But that fact in itself perhaps conveys an important message.

At second glance, one will come to realize that, notwithstanding the first impression, the Xiongnu are in fact all over the place in these documents, only that they are mostly not identified as "Xiongnu" but simply as the "enemy" or "barbarians" or their presence is not even mentioned but implied by the context, a context, after all, that consists of border defense against exactly these people! That, too, is a crucial part of the message that is conveyed, if one matches these sources with the known historical record[5].

Notwithstanding the general lack of new information on the bigger issues of research on the Xiongnu, there is a wealth of details about mostly local incidents or situations related to the battle between the Chinese and the Xiongnu, particularly from finds published during the last two decades that – due to advances in both archaeological technique as well as experience of scholars in this sub-field of epigraphy – contain more manuscripts that are wholesome or at least less fragmented than specimens found and reconstructed in earlier decades. And while these details are of such a minute and local nature that their contribution to the overall historical, ethnographical, or linguistic picture that we have of the Xiongnu may in many cases not be immediately apparent, they shall be presented here, so that they can, hopefully, benefit and make sense to those who may have other parts of the puzzle available to them.

THE MATERIAL

I have used the following criteria to find and organize the available evidence pertinent to the Xiongnu: Keywords used to identify relevant manuscripts in electronic databases, Chronology, Types of documents, and Subject matters. These will be briefly discussed in turn and correlated with each other.

Keywords

As will be apparent from the basic observations presented above, it is not enough to simply key in the ethnonym "Xiongnu" into the search window of a digital database and expect to find all the relevant sources. As even a cursory browsing of these sources will tell, more often than not the Xiongnu probably have been identified in the documents as the "enemy" (lu) or the "bar-

4 In this respect, it is tantalizing to think about what could have been gained had the full version of the reports of the emissary Zhang Qian (d. 113 BC) survived, who went on a reconnaissance mission through Xiongnu territory and was held captive by them for more than a decade before completing his mission; see Loewe 2000.

5 It has, of course, also to be matched with the non-textual archaeological record, but this must be reserved for another study, as it would go beyond the limits of space available here. Here, I will concentrate on the textual sources.

barians" (hu) or even just "horsemen" (ji) outside the barrier. There is, of course the faint possibility that this refers to enemies of other ethnicities, especially proto-Tibetan Qiang, but the general location of the manuscript-producing sites, coupled with the fact that the Xiongnu were the most frequent and most feared attackers on the northern borders – indeed epitomized the notion of "enemy" at least for the Former Han – makes it most natural to assume that those general terms in the vast majority of cases referred to the Xiongnu. Unfortunately, using these terms in a keyword search produces far too many hits for any limited study to deal with. The practical, if not ideal, solution to the problem is to present an amalgam of all the results from searches with a few unmistakable keywords that produce a manageable number of hits, and a very limited selection of sources hand-picked from cursory browsing through the "enemy/barbarian" hit-list[6] as well as the publications of the manuscripts themselves, looking for documents that provide circumstantial evidence for the presence of Xiongnu, and other secondary literature. This is important to know, for it means that the sources discussed here represent but a selection that, though striving to include every important document, is doomed to fail with respect to comprehensiveness.

The keywords that I eventually used in the manner indicated above are:

- "Xiongnu" 匈奴, sometimes abbreviated to just "nu" 奴 (literally "slaves")
- Xiongnu titles or names, such as Chanyu/Shanyu 單于 (Khan), Rizhuwang 日逐王, Zhizhi 致支, or Huhan(ye) 呼韓（耶）
- "enemy" (lu 虜)
- "(northern) barbarians" (Hu 胡, sometimes the last two keywords are found in combination: "barbarian enemy", Hulu 胡虜)

Chronology

The majority of wooden documents from the Northwest in general are dated from about the time of the Informed Emperor (Xuandi, r. 73–49 BC) to the first years of the Latter Han (until 32 AD). Although dated documents from the time of the Martial Emperor (Wudi, r. 140–87 BC) and the Illustrious Emperor (Zhaodi, r. 86–74 BC), under whom the border fortifications were built and expanded, do exist, they are very rare. The same is true for documents from the time after 30 AD up to about the turn from the 1st to the 2nd century AD[7]. The time in between, i.e., the more than

6 No attempt has been made to systematically find sources through the keyword "horsemen" because they are legion and many of these no doubt refer not to Xiongnu but to Chinese cavalry.

7 There is, however, an interesting difference between the Juyan and the Dunhuang documents that may reflect different fates of these two areas with respect to involvement in border protection, if it is not merely due to the vagaries of archaeological discoveries: From the Juyan area we have an average of about 4 documents per year for the time from 90 to 74 BC, then an annual average of 12 documents for the years from 73 BC to 32 AD, after which the number of documents drops suddenly and rapidly to a mere trickle of 0.2 documents per year for 86–111 AD. From the Dunhuang area on the other hand, we have less than one document for most of the time, except for two peaks for the reigns of the Informed Emperor (r. 74–49 BC, 9 documents/year) and Wang Mang (r. 9–23 AD, 12 documents/year), as well as a slight, statistically perhaps insignificant, increase of 2–4 documents/year for the time between 3 BC and 8 AD. What is more, there seem to be no datable Dunhuang documents at all for the first ten years of the Latter Han period, while for Juyan that period is the most productive of all with an average of more than 15 documents/year. – Note that these average values do not include documents that do not carry dates but can be assigned to the Wang Mang period on the basis of the special terminology that was used during that period. This method of terminological dating is only available for documents of the Wang Mang period. If considered, these documents would push the annual average for the Wang Mang period to 36 documents for Juyan and 16 documents for Dunhuang.

two centuries before and after the beginning of the Common Era (AD), does of course roughly coincide with the slow demise of the Xiongnu, which can be separated into five phases:

Phase I (129–60 BC): a period of re-gained strength and self-esteem of the Han empire, starting when the Martial Emperor changed Han policy from a conciliatory to an aggressive one, started huge military campaigns in 129 BC, advanced fortifications deep into the Northwest up to Dunhuang and wrestled control of the regions west to it from the hands of the Xiongnu between 115 and 60 BC.

Phase II (60–36 BC): the major watershed in the battle for supremacy when around the middle of the 1st century BC, the Xiongnu split up into rival groups, the Rizhu King who was in control of the far West submitting to the Han in 59 BC, followed by the first-ever visit of a supreme Xiongnu leader, the Huhanye Khan of the southern Xiongnu groups, to the Chinese capital in 51 BC, despite highest honors bestowed on him, definitely understood by all involved as a nod to Han supremacy; and finally, the death of his brother and rival, the Zhizhi Khan, at the hands of a Chinese army in 36 BC.

Phase III (36 BC–10 AD): a period of close to 50 years during which relations were rather "cordial".

Phase IV (10–50 AD): renewed unrest starting in 10 AD[8], when the new emperor Wang Mang, after having managed to antagonize the Khan, sent out several armies to, unsuccessfully, try and split the Xiongnu empire into fifteen divisions, each headed by one of the fifteen sons of the Khan, and continuing throughout the instability and civil war in China after Wang Mang, that emboldened the Xiongnu even beyond the establishment of the Latter Han dynasty in 25 AD.

Phase V (50–91 AD): the final phase of the battle, that saw the renewed acknowledgement of Chinese superiority by the Southern Xiongnu many of whom were resettled as allies within Chinese borders from 50 AD onwards, while a bitter struggle for influence over the Western Regions between the Latter Han and the Northern Xiongnu continued until 91 AD, when the Northern Khan moved his court away into the Ili Valley and the Xianbei moved in to take the place of the Northern Xiongnu as the most important enemy of the Han to the north (Yü 1990).

Now what about our particular selection of documents? Only a dozen of the manuscripts assembled by the means of the keywords described above can be dated. But if anything, these dates exactly corroborate the picture of the general history. Here is the timeline:

Phase I: First reports about incursions of the "enemy" for the years 73 and 72 BC.

Phase II: Mentioning of the visit of the Rizhu King in 60 BC, as well as of a major situation that must have occurred sometime between 49 and 36 BC, because it specifically talks not only about the Xiongnu but also mentions Huhanye and Zhizhi as protagonists.

8 Yü 1990, 141, writes "A.D. 11". However, the incident of Wang Mang sending out the armies is recorded in the Hanshu under the 12th month of the 2nd year Shijianguo (始建國), only the last few days of which would correspond to January of the year 11. Relations between the Xiongnu and the new Xin dynasty of Wang Mang reportedly had already gone sour earlier, when in 9 AD Wang Mang's envoy had refused to provide the Xiongnu Khan with an equivalent for the Chinese seal he had had before (see Ban Gu 1962, 4119), though it is not impossible that this merely reflects the bias of the source against Wang Mang as an usurper and there was more going on behind the scenes also on the Xiongnu side than meets the eye. Yü (1990, 142) is perhaps right, when he points out that Wang Mang's plan of divide-and-rule was not, after all, completely unrealistic, as is proven by the fact that three of the Khan's sons accepted his offer.

Phase III: A hiatus, at least as far as dated manuscripts go. Perhaps unsurprisingly, no enemy activity was recorded until the time of Wang Mang.
Phase IV: This phase has produced the most documents, including two or three longer documents dated to the Wang Mang period and at least five documents for the years from 26 to 30 AD, all reporting about enemy raids.
Phase V: There are, again, no datable documents in our selection from this phase, not surprisingly, considering the generally small number of documents from this time and the diminishing importance of the Xiongnu.

The statistical basis is of course too small to be significant, but it may nevertheless be noteworthy that almost all the examples from phase IV speak of "barbarian enemy", if they do not mention the Xiongnu by name, while all earlier documents do not use "barbarian" and just write "enemy". It is not clear whether this reflects a change in the official terminology, such as is well-known for Wang Mang's reign, or whether it might even reflect some changed realities such as the advent of other northern peoples on the stage besides the Xiongnu[9]. If this holds any significance at all, it could be at least used to date some as yet undatable documents that speak only of an "enemy" to the time before phase IV, i.e., to Former Han.

Types of Documents

There is also a correspondence between the terminology used and the contents of documents, which is surprising only on second thought. The following contents can be distinguished:

a) Reports on enemy activities that were submitted from the frontlines to the local or regional headquarters. These contain reports about mere sightings, but more often about skirmishes, raids, kidnappings, killings. With very few exceptions, the amounts of enemy horsemen reported in such a way are not more than 100, often much less (Wang 2008, 303). The largest concrete number of enemy horsemen mentioned is 400–500 (in the document EPF16:44, 48 acc. to the reading of Wang 2008, 302). Documents of this kind account for the largest batch of the sources[10].
b) Alert dispatches that were forwarded from the headquarters to the front lines on account of such reports. This must have happened always when "large crowds" (dazhong) of enemies had been sighted amassing outside the border so as to prepare for an attack. These dispatches summed up the reports and urged the men to be on guard and keep the civilians and livestock inside protective enclosures[11].

9 It is known that from the late Former Han period onwards the Chinese made use of Xianbei soldiers to battle both the Wuhuan as well as the Northern Xiongnu (de Crespigny 1984, 291). But it seems that this happened more in the eastern than in the western theatre.

10 From Dunhuang: DHHJ 962; from Juyan (in chronological order): A8-57.29, 271.9, EPF16:36-53, EPF22:370-1, 432-4, 2000ES9SF3:4, EPT68.83- 92, EPF22:318-9. It is interesting to note that the chronological order of the manuscripts themselves also roughly corresponds to the different archaeological campaigns that brought them to light from basically the same site, i.e., the Jiaqu company fort, termed A8 in 1930-1 and EP in 1972-4. ES9 is the 9th beacon station site under the command of the Jiaqu company, excavated in 2000.

11 Two of the most complete examples, characteristically written on rods with several writing surfaces are A10-278.7AB and A33-12.1A-D. DHHJ 1248 mentions two dispatches, but is itself probably the fragment of a dispatch. For this type of document, see Loewe 1964; see also corrections in Toung Pao 56, 1970, 228.

c) Beacon signal codes that stipulated what kind of signals were to be forwarded along the chain of stations for what kind of incursion[12].
d) Various other stipulations or laws that specified rewards or punishments for the combatants of both sides. Manuscript DHHJ 1357–1362 is an ordinance for rewarding Xiongnu who surrender, DHHJ 983 a statute on arresting those deserting to the Xiongnu. 2000ES9SF3:3 may be the title of a law about Xiongnu attacks on stations (ting).
e) Copies of imperial edicts that describe the larger political situation. These are very scarce. There is only one major, more or less complete, edict (2000ES9SF4:1-12) that contains concrete information about Wang Mang's problems with the Xiongnu. Of another that dates to the time between 49–36 BC only a very few tantalizing but inconclusive snippets can be known as it is quoted in a very fragmented report from the border that can hardly be reconstructed with any certainty (A33-387.12+564.17, and many other fragments).
f) Other types of administrative documents of various kinds, such as records of juridical proceedings, lists of border defense units or personnel on duty, records of disbursement of grain or equipment, etc. These diverse sources are grouped together here because, unlike types mentioned before, they are all concerned with internal administration of the border society, none of them are inevitably related to any outward-looking activity for which the enemy would matter. Therefore, where they contain reference to the Xiongnu, this reference is usually purely accidental or circumstantial, and never the focus of the respective type of document as such. Hence, examples are also widely disparate and include two en passant references to the visit of the Rizhu King in 60 BC (DHHJ 1301 & I 90 DXT 0309(3):167-8), as well as mentions of non-Chinese ("barbarian") auxiliary troops, and a host of place names that contain the words for "enemy" or "barbarians".

Because the types a to e are content-specific, it does not really surprise that they correlate well with a specific usage of terms: In the reports on enemy activity and alert dispatches (types a and b) we never see the term "Xiongnu" or other ethnonyms used, but exclusively "enemy" or "barbarian enemy". Since it is implausible that border guards were generally unable to identify whom they were fighting against or that there had been some kind of propaganda rule not to use names for the enemy so as to not give them a (human) face, this choice of words can only reflect either the pervasiveness of the Xiongnu as the only kind of enemy or an exclusively defensive attitude on the part of the Chinese that reflects genuine, blind aversion, or even hatred, or, most likely, both.

Interestingly, this was very different in administrative rules, such as signal codes, and law codes (types c and d), both of which do never speak summarily of the "enemy" or "barbarians" but always very specifically of "Xiongnu" perhaps because their authors in the capital had a wider perspective that included other enemies apart from the Xiongnu even just on the northern frontier.

The same or an even wider perspective informs imperial edicts (type e), of course. Here, aside from the term "Xiongnu", however, we also see individual names or titles of Xiongnu rulers as well as references to the "enemy", even coupled with a personal name, and "barbarian peoples" in general, the latter interestingly as "yidi"[13].

12 A22-163.4, A32-288.7, EPF16.1-16, 2000ES9SF3:1.
13 No doubt reflecting the fact that many more neighbors of the Chinese were included, though the respective fragment (A33-387.7+564.15, pl.42) is not conclusive on this point.

Below, I will begin with these edicts to concretely transcribe and translate all these materials. These will be roughly ordered according to the subject matters of imperial politics, institutions, and local events as well as according to the type and length of the documents.

Imperial Politics

1. An Edict by Wang Mang of 10 AD

Arguably the most intriguing of all very recently discovered manuscripts relating to the Xiongnu is the following edict that has been found in fragmented form during an archaeological campaign of the year 2000. Not all the strips that originally made up this edict survived, and though most of the surviving strips themselves are whole, the text on them is badly weathered and large parts of the edict have become illegible. Still, what can be made out is enough to see that the edict concerns the famous decision of Wang Mang to send out Five Generals on a campaign against the Xiongnu. The contents mostly match what is known from the Hanshu.

In the Chinese transcription, "□" indicates an illegible character, "…" an indefinite number of illegible characters, and "╳" the physical fragmentation of the wooden strip. Also, as each strip has two columns of text, "//" indicates a forced "line break" within the text of one and the same strip, i.e., a line break that cannot be avoided when the text of the first column has run all the way to the bottom of the strip. Where there is a line break with blank space left in the column, i.e., a line break that was consciously and perhaps purposefully applied, this is simply repeated as such in the transcription. Other punctuation in the transcription, such as commas, full stops, etc., is provided according to context for better legibility. "2000ES9SF4" is the identification of the year and site of excavation, and the number after the colon is the individual strip number found at that site. This full identification of the strip is inserted in parentheses into the text only for the first strip in the transcription, for all other strips and generally in the translation only the strip number alone is given. The reading and order of the strips largely follows Li Junming (in Wei 2005, 57–58), but I have used square brackets in the translation to indicate which parts of the transcription I am not able to verify on the photographs. I have also made line breaks in the translation wherever the continuation to the next strip is not apparent. This means, that in principle and with only a few exceptions, we have no means to really establish the sequence of the resulting paragraphs and it could be very different from the solution offered by Li and reflected here. Only the sequence of strips 8 and 7 as well as the sequence and position of the last four strips 4, 3, 1, and 2 are beyond doubt.

Source 1

╳張掖大尹…虜皆背畔罪…皆罪…╳//╳…塞守徼，侵□□□將之曰□匈奴 (?) … (2000ES9SF4:12)
邊竟（境）永寧，厥功伋（佼）焉。已鼓（封）食苞，爵宣公，即拜為虎耳將軍；封伋為揚威公，即拜為虎賁//將軍，使究其業。今詔將軍典五將軍五道並出，或瀆虜智皆匈（胸）腹，或斷絕其兩臂，拔抽 (8) 兩脅。謁發兵之郡，雖當校，均受重當（賞），亦應其勞大尹。大惡及吏民諸有罪大逆//無道、不孝子、絞（?），蒙壹功。治其罪，因徙邊，皆以此詔書到大尹府曰：以… (7) 校尉苞□□塞□郡益壽塞□者。餘十三人當為單手（于）者，苞□上書謹□□為單手（于）//者十三人，其一人葆塞。稽□□候威、妻子、家屬，及□□郡。虜智之將業 (10) □大旦

居蒲、妻子、人眾，凡萬餘人，皆降。…居蒲等。//其…質脩待子入□…詔命宣、揚威… (9) 者之罪□…匈 (?) 奴國土、人民，以為十五，封稽侯狦子孫十五人，皆為單手（于）。//□在致廬兒候山，見在常安朝，郎南為單手（于）郎將，作士大夫廄南手（于）子，蘭[14] 苞副。有書， (11) 咸得自薪息，並力除滅胡寇、逆虜為故。購賞科條將轉下之勉府。稽吏民其…//□□□務賞。堇其當，上二年計最及級，專心焉，上吏民太尉以下，得蒙壹功，無治其罪，吏坐 (6)

始建國二年十一月甲戌下。

十一月壬午，張掖大尹良、尹部騎司馬武行丞事、庫丞習行丞事，下部大尹官、縣，丞（承）書，從事，下當用者，明白 (4) 扁書鄉亭市里顯見處，令吏民盡誦之，具上吏民壹功蒙恩，勿治其罪者名，會今，罪別//以竇行者，如詔書_（書，書）到言。 書佐曷 (3)

十一月丁亥，□□□大保□□以秩次行大尉事，□□下官縣，丞（承）書從事，…當用者，明白扁//鄉亭市里顯見處，令吏民盡知之，具上壹功蒙恩，勿治其罪人名，所坐罪別之。

如詔書 (1)

閏月丙申，甲溝候獲下部候長等，丞（承）書從事下當用者，明白扁書亭隧顯見處，令吏//卒盡知之，具上壹功蒙恩，勿治其罪者，罪別之，會今，如詔書、律令。 (2)

… [the governor of Zhangye?] … // … the enemies all committed the crime of betrayal … [all committed the crime of?] … the barrier, guarding [and patrolling?][15], invaded … lead them saying: … Xiong[nu?] … (12)

Everlasting peace at the borders – in this feat lies so much delight! We have already bestowed[16] an appanage[17] on [Lin 蘭] Bao, honoring him with the title Lord Who Displays [Authority] and then appointing him to Tiger Ear General. We appointed [Dai 戴] Ji to be Lord Who Raises Authority and then appointed him to Tiger Rage General, letting them proceed to their duties[18]. Now, We instruct you, generals, to take on the responsibilities of the Five Generals[19] and set off simultaneously on five (different) routes, so as for some to hollow out all through[20] the chest and abdomen of the enemy Zhi, some to break both of his arms and pull out (8) his ribs at both sides[21]. We call upon

14 In the original the 隹 in this character is written 鳥.

15 See the Hanshu 99B (Ban Gu 1962, 4121) for a similar phrase: "bao sai shou jiao" (保塞守徼).

16 "Gu" (鼓), "to beat (the drum)", here must be a copyist's mistake for "feng" (封), even though this is written correctly later on. As this document is, in fact, marred by quite a few clerical mistakes, this may not be impossible. Otherwise, one would have to assume that "gu" with whatever follows had a meaning such as "to encourage" but this nuance seems to be rather late and would be anachronistic here.

17 "Si" (食), this has not been transcribed in Wei (2005, 57; 234).

18 These appointments together with the full names of the recipients are recorded in the Hanshu 94B (Ban Gu 1962, 3823). Differences between both accounts lie in a) the fact that the scribe of this manuscript obviously forgot to write the word "Authority" (wei 威) in the first title (considering the literal meanings, it seems rather unlikely that the title was "juexuangong" (爵宣公) instead of "xuanweigong" (宣威公)); b) the mission title Tiger Ear General (hu'er jiangjun 虎耳將軍) instead of Tiger Teeth General (huya jiangjun 虎牙將軍), the latter of which again seems more plausible; as well as c) the writing of Dai Ji's personal name as 伋 (Ji) in the manuscript as against 級 (Ji) in the received version. The Hanshu dates this event to 10 or 11 AD. Cf. De Groot 1921, 271–272; Dubs 1955, 305.

19 Who these five were is not clear from the text or from the received historical record. That there was also a General of the Five Authorities (wuwei jiangjun 五威將軍; see Ban Gu 1962, 4121) seems mere coincidence. When the Hanshu 24A uses a similar expression, it talks about "setting off simultaneously on ten (different) routes" (shi dao bing chu 十道並出) (Ban Gu 1962, 1143; 3824; 4121).

20 "Jie" (皆 "all") which does not fit in grammatically with the Chinese text here either. The translation tries to mimic this. It cannot be understood as part of the name because the individual occurs again later on (see also next footnote).

21 Note the intriguing similarities as well as differences to the parallel statement in Hanshu 99B (Ban Gu 1962, 4130) that cites a letter of Wang Mang dated to the year AD 12: 乃者，命遣猛將，共行天罰，誅滅虜知，分為十二部，或斷其右臂，或斬其左腋，或潰其胸腹，或紬其兩脅, "Recently, I have commanded and sent my fierce generals to perform respectfully the punishment [directed by] Heaven, to execute and annihilate the caitiff [Lüan-ti] Chih. They are divided into twelve regiments. Some are to cut off his right arm, some to cut thru his left arm-pit, some to break thru his chest and abdomen, and some to pull out his ribs". (Dubs 1955, 326). The single "enemy" who is referred to here was the Wuzhuliu 烏珠留 Khan, whose personal name as transcribed into Chinese was Nangzhiyasi 囊知牙斯. This, according to Wang Mang's whim, was reportedly shortened to a required one-syllable name, Zhi 知 (for details, see Loewe 2000, 591-2). This manuscript consistently names him Zhi 智 instead.

those provinces that mobilize troops: Though checking should be conducted, all shall equally receive generous rewards, and should have their efforts reported to the governors. As to those who are especially wicked as well as [all those] among the officers and people [whose crimes are high treason and] perversion, being disrespectful as children [and who (originally) should be] strangled (?)[22], they shall be blessed with one order of merit. When administering their crimes, they should therefore be moved to the border (?)[23], and all on behalf of this instruction should go to the governor's office and say: "With …."[24] (7)

… [Colonel (Lin) Bao …] barrier … [province], those who … the Yishou barrier[25]. The other fourteen men who are to be made Khan, [Bao] … submitted a letter carefully …, of those fourteen men who are to be [made Khan], one man protects the barrier. Ji…[hou]wei, (his) wives, children, (his other) family members as well as … province. The enemy Zhi's leading business (10)

… Dadanjupu, (his) wives, children, men, all in all more than ten thousand men, all [surrendered]. … jupu and his party. [His … hostage] … ? … entered … instruct the … Who Display and Raise … (9)

… the crimes of those who …. [divide] the territory and people of the [Xiong]nu[26] [in]to fifteen (parts), enfeoffing fifteen of the sons and grandsons of Jihoushan, making them all Khans. … at Zhilu'erhou Mountains, showing up at Chang'an at an audience. The young gentleman Nan became the Khan's leader of the young gentlemen, acting as the son of Jiunanyu, Lin Bao's [asssistant]. There was a [letter] …[27] (11)

… all is obtained from …?…, because to [unite] forces and annihilate the barbarian [marauder and the perverse] enemy. As to the [standard] lists for [remuneration] and rewards, [transmit] these downwards so as to encourage the offices. Count the … of the officers and people. … have to reward. Be careful with what ought to be and submit the plans with the best levels (?) from two years[28]. Be attentive therein! Submit from the officers and people below the position of the chief of staff, (those who) become blessed with one degree of order. Do not administrate their crimes. The officers will be charged with …[29] (6)

Handed down on the day jiaxu (12th day) of the 11th month of the 2nd year of the Establishing the Nation (reign period) (i.e., Nov 7, AD 10).

22 Unless "jiao" (絞) is a category of punishment, as I have tentatively assumed here, the grammar of this sentence seems garbled, or the transcription is faulty. That those who are brandished as criminals are to be "blessed with one order of merit" was of course motivated by the desire to enlist them as soldiers in the campaign against the Xiongnu.

23 Wei (2005) reads "xi qian" (徙遷□), "moved and transferred (to?) …", but not only is 遷□ clearly just only one graph, what can be seen of it could as well be "bian" (邊, "border"), instead of "qian", or maybe another, yet to be verified character.

24 The rest of the text on this strip, about six characters, has vanished.

25 Yishou 益壽 was a company guarding a section of the barrier in Yunzhong 雲中 province; cf. Ban Gu 1962, 3823. The text on this strip is much too garbled to say anything than that the transcription provided in Wei (2005) is much too optimistic. Some of the solutions proffered do not match the evidence from the received sources. For example, Lin Bao is not known to have been Colonel (xiaowei 校尉), when he was sent on his mission to the Xiongnu, but a type of palace advisor (langzhong 郎中, see Ban Gu 1962, 4121). However, since we know that fifteen Xiongnu leaders were to be made Khan, and this strip continues to talk about "the other fourteen," it can be surmised that the text up to this point specifies the special circumstances of the first among those fifteen. It is probable that before and after this strip other strips are missing.

26 Wei (2005, 57; 237) reads "Xiongnu". The first graph is in fact illegible. It is legible on strip 12 above, though I cannot verify the "nu" there. It is noteworthy that the name "Xiongnu" (匈奴), or "Fearsome Slaves", seems to be used persistently in manuscript sources instead of the designation "Xiangnu" (降奴), or "Submitted Slaves", that Wang Mang is said to have used since 10 AD (Ban Gu 1962, 4121), but which is not found in the manuscripts.

27 The meaning of the second half of this strip is very uncertain, perhaps because it seems to contain many names that are not otherwise attested and that make it particularly difficult to analyze the grammatical structures.

28 This whole sentence is not well understood, the translation should be taken with reserve.

29 Li in Wei (2005, 58), has strip 2000ES9SF4:5 follow after this, but this strip clearly does not belong here. Instead another, as yet unidentified or lost strip or strips must have originally continued the text at this point.

In the 11th month, day renwu (20th day, Nov 15), the governor of Zhangye, Liang, the mayor of the cavalry under the governor's jurisdiction, Wu, conducting the business of the deputy governor, and the assistant of the granary, Xi, hand this down to the governor's offices under their jurisdiction and the prefectures. Upon receipt of this document, set to work and hand it down to those, who have to apply it. Clearly (4) post writings at obvious spots in the villages, stations, markets and living quarters. Let the officers and people completely recite it. Assemble and submit the names of those officers and commoners who by (the imperial grace) are blessed with one order of merit and who should not be tried for their crimes. Convene today. As to the crimes, (list them) separately according to the …?…. (Act) according to the imperial instruction. Report, when the document arrives. (3)
11th month, day dinghai (25th day, Nov 20), … the imperial protector … on account of being next in rank conducting the business of the chief of staff, and the … hand this down to the(ir) offices and the prefectures. Upon receipt of this document, set to work and … those, who have to apply it. Clearly post writings at obvious spots in the villages, stations, markets and living quarters. Let the officers and people get to know it completely. Assemble and submit the names of those officers and commoners who by (the imperial grace) are blessed with one order of merit and who should not be tried for their crimes. As to those who are accused of crimes, (list them) separately. (Act) according to the imperial instruction. (1)
Leap month, day bingshen (5th day, Nov 30), the leader of the Jiaqu company, Huo, hands this down to the various platoon leaders under his jurisdiction. Upon receipt of this document, set to work and hand it down to those, who have to apply it. Clearly post writings at obvious spots in the stations and posts. Let the officers and soldiers get to know it completely. Assemble and submit those who by (the imperial grace) are blessed with one order of merit and who should not be tried for their crimes. As to the crimes, (list them) separately. Convene today. (Act) according to the imperial instruction and the statutes. (2)

2. Reception of the Rizhu King in 60 BC

For this visit we have only circumstantial evidence. It is found in two manuscripts from Dunhuang. One is the protocol of a statement of a witness that has been drawn up on a particularly long strip with two slanted writing surfaces (lianghang) as part of juridical proceedings; the other is a letter sent to a subordinate unit to follow up on some perceived administrative misdemeanor. Both have been discussed by Hu (Hu 1992; Hu/Zhang 2001, 150–151). I rely on his readings. Photographs of the strips are either almost illegible or not published.

Source 2
神爵二年十一月癸卯朔乙丑，縣（懸）泉廄佐廣德敢言之：「爰書：廄御，千乘里畸利謹告曰：『所葆養傳馬一匹，騅，牡，左剽，入坐肥，齒二歲，高六尺一寸，□頭，送日逐王來至冥安病亡。即馬//起張（脹），乃始冷定，雜診。馬死，身完，毋兵刃、木索迹，病死。』審證之。它如爰書，敢言之。」(DHHJ 1301 acc. to Hu 1992)
2nd year of Spirit Crow, 11th month, beginning on (a day) guimao, (the day) yichou (23rd day; Dec 30, 60 BC), Guangde assistant of the stables at Xuanquan, reports: "Protocol of statement: Stables driver Jili of Thousand Rides Quarters would like to state: 'That relay service horse, that I was responsible to look after, was a black and white stud with a mark on the left side. When it came in, it was naturally well-nourished, two years old by the teeth, 6.1 feet (1.40 m) tall, with a … head. When we accompanied the visiting Rizhu King and reached Min'an, it became ill and

perished. That is, the horse developed a swelling, whereupon I for the first time … and examined it variously. When the horse died, its outer shape was unharmed, with no traces of cut wounds or rope marks. It died of illness.' This was investigated and proven. The rest is as in the protocol. End of report."

Source 3
廣至移十一月穀薄(簿)，出粟六斗三升，以食縣(懸)泉廄佐廣德所將助御效穀廣利里郭市等七人，送日逐王，往來 (I 90 DXT 0309(3):167)三食，食三升。校(案)：廣德所將御□稟食縣(懸)泉而出食，解何？ (168)
Guangzhi transmits the grain ledgers of the 10th month. Disbursements of grain: 6.3 dou for feeding the assistant driver Guo Shi from Broad Grain Quarters in Xiaogu and his party, seven men (in all), who were led by Guangde, assistant at the stables, accompanying the Rizhu King. They went back and forth (167) (having) three meals of 0.3 dou per meal. Note: Explain why the rations for the drivers … who were led by Guang De were disbursed by Xuanquan! (168)[30]

3. Reports on Huhanye and Zhizhi

The only other longer document that we have of high-level politics is included in a report on a "situation" (bianshishu 變事書) at the Juyan border between 49–36 BC. This document has been reconstructed – differently by Loewe (1967, UD9) – from scattered and variously broken fragments according to the same handwriting, type of writing strips and overall contents as far as can be established. Given these conditions, certain doubts as to the validity of this reconstruction must remain. The sequence of the fragments and translation as given below are my own. As such, the document starts out as a report on enemy activity transmitted from a larger fort at the border to the provincial headquarters. It then cites in turn from a call for general alert that must have been dispatched earlier to units along the border as well as from an edict (imperial instruction). It is in this latter part that the rival khans Huhanye and Zhizhi are mentioned. A33 designates the site of the company fort where the fragments were found. The following numbers are the numbers of the individual fragments, often joined, such as AB+XY, followed in the transcription by the number of the plate in Lao 1957, where the respective photographs may be found. For the involved system of identifying the Juyan strips found in the 1930s, see Jiayibian 1980 (appendix).

Source 4
扇水候官令史觻得敬老里，公乘，冀土臣憙昧死再拜上言變事書 (A33-387.12+564.17, pl.42)
□□十二月乙酉，廣地候 (A33-407.2+562.9, pl.41)
╳驚檄曰：「甲申，候、卒望見塞外東北 (A33-407.3+562.13, pl.41)╳ 火四所， 大如積薪， 去塞百餘里。臣憙愚戇 (A33-403.19+433.40+564.28, pl.41) 皇帝陛下。車騎將軍下詔書曰：『烏孫小昆彌烏 (A33-387.19+562.27, pl.42) 就屠與匈奴呼韓單于諆╳ (A33-562.4, pl.88)
╳□小月氏柳（?）、羌人 (A33-, pl.42)
塞外諸節穀，呼韓單于╳ (A33-387.17+407.14, pl.42)
╳往來牧表是、樂 (A33-387.16, pl.42)

30 The implication seems to be that the Xuanquan relay station was not at all responsible for feeding the party.

郅支為名。未知其變 (A33-387.24+387.25, pl.42)
夷狄貪而不仁，懷俠二心。請偽 (A33-387.7+564.15, pl.42)
╳愚戇，觸諱，忘言，頓首╳ (A33-387.22+407.4, pl.42)
制曰：「可」。 (A33-332.26, pl.42)
As directing clerk of the Jianshui company, (registered resident) of Jinglao district in (the provincial capital) Lude, of the thirteen highest rank, your utterly unworthy subject Xi, risking capital punishment and with repeated salutation submits a letter reporting on a situation. (387.12+564.17)
… In the twelfth month, on the day yiyou the Guangdi company … (407.2+562.9)
… a warning dispatch stated: "On the day jiashen, the captain and soldiers observed outside the defense lines, to the northeast (407.3+562.13) … fires in four places, as large as woodpiles for signaling, at a distance from the defense lines of more than hundred li [over 40 km]. Your subject Xi foolishly [and stupidly submits this to?] (403.19+433.40+564.28)
His Majesty, the emperor". The general of chariots and cavalry hands down an imperial instruction that reads: "The Lesser Kunmi (King) of the Wusun, (387.19+562.27) Wujiutu, and the Huhan Khan of the Xiongnu cheated … (562.4)
… the lesser Yuezhi (Tocharian) Liu (?), and the Qiang (Tibetan) … (387.1)
… outside the defense lines grains of all seasons. The Huhan Khan … (387.17+407.14)
… coming and going to graze (his cattle) at Biaoshi [c. 140 km south of Jianshui] and Le… (387.16)
… of the name Zhizhi, not knowing about this situation. (387.24+387.25)
… The barbarian peoples are greedy and inconsiderate, wicked and possessing two hearts. (I?) beg to make (?) … (387.7+564.15)
… being foolish and stupid, violating the tabooed, and with forgetful speech, I bang my head to the floor … (387.22+407.4)
The imperial decision says: "Approved." (332.26)

4. A Missing Daughter of Turfan

Finally, there is a fragment from Dunhuang that allows us a glimpse on a woman, presumably of royal or noble descent, from the oasis city state of Turfan (a.k.a. Turpan) or Jushi (a.k.a. Gushi) who had become the victim of an abduction, possibly by the Xiongnu. Unfortunately, the source is undated. It is also too fragmentary to say much about what kind of document it originally belonged to except that it seems to have been sent from a higher ranking unit to a subordinate unit.

Source 5
羊二千餘頭、馬數十匹，虜所略車師大女亟干，亡。求言虜死者 (DHHJ 962)
… more than 2000 sheep and several dozens of horses. Jigan, the adult daughter of the Jushi, whom the enemy abducted, remains gone. (We) ask for a report on the enemy casualties …

Institutions

Unlike the documents mentioned above under "Imperial Politics" and those collected below under "Local Events" – which allow glimpses on individuals, events, and policies either on an empire-wide or a local scale – the sources introduced in this section show aspects of a presumably

more durable nature, such as legal stipulations, administrative rules, border defense units, and place names.

1. Law

There are two kinds of laws concerning the Xiongnu preserved among the Dunhuang manuscripts: an "ordinance for rewarding Xiongnu who surrender" and a statute on arresting those who desert or submit to the Xiongnu or who do not receive Xiongnu defectors.

The former has been studied in part by Hulsewé (1997, 210), but since he chooses to gloss over philological problems, I present here my own interpretation. Part of the problem is that the word "attack" (ji 擊) occurs before what seems to be the title of the document as given above. Now, it would be possible to combine this and make the "surrender" causative. This would provide the document with a wholly different notion, i.e., "ordinance for rewarding those who attack the Xiongnu and make them surrender". The problem is that such a title does not seem to fit very well what we see in the following text that clearly talks about mass surrenders of whole tribes or hordes such as they began with the integration of the southern Xiongnu groups under Huhanye, seen in the document introduced above. Not only is it not quite conceivable that individual Chinese could bring about such a feat, what is more, the ordinance itself also talks specifically about how to reward and install the Xiongnu leaders. This is why I think the "attack" has to belong to another sentence altogether[31]. As to the last strip of this document, I am unsure whether it actually belongs here, since its topic seems more concerned with the kind of rules that follow in sources 7 and 9.

Source 6
擊。匈奴降者賞令 (DHHJ 1357)
╳者眾八千人以上封列侯，邑二千石，賜黃金五百。 (1358)
取故君長以為君長，皆令長其眾。賜眾如隧（隊）長。其斬□ (1359)
□□賦二千石□賜詣□□言及武功者，賜爵，共分采邑。 (1360)
二百戶五百騎以上賜爵，少上造，黃金五十斤，食邑百戶、百騎 (1361A)[32]
╳毋亡為故，虜畢去，輒下烽滅火。 (1362)
… attack. Ordinance for rewarding Xiongnu who surrender (1357)
… those who … (surrender with?) … a horde of eight-thousand persons or more will be enfeoffed as nobles with (a domain of) two-thousand households and will be given five-hundred (catties of) gold (i.e., five million cash). (1358)
Take the old leaders and make them (again) leaders, letting them all lead their men. Grant (them) men, like troop leaders (?). If (someone) cuts down … (1359)
… tax (to the?) 2,000-bushels-officials (i.e., the provincial governors) … grant and bring … report those who attained to military merit, and grant them orders, distribute to them altogether townships that support their living. (1360)

31 Of course, other options are conceivable. For instance, "ji" could perhaps be a sneering qualifier for Xiongnu ("damn Xiongnu"), or it could be a clerical error, or it could be that this title strip is not in fact related to the following strips.

32 The backside carries exactly the same text as the recto side, except that it ends in, "… and a domain of 548 (households) 48" (食邑五百卌八 卌八), which could be a writing exercise. Cf. also Hulsewé 1997, 210.

(If he surrenders with) two-hundred households and five-hundred horsemen, he will be given the aristocratic rank of shaoshangzao (the 15th rank), fifty catties of gold (i.e., 500,000 cash) and a domain of 100 households and 100 horsemen. (1361A)
Do not flee …?…. When the enemy('s attack) is finished and he has left, immediately descend from the post and put out the fires. (1362)

The other stipulation from Dunhuang demonstrates an interesting and also vexing aspect of Han-Xiongnu relations and, by the way, another possible reason for the construction of the border fortifications – not only to keep the enemy from entering China, but also to keep the own people from defecting. It is interesting because it seems to indicate that the psychological barrier between what is otherwise depicted as arch-enemies cannot have been as high as usually assumed, if there were enough Chinese willing and ready to forfeit their home and own culture in exchange for a life among "barbarians" to make such a law necessary. It is vexing because this does run counter to many other indications of just the opposite, namely that the divide between the two peoples on all kinds of levels was indeed very large. A likely explanation of this seeming contradiction may be that defections happened primarily in times of economic or military hardships on the Chinese side, such as is indeed indicated in the statute, or with criminals who were trying to evade punishment. In both cases, leaving China or submitting to the enemy could easily have been a matter of life and death for the individual, which would explain the readiness to "jump culture", so to speak, in spite of a generally high cultural barrier. Also, it must not be forgotten that a large part of those stationed on the Chinese side of the border were convicts who had been pressed into that duty so that fighting to the death to defend the country that wanted to put them to death for infringements originally may not have been very high up on their list of preferences.

Source 7
●捕律：亡入匈奴、外蠻夷，守棄亭、鄣、逢隧者、不堅守降之，及從塞徼外來絳而賊殺之皆要斬。妻子耐為司寇作如 (DHHJ 983)
Statute on arresting: As to those who abscond and make over to the Xiongnu or the other barbarians from outside (the empire), who should defend but (instead) give up (their) station, company, or post: If they do not firmly defend (but) submit to them as well as if they patrol along the border and there are (people) who come to submit from outside, and they kill them, all these are to be cut in half at the waist. (Their) wives and children should be shaven and made hard labor convicts, working like …

It is only from the Juyan area, that we have the kind of rules that were assumed above, i.e., specifications of how to reward those Chinese soldiers who capture or kill the enemy[33]. In a partly preserved covering letter – that may be part of an edict or at least letter from a high-ranking source – this document that lists rewards for those engaged in military action against the Xiongnu as well as the Qiang separately is said to represent the law of an "old system", no doubt referring to the Former Han period from the perspective of the Latter Han. The same letter also

33 Note that Chinese military rules and stipulations from the late Former Han (c. 50–8 BC) were also found in a Xiongnu tomb at Shangsun jiazhai 上孫家寨 (Qinghai province). However, given this location, it is probable that these were exclusively concerned with the Qiang as enemy, not the Xiongnu. Also, they are even more fragmented than the materials presented here; see Chen et al. 1987.

mentions a Liu Xuan, who can possibly be identified with the Gengshi Emperor (r. 23–25 AD), and a certain Wang Bian, who is not known otherwise, unless this is a general reference to the "usurper Wang [Mang]". Parts of the attached rules for rewarding fighters have been briefly studied by Ōba (1992, 204–205). Though a part of the regulations deals with the Qiang, I will translate the entire document, for not only is it not always clear to which part of the document a fragment belongs that does not mention the enemy's name, but some formulas in the Qiang part can also be taken to supplement what seems to have been similar statements in the Xiongnu part that are now lost due to fragmentation. Fragmentation is the only problem in this case. The writing itself is comparatively well preserved and legible even on the photos, so that I could check the published transcription and indicate where it might be problematic, but that is not often the case. Since every strip is a self-contained stipulation or title strip, the sequence of the strips is by no means fixed. Considering a) the probability that similar stipulations for the battle against Xiongnu on the one hand and Qiang on the other existed and that they followed the same general sequence in both halves of the document, b) a logical gradation of rewards for different feats, again depending on whether these were accomplished against the Xiongnu (higher rewards) or Qiang (lower rewards), c) the indentation of some of the stipulations, especially those that start with "qi" (其), or "(among the afore-going) those who …", as well as d) the general rule that title strips usually follow at the end of an attached document, I have come up with a sequence quite different from that published in Juyan (1994). There is still much that is unclear, probably because many strips are still missing in between, but overall it can be seen with this adjusted sequence that personally capturing an enemy spy alive was rewarded with 70,000 or 50,000 cash respectively, depending on whether it was a Xiongnu or Qiang. Tipping off the authorities about a spy without capturing him oneself on the other was still rewarded with 50,000 or 30,000 cash respectively, provided the authorities could catch him. Being the first to breach enemy lines and killing a Xiongnu soldier was rewarded, perhaps also with 50,000 cash. At any rate, we read that the reward was 70,000 cash, if the killed was a commander. Whether or not the corresponding rewards on the Qiang side were again 50,000 and 30,000 cash must remain conjecture and we also do not know the monetary reward for capturing an enemy leader alive. But it seems logical to assume that regulations about the reward for capturing and returning livestock abducted by the enemy followed at the end of the list of rewards. An interesting notion is that there seems to have been the option of being promoted instead of taking the reward.

Source 8

等三人捕羌虜，斬首各二級，當免為庶人。有書。今以舊制律令為捕斬匈奴虜、反羌購賞，各如牒。前諸郡以西州書免劉玄及王便等為民，皆不當行。書到，以科列（別）從事。官奴婢以西州 (EPF22:221)

有能生捕得匈奴閒候一人，吏（增）╳(225[1])╳秩二等，民與購錢七╳(225[2])╳人（?）命者除其罪。(225[3])

╳吏_（吏，吏）以其言捕得之，購錢五萬。與眾俱追，先登□╳(234)

╳　其斬匈奴將率者，將百人以上，一人，購錢七萬，吏增秩二等，不欲（?）為（?）╳(224)

●其生捕得酋豪、王、侯（候）、君長、將率者一人，(223[1])╳吏增秩二等，從奴與購如比。(223[2])

╳　追逐各鬬，功還畜參分，以其一還歸（?）本主。╳(228)

╳…能（?）持（?）□（從）奴（?）與半功。(229)

●右捕匈奴虜購科賞。(231)

●有能生捕得反羌從傲（徼）外來為閒候動靜、中國兵，欲寇盜，殺略人民，吏增秩二等，民與購錢五萬，從奴也與購如比。(233)

╳有能（?）謁（?）言吏_（吏，吏）以其言捕得之，半與（?）購賞（?）(227)

錢三萬，吏增秩二等，不欲為官者與購如比。(232)

╳能與眾兵俱追，先登陷陣，斬首一級，購錢五萬如比。(226)

●右捕反羌科賞。(235)

諸有功校，皆有信驗，乃行購賞。(230)

●捕斬匈奴虜、反羌購償（賞）科別 (222)

… the three persons of that party captured Qiang enemies and each took two head trophies and was to be demoted to commoner status. There is a record (about this). Now, according to the statutes and ordinances of the old system, (We) have made (regulations for) bounty as reward for capturing and beheading Xiongnu enemies and rebellious Qiang, each as specified in the attachment. All the previous provinces according to the Letter to the Western Circuits[34] were to demote the party[35] of Liu Xuan (the Gengshi Emperor) and Wang Bian (or: the usurper Wang [Mang]?) to civilians. All this should not be carried out. When the letter arrives, set to work as specified in the standards. The male and female slaves of the government were according to the Letter to the Western Circuits … (221)

If there is someone who is able to capture alive and retain one Xiongnu spy, if he is an officer (increase) (225[1]) his status by two degrees; if he is a civilian, give a bounty of seven(ty thousand?) cash … (225[2]) … those who … people's life (?), rehabilitate them. (225[3])[36]

… and makes a report to the officers, and the officers on the basis of that person's report capture and retain them (i.e., the enemy or spy), the bounty is fifty thousand cash. If someone together with a host pursues (the enemy) and is the first to reach up to and … (234)

If he beheads one Xiongnu general who leads more than 100 men, the bounty is seventy[37] thousand cash. If he (i.e., the captor) is an officer, increase his status by two degrees. Those not willing (?) to be made (?) … (224)

- If he captures alive and retains one noble, king, prince, chieftain, or general, (223[1]) if he is an officer, increase his status by two degrees, if he is an accompanying slave, give bounty as specified by analogy. (223[2])

… pursue and engage in a fight, and have merit points in returning livestock, divide into three parts and return to the (?) original owner one part. (228)

… is able to (?) hold (?) … (accompanying) slave (?), give half of the merit points. (229)

- So much for the standard rewards of bounty for capturing Xiongnu enemies. (231)

- If there is someone who is able to capture alive and retain rebellious Qiang who come from outside the frontier in order to spy on the state and activities and the (number of) Chinese soldiers, desiring to raid and steal and kill and abduct men and civilians—if he (i.e., the captor) is an officer, increase

34 The transcription in Juyan (1994) reads this as Xizhoushu 西州書, but xi 西 and zhou 州 are written as a ligature, which does not seem attested elsewhere. Judging from the reported contents of that letter, it could well have been a form of imperial letter, but the grammar and context alone do not allow to say with absolute certainty whether it was a letter addressed to the provinces, as I assume here, or letters from the provincial governments.

35 I think that this may refer to all the functionaries or officers who had been appointed under the previous regimes and according to that "Letter to the Western Circuits" were to be forcibly retired, an order that was taken back with the present letter.

36 It is not certain that this fragment belongs here.

37 Juyan (1994) has "shi" (十 "ten") which is also possible and would give "hundred thousand". The difference to "seven" being merely the relative length of the vertical stroke in the clerical script. The same change has been made for fragment 225[2]. Compare this stipulation with that on strip 233, which specifies a reward of 50,000 cash for the capture of a Qiang spy. That tells us something about the relative importance the Chinese attached to these two kinds of enemies.

his rank by two degrees; if he is a civilian give him a bounty of fifty thousand cash; if he is an accompanying slave, give him bounty as well[38] as specified by analogy. (233)
… if there is someone who is able (?) to visit (?) and make a report to the officers, and the officers on the basis of that person's report capture and retain them (i.e., the enemy or spy), give a bounty as reward (227)
… thirty thousand cash. If he is an officer, increase his rank by two degrees. Those who do not want to be made officials, give them bounty as specified by analogy. (232)
… If someone is able as a member of a host of troops pursuing (the enemy) to be the first to reach up to and break through (their) defense lines and take one head trophy, the bounty is fifty thousand cash, as specified by analogy. (226)
- So much for the standard rewards for capturing rebellious Qiang. (235)
All those who have come up for merit points and have their credibility examined, carry out the rewarding with bounty. (230)
- Specification of standard rewards[39] of bounty for capturing and beheading Xiongnu enemies and rebellious Qiang (222)

Finally, there is also a very brief passage on a strip from Juyan that looks like the title of a law about enemy attacks on a beacon post.

Source 9
●匈奴入即持兵刃功亭，吏拔劍助卒閉戶、重關，下戊。(2000ES9SF3:3)[40]
- If Xiongnu enter[41] and are about, with drawn weapons in hand to attack a station, the officer(s are to) draw their swords and assist the servicemen in shutting the gate, locking it twice, and withdrawing into the interior[42].

2. Administrative Rules: Beacon Signal Codes

Very similar to the type of document discussed immediately above, there is a considerable amount of rules that instructed the border guards on how to start and end the chain of beacon signals and what signals to give in case of an enemy attack. The examples below all derive from

38 Juyan (1994) reads "ta" (它 "other"). I think this should be "ye" (也 "as well"). The two characters are virtually indistinguishable in clerical script.
39 "Chang" (償 "recompensation") here certainly stands for "shang" (賞 "rewards").
40 Transcription according to Wei (2005, 208). Bayanchagan and Tergele in Wei (2005, 28) discuss this together with strip 2000ES9SF3:1, but the format, hand, and tone are quite different. One could also consider the possibility that this strip had once been part of the report that is contained on strips 2000ES9S:9-10, 14-15, etc., though this is not sure either. Unfortunately, while ES9SF3 designates the southwestern corner of the beacon station site, the exact location of the finds designated by just ES9S is not entirely clear to me. Maybe their exact position was not duly recorded during excavation?
41 "Ru" (入). Wei (2005, 208), reads "ren" (人), "If Xiongnu people are about ….". These two characters are often not very well distinguished in clerical script. Only in cases when both words are used in conjunction is no mistake possible, like on strip A32-288.7: "Xiongnu ren ru …" (匈奴人入… when the Xiongnu people enter…).
42 "Xiawu" (下戊), translated here as "withdrawing into the interior", is hardly seen in the literature, except for the Qimin yaoshu 10 ("Da xiao mai"), where it serves as a description of time. The translation above is tentative, taking "wu" in its sense of "center". It is fully possible that this is actually an organizing remark that specifies either the time when or the location whereto this stipulation was "issued" (xia 下), "laid down", or "stored". In this case, there has to be a full stop after "locking it twice". Also, it is probable that the document can be dated to the Wang Mang period, when celestial stem signs, such as "wu", were widely used for multiple purposes other than just designating days in combination with earthly branch signs, as under the former Han.

the Juyan area, but were found during different campaigns. These kinds of documents have been variously studied and/or translated by Chu (1984), Loewe (1967), and others. Despite the amount of code that has survived, including one particularly large batch of rules that seem to form something like a complete document (source 13), it does not seem possible to deduct any significant general pattern of signaling from them. Instead, these sources give the image of case-by-case rules devoid of a particular logic or system. Perhaps this is because the rules were subject to change or we simply do not have enough of them to see the system behind them.

Another aspect of these source texts is that some of them combine the name Xiongnu (匈奴) with "men" (ren 人), often in a haphazard fashion, so that the outcome is "xiong-ren-nu" (匈人奴). As each of these three characters has a meaning – "fierce", "men", "slave" – this creates the problem of whether this is an intended pun on or current variation of how the enemy was called, or just a careless clerical mistake reflecting, perhaps, the generally low standard of scribes at the border. Though these rules must have originated from a relatively high authority such as the provincial or even central government, the manuscripts as we have them are probably copies made out locally. I tend to assume the latter, but have nevertheless translated the term literally so as to mark the difference. Though most of these particularly long strips are comparatively wholesome, the text on them is often quite weathered or the published photographs are not good enough to allow verifying the accompanying transcriptions in all cases. However, since the language employed is rather formulaic, it does not seem too problematic to follow the published transcriptions.

Source 10

● 吏卒謹候望，即見匈奴人起居，如蓬火品約。 (2000ES9SF3:1, in Wei 2005, 28; 208)

- Officers and servicemen, carefully stand guard[43] and when you see movements of Xiongnu men, act according to the agreed standards for flags and fire signals!

Source 11

●匈奴人入塞，候、尉、吏以檄言。匈奴人入，犯入□╳ (A22-163.4)[44]

If the Xiongnu men enter through the barrier, the company leader, the lieutenant, or the officers[45] shall report by way of dispatch. If the Xiongnu men enter, violate and enter …

Source 12

匈奴人入塞，及金關以北、塞外亭隧見匈奴人，舉蓬，燔積薪；五百人以上□，舉二蓬。 (A32-288.7)[46]

If the Xiongnu men enter through the barrier, as well as if the stations and towers north of the Gold Checkpoint and outside the barrier see Xiongnu men, they shall raise a signal and light the stacked wood-piles. If (they see) five hundred men or more, they shall raise two signals.

Source 13

●匈奴人入塞，承塞中亭隧舉烽[47]，燔薪□□□□烽火品約，官□□□舉□□烽，毋燔薪。 (EPF16.13)[48]

43 The interpretation of this statement as imperative is far from certain. Only the last formula headed by rú 如 usually closes orders and should hence be couched in the imperative. For a similar formula, see strip A33-14.11.

44 Cf. Loewe 1967, Vol. 1, 100; Lao 1957, pl. 98.

45 Hou, wei, li 候尉吏, perhaps rather hou, weishi 候、尉史, "the company captain or the lieutenant clerk."

46 Cf. Loewe 1967, Vol. 1, 103; Lao 1957, pl. 116.

47 This character is written as a combination of 蓬 and 灬 in the original manuscript.

48 I have changed the sequence of the strips to one that seems more logical to me. The sequence indicated by the numbers does not have to reflect the original sequence anyway, but could as well be but testimony to the sequence in which the manuscripts were found.

●匈奴人入塞，候尉吏亟以檄言。匈奴人入，烽火傳都尉府，毋絕如品。 (12)
●匈奴人即入塞，千騎以上，舉烽，燔二積薪；其攻亭、鄣、塢壁、田舍舉烽，燔三積薪，和如品。 (14)
●匈人奴晝入殄北塞，舉二烽□，煩烽一，燔一積薪；夜入，燔一積薪，舉堠上離合苣火，毋絕至明。甲渠、三十井塞上和如品。 (1)
●匈人奴晝甲渠河北塞，舉二烽，燔一積薪；夜入，燔一積薪，舉堠上二苣火，毋絕至明。殄北、三十井塞和如品。 (2)
●匈人奴晝入甲渠河南道上塞，舉二烽，塢上大表一，燔一積薪；夜入，燔一積薪，舉堠上二苣火，毋絕至明。殄北、三十井塞上和如品。 (3)
●匈奴人晝入三十井降虜隧以東，舉一烽，燔一積薪；夜入，燔一積薪，舉堠上一苣火，毋絕至明。甲渠、殄北塞上和如品。 (4)
●匈奴人晝入三十井候遠虜隧以東，舉一烽，燔一積薪，堠上煙一；夜入，燔一積薪，舉堠上一苣火，毋絕至明。甲渠、殄北塞上和如品。 (5)
●匈奴人渡三十井縣索關門外道上隧天田失亡，舉一烽，塢上大表一，燔二積薪；不失亡，毋燔薪。它如約。 (6)
●匈奴人入三十井誠勢北隧，縣索關以內，舉烽，燔薪如故；三十井縣索關誠勢隧以南，舉烽如故，毋燔薪。 (7)
●匈奴人入殄北塞，舉三烽後，復入甲渠部，累舉旁河烽；後復入三十井以內部，累舉，堠上直木烽。 (8)
●匈奴人入塞，守亭鄣不得下燔薪者，旁亭為舉烽，燔薪，以次和如品。 (9)
●塞上亭隧見匈奴人在塞外，各舉部烽如品；毋燔薪；其誤，亟下烽，滅火。候尉吏（史）以檄馳言府。 (10)
●夜即聞匈奴人及馬聲，若日且入時見匈奴人在塞外，各舉部烽，次亭晦不和；夜入，舉一苣火，毋絕盡日；夜滅火。 (11)
●縣、田官吏、令、長、丞、尉見烽火起，亟令吏民□烽□□誠勢北隧部界中民田畜牧者□□…為令。 (15)
●匈奴人入塞，天大風，風及降雨，不具烽火者，亟傳檄告人走馬馳以急疾為故。 (16)
右塞上烽火品約。 (17)

- If the men of the Xiongnu enter through the defenses, the stations and posts on duty at the barriers shall raise signals and light up firewood … agreement on the codes of signals and fires. The companies … raise … signals, do not light up firewood. (13)
- If the men of the Xiongnu enter through the defenses, the lieutenant of the company leader shall report (this) by way of a dispatch. If the men of the Xiongnu enter, the signals shall be transmitted to the headquarters of the lieutenant commander (of the province) without interruption, as according to the code. (12)
- If the men of the Xiongnu enter through the defenses and if they are a thousand horsemen or more, raise signals and light up two stacks of firewood. If they attack stations, forts, enclosure walls, or agricultural settlements, raise signals and light up three stacks of firewood and (let the other stations) go along with this according to the code. (14)
- If the "fierce men's slaves" during the day enter through the Tianbei ("Northern End") section of the defenses, raise two (or: twice?) signals … (of these) set one on fire and light up one stack of firewood. If they enter during the night, light up one stack of wood and raise torches on top of the look-out (tower) and swing them over your head. Do not stop until dawn (or: until the signal has been understood?). At the Jiaqu ("First Canal") and Sanshjiing ("Thirty Wells") sections of the defenses go along with this as according to the code. (1)
- If the "fierce men's slaves" during the day (enter through) the Jiaqu section of the defenses, north of the

river, raise two signals and light up one stack of firewood. If they enter during the night, light up one stack of wood and raise two torches on top of the look-out (tower). Do not stop until dawn. At the Tianbei and Sanshijing ("Thirty Wells") sections of the defenses go along with this as according to the code. (2)
- If the "fierce men's slaves" during the day enter through the Jiaqu section of the defenses, south of the river on the road, raise two signals and on top of the enclosure set a large flag, light up one stack of firewood. If they enter during the night, light up one stack of wood and raise two torches on top of the look-out. Do not stop until dawn. At the Tianbei and Sanshijing sections of the defenses go along with this as according to the code. (3)
- If the men of the Xiongnu during the day enter through the Sanshijing section of the defenses, east of the Jianglu ("Submitting Enemy") Post, raise one signal and light up one stack of firewood. If they enter during the night, light up one stack of wood and raise one torch on top of the look-out. Do not stop until dawn. At the Jiaqu and Tianbei sections of the defenses go along with this as according to the code. (4)
- If the men of the Xiongnu during the day enter through the Sanshijing section of the defenses, east of the Yuanlu ("Hold the Enemy at Bay") Post, raise one signal and light up one stack of firewood. On top of the look-out set one smoke signal. If they enter during the night, light up one stack of wood and raise one torch on top of the look-out. Do not stop until dawn. At the Jiaqu and Tianbei sections of the defenses go along with this as according to the code. (5)
- If the men of the Xiongnu cross the protective glacis of the posts along the way outside the Xuansuo ("Hanging Rope") Checkpoint at the Sanshijing section of the defenses, and disappear, raise one signal, set one large flag on top of the enclosure, and light up two stacks of firewood. If they do not disappear, do not light up firewood. The rest as according to the agreements. (6)
- If the men of the Xiongnu enter into the area of the Chengaobei Post of the Sanshijing section of the defenses or the Xuansuo Checkpoint, raise a signal and light up stacks of firewood as usual. If they (enter) south of the Chengao [sic!] Post of the Xuansuo Checkpoint and Sanshijing, raise signals as usual, (but) do not light up firewood. (7)
- If the men of the Xiongnu enter through the Tianbei section of the defenses and, after you raised three signals, enter again into the area of Jiaqu, consecutively raise signals along the river. If afterwards they enter into the area of Sanshijing, raise (signals) consecutively and on the top of the look-outs (raise) signals on high poles. (8)
- If the men of the Xiongnu enter through defenses and those who defend the stations and forts cannot descend (from their towers) to light up firewood, the next station in line is supposed to raise the signal and light the firewood and the others go along with this one after the other as according to the code. (9)
- If the stations and posts at the barrier observe men of the Xiongnu outside the defenses, each should raise the signal of its district, as according to the code. Do not light up firewood. If an error occurs, take down the signal immediately and put out the fire. The lieutenant of the company leader shall then speed with a dispatch to report to the (provincial) headquarters. (10)
- If at night you hear the voices of the Xiongnu men or their horses, or if during the hour of twilight you observe men of the Xiongnu outside the defenses, each (unit) should raise the signal of its district. The next station in line shall stay covered and not go along. If they (then) enter (during that) night raise one torch fire and do not stop continuing the whole day. In the (next) night put the fires out. (11)
- If the officials and officers of the prefecture or in the fields, or the directors, leaders, deputies, or lieutenants observe signals and/or fires going up, immediately let the officers and people … the signals … those who farm or herd animals on civilian fields within the district of the Chengaobei Post … as an order! (15)

- If the men of the Xiongnu enter through the defenses and the weather is stormy with wind and rain, so that no signals and fires can be prepared, immediately transmit a dispatch and tell the others to hasten their horses and speed up as fast as they can because of an emergency. (16)
Aforegoing are the agreements on the signal fire codes. (17)

3. Administration in Practice

To conclude this section on institutions, we have to make mention of the scattered references to non-Chinese auxiliary troops, such as the two examples below. No attempt has been made to collect all of these. The first example below is a title strip for a ledger. There is no photo of this strip in Lao (1957) but only in Jiayibian (1980).

Source 14
□屬國胡騎兵馬名籍 (A35-512.35B)
… Name list of barbarian horsemen from the dependent nations and their weapons and horses

Source 15
入胡騎車粟八十三石八斗 (EPT52:12)
Taking in cartloads of grain for the barbarian horsemen, 83.3 bushels.

4. Place Names

Perhaps the most telling evidence for the omnipresence of the Xiongnu are the numerous names of units of border defense – usually small beacon or relay stations – at the northern frontier. They have been assembled by Nagata (1989). Since they are without exception made up of just two characters, it comes as no surprise that we don't find the name Xiongnu used in any of them, but instead the usual "enemy" and "barbarians." Examples include Zhilu 制虜 (Controlling the Enemy), Wanglu 望虜 (Spotting the Enemy), Jinglu 驚虜 (Scaring the Enemy), Shoulu 收虜 (Taking in the Enemy), Qionglu 窮虜 (Exhausting the Enemy), Pinglu 平虜 (Pacifying the Enemy), Zhelu 遮虜 (Obstructing the Enemy), Gonglu 攻虜 (Attacking the Enemy), Bulu 捕虜 (Capturing the Enemy), Yaolu 要虜 (Coercing the Enemy), Leilu 累虜 (Wearing out the Enemy), Polu 破虜 (Destroying the Enemy), Mielu 滅虜 (Extinguishing the Enemy), Zhilu 止虜 (Stopping the Enemy), Jianglu 降虜 (Subduing the Enemy); Chihu 斥胡 (Ousting the Barbarians), Daihu 代胡 (Replacing the Barbarians), Yihu 夷胡 (Exterminating the Barbarians), Nihu 逆胡 (Opposing the Barbarians), Shenghu 勝胡 (Defeating the Barbarians), Tunhu 吞胡 (Swallowing the Barbarians), Yanhu 厭胡 (Loathing the Barbarians), Zenghu 憎胡 (Detesting the Barbarians), Pohu 破胡 (Destroying the Barbarians), Weihu 威胡 (Awing the Barbarians), Linghu 淩胡 (Insulting the Barbarians), Fuhu 服胡 (Subordinating the Barbarians).

Local Events

Manuscripts about the Xiongnu of a purely local and temporary nature can be classified into two main categories: Firstly, alert dispatches that were sent from the regional headquarters to

the military and civilian units at the frontier and warned them about an impending enemy raid, usually citing as their basis earlier sightings of large enemy forces gathering outside the border, which also stressed the urgency of the matter. Secondly, reports about those sightings as well as actual incursions or fighting and abductions that had occurred.

1. Alert Dispatches

Many small fragments of alert dispatches remain, characteristically written on long rods with multiple writing surfaces, though other formats are found as well, perhaps to be identified with copies made from those rods for archiving purposes. Two of the most comprehensive and clearest examples, from Juyan and Dunhuang respectively, shall be introduced below. In the first source, an original slash "／" is used to indicate the separation between the original report about the enemy sighting and two subsequent alert warnings made out consecutively at different levels of the administration. All three documents were copied onto one rod and given a title. The divisions between theses four parts are marked by line changes in the translation.

Source 16

廣田以次傳行至望遠止 (A10-278.7B, upper register)[49]

十二月辛未，甲渠毋傷候長安、候史佪人敢言之：「蚤食時臨木隧卒咯人望見河西有虜騎廿，□北地□中，即舉蓬，燔一積薪。虜即西北去。毋所失亡。敢言之。」／十二月辛未，將兵護民田官，居延都尉□、城倉長禹，兼行〔丞事〕(7A) 寫移疑（檄）：「虜有大眾，不去，欲并入為寇，檄到，循行部界中，嚴教吏卒驚烽火，明天田，謹迹候，候望，禁止往來行者，定蓬火，輩送便兵戰鬥具毋為虜所萃槧，已先聞知失亡，重事，毋忽，如律令！」／十二月壬申，殄北、甲〔渠〕(7B lower register) 候長隻[50]、未央、候史包、隧長畸等疑（檄）：「虜有大眾，欲并入為寇。檄到，隻等各循行部界中，嚴教吏卒，定蓬火，輩送便兵戰鬥具毋為虜所萃槧。已先聞知失亡，重事，毋忽，如律令！」(7C)

(Issued by:) Guangtian (unit). To be transmitted by relay to every unit in the line all the way up to Wangyuan ("Observe the distance") Post. (278.7B)

In the 12th month, (the day) xinwei, An, leader of the Wushang ("No Harm") Platoon of Jiaqu (company), and platoon clerk Huairen would like to report: "At the hour of breakfast, Leren, serviceman of Linmu ("Near the Woods") Post, observed from the distance that west of the river there were twenty enemy horsemen, in the ground north of …, and he immediately raised signals and lit up one stack of firewood. The enemy then left in northwestern direction. No losses were incurred. End of report."

In the 12th month, (the day) xinwei, leading troops to protect the people, fields and offices[51], … (name)…, lieutenant commander of Juyan, and Yu, the director of the municipal granary, concurrently conducting the business of [the deputy], (7A) copied and transmitted a dispatch: "The enemy has a large force and has not left, (but) wants to jointly enter and conduct raids. When the dispatch

49 This is the upper register of a rod with multiple writing surfaces. These were marked by A, B, and C. The title of the document appears on the B surface above an impression that was filled with sealing clay. Beneath that seal case is the middle part of the text. The rod was found in the 1930s at a site designated A10. Cf. Loewe 1964; Ōba 1992, 242; Lao 1957, pls. 520-5, here the sides are wrongly designated.

50 In the original manuscript this name is written with a 糸 signifier.

51 It is possible that tianguan 田官 refers to an "agricultural office" or the leading officer of such a unit. In this case however, he must be identical with the lieutenant commander of Juyan because no personal name is entered for an "agricultural officer."

arrives, patrol within the borders of your section and strictly instruct the officers and servicemen to be on the alert for beacon signals, to clearly (prepare) the protective glacis and carefully check and watch out and observe (developments in) the distance. Prohibit travelers going back and forth, establish the beacon signal (codes), and see each other off, so that weapons and fighting equipment are not snatched[52] by the enemy. We have already learned of losses (that occurred). This is a grave matter! Do not be unattentive! (Act) according to the statutes and ordinances!"
In the 12th month, (the day) renshen (i.e., the next day), the platoon leaders of (7B) Tianbei and Jiaqu, …(name) and Weiyang, the platoon clerk Bao, and the leader of the Post, Ji, (transmitted) a dispatch: "The enemy has a large force and wants to jointly enter and conduct raids. When the dispatch arrives, all of you should patrol within the borders of your section and strictly instruct the officers and servicemen, establish the beacon signal (codes), and see each other off, so that weapons and fighting equipment are not snatched by the enemy. We have already learned of losses (that occurred). This is a grave matter! Do not be unattentive! (Act) according to the statutes and ordinances!" (7C)

Source 17
驚備檄已移。今宜禾都尉復檄言：虜守酒泉破胡隧。檄到。各驚備循行，明教告吏卒，謹迹望，驚試╳ (DHHJ 1248)
The alert dispatch has already been transmitted. Now, the lieutenant commander of Yihe (provincial headquarters) has send another dispatch saying that the enemy holds the Polu ("Destroying the Enemy") Post of Jiaqu. When the dispatch arrives, everyone should be on alert, go on patrol, and clearly instruct and tell the officers and servicemen. Carefully inspect (the protective glacis) and look out. Be on alert and try to …

2. Reports on Enemy Incursions

This category accounts for the majority of source materials, and though the reports do not add significantly to the overall impression we gain from the traditional sources of the Xiongnu as a bane to the border population, they do infuse much concreteness and an acute sense of individual fates. In other words, these materials add the precious perspective of ground zero to our abstract knowledge of the bigger picture as seen from bird's eye view. This local perspective, moreover, does not seem to have changed much over the course of time. Whenever there were skirmishes, the Xiongnu as fearsome aggressors who succeed in pillaging, abducting, and killing remains topical, whether it happened during the early 1st century BC or the early 1st century AD. This can be demonstrated by arranging the sources below in chronological order, which can also be done conveniently because most of these reports are dated. The only source that may present a slightly more complex picture is source 20, more of a personal letter than an official document. Though this source text also recounts vicious attacks by the Xiongnu, it also contains three names on the defenders' side that are not Han Chinese. But it is impossible to say whether these are Xiongnu or other non-Chinese people fighting for the Chinese.

52 At this point the transcription and translation are tentative. Perhaps the warning is not limited to snatching of equipment only, but also asks the soldiers to fight together so that none from among their ranks is abducted. Note that the same text is repeated in the entry from the next level below.

Source 18 (73 BC)
本始元年九月庚子，虜可九十騎入甲渠止北隧，略得卒一人，盜取官三石弩一、稾矢十二、牛一、衣物去。城司馬宜昌將騎百八十二人，從都尉追。 A8-57.29[53]
In the first year of benshi ("Original Beginning") in the ninth month, (the day) gengzi [Oct 14, 73 BC], about ninety enemy horsemen penetrated the defenses at the Zhibei ("Stop the North") post of Jiaqu (company), kidnapping one man and stealing one cross-bow of three-shi pressure that had been issued by the company, twelve (cross-bow) bolts, one oxen, and clothing and left. Yichang, the major of the city, led 182 horsemen and followed the lieutenant governor in pursuing the enemy.

Source 19 (72 BC)
本始二年閏月乙亥，虜可十六騎入毋井辟非╳ (A8-271.9, pl.171)
In the second year of benshi ("Original Beginning") in the leap month, (the day) yihai [July 16, 72 BC], about sixteen enemy horsemen penetrated [the defenses at] Bifei ("Punish the Wrong") [post] of Sajing [company], …

Source 20 (Wang Mang's time, between 9–23 AD?)
甲渠鄣守候君免冠叩頭死罪，奉職數毋狀，罪當 (EPF16:36) 萬死，叩頭死罪死罪。十月廿八日，胡虜犯塞略得吏 (37) 士。毋狀當伏重誅，靡為灰土，叩頭死罪。 (38)
夏良叩頭言：掾厶坐前毋恙，起居安平甚善。先日欲詣門 (39) 下，迫蓬起，萃萃不及詣門下，毋狀叩頭叩頭。得掾明時數。 (40) 又壬午言：虜燔燒孝隧。其日出時乘鄣□□，張駿等候望，(41) ╳竇，虜且圍守。其晨時孝護桃下隧，奏候官言：虜 (42) 冊餘騎皆衣鎧負魯（櫓），攻隧，又攻壞燔燒第十一隧。以北 (43) 見塞外虜十餘輩，從西方來入第十一隧天田。屯止，虜四五 (44) 攻壞燔燒第泰隧以南盡昏竇，烟火不絕。又即日平旦 (45) 萬歲部以南烟火不絕。虜或分布在塊閒。虜皆 (46) 攻居隧、不居隧盡壞塢。 (53) 百騎亭（停），但馬百餘匹、橐他四十五匹，皆備賀併塞來南燔 (48) 第八隊攻候鄣。君與主官譚等格射各十餘發。虜復從塞。 (47) 乏卒，以鄣中□米糒給孤單卒有萬分，恐不能自守，唯 (49) 恐為虜所攻得。案：官中候以下□╳ (50) 力繇奈何，反遣吏去而從後逐之時，蓬起，至今絕留 (51) 府。叩頭死罪死罪敢言之。 (52)
Jun[54], temporary leader of Jiaqu company removes his cap and knocks his head to the ground deserving death. My conduct of duty has frequently been outrageous and my crimes call for (36) my ten-thousand-fold death. I knock my head to the ground deserving death over and over. On the 28th day of the 10th month, the barbarian enemy violated the border and abducted officers and (37) men. This is outrageous and I should be submitted to painful execution being smothered to dust. I knock my head to the ground deserving death. (38)
(I,) Xia Liang, knocking my head to the ground, report: (I hope that you,) Director Sizuoqian (?)[55] are unharmed, live in peace and perfectly well. The other day, I wanted to present myself at (your) gate, (39) but being forced by the emergency signals going up, I made haste and did not come to present myself at (your) gate. This is outrageous and I knock my head to the ground over and over. I have received the director's (i.e., your) enlightenment many times. (40) Again, for the renwu (day), I report: The enemy burned down Xiao's post (or: the Filiality Post). That day, at the hour of sunrise, I rode to the (company) fort … Zhang Jun and others were on guard. (41) … cornered. The enemy moreover besieged (it). That morning, Xiaohutao[56] came down from his post and called upon the

53 Cf. Loewe 1967, Vol. 1, 99–100; Lao 1957, pl. 116.
54 Alternatively, "Jun" (君) is not the name of this official, but a designation, being akin to "Sir". In this case, his personal name might have been Xia Liang 夏良, as seen on strip F16.39.
55 This part is not well understood, especially the third word, "zuo" (坐), meaning "to be guilty of", does not seem to fit the context.
56 This does not seem to be a Chinese name.

company, reporting that enemy (42) horsemen, more than forty of them, all wearing iron armor and carrying large shields were attacking the post. They also had attacked, destroyed and burned down the eleventh post. Towards the north[57], (43) he, Xiaohutao had (/I have?) observed more than ten enemy parties outside the defenses who were coming from the west entering the protective glacis of the eleventh post. They stopped to assemble, and four or five enemies (44) attacked, destroyed and burned down everything south of the seventh post. The sky darkened (?) and smoke and fires did not stop. Then, again, on the next day at the hour of early morning (45) south of Wansui ("Ten-thousand Years") Platoon smoke and fires did not stop. Some enemy (parties) had spread out among the patches (?). All the enemies (46) were attacking manned and unmanned posts, destroying all the walls of the enclosures. (53) When the hundred horsemen stopped, (it were) only hundred or so horses and forty-five camels, all poised to go along the defenses (?) coming south and burning (48) the 8th post, attacking the company fort. The Sir (company leader?) and the main official, Tan, and others fought back and released more than ten shots each. The enemy continued to travel along the defenses. (47) [We] lack servicemen because with the fort … there are ten thousand grain rations provided for the lonely servicemen, (but) I am afraid that they cannot defend themselves. I only (49) fear that they are attacked and captured by the enemy. Let me add that within the (company) office, below the company leader … (50) What could Liluan[58] do? I sent back the officers to leave and when I followed behind them, the emergency signals went up. Until now, I am (?) cut off, remaining (51) in the headquarters. I knock my head to the ground, deserving death over and over. This is my report. (52)

Source 21 (26 AD)

建世二年三月癸亥朔壬申□╳ (EPF22:370A) 敢言之，迺(?)今月二日乙丑胡虜卅騎犯塞入，攻燔(?)╳ (371)

In the second year of jianshi ("Establishing a (New) Era") in the third month, that begins with (a day) guihai, on (the day) renshen [April 15, 26 AD], … (370A) … dares to report the following: As to (?) this month, the second day, yichou, forty barbarian enemy horsemen violated the border and entered, attacking [and burning …] (371)

Source 22 (27 AD)

●萬歲部建武三年六月胡虜所盜兵： (EPF22:432)

第七隧長徐(?)循：今年四月中休田，持隧六石具弩一、稾矢、銅鍭卅枚。迺六月一日胡虜 (433)

虜持循」、弩、箭，去。審。 (434)

- Wansui ("Ten-thousand Years") Platoon, 3rd year of Jianwu ("Establishing the Martial") (27 AD), 6th month, weapons stolen by the barbarian enemy: (432)

Xun [leader of the 7th post (of Jiaqu company)]: Took leave from field work during the fourth month of this year, took with him (of equipment) from the post one assembled crossbow of six shi strength and (crossbow) bolts and bronze arrow heads, forty pieces (in all). Then on the first day of the 6th month, the barbarian enemy …[59] (433)

… enemy took with them Xun as well as the crossbow and arrows and made off. (This has been) checked. (434)

57 Or: "… burned down (places) north of the 11th post".

58 Not sure, if this is a name.

59 There must be at least one strip missing here.

Source 23 (28 AD)

建武四年戊月戊子，從史閎敢言之：「行道，以月十日到橐他候官，遇橐他守尉//馮承，言：『今月二日胡虜入酒泉□□╳ (2000ES9SF3:4A) 入扃水塞，略得焦鳳牛十頭、羌女子一人，將西渡河。虜四騎止都倉西，放馬，//六十餘騎止金關西。』月九日，曰蚤食時…╳ (4B) 前輩到金關西，門下掾誼等皆在金關，不得相聞。閎等在候官，即日餔時，塵烟//火到石南亭，昏時火遂…╳ (4C) 恐為胡虜所圍守，閎即夜與居延以合，從王常俱還到廣地胡池亭止。虜從靡，隨//河水草，北行，虜□…╳ (4D) …□請居延鄣候寫移□□驚當□…」(4E)

In the 4th year of Jianwu (28 AD), 9th month, the day wuzi, associate clerk Hong would like to report: "I was out travelling, when on the 10th day of the month I reached Tuotuo ("Camel") Company and ran into the temporary lieutenant of Tuotuo, Feng Cheng. He told me: 'On the 2nd day of this month the barbarian enemy had entered Jiuquan (province) … (4A) … had entered the defenses at Jianshui ("Close to the Water") and abducted ten cattle from Jiaofeng and one Tibetan woman. They led them west across the river. Four enemy horsemen stopped west of the town granary to let the(ir) horses roam. More than sixty horsemen stopped west of Jinguan ("Gold Checkpoint").' On the 9th of the month, at the hour of breakfast (4B) … the former party arrived west of Jinguan. Yi, the director of the governor's office and his men were all at Juyan, we could not hear from each other. I and the others were at the company office. Then, at the hour of lunchtime, dust, smoke and fire came to Shinan ("South of the Rocks") Station. At the hour of twilight, fire then … (4C) I was afraid that they had been besieged by the barbarian enemy. During the following night, I went to Juyan to join (forces) with and follow Wang Chang. We returned together until we reached the Huchi ("Barbarian Lake") Station of Guangdi (company), where we halted. The enemy had since dispersed following the water of the rivers and the grass going north. The enemy …." (4D) … please let the leader of the Juyan company fort copy and transmit (this) … alert Dang …" (4E)

Source 24 (30 AD?)

迺今月十一日，辛巳，日且入時，胡虜入甲渠木中 (EPT68:83)[60] 隧塞天田，攻木中隧。隊長陳陽為舉堠上二 (84) 蓬、塢上大表一，燔一積薪。城北隧助吏李丹 (85) 候望見木中隊有煙，不見蓬。候長王褒即使 (86) 丹騎驛馬一匹馳往。逆辟。未到木中隧里所，胡虜四步人 (87) 從河中出，上岸逐丹。虜二騎從後來共圍遮。略得丹及所騎 (88) 驛馬，持去。●案：褒典主而擅使丹乘用驛馬， (89) 為虜所略得，失亡馬。 (90) 褒不以時燔舉而舉堠上一苣火，燔一積薪。燔舉不 (91) 如品約。 不憂事邊。 (92)

It was on the 11th day, a xinsi day, of this month, shortly before sunset, that the barbarian enemy entered at Jiaqu's ("First Canal" company) Muzhong ("In-the-Woods") (83) Post section the protective glacis and attacked the Muzhong Post. Chen Yang, the leader of the post, raised two signals on top of the look-out (84) and a big flag on top of the enclosure, and he lit up one stack of firewood. Li Dan, the assistant officer of Chengbei ("North of the town") Post, (85) was on guard and observed from the distance that there was smoke at the Muzhong Post. He did not see the signals. Thereupon, platoon leader Wang Bao let (86) Dan mount a courier horse and speed towards (Muzhong Post). That was against the regulations. When he was still about a li (c. 400 m) away from the Muzhong Post, four barbarian enemies on foot (87) emerged from the river, climbed up the embankment and pursued Dan. Two enemy horsemen came from behind and together they surrounded and stopped Dan. After they had caught him and the courier horse (88) that he had mounted, they made off with them. – Note: (Wang) Bao was in charge and let Dan mount a horse that had been detailed for the

60 Also translated by Hulsewé 1997, 213–214, and dated to 30 AD. The basis for the exact dating is unclear.

courier service (89) and (Dan) was caught by the enemy and lost the horse. (90) Bao did not light up and raise signals on time, but raised (only) one torch on top of the look-out and lit up one stack of firewood. What he lit up and raised was not (91) according to the agreements on the codes. (Category of infringement/This is:) Negligence in frontier service. (92)

Source 25 (30 AD)
出五石具弩一假亭隧建武六年四月十六日，胡虜犯塞入，吏格鬬，失亡。(EPF22:318)
出稾矢銅鏃六十假亭隧建武六年四月十六日，胡虜犯塞入，吏格鬬，失亡。(319)
Out: One assembled crossbow of five shi strength. Jiating Post, 6th year of Jianwu, 4th month, on the 16th day (June 5, 30 AD), barbarian enemy violated the border and entered. The functionaries fought back, (but) lost (the equipment). (318)
Out: 60 bronze heads for crossbow bolts. Jiating Post, 6th year of Jianwu, 4th month, on the 16th day (June 5, 30 AD), barbarian enemy violated the border and entered. The functionaries fought back, (but) lost (the equipment). (319)

A Final Consideration

As has been noted above, the perspective on the Xiongnu in these materials is not really different from that of the traditional memorials: the Xiongnu are portrayed as a wicked, fierce, and almost faceless enemy. With the exception of "barbarian" auxiliaries (sources 14, 15, and perhaps 20), whose ethnicity, however, is inconclusive, they do not seem to occur much in other roles, such as neighbors and partners in border trade or objects of ethnographic, or otherwise just human, curiosity. That poses the question of how ethnicity was perceived at the time in that frontier society. Because of the auxiliary guards in the Latter Han army, there must have been at least some experience on the interpersonal level with people looking (slightly?) differently and talking in another language. But whether or not ethnicity was a concept in the minds of the Han border guards, it does not seem to have been something that was expressed by the term "Xiongnu". Rather, the only perceivable term to express difference in outlook and, perhaps, language, would have been "hu" (i.e. "barbarian"), which was used for non-Chinese on both sides of the wall. By contrast, not only the unambiguous "enemy" but also the pseudo-ethnic term "Xiongnu" were perhaps used exclusively for whomever the Chinese encountered on the other side of the great divide that was the Northern Border.

STATELESS EMPIRE: THE STRUCTURE OF THE XIONGNU NOMADIC SUPER-COMPLEX CHIEFDOM

Nikolai N. Kradin

Introduction

The Xiongnu formed the first nomadic empire in Central Asia. The military and political talent of Modun, the founder of the empire, played a great role in the process of political formation, which began amidst the need to resist the aggressive territorial expansion and acculturative efforts of the Chinese to the south. This nomadic empire was configured internally as a chiefdom and tribal confederation, and outwardly as a conquesting xenocratic nomadic polity. Every pastoral nomad, chief, follower, or ordinary herder was included within a social structure of genealogically-based inequalities among the various tribes and clans. At the same time, every nomad was also a warrior in a military structure organized according to a decimal system.

Over a period of 250 years, dramatic military, economic, and diplomatic interactions occurred between the Xiongnu and their southern neighbors, the Chinese Han dynasty. During those 250 years China had not been able to gain complete control over the Xiongnu problem. The nomadic empire of the Xiongnu collapsed because of the ecological catastrophe of 44–46 AD and a surplus of elite people with their struggle for power. Despite the fact that the population of Han China, according to a census taken during the middle of the dynasty, has been counted at about 60 million people as compared to the total population of nomads north of China, which is postulated as not reaching 1.5 million people, the Xiongnu still managed to withstand, and parlay on equal terms with, the Qin and Han dynasties.

There exists a significant amount of historical records concerning Xiongnu history that provide some of the earliest information about the social organization of pastoral nomads, and the Xiongnu are one of the rare groups of ancient nomadic peoples of Asia – just like the Scythians in Europe – for whom so many archaeological sites and materials have survived to be discovered. To a certain extent, this allows for the use of conclusions drawn from historical evidence of Xiongnu society in reconstructions of the political organizations of other Eurasian nomads during equivalent ancient times. Also, the initial interests within Western scholarly fields in the examination of Xiongnu society was mainly mediated by the myth of the great migration of the Huns to Europe from their Asian homeland. Since the Xiongnu entity was the first large political union of nomad groups in Asia, this of course begs the question: What are the principles for its formation? The basic principles of the Xiongnu political system – decimal hierarchy, centralized power, triple-dual separation – can be, to one extent or another, documented down through developments of subsequent nomadic empires in Eurasia. Was this an accidental outcome resulting from similarities in steppe societies or a deliberate adoption of political precedents that led to a transfer of traditions?

FORMATION OF THE XIONGNU EMPIRE

Many scholars have postulated that political integration and the subsequent appearance of an early state system depend on many internal and external factors, including ecology, agriculture, population density, technology, conquests and military pressure, cultural influence, foreign commerce and so on[1]. However, the roles of such factors in the social evolution of nomadic societies differed due to the ecological and economic particularities of the numerous arid zones which they occupied. Although settled peoples often developed more technologically advanced industries than their nomad counterparts, prevailing strategies such as horse and camel stockbreeding generated increased mobility and military capability that allowed for domination of steppe peoples in Eurasia and North Africa during pre-modern times.

Researchers of steppe groups have proposed numerous reasons for the formation of a nomadic empire. These include drastic climatic changes, like drought or flooding, an inherent militant lifestyle of the nomads, and demographic and economic pressures which forced nomads to reach beyond the steppes, preying on weak and fragmented settled societies and supplementing their own weak and imbalanced pastoral subsistence bases with the spoils of raids from agricultural groups. While the majority of these notions have their own explicable rationale, the nature and importance of many associated aspects have been overestimated.

Hypotheses of conflict struggle for political formations have proved to be erroneous[2]. At present, paleo-geographical data do not show any significant periods of steppe desiccation, humidification with periods of decline, that correlate with the rise and fluorescence of nomadic empires (Ivanov/Vasil'ev 1995, Tab. 24; 25). The possible role of demography in sociopolitical change is not entirely understood, since increases in livestock, rather than human population, appeared to be the more principal problem of overcrowding in the steppe territories. Significant increases in livestock counts would often lead to the destruction of pastures through overgrazing and thus a crisis of the ecosystem. The nomadic lifestyle can, naturally, contribute to the development of some military characteristics, especially in cavalry and overall mobility, but settled agricultural societies outside the steppes were often exponentially more populous, established more defendable permanent fortifications, and developed more complex subsistence economies and craft industries.

From an ecological standpoint, pastoral nomadic groups do not need a state structure to have a stable economy. Pastoralism in the steppes retains a specific character of an extensive mode of management. A concentration of large herds at the same place leads led to overgrazing, excessive trampling down of grass, and a higher risk of infectious diseases spread among animals. Furthermore, livestock cannot be hoarded or amassed to infinite amounts in a single area. Thus, despite any potentials of productivity in pastoral economies, maximum accumulation quantity of livestock in any individual locale is limited by the pasture quality of the landscape. In addition, regardless of precautions taken, the majority or entirety of a herd could be decimated by summer droughts or "zud" winter disasters[3]. Therefore, it was more secure and profitable for individual

1 Carneiro 1970; Claessen/Skalník 1978a; Haas 1982; Korotaev/Chubarov 1991; Earle 1997; Kradin et al. 2000; Trigger 2003; Grinin et al. 2004; Rogers 2007, and others.

2 Markov 1976; Khazanov 1984; Kradin 1992; Kradin/Skrynnikova 2006.

3 Winter disasters, called "zud" in Mongolia, occur as "white" disasters: heavy precipitation covers the pastures deep in snow; "black" disasters: minute precipitation leaves almost no pre-winter rains or late-winter melting snow to hydrate pastures and is often accompanied by colder temperatures; and "iron" disasters: fluctuating temperatures melt snow and continually refreeze it as a hard ice over the pastures.

herder groups to partition livestock out for pasture to fellow kith and kin. Livestock could be "loaned" out to those who did not possess sufficient herds, thereby allowing for the distribution of large accumulations of animals across an essentially wider expanse of pastures and in the hands of greater numbers of caretakers while still retaining nominal ownership. Livestock could also be distributed as "gifts", thereby raising the social status of the donating herder groups or individuals. In this scheme, all aspects of herd management, distribution, and production could be carried out within extended local networks of family relations and lineage groups, only episodically employing labor co-operation at the sub-tribal and tribal levels. In addition, considerable pressure on mobile herders from a tribal chief, or other supra-local leader who sought to gain personal power, could lead to mass departing away from them[4]. These circumstances meant that the intervention of supra-local leaders was relatively insignificant and thus cannot be compared with the numerous administrative obligations of rulers in settled agricultural societies. By virtue of this collective situation, the power of supra-local leaders in the steppe societies could not develop on the basis of regular taxation of herders, and the steppe elite had to rely on systems of gifts and irregular presents.

If not a necessity of the pastoral mode of production, then, in such situations, what incited pastoral nomads to create large empires and conduct raids? The eminent researcher of Mongolian nomadism, Owen Lattimore (1940, 522), who spent a prolonged period among pastoralists of Mongolia, wrote that a nomad can easily manage with the products received from his herd of animals, but a pure nomad will always remain poor. Nomads are in need of foodstuffs of farmers, products of craftsmen, silk, arms and refined adornments for their chiefs, chiefs' wives and concubines. All this can be obtained from two ways: war and peaceful trade, nomads used both ways. When they felt their superiority or invulnerability, they mounted their horses and left for a raid. However, the neighbor was a powerful state and pastoral nomads preferred to carry on with it a peaceful trade. But quite often governments of settled states prevented trade as it went out of control. At that time, nomads had to assert their right for trade by using arms.

The complicated hierarchical organization of power in the form of nomadic empires and similar political formations was developed by nomads only in those regions where they have been forced to have long and active contacts with more highly organized agricultural-urban societies, like in the case of the Scythians with the ancient oriental and western states, the nomads of Inner Asia with China, the Huns with the Roman Empire, the Arabs, Khazars and Turks with Byzantia[5]. In Khalkha-Mongolia, the first steppe empire – Xiongnu – has emerged just as in the Middle China plain after a long period of internal wars the Chinese national centralized state emerged – the Qin and afterwards the Han empire (Kradin 1996, 19–27; 34–49). The nomadic empire can be defined as a nomadic society organized on a military-hierarchical principle, occupying a large space and exploiting nearby territories. Exploitation took, as a rule, external forms of exploitation, like robbery, war and indemnity, extortion of gifts, non-equivalent trade, laying under tribute, etc. One can identify the following characteristics of nomadic empires:

1 multi-stage hierarchical character of the social organization pierced at all levels by tribal and super-tribal genealogical ties; 2 dualistic (into wings) or triad (into wings and center) principle of administrative division of the empire; 3 military-hierarchical character of the social organization of the empire's center, frequently on the decimal principle; 4 horse relay messenger

4 Lattimore 1940; Markov 1976; Irons 1979; Khazanov 1984; Fletcher 1986; Barfield 1993; Kradin 1992; Masanov 1995; Golden 2001, and others.

5 Lattimore 1940; Khazanov 1975; 1984; Barfield 1981; 1992; 2001b; Fletcher 1986; Kradin 1992; 1996; Golden 2001; Honeychurch/Amartüvshin 2006a and others.

service "iam" as a specific way of organizing the administrative infrastructure; 5 specific system of power inheritance where the empire is property of the whole khan clan, the institution of a co-government, "khuriltai"; 6 specific character of relations with the agricultural world (Kradin 1992; 2003).

It is necessary to distinguish the classical nomadic empires from similar mixed agricultural-pastoral empires, in which the nomadic element played a great role (Arabian caliphate, state of Seljuks, Danube Bulgaria and Volga Bulgaria, Ottoman Empire) and quasi-imperial nomadic statehood formations, which were smaller than empires, like the European Huns, Avars, Hungarians, Azov Bulgaria, Kara-Khitans, and the Tatar Khanates after the collapse of the Golden Horde.

Three models of nomadic empires (typical, tributal, aggressive or conquest) are identified:

1. Nomads and farmers coexist over a distance, acquisition of surplus product is provided through distant exploitation with raids and extortion of gifts (racket, in a certain sense), etc. This model applies to the Xiongnu, Xianbei, Turks and Uighurs.
2. Farmers under nomad rule with an exploitation by tribute payment, as it is the case for the Golden Horde and the Yuan dynasty.
3 Nomads conquer the agricultural society and migrate into its territory, a regular taxation of the farmers and townsmen takes the place of robbery and tributes, like for example the Wei dynasty of the Tuoba Xianbei, Il-khan state (Kradin 1992, 166–178; 2000; 2003).

There are four identified variants of how steppe polities could possibly emerge: the Mongolian way – through usurpation of power; the Turkic way – in the process of struggle for independence; the Avar way – by migration to the territory of the agricultural state; the Khazar way – separation of independent polities from one great steppe empire, like the separation of Khazars from the First Turk Khaganate.

The process of the Xiongnu power formation was implemented in accordance with the above mentioned principles. Xiongnu power conforms to the first, most prevalent model. The appearance in the nomadic environment of a talented political and military figure, like Modun of the Xiongnu, Tanshihuai of the Xianbei, Shelun of the Rouran, Abaoji of the Kitan, Chinggis Khan of the Mongols, who has managed to join all tribes and khanates into a common steppe power is characteristic.

As a whole, the history of the Xiongnu power formation fits in the general picture of the origin of nomadic empires in Eurasia. Sima Qian depicts in Chapter 110 of the "Shiji" how a chanyu ruler of the Xiongnu should be, and how he should capture the throne (Sima Qian 1959, 2888 pp.; Zhongyang 1958, 15–16), however, in this story, the echos of true historical events and elements of fantasy are mixed. This story resembles more a fiction than reality as it contains several incredible aspects: Political revolutions are prepared in secret. In this case, all the preparatory measures had been carried out in concourse and it is not likely that chanyu Touman had no knowledge of them; Why did the murder of the loved (!) wife by Modun remain unpunished? How did he explain such a cruel action to his father and his wife's relatives? Why did a custom of blood feud not infringe on him? The number of the loved wives was quite great: three in the story; Why did the chanyu and his retainers fail not only to stop a terror that was unleashed by Modun in his district but also had no knowledge of repression?; How did Modun make himself so bold as to kill his loved horse before his father's eyes? It is common knowledge what value the horse has for a nomad and striking a blow to another's runner implies striking a blow to its owner; The fact of the father's murder itself is very doubtful. In the history of the nomadic world, the events of murders in the struggle for the throne were often noted. But I do not know any other ruler of a nomadic empire who killed his father.

Therefore the existence of chanyu Touman as a real historical person can be questioned. Shiratori (1902) and Hirth (1900) noted a consonance of this name with the word "tuman" meaning "ten thousand" warriors. Thus, it is possible that Touman is a collective image but not Modun's real father.

On the whole, the story of Modun's advent to power closely resembles a tale or epic work. The text has a clear composition structure and is divided into two parts. In the first one, a sequence of events of Modun's advent to power is depicted, while, in the second, an account of his diplomatic relations with the Donghu ruler and war against him is given, which comes to a happy end as it often happens in literary works. All events in both parts run on the principle of chain, and the tension grows gradually until it finally ends with some action. Such a way of text construction is called an effect of cumulativity by V. Propp (1976), and was widely used in different forms in folklore works.

The second fundamental likeness of the story of Modun's rise with folklore works consists in a principle of triplicity. All events of the chain are repeated three times (as in a tale) but every time with a cumulative increase in tension[6]. Initially, Modun shoots at his horse, then at his wife and at his father's horse. Only at the third time, he won the unanimous support on the part of his fighting men. In the second part, he gives up his horse and wife and only at the third time he mounts a horse and takes the field against the Donghu.

The third likeness with folklore works is present in the composition structure. In the folklore, horse and wife are traditional elements, and the enemies threaten to capture them from the main hero, as for example, Jangar, Geser or tales. Twice, Modun was forced to leave the beloved wife and loved horses.

The fourth likeness of the story of Modun's rise with folklore works lies in the description of the main personages. In the epics and tales, all main characters are positive. They express, as a rule, the ideas of the ethnic or mass consciousness. Even if the protagonist is forced in the course of events to accomplish actions which are condemned in real situations, this does not apply for the hero of the tale. In the case of Modun, we see an absolute analogy with the aforementioned.

Here, new questions arise and two of them appear to be most important. The first one is related to the dating of all the events mentioned in the legend. Time in folklore works is not consistent with real time. It obeys the subject and changes in accordance with the events (characters). But the second question is even more complicated: who was the founder of the black legend of chanyu Modun? The answer to this key question provides us with a clue to solve the problem as a whole.

By the logic of the legend, everybody must ferociously hate him. He is a usurper, patriarch and tyrant. However, in legend and reality, Modun does not appear as a dictator[7]. Thus, Sima Qian's story of Modun's advent to power cannot be considered as a reliable account of the events occurring in Mongolia at the turn of the third to the second century BC. Conclusively, one can only say that Modun came to power by means of usurpation and, thereafter, he defeated the Donghu and forced them to pay tribute.

During the period immediately preceding the accession of Modun to the throne at the turn of the 3rd to the 2nd century BC, Xiongnu society appears as a centralized political system with

6 The following particular story is narrated in Sima Qian 1959, 2889.

7 Here, a certain parallel comes to my mind with the literary image of Chinggis Khan and his role in the history of the Mongol empire.

social stratification, as the title of the Xiongnu chanyu, rules of inheritance, etc. suggest. The last hypothesis is indirectly supported by the studies of monuments of the Warring States period in Inner Mongolia, which were earlier attributed to the Xiongnu (but see Pan Ling, this volume). Already in this earlier period, significant social differences in the funeral rites are visible in society. Burials of the nomadic aristocracy and chiefs contained numerous furnishings made of gold and bronze. Within a single burial at the famous cemetery of Aluchaideng in Inner Mongolia, where 218 items with a total weight of more than 4 kg and artifacts made especially for chiefs were discovered: a plate with the title "shao fu", furnishings for a ceremonial cap, which were worn by Xiongnu chiefs (Tian/Guo 1980a; 1980b).

The main reason for the integration of tribes and chiefdoms of the Xiongnu into a centralized imperial confederation was the formation of a common centralized state on the Chinese plain, at first, the Qin empire and afterwards the Han empire. The Xiongnu quickly felt the consequences of Chinese integration. Already in 215 BC, a large army (100,000–500,000 people) re-conquered from the nomads the Ordos, renowned for its succulent pastures, by order of the Qin ruler (Sima Qian 1959, 2886). On the retaken territories, the Chinese constructed more than 40 fortresses and roads, and populated this territory with convicted offenders. The erection of the Great Wall was still more impressive ("walls of 10,000 'li' length") which, in accordance with the intention of the Chinese, was supposed to be a firm barrier on the way of the barbarian raids from the north. The Wall was constructed by a vast number of soldiers, convicted offenders, state slaves and peasants mobilized from all provinces of the empire by force.

In order to successfully oppose China, the nomads needed to join into a nomadic empire. However, in contrast to the tribal confederation, the political structure of the steppe empire was highly personified and depended on the personal talents of its ruler. The chanyu (khagan, khan) was never surrounded with such splendid and secretive ceremonies as the Chinese emperors or other rulers of the agricultural countries. His purpose was quite material: to organize a receiving of booty and to distribute it among the tribes. He could not in person take part in the forays and battles, but he was responsible for a result. If the ruler of the steppe power did not meet the expectations of the tribes, the empire could break into smaller quasi-imperial polities. At last, when the chanyu died, there was a certain risk of the steppe empire collapse. It was insufficient for his heirs to assert their legal rights to come to the throne, in addition, they were supposed to demonstrate a presence of real personal talents.

The arranged military system has formed the basis for the domination of the Xiongnu in Inner Asia. The Chinese sources repeatedly mention the aggressive way of life of the northern neighbor. From early childhood, boys and youths were in training in archery and horse races. All of the adult men were members of the military-hierarchical organization of the Xiongnu society[8]. The chroniclers called the Xiongnu power figuratively the "empire of military horses", while they compared the nomads themselves with a "whirlwind" or "lightning" (Ban Gu 1962, ch. 72; Zhongyang 1958, 233; Taskin 1968, 75). In the official documents the Xiongnu are called, in contrast to the settled Chinese, as "those who draw the bow" (Sima Qian 1959, 1347; 2896; Zhongyang 1958, 32). However, the militarization of life was only a prerequisite for the subsequent successful battles. The organizational and military transformations, especially, the decimal system and harsh military discipline established by chanyu Modun, have played a more important role. The advantages of the decimal system are quite evident. The military history gives

8 Sima Qian 1959, 2879; Watson 1961b, 129; Zhongyang 1958, 3; 31; Taskin 1968, 34; 36.

a countless number of examples where armies have been victorious over superior forces only by the fact that they had the better inner organization.

At periods of might of the Xiongnu empire, the tribes and chiefdoms of the confederation had used, with respect to their neighbors, different forms of distant exploitation and tribute. For example, they have received a tribute from their implacable enemies, the ancient population of Donghu or Wuhuan. The peoples of Sayan, Altai and Tuva have also been forced to contribute. They were ruled by the Xiongnu governor-generals and supplied the metropolis with ore and handicraft products[9]. The settled population of the rich oases of Central Asia rendered tribute to the nomads by wool, clothes and handicraft products and fulfilled their obligations. The nomads also controlled the profitable caravan routes to the Western countries[10]. The other prevailing form of distant exploitation entailed plundering raids on neighbors with the objectives of robbery and taking captives. At last, it is known that the peoples dependent on the Xiongnu were obliged to provide military support for operations on the metropole of the nomadic empire or to fulfill similar obligations within their territories[11].

These times did not last forever. During periods of crises and weakening of the Xiongnu, peoples dependent on the power ceased to render tribute, to provide the military units and even themselves, (and/or in agreement with the Chinese), they conducted plundering raids on the possessions of the former suzerain. However, as soon as the situation within the metropolis of the nomadic empire had stabilized, the punitive raids of the Xiongnu military leaders returned the insurgents and traitors to submission. This situation has practically remained until the collapse of the Xiongnu empire at the end of the 1st century AD.

The Economy of the Xiongnu Empire

The Chinese chronicles describe the Xiongnu way of life. Very early, in his chapter 110, the great Chinese historian Sima Qian writes about the northern neighbors:

"As for their livestock, they have mostly horses, cattle and sheep... children are able to ride the sheep, to shoot at birds and mice using a bow; when they grow older they shoot at foxes and hares which are used then for food; all virile youths who are able to bend a bow act as armored cavalry. It is their custom, during peaceful times to herd livestock and hunt birds and beasts as their occupation, while at critical times the people train in the military arts in order to carry out raids" (Sima Qian 1959, 2879; Lidai 1958, 3; 31; Taskin 1968, 34; 36.).

Strangely enough, similar circumstances have been observed one and a half millennium later by the Venetian merchant Marco Polo (Komroff 2001, 76–78). Comparable descriptions concerning nomads are visible in the studies of 19th to early 20th century (Przheval'skii 1875, 141; Maiskii 1921, 33–35; Radlov 1989, 130; 153–162; 168; 260; 335). However, it is strange that the

9 Ban Gu 1962, 3010; 3797 pp.; Zhongyang 1958, 244; Bichurin 1950a, 103; 105; 144; 216; 1950b, 161; 188; Taskin 1973, 54; 126; 1984, 65; 297–298; 328.

10 See especially Ban Gu 1962, 3797 pp.; Zhongyang 1958, 16; 18; 29; 205; 208; 241; Bichurin 1950a, 45–50; 55; idem 1950b, 155; 218; Taskin 1968, 38–39; 41; 43; idem 1973; 25–26; 30; 49; 125; idem 1984, 65.

11 For descriptions of Xiongnu relations with foreign elements, see chapters 99 and 110 of Sima Qian (1959) and chapter 70 of Ban Gu (1962). Citations from Russian translations include: Bichurin 1950a, 54; idem 1950b, 155; 214; Taskin 1968, 40; 70; 75; idem 1973, 125 etc.

Xiongnu population and quantity of livestock are quite commensurable with the Mongol population and their livestock in the early 20th century (Maiskii 1921, 67; 124; 134; Egami 1963; Khazanov 1975, 264–265). All of this allows us to assume that many of the most important features of the economy, the social organization, the way of life and the mentality of nomads of the Mongolian steppe were determined by the specific ecology of arid zones and that, basically, they had changed little from antiquity to more recent times. As a whole, such ecological and economical adaptation requires quite restricted and simple mode of existence.

It is seemingly simpler for nomads to supplement their economy with agriculture. Signs of agriculture are found in many pastoral cultures. However, mass sedentism and agriculture are only possible where the annual precipitation is not less than 400 mm or a branched river network occurs (Masanov 1995, 41). The greater part of the Mongolian territory within which the Xiongnu migrated does not conform to these conditions. Only 2.3% of the lands are suitable for agriculture.

In addition, an abandonment of the mobile way of life was considered by nomads as an undesirable alternative. Free nomads have not taken to sedentariness as they conceive such a way of life as offensive. It is not accidental, for example, that the medieval Mongols and Tatars had the proverb "let you as a Christian stay at one place and smell your own stench" (Mekhovskii 1936, 213). Therefore, as numerous ethnographic data show, nomads who had to change to a settled way of life considered their state as forced and at the first opportunity returned to mobile pastoralism (Tolybekov 1959, 335–338; Markov 1976, 139–140; 163; 165; 243–244; Khazanov 1984, 83–84 etc.).

For these reasons, nomads preferred to develop the agrarian sector in the economy by including settled population of neighboring states into their societies. These could be: captive farmers and craftspeople; persons escaping to the nomads owing to different circumstances, like criminals, debtors, poor men, slaves, and others and residents of the settled nations annexed by the nomadic empire.

All of these variants are also known in Xiongnu history. The description of relations between the Former Han dynasty and the Xiongnu provides extensive numerical material concerning the replenishment of the agricultural-handicraft sector of the Xiongnu economy with captive Chinese. One can identify three surges in the campaigns of the nomads to Han-China to take prisoners. The first wave is the ruling period of the first three very famous chanyus, Modun, Jiyu (Laoshang)[12], and Junchen with the alternation of raids and exaction of gifts from China. In the chronicles, the periodic mentioning of carrying off of population is recorded from the beginning of the Xiongnu empire to the establishment of stable border trade in 157 BC. The second surge falls in the Xiongnu-Han war launched by the aggressive Han emperor Wudi[13]. The third surge is related to the Xiongnu-Chinese wars under the emperor-usurper Wang Mang. Captures of Chinese are known of the years 11, 12, 25–27 and 45 AD. Yet, most likely, prisoners were taken to the Mongolian steppes during the course of all wars until the collapse of power in 48 AD (Zhongyang 1958, 31; 33–34; 44–45; 48–50; 190; 205; 254–256). In all probability, the number of deserters into the Xiongnu empire was also considerable, although precise numerical information is missing. The apprehension of the Chinese administration with

12 This second name of the chanyu Jiyu is the one used most often in the Chinese narratives and is an address of respect. "Laoshang" literally means "Elder Venerable One".

13 This included the carrying off of prisoners in 128–123, 121–120, 108–107(?), 102, 91, and 73 BC.

respect to this problem has time and again forced the Han emperors to request the chanyu not to take on deserters[14].

The prisoners and deserters were settled in special settlements, at places suitable for agriculture. They have supplied the nomadic part of the Xiongnu imperial confederation with agriculture and handicraft products. Several settlement sites with agricultural and handicraft production are identified by archaeological survey in Mongolia and Transbaikalia, but it remains unclear which goup(s) inhabited these places (Davydova 1968; 1995; Hayashi 1984; Danilov 2004).

The fortified settlement of Ivolga in Russia, situated near the modern city of Ulan-Ude, is the most investigated one among them. The site was an irregular rectangle with sides equal to approximately 200 and 300 m. On three sides, it was protected by fortification works of three walls alternating with three ditches while on the fourth side the site was protected by the Selenga river. As a result of long-term archaeological studies, about a tenth of the whole area was excavated, more than 50 dwellings as well as many household and other constructions were studied. It became clear that the majority of residents of the site were occupied with agriculture, herding, and fishing[15]. Along with agriculture, a part of the residents were engaged in handicraft production (Davydova 1985; 1995). By the example of the fortified settlement of Ivolga, one can reconstruct the nature of the economic activities of the settled population of the Xiongnu power (Kradin 2005a). The number of residents living at the same time in Ivolga is estimated between 2500 to 3000 people. The residents were able to provide themselves with grain from the territory of active household use[16]. The products were sufficient to sustain nomads, for example, in winter, and they were possibly exchanged or used for tributary payments.

At the same time, this sedentariness could not entirely provide all Xiongnu society with products of its own agriculture and handicraft. Therefore, nomads obtained additional products by means of trade with China and Central Asian countries, establishing tribute relations with the weaker neighbors, as well as by alternately periodic raids on China and exaction of gifts from the Chinese administration.

In the sources, there is information about near-border trade between Chinese and Xiongnu during particular periods. Officially, the markets were opened only for non-strategic goods but, in reality, the Chinese smugglers have supplied the nomads with the prohibited goods of arms and iron (Yü 1967, 101; 117–122). Trade between Xiongnu and Han reached its florescence in the second half of the 2nd century BC. The necessity of trading posts for the nomads was so great that they functioned sometimes even during periods of Xiongnu raids in China[17]. The Chinese understood very well that nomads were in greater need of the exchange of products than they were themselves and often used foreign trade as a means of political pressure on pastoralists. Nomads were often forced to assert their rights to trade by armed opposition.

Despite the peaceful relations between the Xiongnu and the Chinese, the extent of the Xiongnu militarization should not be underestimated. The nomads have always posed a certain threat to the Chinese kingdoms. "The Xiongnu consider openly the war to be their business" said one of the Chinese defecting to the nomads' side in a conversation with the Han's ambassador (Sima Qian 1959, ch. 110; Zhongyang 1958, 233; Taskin 1968, 46). "The Xiongnu have

14 Sima Qian 1959, ch. 110; Ban Gu 1962, ch. 94a; Lidai 1958, 32; 230, Taskin 1968, 49; idem 1973, 41.

15 The following animals were determined: dogs: 29%, sheep: 22%, cattle: 17%, pigs: 15% (Davydova 1995).

16 One hour of pedestrian movement from the settlement equals 5 km.

17 Sima Qian 1959, ch. 110; Ban Gu 1962, ch. 94a; 94b; Lidai 1958, 33–34; 191; 242; 261; Taskin 1968, 50–51; 1973, 22; 51; 64.

quick and bold warriors who appear like a vortex and disappear like a lightning" one of the functionaries of the Chinese emperor Wudi warned (Taskin 1968, 46). This opinion is even traced in the official records. In the heading of the letter of the Han emperor to the Xiongnu ruler in 162 BC, the Han are characterized as the nations "wearing belts and caps of functionaries", while the Xiongnu are described as those "who draw the bow" (Sima Qian 1959; Ban Gu 1962, ch. 52; Zhongyang 1958, 32; Taskin 1968, 47–48; 75). The statistics show that during the 250 years of the Xiongnu empire, the nomads, by different methods of calculation, conducted between 47 to 80 operations on Han territory while the Han carried out only 15 campaigns to the north beyond the Great Wall (Kradin 1996, 68).

SYSTEM OF POWER

The Xiongnu power, like other nomadic empires, had an autocratic and state-like appearance on the outside, as it was established to withdraw surplus products from outside the steppe, but it was based on tribal relations on the inside. Such polities can be called xenocratic[18]. The stability of nomadic empires directly depended on the abilities of chiefs and khans to organize silk, agricultural and handicraft products as well as jewelry from settled territories. Since we do not have evidence that these products are produced on a large scale for all Xiongnu empire, their seizing by force or extortion was a top-priority duty of the ruler of the nomadic polity. Being the sole intermediary between China and the steppe, the ruler of the nomadic polity had the chance to control the redistribution of booty. This allowed him to strengthen personal power and, at the same time, to maintain the existence of the imperial confederation which could not exist on the sole basis of an extensive pastoral economy.

Such a duality can be found in the political economy of the imperial confederation of the Xiongnu. Th. Barfield (1981, 58) has quite correctly noticed this dual character of chanyu power: "The imperial level of government was financed by drawing on resources from outside the steppe, not by taxing the nomadic animal breeders within the empire. Obtaining this 'foreign aid' by force or by peaceful means was the primary obligation of the imperial government". If, during times of war, the chanyu used raids to obtain political support from tribes, members of the imperial confederation, then, during peaceful periods, he extorted gifts from the Han for distribution to relatives, chiefs of tribes, and armed forces, and he asserted rights for all subjects to trade near the border.

It is significant that the gifts of the Chinese emperors remained at the top level of the Xiongnu power pyramid. It is known that the annual Han payments to nomads amounted to 10,000 "shi" of rice wine, 5,000 "hu" of millet and 10,000 "pi" of silk (Ban Gu 1962, ch. 94A; Zhongyang 1958, 191; Taskin 1973, 22). At the same time, it is known that, based on Chinese norms, the average annual ration of grain for the adult man reached about 36 "hu" (720 l) or rather more (Kriukov et al. 1983, 200–201). In case of such rationing, the above mentioned amount of grain could only be sufficient for about 150 people. If grain products were used as food addition, of for example, at the rate of 20% of the norm, this volume of grain would be sufficient to feed

18 Derived from the Greek words xeno – outside and cratos – power: Kradin 1992; 2000.

about 700–800 people in the course of one year. Hence, the imperial deliveries of grain could only be meant for the satisfaction of the needs of the chanyu headquarters (Barfield 1992, 47). This is also confirmed by archeological sources. The lacquered wares as well as other things made in China are largely found in the burials of persons of high status in elite burial mounds (Rudenko 1969; Konovalov 1976; Kradin et al. 2004).

Chinese rice wine enjoyed wide popularity among nomads who only drank koumiss and milk vodka. 10,000 "shi" of rice wine are equal to 200,000 liters. In case of a daily norm of consumption, this comprised more than 550 liters a day. By convention, more than 1.5 liters of rice wine fell on every representative of the highest military Xiongnu elite (chiefs of thousand warriors and higher). It is clear that not only military leaders drank wine; the volumes of deliveries are impressive. The Chinese turned the nomads into drunkards. A similar phenomenon happened time and again in history starting with the contacts of the Scythian with the Greek city states and ending with the developing of the New World by American pioneers.

As a mechanism connecting the steppe empire government with tribal chiefs, the institution of a gift economy was applied. Manipulating with gifts and distributing them among companions-in-arms and chiefs of tribes, the chanyu improved his political influence and prestige as a lavish ruler and, at the same time, obliged the persons who received gifts to return the favor. On the one hand, the tribal chiefs obtaining the gifts were able to satisfy their personal interests, while on the other hand, they were able to improve their intra-tribal status by again distributing gifts to fellow tribesmen or by organizing ceremonial festivals. In addition, by receiving a gift from the chanyu, the recipient acquired with it a part of the chanyu's supernatural charisma which additionally contributed to his own prestige.

Among the Han gifts, silk has been of greatest value. Its total quantity delivered every year to the steppe has been estimated at 10,000 "pi". Based on the measuring system accepted in the Han empire, one "pi" represented a piece of 9.24 m length and 50 cm width (Kriukov et al. 1983, 160). Based on these data, one can calculate that 10,000 "pi" amounted to about 92,400 m, which could serve for several thousand silk caftans. It is evident even from these approximate calculations that silk was expended for mass distributions to tribal chiefs and warriors and was a commercial good on the northern routes of the Silk Road rather than for the manufacturing of clothes for the chanyu's court.

When sending gifts to the nomads, Chinese politicians very likely relied simply on human greediness. They believed that the chanyu would get drunk from the quantity and diversity of uncommon curiosities and would save them in a treasury causing envy among his subjects or that he would squander them for extravagant behavior. However, they never understood the basis of a functioning steppe polity (cf. Barfield 1981; Kradin 1996; 2002a, 112–116; 184–189). Even later, they did not understand for what purpose Chinggis Khan's son, Ögedei, was occupied with mass distributions, which seemed senseless from their point of view (Kradin/Skrynnikova 2006, 283–295). Yet, the psychology of the nomad differs from that of the farmer and townsman. The ruler's status in a nomadic empire depended on the one hand on the opportunity to provide his subjects with gifts and material wealth and, on the other hand, on military might to execute raids and extort gifts. Therefore, a necessity to support stability of the military-political structure rather than personal avidity, as the Chinese believed erroneously, was the reason of permanent demands of the chanyu to increase presents. The greatest insult to a steppe ruler was the accusation of stinginess. Thus, spoils of war, gifts of the Han emperors, and international trade were the main sources of political power in the steppe. Consequently, gifts flowing through and leaving their hands did not only weaken but, on the contrary,

strengthen the power and influence of the ruler in an imperial confederation (Barfield 1992, 36–60).

As long as the Xiongnu chanyu obeyed these principles, the unity of the steppe empire was imperturbable. One can identify four stages of the Xiongnu-Han relations[19]. In the first stage (200–133 BC) the Xiongnu attempted to alternate periods of war and raids with periods of peaceful co-existence with Han-China to exert higher profits (Barfield 1981; 1992). The first raids had been carried out to obtain booty for all members of the imperial confederation of nomads regardless of their status. By this, the chanyu ensured the support of a majority of tribes as members of the confederation. After the devastating raid, the chanyu sent, as a rule, ambassadors to China with an offer of a new "heqin" agreement of peace; otherwise, the nomads continued with their raids until the Chinese offered to conclude a new agreement. After accepting the agreement and obtaining gifts, the raids ceased for some time. However, when the booty plundered by simple nomads was finished or became worthless, the herders again began to demand from their chiefs and chanyu satisfaction of their interests and needs. The chanyu was forced to release some of the pressure and discontent by ordering to renew the raids (Sima Qian 1959, ch. 110; Zhongyang 1958, 28–29, 48; Taskin 1968, 43; 58).

The second stage (129–58 BC) of Xiongnu-Han relations comprises the governing period of the Han emperor Wudi, who decided to abolish the strategy of active expansion to the north. The war had been waged with variable success but losses on both sides, and neither the Han nor the Xiongnu achieved clear victory. On the whole, the campaigns show that nomads, in spite of being outnumbered by the Chinese, had irrefutable advantages in war on the open steppes. The strengthening of the Han positions in the Western Regions can be considered as the most important achievement of the aggressive anti-Xiongnu policy of Wudi. A "cold war" of sorts between the Steppe and China continued all the way until the outbreak of civil war among the Xiongnu tribes.

The third stage (56 BC–9 AD) of the Xiongnu-Chinese relations can be correlated with the time when the chanyu Huhanye declared subservience to the Han emperor. A policy of placating the nomads with "gifts" was formally replaced by the system of "tribute" relations. The Xiongnu ruler recognized the suzerainty of the Han and agreed to pay a nominal tribute to demonstrate their subordinate status. For this, the emperor provided the chanyu with his protection and gave to him gifts equivalent to a vassal in return. As it turned out, the new system of "tribute" and reciprocated "gifts" enacted by the nomads undermined the Chinese ideological superiority as it resumed the old nomad policy of extortion under different pretenses, the only difference being the return gifts of the Chinese emperor were vastly larger than before. In addition, as was perhaps necessary, the chanyu obtained agricultural products from China to support his citizens.

The fourth and last stage (9–48 AD) of relations between the Han empire and the Xiongnu imperial confederation was similar, by its content, to the first stage. As pretexts to interrupt peaceful relations served the territorial claims of the Chinese emperor-pretender Wang Mang, his intervention in internal affairs of the nomads and, finally, the substitution of the chanyu seal by the Chinese ambassadors. Judging from all this, as opposed to the first stage of relations between the Xiongnu and China, the nomads have changed their foreign-policy strategy towards the stimulation of raids to the Han territory. This was possibly related to the weakening of the

19 For details see Kradin 1996, 42–68.

frontier might of China and an instable political situation within the country. Earlier, the northern frontiers of China were protected by a powerful network of signaling guards and towns, and most crucial sections of the Great Wall were protected by garrisons armed to the teeth. Then, at the beginning of the Late dynasty of Han (since 23 AD), the maintenance of such an army was beyond the Chinese government's means. The raids were found to be safer and remained unpunished for inhabitants of the steppe regions, just like in the first stage.

Social Structure

The Chinese chronicles about the Xiongnu contain detailed hierarchies of the imperial elite and their entourages. The chanyu was the supreme ruler of the Xiongnu steppe empire and its representative in the political and economical relations with other countries and nations. His competence included the declaration of war and peace, the conclusion of political treaties, the right to obtain gifts and tribute and to re-distribute them, dynastic marriages, etc. Most likely, the chanyu was also chief commander and superior judge (Taskin 1973, 7–11). He was also the concentration of irrational power and performed the most important devotions providing the nomads with a patronage of the super-natural forces. In the Chinese documents which address the period of prosperity for the Xiongnu empire, the chanyu is called the "born by Heaven and Earth, raised by sun and moon, great chanyu of Xiongnu" (Fan Ye 1965, ch. 91, 7b; Zhongyang 1958, 30). The chanyu had numerous relatives who belonged to his ruler's clan of Luandi: brothers and nephews, wives, sons and daughters, etc. The most highly titled relatives of the chanyu were ten superior commanders of ten thousand warriors which were comprised of four and six horns respectively[20]. The first four of them were called "wang" (king) by the Chinese chroniclers. Besides the chanyu's relatives there were other noble families (clans): Huyan, Lan, Xubu, and Qiulin were among the highest Xiongnu aristocracy (Fan Ye 1965, ch. 91, 7b; Zhongyang 1958, 680–681).

The next level in the Xiongnu hierarchy was occupied by the tribal chiefs and elders. In the annals, they are mentioned, as a rule, as 'subordinate kings', 'chief commandants', 'household administrators', "juqu" officials[21]. Probably, a part of the 'chiefs of a thousand' were tribal chiefs. The 'chiefs of a hundred' and 'chiefs of ten' were, most likely, clan leaders of different ranks. The economic, judicial, cultic, fiscal, and military functions were considered to be responsibilities of chiefs and elders (Taskin 1973, 9–11).

The Xiongnu had a particular stratum of service nobility (Kradin 1996, 152 pp.), advisers, immigrants from China and bodyguards. First of all, these are men-at-arms of the chanyu bound to him by personal devotion. It was probably the most trusted men-at-arms who obtained the title of gudu marquis ("gudu hou"). Besides the nomads, defectors from China, such as the famous Zhong Hangyue, could also be subsumed within the ranks of the administrative aristocracy. These immigrants proved to be very useful advisers, as they familiarized the nomads with

20 Even though Fan Ye composed the Houhanshu hundreds of years later than the existence of the Xiongnu empire, one can still gain useful information for the Xiongnu, see Taskin 1973, 3–16.

21 Zhongyang 1958, 17; see also de Groot 1921, 55; Watson 1961a, 163–164; Taskin 1968, 40.

Chinese tactics of military science, agricultural activities, systems of record keeping, principles of court etiquette, and administration practices (Pritsak 1954, 178–202).

Slightly lower in the hierarchical ladder was the position of the chiefs of non-Xiongnu tribes in the imperial confederation. In the scale of rank the chiefs of non-Xiongnu tribes, chiefs of dependent tribes and of territories paying tribute, were situated slightly lower than the service nobility.

The population of the Xiongnu empire consisted of ordinary nomads, or herders. Based on some indirect data, one can assume that many important features of the economy, the social organization, and the way of life differed only little from the features of the nomads of the Mongolian steppes of more recent times (Kradin 1996, 86–90).

In the written sources, there is no information concerning different categories of poor persons and persons who did not possess full rights and who were engaged in herding within Xiongnu society. It is also unknown how widely and in which social group slave-owning was distributed in Xiongnu society. Cross-cultural anthropological studies however demonstrate a lack of development of slavery in pastoral societies[22]. On the other hand, researchers have conjectured that the overwhelming majority of prisoners of war seem to have engaged in agricultural and handicraft production in specially established settlements (Gumilev 1960; Davydova 1975; Rudenko 1969). However, it would seem that the majority of the people, many of whom were free deserters from elsewhere, did not hold a socio-economic position equivalent to slaves. Social statuses of commoners most likely varied: from conditional vassalage to some semblance of serfdom. The fortified settlement and adjacent cemetery of Ivolga (Davydova 1995; 1996) is a classic example for this type of commoner settlement.

Archaeological data corroborate to a great extent the hierarchical nature of Xiongnu society mentioned in the Chinese chronicles. Increasing expenses for funeral structure and more splendid burial furnishing indicate numerous status levels. In Noyon Uul, Gol Mod, Duurlig Nars, Solbi Uul, etc. in Mongolia and at Il'movaia Pad', Tsaram, Orgoiton in South Buriatiia, monumental burial mounds of the Xiongnu elite are located, the construction of which required considerable effort. These monumental constructions, including a burial entry as "pathway to the Other World", formed specific sacred spaces for the "kingly" burials which symbolized their elevated status and profane power. Formulating an entire landscape that centered around these "kings" and represented the maximum sacral nature of the society, these monuments embodied the real political control and property. For example, the best known Xiongnu burial mounds investigated in 1924–1925 by P. Kozlov's expedition recorded a terrace structure of 14 × 16 m broad and more than 1.5 m in height, underneath which a grave pit descended by steep ledges to a depth of 9 m. The entryway, or "dromos", on the south side was framed in stone and led to the central burial pit that contained a painted and lacquered outer chamber and an inner coffin draped with refined woolen carpets and silk cloths and yielded rich furniture (Umehara 1960; Rudenko 1969)[23].

The graves of ordinary nomads were much simpler and poorer with respect to construction and furnishing. These generally have rounded or quadrangular stone burial markings of 5–10 m in breadth and grave pits of 2–3 m deep. At the bottom was placed a wooden coffin (or in rare

22 See for example Khazanov 1975, 133–148; 1984, 160–161; Kradin 1992, 100–111.

23 Monumental terrace tombs were excavated more recently at Noyon Uul in 2006 and 2008 (Polos'mak et al. 2008a; 2008b), as well as at other similar tombs at Gol Mod (Mongolie 2003), Tsaram (Miniaev/Sakharovskaia 2006; 2007a; 2007b), Duurlig Nars (Duurlig Nars 2009), and Takhiltyn Khotgor (Miller et al. 2008).

instances an inner and outer nested coffin furnishing), and the deceased were accompanied by household goods, weaponry, horse-riding gear, adornments, and funeral food offerings[24]. The graves of settled peoples, for example those living in the area of Ivolga, were even simpler and poorer (Davydova 1995; 1996). Together, these three major categories of burials, and divisions within them, demonstrate the complicated multilayer social structure of the Xiongnu society.

A statistical analysis of 342 graves of the four most extensively studied Xiongnu cemeteries in Transbaikalia, Il'movaia Pad', Cheremukhovaia Pad', Dyrestui, Ivolga, revealed a social differentiation among the different gender and age groups (Kradin et al. 2004; Kradin 2005a). The richest burials are concentrated in the Sudzha necropolis of Il'movaia Pad'. Here, three ranks are discerned among the graves of females and males. The male burials of Cheremukhovaia Pad' and Dyrestui combine into different groups, which possibly reflect characteristics of their activities and roles during their lifetime. Among the female burials at Cheremukhovaia Pad', both rich and more simple graves were identified, while among the female graves of Dyrestui, there was no apparent differentiation. At the Ivolga cemetery of the settled population, four hierarchical ranks among males and five ranks among females were revealed[25]. Among burials of children of the Xiongnu period in Transbaikalia, there is evidence for a possible differentiation between rich and poor graves[26]. All of these differentiations collectively evidence the presence of a complex, multilevel hierarchy of defined statuses in Xiongnu society, only the uppermost levels of which are mentioned in parts of the ancient Chinese chronicles.

How strict was this social pyramid? Was it possible for an individual to overcome the hierarchical stages and to raise his administrative and social status? Social anthropological studies of the Eurasian people show that a so-called genealogical system of kindred was characteristic of the pastoral nomads[27]. Its significance, as applied to the problem of vertical mobility, is expressed in the fact that: status and power, as a rule, were transferred within one genealogical group in accordance with the principle of seniority, that no individual could live beyond the framework of any clan-tribal group and that social status of a particular individual quite often depended on the status of his genealogical group among other similar groups. Hence, the opportunities of vertical mobility were restricted by the place of clan subdivision in the social genealogy. The most realistic way of advancing the personal status, was devotion to the ruler and personal military valor.

Political Organization Dynamics

The eminent Chinese historian Sima Qian gives a detailed description of the administrative system of the Xiongnu empire[28]. The empire under Modun was divided into three parts: centre and left and right wings. The wings, in turn, were divided into subsections. The complete supreme power was concentrated in the hands of the chanyu. Concurrently, he was in charge of the centre

24 Dorzhsüren 1961; Konovalov 1976; 2008a; 2008b; Tseveendorzh 1985; Miniaev 1998; Törbat 2004 and others.

25 Status of women at Ivolga have also been discussed by Brosseder 2007b.

26 Most distinct differences are found at the Ivolga burial ground where 3–4 groups are identified.

27 Bacon 1958; Krader 1963; Markov 1976; Khazanov 1984; Masanov 1995, and others.

28 Zhongyang 1958, 17; see also de Groot 1921, 55; Watson 1961a, 163–164; Taskin 1968, 40.

– tribes of the metropolis of the steppe empire. The 24 highest officials, who were in charge of large tribal associations, were in the military rank of a chief of ten thousand, and were subordinate to the chanyu. His elder brother – successor to the throne – was in charge of the left wing. The nearest relatives of the ruler of a steppe empire were his co-ruler, the leader and co-ruler of the right wing. They were attributed the title 'kings' ("wang") as the highest title possible. 'Kings' and six most noble 'chiefs of ten thousand' were considered to be "strong" and were in command of not less than 10,000 riders. The rest of the 'chiefs of a ten thousand' were in fact in command of less than 10,000 cavalrymen (e.g. Zhongyang 1958, 17; Watson 1961a, 163–164).

At the lowest level of the administrative hierarchy, local tribal chiefs and elders were situated. Officially, they submitted to 24 deputies from the center. Yet, in reality, the dependence of tribal leaders was limited. The headquarters was far away and local chiefs enjoyed support of related tribal groups. Thus, the influence of the imperial deputies on local authorities was, to a certain extent, restricted and they were forced to take into account the interests of subordinate tribes. The total quantity of these tribal groups within the Xiongnu imperial confederation is unknown.

The use of military terms by the Chinese historians, such as "chief of ten thousand", "chief of one thousand", "chief of ten hundred", side-by-side with traditional Chinese terms, like "kings", "marquises" of different rank, "chief commandants", "household administrators", and other officials (e.g. "juqu"), gives ground to propose that even though they entailed different functions, the systems of military and civil hierarchy co-existed. The system of non-decimal ranks has been used during wars when a great quantity of warriors from different parts of the steppe joined into one or several armies (Barfield 1992, 38).

The power of chanyu, highest commanders and tribal chiefs at local places was supported by strict but simple traditional ways. As the Xiongnu laws were estimated by the Chinese chronicles, the Xiongnu's punishments were generally "simple and easily realizable" and were mainly reduced to strokes, exile, and death penalty. It provided an opportunity to quickly resolve conflict situations at different levels of the hierarchical pyramid and to maintain the stability of the political system as a whole. It is no mere chance that for the Chinese, accustomed from childhood to an unwieldy and clumsy bureaucratic machine, the management system of the Xiongnu confederation seemed to be extremely simple: "management of the whole state is similar to that of one's body" (Sima Qian 1959, ch. 110; Zhongyang 1958, 17).

The consistent rank system developed under Modun did not remain in the future. This is related to the fact that, owing to the traditional nomadic aristocracy's practice of polygamy, the reproduction of elite in the nomadic empires occurred in an almost geometric series. It is clear that, as a rule, sons of the senior wife rather than all of the heirs had the succession to the status and the major property. The others only inherited a quite high status, most likely, in accordance with the principle of the conical clan. However, this did not exclude all heirs from the genealogical hierarchy. In addition, the exceptions were always observed with respect to favorites or children from young beloved wives. As for numerous near and distant relatives of the chanyu, the king's blue blood flowed in their veins and all of the members of the Luandi: kin without exception had the right to pretend to the place under the sun in the Xiongnu social hierarchy.

Several periods when new titles were most actively introduced can be identified. The first of them falls between approximately 100–50 BC. During this time interval, an excessive surplus of Xiongnu elite representatives arose. Since it was impossible, to provide all members of the noble clan with a place in the social hierarchy corresponding to their noble birth, intense competition for one or another status and respective material benefits inevitably evolved. In the end, this resulted in a temporary collapse of the Xiongnu power into several formations leading to civil war from 58–36 BC.

The next period of a massive introduction of new titles and posts started in the last third of the 1st century BC. The new combination of political forces formed after the civil war had gradually hardened into a strong hierarchy. From the point of view of a new foreign policy, a correction of the administrative system was required, a portion of old titles proved to be marginally compromised because of their relation to dead enemies or betrayers. It was necessary to strengthen a new principle of power inheritance, to develop the principles of making political decisions, to introduce new posts and appropriate splendid titles. Finally, a new growth in number of the representatives of the nomadic elite resulted in the intensified collision for the limited resources and collapse of the steppe empire in 48 AD into a northern and a southern confederation.

The third and last large-scale appearance of new titles goes back to the time of division of the Xiongnu power into groupings, which were at odds with each other. The Chinese historian Fan Ye gave the same detailed description of the political system as his eminent predecessor Sima Qian (Fan Ye 1965, ch. 79; Zhongyang 1958, 680; Taskin 1973, 73). It provides a unique opportunity to observe the dynamics of the political institutions of the Xiongnu throughout 250 years.

The most considerable differences between the power of the Modun epoch and Xiongnu society before the collapses are as follows: There has been a transition from the three-partite administrative division to a dual tribal/chiefdom division into wings. Sima Qian wrote clearly about the development of a military-administrative structure with 'chiefs of a ten thousand'. Fan Ye does not mention a decimal system and instead of military rank of 'chiefs of a ten thousand', civil titles of 'kings' (wang) are enumerated. According to Fan Ye, the so called first ten "strong" 'chiefs of a ten thousand' had a more independent position with relations to the chanyu headquarters. In the Xiongnu empire, the order of succession to the throne changed. If originally the throne of chanyu had been passed from father to son, except in several extraordinary cases, a different order became predominate: from uncle to nephew. In Xiongnu society, a principle of joint government had prevailed according to which the ruler of the nomadic empire has a co-ruler, junior by rank, who controlled a wing. The capacity of junior co-ruler was inherited within his lineage but his successors could not pretend to the chanyu's throne (Kradin 1996, 132–135).

Therefore, these changes demonstrate a gradual weakening of the autocratic relations in the empire and their substitution for federative relations as expressed partially by a transition from a triple administrative-territorial division to a dual one. The military-hierarchical relations were suppressed and the genealogical hierarchy between seniors and juniors by differently ranking tribes were pushed into the foreground.

Super-Complex Chiefdom

How can we estimate the character of a society of this kind? Can we even use the term state when speaking about the Xiongnu? I should note that there is no unanimity in this question among different scholars, and it is a controversial issue not only for Xiongnu studies, but for nomad studies as a whole[29]. While earlier scholars in the field of nomad studies tended to classify

29 See in details Kradin 1992; 2002b; 2008.

Xiongnu society as pre-state[30], most scholars claim that some form of early statehood for the Xiongnu polity is beyond any doubt[31].

In their very important book about early statehood, H. Claessen and P. Skalník (1978a) consider the manner of polity described above as a centralized socio-political organization. Social relations are regulated by a complex stratified society divided into, at least, two basic strata or social classes: rulers and subordinates. The relations between them are characterized by the political domination of the former and tribute duties of the latter; the formality of these relations is sanctified by a common ideology of exchange of service (Claessen/Skalník 1978a, 640). Which were the most typical features of the early state that can be identified[32]? What signs of an early state can be found in the Xiongnu confederation?

Of the typical early state, the conservation of clan-lineage relations is characteristic but there is also the case of some extra-clan relations in the management subsystem. In Xiongnu society, the highest posts were occupied by the representatives of the ruling lineage and several noble clans (Watson 1961a, 163–164). The other sign indicating an early state is related to the way of income acquisition by the administrative elite. Here, the financial source of the functionaries is fed at the expense of their subjects as well as by wages from the center. Nomadic elites have always received presents from pastoralists. The chanyu of the Xiongnu had no money in order to pay wages to the chiefs and patriarchs, so he gave presents to their companions-in-arms. One of the most important sign of the early state is the presence of a written code of laws, which the Xiongnu are lacking.

Another indicator for an early state is the availability of special judicial manpower which was responsible for the majority of legal questions. The presence of persons who investigated disputes and conflicts was known in Chinese sources (Fan Ye 1965, ch. 79; Zhongyang 1958, 680; Taskin 1973, 73). One more sign of early statehood consists in the fact that a share of the surplus was requisitioned via levying of tribute and forced labor by the ruler. There is only one attempt known to impose taxes which was under the second Xiongnu chanyu Jiyu on the advice of a Chinese adviser, castrate (Sima Qian 1959, ch. 110; Zhongyang 1958, 30; Taskin 1968, 45). However, there is no other information. Xiongnu society was based on an economy of gifts rather than on taxes, and the chanyu did not collect taxes from the pastoralists. He provided his warriors with military trophies and distributed Chinese tribute payments to the tribal chiefs.

The situation which existed in Xiongnu society was not extraordinary for a nomadic empire. The inner taxation was also absent in the imperial confederation of Huns in Europe (Maenchen-Helfen 1973, 190–199). All the loot was distributed to the nomads. The Secretary of the Roman embassy Priscus met on his way to the Attila's headquarters many Greeks who were earlier captured by nomads. They reported to Priscus that life in Attila's kingdom is better than that in the Roman empire. They particularly liked the absence of taxes. While the population of the empire suffered from extortions and abuses of fiscals, Attila did not collect taxes at all. He was in no need to take care of taxes as the treasury was always full with trophies of war and Byzantine tribute (Prisc., frag. 8).

30 Gumilev 1960; Rudenko 1969; Markov 1976; Yamada 1982 etc.

31 Pritsak 1954; Dorzhsüren 1961; Taskin 1973; Davydova 1975; Khazanov 1975; 1984; Sükhbaatar 1980; Kürsat-Ahlers 1994; Kychanov 1997; Di Cosmo 2002; Kljaštornyj/Sultanov 2006.

32 For details see Claessen/Skalník 1978a, 22; 641.

Maximum confusion arises with respect to the last and in our view most important aspect. According to H. Claessen, special officials and their assistants appear in early statehood (Claessen/Skalník 1978a, 22; 641). However, the extent of this state machinery is not stipulated in this case. According to the more precise definition of Claessen this apparatus can be limited to a few functionaries only (Claessen, personal communication). It is difficult to agree with this point of view because here, the boundary between the chiefdom and early state is eliminated.

The state is not simply a group of persons ruling over a society and persons engaged in administrative functions exist everywhere. As a category, the state may be qualified as a big group of people involved in the administrative labor with a common ideology. This group may be divided into specialized sub-units, like ministries, offices, etc., or may not be institutionalized, as it exists at court, the headquarters of the ruler. It is also necessary to take into account that the bodies of management in heterarchical or homoarchical societies differed from those of the territorial hierarchical states which tend to develop multilevel bureaucratic hierarchies (Trigger 2003, 219–220). In addition, it is important to note that the persons carrying out the administrative duties are divided into: 1 common functionaries whose activity can cover several lines of work; 2 special functionaries carrying out their duties only in one field of management; 3 informal persons whose professions were not directly related to the management, however, they, by virtue of their status or other reasons, can influence the decision making (Claessen/Skalník 1978, 576). As the common functionaries and informal persons can exist not only in the early states but also in chiefdoms for example, only the category of special functionaries can serve as a criterion of the statehood. At last, the state is no individual persons engaged in the administrative activities but a totality of particular organizations and institutions. These institutions have their internal structure and consist of a particular number of members receiving the reward for the execution of special duties.

The specialized administrative institutions are well known in early state societies and, all the more, in existing traditional states. But we cannot say that the Xiongnu had a state apparatus. The Xiongnu had many titles for the rulers of the segments within the empire confederation. In addition, there were special functionaries ("gudu hou"). The Chinese chronicles report that "the gudu marquises assist the chanyu in the administration of the nation" (Watson 1961a, 163–164). In a special work Pritsak (1954, 196–199) assorts their place in the Xiongnu political system. Nonetheless, the number of these functionaries was very limited.

Thus, as to Xiongnu society, only one sign of early statehood can be identified: judges. Two more signs can be considered to have been in their infancy[33]. For such societies which are more numerous and structurally more developed than complex chiefdoms and which are at the same time no states (even inchoate early states), the term "super-complex chiefdom" has been proposed (Kradin 1992, 152). This term has been accepted by many nomadologists (Skrynnikova 1997; 2000; Medvedev 2003; Vasiutin 2003).

The theory of chiefdom is one of the important achievements of political anthropology. E. Service characterizes chiefdom as socio-political organization with centralized direction and hereditary clannish hierarchy of theocratic chiefs. In a chiefdom, inequality of social status and property occurs, however, there is no formal and legally repressive machinery enforced (Service 1975, 15–16; 151–152; 331–332). Up to now, numerous studies devoted to the theory of chiefdom

33 An unsuccessful attempt to introduce taxes during the reign of chanyu Jiyu and presence of common functionaries gudu marquises.

and its variations in different areas have been published[34]. A. Khazanov (1984) was the first who used the term chiefdom to describe the societies of pastoral nomads.

As for the complexity of the hierarchy, the term is generally used to distinguish simple from complex chiefdoms. For simple chiefdoms one level of hierarchy is characteristic. Their population is generally not high and comprises approximately several thousand people. Complex chiefdoms consisted of several simple chiefdoms. Their population reached already tens of thousands people. Among the characteristic features of the complex chiefdoms are also probable ethnic heterogeneity as well as exclusion of the administrative elite and a number of other social groups from the immediate production activity.

One can also identify super-complex chiefdoms. The principal difference between complex and super-complex chiefdoms consists in a new principle rather than in the number of hierarchy levels. The weakness of the complex chiefdoms lies in the fact that when they have many links, the supreme chief cannot overcome the separatism of sub-chiefs and the structures quickly break up. In super-complex chiefdom, the ruler removes sub-chiefs and appoints his supporters to control the separate segments (Carneiro 2000; Kradin 2000). This allows to consolidate multinational polities of several 100,000.

Similar structural principles are visible in the history of the Xiongnu. Xiongnu power consisted of a multi-ethnic conglomeration of chiefdoms and tribes including the imperial confederation. The tribal chiefs and elders were incorporated in the decimal hierarchy. However, their power was to a certain degree independent from the center and was based on the support of the fellow-tribesmen, at the same time the tribes were members of the imperial confederation. The chanyu relied upon support of his nearest relatives and companions-in-arms who held the title of commanders of "ten thousand cavalry" ("wanqi"). They were heading the special super-tribal subdivisions integrating the subordinate or allied tribes into military divisions which numbered approximately 5,000 to 10,000 warriors. These persons were to support the center's polity in the provinces. Other nomadic empires in Eurasia were similarly organized[35].

The Xiongnu imperial confederation is the classic example of a super-complex chiefdom. Later nomadic empires had some new institutions but their basis was similar to that of the Xiongnu society. For this reason, one can discuss the structural similarity of ancient and medieval nomadic empires in Inner Asia. It was a special variant of stateless adaptation in arid steppe areas, one of the nomadic pathways to social complexity.

34 Carneiro 1981; Drennan/Uribe 1987; Earle 1987; 1991; 1997; Stein/Rothman 1994; Redmond 1998; McIntosh 1999; Skalník 2004, etc.

35 For details see Kradin 2000, 281.

COMPUTING THE STEPPES: DATA ANALYSIS FOR AGENT-BASED MODELS OF POLITIES IN INNER ASIA

Claudio Cioffi-Revilla, J. Daniel Rogers, Steven P. Wilcox, Jai Alterman

Introduction

Inner Asia has a long history of influential polities in world history. This study reports new data and findings from an ongoing collaborative project between George Mason University and the Smithsonian Institution to develop empirical and computational (agent-based) models of the rise and fall of polities in Inner Asia, between the fourth century BC and the aftermath of the Mongol empire. A statistical survival analysis of original data based on archaeological and historical dates shows a nearly exponential birth-death process of polity formation-termination and, interestingly, a previously unknown linear increasing hazard force for termination (Rayleigh distribution of polity durations). Beyond their intrinsic value, these theoretically informed statistics provide new standards for testing and calibrating agent-based models within the broader project.

Motivation

Inner Asia – the region of the Asian continent centered on Mongolia and surrounding territories of northern China, southern Siberia, eastern Kazakhstan, and western Manchuria – has a political history of thousands of years including the rise and fall of numerous polities. Among these are the puzzling case of the Mongol empire (1206–1368 AD), the largest territorial polity in history (29,491,900 km^2), and the much earlier Xiongnu empire (200 BC–155 AD) (Fig. 1). Paradoxically, from a social and political science perspective, the Mongol system of government was significantly simpler than that of many smaller polities, e.g., the ancient Roman empire and the modern French Republic. More than a dozen state-level polities, including several empires, span the 2,000 year period between the rise of the Xiongnu and the end of the Dzungar state in the same geographic region. This was a sufficiently long time-span for climate changes to have occurred.

Many puzzles surround the polities of Inner Asia, from both regional and broader comparative perspectives. We focus on the onset, life cycle, territorial size, and survival dynamics of these polities, with two main goals. First, the empirical analysis of their formation and evolution has intrinsic value, especially from a long-range perspective that includes environmental and technological change. Second, documenting the precise empirical patterns of these polities – as precisely as measurement error and uncertainty in the primary sources will allow – is critical for testing and validating agent-based simulation models of the evolution of Inner Asia (Cioffi-Revilla 2002; Cioffi-Revilla et al. 2007; 2010). Until recently, both goals have been elusive due to the lack of systematic data and multidisciplinary collaboration.

Fig. 1. Approximate area under study encompassing eastern Inner Asia with maximal territorial extent of three polities: the Xiongnu empire (ca. 200 BC to 155 AD), the Tuoba Wei empire (ca. 386 to 581 AD), and the Kitan Liao empire (ca. 907 to 1125 AD).

Background

Over the last century, significant historical and archaeological research has contributed to an increasingly complete picture of the emergence of polities in Inner Asia. This effort has been spearheaded by Russian and Mongolian researchers (Kradin 2002b; 2005a; Mongol nutag 1999; Perlee 1961), and since 1990, by a wide variety of international research teams[1]. One noteworthy result from this ongoing work is an increasingly detailed chronology from the Paleolithic through the period of major empires, providing a better understanding of early polities in terms of dynamic cultures. Research on the Bronze Age (1500–400 BC), for example, has found significant variation in the distribution of population and cultures across the region (Erdenebaatar 2002; Frachetti 2008b; Fitzhugh/Bayarsaikhan 2008).

The fundamental social system that emerged on the steppes of Inner Asia, which set the stage for the first significant polities, had its origins in a mobile pastoralist economy. The domestication of the horse in western Central Asia around 4000 BC and the availability of other herd animals – including sheep, goats, cattle, yaks, and camels – led to the development of a

1 Bemmann et al. 2009; Hanks 2010; Honeychurch 2004; Moriyasu/Ochir 1999; Rogers et al. 2005; Roth/Erdenebat 2002.

highly adaptive, yet volatile means of exploiting the vast grasslands of Central and Inner Asia. As the Greek historian, Herodotus, noted over 2,400 years ago, this is a vast region where herders tend their flocks from horseback (Godley 1920). While pastoralism was certainly the most important aspect of the economy, hunting and gathering as well as limited amounts of agriculture were also practiced throughout the region. By at least 1,000 BC the landscape of Inner Asia was extensively populated by increasingly hierarchical local groups, often referred to as "tribes", but conforming to a type of political organization more typically described in the anthropological literature as "chiefdoms" (Earle 1991; Johnson/Earle 1987; Kradin, this volume).

Following Bronze Age chiefdoms, the Xiongnu were the first society of Inner Asia to develop a major polity under centralized leadership. We know details of the Xiongnu polity from early Chinese historical sources and extensive archaeological research, especially focusing on tombs and regional settlement patterns (Brosseder 2009; Honeychurch/Amartüvshin 2006a). At its greatest extent, the polity occupied a region considerably larger than modern-day Mongolia (Fig. 1). It was organized into a "center" and two branches, described as "left" and "right". The "central" region was controlled by the imperial elite, while the left and right were subordinate but relatively autonomous. The concept of a center, left, and right was replicated in several subsequent steppe polities, as was the institutional form of an imperial confederation with greater or lesser degrees of centralization (Barfield 1989, 8; Rogers 2011).

In world history and according to theories of cultural evolution, the pastoralists of Inner Asia are generally relegated to a peripheral or intermediate role (e.g., Pletneva 1982, 145), or as facilitators of interaction between sedentary centers of civilization. In this perspective, the polities established by pastoralists in Inner Asia are viewed as ephemeral and relatively unimportant in comparison to the complex urban societies of China and the Middle East, where cities first emerged, fueled by highly productive and stable agricultural systems. The marginalization of steppe pastoralist polities has its origin in the first, persistent, interpretations derived from early Chinese historians, who characterized northern peoples as barbarians and their lands as only barely suitable for human habitation2. Considering that China was frequently in conflict with the northern polities, it is not surprising that official histories were written from this perspective. However, the cultural traditions of steppe pastoralists formed a strong basis for the emergence of distinctive elite organizations and relatively unique systems of government. The cultural traditions and styles of political organization in Inner Asia reflect indigenous steppe developments and utilization of ideas from several sources, including China, Persia, and Russia (Di Cosmo 2002, 172–173; Sneath 2007).

Early polities developed in China by about 2,100 BC[3], but not in the steppe regions bordering China for another 1,800 years – around 200 BC with the emergence of the Xiongnu empire (Rogers 2007). Although early Chinese histories mention other northern groups and even major steppe polities at this time, e.g., Dingling, Yuezhi, and Dong Hu, these were eventually subsumed by the expanding Xiongnu (Di Cosmo 1999b; 2002). The struggles that emerged between the Xiongnu and the Han Chinese empire set the stage for a long series of conflicts that involved and produced successive polities for the next 1900 years (Barfield 1989).

2 Li Zongtong 李宗侗 (ed.), Chunqiu Zuozhuan Jinju Jinyi 春秋左傳今註今譯, Vol. 1 (Taipei 1973).

3 Chang 1986; Lee 2002; Liu 1996; 2004; Shen 2003.

Method

Data and Measurement

From a methodological perspective, this study is a cross-sectional and cross-temporal comparative analysis[4]. The geopolitical area of the study consisted of present-day Mongolia plus a broad rim of neighboring regions comprised of territories from northeastern to northwestern China, namely Inner Mongolia, Gansu, and Xinjiang, southern Siberia, and eastern Kazakhstan (Di Cosmo 1994) (Fig. 1). The total territory included covers approximately 5,407,000 km^2, consisting of multiple biomes and ecological zones. These include steppe (primarily), desert, grasslands, forests, and mountains. Our definition of Inner Asia follows the consensual demarcation of the region as defined by most area specialists (e.g., Di Cosmo 1994; 1999b; Rogers 2007; Sinor 1981).

The time period covers approximately 2,000 years, from ca. 200 BC when the first reliably documented state-level polity of Inner Asia formed, i.e. the Xiongnu state, to 1757 AD when the Dzungar imperial confederation, the last nomadic empire in eastern Turkestan, fell. The chronology used in this study is based primarily on the early Chinese historical sources and supported by a growing body of archaeological fieldwork, using analysis of settlements, burials, and regional surveys (Rogers 2011). Following the recent periodization by W. Honeychurch and J. Rogers (2007), this corresponds to several distinct chronological periods, not one homogeneous time interval. The Honeychurch-Rogers periodization is based on field archaeology, mainly burials and other excavated sites and regional surveys, epigraphy, early historical records, oral traditions, and ethnographic records.

The cases in our data set consist of Inner Asian polities with ascertainable levels of social, political, and economic complexity in the form of states or empires. Accordingly, chiefdoms and other pre-state polities with lesser political complexity are omitted from this study.

Operationally, each case shows evidence of a centralized system of governance and collective action problem-solving through public policies extending over a putative territorial region (stable or contested). The typical organizational form of Inner Asian polities is a tribal confederation, meaning a large coalition of local nomadic units under the leadership of a strong leader at the head of his own tribe or clan (Rogers 2007; Rogers/Cioffi-Revilla 2009; Cioffi-Revilla et al. 2008). Nevertheless, nomadic, i.e. with migratory seats of power, Inner Asian polities meet all the defining criteria of states and empires: a society or populace with one or more cultural identities, and a system of government that produces policies for managing public issues affecting the populace.

Included in our study are all known Inner Asian polities, not only archaeological sites, for the approximately 2,000 year-long time period defined above. As detailed below and illustrated in Figure 2, a total of 18 polities were identified, most of which qualified as imperial polities, i.e., polities with large multiethnic populations, territorially extensive control covering several environmental zones, and a redistributive political economy; as opposed to simpler states with greater ethnic uniformity, smaller territorial size, and fewer ecological zones. While the focus is on pastoralist polities, our sample also includes adjacent polities practicing a more sedentary agricultural economy. We used primary and secondary sources to measure the dates of formation

4 Bennett/Stam 1996; Bienen/van de Walle 1989; Cioffi-Revilla/Landman 1999; Landman 2008.

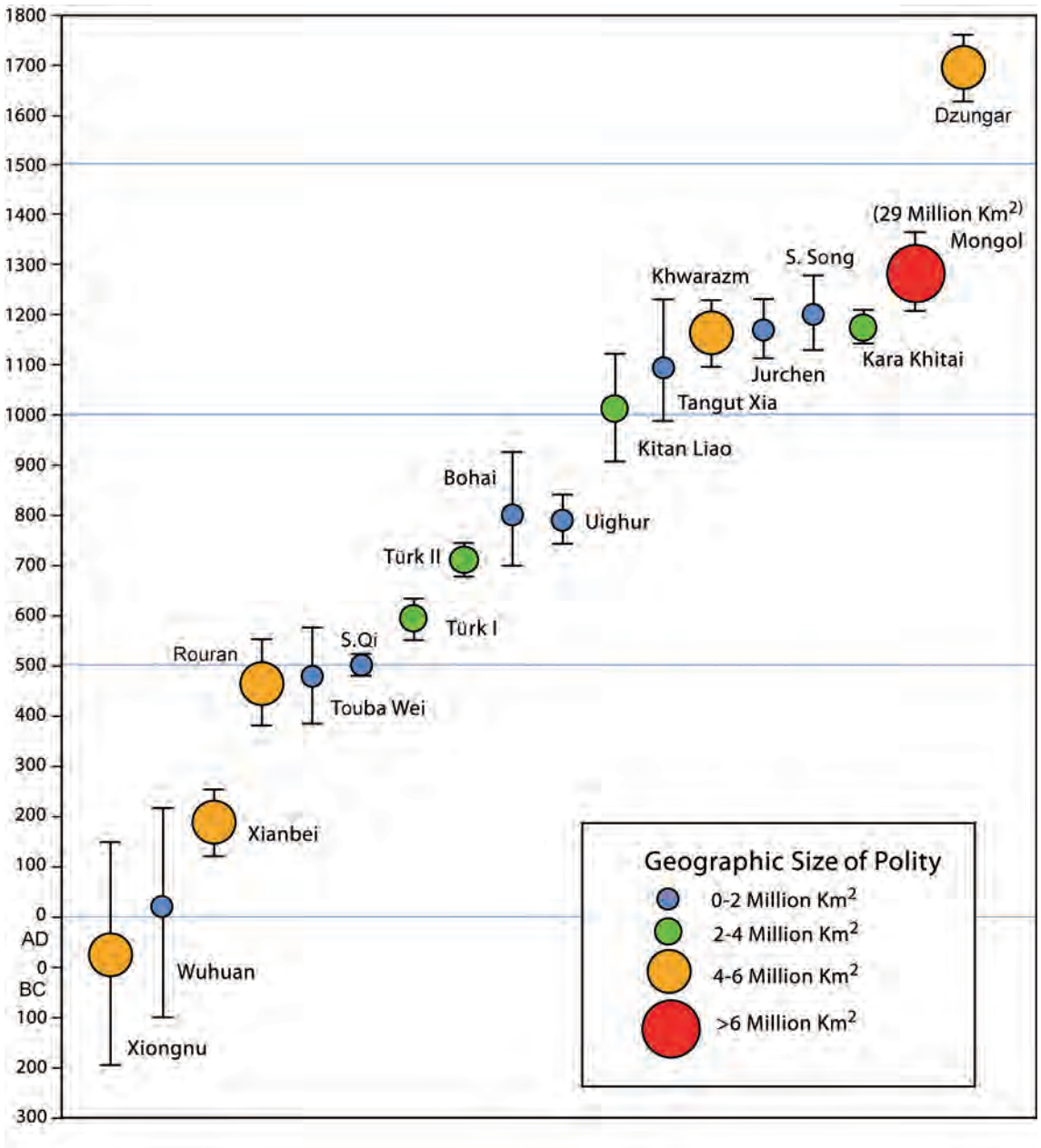


Fig. 2. Chronology of polities of Inner Asia, 200 BC to 1800 AD with geographic size of polity.

and termination. The dates used here are widely accepted and are derived primarily from the early Chinese dynastic historical sources as synthesized by recent scholars (Barfield 1989; Rogers 2011; Sinor 1990a). The most relevant sources used by these scholars begin with the "Shiji" (Sima Qian 1959; Watson 1961a; 1961b) and the "Han shu" (Ban Gu 1962), written during the 1st century BC and 1st century AD, respectively. Especially for the Mongol and later Dzungar empires, there are also numerous sources in addition to the official Chinese histories (see Atwood 2006; Courant 1912; Dawson 1955).

In addition, maps from numerous sources were used to measure the maximal territorial size of different polities, following a similar procedure to that of Taagepera (1997 and earlier papers

cited therein). When inconsistent or contradictory information was found, greater credibility was assigned to the more specialized or better documented source. In the case of some polities, such as the Xiongnu, available map data was reconsidered based on a reanalysis of the original textual sources (e.g. Ban Gu 1962). Some of the key secondary research sources include Atwood (2004), Biran (2005), Di Cosmo et al. (2009), Kradin and Ivliev (2008), Prawdin (1953), Reischauer and Fairbank (1960), Renat (1881), and Sinor (1990b). Data were also collected by the second author of this paper during field seasons in Mongolia between 2002 and 2010.

In the future we intend to add more cases and validation controls to the data set by circulating it among area experts. However, two limitations of our data must be considered given the nature of archaeological and epigraphic information. First, we made every attempt to be as accurate as possible, but complete accuracy cannot be guaranteed in this type of measurement. We estimate the average accuracy of our dates to be within an acceptably small range of the dates reported in this study, based on the extant evidence. This margin of error, at most ± a few years, not decades, is sufficiently small for the statistical analysis we conducted, considering that the total span covers just under 2 millennia, i.e., approximately 0.5 %, and the nature of the aggregate, system-level hypotheses we tested. Second, research on Inner Asian polities and societies is undergoing significant development, so a similar study conducted several years from now may well yield new results based on new primary data. Nonetheless, the accuracy attainable today warrants this first study.

Variables and Models

Based on formation and termination dates reported in Table 1, we measured the following variables directly related to the evolution of polities in a regional system (Cioffi-Revilla 1998, Ch. 4):

Duration, defined by lifespan and denoted by D;
System size N, or number of contemporaneously existing polities in the Inner Asian system;
Hazard rate relative to both formation $H(f)$ and duration $H(d)$, also known as event intensity;
Stability, based on the exponential ratio of uncertainty, sd^2/μ, or stochastic structure of D (i.e., the hyper-exponential, exponential, or hypo-exponential form of the distribution of polity durations);
Half-life (median value) of polity duration;
Maximal size, denoted by S (largest territorial range of a polity), and degree of accuracy or measurement error (10–20%);
Type of economy (mostly pastoral or mostly sedentary).

Note that duration alone, or turnover rate, is not per se a measure of polity stability, which is a more subtle dynamic property given by the hazard rate or event intensity function (Cioffi-Revilla 1998, 68–82). Together, these variables, and other theoretically based data that we will report in the future, describe the evolution of a political system across epochs, providing a basis for theoretically explaining why, how, or when change might occur.

The first three of these variables are the most important for this study. The stability coefficient sd^2/μ and the half-life are derived from these. The duration d_i of polity i (where $i = 1, 2, 3, ..., n$) is a value (realization) of the stochastic variable D defined by the probability density function (p.d.f.), denoted by $p_D(d)$, and the cumulative density function (c.d.f.), denoted by $F_D(d)$. Polity

	Polity name	Dates	Size *S* [km²]	Duration *D* [years]	Type	Size accuracy [%]
1.	Xiongnu	199 BC–155 AD	4,031,200	354	P	10
2.	Wuhuan	100 BC–218 AD	400,000	317	P	20
3.	Xianbei	155–235 AD	4,500,000	80	P	10
4.	Rouran	380–555 AD	4,031,200	175	P	10
5.	Tuoba Wei	386–581 AD	1,488,700	195	P	10
6.	S. Qi	479–502 AD	2,147,000	23	S	10
7.	Türk I	552–630 AD	2,106,000	78	P	20
8.	Türk II	683–744 AD	2,106,000	61	P	20
9.	Bohai	698–926 AD	438,000	228	S	10
10.	Uighur	745–840 AD	1,466,200	95	P	10
11.	Kitan Liao	907–1125 AD	2,535,800	218	P	10
12.	Tangut Xia	990–1227 AD	637,900	237	S	10
13.	Khwarazm	1098–1231 AD	4,014,000	133	P	10
14.	Jurchen Jin	1115–1234 AD	1,716,000	119	S	10
15.	S. Song	1127–1279 AD	1,733,600	152	S	10
16.	Kara-Khitai	1143–1211 AD	2,511,900	68	P	10
17.	Mongol	1206–1368 AD	29,491,900	162	P	10
18.	Dzungar	1625–757 AD	3,600,000	132	P	20

Tab 1. Polities of Inner Asia from 200 BC to 1757 AD. Type: P nomadic pastoralist society; S sedentary.

duration D is defined as the length of time elapsed between the formation date (t_0) and termination date (t_f) for each polity, or $d = t_f - t_0$.

The hazard rate with respect to duration (i.e., the intensity function for polity termination), denoted by $H_D(d)$, plays a central role in the theory of political uncertainty (Cioffi-Revilla 1998, chs. 2–4), and is defined by convention as the conditional probability that a polity will terminate in the next instant ($d + \Delta$) given that it has lasted until a given time d. Termination can occur in various modes, such as by conquest, secession, or transformation. Thus, H measures a polity's probability of imminent termination (akin to a state failure potential), a dynamic property linked to political stability, as given by the statistical odds against continued survival beyond a duration of d years. Formally, the hazard rate or termination intensity is defined as

$$H(d) = \mathbf{Pr}(d < D < d + \Delta \mid D = d),$$

where Δ denotes "the next instant", to capture the notion of imminent fall. In other words, informally, the hazard rate or termination intensity measures the chances of a polity terminating if it lasts for one more year.

Accordingly, the hazard function of a set of polities can be: (i) constant (i.e., the Poisson case, $\partial H/\partial d = 0$), (ii) increasing ($\partial H/\partial d > 0$), or (iii) decreasing ($\partial H/\partial d < 0$), depending on the stability conditions affecting the set of polities. Thus, from a dynamic perspective, stable or increasingly stable polities will show a decreasing hazard function for termination because they have a declining probability of imminent termination, or increasing probability of enduring, whereas unstable or increasingly unstable polities will show an increasing hazard function for termination, the rising probability of imminent termination, or decreasing probability of enduring. Thus, the qualitative form of the observed hazard function for a given set of polities – whether increasing, decreasing, or constant – shows the stable (decreasing) or unstable (increasing) nature

of those polities in terms of their termination propensity. This theoretical approach explains the stability of a political system (polity) in terms of the deeper dynamic forces at work on society and government, not simply in terms of the presence or absence of violence without regard to governance capacity or viability.

Operationally, hazard is measured by the empirical p.d.f. $p_D(d)$ and c.d.f. $F_D(d)$ obtained directly from the observed realizations $d_1, d_2, d_3, ..., d_n$, of the polity duration variable D. This yields

$$H(d) = p(d) / [1 - F(d)]$$

as the operational expression for estimating values of the empirical hazard function based on observed values of D (Kaplan-Meier estimate or product limit estimator). Note that the complementary c.d.f. is also the survival function, defined by $S(d) = \mathbf{Pr}(D > d)$.

Analysis

Univariate and survival analysis were the principal statistical procedures used (Cioffi-Revilla 1998; King et al. 1990). In this paper analysis is limited to the univariate implicit model of the hazard rate functions for formation T and duration D, i.e., type I models in the theory of political uncertainty, because data collection for more complex explicit multivariate models, $H(x_1, x_2, x_3, ..., x_m)$ with co-variates $\{x_1, x_2, x_3, ..., x_m\}$, such as territorial size, polity type, and others, is still in progress and we will report on those models at a subsequent time[5]. The graphic form of the empirical hazard rate function $H(d)$ was also obtained to observe and evaluate the termination risk of Inner Asian polities. We used the R package for survival analysis[6], which produced the graphs reported with our results in the next section.

The data and procedures just described allowed us to conduct a preliminary test of several competing hypotheses concerning the following features of Inner Asian political evolution:

1. Heterogeneous formation-termination process: Comparable patterns vs. marked differences in formation and termination processes. Polity formations were expected to be Poisson-distributed (negative exponential density), based on standard political assumptions and prior empirical findings: the formation of a new polity is a rare event with low and constant probability ($H_{\text{formation}} = k$). By contrast, polity termination is a highly dynamic process under non-equilibrium conditions that destabilize and eventually destroy a polity.
2. Duration and stability: The form of the empirical hazard function, based on observed durations, provides critical insights regarding the stability of polities, or lack thereof. Based on earlier studies (e.g., Bienen/van de Wall 1989; Cioffi-Revilla 1984), we also expected a constant or near-constant hazard for polity durations ($\partial H_D / \partial D \approx 0$).

We discuss the results of testing these and other competing hypotheses below, together with the presentation of our main empirical findings. However, we note the usual caveat for pre-

5 In addition, we plan to examine different epochs within the overall time period of almost 2,000 years, as additional polities are added beyond the initial eighteen state-level polities reported in this paper.

6 R Development Core Team (2008). R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. ISBN 3-900051-07-0, URL http://www.R-project.org; Therneau/Lumley 2009.

modern polities: some tests may yield different results with future improvements in the basic data, so alternative explanations should not yet be rejected with the same confidence as with comparable data for modern polities or political systems (Landman 2008). We also used our analysis to evaluate the putatively significant effect that Chinese polities in the southern rim may have had on the steppe polities of Inner Asia (Barfield 1989; 2001a; Di Cosmo 1999b).

Results and Discussion

Polities of Inner Asia

Table 1 reports preliminary findings for the set of Inner Asia polities in this study, including polity name, dates of formation and termination, maximal territorial size *S*, and total duration *D*. We report this initial dataset so others may use it and improve upon it as new information sources become available. While we also report size and type, our emphasis here is on the time variables only, leaving analysis of size (Alesina/Spolaore 2003) and other variables for subsequent papers. Similar to other long-range comparative social science research projects[7], the Mason-Smithsonian Project on Inner Asia will disseminate an extended dataset published through the Harvard-MIT Data Center. All durations and years are rounded to the closest whole number.

As reported in Table 1, we identified a total of 18 Inner Asian polities for whom it was possible to measure date of formation, termination, and maximal size with acceptable accuracy ($N = 18$ cases). Although the size of the dataset is statistically small, it is a complete population of state-level polities; not a sample. Previous studies have shown it is possible to conduct a variety of analyses and test models on a small data set if the data are reasonably well-behaved (Cioffi-Revilla 1998, chs. 2–4); otherwise the results are not meaningful or robust. Polities in Table 1 comprise all those presently known for the region, including some of the largest empires in world history, such as the Mongol Empire. At its maximal size the Mongol Empire actually extended well beyond Inner Asia, from the China Sea to the Mediterranean Sea. All other polities were significantly smaller than this but comparable to large modern countries with territorial size in the range of 106 km^2 or several Mkm^2.

Polity Formation and Termination Processes

Results show that most polities formed during the second half of the first millennium (ca. 500 to 1000 AD), a period of great turbulence and relative fragmentation preceding the formation of Khwarazm, the second largest polity (> 4 Mkm^2). This was followed by several smaller but significant polities (Jurchen Jin, S. Song, and Kara-Khitai) that preceded the formation of the Mongol Empire (ca. 30 Mkm^2). The 13th century is also marked by the largest number of polity

7 E.g., Cioffi-Revilla/Lai 2001; Taagepera 1997; Wilkinson, D. 2000; Wright 1942.

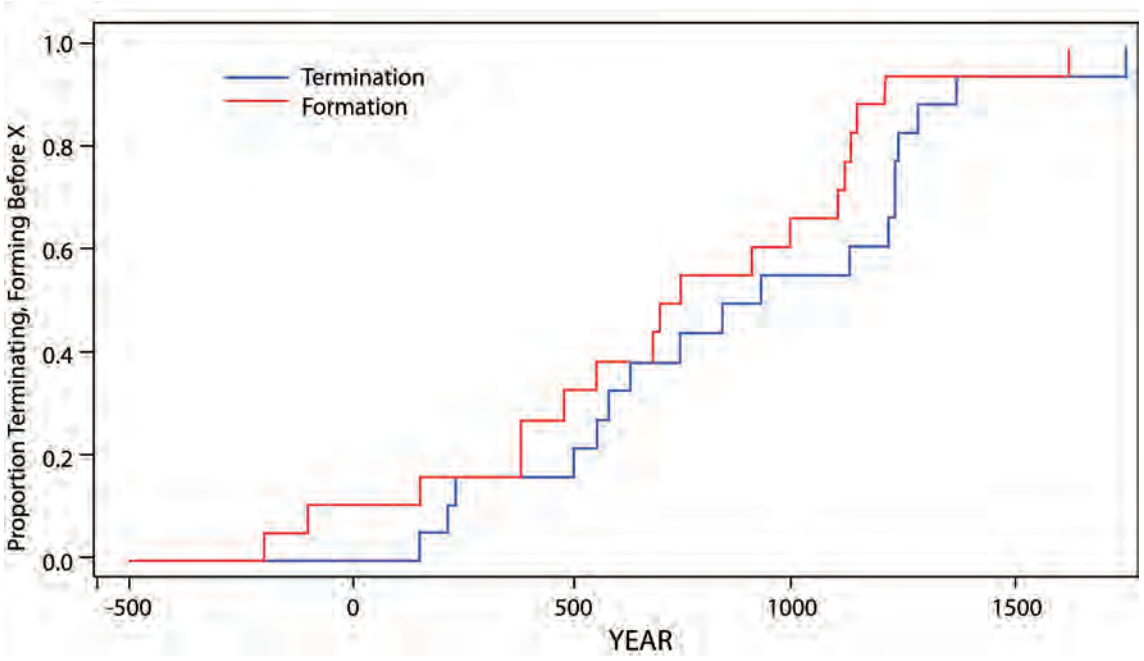


Fig. 3. Combined formation (red) and termination (blue) processes of polities in Inner Asia, 500 BC to 1757 AD. Note the multi-polar period with several contemporary polities during the 1300s, otherwise the system consists of one or at most two polities.

terminations, concurrent with Mongol expansion and consolidation. Formation and termination processes are graphically summarized in Figure 3.

Results also show that – except for one intriguing case – the distribution of time between polity formations T is approximately exponential, $p(t) = k\ e^{-kt}$ (p.d.f.) and $F(t) = 1 - e^{-kt}$ (c.d.f.), with nearly identical (< 1%) first moments (107 and 108 years for mean and variance, respectively), so $H(t) = k = 1/\mu \approx 0.009$ formations/year. This is consistent with a Poissonian process of rare events (low and constant probability per year), as is typical of many temporal patterns in social and political processes. (The same is not true of size patterns, where other distributions, such as Weibull and power laws, are more common than the exponential distribution; the exponential/Poisson being a special case of the Weibull distribution.) Hence, the hazard rate function for formations was also found to be constant: $H(t) = k$.

The intriguing case in our results is the period between Mongol and Dzungar polities, between 1206 AD (rise of Chinggis Khan) and 1625 AD (formation of the Dzungar polity). This 419-year period is exceptionally long relative to the overall distribution, indicating a somewhat "fat" or "heavy" tail[8]. This long interval is also consistent with the Mongol Empire having had an extraordinary effect on the long-range pattern of polity formations in Inner Asia. No other polity came close to having such an impact. Once the Dzungar polity formed, however, it was effective in standing up to "China", at that time, ruled by the Manchurian Qing dynasty, 1644–1911 AD. Note that more conventional approaches typically eliminate outliers such as these very long durations (and similar extreme events), thereby missing the insights of this heavy-tail property.

8 This type of discontinuity is also called a "dragon tail", because of the lack of observations separating the last quantile from the next observed lower quantile (Cioffi-Revilla forthcoming, 202).

Polity Duration Process

The first moments of the distribution of polity duration were $\mu = 157$ years and Var = 89.2 years^2 (s.d. = 9.4 years), indicating a hypo-exponential process with very low variability (s.d./$\mu \approx 0.06$) and, consequently, rather pronounced regularity. Results from the empirical survival function (Fig. 4a) yield a half-life $h \approx 150$ years, approximately the same as the mean duration. These results are roughly comparable to those of modern polities in the present global system (e.g. Gleditsch/Ward 1999).

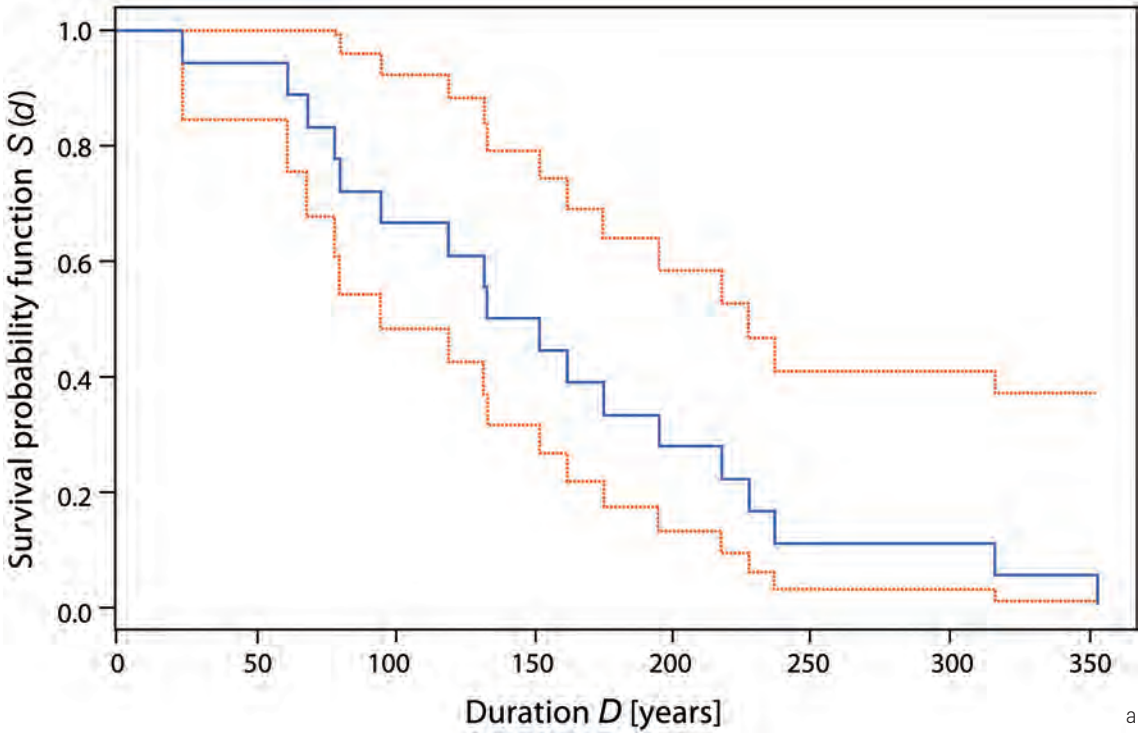
Interestingly, the distribution of polity duration D approximates a Rayleigh distribution, ranging from 23 years of the S. Qi polity to 354 years with the Xiongnu polity and half-life $h \approx 150$ years. This finding is rare and noteworthy, because mathematically the Rayleigh distribution is a special case of several other important distributions, namely the Weibull, Rice, Chi, Maxwell-Boltzmann distributions. Figure 4b shows observed values of the nearly-linear ramp-like hazard function that is characteristic of the 2-parameter general Weibull model for the special case of the Rayleigh distribution. Reports of the Rayleigh distribution are rare in social science and are previously unknown in polity dynamics or historical processes.

The three main results from the empirical hazard analysis of duration are the increasing rate ($\partial H_D/\partial D > 0$), the approximately linear form ($\partial^2 H_D/\partial D^2 > 0$), and the strict monotonicity ($H_d > H_{d-1}$). By contrast, these results on polity duration could have shown the more common pattern of constant hazard rate (as opposed to linearly increasing). What do these statistical and mathematical results mean or imply from the more substantive, historical perspective of relevant human and social dynamics at play in Inner Asia during this long period? The increasing hazard rate means that these Inner Asian polities were fundamentally unstable (as opposed to stable or stationary): they were more likely to terminate as time went on (as opposed to less likely), consistent with mounting difficulties in solving collective action problems and addressing issues in domestic and foreign policy. Domestically, the multi-ethnic composition of these polities posed significant governance challenges, as did constant external pressures from China along the southern frontier[9].

Increasing hazard rates associated with political processes are not rare (e.g., Cioffi- Revilla 1998, Ch. 4), but actually measuring a linear or approximately linear rate, such as that shown in Figure 3b resembling a Rayleigh distribution, is unknown in political dynamics. More frequently, empirical hazard rates are neither linear nor perfectly monotonic. Rather, they are usually nonlinear (concave or convex) or non-monotonic (e.g., U-shaped). The fact that the hazard rate of Inner Asian polities is both linear and monotonic (i.e., Rayleigh-distributed) means that the forces acting on these polities, both endogenous (societal) and exogenous (foreign), operated as a remarkably steady or uniform process from formation to termination.

Our finding concerning the linear and monotonic hazard rate seems remarkable for another reason: the small size of the data set ($N = 18$ cases). This finding indicates a very well-behaved pattern, uncommon in long-range political processes evolving on such a long time-scale where technological, societal, or environmental changes introduce significant heterogeneity (endogenous and exogenous). It remains to be seen whether a larger dataset including lesser polities will confirm or invalidate this finding.

9 The first Inner Asian polity, the Xiongnu, was established by a third century BC nomadic society that may have been expelled from the Ordos region as a direct result of a ruthless military campaign by the Chinese Qin dynasty armies, a state-sponsored action of ethnic cleansing that lasted decades.



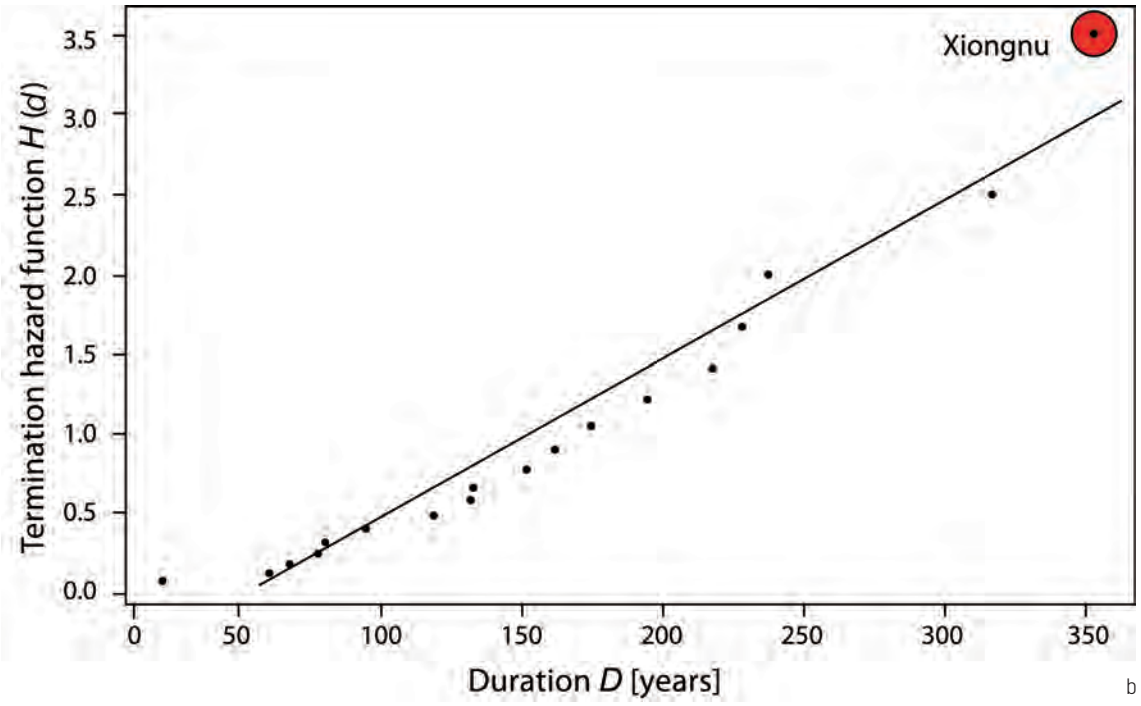


Fig. 4. (a) Survival function $S(d)$ and (b) hazard rate function $H_D(d)$ of the distribution of polity durations in Inner Asia.

The Rayleigh distribution observed for polity duration is also a non-equilibrium distribution, with upper tail fatter or heavier than a normal or Gaussian distribution. This means that Inner Asian polities could occasionally last longer than "normally" expected, as some in fact did

(Xiongnu, Wuhuan, Bohai, Khitan Liao, Tangut Xia). The same is not true for polity formations, which have exponential distribution. This non-equilibrium property associated with the heavy tail is also consistent with the inherent instability of the increasing hazard rate for duration and a characteristic feature of complex systems.

Finally, it was mentioned at the outset that a second important motivation for this analysis, besides the intrinsic scientific value, came from the need to obtain empirical validation targets or real world benchmarks for calibrating and testing (technically "verifying" and "validating") new agent-based simulation models of Inner Asian polities (e.g. Cioffi-Revilla et al. 2007; forthcoming; 2010) within a broader project on long-term adaptation and socio-natural complexity. These results provide additional metrics and specific patterns that the simulation models must now match. Additional such patterns and statistics are necessary and will be reported as analysis continues and new cases are added to the initial data set investigated in this study.

Summary

The polities of the Inner Asian steppes are among the most influential in world history and among the least investigated by political and social scientists, especially quantitative researchers (i.e., statistical, mathematical, computational modelers). This paper reported initial findings from a preliminary data set aimed at systematically recording formation, duration, and other measured features of these polities over a long time span; sufficiently long to also record environmental, technological, and cultural change and adaptations. The main findings consist of (1) the exponential (Poisson) or near-exponential process reported for polity formations, consistent with most earlier studies for other polities; and (2) the Rayleigh-type hazard function for polity durations, which represents a previously unknown and insightful finding due to its rarity and special properties - monotonically increasing probability of instantaneous termination - as opposed to more common forms reported in the extant literature. The main implications of these findings are not merely a confirmation of previous findings in terms of polity formations, but a new pattern of relentless destructive pressures from internal and external forces combined in terms of polity durations. Further analysis will be necessary to understand these patterns more fully in a proper theoretical context, whether through the theory of political uncertainty or other explanatory frameworks. These findings provide significant progress in terms of offering new data and patterns for testing and validating the emerging generation of agent-based simulation models of the early polities on Inner Asia and their implications for other regions.

Acknowledgments

Funding for this study was provided by grant BCS-0527471 from the US National Science Foundation, Human and Social Dynamics Program (Program Officer: Thomas J. Baerwald), by the Center for Social Complexity at George Mason University, and by the Silkroad Foundation. The authors thank all members of the Mason-Smithsonian Joint Project on Inner Asia, especially William Honeychurch, Sean Luke, Natalia Luna, and Teresa Nichols for assistance with data collection, verification, and validation. Marsha Bakry and Sarah C. Flores provided

valuable assistance with graphics. The authors also thank Francis Allard, Chunag Amartuvshin, Jan Bemmann, Ursula Brosseder, William Fitzhugh, H. E. Pius Fischer, Rob Franzese, Bruno Frohlich, Bryan Hanks, Jean-Luc Houle, Nikolai Kradin, Katheryn Linduff, Bryan Miller, Gideon Shelach, Diimaazhav Tseveendorzh, Peter Turchin, and Joshua Wright for helpful comments and discussions. The lead author also thanks the Silkroad Foundation, President Adela Lee and Anita Habdank-Kolaczowska for the invitation to present these results at the International Conference on Xiongnu Archaeology, Ulaanbaatar, Mongolia, 16–18 October, 2008, as well as the German Embassy in Ulaanbaatar and His Excellency Ambassador Pius A. Fischer for hosting the lecture on the Xiongnu Empire and Inner Asian Polities.

THE XIONGNU AND THE COMPARATIVE STUDY OF EMPIRE

Walter Scheidel

The Xiongnu, States, and Empires

The comparative study of empires has been flourishing in recent years[1]. What place do, or should, 'Xiongnu Studies' occupy in this discourse? The opening question is whether the Xiongnu formed what can legitimately be called an 'empire'. This may seem a pointless question: a 'western' term originally derived from the Roman '*imperium*', 'empire' is being invoked in a wide variety of circumstances and very generously applied, for instance to the United States or the current 'late capitalist' world-system[2]. If almost anything can now be an 'empire', surely so can be the Xiongnu. Nonetheless, definitions are of value, if only to establish common ground for scholarly debate.

Formally, empires are axiomatically regarded as a form of the state[3]. This immediately raises two questions, whether the Xiongnu built a state and whether it qualifies as an empire[4].

The Xiongnu hardly met the classic Weberian definition of the state due to their rulers' lack of a credible claim to a "monopoly of legitimate physical coercion in the implementation of its order", exercised by an administrative staff[5]. Any notion of "a monopoly on binding and permanent rule-making" (Mann 1986, 37) seems likewise out of place. The existence of a spatially concentrated set of institutions and personnel "exerting authority over a territorially distinct area" (Haldon 1993, 32–33) is similarly doubtful, notwithstanding the Xiongnu's supposed demarcation of boundaries with the Han state (Hanshu 94B, 3810 in Yü 1986, 398). Other definitions likewise require qualification, such as R. Carneiro's vision of the state as "an autonomous political unit, encompassing many communities within its territory and having a centralized government with the power to draft men for war or work, levy and collect taxes, and decree and enforce laws" (Carneiro 1970, 733). Neither tax collection nor governmental law enforcement were characteristics of steppe polities.

1 See especially Lieven 2000; Alcock et al. 2001; Motyl 2001; Howe 2002; Bang/Bayly 2003; Wood 2005; Chua 2007; Münkler 2007; Hurlet 2008; Morris/Scheidel 2009; Scheidel 2009b; Burbank/Cooper 2010; Bang/Scheidel 2011; Bang et al. forthcoming. Among earlier studies, Kautsky 1982 and Doyle 1986 are particularly engaging.

2 United States: e.g., Mann 2003; Ferguson 2004; Maier 2006; Porter 2006; Murphy 2007. European Union: Zielonka 2006. Globalization as empire: Hardt/Negri 2001; Lal 2004.

3 Even that is not certain, as I note at the end of this section, but it serves as a suitable starting point.

4 When I speak of 'Xiongnu polities' I refer to their political formations prior to their conquest of northern China in the early 4th century AD, which established a conquest state (or more accurately conquest states) in the same sense as Germans and Arabs established conquest states in late antique western Eurasia.

5 Weber 1980, 29. For a detailed survey of different definitions of the state, see Scheidel 2011, section 1.

Of these two features, the absence of sanctions mediated by legal organs and legitimated force may appear to be the critical factor. By contrast, revenue collection, although commonly enmeshed with practices of coercion that facilitate and are themselves sustained by taxation, did not have to be internal to a given polity in order to support coercive capacities. In the case of steppe polities, it is striking that even outside revenue did not necessarily enable effective coercion. Steppe formations are usually seen as consensual and thus dependent on performance, primarily on their ability to obtain and allocate external resources. As a corollary of this consensual nature, they were prone to fission.

Minimalist observers might therefore be tempted to define the Xiongnu polity as a form of hegemony, a condition where a dominant power merely controlled the foreign but not the domestic policy of its associate entities (Doyle 1986, 40). This view would seem to conflict with the taxonomy of centralized office-holding ascribed to the Xiongnu, "Left and Right Wise Kings, left and Right 'Luli' Kings, Left and Right Generals, Left and Right Commandants, Left and Right Household Administrators, and Left and Right 'Gudu' Marquises", with senior leaders commanding ten thousand horsemen and lesser ones a few thousand (Shiji 110, 2890–2891 in Lewis 2007, 131), if indeed this schema reflected reality and, more importantly, significantly transcended the sphere of military activity[6]. While one might also label the Xiongnu polity a confederacy (e.g. Yü 1986, 384) endowed with centralized offices, this would merely shift the question to the problem of whether confederacies also function as states, which may or may not be the case depending on circumstances.

Alternatively, the Xiongnu formations may be likened to chiefdoms, defined as "socio-political organizations with a centralized government, hereditary hierarchical status arrangements with an aristocratic ethos but no formal, legal apparatus of forceful repression, and without the capacity to prevent fission" (Claessen/Skalník 1978a, 22). From this perspective, N. Kradin has called large steppe polities 'supercomplex chiefdoms' (Kradin 2002b, 372). However, as C. Cioffi-Revilla's comparison with shorter-lived later formations shows, fission does not seem to have been a serious issue for the Xiongnu (see also Cioffi-Revilla et al., this volume). Given the spatial extension of their polity, a split in two (in the 50s BC and 40s AD) hardly counts as significant fragmentation. Otherwise, the archetypal empire, the Roman empire, would also have to face questions about its statehood: after all, it split into two or more parts on a number of occasions between 193 and 395 AD and was continuously partitioned from then until the demise of its western half in 476/480 AD[7].

We might also want to reconsider the notions of lacking internal revenue sources and lack of rule enforcement. In some sense the assumption that the Xiongnu polity did not command internal revenue is both untrue and irrelevant. Even if we were to exclude from the equation revenue from non-nomadic areas under their control, as in Xinjiang, the steppe population itself provided labor services in the form of military service. If we count the provision of military labor as a form of resource extraction, the contribution of the steppe population was very considerable. Under the right circumstances this did not require great efforts on the part of rulers: labor extraction could readily be managed at the local level, and the decimal system of military

6 It is not clear what this passage shows other than a system of military leadership; cf. the discussion by Barfield 1981, 48–49.

7 Here and in the remainder of the chapter I use the Roman Empire as a *comparandum* for both Xiongnu and China. I do so because Roman history provides suitable and often unexpected illustrations, and in order to highlight the utility of a global perspective in the study of imperial formations.

organization attributed to the Xiongnu, and found in later steppe formations, points to some degree of centralized coordination even under conditions of weak state penetration (Di Cosmo 2002, 177). Moreover, reliance on the extraction of resources other than military labor from outside the sphere of a polity's core population was not unique to steppe formations: other historical states likewise relied on external revenues or a mixture of plunder, external tribute, and domain incomes[8].

Once again the experience of ancient Rome provides a useful example. During the Republican regime prior to extra-Italian conquests, very roughly from 500 to 250 BC, members of the in-group, i.e., Roman citizens, primarily contributed military labor to state efforts. Material revenue accrued mostly in the form of war plunder, a source of income that only if necessary was supplemented by a low annual tax that could be assessed to reward soldiers when booty was insufficient to cover outlays. Once external provinces had been established and the scale of plunder and extortion increased, even that small financial contribution was abolished and for more than a century thereafter external tribute and plunder were the main means of sustaining collective action in the form of military service by citizens. It was only in later stages of Roman state formation that formal fiscal institutions were established in the citizen core. Yet there is nothing to suggest that this reliance on external revenue made the Roman republic of citizens any less of a state[9].

As for lack of rule enforcement, Xiongnu rulers had the option to attack disobedient subjects, even if this may often not have been feasible in practice. As before, the case of ancient Rome illustrates this principle. For a long time, the Roman Republic was made up of farmer-warriors. Privately armed and scattered across numerous local communities, they were not readily susceptible to state coercion for the simple reason that their militias and the military resources of the state were one and the same. As a consequence, bargaining and consensus were critical preconditions for mobilizing collective action, which occurred primarily, and for many citizens, exclusively, in military contexts.

Xiongnu arrangements, which were intrinsically similar, only seem unusual by the standards of early Chinese state formation in the Warring States and Qin-Han periods, a process that was itself unusual by pre-modern world historical standards with respect to the precocious bureaucratization and centralization it entailed. The instrumentalization of that system to serve as a counterpoint to nearby steppe polities necessarily creates an inflated impression of the differences between basic state dynamics in sedentary and nomadic environments. A broader comparative historical perspective that accounts for the true breadth of state types reduces this apparently stark contrast[10]. Such comparisons are not meant to efface the differences between ecological contexts: a steppe environment constrains state formation much more narrowly than other environments which consequently experience greater variability in outcomes. At the same time, it would surely be unwise to link certain state properties exclusively to a steppe environ-

8 Blanton/Fargher 2008, 112–132; Monson/Scheidel forthcoming; and cf. already Kradin/Skrynnikova 2006b.

9 Unless, that is, we embrace extreme Eurocentric definitions of the state that are still popular among political scientists and deny statehood to all or most polities prior to 1300: e.g., Poggi 1990, 23; 25; Van Creveld 1999, 1.

10 Whether state formation required concurrent structural differentiation to 'count' is another question. Kradin 2002b, 370 argues that large steppe polities were the result of scaling-up from clan and tribal formations to chiefdoms and larger 'imperial' entities that added more people and new layers of hierarchy but did not actuate structural differentiation. But the latter is not a standard element of definitions of the state. Moreover, the conventional conceptualization of nomadic societies in terms of clans and tribes has been called into question: Sneath 2007.

ment: in some instances, very different ecological preconditions can produce analogous institutional features.

State capabilities are a matter of degree, and low levels of capabilities do not by themselves preclude statehood. The Xiongnu polity may thus have approximated the ideal type of the 'inchoate state', the first phase of the three-stage model of the 'early state' developed by H. Claessen and P. Skalník, in which kinship and community ties still dominated relations in the political field; specialists were rare; taxation was primitive or ad hoc; close contacts and reciprocity existed between rulers and ruled (Claessen/Skalník 1978a, 22–23). Then again, whether there are any meaningful differences between this type of polity and a chiefdom is open to debate (Kradin 2008, 113). Overall, we are dealing with a case where the definitional fields of hegemony, confederacy, chiefdom, and inchoate early state are difficult or perhaps impossible to disentangle.

In as much as the Xiongnu polity was or resembled a state, was it an empire? Sheer size, though ostensibly relevant, is not a crucial variable. Instead, modern studies tend to emphasize structural features. One of them is the unequal relationship between a ruling center or core, or metropole, and a ruled or dominated periphery, or rather peripheries[11]. This hierarchical quality is logically and genetically associated with heterogeneity: empires are often multi-ethnic and multi-lingual, with diverse communities linked to a central power via varied local elites (Howe 2002, 30; Goldstone/Haldon 2009, 17–19). Some stress the fractured nature of imperial peripheries which are connected to the center by means of a spoke-like structure that creates a 'rimless wheel': peripheral communities are severally tied to the center without merging into a unified periphery. This arrangement allows the imperial core to exert dominance (Motyl 2001, 4).

These attempts to define the 'essence of empire' invite qualifications. If we apply the concepts of asymmetric core-periphery relations, heterogeneity and peripheral fragmentation, we find that many or perhaps most states larger than city-states started out as empires, including the eventual 'nation states' of Europe. Do polities that are structured around imperial centers and subject peripheries remain empires as these distinctions erode over time, as for instance in the late Roman empire or under later Chinese dynasties? If not, 'empire' might best be defined as a developmental stage in state formation, a phase that may either end in disintegration or instead lead to ongoing consolidation into more cohesive and homogeneous states.

Distinctions that are sometimes drawn between different types of empires take account of developmental aspects. Thus, M. Mann distinguishes between empires of domination and more mature territorial empires (Mann 1986, 130–133). Sh. Eisenstadt's distinction between patrimonial and bureaucratic empires, albeit not quite the same, points in the same direction (Eisenstadt 1993). In both cases, the degree of penetration of imperial peripheries by the center is regarded as the key criterion: whether the center restricts itself – or is restricted – to the domination of diverse components via tribute-taking and the provision of protection without seeking to reorganize existing structures and institutions, or whether it is more intrusive, replacing local allies with salaried agents and striving to impose specific laws, beliefs, and so on.

An 'inchoate state', or 'supercomplex chiefdom', or whatever term we prefer to apply to extensive steppe polities, necessarily lacked the capacity to penetrate and re-organize local communities. If the Xiongnu created an empire, it therefore had to be of the low-maintenance variety, an empire of domination. Yet empires of domination are particularly accepting of great

11 E.g., Doyle 1986, 30; 45; Finer 1997, 8; Reynolds 2006, 152.

differences between center and periphery. A socially fractured and consensus-based ruling polity may dominate a periphery as long as it was sufficiently cohesive to generate the necessary means of organized violence. In so far as the Xiongnu dominated populations in different environments, such as oases, they were undoubtedly engaged in the business of empire.

In the final analysis, it may well be easier for us to establish the imperial nature of the Xiongnu than any putatively normative features of statehood. This observation serves to qualify the initial axiom that all empires are states. It was certainly possible for polities whose claims to statehood remain a subject of debate to maintain imperial relations – that is, asymmetric relations of violent domination and non-reciprocal resource extraction – with other groups, groups that would be tied to the ruler and his senior confederates via the spokes of a rimless wheel as in Motyl's felicitous image of empire. All this justifies the common practice of referring to a 'Xiongnu empire'[12].

From 'Shadow Empires' to Co-Evolutionary Imperiogenesis?

Modern observers have long maintained that nomadic populations benefited from predation on agrarian societies. These benefits could be obtained through conquest (Khazanov 1984) but also through state formation in the steppe regions[13]. The latter could result in what Th. Barfield has called "shadow empires," extensive polities that 'shadowed' agrarian empires in the sense that "they came into existence as a response to imperial state formation that was initiated some place else" (Barfield 2001a, 33). Steppe empires are prime examples of this type of polity because of the specific properties of steppe societies: surplus production was often very limited and the population was intrinsically mobile and difficult to rule. Under these circumstances, external stimuli for state formation were vital. The extraction of resources from adjacent sedentary societies sustained more complex forms of hierarchy and collective action in the steppe. Political power depended on the redistribution of external goods, and centralization occurred primarily in the sphere of foreign policy. The resultant formations were parasitical on sedentary societies[14].

From this perspective, the Xiongnu polity may be regarded as a response to the creation of the Qin and Han empires and the opportunity for large-scale resource extraction they presented. Given that the Qin and Han empires were larger and wealthier than any previous states in this part of the world, the analogous "shadow empire" in the steppe was likewise larger and more powerful than anything that had come before. This development was merely the earliest instance of a more common process of secondary state formation in the steppe that was later reprised by Xianbei, Rouran, Turkic, and Uighur polities (Barfield 1992, 12–14).

12 E.g., Yü 1986, 387; Barfield 1992, 32; 2001a, 34; Di Cosmo 2002, 162; Kradin 2002b; Lewis 2007, 134. By the same token we hear about a 'Hun empire' under Attila (Kelly 2009, 267–269), perhaps with less justification. Kradin 2005b, 165–166 argues that the Rouran khaganate was a mixture of chiefdom and state but nevertheless calls it an empire.

13 Barfield 1992; Golden 1992; Barfield 2001a; Kradin 2002a.

14 Kradin's characterization of this type of polity as 'xenocratic' (Kradin 2002b, 379, taken up by Turchin 2009, 194) is misleading for two reasons: it literally means "ruled/dominated by foreigners" rather than "ruling over/dominating foreigners", and even if it were taken to mean the latter it would not accurately describe the relationship between the Xiongnu and the Han Empire. The need to coin exotic neologisms is obviated by the existence of a well-established term that accurately describes this relationship, namely 'parasitical'. Given its unfavorable connotations it is easy to see why we would hesitate to apply it to steppe polities, although Barfield 2001a, 34 does so. But that alone does not justify the label 'xenocratic'.

N. Di Cosmo has qualified this model by emphasizing productive capacity within the steppe and the creation of mixed economies that reduced structural demand for predation on agrarian societies (Di Cosmo 2002, 167–174). In his view, crisis drove state formation in the steppe (Di Cosmo 1999b, 14–16): crises could be ecological in nature or caused by the violent expansion of sedentary societies. The latter, he argues, accounted for imperiogenesis among the Xiongnu. The Qin occupation of the Ordos region in 215 BC created pressures that impelled a measure of political centralization (Di Cosmo 1999b, 16; 2002, 174–188).

As M. Lewis has pointed out, the "predatory" and "defensive" models of Xiongnu state formation are not mutually exclusive: the second shows what initiated centralization and the first one explains how it could be sustained (Lewis 2007, 132). I would even go so far as to say that the two models are essentially indistinguishable: without Chinese centralization the Xiongnu might not have been put under great pressure; without that pressure there might not have been a "shadow empire"; but without Chinese centralization there might not have been enough tribute to sustain a very large "steppe empire."

The concept of "shadow empire" makes perfect sense from a comparative perspective since it foregrounds conflict as the primary driver of state formation. Theories of state formation tend to fall into one of two categories, managerial or integrative theories on the one hand, according to which states develop in order to manage complexity, and conflict or stress theories on the other, according to which states arise from competition between and/or within groups and tend to maintain and reinforce inequality between and/or within polities[15]. Theories of the latter type have been richly substantiated with respect to European history and can readily be extended more globally. The Xiongnu case is a good example, supporting as it does O. Hintze's classic premise that "all state organization was originally military organization, organization for war"[16]. Not only was Xiongnu centralization driven by external conflict, it also enabled hierarchies to emerge. Returning once again to our comparison with ancient Rome, the Roman Republic, outside its very limited original city-state core, was for a long time not much more than a military alliance system that created demand for offices providing military leadership (analogous to the nomads' leaders of 10, 100, 1,000, 10,000) and could not readily have been sustained if war-making and attendant predation had been allowed to abate, just as steppe formations would have faded in the absence of military collective action (cf. Eich/Eich 2005).

The "shadow empire" model tends to view state formation in the steppe as secondary. Th. Barfield classifies steppe polities as "mirror empires", emphasizing the notion that they imitate institutional arrangements of agrarian empires (Barfield 2001a, 29–35). Not all "shadow empires" were "mirror empires" in the steppe: Barfield also references other types but the underlying principle of secondary development remains the same in all cases[17].

This approach raises the question whether imperial formations in sedentary societies may not also have been influenced or driven by developments in the steppe. P. Turchin has recently

15 For surveys of the debate, see e.g. Claessen/Skalník 1978b, 5–17; Cohen 1978; Sanderson 1999, 68–86; Scheidel 2011, section 2.

16 Hintze in Gilbert 1975, 181. For warmaking as statemaking see especially Tilly 1985; 1992; Porter 1994.

17 There is little point in discussing his eccentric taxonomy of 'maritime trade empires', 'vulture empires', and 'empires of nostalgia' (Barfield 2001a, 35–39). The main problem with his approach is that 'primary empires' are very difficult to define for the simple reason that most empires had developed under the influence of older formations and often emerged at their margins or in what world-systems theorists would call 'semi-peripheral' positions. Strictly speaking, very few if any empires may count as genuinely pristine or 'primary': Old Kingdom Egypt and the Akkadian empire in Mesopotamia are among the few exceptions.

introduced a symbiotic theory of imperiogenesis that posits a feedback loop (Turchin 2009). In this scenario, scaling-up occurred concurrently on both sides of the ecological divide. Agriculturalists formed larger polities to defend themselves from and put pressure on herders, and herders scaled up in order to defend themselves and put pressure on agriculturalists. "The initial 'anisotropy' in military power on the farming-steppe frontier thus sets up an autocatalytic process, resulting in a runaway evolution of polity sizes on both sides of the frontier" (Turchin 2009, 197).

Turchin's model pays relatively little attention to proximate mechanisms beyond noting three ways in which scaling-up could occur among agriculturalists: by forming defensive alliances; by conquest of peer polities that reducing free-riding; and by conquest by steppe groups (Turchin 2009, 196–197). The model's focus is on ultimate causation. This focus is sustained by an analysis of 64 empires in world history up to 1800 that covered at least 1 million square kilometers. Almost all of them were located "in or next to the arid belt that runs through Afro-Eurasia, from the Sahara to the Gobi in the east" (Turchin 2009, 201–203). The only noted exceptions were the Angkorian empire in South-East Asia, the Inca in the Andes, and the Roman and Carolingian empires in Europe. Turchin considers this strong statistical correlation a sign that the presence of steppe frontiers was highly conducive to the formation of large empires.

Our first question has to be: is this true? Possible objections are worth considering. Levels of socio-economic complexity are generally determined by geographical and ecological factors, and overall trajectories of regional development have been fundamentally shaped by these preconditions (Diamond 1999; Olsson/Hibbs 2005). It just so happens that much of the world's 'prime real estate' that sustains higher levels of complexity and thus imperial state formation covers a temperate belt that is comprised of much of Europe and North Africa and the southern half of Asia. Although much of this belt also happens to border on steppe extensive regions, one could argue that empires were most likely to develop within this temperate zone regardless of its proximity to steppe frontiers. Moreover, the practice of classifying empires by size rather than population puts steppe formations that were spatially extensive but sparsely populated on the same footing as large sedentary empires with tens or hundreds of millions of inhabitants, which may not be justifiable.

These doubts can be addressed by noting that regions whose ecology encouraged higher levels of complexity but did not directly border on steppes, such as much of Europe and southern India, were historically far less likely to become the cores of large (contiguous) empires. As far as size is concerned, steppe empires may have been less populated but were also more difficult to hold together, making their emergence more rather than less difficult to explain.

Moreover, Turchin has developed a more generalized version of his model which allows for other kinds of divides to account for imperial state formation, known as meta-ethnic frontier theory (Turchin 2003, 50–93). It predicts that the degree of difference between neighboring populations is positively correlated with the degree of scaling-up, even if no steppe frontiers are present. This approach helps account for the creation of the Roman empire, which emerged at least in part through conflict with, and peer alliance-building against, the Gauls in northern Italy, and for the development of the Frankish polity in the post-Roman period, which occurred along a long-term political and cultural frontier (Miller 1993; Turchin 2003, 170–172).

In addition, the narrower version of the model that is centered on the role of steppe frontiers helps explain outcomes that did not occur, such as the creation of polities comparable to the Roman empire in post-Roman Europe. In comparative world historical terms, the absence of very large empire from the region that had previously been claimed by the Roman empire is

unusual: regions that once sustained large empires tended to do so time and again, for instance in the Middle East, northern India, and China. Although various explanations appear plausible (Scheidel 2009b; in press), insufficient proximity to the central Eurasian steppe may well have been a significant factor. Although Kiev, Poland-Lithuania and Russia all developed into very large polities, in so doing they buffered the rest of Europe from the steppe and may thus have enabled post-Roman polycentrism to endure.

Returning to the Xiongnu, Turchin's co-evolutionary model places their development in the context of broader dynamics as we move from assessing the impact of sedentary societies on the steppe to the impact of the steppe on state formation in China. In view of the conventional emphasis on inter-state conflict in the Warring States period that led to the Qin-Han unification, is it reasonable to contend that scaling-up in China was not merely accompanied and influenced but to a significant degree driven by pressure from the steppe?

Early empires were often built by absorbing similar polities. Akkadians and Assyrians subdued other city-states; the Achaemenid Persians conquered the Lydian, Neo-Babylonian and Saite Egyptian empires; the Romans created an empire by first defeating other city-state alliances in Italy and North Africa and then the Hellenistic kingdoms in the eastern Mediterranean. The state of Qin defeated and absorbed the other Warring States; Liu Bang's coalition defeated the kingdom of Chu to set up the Han empire, and in 154 BC Han generals had to defeat seven feudatory kingdoms to preserve it. Does it make sense to interpret these and analogous developments as the consequence of proximity to the steppe and of the desire to prevent free-riding in collective action against herders?

If the question is put this way, a positive answer seems unlikely. It is, however, important to be precise about the logic of the model. It does not require conflict between agriculturalists and herders to be the main driving force behind large-scale state formation among the former. Rather, it requires tensions between them to be important enough to make large-scale state formation much more likely and common than in other environments: in other words, that this was, for most large empires, a necessary condition but not necessarily a sufficient one.

It is obviously difficult to determine empirically whether this assumption is correct. Relative timing is not particularly relevant. In the "mirror empire" model, crudely conceived, agrarian empire has to precede steppe empire, whereas in the co-evolutionary model, scaling-up unfolds in steps. In a sense, both is true in the case of early China. One the one hand, Xiongnu state formation expanded significantly around 210 BC, in response to Qin power; one the other, "chanyu" leaders had existed for generations and Xiongnu coalitions had long been powerful enough to field large military forces (Di Cosmo 2002, 152–158). Polities on both sides of the ecological divide grew more or less at the same time. That relationship, however, does not by itself demonstrate causal connections.

Consideration of space is more revealing. If the co-evolutionary model is valid, we would expect the centers of agrarian empires to be located close to the steppe frontier. This was clearly the case in China where, with the single exception of the Ming, all dynasties from Shang to Qing had developed in the north of the region[18]. World-wide, this correlation is not as clear-cut as in the case of China but nevertheless worth examining in greater detail (cf. Turchin 2009, 203–215). At the very least, this logical corollary of the theory is susceptible to empirical testing.

18 Turchin 2009, 193 Tab. 1. As for the creation of the Ming dynasty, which entailed the overthrow of steppe conquerors, one could argue that the steppe frontier had (in political terms) been displaced into the settled core, which means that this case may not represent a genuine exception after all.

More generally, the co-evolutionary model raises methodological and what one might call aesthetic issues. Suppose that it were possible to confirm a connection between the formation of large agrarian empires and proximity to steppe frontiers that was so strong that it could not reasonably be dismissed as coincidental. A global trend of this kind would put great pressure on historians of agrarian empires to identify proximate mechanisms that mediated this relationship. Yet for many historians, their ability (or inability) to identify credible proximate mechanisms may well matter more than the discovery of higher-order correlations and their logical implications. This is not merely a function of historians' common mantra that everything is somehow 'more complex' than we think, a particularistic attitude that is the bane of macro-historical analysis. Even historians who are prepared to accept the utility of globalizing theories would still see it as their primary responsibility to document rather than merely accept causal connections.

As noted above, Turchin considers defensive alliances among peer states and conquest of peer states to suppress free-riding as possible ways in which large agrarian empires might arise in response to challenges from the steppe. This perspective seems unnecessarily restrictive. Other scenarios are possible, such as the possibility that exposure to steppe populations enhanced the military skills of agrarian polities and thereby facilitated conquest and scaling-up. We must also allow for the possibility that in spite of the observed global correlation between imperiogenesis and steppe frontiers, some of these empires may have developed without significant input from the steppe. Testing any of these options is challenging but worthwhile.

Few if any historians would be inclined to argue that the Warring States formed a defensive alliance under Qin's leadership in order to pool resources against steppe nomads or that Qin subdued its rivals in order to discourage free-riding in the provision of protection to agriculturalists. For this reason alone, alternative explanations merit consideration. It may well be relevant that Qin experienced a great deal of conflict with unsettled populations and for a long time expanded primarily at their expense rather than in conflict with more similarly structured polities. Even so, the evidence does not suggest that steppe populations per se played a significant role in this process. Qin's expansion targeted neighbors who may not have been fully sedentary but were not nomads either. Another major contender for supremacy, the state of Chu, expanded in the south, far away from the Eurasian steppe. The state that was geographically most exposed to the steppe, Jin, suffered state deformation to the extent that infighting split it into three separate polities, Han, Zhao and Wei, which were never reunited. Further east, Yan, which was similarly exposed, never turned into a major player. It is likewise difficult to account for the fact that growing Xiongnu demands during the first seventy years of the Han dynasty did not precipitate state formation: pressure from the steppe may not have been significant enough, or the autonomy of the feudatory kingdoms may have imposed too strong a constraint. The latter view is supported by the fact that after the latter's suppression, the government of the Emperor Wu was able to increase state capabilities for the purpose of challenging the Xiongnu and resuming expansion on multiple fronts. Although one could argue that all these specifics do not matter much in terms of ultimate outcomes, they do serve to demonstrate the difficulties involved in identifying proximate mechanisms and processes of causation.

This should not prompt us to dismiss co-evolutionary theories of agrarian imperial state formation or consider them irrelevant. In view of the observed global trends in outcomes, the burden of proof rests on historians who wish to maintain that these theories do not apply to a given case, even if some of them are likely to resent this premise. Co-evolutionary theories redistribute agency from the settled cores, where it resides according to the "shadow"/"mirror empire"

model, to the steppe peripheries. They also conceive of imperial state formation on both sides of the ecological divide as a truly symbiotic process. In that sense, to return to the topic of this volume, they may cast doubt on the legitimacy of studying "the Xiongnu", or, for that matter, "the Han empire", and encourage us instead to engage more explicitly in the study of very broadly defined ecological interaction zones.

THE XIONGNU – PROGENITORS OF THE CLASSICAL NOMAD CIVILIZATION

Zagd Batsaikhan

Introduction

Questions as to how nomad civilizations, and in particular nomad states, came forth, how they developed, and how they were socially structured are important topics of research for Central Asia. In the official Mongolian historiography of the past 20th century, based upon Marxism and under the direct influence of Soviet historical interpretation, an image was constructed in which the first nomad state emerged after the disintegration of tribal structure and that a transition to class society took place. At that time it was not possible to follow any other view of the origin of nomad states, and, therefore, this constrained view led to even greater misconceptions. On the other hand, in Western fields, scholars have investigated these lines of inquiry from different standpoints for more than 100 years. Through the proposal of various models and theories, research has been released from a flat dimension and enhanced with new ideas. Three directions for research of nomad states can be delineated:

The model of dependency, outlined by many scholars, dictates that a state was not absolutely necessary for nomads, but was established primarily to achieve external aims and assume economic relations with neighboring countries[1]. The model of inner formative processes, as outlined by Di Cosmo (1999b) consists of three phases: crises caused by internal and external factors; militarization of society to answer the crises; and political centralization as a result. The influence of a selected military leader played a principal role in the latter two phases. A third alternative model, called "spatial-political governance" purports that the aim towards control over major routes leads to political formations (Honeychurch 2004, 50–60). Despite their differences, these three models of interpretation may be used together in research on the emergence of nomad states. In this paper, I will consider designations of civilization for the Xiongnu nomad state by reviewing economy, production, social structures and practices, and material culture.

1 Lattimore 1940; Khazanov 1984; Barfield 1981; 1989; 1993; Kradin 1992; 1996.

MIXED AGRO-PASTORAL ECONOMY

Chinese accounts report that most of the nomad tribes raised a variety of livestock and migrated with them in alternation of pasturage (Sima Qian 1959, 2879; Watson 1961b, 129). Accounts further mention that aside from more common domestic animals, namely horses, cattle, camels, sheep and goats, the texts also mention the Xiongnu use of asses, mules, and other cross-bred equines (Di Cosmo 2002, 272–273)[2] and some archaeological remains even attest to the use of pigs, as seen at the settlement of Ivolga (Davydova 1995, 47). The texts repeatedly speak of the superiority of the steppe nomad horses over those of the Chinese, probably because of their highly developed herd management strategies and zoological knowledge. Analyses show that male horses were castrated as early as the Neolithic period (Alekseev/Pershits 1999, 220). Castrated animals were more advantageous, because they were calmer and gained weight more quickly. Dog bones found in the settlement of Ivolga (Davydova 1995, 47), and in burials elsewhere in Transbaikalia (Konovalov 1976) show that the Xiongnu also kept dogs, most likely in the use of livestock protection.

Through their extensive knowledge of the landscape for pasturage, the nomads would also have had knowledgeable of a wide variety of plants for grazing. A related and equally important sphere of steppe life was thus of plant cultivation, for which there exists both historical and archaeological hints (Di Cosmo 1994; Honeychurch/Amartüvshin 2007). One of the main implications of development in agriculture is the use of draft animals and plowing technology. A rock pictograph was discovered in the gorge of Bichigt in the Ikh Baian mountains in Baianlig sum, the Baiankhongor aimag. It shows a man with a plough standing behind an ox (Ser-Odzhav 1987, 38; 39 Tab. 67)[3].

Likewise, farm tools such as cast iron axe-shaped ploughs and sickles were found in the settlements of Ivolga and Dureny (Davydova 1985, 69; 1995 Pl. 1,44), and millet remains were found along with a plowshare at the Noyon Uul necropolis (Rudenko 1969, 103). Furthermore, grains of *Triticum aestivum*, similar to bread wheat, as well as unidentifiable grains were discovered in two stalls at Egiin Gol (Honeychurch/Amartüvshin 2007, 47), and *Hordeum vulgare*, as it is known in China, as well as *Triticum aestivum* and *Triticum compactum* were found at the settlement of Ivolga (Davydova 1995, 45). Thus, the Xiongnu appear to have cultivated cereals suited to fertile areas of their territory.

From written sources we know that Xiongnu troops were sent to Jushi in the western regions to "work the land" (Taskin 1973, 121; Ban Gu 1962, 3905), demonstrating that agriculture was deemed great importance. Agriculture would have been especially possible along the large rivers of the Orkhon, Selenge, Egiin and Tamir. All in all, it can be stated that agriculture was not just a subordinate activity for the Xiongnu; instead, it developed into an economically significant branch, answering part of the needs of the steppe populace through its own production.

2 Current nomads have crossed ass and horse, for the resultant mule employed in carrying loads and sometimes as draft animal. The yaks and cattle are cross-bred to produce the special breed called a khainag. It is likely that the Xiongnu also engaged in such cross-breeding and herd management.

3 I would assign the pictograph to the time of the Xiongnu on the basis of comparable ploughs of the same form and construction shown in pictographs of the Han period (1st–3rd century AD) (Kriukov et al. 1983, 150 Fig. 19).

Craftwork and Production

Archaeological and historical records show that all parts of the livestock were utilized and supplied materials for the major commodities and tools of the nomads: "According to the Xiongnu customs, they eat the meat of their animals, drink their milk, and wear their hides" (Sima Qian 1959, 2899–2900; Taskin 1968, 42; Watson 1961b, 143–144). In addition, horn and bone was used for arrowheads, bow strengtheners, and personal ornaments; tendon for sewing and making bows; pelts for coarse and fine felt, and for woven textiles; and hides for leather. Craft production likely took place at two different levels. Indispensable commodities such as milk products, hides for clothing and shoes, leather for armaments, satchels, and horse trappings, and felt for gers, mats and cloth, as well as bone and tendons for weapons could have been produced in each household, as these involved simple technologies (e. g., see Ramseyer/Volken, this volume). Conversely, ceramic pottery as well as iron ornaments, trappings, tools, weaponry, like swords, arrowheads, etc., vessels, and complex vehicle parts demanded special technological knowledge. Thus, these things would not have been made in the households. Furthermore, these objects, which have been found in large numbers in burials and settlements and display a similar size, form and technique, indicate that they were produced in great amounts. Along with the foundation of the first nomad state was attained a level of specialization in production that would have seen the emergence of specialists such as potters, carpenters, carvers, ironsmiths and even jewelers. Various techniques are apparent in the jewelry which has been found: polychrome with inlaid colored stones, granulation inlaid with thin gold thread, and enameling[4]. Despite the presence of precious metals ornaments, there would not have developed an independent sphere of highly qualified craftsmen.

There is considerable evidence that since ancient times the nomads of Central Asia were cognizant of ore-bearing regions and that they mined for copper, gold, silver and iron. Numerous traces of ore exploitation and processing were found in Mongolian Gobi, such as remains of ovens, tools and pottery sherds. In Ozu Tolgoi alone there were 15 mines, which had been exploited in antiquity (Tseveendorzh/Garamzhav 1999, 21–25). According to geologists' records, there are indications that copper veins were discovered and exploited early on in the Gobi region. In all about 200 sites have been recorded where tools were found. Spectral analyses of bronze finds from Mongolia have revealed that the tin content amounted to more than 10% (Erdenebaatar/Mönkhsaikhan 1999, 53–63). The hardness of bronze objects is dependent upon the amount of tin, but any more than 30% tin content and the hardness was lost. Therefore, the bronze artifacts of the Xiongnu and early Mongolians were made with a higher degree of hardness, and one may claim that there was an independent center of bronze production in Mongolia (cf. Park et al. 2010). Even though in Xiongnu times some arrowheads, vessels and jewelry were made of bronze, weaponry and many other tools and trappings were made of iron, signifying a revolution in the material and techniques of production and most likely leading to an increase in production.

4 There are varying opinions as to the origin of the polychrome techniques, but here we should keep the factor of the Xiongnu conquests in mind. The widespread distribution of polychrome in eastern and central Europe is viewed by many scholars as being associated with the migrations of the Xiongnu to the west, like tribes of the Goths, Alans and Sarmatians (Zasetskaia 1975, 21–28).

MATERIAL CULTURE

The sturdy and durable clothing of the Xiongnu was adapted to the hard winter conditions of the steppes, and its wide, not close-fitting form was suited for riding horseback. For this reason, king Wuling of the Zhao state argued for the adoption of the northerner style clothing when forming military units of cavalry and mounted archers (Taskin 1968, 37; Sima Qian 1959, 1806). Aside from the hide garments, archaeological finds attest to the use of woven wool textiles and even silk for clothing. Partial depictions of people on tapestries and findings of human hair braids in aristocratic tombs (Rudenko 1969) evidence that the Xiongnu braided their hair and tied the braids in a knot atop the head.

The weapons of the Xiongnu included bows and arrows for long-range combat and swords and spears for close combat (Sima Qian 1959, 2313; 2879)[5]. Bows and arrows, spears, and blades (daggers and swords) have been found in graves of the Xiongnu, but the most frequent is archery equipment. The extremely powerful composite bow of the Xiongnu was reinforced by seven bone plates: a pair attached to both ends and three at the handle, most likely reinforced with horn and tendon[6]. Different styles of arrowheads made of various materials, including bone, bronze, iron and even bronze with iron core, have been found in Xiongnu burials and settlements. Xiongnu period arrows are also the first to bear whistler attachments below the head so that they would "sing" as they flew through the air. Two to three kinds of spears as well as swords with long one- or two-edged blades and akinakes-shaped hilt have been found in graves.

As to the distribution of weaponry, it should be mentioned here that weapons were found in some graves of females and children as well as adult males. Törbat (2004, 63–64) calculated that bone bow reinforcements were present in 35 graves, 77% belonging to males, 17% to females and 6% to children, and arrowheads were present in 31 graves, 87% of males, 10% of females and 3% of children. He thus states that not only men but also women and children went into battle. All in all it demonstrates that the Xiongnu were strongly armed and militarized.

The presence in burials of pots filled with the ribs, vertebrae, or other bones of horse as well as cattle and sheep shows that horse meat was also a preferred meat alongside the more typical beef and mutton. Furthermore, the assortment of food consumed by the Xiongnu was not as limited to milk and meat as some might assume. Vessels for storing grains and pots with holes in the bottom for cooking such grains demonstrate otherwise. Styles of eating implements also varied, including bone chopsticks and lacquer bowls. Such elements of an agricultural segment of the steppe cultures are not only found in graves of Xiongnu nobility but also within contexts of daily life of the other levels of society.

In addition to animal remains for consumption, burials included animal bones of other purposes. Since the Bronze Age, ankle bones of large and small animals have been found in graves

5 The Chinese histories describe the Xiongnu warriors as first utilizing long-distance archery tactics, choosing to avoid close combat, and in many such cases "not ashamed to run away" (Sima Qian 1959, 2879; Watson 1961b, 129). However, this would have been the best way to draw enemies into a trap and then slay them, and such tactics of luring the enemy are mentioned as well (Sima Qian 1959, 2892; Watson 1961b, 137). For example, at Baideng mountain the chanyu ruler Modun lured the new emperor of the Han dynasty with his 320,000 soldiers, as if Modun was in retreat, to the camp where his (Modun's) best warriors awaited and surrounded the Han emperor for seven days before forcing a treaty (Sima Qian 1959, 384–385; Taskin 1968, 4).

6 See detailed description of evidence for Xiongnu period bows in Reisinger 2010.

within the steppes, and by the Xiongnu period this custom appears to have been widespread. Most occurrences are only a few astragali, but a few interesting cases have one or two hundred more in a single burial, and some astragali even bear incised decorations (Davydova 1996; Miller et al. 2006). The presence of astragali in a grave was independent of age and gender, however, they were mostly found in the graves of children. On the other hand, they have also been documented later as used for soothsaying (Markov 2002, 45). Throughout history, games with astragali have been widespread among pastoral peoples, especially in traditions of Mongol and Turk tribes, and various customs associated with astragali are still preserved today. In addition, a playing board and stone pieces were discovered in tomb 1 at Gol Mod necropolis, Khairkhan sum, Arkhangai aimag (Eröösl-Erdene 2007b, 283). This layout of this board game appears similar to the game presently known in China as "xiangqi" (or "go" in Japan), which was created in the 6th century BC and became one of the most favorite games of palace nobles during the Han period.

Some scholars assume that the Silk Road, the first route of the nomads that connected East Asia to Eurasia, was discovered by the Xiongnu (Yü 1990, 128; Barfield 2001b, 21–22; Honeychurch/Amartüvshin 2006c, 224). This route was utilized by the Xiongnu and later groups, extending trade as far as Eastern Europe. As the Xiongnu were a horse-bound people, they were very mobile, which enabled them to explore new areas and to assume relations with lands neighboring to the west. Their grave goods reflect such connections, with goods as far as the fringes of the Roman empire (see Erdenebaatar, this volume). This contact arose presumably through direct trade, cultural and kin relations, and even marriages with their close neighbors.

Social Structure

The Chinese who lived among the Xiongnu described a society in which "law was straightforward. The relations between privileged persons and subordinates were simple, therefore governing the state is like governing a single person" (Sima Qian 1959, 2900; Taskin 1968, 46; Watson 1961b, 144). Yet this was an outward oversimplification, for social relations among the nomads were highly regulated by traditional precepts. Relations among the nomads, and between tribes was certainly more complex.

There is no doubt that the tribe was the smallest political unit that made up the realms of the nomad states. Yet, what is known about the infrastructure and organization of these tribes? In my opinion, the traditional nomad economy, which has essentially remained the same throughout the millennia, can provide decisive input in addressing tribal structure. At a certain stage of development in nomad society, the growth in tribal population and livestock necessitated collaborative labor in order to accomplish work such as stock-breeding, guarding animals, shearing animals for hair, making felt and textiles, cutting and tanning hides, and moving the herds between seasonal camps. Due to these rising demands, a new kind of pastoral strategy emerged which combined economic growth with the traditional social relationships.

D. Gongor (1978, 297) points out that in medieval writings the two terms "ail", i.e. a household and "khot", i.e. several households situated together, can appear separately as well as together as "khot-ail". The traditional khot-ail of the Mongols most often centered on winter stalls with dung as well as adjacent pasture and river areas. The organization and structure of khot-ails was based on joint pasturage of herds, a situation reflecting tribal grazing grounds (Gongor 1978, 297–299).

Therefore, one can conclude from the "The Secret History of Mongols" that the khot-ail represents units of internal organization, possibly a very ancient form, of tribes in the 12th–13th century. The Russian researcher on Mongolia B. Vladimirtsov (1934, 170–171) wrote that tribal traditions can be seen in the manner in which the Oirad groups moved around together with their kin as a khot. Each "Oirad khot" is a part of the tribe and shows that the kinfolk lived together in one place under the authority of the eldest. Vladimirtsov further ascertained that this was perhaps the first governing unit. As some researchers have observed, khot-ails in the peripheral areas of Khalkh and Khovd constituted no more than two or three ails, whereas in the central area of Oirad Khalimag 10–30 affiliated families lived and moved around together (Vladimirtsov 1934, 192–193). Later sources report that in mountainous regions a khot could consist of five to ten households, while in desert areas usually two or three, maximally five to six households (Gongor 1978, 101).

The khot-ail form of group organization with the use of pastures was common not only among the Mongols, but the Turks as well. Yet, it cannot be stated that the more original form remained preserved in Mongolia. In the Kazakh pastures a khot could consist of 50–60, sometimes up to 100 households (Shakhmatov 1964, 66; 67). The khot-ail was thus not a simple grouping of households, but would have a hierarchical organization. For example, the ger of the ail chief was situated in the southwest part of the khot, and the ger of the son of the eldest in the southeast (Simukov 1933, 25), while the others were located in the east and west, according to age (Batnasan 1978, 133). The fact that writings such as "The Great Tsaiz of Mongolian Oirad" and "Khalh Zhuram" make specific use of two different terms, "ailyn akh" ("brother of the ail") and "khotyn akhlagch" ("leader/eldest of the khot"), shows that every "khot-ail" had its own leader, that its form of existence was an economic one, and, furthermore, that it possessed social rules and principles as well as relations to its neighbors (Gongor 1978, 102; 106).

Consequently, the khot-ail is the organizational unit most suited to a nomadic pastoral economy and social intergrations. It may confidently be assumed that this unit was the original basis for the "decimal" system mentioned for the Xiongnu (Sima Qian 1959, 2890–2892; see Kradin, this volume). Although Gongor (1978) maintains that the decimal system established by Xiongnu military persons had a great impact on kinship structure, there is no evidence that the kinship elations of the Xiongnu underwent any drastic changes. Socio-economic groups like the khot-ail were the smallest units from which warriors would have drawn in the formation of the decimal military unit. Aside from specialized soldiers, herdsmen would also have acted as warriors, obligated to serve in war when called upon.

The peculiarities of social structure among the Xiongnu are made all the more clear through archaeology. Of the more standard Xiongnu burials, there are many large cemeteries with many tens and up to 200 graves, attesting that the burial grounds were long in use. The grave marking varied in size and some cemeteries exhibit concentrations of grave groups. This is a clear indication of a complex hierarchy and levels in social structure.

MORTUARY CUSTOMS

Chinese accounts provide information as to how the Xiongnu elite were buried (Sima Qian 1959, 2892; Watson 1961b, 137), but there is little mention about the burials of normal tribe members. Excavations conducted during the past 100 years in Mongolia and Trans Baikal have

revealed that the deceased Xiongnu were interred with grave goods of weaponry, jewelry, food and drink. Graves with coffins were often reinforced with wood beams or stones. The deceased were then placed in extended position with the head towards the north or sometimes east. At the end, the grave pit was filled earth and stones, and stones were placed at the surface in a circle around the rim of the grave pit. The diameter of this stone circle measured between 3–25 m, with an average of 6–10 m, and the pits were between 1–6 m in depth. Graves of the higher elite were rectangular and between 7–18 m deep.

Since the historical information about mourning rituals of the Xiongnu is minimal, it is of interest to read about the rituals of the Wuhuan, a northern group from present-day southern Manchuria that flourished during the 1st through 3rd centuries AD. When a member of the Wuhuan died, the others wore mourning garments during the interment, singing and dancing. The deceased is brought to the grave by horse-drawn vehicle and with colored ribbons, after which everything is burned and the deceased is interred with a dog (Fan Ye 1965, 2980). All members of the respective nomad tribes most likely took part in the burial rituals, as they were social events, significant as more than just occasions of mourning. Presumably such events could be the foundations of other social engagements, even the formation of marriages. It is possible that marriages and other ceremonies did not differ greatly from the feasting and socializing of burial ceremonies. The Chinese also noted an unusual tradition among the Xiongnu. Upon the death of a father, son, or brother, the others had to marry the dead person's wife so that a lineage would continue (Sima Qian 1959, 2900; Taskin 1968, 46; Watson 1961b, 144). The nomads were always endeavored to increase their population, since the rise or fall of tribes was dependent upon the number of its members. At the same time, the nomads were obligated to nourish and care for the daughter-in-law, without sending her back to her family of origin.

Formal Assemblies and Writings

The Xiongnu reportedly assembled every year on several occasions: in the first month, during spring, at the residence of the chanyu; at the beginning of summer in Longcheng; and in the fall at Dailin (Sima Qian 1959, 2892; Taskin 1968, 40; 1973, 73; Watson 1961b, 137). It is no coincidence that the meetings that took place three times a year coincided with important events in nomadic life: the move to the spring camps, and the birth of domestic animals; the move to the summer camps, where animals are well fed and gain strength; and finally the accounting of animals at their fattest, and the move to the winter camps. The small spring assembly took place among a limited circle of Xiongnu, possibly an indication of the management of state affairs. The summer assembly in Longcheng seems not have been limited. During the summer assembly, the Xiongnu made offerings to their ancestors, the earth and celestial gods, and other spirits. Possibly the fall stock count of people and animals, when the larger assembly was held, was of important social significance. The Chinese texts contain numerous mentions of many tens of thousands of people among the Xiongnu, and in many cases more than one hundred thousand, were slain or taken captive, leading to decreases in population or perhaps the disappearance of some tribes. Linked with is the number of animals, as many as several million in some instances that could die in natural catastrophes. Therefore, the fall stock count was a necessary measure to prepare for such problems.

A formal written system of accounting is often seen as the most efficient manner of keeping track of people and livestock. Many scholars have been engaged with the question whether the Xiongnu invented a script for their own use, but so far there is no evidence of this[7]. The key point, however, does not lie in the question as to whether the Xiongnu developed a script of their own or not, but rather the fact that they utilized writing in state affairs. It is doubtful that the general social-economic and cultural stage of development of the Xiongnu had reached the level at which writing would be employed (Shinekhüü 1977, 117), a doubt that is confirmed by various sources of information and evidence. Zhonghang Yue, the Chinese advisor who defected to the Xiongnu court, reportedly taught the Xiongnu how to keep accounts of people and livestock (Sima Qian 1959, 2899; Taskin 1968, 45). This was probably linked to the circumstance that some Xiongnu nobles knew the Chinese language and characters. Two flat, dressed stones with black spots at the rim were found in graves 26 and 28 in Burkhan Tolgoi at Egiin Gol. Laboratory examinations revealed that the black spots were ink (Erdenebaatar et al. 1999, 65 Fig. 4). This is important evidence of the usage of writing implements by the nomads, and in my opinion, it at least shows that the Xiongnu kept formal documents in writing.

7 The most interesting among the studies is the comparison of the seal from Xiongnu times with the Orkhon runic inscription and the subsequent assumption concerning the associated emergence (Shinekhüü 1977, 59–72).

TYPOLOGY OF ANCIENT SETTLEMENT COMPLEXES OF THE XIONGNU IN MONGOLIA AND TRANSBAIKALIA

Sergei V. Danilov

Introduction

Excavations of funeral monuments were among the first archaeological investigations of the Xiongnu and were for a long time the main source of information for the reconstruction of history and culture of the Xiongnu[1]. Through excavations conducted on the fortified settlement of Ivolga in 1927 (Sosnovskii 1934), a new type of monument, stationary, consolidated settlements, became part of the archaeological vocabulary for academic discussions of the Xiongnu. Thereafter the Xiongnu were considered not as mere wandering nomads, but as general pastoralists that included semi-nomadic herders. Nevertheless, only recently have scholars begun to fully ascertain the spectrum of this semi-nomadic lifestyle.

Today more than 20 fortified settlements have been documented across a broad territory from South Siberia to the Gobi desert[2]. However, large-scale excavations of settlements are still rare and as yet insufficient for a full-fledged reconstruction of settled habitats of the Xiongnu society. We must therefore rely on data from only four relatively well studied sites: the settlements of Ivolga (Davydova 1995) and Baian Under at Dzhida river (Danilov/Zhavoronkova 1995; Danilov 1998) in Buriatiia, the settlement near Abakan in Khakasiia (Evtiukhova 1947; Evtiukhova/Levasheva 1946; Kyzlasov 2001), and the settlement of Terelzhiin Dörvölzhin in Töv aimag of Mongolia (Perlee 1961; Danilov 2005; 2009). A brief summary of characteristic features follows.

Fortifications

Nearly all fortified settlements had defensive constructions which are today visible as somewhat elevated walls, sometimes arranged in several rows. The embankments at the settlements of Ivolga and Baian Under have been thoroughly studied. The Ivolga settlement had the form of an irregular rectangle, stretching 348 m from north to south and 194–216 m from west to east (Davydova 1995, 9). It was encircled by four rows of walls and three lines of ditches, and the overall width of this defensive line was 35–38 m (ibid. 10–13).

1 This work was conducted within the framework of the program of the Siberian Branch of the Russian Academy of Sciences "Historian-cultural heritage and spiritual values of Russia", direction "Archeological values of Russia", project "Khunnu: origin, culture, ethnic history, political genesis".

2 The Mongolian scholar Kh. Perlee provided the first large summary of walled sites in Mongolia (Perlee 1957; 1961).

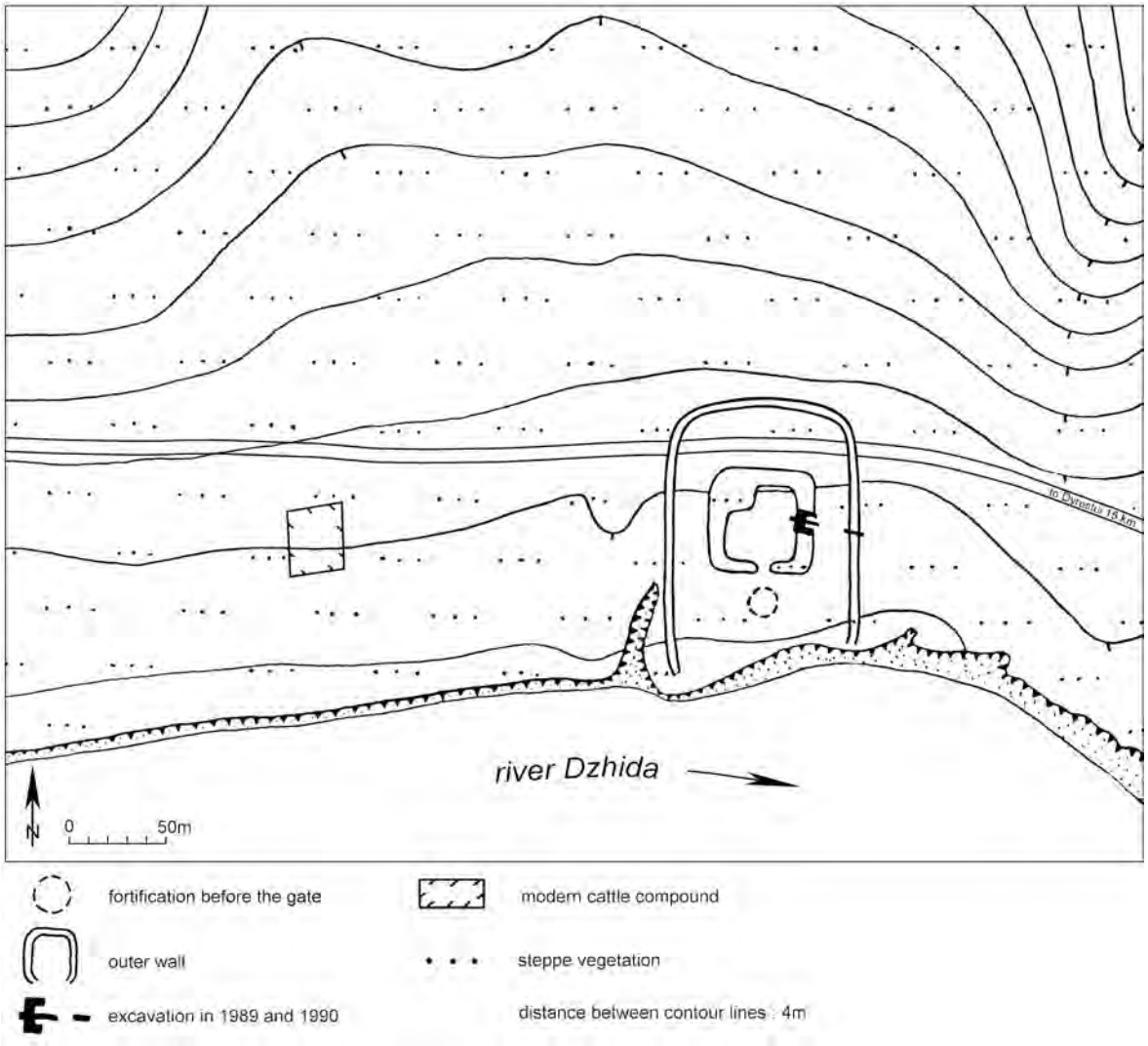


Fig. 1 Baian Under, Buriatiia. Plan of the walled site (after Danilov 2005).

The settlement of Baian Under (Fig. 1) was surrounded by two lines of walls, with the external bank barely raised over the modern ground surface. It consisted of stone rows laid out without any apparent order. The main inner embankment of the settlement had a height on the outside of 1.10–1.15 m and on the inside of 0.7–0.9 m. The profile cut through the eastern bank showed that its base was built from tightly packed gravel mixed with loam. Outside of the walls, ditches of 1.6 m depth were dug. In all probability, the soil from those ditches served as building material for the embankment. From the edge of the ditch to the base of the bank there is an area, or rather a platform, the function of which is not clear yet (Danilov/Zhavoronkova 1995, Fig. 4).

The rectangular fortifications of Terelzhiin Dörvölzhin are earth embankments with a height of 1 m and a width up to 6–8 m. On each of the four sides an opening 3–4 m wide is visible (Fig. 3).

According to information from the excavations of the building near Abakan, it was located in the center of a big settlement which was surrounded by a bank. More concrete information on this site is unfortunately missing (cf. Kyzlasov 2001).

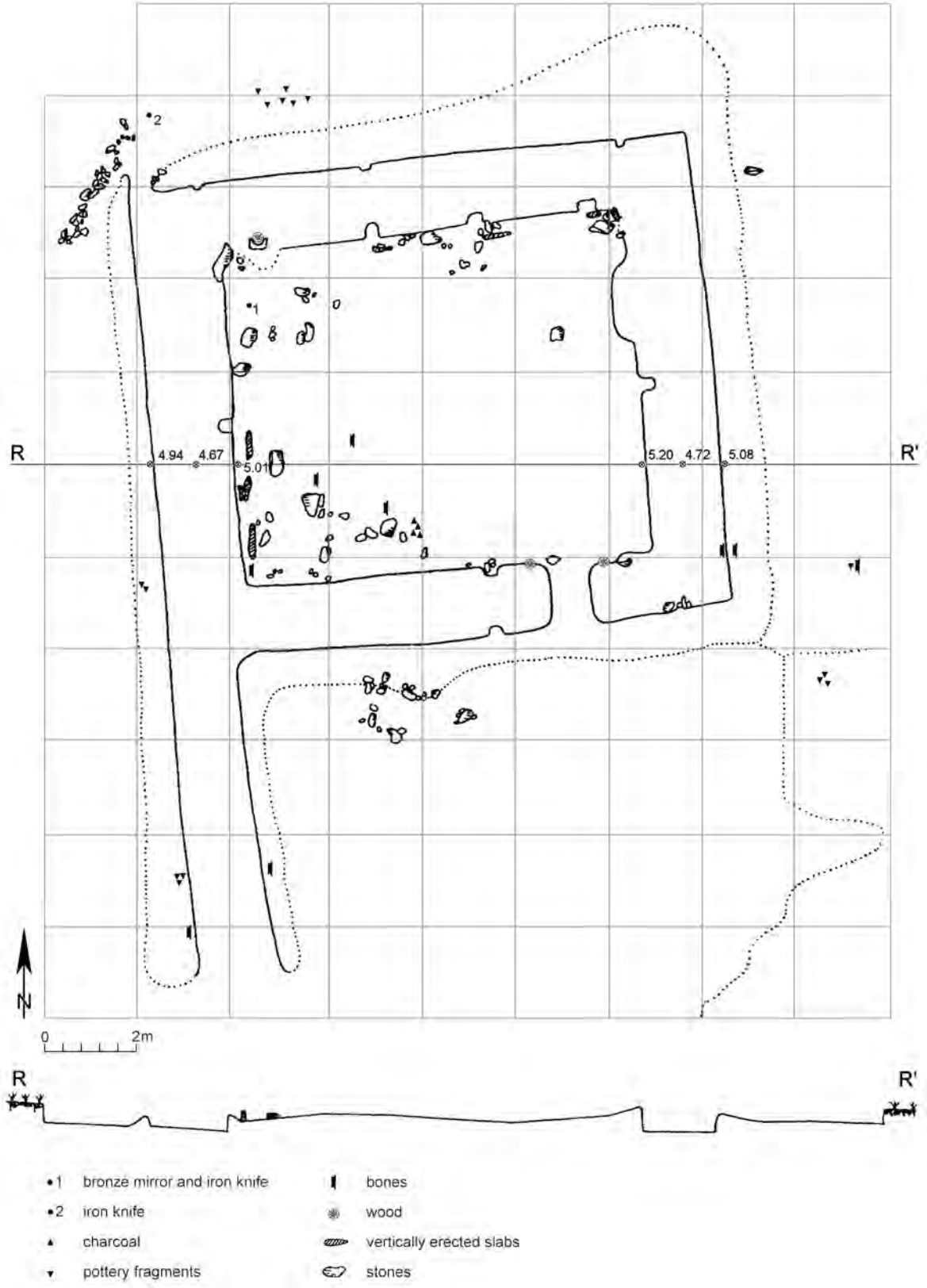


Fig. 2. Baian Under, Buriatiia. Plan of the building excavation (after Danilov 2005).

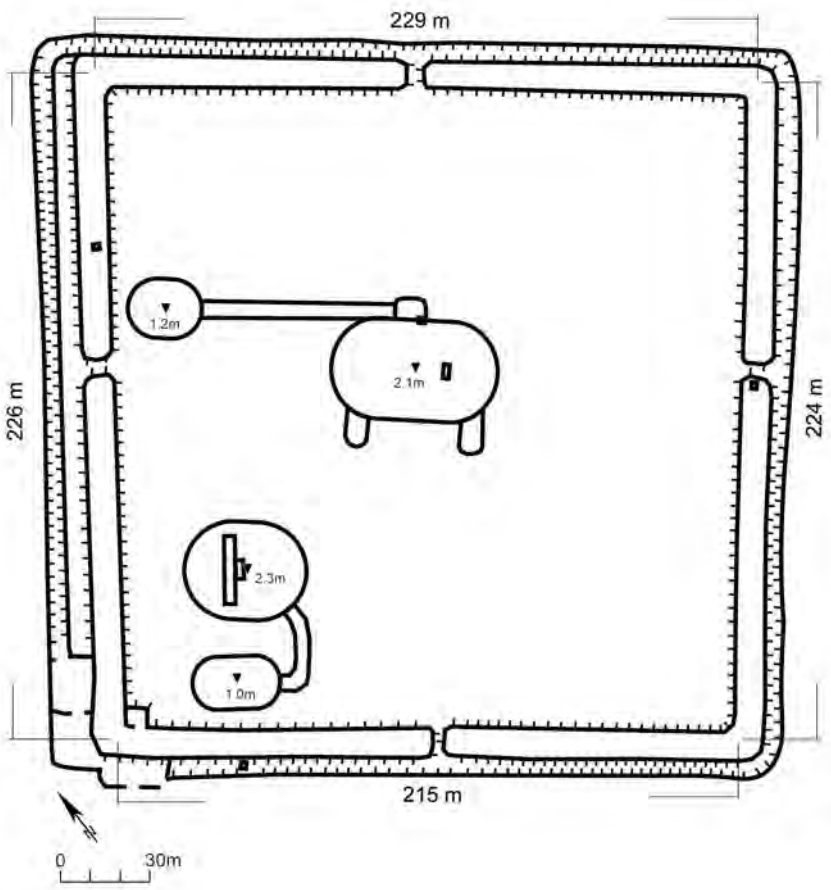


Fig. 3. Terelzhiin Dörvölzhin, Mongolia. Plan of the walled site (illustration S. V. Danilov).

In all cases the embankments of the settlements were erected with the earthen material excavated from the adjacent ditches. As estimated by the degree of the erosion of the walls, their original height could have reached about 1.5–2 m. The average combined height of the defensive constructions, including ditch depth and wall height, is more than 3 m. Although the fortifications of Xiongnu settlements are presently not insurmountable and appear shallow in comparison with contemporaneous defensive constructions elsewhere in the ancient world, these fortifications represent a rather serious constructed impasse for settlements in the forest and steppe zones of eastern Central Asia and signify the very beginnings of such walled constructions in the region.

BUILDINGS

Inside the fortified areas, remains of significantly different building types have been studied. In general, the majority of examined constructions are semi-subterranean houses. Buildings erected on the ancient ground surface, evident within almost all fortified settlements of the Xiongnu period, have been researched much less.

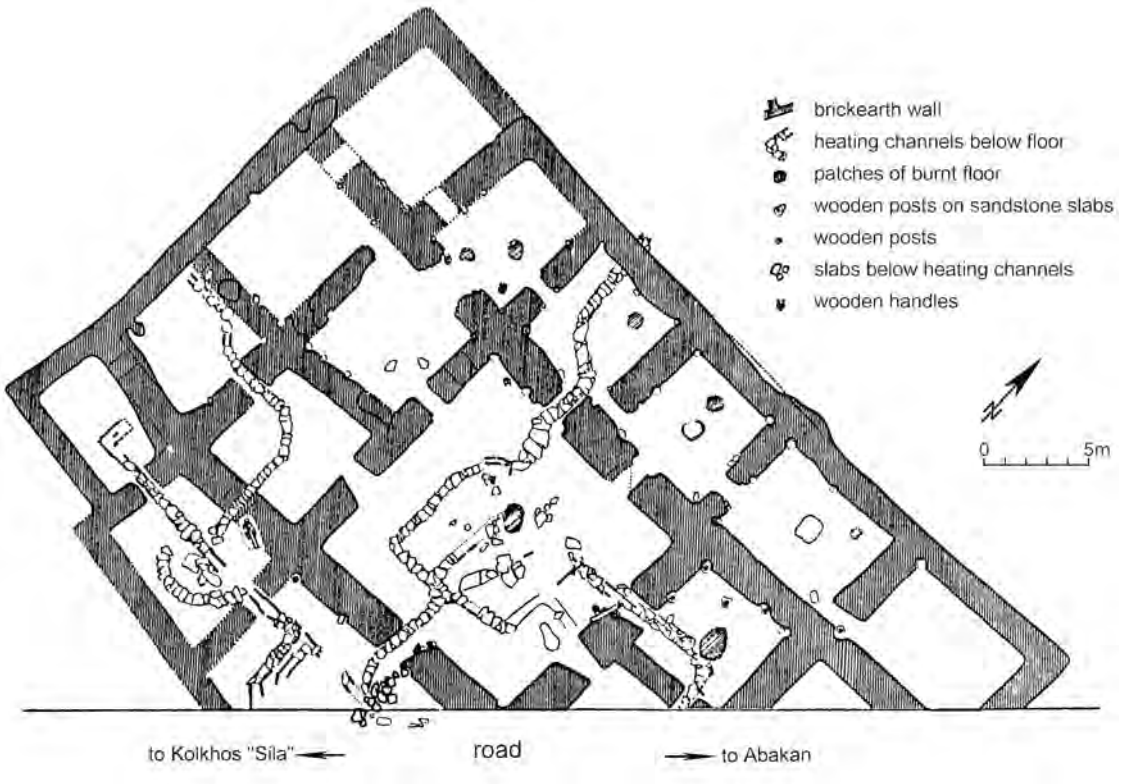


Fig. 4. Abakan, Minusinsk basin. Plan of the building excavation (after Evtiukhova 1947).

Semi-subterranean houses have so far been best studied at the fortified settlement of Ivolga (Davydova 1995) as well as the open settlements of Dureny in Transbaikalia (Davydova 1980; Davydova/Miniaev 2003) and Boroo in Töv aimag of Mongolia (Ramseyer et al. 2009). The construction of houses at these sites was completely identical, even though the distance between them is significant. For the semi-subterranean houses, the sides of the sunken square foundations are typically oriented towards the cardinal directions, and an entrance was placed on the south side. The walls and floors of the dwelling pit were covered with clay (Davydova 1995, 14–15). The heating system of the semi-subterranean houses consisted of a furnace with connected heating passageways made of stone slabs. Similar heating systems, called "kans", were widely distributed among settlements elsewhere in East Asia. Remnants of roof construction consisted of beams and squared supports as well as poles and rods covered by a thick clay layer (Davydova 1995, 14–15). Archaeologists have reconstructed the roofs of these houses as gabled roofs oriented north-south.

Excavations of a large surface building at the Gua Dov settlement were undertaken by Kh. Perlee (1961), though the results of these investigations remain basically unpublished[3]. Buildings erected directly on the ground surface were also documented at Ivolga as well as Baian Under and Abakan. At Ivolga, two ground surface buildings were visible. One of them was a metallurgical workshop, which was not explored completely, and the second was a square-shaped building, dwelling No. 9, which was fully excavated. This building erected on a small

3 Materials from these excavations are housed at the National Museum of Mongolia.

hillock, was oriented along the cardinal directions, and measured 13 × 11.5 m. The walls were built of adobe and had a thickness of 2.25 m in the north and 1.12 m in the south, and of 1.30 m in the west and 1.38 m in the east. A door opening, 1.35 m wide and framed by two burnt vertical poles, was discovered in the south wall, 1.7 m from the south-east corner of the building. The poles were joined by a wooden threshold on which traces of a mat made of plant fiber were found. On the inside, the walls of the dwelling were covered with clay. In the northeastern corner of the building there was an oven built of stone slabs. Heating channels made of stone slabs and measuring 30 cm in width led from the stove along the northern and western wall (Davydova 1995, 17; Addendum Fig. 4,3; Danilov 2005, Fig. 3). The general layout of this building is similar to the semi-subterranean dwellings, including the abutting dwelling No. 10 and dwelling No. 15 to the south, but much larger and erected completely above the surface.

Another ground surface building of the Xiongnu period was explored in 1940 in Khakasiia near the city of Abakan at the confluence of the rivers Tasheba and Abakan (Fig. 4). Although the remains of the building were partly ruined in the course of road construction, the researchers noted distinctive architectural and constructional features of this building. The whole building measured 35 m north-south and 45 m east-west (Evtiukhova 1947, 79). The lower, preserved part of the walls was made of clay grout in timber framework. The external walls were up to 2 m thick and 50 cm high, while the inner walls were up to 1.8 m thick and 1.8 m high. The internal layout of the building was rather complicated and represented a complex of numerous rooms with a big central hall connected with the other rooms by door openings. Interior wooden poles were set into the ground standing on stone slabs and probably served as roof support columns. Inside, remains of a heating system that extending from a furnace for heating the building were discovered within the layout: "narrow channels, up to 50 cm wide, with inclined walls of slabs from Devonian sandstone" (Evtiukhova 1947, 81). Additional remnants of hearths for heating were found, for which burnt traces on the clay floor remained. Unlike the semi-subterranean houses, this building had a tiled roof, reconstructed by its excavators as a two-tiered pyramidal shape. The roof tiles resembled those from Han China, and the roof-end tiles, or "wadang", showed stamped Chinese characters which pronounced praise for the "Son of Heaven"[4]. Bronze door knockers discovered there were decorated with a fantastic anthropomorphic creature with a ring through the nose (Evtiukhova/Levasheva 1946; Evtiukhova 1947, Fig. 5; Danilov 2005, Fig. 1).

Yet another ground surface building was excavated at the fortified settlement of Baian Under (Fig. 2). It was positioned in the northwest corner of the settlement, almost adjoining the northern and western wall. The square-shaped building measured 8.7 m in the north, 8.9 m in the south, 8 m in the east, and 7.6 m in the west. The vertical walls were only preserved in the lower part and were carefully smoothed on the outside. The exterior side of the walls had longitudinal "jaggies", which were the imprints of sheathing boards in the moist clay. As judged by the profile, the outside walls were covered by a kind of plaster coating 2–3 cm thick. It is rather difficult to define the thickness of the walls, because their inner sides were not preserved, though the external sides of the walls could be seen along the entire perimeter. A doorway was found in the southern wall, close to the southeast corner and framed on both sides by wooden poles, of which the lower parts were preserved.

4 The Son of Heaven, or "Tian zi", was the Chinese name for their emperor.

It is almost impossible to reconstruct the height of the building, but from the massive remains we may estimate a large amount of material was used for its construction. On the exterior facing of the perimeter of the building, sub-rectangular projections were built onto the walls, and remains of poles were discovered inside them. Four such projections were located on the northern side of the building, two on the southern side, and one each on the western and eastern sides. These projections appear to have served as a reinforcement of the wooden poles inside, which functioned as supports for the architectural edifice. The poles rested in small pits with small stone slabs on the bottom for support. One projection at the exact center of the eastern and western sides of the building implies that a central crossbeam rested on these vertical poles. Additionally, remains of wood beams were found in the middle of the building, in line with the poles of the eastern and western side. The central pole rested in a rather shallow posthole on a stone slab. The other poles along the northern and southern sides may have served as supports for lateral beams, onto which roof timbers could be fastened, and probably further stabilized the adobe walls of the building. Such a possible roof construction is suggested also by the clear evidence for gabled roofs in the majority of the semi-subterranean houses at Ivolga.

In the northeastern corner of the building an oven made of granite slabs was found, and the scattered remainders of connected heating channels with vertical and flat granite slabs were discovered along the northern and western walls. These remains were in disarray, but comparable examples at Ivolga allow us to reconstruct the stone slabs as similar heating constructions.

Around the building on all four sides the remains of adobe walls were discovered with a passage in the southwestern part. These walls were 1.55 m apart from the walls on the northern side, 1.55 m on the eastern side, 1.70 m on the western side, and 1.50 m on the southern side. In total, the ground plan had the shape of a square with specific courtyard corridors. The passage in this supposed courtyard was framed on two sides by walls, transgressed the general square plan, and stretched southward as a corridor for eight meters (Danilov 1998, 111–114; Fig. 4; 2005, Fig. 2).

The walled site of Terelzhiin Dörvölzhin contained the remains of four buildings on top of platforms that rose between 1 to 2 m above ground (Fig. 3)[5]. It was recently excavated (Danilov 2005; 2009) and the results are briefly presented here. The largest building is situated approximately at the center of the settlement, and a smaller building is connected to the northwest of it by a low embankment in the form of a passage or gallery. To the west of the big building are located the remains of another building, equal in height to the first one but smaller in size. A small platform is connected to this building by a low L-shaped embankment, also reminiscent of a passage. The connections between the buildings thus exhibit the formation of only two complexes within the walls of the settlement. Fragments of tiles were found on the surface of all noted remains, and similar tiles, though in smaller quantities, were found throughout the surface of the settlement (see Danilov/Tsydenova, this volume).

The excavations of the biggest building (Fig. 3), measuring 60 m in length, 30 m in width and about 2 m in height, have revealed the existence of a peculiar foundation of clean clay layered over sterile soil. On top of this was erected a platform made of clay mixed with gravel, shingle, and sand. On the surface of this platform were found numerous tiles, which remained from the destruction of the building. The building was surrounded by a pebble track which measured

5 Traces of old trial excavation trenches can be found on nearly all the buildings, most likely from the examinations of the Mongolian archeologist Kh. Perlee.

1 m in width. The pebbles, 7–10 cm in size, were densely laid out and were possibly packed with a loamy binding solution. Inside of the building, remains of a heating system built of crude stone slabs were found. At a depth of 30–40 cm in the middle of the building platform, the construction consisted of wooden planks covered with gravel pebbles.

TYPOLOGY OF SETTLEMENT SITES

The function of the fortified settlements is defined both by the nature of the construction remains and the typology and quantity of artifacts found at the sites. The Ivolga settlement may therefore be defined as a village of craftsmen and farmers by the presence of agricultural tools, traces of grains, and remains of craft production. The settlement of Baian Under, and possibly the settlement near Abakan, could be seen as residences of a specific group of sovereigns, because those buildings are outstanding in comparison with their surroundings. Intensive excavations of the large building at Terelzhiin Dörvölzhin settlement yielded numerous tile fragments, but almost no animal bones, pottery fragments or other remains, which are ubiquitous at other settlements. The dearth of these particular artifacts and the presence of specific architectural elements, in particular the surrounding pebble track and the wood and pebble floor covering, lead us to think that these remains could have belonged to a cultic building, possibly a temple. This is presently no more than a hypothesis, and will have to be confirmed or refuted through future investigations.

From the investigations of these four main sites, we may discern three general types according to complexity and function. The first one is a village of peasants and craftsmen, which played an important role in the economy. Besides the fortified settlements, such as Ivolga, non-walled settlements, like Dureny and Boroo also exist, and their exact role in economic and political spheres will have to be equally ascertained. The second type can possibly be defined as residences of particular elites, which are attested in the Chinese written sources. A third possible type could be a temple or cultic building, evidenced by the large buildings on platforms with complex architecture and almost no artifacts indicating habitation. This typology of walled sites reveals a rather interesting and diverse picture of Xiongnu permanent sites.

SETTLEMENT PATTERNS AND DOMESTIC ECONOMY OF THE XIONGNU IN KHANUI VALLEY, MONGOLIA

Jean-Luc Houle, Lee G. Broderick

Most of what is known about Xiongnu society, economy and politics comes from Chinese accounts in the "Shiji" (Sima Qian 1959) and "Hanshu"(Ban Gu 1962) that, for the most part, stereotypically portray them as nomads who "wander from place to place in search of water and pasture" and who have "no walled cities or fixed dwellings, nor any kind of agriculture" (Sima Qian 1959, 2879; Watson 1961b, 129). And although considerable historical research has been dedicated to the Xiongnu[1], we still have a very vague idea about Xiongnu period settlement and mobility patterns, subsistence practices, craft production, demographics, and how all of these may have varied geographically and according to local environmental conditions.

This problem also lies in the fact that until recently archaeological work on the Xiongnu period has focused almost exclusively on the excavation of burial sites, notably the large and lavishly furnished ones of the Xiongnu elite, and a few large walled settlements[2]. Despite this bias, the mortuary data has provided important information regarding the overall scale and internal complexity of the Xiongnu polity. It has also revealed much more complex social, economic and political relationships than hitherto thought with much of Inner Asia and the neighboring Han empire (Miller 2009). In addition, excavations at large walled settlements such as Ivolga have also revealed a much more complex and differentiated economy than what some of the Chinese historical records suggest (Davydova 1995). Nevertheless, we still know very little about the day-to-day life of the vast majority of the population. And unless we assume that all aspects of the past can be understood with reference to elite burials and walled sites, then an understanding of the local, everyday structures is essential. In fact, analyzing local domestic organization provides us with a different measure of social organization and social change, one that can often lead to new insights into larger regional-level patterns.

In this paper, we present settlement data from the Khanui valley region of north-central Mongolia and discuss sub-regional scale settlement patterning and the domestic economy of the valley's inhabitants during the Xiongnu period. Before doing so, however, we find it useful to briefly frame this article within the historical context of settlement archaeology in Mongolia.

1 See for examples Barfield 1981; 1989; 2001a; Di Cosmo 1994; 1999b; 2002; Jagchid/Symons 1989; Khazanov 1978; Kradin 2002b; Lattimore 1940; Yamada 1982; Yü 1990.

2 Batsaikhan/Baatarbileg 2002; Danilov 2009; Davydova 1968; 1995; Davydova/Miniaev 2003; Martinova 1988; Miniaev 1988; Perlee 1961.

Xiongnu Settlement Archaeology in Mongolia

Although some of the earliest Xiongnu archaeology dates to the late 19th and early 20th century with such Russian scholars as D. Tal'ko-Gryntsevich and P. Kozlov, it was not until Dorzhsüren's work in northern Mongolia and Perlee's documentation of settlements in the Kherlen Basin in the mid-1950s that Xiongnu habitation sites were investigated with any specificity (Dorzhsüren 1961; Perlee 1957; 1961). Amidst the most significant of these early archaeological research projects at settlement sites is the detailed work that A. Davydova and colleagues conducted at the well-known Ivolga complex (Davydova 1968; 1995), and later at the Dureny-I and II settlements (Davydova/Miniaev 2003), in the Republic of Buriatiia of the Russian Federation. Excavations at this ca. 7 ha fortified complex exposed some 51 dwellings, most of which were semi-subterranean. As mentioned above, inventories from these habitation sites revealed for the first time a much more complex economy than previously thought for the Xiongnu, one based on animal husbandry with sheep, goat, cows, horses, pigs, camel, yaks, agriculture with millet, barley and wheat, hunting and fishing. Furthermore, craft production at the site was wide-ranging and included, amongst others, pottery production, bone carving, as well as iron and bronze metallurgy (Davydova 1995, 43–48). In fact, the remains of a workshop with a well preserved smelting furnace for the smelting of iron were discovered within the walled enclosure. This is interesting and will become pertinent later in the present paper since while this is one of only two workshops with smelting furnaces discovered for this period[3], we know that Xiongnu iron technology is well established and found commonly across Mongolia and its surrounding regions during this period. Accordingly, while this scarcity of specialized workshops may be an artifact of the paucity of investigated settlement sites in Mongolia, it may also reflect a decentralized and diffused organization of metallurgical craft production.

More recently, pioneering work by W. Honeychurch, J. Wright and Ch. Amartüvshin in the area of regional-scale settlement archaeology has started to produce the kinds of datasets that now allow for the study of the spatial relations between sites (Honeychurch 2004; Honeychurch et al. 2007b; Wright et al. 2009). This is important since the theoretical implications of looking beyond a site in isolation are important, especially in a setting where the mobility of steppe groups likely produced significant variation in social scales across regions. In addition, while site specific research still continues, now smaller open-air settlements without fortifications have also begun to be investigated in more detail and have started to provide a more comprehensive picture of the domestic economy (Erdélyi 1994; Ramseyer et al. 2009; Wright et al. 2009). Together, this kind of research has started to produce archaeological materials that offer great opportunities for comparative studies with materials recovered from larger walled sites and burials. This is important as it offers a broader and more balanced understanding of life and social organization during this time period. The following contribution falls within this line of inquiry and discusses open-air settlements in Khanui valley in their sub-regional contexts.

3 See Kozhevnikov et al. 2001 for the discovery of a bloomery furnace at an Iron Age site located on the western shore of Lake Baikal, near Irkutsk and possibly associated with the Xiongnu (see Park et al. 2010).

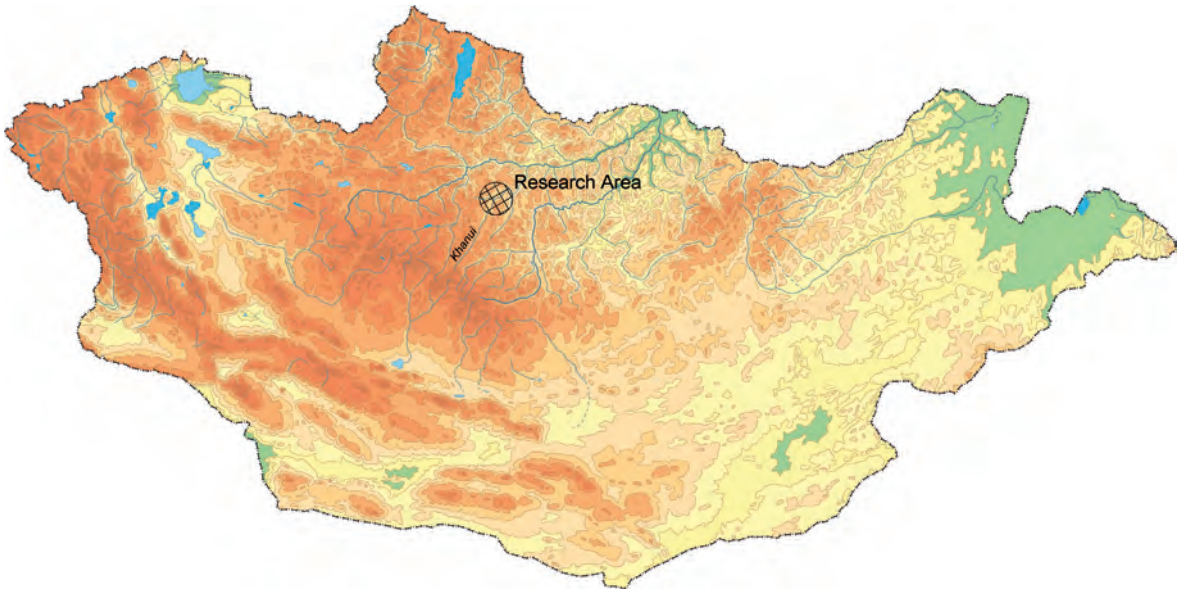


Fig. 1. Location of Khanui valley research area.

The Research Area during the Xiongnu Period

The Khanui valley research area (N 48°05'/E 101°03') is located north of the Khangai mountain range in Öndör Ulaan sum, Arkhangai aimag (Fig. 1). The Khanui river itself is a tributary of the Selenge river and meanders through the valley's generally treeless grasslands, with wooded areas of mixed pine, larch, and birch forest typically found only at elevations above 1700 m. Environmental data for Mongolia and the surrounding northern regions show that the environmental conditions that prevailed during the Xiongnu period in north-central Mongolia can be described as broadly similar to those of today, but with possibly warmer and wetter climate regimes (Prouse 2005). In fact, geochemical records from lakes in the Khanui valley (Strano et al. 2007), as well as sedimentological evidence and pollen analysis suggest that between 3570 and 1,500 years ago in the Late Bronze and Iron Age the climate was more humid (Peck 2000) and that grasslands were expanding, thus increasing the volume of possible grazing area – a condition that also characterized the surrounding regions of lake Baikal[4], the Egiin Gol-Selenge valley (Prouse 2005) and the Minusinsk Basin (Bokovenko 2006, Fig. 2; Koulkova 2005, 255–274; van Geel et al. 2004). Furthermore, an analysis of archaeological charcoals and wild plant remains from Bronze and Iron Age habitation contexts in the Khanui valley research area confirms that the local environmental conditions were similar to those of today (Wang/Wang 2009).
Of particular interest, this region in north-central Mongolia is part of what is increasingly being recognized as the likely heartland of the Xiongnu state based on the fact that it holds the major Xiongnu cemeteries and most of the known walled settlements (Brosseder 2009, 249; Honeychurch/Wright 2008, 529). In fact, with over 400 burials, the Gol Mod 2 necropolis in Khanui

4 Feng 2001; Horiuchi et al. 2000; Karabanov et al. 2000; Peck et al. 2002.

valley belongs to the largest Xiongnu cemeteries known today in Mongolia (Brosseder 2009; Miller et al. 2006). It also includes the largest Xiongnu burial known to date (Allard et al. 2002). Despite all of this, we still know very little about the non-mortuary sites of the Xiongnu in this region, notably the small non-walled campsites.

The Archaeological Problem: Surveying the "Invisible Culture"

Until recently, little work had been done at smaller open-air campsites, the more typical form of habitations (but see Wright et al. 2009; Ramseyer et al. 2009). One reason for this is that the locations of these types of habitation sites remain relatively unknown, a consequence of the fact that settlement archaeology is a relatively recent phenomenon in Mongolia and that for mobile pastoralists in particular it may still be one of the areas that has been the most overlooked by regional archaeological research[5]. This is unfortunate, and probably has much to do with the assumed "invisibility" or ephemeral nature of the archaeological remains left by mobile peoples, as the spatial organization of human settlements often reflects sociopolitical, economic, and belief systems. In addition, habitation sites are where one might expect to find more empirical data for dealing with such issues as subsistence, demography and mobility patterns, all issues that have still not clearly been assessed for this period and that may provide a more comprehensive picture of the Xiongnu domestic economy and shed further light on the nature and organization of this polity.

The identification of mobile pastoralist habitation sites, however, is not necessarily an easy endeavor. In fact, a major challenge for the settlement archaeology of sparse, mobile populations is that habitation remains may be extremely ephemeral and the areas that must be studied are very large. Intensive methods are thus needed for studying (or even locating) such ephemeral habitation remains, but extensive methods are required to determine the numbers and densities of sites and their distributions with regard to environmental and other variables. The solution to this difficulty is a multi-stage strategy that combines both extensive and intensive methods.

In the Khanui valley, as well as in the surrounding region, no above-ground structures related to habitation sites are visible. In addition, the unplowed grassland nature of the research area and concomitant low surface visibility prevents in most cases the surface collection of artifacts. Consequently, shovel probes were needed as a primary data recovering method.

Little to no information regarding the size and structure of ancient habitation sites was previously known. Therefore, in order to maximize the potential for recovering multiple clusters and in order to increase the chances of recording the plausibility of small-size habitation sites, a high resolution systematic survey methodology was implemented. This consisted of a crew of 8–10 fieldworkers who walked contiguous transects systematically back and forth across the landscape maintaining 20 m intervals between members and digging shovel probes every 30 m. This fairly narrow survey interval was chosen as it approximates the size of the smallest present-day campsites in the region. A similar methodology proved to be successful in a recent archaeological survey project in Liangcheng, Inner Mongolia (Indrisano 2006, 30). It also proved

5 Cribb 1991, 155; but see Chang et al.; Frachetti 2004; Honeychurch 2004, for mobile pastoralists of the Eurasian Steppes.

highly successful here as a number of occupation areas of various sizes, as well as siteless areas, were discovered. In fact, this shovel probing approach was not only successful but it proved to be necessary as over 99% of sites that would have been completely missed otherwise were discovered this way. This is important as the apparent invisibility of settlements in this region, as is the case in many other regions, has usually been interpreted as necessarily reflecting large-scale (extensive) nomadic pastoralism, an assumption that is being increasingly refuted or nuanced in many other areas of the Eurasian steppes where researchers are empirically investigating the mobility and occupational patterns of ancient pastoralist populations (e.g. Chang et al. 2003; Frachetti 2004; 2008b).

No minimal site definition was initially established for this survey since the survey was primarily designed to record general and specific density clusters of artifacts and "siteless" areas. Therefore, all shovel probes with any amount, however small, of ceramics, lithic artifacts, metal objects, etc. and/or faunal remains, as long as they were found in context with diagnostic ceramics, were recorded. These individual shovel probes and associated artifacts were designated as the basic units of analysis. "Occupation areas" (settlement sites)[6] were then defined in relative terms; that is, as density peaks against a background of either negative shovel probes or sparsely distributed positive ones spread across the landscape. "Occupation areas", therefore, refer to spatially definable areas of past human activity characterized by high, or relatively high, artifact density relative to the background material distribution.

Although the abovementioned archaeological survey was initially devised with the primary intent of investigating Late Bronze Age (mid-2nd to mid-1st millennia BC) habitation sites that were associated with the valley's impressive Late Bronze Age monumental landscape (Houle 2009; 2010), the systematic intensive survey, which covered two 25 km² zones of the research area, ended up recording evidence of both Late Bronze Age and Xiongnu period habitation sites, as well as some evidence for later period occupation.

Xiongnu Period Settlement Patterning in the Khanui Valley

The distribution of Xiongnu period occupation areas in the Khanui valley suggests a fairly sparse, but evenly distributed population, the type that might be expected of mobile pastoralist groups (Fig. 2). Some 28 habitation sites characterize this occupation, which yielded a total of 661 sherds from 118 positive shovel probes. Although this occupation is fairly scant in terms of the overall survey area, the settlements occupy almost every valley draw along the western foothills and are distributed at fairly even narrow intervals along the Khanui river or its floodplain.

Along the foothills, the identified occupation areas are located within sheltered draws that lay at an average elevation of 1750 m above sea level, although one or two additional artifact concentrations which may indicate smaller or shorter-lived campsites lie just outside of these

6 The term "settlement" should be taken here to refer to a place of habitation, without any implication of fixed space or permanence in occupation. However, given the historical context of the research area, a term such as "occupation area" might be a more precise label for the archaeological evidence left by the habitations of mobile peoples who often reoccupy locales repeatedly/seasonally over long periods of time, but shift settlement slightly each season, thus leaving a palimpsest of living areas. "Occupation area", therefore, is used in this text to characterize more precisely the archaeological evidence of settlement sites discussed in this article.

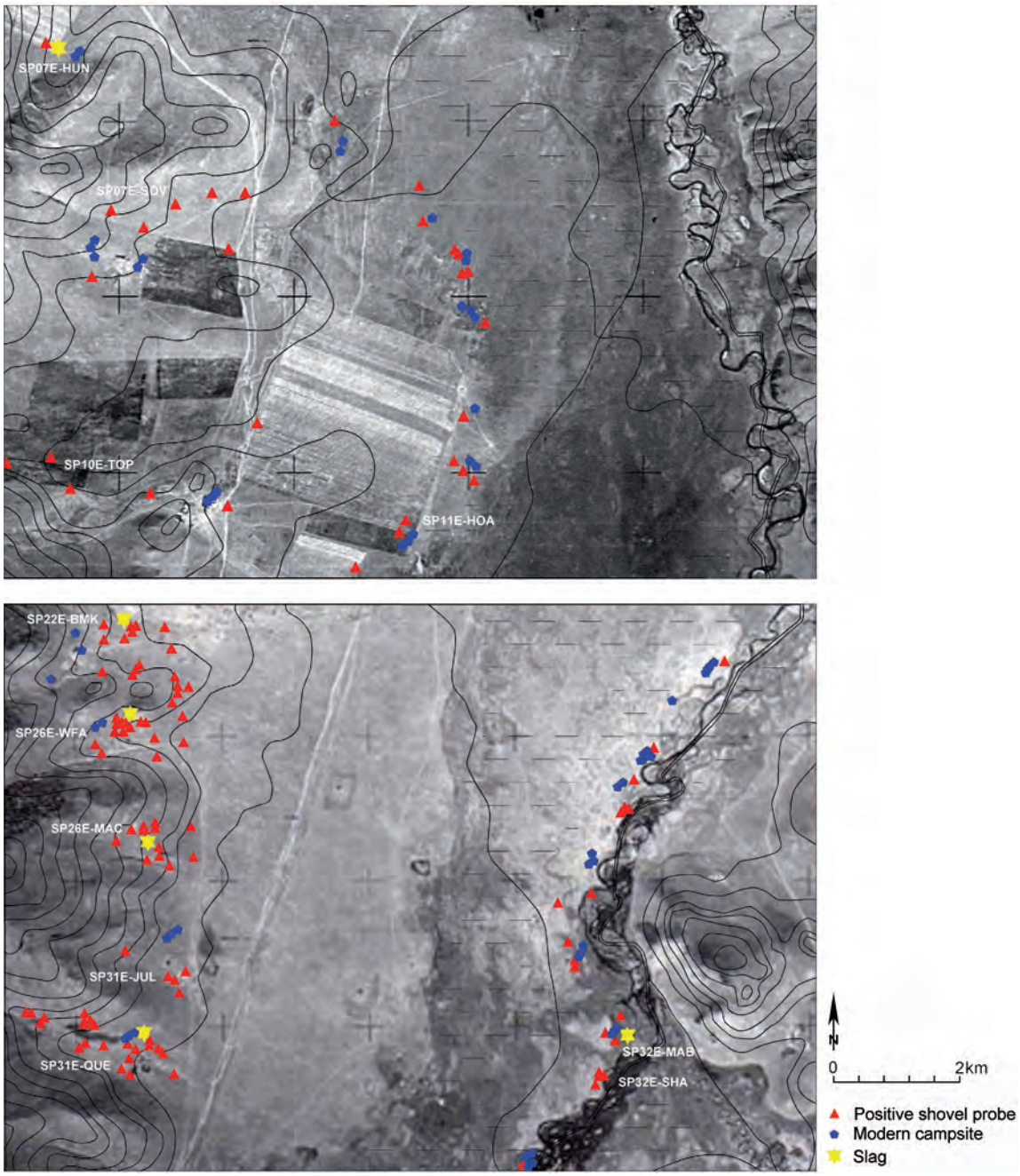


Fig. 2. Distribution of Xiongnu period occupation areas in Khanui valley. Present-day campsites are also represented; about 9 km separate each zone.

protected areas. For the most part, the only significant aspect distinguishing individual draws is their size. Although the draws themselves are not forested, wooded areas are accessible within walking distance either deep inside them or atop the mountains. Today, within these wooded areas, wild animal species such as deer, wolf, fox, wild boar, and hare can be found, as well as a number of wild edible plants and berries. Water in the form of small seasonal streams is also found deep inside some of the draws. A quick look at the topographic map and the location of the occupation areas suggest that the settlement distribution along the foothills has probably

much more to do with the specific topography of the hills themselves[7] than with any kind of social spatial buffering scheme, although these natural barriers can also act as such.

As for the distribution of the occupation areas identified along the Khanui river, all occupy a very similar locale. Situated at an average elevation of 1660 m above sea level, most occupations are located within 100 m or so of the river or its floodplain. No important distinguishable features differentiate the sites from one another in terms of setting. All are typically located on a slightly elevated and fairly flat terrain and the only currently visible "barrier" between occupations is the more low-lying uneven and wetter areas of the floodplain which are not suitable for setting up a campsite. Beyond this, and as is the case in the ethnographic present, the fairly regular distance between occupation areas suggests that this may be due to some kind of social spatial buffering principle that allots equally sufficient pastoral resources to each campsite while minimizing distances between households, which in turn may have facilitated communication and cooperation between households. In regard to what the overall settlement system suggests, it is difficult to talk about a "classical" vertical transhumant mode of mobility as only 3–4 km at most separate the foothills from the river and only about 100 m of verticality differentiate each zone of occupation. It does suggest, however, a very restricted mobility pattern, one that may be characterized as fairly horizontal and zonal in this area.

What is striking about the Xiongnu settlement pattern is that it resembles both the Bronze Age and contemporary ones almost perfectly (Houle 2010); that is, with occupation areas in the valley draws along the foothills, the location of present-day winter camps, and others along the Khanui river, the location of present-day summer camps (Fig. 2). However, one distinguishing characteristic of the Xiongnu period occupation is the different relative density of occupation between both zones. Indeed, in order to characterize occupations more substantially than simple dots on a map can alone, we applied a demographic index based on an area-sherd density index, i.e. the area of a site multiplied by the density of sherds, derived from the regional survey data (Fig. 3). This combined index merges both the area distribution of artifacts and the amounts of artifacts within the areas[8]. Such indices have been used successfully in regional settlement analyses of sedentary agricultural populations. When applied in a setting where occupation is more mobile, these indices reflect some combination of population levels and length or intensity of seasonal occupation. That is, a higher index for a particular area of occupation, resulting from a higher sherd density and/or a larger area, suggests either a greater number of people, or lengthier or more frequent reoccupation, or both, during the Xiongnu period.

The result of this analysis suggests that contrary to the Late Bronze Age and contemporary cases, there seems to be greater occupational density, at least at a few habitation sites, along the Khanui river than generally at those along the foothills, suggesting either much higher population levels and/or a longer or more intense seasonal occupation at these sites along the river. This pattern is counter intuitive if we consider the fact that herders and their animals presently, and apparently in the Bronze Age also (Houle 2010), spend twice as much time at their winter campsites along the foothills, i.e. at least eight months, than they do at their summer camp location along the Khanui river, i.e. no more than four months, and thus leave a greater imprint, more "garbage" at their winter campsites. Faunal material to be discussed below may shed some light on this issue.

7 And the shelter and resources they provide, cf. Cribb 1991, 137–138; Vainshtein 1980, 83.

8 For a discussion of this procedure see Drennan et al. 2003.

Discussion

The results of the survey work presented above make it possible to draw some conclusions about the nature of Xiongnu period occupation in the Khanui valley. First, there is a clear patterning of settlements into two discrete areas: "winter" sites along the foothills and "summer" sites along the Khanui river or its floodplain. Given that this pattern mimics perfectly both the Bronze Age and present-day ones in this region, it strongly suggests that this represents a time-tested settlement system that seems to be linked to seasonal changes – although there does seem to be something different happening at some Xiongnu habitation sites along the river. Second, the distance between both of these areas of occupation is less than 5 km and thus suggests, as is the case today, a highly restricted form of mobility within a region that must concomitantly be of constant and high productivity all year round. Of course, this restricted mobility pattern need not necessarily be surprising for mobile pastoralists since the degree of mobility obviously depends on local circumstances, herd composition, and local environmental conditions[9]. As discussed earlier, environmental conditions in the Khanui valley region during the Xiongnu period were similar if not better than those of today. And nowadays, owing to the constant and high productivity of the region, including the presence of complementary different types of pasture within a short distance, there is no need to make long migrations in response to drought (Bazargur 2002; 2005; Simukov 1934).

In order to provide a better understanding of the overall Xiongnu period domestic economy in the Khanui valley, we now turn to a brief discussion of the material remains unearthed from a number of typical occupation areas. The following section summarizes the results of test excavations at 14 of these occupation areas – two of which (SP26E-MAC and SP32E-MAB) have benefited from somewhat more extensive horizontal exposure and sampling (Fig. 2).

The Xiongnu Domestic Economy in Khanui Valley

No evidence of permanent structures has been identified at any of the occupation areas and very few features have been exposed. Despite this, a significant amount of artifacts and ecofacts have been recovered from the habitation sites. These consist primarily of faunal remains, ceramics and a fair amount of iron slag and charcoal discovered in six of the habitation sites. Together, these provide a fairly good picture of the Xiongnu period domestic economy in the Khanui river valley.

The Faunal Assemblage

A total of 3,085 Xiongnu period bone specimens were recovered from the 14 excavated occupation areas in the Khanui valley. The remains are characterized by a high degree of fragmentation with only a few bones being complete. In fact, nearly 95% of the faunal material is

9 Bazargur 2002; Koryakova/Hanks 2006, 278; Lattimore 1962, 73; Simukov 1934.

taxonomically unidentifiable. A high proportion of the bone specimens also exhibit signs of burning and calcination, evidenced by white/blue bone fragments with a chalky texture (Spennemann/Colley 1990, 57). The overall ubiquity of calcined material suggests that exposure to high temperatures was a common occurrence at the sites (Reitz/Wing 1999, 133), and probably contributed to the fragmentary nature of the faunal assemblage. This is perhaps an indication that much of the material accumulated as debris from cooking food, or bones being used as a fuel source, a practice still common today in the research area and commonly discussed in anthropological and archaeological literature (e.g. Théry-Parisot 2002). It may also be that bone refuse around herder camp areas was occasionally gathered and burned intentionally as part of camp maintenance activities. Modern herders inhabiting winter camps often collect and burn the bones of fallen or recently butchered animals in piles, as well as other organic and inorganic trash, in order to reduce debris around their sites. Butchery marks were not a common feature of the assemblage, yet poor preservation, especially burning, weathering and root damage observed on most bones may have obscured both butchery marks and marks caused by scavenging animals.

Despite all of this, since fauna recovered from Xiongnu domestic contexts are rare, represented only by a small faunal assemblage recovered in Egiin Gol (Makarewicz/Wright, unpublished data) and in Boroo Gol (Pousaz et al. forthcoming), the Xiongnu fauna identified from the Khanui valley have important potential to inform us about Xiongnu period subsistence practices, especially since they come from a variety of occupation areas in different places within the research area. That is, the more extensive sample discussed here, while sacrificing some detail, assures at least a greater likelihood that the sample is representative of the region during this period of time.

Animal Exploitation

Animal taxa exploited at Xiongnu habitation sites in the Khanui valley include the four main domesticates for this period and region, that is, horse, cattle, sheep and goat. From the animal bones that could be identified to taxa, sheep/goat is the most commonly occurring taxon with 54%[10], followed by horse with 25%[11] and cattle with 16%[12] of the faunal material from the number of identified specimens. In addition, bones of marmot (*Marmota sp.*)[13] were identified at two summer campsite areas along the river. Given that marmots do not normally inhabit this part of the valley due to its floodplain activity and that cut marks were found on one specimen, it suggests that marmots were used, as is the case today, as a complementary seasonal resource during the Xiongnu period. Also worth mentioning is the importance of the horse compared to cattle in this region. This is not only a pattern that persists from the preceding Late Bronze Age (Houle 2010, 126), although the importance of cattle does increase substantially during the Xiongnu period, but it is particularly intriguing since cattle were the second most prevalent animals just prior and during this period in the neighboring regions of southern Siberia (Bokovenko 2006) and southeastern Kazakhstan (Frachetti/Benecke 2009, 1028–1029). In fact,

10 With n=61, of the faunal material by the Number of Identified Specimens (NISP).
11 With n=28 of the faunal material by the Number of Identified Specimens (NISP).
12 With n=18 of the faunal material by the Number of Identified Specimens (NISP).
13 With a total of 6 identified specimens.

although the frequency of horses does increase through time in the latter region, its occurrence amounted to only some 6–7% of the domesticated faunal material during the turn of the era, i.e. during the Xiongnu period, and never exceeded 14% (Frachetti/Benecke 2009, 1030–1031). This may have to do with distinct natural environments within Inner Asia, but it also speaks of the particular importance of the horse in Mongolia through time.

Despite the few marmot bones, the evidence provided by the domestic assemblages clearly suggests an overwhelming emphasis on domestic taxa for subsistence needs. This does not mean that other wild species were not exploited in this region during the Xiongnu period, but it is likely that they did not contribute much to the overall subsistence requirements of the settlement's inhabitants. That is, they may represent only opportunistic additions to the diet. This is interesting since Chinese historical accounts suggest that "It is their custom to herd their flocks in times of peace and make their living by hunting" (Sima Qian 1959, 2879; Watson 1961b, 129). Yet, while it is true that not many Xiongnu habitation sites have been investigated, very few wild animals besides fish have been found in domestic contexts (Davydova 1995; Wright et al. 2009; but see Törbat et al. 2003). In fact, based on her extensive work at Ivolga, Davydova (1995, 80) suggests that hunting had a secondary role and "served not so much as a means of getting food, but rather as an entertainment". In addition, wild animal bones are extremely rare in Xiongnu mortuary contexts as well. Out of over 1000 burials recorded, only about eight contained the remains of "wild animals" (B. Miller, personal communication). Certainly it could be that wild animals may have been so sparse in the Khanui valley region during the Xiongnu period that they were just not a very practical resource for exploitation except on a casual and opportunistic basis; but it is also highly possible that the extremely low degree of exploitation of wild resources resulted from the fact that herding of domesticates could provide a fairly reliable and predictable source of resources, requiring only very minimal supplementation from wild taxa.

Seasonality of Occupation Areas

Seasonality of occupation areas based on the age of animals is unclear for the moment. The fact is that no specimens exhibited useful ageing data for determining seasonality. In addition, there does not seem to be an important difference in the proportion of bones of large mammals between occupation areas that are thought to represent "winter" and "summer" occupations on the basis of ethnographic observations. In fact, both the sheep/goat frequency and the horse and cattle frequency are similar between the two zones (cf. Wright et al. 2009, 384). Of significance here is the fact that modern Mongolian herding families generally kill and consume large animals, cattle and horses, only during the winter so that meat does not go to waste due to spoilage (Levine 1999, 25). There may be several explanations for the absence of any differences in the proportion of large and medium mammals between sites categorized as "winter" and "summer" occupations. It may be that animal kill-off strategies based on animal size were the same during both the summer and winter months during the Xiongnu period, which was not the case during the preceding Late Bronze Age (Houle 2010). Since spoilage would be a major problem during the summer, the kill-off of large animals in the summer months may indicate that Xiongnu period households, i.e. domestic social units, were much larger than in the Late Bronze Age or even than those of modern day inhabitants in the valley. Large families or extended social units can quickly consume entire cattle or horses. Alternatively, it may be that Xiongnu period subsistence practices included

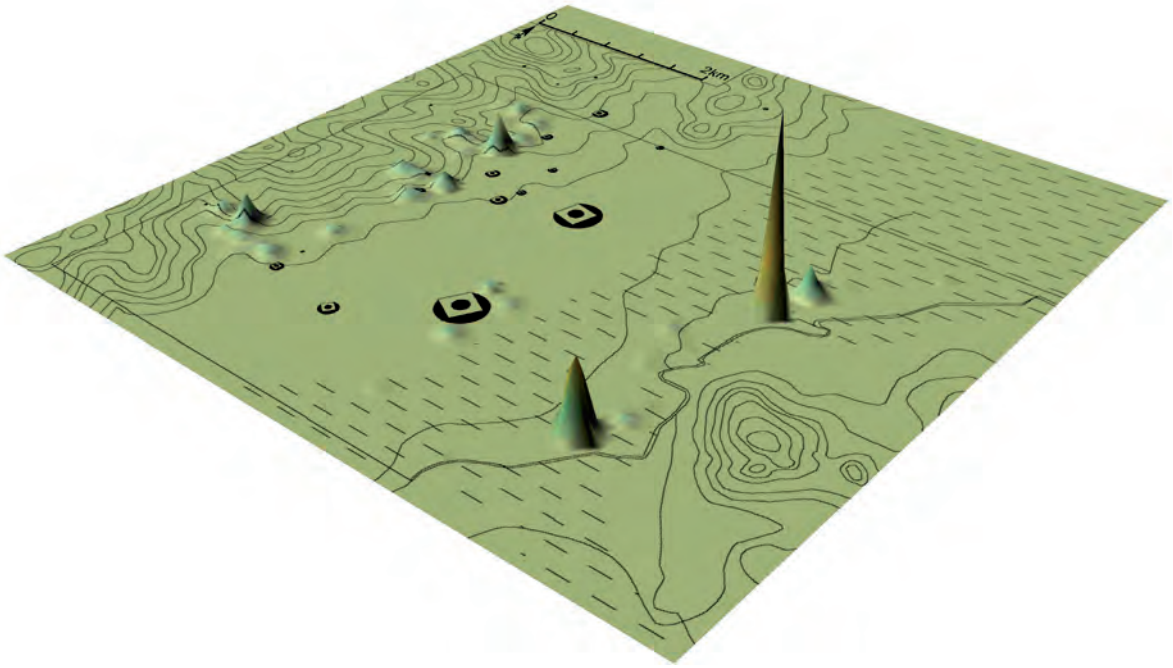


Fig. 3. Topographical representation of the relative demographic index for Xiongnu period occupation areas in Khanui valley.

the slaughter and immediate preservation through smoking or drying of meat from large animals. It may also be that sites categorized as "summer" occupations were also used during the winter, although it is hard to believe that given the choice people would choose to spend the winter months in the open valley where there is no shelter from the cold winter winds. Accordingly, the first explanation of possibly more people coming together during the summer months to form some larger domestic social units along the river makes more sense, especially when we consider some of the very high demographic indices in this zone (Fig. 3)[14].

This is a very different occupational pattern from the preceding Late Bronze Age where there seems to me a larger input of people/animals in the foothills during the winter months than along the river during the summer months. Of particular significance here is that the late fall/early winter period corresponds to the time when Bronze Age khirigsuur mounds were probably built (S. Olsen, personal communication), while it is most likely that the burials in the nearby Gol Mod 2 elite Xiongnu cemetery (Allard et al. 2002) were built during the warmer seasons, given the depth of internments at similar monumental burials sites, at which the large tombs have been excavated. In Noyon Uul and Gol Mod 1 for example large tombs have been documented to reach as many as 17 m deep and it would be nearly impossible to dig these deep burials once the soil had frozen completely.

What all this implies, therefore, is that while the settlement system suggests a fairly restricted mobility pattern based on a year-round occupation of the valley, a pattern similar to both the preceding Late Bronze Age and to the present-day one, the intensity and/or length of seasonal occupation in the valley changes during the Xiongnu period, with much more evidence for

14 For a similar interpretation of riverside sites being summer settlements, see Wright et al. 2009, 384.

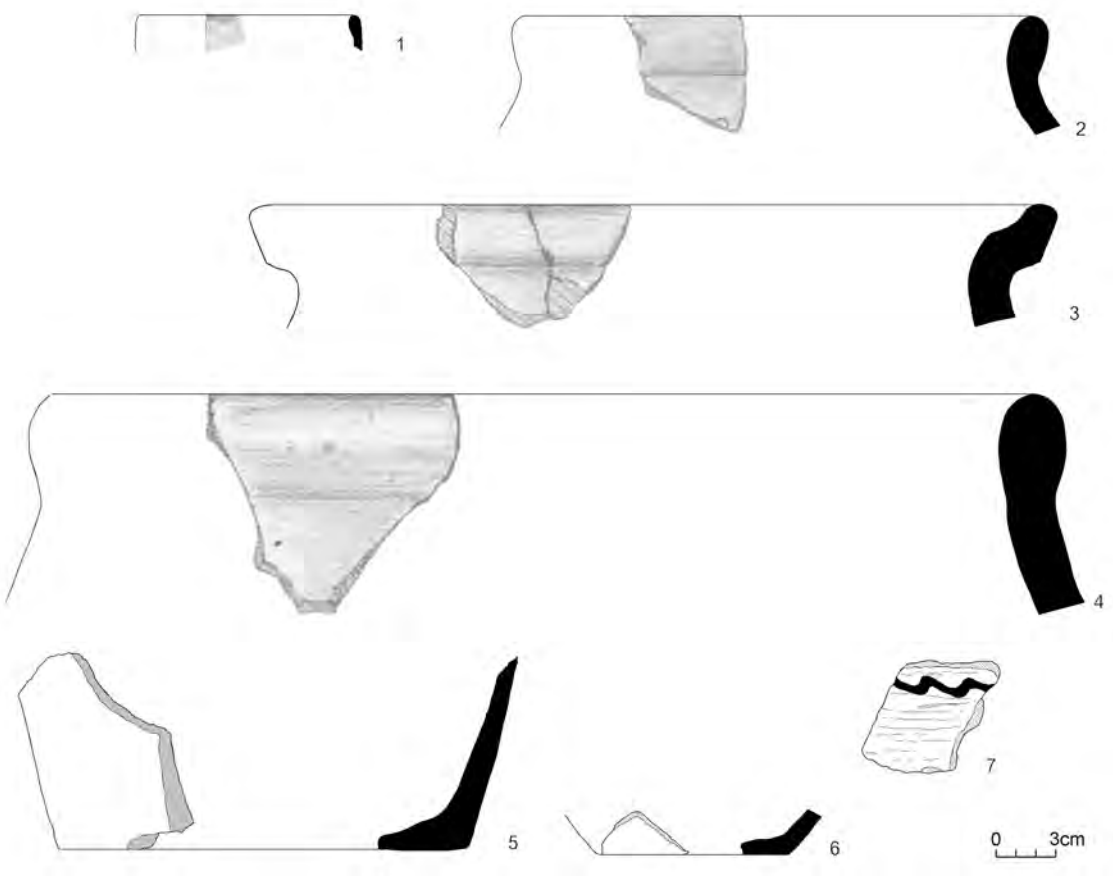


Fig. 4. A sample of diagnostic Xiongnu ceramics from Khanui valley.

intense occupation during the summer months than during the winter months. The reason for this shift is still not understood, but it may have to do with broader-scale changes in social organization as the valley is integrated into the Xiongnu period regional polity.

HOUSEHOLD CERAMICS AND SOCIAL STATUS

In general, the degree of fragmentation of the ceramics is considerably high and does not allow in most cases for the determination of function or use. Yet, with the exception of a few unusual forms, the range of vessel types throughout the valley seems to be limited to what can be defined as a common Xiongnu assemblage, that is, various flat rimmed and straight sided bowls, beakers, as well as a few wide mouthed and narrow necked jars (cf. Wright et al. 2009; Wright, this volume). As is usually the case, the ceramics are typically gray or gray-brown in color, although there are some coarse undecorated red-brown wares similar to that of the preceding Late Bronze Age. The gray wares tend to have a much finer paste than the red ware and are usually hand-built by coiling and often finished on what appears to be a slow wheel, based on surface marks. Surface smoothing is common and ceramics are archetypically decorated with a thong-wrapped paddle, scrape-polished vertical lines and/or with incised "wavy" lines (Fig. 4).

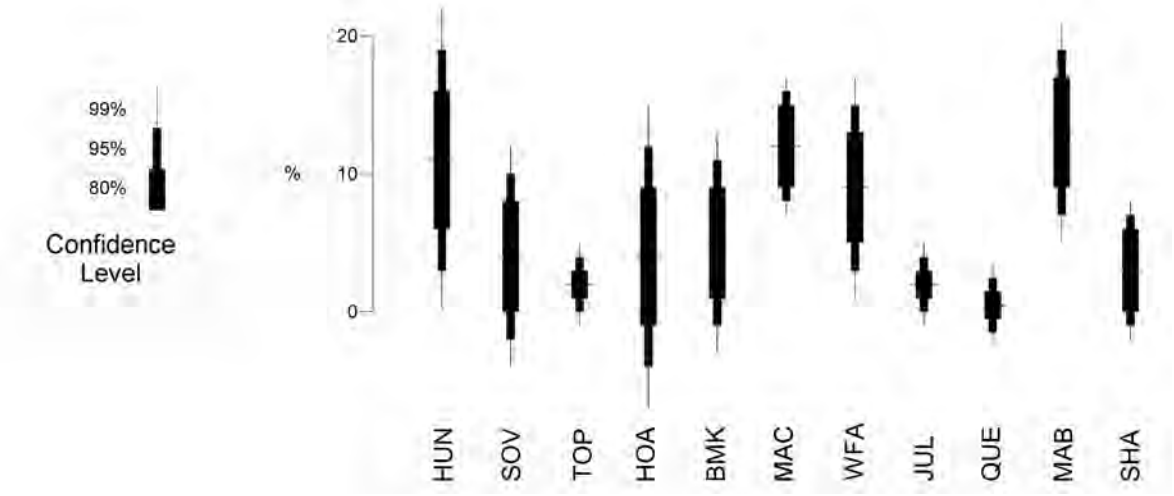


Fig. 5. Proportion of decorated ceramics per occupation area in Khanui valley (three occupation areas with no decorated ceramics are not represented).

While the ceramic assemblages recovered from the different occupation areas suggest that all had similar dishware, exploratory statistical analyses of these household ceramics yielded some interesting results in regard to possible social differentiation between occupation areas. Indeed, one way of looking at social differences is to evaluate whether or not some occupation areas have higher proportions of high quality items (Smith 1987). Since it is assumed that higher status people will usually have access to more elaborate or intricately decorated wares, for example, wares for feasting activities (e.g. Junker 2001) then it can be assumed that a greater proportion of fancier ceramics at only some sites could indicate the presence of comparatively higher status people (Smith 1987; Turkon 2004). While it is certainly possible for "commoners" to have access to at least some prestige items, it is anticipated that higher status people will have access to relatively more of them (Smith 1987, 314).

Due to the fact that potsherds from the ceramic inventory in Khanui valley are usually very small fragments of the original vessels, relative differences in status can mostly be assessed through the relative abundance of decorated ceramics. For the purpose of this study, decorated ceramics were defined as sherds with any features indicating additional production steps in the fabrication of the vessel beyond basic forming and firing, like incisions, punctuates, applications, etc. Too few rim sherds have been found to compare vessel types, but their analysis does provide information regarding the relative size of some vessels. Size categories were determined through exploratory statistics by measuring the diameter of the vessel mouth. Results show two clusters, and two outliers, of vessel sizes, with small vessels measuring less than 15 cm, and large vessels measuring greater than 18 cm.

Of 14 occupation areas, four[15] have somewhat higher proportions of decorated ceramics. However, only three of these and especially two, SP26E-MAC and SP32E-MAB, yielded higher proportions of decorated ceramics with which we can be over 95% confident that these differences in proportions are not just due to the vagaries of sampling (Fig. 5). Both sites are located in the same zone within the Khanui valley research area and correspond to what are believed to

15 The sites SP07E-HUN, SP26E-WFA, SP26E-MAC, SP32E-MAB.

be respectively a winter and a summer campsite area based on ethnographic observations. For the reasons discussed earlier, we can assume that these latter two sites are the seasonal campsite locations of people occupying the foothills during the winter months and the riverside during the summer months, although there may be an input of people/animals from outside the valley during the summer. Interestingly, both sites also yielded evidence for metallurgy (see below). SP26E-MAC, in addition, produced one of the two largest vessels based on rim diameters with 26 cm in diameter, and the highest number of large diameter rim sherds generally with a diameter greater than 18 cm, which in turn may suggest either larger serving, cooking or storage vessels. Accordingly, while no especially fancy prestige goods were discovered, the ceramic inventory from SP26E-MAC does somewhat stand out and may suggest differences in the social status of the people inhabiting this occupation area. This in turn may indicate small-scale social differences between the Xiongnu period occupants of the Khanui valley.

Iron Metallurgy in Khanui Valley

Numerous iron artifacts have been recovered from Xiongnu burial sites across Mongolia (e.g. Dorzhsüren 1961; Miller et al. 2006) and from the Xiongnu fortress at Ivolga (Davydova 1995). As noted earlier, the Ivolga settlement is of special importance because it contained remains of a workshop with a smelting furnace as well as materials associated with iron smelting such as charcoal and slag that indicate that iron was produced within the Xiongnu territory and not only imported from Han China (Wagner 1996). Yet aside from this, there is to date no other evidence outside the Khanui valley for metal production at Xiongnu period habitation sites. In fact, of the little work that has been done at habitation sites elsewhere, all report finding no evidence for metal production despite some investment in permanence of occupation (Ramseyer et al. 2009; Danilov 2009). Oddly enough, however, slag and crucibles are reported from atop or nearby Xiongnu period burial sites in the northern Gobi area of Baga Gazaryn Chuluu (Honeychurch, personal communication). It is interesting, therefore, to find so much evidence for iron metal production in Khanui valley. Indeed, evidence for metallurgical activity in the form of numerous slag remains (Fig. 6) has been found from six of the test-excavated occupation areas and suggests that while iron metallurgy was probably fairly small-scale, it was widely practiced, probably on a seasonal basis based on the location of habitation sites where the great majority of slag has been discovered, i.e. along the foothills. What is very important about the Khanui context is that it indicates for the first time that iron production was not only restricted to specialized workshops in permanent/fortified settlements such as Ivolga, but that it was also produced at "impermanent" open-air seasonal campsites. Apparently, iron metallurgy during the Xiongnu period was thus decentralized. The fact that so little other evidence for metal production exists elsewhere is thus surprising, and while this may be due to regional differences based on the accessibility of materials and technological resources, it probably is an artifact of the paucity of settlement research in Mongolia.

This important evidence for small-scale, but widespread iron metallurgy in the Khanui valley is not only meaningful for our understanding of the nature, scale and organization of iron craft production during the Xiongnu period, but it also offers a great opportunity to study early iron production in Mongolia, especially since it is apparently almost impossible to infer the exact

Fig. 6. A sample of slag from domestic contexts in Khanui valley.

processes of iron making from merely examining finished products (Park et al. 2010). Right now, the bloomery process seems to be the most plausible means of early metal production in Mongolia during the Xiongnu period as it requires only a low initial investment and it is apparently best suited for a small-scale iron industry (Park et al. 2010). However, no evidence in whole or in part has been found yet in the Khanui valley for bloomery furnaces, although more extensive excavations have only just begun and these furnaces need not be substantial features. Upcoming analyses of the slag found in the Khanui valley may eventually shed further light on this question.

Conclusion

Our analyses of Xiongnu period domestic sites have allowed us to uncover specific details about settlement patterning and the economy and diet of the inhabitants of the Khanui valley. The evidence suggests that there is both continuity and change with the previous Late Bronze Age.

Like their predecessors, Xiongnu period inhabitants of the valley lived in open-air seasonal campsites and practiced what appears to be a well established restricted form of mobile pastoralism, primarily based on the herding of sheep, goat, horse and cattle, with only minimal supplementation of wild species. Furthermore, to date, no evidence for agriculture has been discovered, despite systematic screening and some flotation (cf. Wright et al. 2009).

What changes during the Xiongnu period is a shift in occupational density within the valley, although this change is not associated with a shift to using new parts of the landscape (cf. Honeychurch 2004; Honeychurch/Amartüvshin 2006b). In fact, the exact same locales are used as during the preceding Late Bronze Age, but there is now a much more intense use of river-side "summer" locations as opposed to the "winter" foothills locations. While there is still no clear explanation for this shift, it may reflect changes in the social organization that is happening at a larger scale, a scale of analysis that has not yet been investigated for the Xiongnu period in this region (cf. Honeychurch 2004, Chapter 5).

In terms of social differentiation, there are some differences between occupation areas in the Khanui valley, but nothing that compares with the clear social distinctions observed in the nearby Gol Mod 2 cemetery (Miller et al. 2006). All occupations are situated in similar locales and each yielded similar types of animals and ceramic vessels although there are some differences in the proportion of decorated wares and vessel sizes. Significantly, the results of our study indicate that metal working during the Xiongnu period was not only a specialized activity, as in the Ivolga case, but that it was also widely practiced at "impermanent/seasonal" campsites.

Finally, the results of this study are important to consider within the broader research on the Xiongnu as it has significant implications for our understanding of this period. Indeed, this contribution highlights the importance of investigating the complete spectrum of habitation sites since while there is much similarity between sites in the Khanui valley and those from other regions, e.g. the Egiin Gol valley (Wright et al. 2009), Ivolga (Davydova 1995), Boroo Gol (Ramseyer et al. 2009), there are also significant differences. These differences are not insignificant as they concern all of the basics of social organization and economy, that is, they relate to differences in mobility patterns, demography, subsistence practices and craft production. As some archaeologists suggest, these important differences may relate to particular social and environmental settings within the Xiongnu polity and exist to address problems inherent to steppe conditions. In other words, this variability may reflect differences between sites that played different but complementary roles within the Xiongnu polity. It is thus imperative that further multiscalar research on settlement sites be conducted in order to study these differences as it has concrete implications on how we understand the development and the functioning of the Xiongnu polity.

Acknowledgments

We wish to thank Ursula Brosseder and Bryan Miller for their kind invitation to contribute to this volume. Many thanks also go out to Zhamsranzhav Baiarsaikhan (National Museum of Mongolia), the co-director of the Khanui Valley Archaeology Project. We are also grateful for the assistance of Diimaazhav Erdenebaatar and Bolortuia Zolzaia for the ceramic analysis and Sarah Viner for the initial identification of the faunal remains. Data discussed in this article is the result of fieldwork that was generously supported by the American Council of Learned Societies, with funding from the Henry Luce Foundation.

THE STAKING TOOLS FROM THE XIONGNU SETTLEMENT OF BOROO GOL, SELENGE AIMAG, MONGOLIA

Denis Ramseyer, Marquita Volken

During the 1940–1970 excavations at the sites of Ivolga and Dureny, Russia, several unusual bone tools were discovered in semi-subterranean dwellings of the early Xiongnu period in Transbaikalia. These unique and distinctive tools, made from sheep scapula bones, were recovered in association with pottery and were thus interpreted as potter's ribs used for smoothing the clay surface of vessels. In 1990 a well-preserved example of this type of tool was found together with pottery at Boroo Gol (Ramseyer et al. 2009, 237 Fig. 14e). The proximity of the bone tool and pottery appeared to confirm the Russian archaeologists' initial interpretation.

Recent excavations at Boroo Gol (2005–2007) by the Swiss-Mongolian[1] team led to the recovery of over 30 bone tools, including arrowheads, bone bow notched end-plates, ornaments, chopsticks, some partially finished objects and a significant number of tools made from sheep shoulder blades. The quantity and varying states of wear on these tools permitted a more complete examination, which showed that they were probably not used for pottery but were perhaps associated with leather work. This new hypothesis was first mentioned in the proceedings from the first symposium for Mongolian archaeology in Ulaanbaatar (Ramseyer et al. 2009, 238–240), but was not fully investigated at that time.

Description, Manufacture and Provenance of the Scapula Tools

All of the 20 recovered scapula were transformed into a tool by having the thin, flat part of the shoulder blade cut off lengthwise, leaving the thicker part between the epiphysis and the end of the bone intact (Fig. 1,1). Two examples were perfectly preserved, a third nearly complete, while the remaining 14 examples showed breakage due to use. Two partially finished bone tools and a fragment of scrapped bone tool demonstrate the manufacture techniques used (Fig. 1,5–7). One of the blades has six holes drilled in the thinnest part of the central area. Some authors have described these as "divination holes" (Davydova 1995, Pl. 50,10; 78,2; 127,9), but our interpretation leans towards a more practical explanation. By drilling a row of holes, the centre of the

1 The project "Boroo Gol, Mongolia" was sponsored by the Swiss-Liechtenstein Foundation for Archaeological Research Abroad. We would like to thank all members of the team, especially the excavation team leaders Tsagaan Törbat and Nicole Pousaz, and Serge Volken for his aid and advice for the staking tools experiment.

Fig. 1. Boroo Gol. Bone staking tools. 1 Well preserved staking tool; 2–4 worn and broken staking tools; 5–7 partially finished bone tools (photos and drawings Denis Ramseyer).

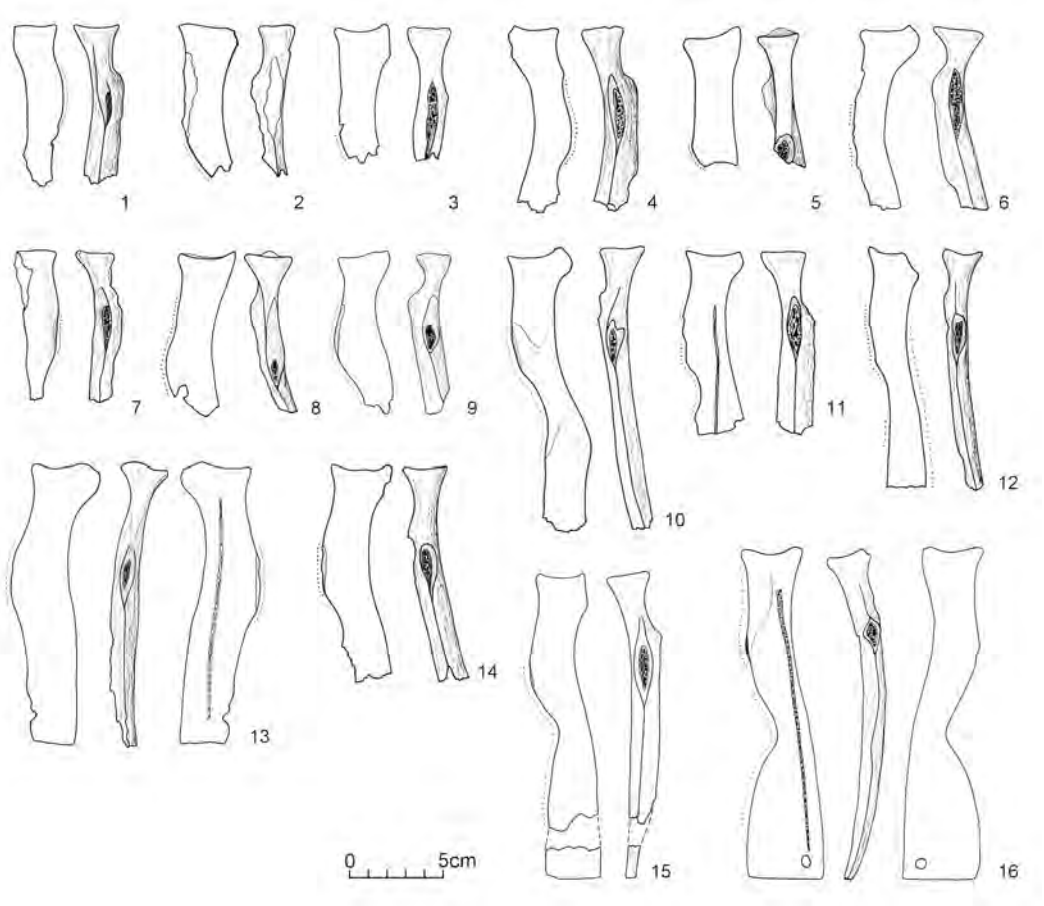


Fig. 2. Boroo Gol. Bone staking tools (drawings Denis Ramseyer).

flat area is weakened and can be detached without risking damage to the section intended for the tool. After the central part was prepared with a series of holes, the scapula was split along the longitudinal axis. This hypothesis is based on the observations of similar cases discovered at the Russian settlement of Ivolga (Davydova 1995).

All tools have the same production characteristics and show a consistent wear pattern, indicating use for a specific activity. The epiphysis is intact, but the ridge formed by the removal of the thin blade section has been worn down, making the profile of the tool present a sinuous contour over the thickest section of the shoulder blade. The dipped section, towards the tip or weaker section of the tool, can be identified as the working part of the blade by the bone loss due to wear and by lustring of the surface. The activity, which wore the blade down in this area, must have used considerable force, shown by the splintering and breakages below this point (Fig. 1,2–4).

Most of the tools appear to have been abandoned once they became unusable through severe wear or breakage (Fig. 2). The artifacts were found at the top or at the bottom of the filling material of the houses and in various pits located near the buildings. Nine examples were found in house 3 (locus 33): at the back of the house, near the fireplace, and in the dump located to the left of the ramp and against the house wall discharge area. Some artifacts show weathering damage on one side, due to having lain exposed on the earth for a prolonged period before becoming covered.

Use of the Tool

Spectacular discoveries of the Altai aristocratic tombs in Kazakhstan, in southern Siberia, and in Mongolia show that the ancient populations of Central Asia, particularly the Xiongnu, had a highly skilled leather craft production. However, the leather tools and tanning techniques used by these cultures have not been studied yet. In order to understand the function of the sheep scapula tool in relation to ancient leather working techniques, a research project was organised with the help of an archaeological leather expert, Marquita Volken. Scapula from immature sheep were collected from a local butcher and prepared for use (Fig. 3,1).

Method of Setting the Tool

Careful examination of the original tools showed that the wear pattern, made by friction or rubbing, was located along the thickest edge and strongest part of the bone. The sinuous profile along the bone ridge was the result of intense friction leading to bone loss and, consequently, exposing the internal spongy bone structure. Using the tool free hand, rubbing it over different materials did not produce significant results. Obviously the tool had to be firmly fixed to a rigid support (Fig. 3,2). Using the support post for a log-framed house, at about 50 cm above the ground surface, a natural drying split was enlarged, a vertical slit with a small hole at the top was made, which had the same length as one of the replica scapula tools. The thin edge of the replica tool was slipped into the slit at a depth of 15 mm, with the epiphysis uppermost and fitting into the hole. A cord passing around the support post and through the drilled hole at the bottom of the tool stabilized the scapula and held it firmly in the slit (Fig. 3,4–7).

How to Use the Tool

The worn angle on the sinuous profile indicates how the leather was passed over the tool, and determines the position of the user. By sitting cross-legged and facing the support post on the opposite side of the fixed tool, the user's hands reach around the post for access to the tool (Fig. 3,3). The leather is held firmly in both hands and passed back and forth over the working edge of the tool. The angle of the user's hands stretching the leather over the tool replicate showed exactly the angle of wear seen on the original artifacts. The width of the fist is equal to the width of the leather that can be pulled over the tool face. The sitting position allows the full weight of the arms and shoulders to focus the pulling force on the working face of the tool. After even a few minutes of working the leather over the replica tools, the lustring observed on the lower section of the working face could be interpreted as a side effect of the leather passing back and forth over the working edge. Because the replica tools were from immature individuals, the working surface of the bone was about 4 cm long, corresponding to the amount of leather that could be held by the thumb and three fingers. An adult sheep scapula would provide length for a full

Fig. 3. 1 Scapula from immature sheep used for the experiment; 2 An experimental bone tool fixed to a rigid support; 3 leather staking experiment, craftswoman softening hide; 4–7 schema explaining the use of a staking tool (1–3 photos Denis Ramseyer; 4–7 drawings Clotilde Cario).

four fingers and thumb width of 6–7 cm, which corresponds to the size seen on the archaeological artifacts.

The results observed from using the replicas showed that such a tool was perfectly suited for leather staking[2]. Staking is a mechanical technique used for softening and stretching oil tanned leather. Also known as chamois leather, oil tanning is a very ancient technique using animal or vegetable oils to coat the collagen fibres, making soft and supple leather (Sharphouse 1971, 212). The raw skin must be scraped clean of the hair and epidermis layer and completely imbibed with oil. In order to make the leather supple, the skin must then be staked, i. e. stretched and pulled over a hard object, during the drying phase so that the fibres do not stick together. The staking process may take as long as eight to ten hours for a small skin since each square centimeter must be worked over the stake repeatedly until the skin is completely dry. The practical experimentation showed that the working edge of the scapula staking tool has a twofold function: the bone surface provides the necessary hard edge needed to stretch the leather, while the

2 Staking bone in English, Stollknochen in German, palisson en os in French.

exposed spongy bone structure serves as an abrasive. Among other primitive tanning techniques these two functions are often achieved by separate tools. Stone (slate) or leg bone staking tools are used for stretching and a pumice stone used for the final sanded finish which produces the soft velvety surface characteristic of oil tanned leather.

Using the tool in a horizontal base was also tested. This meant that the user had to kneel or sit above the tool and push and pull the leather over the tool, much like an old-fashioned shoeshiner. This position was uncomfortable and tiring and did not allow a consistent working angle and actually reduced the arm movement. This configuration is used for iron stakes in the furrier's trade and is acceptable for the thin skins of fur animals of less than 1 mm where little physical force is needed to mechanically soften the small skins.

Comparison with current ethnographic sources for the use of the staking bones proved impossible since these tools are no longer used in Mongolia and are unknown among other anthropological studies or archives. Ethnic populations who still produce primitive tanned leathers use stone, bone and recycled scrapped metal for tools. Sheep shoulder blades have not been previously identified as leather staking tools.

Use of Oil Tanned Leather

Chamois or oil tanned leather can be made from sheep or goat skins, bovine skins are generally considered too thick and difficult to work with. Oil tanned leather is highly hydroscopic, making it suitable for use in dry climates. Among the prehistoric leather finds from Europe, sheep skins with the wool left were used to make rain capes (Hald 1980, 313–320). The wool was used on the inside, the flesh side was on the exterior and presumably greased to make it water resistant. The tanning technique used for the leather capes has not been identified but primitive vegetable tanning cannot be excluded (Spangenberg et al. 2010). It is likely that the Xiongnu people were using several techniques for producing leather, either hair on hides or oil tanned chamois type, as well as employing oiled raw hides for laces, belts and harnesses. Each type of leather could be used for protective clothing for the extreme cold of the Mongolian winters. Due to its hydroscopic capabilities, thin chamois leather worn next the skin helps to regulate body humidity by wicking the sweat away from the body. Leather with the wool left on serves as an insulation material, especially if worn with the wool inside and the greased outside as protection from wind. In extreme cold weather, clothing does not need to be waterproof as all the available water is present only as ice.

Potter's Scraping Tool or Leather Staking Tool?

The identification of the sheep scapula tools as potter's smoothing ribs appears unconvincing in the face of the practical research we have conducted. The argument that bone tools have been found at the same sites as pottery is insufficient to link the scapula to pottery production. Trace analysis of the surface and the general shape of the working edge on the scapula do not corre-

Fig. 4. Boroo Gol. 1 Potter's scraping tool (?); 2 quartzite pebbles, tools used as pottery polishers (photos Denis Ramseyer).

spond to any known potter's tools. A potter's rib is a small, lightweight tool with a working edge that is either flat or convex, and if concave, then with a low profile. The scapula tools found in and around the semi-subterranean houses have sharply concave working surfaces, which does not correspond to any known vessel shape. The obvious utility of the scapula tool for staking oil tanned leather and the direct correlation between the observed wear on the archaeological artifacts and the results of the practical research confirms the use of the sheep scapula as a leather-staking tool.

The large, high quality pottery vessels found at Boroo Gol shows that pottery production was important and some bone tools may have been used. A scapula fragment from a large ruminant (Fig. 4,1) shows a smooth lustrous concave edge on the thickest section of the bone and appears to have a different function than the sheep scapula staking tools. Discovered in the discharge area of house 3 (locus 33), this tool may have been used for pottery. In addition to the bone tool, ten small quartzite pebbles were also found at the site (Fig. 4,2). Their use as polishers for pottery is well documented through many archaeological periods and by many anthropological studies.

XIONGNU CERAMIC CHRONOLOGY AND TYPOLOGY IN THE EGIIN GOL VALLEY, MONGOLIA

Joshua Wright

The Egiin Gol Survey recovered a series of Xiongnu habitation sites dated between 390 BC to 130 AD. Although these assemblages are not drawn from a single stratified site, they allow us to examine changes and trends in the forms and styles of ceramic assemblages from different settlement sites and other locales, and from this construct a rough chronological typology of common Xiongnu ceramic assemblages.

Archaeological survey is the ideal method for discovering the remains of small settlement sites and studying them in their landscape context. The Egiin Gol Survey was an intensive full coverage survey carried out between 1997–2000 along 40 km of the lower Egiin Gol valley, Bulgan aimag (Fig. 1). In total 246 km^2 were surveyed, and over 14,000 artifacts recorded. Our work located 106 artifact scatters, many of which contained diagnostic Xiongnu period ceramics.

There is a widespread Xiongnu presence in the Egiin Gol valley (Fig. 2), but this is not a surprise considering that the region of the Selenge drainage is the heartland of the Xiongnu culture and presumably a center of political activity. Small excavations that were carried out at several larger sites to discover details of those sites and establish chronology for them yielded further artifacts and radiocarbon dates[1].

This paper concentrates on a group of five large sites recorded by the EGS (Fig. 2). Some were surface collected and some were excavated, but each yielded collections of ceramics that were among the largest collected by the EGS. All these sites except the EGS 297–299 group have yielded some type of independent date beyond their diagnostic ceramics that ties them to the historical Xiongnu period.

The Sites

From east to west, the sites are EGS 036, a large sherd scatter located at the edge of a high river terrace above the current flood plain of the Egiin Gol. This terrace is under modern cultivation and is plowed every year. The plowing makes surface visibility superb. Several test excavations did not detect any shallow subsurface features. The maximum extent of the artifact scatter was

1 Honeychurch/Amartüvshin 2003; Amartüvhsin 2003; Törbat, et al. 2003; Honeychurch/Amartüvshin 2006a; Wright 2006; 2007; Wright et al. 2009.

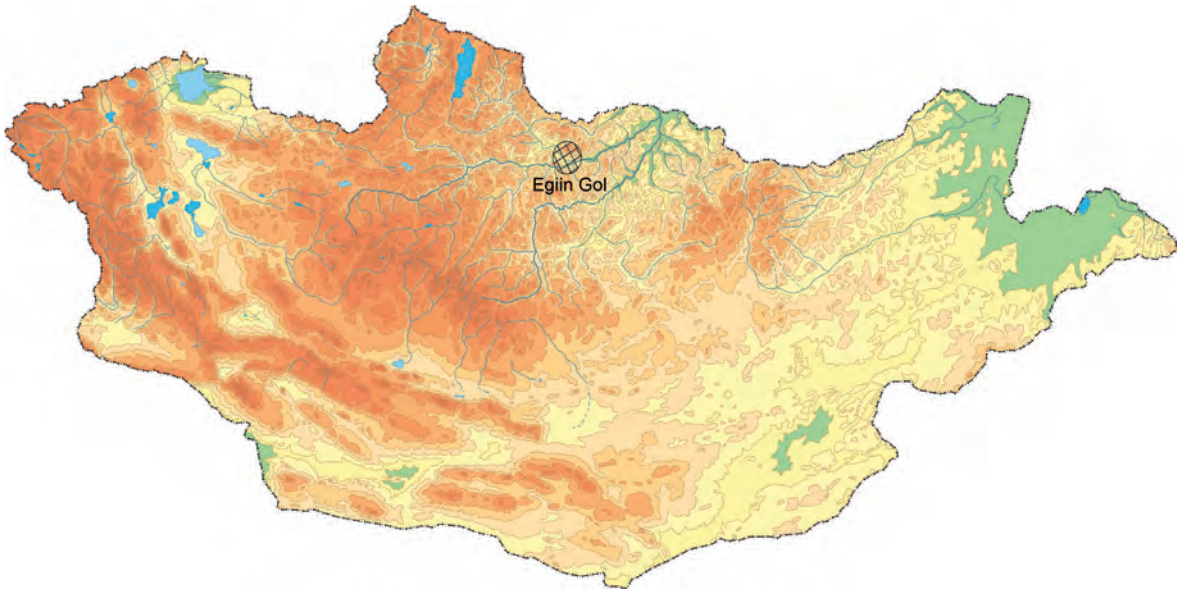


Fig. 1. Location of Egiin Gol Survey region.

four hectares. Surface collections here yielded more than 1,000 artifacts, the vast majority being ceramics. However, a Han Dynasty "wuzhu" coin, cast after 100 BC, was found providing a date after which the site must have been used.

EGS 118 is different from most of the sites discussed here in that it is a distinct locale, not a scatter and was probably not a habitation site, but a special use site. It is located in a steep narrow valley with a seasonal run-off stream flowing along it. The valley runs steeply down from forested ridges above it and opens out onto bluffs overlooking the flood plain of the Egiin Gol. The site was identified by a roughly rectangular alignment, 14 by 9 m, of mid-sized slabs. The form of this structure resembles both a very large Bronze Age slab burial and an Iron Age winter house of a type seen in the western Altai. It was completely excavated and yielded ceramics, small items of bronze and iron, including an iron cauldron fragment, and a few bone remains. The non-ceramic material is akin to that found in burials, the ceramics similar to, but not exactly the same as, settlements and burials. No occupation surface was found within the enclosure. A single radiocarbon date taken from this site is 2250±40 BP – this is the oldest date in this study.

EGS 110 is located on a low river terrace beneath the bluff of Burkhan Tolgoi[2]. Sediment filled channels of the Egiin Gol suggest that the river once ran immediately next to the site and may have eroded some of the site area after it was abandoned, the river's course is now several hundred meters away to the south. Shovel tests showed that the site covered most of the remaining area of river terrace on which it stood, currently encompassing a total of 1.1 hectares. Excavations totaling 64 m^2 were made at this site, on the whole they were shallow and through extremely compact soil. Few features were found, among them a shallow hearth, but many artifacts

2 The site of the large Xiongnu cemetery of the same name (Keyser-Tracqui et al. 2003; Törbat et al. 2003).

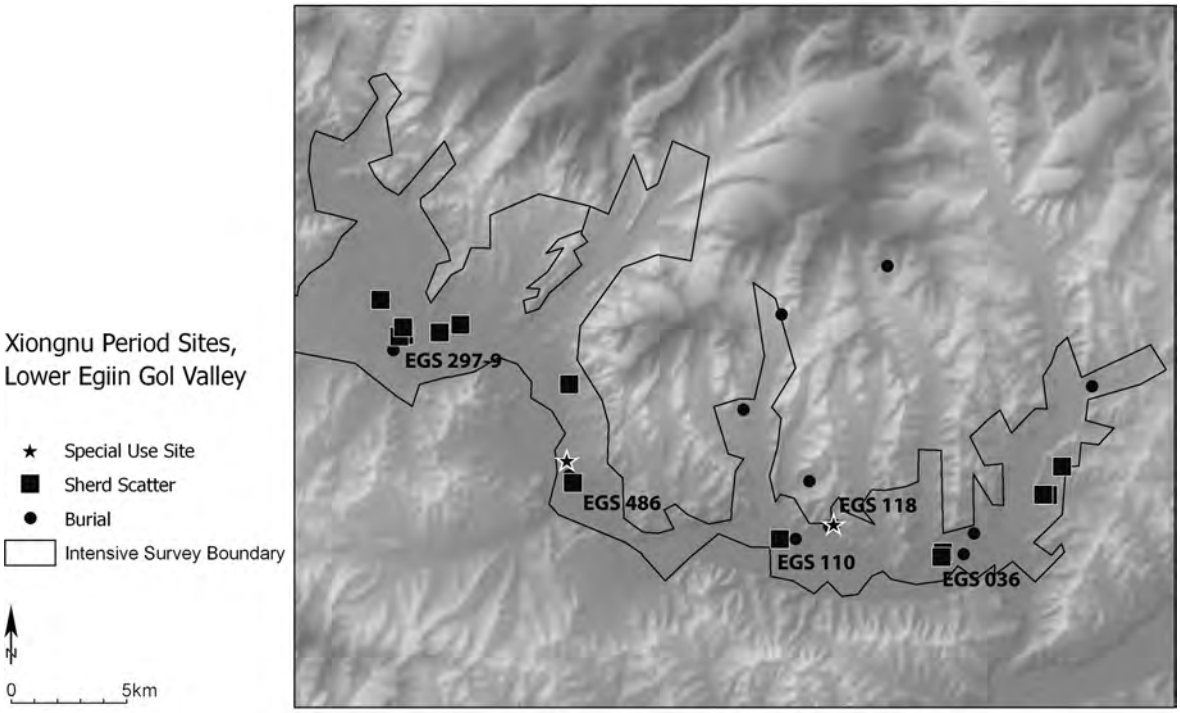


Fig. 2. Xiongnu periods sites located by the Egiin Gol Survey. The survey area encompassed 40 km of the Egiin Gol drainage northeast of the confluence of the Egiin Gol and the Selenge river. The five large Xiongnu sherd scatter sites being studied in this paper are labeled.

Site	^{14}C Date	2σ Calibrated Date Range	2σ Calibrated Range BC/AD Date	Material Dated	δ^{13}C	Radiocarbon Lab
EGS118	2250±40	2340–2150 BP*	BC 390 to 200	Bone	-18.0‰	Beta 170630
EGS110	2230±40	2330–2150 BP	BC390 to 185	Carbonized Grain	-24.2‰	Beta 152047
EGS 036	-	Coin cast between 2068–1730 BP	BC118 to AD 220	-	-	-
EGS 486	1970±80 2020±40	2040–1820 BP 2040–1890 BP	BC 170 to AD 230 BC 110 to AD 70	Carbonized Material	-25.0‰ -23.4‰	Beta 152046 Beta 177580
EGS 297-9		*	-	-		-

* Earlier or later ceramics also present.

Tab. 1. Site sequence and dates.

were recovered. Several carbonized wheat grains from the hearth were identifiable as *Triticum aestivum* and one was directly dated (Tab. 1).

EGS 486 contains the only traces of substantial settlement infrastructure found in the Egiin Gol valley. These connect this site into the known tradition of larger Xiongnu ditched settlements. The site is also located on the edge of a short ancient river terrace just above the current flood plain of the Egiin Gol. This site was investigated with shovel tests and small excavations, a total of 6 m^2, centered on a "ditch-like" pit which was 1.3 m deep with steep sloping sides. This pit was similar to examples discovered at Ivolga (Davydova 1968; 1995) and Baian Under (Danilov/Zhavoronkova 1995) within the settlements and forming internal divisions as well as serving as drains and garbage dumps. The excavations yielded a wide selection of ceramics,

faunal remains, palaeobotanic samples and carbonized materials. Two radiocarbon samples of charred material were taken from the pit excavations (Tab. 1).

Finally, EGS 297–299 constitute a closely associated group of scatters on the 2nd terrace, above the Egiin Gol near a wide bend and a large open confluence of valleys. The proximity and similarity of these sites led us to combine them into a single analytical unit. Also mostly in a plowed field, this site was surface collected, though not as systematically as EGS 036.

Tab. 1 is a summary of the dates and chronological sequence of these five sites. They span about a 500 year period from 390 BC to 130 AD, and fall across the generally accepted period of the emergence of Xiongnu culture and reaching into its apogee[3]. We do not have dated assemblages from the lower Egiin Gol that are later in this time range, but EGS 297-9 has been added because it has some forms that appear to be 1st Millennium AD types. Thus in this study it is considered to be a late site. Most of these sites have only a single piece of dating evidence, but this does not preclude that they could have been used for a much longer period than these dates suggest. This likely probability would also explain many of the gray areas in the following typology.

TYPOLOGY

These sites are recognized based on general ceramic forms and wares know from many mortuary excavations such as those at the Ivolga cemetery (Davydova 1996). The dominant forms are wide mouth jars, flat rimmed bowls, and narrow necked jars, with the wide mouth jars being by far the most common. Though there is a lot of variability in size, exactness of form, and decoration within these types. The Egiin Gol sample used here consists of 216 diagnostic rims from a total of 5,676 sherds.

The assemblage of pottery collected by archaeological survey is quite different from that recovered by the excavation of a large settlement or a tomb complex. First and foremost, large sections or whole vessels are almost non-existent. The procedures used here to sort sherds and create a typology was the sorting of rim cross-section drawings. This was a judgmental visual process, and not done with quantitative measurements. Basically, the diagnostic Xiongnu forms mentioned above, the narrow necked jar, flat rimmed bowl, and wide mouth jar, were identified from the assemblage. Less easily typed rims were sorted based on their commonalities with those forms, and sub-types were identified within each larger category.

The basic factors that contribute to these categories are the openness and restrictedness of the rim forms, the angles of the rims, and the characteristics of the lips of the rims. The key factors for each form are as follows: for narrow necked jars, the interior neck angle, roundedness of the lip of the rim, smaller diameter range, and elaboration below the rim (Fig. 3a); for flat rimmed bowls, the sharpness of the inside turn, the amount of 'chin' on the lip of the rim (Fig. 3b); and finally, for wide mouth jars, the interior neck angle, angularity of the lip of the rim, angle of rim to body, and the slightly restricted openings (Fig. 3c). Other factors which are used to differentiate various rims are the angularity or roundedness of the outside of the rim profile, how much like a block

3 Miniaev 1985; Barfield 1989; Hall et al. 1999; Di Cosmo 2002; Mon-Sol 2003; Honeychurch/Amartüvshin 2006a; Konovalov 2008b.

Fig. 3. Areas of analytical interest on each of the three main rim types in this study, narrow necked jars (a), flat rimmed bowls (b), and wide mouth jars (c).

the rim profile looks, and the angle of the opening of the vessel. High angle vessels have a mouth with a steeper opening, i.e., the angle from the horizontal is a larger number, and low angle vessels have wider, more spread out openings, i.e., the angle from the horizontal is a lower number.

The complete typology developed from this study is presented in Tab. 2. In addition to the typical Xiongnu forms we see a good representation of forms not recognized as part of the usual typology, namely bowl forms, and other angular rims. These may be lower quality jars, perhaps cooking pots that do not break in the same patterns as the regular jars. Both of these are examples of forms that might be used in a household context, and do not appear in mortuary contexts or survive well in any depositional context. From other assemblages it is known that there should also be straight rimmed jars in this typology, but they are probably mixed in with the category called 'bowls' – and may in fact be all the straight rims from that category.

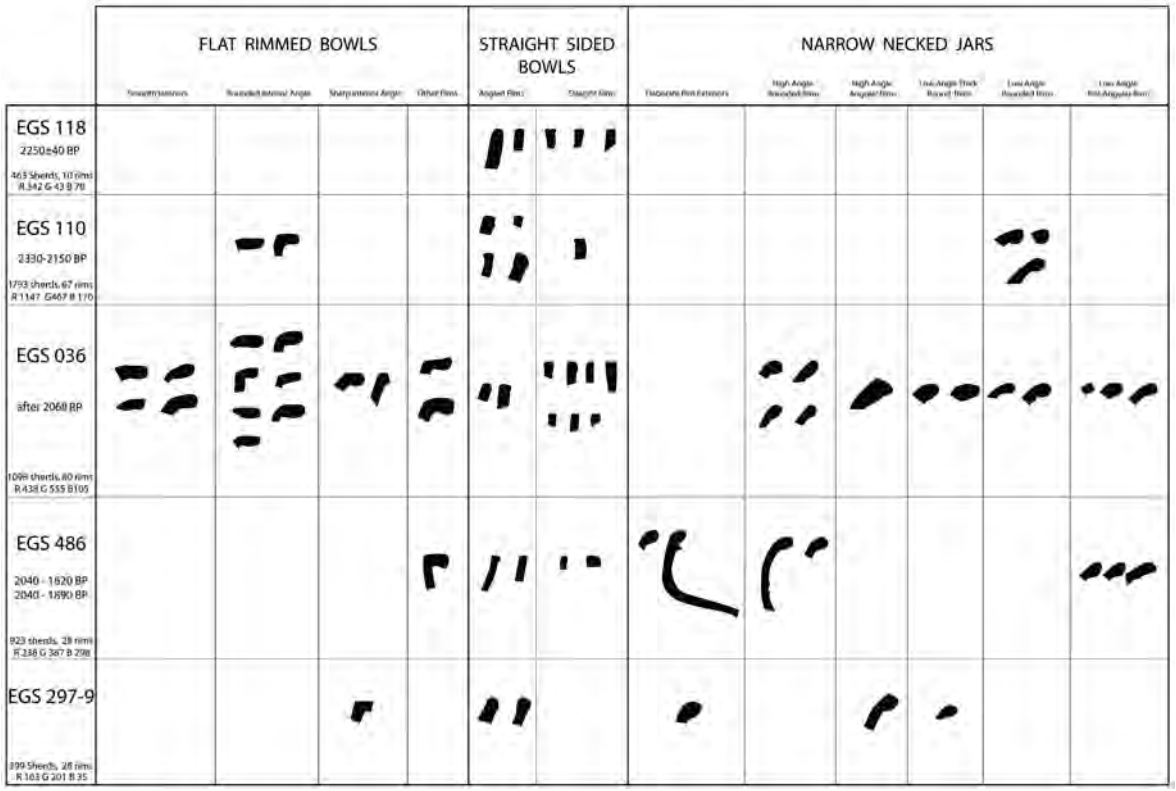
There is little clear formal division between sites. For the jar forms, all types are found at all major sites. Also all the variations of flat rimmed bowls and narrow necked jars are found at the largest site (EGS 036). This could be an issue of multiple occupations of the same area, but either way these collections do not have the resolution and precision of data to detect that variation.

The most interesting areas in the typology are the elaborate rimmed narrow necked jars, flat rimmed bowls, the classic Xiongnu forms, and the two restricted forms of jars. At EGS 110, only a limited selection of types of jars and flat rimmed bowls was found. All the types of flat rimmed bowls are found at one site, EGS 036, although there are clear and easy divisions between the different bowl rims. The narrow necked jar forms are also all found at EGS 036. Like flat rimmed bowls, there is a much more limited subset of rims. Low angle and relatively simple ones are found at EGS 110, but low angle rims are also found at later sites. What exists only at later sites, however, are more elaborate storage jar rims, made with ornamentation developed below the rim.

The most informative part of this rim typology in terms of typological succession is the simpler jars. Wide mouth jars are a very typical diagnostic form of Xiongnu ceramics and succeeding first millennium AD assemblages. None of them appear at EGS 118, our earliest dated and earliest 'looking' assemblage. Instead we see EGS 118 dominated by other forms of jars – the closed mouth and restricted shoulder jars. These forms exist in the immediately later sites, EGS 110 and EGS 036, but not later than those, and they are a diminishing part of the other assemblages where they do occur. These two forms appear to make a good chronological marker for the earlier assemblages.

These are also forms that can be found in earlier Iron Age assemblages[4]. Although Iron Age ceramics echo the forms of these earlier Xiongnu forms, where they really differ is in the ware

4 Goriunova 1983; Erdenebaatar 2002; Törbat et al. 2003. The best example of the ceramics of this period is to be seen in the Institute of Archaeology Museum in Ulaanbaatar.

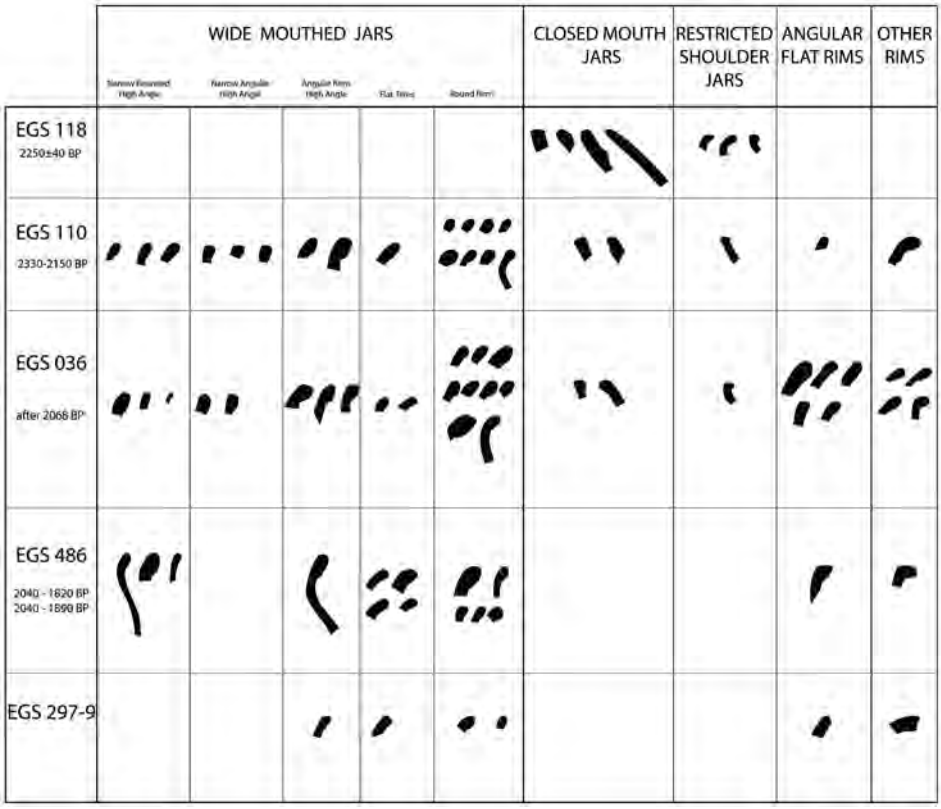


Tab. 2. Rims of different types from Egiin Gol. The different sites occupy rows on the table, date ranges and ware compositions are recorded in the left column. Different types, and a complete sample of the rim profiles studied are depicted in columns. All examples of each rim type are depicted at the same scale, but drawing scales very between types.

quality. These Iron Age ceramics are lower fired and rougher made than typical Xiongnu ceramics. Although there are several identifiable differences in fabric, temper, and hardness between these two periods of ceramics, this ware type difference can be summarized in a short-hand manner as a difference between proportions of gray or black sherds and brown or red sherds. Fig. 4 shows pie-charts of those ware proportions at each of the sites studied here. A relatively clear continual progression is visible from more brown-red to more gray and black. This variation is also related to how the sites were collected – excavation raises the number of brown and red sherds, friable black sherds of cooking vessels, or polished black jar bodies as smaller less obvious sherds are recovered, but the general trend is clear.

The final method of comparing the assemblages is to summarize their constituent forms. Fig. 5 shows conventional 'battleship curves', with forms on the horizontal access and chronology going vertically from earliest to latest. The bars are proportions of each assemblage, for example EGS 110, the second row, has a pretty even proportion of all forms, not necessarily quantitatively fewer jars than EGS 486. The other assemblages are not so orderly, the overall trend is moving from those Iron Age forms – closed mouth and restricted jars and bowls or straight rimmed jars into the classic Xiongnu forms on the left of the chart.

This study has not accomplished a division within the main centuries of the Xiongnu period, but has served to divide the early Xiongnu assemblage from the classic diagnostic assemblage that we know well. Based on this study, then, what is that classic Xiongnu assemblage? It may



Tab. 2. Continuation.

be qualified as the remains of robust and variable flat rimmed bowls and narrow necked storage jars. Most forms favor rims with a high interior angle. The assemblage as a whole is 60–75% gray or black wares. This can be compared to the early Xiongnu assemblage, which shows a strong affinity with Iron Age and even Bronze Age forms. The typical wide mouth jar is found here, along with straight rims from bowls or jars, but there are few examples of the flat rimmed bowls and narrow necked storage jars. The majority of sherds are brown or red wares. EGS 110 is the key site for understanding this assemblage, it is one of the most securely recovered and dated assemblages in this study. Because the excavated deposits were all screened, we had a chance to recover rare forms and get a complete sample of large and small diagnostics and different wares.

Conclusion

The results of this study suggest a continuity between typical Xiongnu pottery and earlier Iron Age forms as well as the existence of a range of forms that exist only in settlement contexts. The former point can be seen in the EGS 110/118 joint assemblage and in the relationship between those two sites. Alone, EGS 118 would be classified as a Bronze or Iron Age site, and EGS 110 as a Xiongnu site, but together, and their radiocarbon dates are very close, the common factors in their assemblages are brought out, and bring into focus these assemblages that still look to the

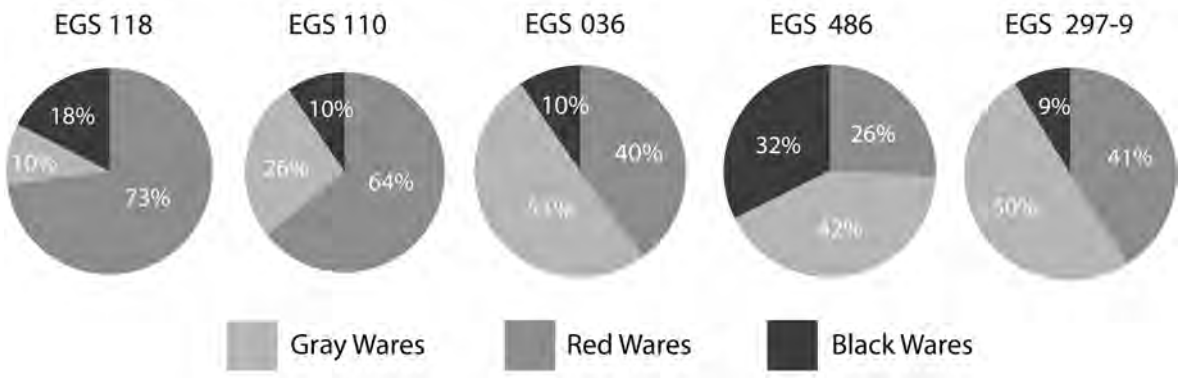


Fig. 4. The proportions of different wares in each of the total sherd collections from each of the sites being studied. They are arranged chronologically with earliest at the left (EGS 118) to latest at the right (EGS 297-9). Through time, there is an increasing amount of grey ware sherds, and a decrease in the portion of red and brown ware sherds. EGS 486 was an excavation of a particular deposit, thus the high proportion of black wares at the expense of red wares.

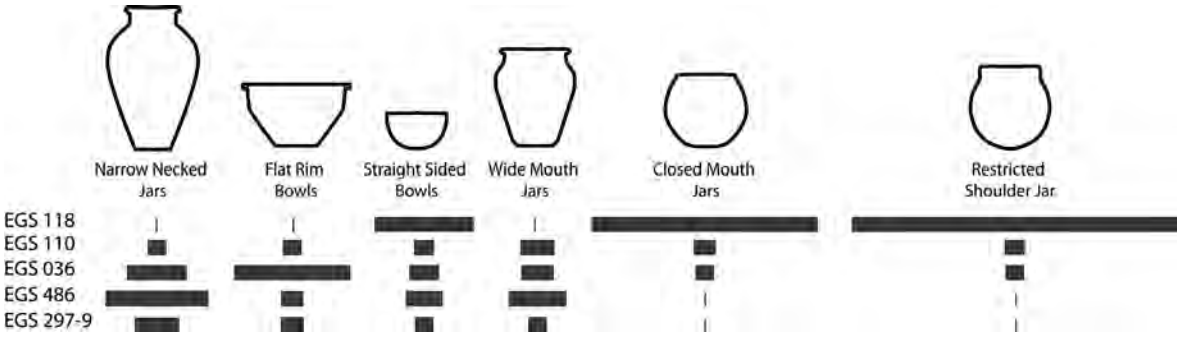


Fig. 5. Battleship curves of the proportions of each form in each different assemblage. There are clear differences in the proportions of different forms between the earlier and later sites.

preceding Iron Age in many aspects. The same 'cross-referencing' of diagnostic forms can be seen in the first millennium AD forms, which follow the Xiongnu period (Jisl 1997; Wright/Amartüvshin 2009). But in this case, where one can see a lot more continuity of shapes, it is decorations that change. This contrast focuses our understanding of the transition that occurred during the beginning of the Xiongnu period. Though it awaits complete technical analysis, there appears to be new production techniques and a new presentation aesthetic – one of a particular style of mass culture and stability in space and society. What is changing in the rest of the Xiongnu culture alongside these ceramic style shifts? Honeychurch and Amartüvshin (2006a; Honeychurch et al. 2009) have suggested a difference in spatial arrangement of political control, and economic variability as the balance between pastoralism and agriculture fluctuates and power within the Xiongnu polity is stabilized.

I would like to close by saying that this is a prototype of the typology and chronological sequence. A larger sample, a more chronologically controlled and stratified sample, ceramic petrography, and more quantitative metrics would allow the Xiongnu sequence to be broken down into narrower categories. What has been demonstrated here makes sense based on what we know from the Egiin Gol Survey, but how widely applicable it is, only further testing by a community of scholars will tell.

THE CHRONOLOGY AT THE BOROO SETTLEMENT, MONGOLIA – OSL DATING OF XIONGNU POTTERY

Saran Solongo, Tsagaan Törbat

Introduction

The potential of applying the optically stimulated luminescence (OSL) in archaeological historical studies with the aim of the method in the interpretation and chronological reconstruction of buildings (Bailiff 2007), was shown previously in the OSL studies of fired-clay bricks and tiles found in Karakorum (Solongo et al. 2005). In a recent study of fired-clay materials found in ancient Mongolian cities, ranging from ca. 600–1400 AD, we showed excellent agreement with the independent ages available for that period from historical records (Solongo 2009).

In this paper the focus is on ceramic and pottery fragments, originating from pit-houses which have previously dated according to their radiocarbon date made on charred material (Ramseyer et al. 2009). These pottery fragments have been stored since 2005 under different condition than in their original circumstance (illuminated room, room temperature etc.), so the potential of OSL dating will be tested. OSL dating of ceramics might contribute to our knowledge of occupation and migration routes. The preliminary results on determining the concentration of the chemical elements in pottery at Boroo settlement, an important settlement site of the Xiongnu period, and the possibility of sourcing the pottery will be discussed.

Luminescence Methodology

Luminescence and ionizing radiation are the two physical phenomena involved in luminescence dating. The quartz and feldspar grains found in fired-clay materials, such as brick and pottery, were able to record the amount of naturally occurring radiation to which they had been exposed. The luminescence signal builds up with time as the grains are exposed to the almost constant dose rate resulting from the decay of naturally occurring radioactive isotopes, ^{40}K, ^{232}Th, ^{235}U, together with a contribution from cosmic rays. In the case of pottery, this radiation dose was that received by the grains since the time when they had been heated. Thus, combining the dose (De) in the grains today, which are measured by thermoluminescence (TL) and optically stimulated luminescence (OSL), with the dose rate (Dr), obtained from the measurements of the concentrations of the radioactive isotopes in the ceramic object as well as in the sediment surrounding it, the time since the last heating event is obtained.

SAMPLES AND DISCUSSION OF OSL DATING RESULTS

Archaeological ceramics have traditionally played a vital role in the development of relative chronological sequences of the given archaeological culture, but also to source the pottery and trace its distribution. Ancient ceramics and pottery fragments are found in quantity at the Boroo settlement (48°45'20" N; 106°16'57" E), which was first extensively studied by Dorzhsüren (1961). Recent Mongol-Swiss joint excavations yielded a wide selection of ceramics, faunal remains, palaeo-botanic samples and carbonised materials (Törbat et al. 2005a; Ramseyer et al. 2009). Two radiocarbon samples of charred material were taken from the pit excavations, providing the oldest date 2255±30 BP (locus 33), and the youngest date of 1835±30 BP (locus 20) (Pousaz et al. 2007, 229). Direct radiocarbon dating of pottery is relatively uncommon due to the presence of carbon sources with differing ages, for example geological carbon remaining in the clay after firing, added organic temper, carbon from the fuel of the kiln and exogenous contaminants absorbed from the burial environment (Gabasio et al. 1986).

For OSL procedures, the external layer of the samples that was exposed to light, whose luminescence can be fully bleached, was removed. The obtained cores were carefully crushed in a hydraulic press and sieved. All crushed material was subjected to 15% H_2O_2, 30% H_2O_2 to remove organic material and to 10% HCl to dissolve carbonate minerals. After having done the density separation on samples >160µm, no quartz coarse grain material was available. The 4–10 µm fine grains were separated and deposited onto a disc (ca. 1mg per aliquot) for OSL and TL measurements. A sample (<160µm) of about 200 mg was taken for dose-rate measurements via neutron activation analysis (NAA).

Fine grains[1] were measured using single SAR-protocol. A contamination of OSL signals by feldspar is expected, but infrared (IR) on mixed grains yields much lower dose than the dose evaluated using blue stimulation. In two cases, of which details will be presented elsewhere, pulsed-OSL was employed to separate the signals from feldspar and quartz. The oldest OSL date of Xiongnu pottery at the Boroo settlement is 132±90 BC (2141±90 BP); the youngest is 267±90 AD (1742±90 BP), respectively (Tab. 1). The OSL estimates fall within the range of radiocarbon ages on charred material centered between 2285–1805 BP (see Tab. 2).

Sample No.	Total dose rate [Gy/ka] (quartz)	De, Gy	Date 1σ	Dates BP 1σ
3-2 BG-06 Locus 20, 771	3.95±0.223	8.35±0.11	132±90 BC	2141±90 BP
4-1 BG-06 Locus 33, 1562	3.99±0.224	7.08±0.13	202±80 AD	1807±80 BP
5-1 BG-07 Locus 105, 1900	4.41±0.224	7.55±0.30	267±90 AD	1742±90 BP
Burial, 2-1 BTG-1 (48°30.4' N; 88°21.8' E)	4.19±0.238	9.55±0.13	282±100 BC	2291±100BP

Tab. 1. The estimated dose-rates and OSL dates on fine grains.

1 4–11µm diameter grains with a mixed mineralogy, i.e. containing both quartz and feldspars.

The uncertainties in OSL ages might be explained in terms: (a) of contamination of OSL signal by feldspars and (b) dose-rate uncertainties. The grains receive gamma radiation from the sediment surrounding the piece of pottery, and both beta and alpha radiation from within the piece of pottery. However, the surrounding sediment was not available, and the complexity of the natural radiation environment[2] has not been considered. Furthermore, the pottery pieces have been stored since 2005 at very different conditions compared to their original environment.

Sample No.	Age 1σ (blue stimulation)	Age 1σ (IR stimulation)	Date 1σ (^{14}C from Ramseyer et al. 2009 ; Pousaz et al. forthcoming)
3-2 BG-06 Locus 20, 771	132±90 BC	74±70 AD	1835±30 BP; 2065 35±BC 181±30 AD; 60±35 BC
4-1 BG-06 Locus 33, 1562	202±80 AD	146±60 BC	2255±30 BP; 249±30 BC
5-1 BG-07 Locus 105, 1900	267±90 AD	161±70 AD	2150±35 BP; 144±35 BC
Burial, 2-1 BTG-1 (48°30.4' N; 88°21.8' E)	282±100 BC	499±110 BC	

Tab. 2. The comparison of OSL ages derived using blue and infrared (IR) stimulation, and ^{14}C ages.

In the measurement of quartz OSL using blue stimulation contamination by a feldspar signal is expected. Additionally, an IR stimulated OSL on mixed grains was carried out, which is expected to yield De's based on signals from feldspars. In two cases, of which details will be presented elsewhere, pulsed-OSL (Denby 2006) was employed to separate the signals from feldspar and quartz. Tab. 2 presents the OSL ages using blue and infrared stimulation and radiocarbon ages taken from Ramseyer et al. 2009.

The comparison of the representative thermoluminescence curves of Xiongnu and Pazyryk samples revealed that there are three main components formed by different peaks overlapped around 110° C, 160° C and 280–370° C. The relative proportion of the peaks is characteristically different for these samples as it can be seen from Fig.1. The Xiongnu samples are having much higher TL intensities at the high temperature region and a dominant TL peak at ~280° C, whereas the Pazyryk samples show at that range two less intense peaks at ~280° C and 330° C.

In addition, luminescence dating which was undertaken on pottery fragments #Hu2/1 taken from burial BTG-1 in Baga Turgen, Baian-Ölgii (48°30.4' N, 88°21.8' E), providing an OSL date for Pazyryk pottery around 282±100 BC. The thermoluminescence spectra are shown for Xiongnu pottery (Fig. 1,1) and for Pazyryk pottery (Fig. 1,2). The shape of curves was identical for all Xiongnu potteries under study.

Additionally Xiongnu pottery fragments from Boroo settlements and Pazyryk pottery fragments from burial in Baga Turgen, Baian-Ölgii were analyzed by XRF; the preliminary results of compositional characterization of Xiongnu samples from Boroo and their numerical analysis suggest that the major and trace elements might be classified into one group. The study of the local production or exchange of ceramics in Xiongnu sites through compositional sourcing

2 E.g. the non-uniformity of uranium, thorium and potassium in the sediment surrounding the piece of ceramic.

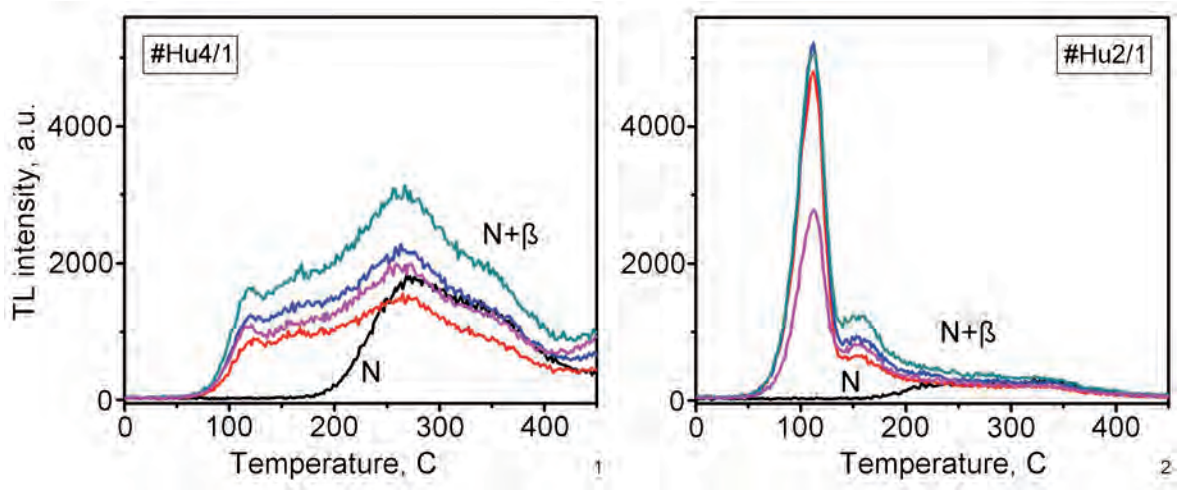


Fig. 1. 1 Typical TL curves of Xiongnu samples; 2 typical TL curve of Pazyryk sample Hu2/1. They present three main components formed by different peaks overlapped around 110° C, 160° C and 280–370° C. The relative proportion of the peaks is characteristically for these samples (N stands for natural, N+ for regenerated). A preheat temperature PH=70° C was used.

analyses (Hall/Miniaev 2002) should give more detailed information and an attempt to trace the pottery from Boroo to the burials at Noyon Uul (Törbat et al. 2005a) should be re-examined by extending the number of samples.

Conclusions

Luminescence study of pottery revealed the use of the Boroo settlement over a period ranging from 132±90 BC for locus 20 to 202±80 AD for locus 33, which seems to describe the chronology of the pottery production. The chronological order of the pits itself should be re-examined using OSL applied into the sediments containing material culture.

A major finding of the current study is that OSL was successfully applied as a dating method of pottery, and additionally TL was found to give information as a provenance tool. Both methods together may contribute to the understanding of the Xiongnu culture. It suggests that the pottery at these Xiongnu sites was locally produced.

Acknowledgements

Luminescence measurements were carried out using the facilities at the Max-Planck-Institute for evolutionary anthropology, Leipzig, Germany. The authors are grateful to Prof. Jean-Jacques Hublin for support. Nicole Pousaz, Archeologue cantonale, Vaud, Suisse and Denis Ramseyer, Institut de Préhistoire, Université de Neuchâtel, Suisse, and Dunbüree Batsükh, Institute of Archaeology, Mongolian Academy of Sciences, are thanked for having provided radiocarbon data and samples.

RECONSTRUCTING LIFE HISTORIES OF THE XIONGNU. AN OVERVIEW OF BIOARCHAEOLOGICAL APPLICATIONS

Michelle L. Machicek

Introduction

In some cases of archaeological investigations of burial sites the primary objectives of the excavators generally lie outside the realm of bioarchaeological concerns. A focus on artifacts and features in research, which are seen as more informative, overshadows the potential that the study of human remains themselves can provide about past populations. More often, archaeological investigations of burial sites, and their associated research, are not driven by bioarchaeological questions, despite the fact that interments of human remains are being excavated. Enormous opportunities are available to enhance the wealth of information derived from the excavation of burial sites and their analyses. This study provides an overview of potential directions in bioarchaeological research applicable to the understanding of Xiongnu populations. This assessment is not intended as an exhaustive account of all the appropriate areas of bioarchaeological applications available, but is meant to provide a summary of several areas of enquiry which have the potential to be explored more fully in the future.

The designation of Xiongnu as it is used throughout this study is intended simply as a denotation of the historical time period attributed to the Xiongnu polity and the material culture and mortuary practices attributed thusly. This designation in no way implies any ethnic or biological affinities attributed to the individuals or samples discussed in the following sections. Several case studies of skeletal analyses are provided to illustrate the potential for addressing certain areas of enquiry through the utilisation of human skeletal remains. The skeletal material and samples discussed here are derived from various sites located throughout modern-day Mongolia (Fig. 1).

Theoretical Bioarchaeology

Theory driven analyses of the human body offers an enormous degree of potential for the use of skeletal remains. Extensive studies by Sofaer (2006), Lucy (2005) and Lorentz (2008) provide detailed assessments of this potential. A theoretical understanding of the human body provides a means of accessing human skeletal material from a social perspective. For instance, studies of age, gender, activity and disability from skeletal remains may sometimes provide a means in which to gauge cultural norms and practices of a given society. For example, questions pertaining to age

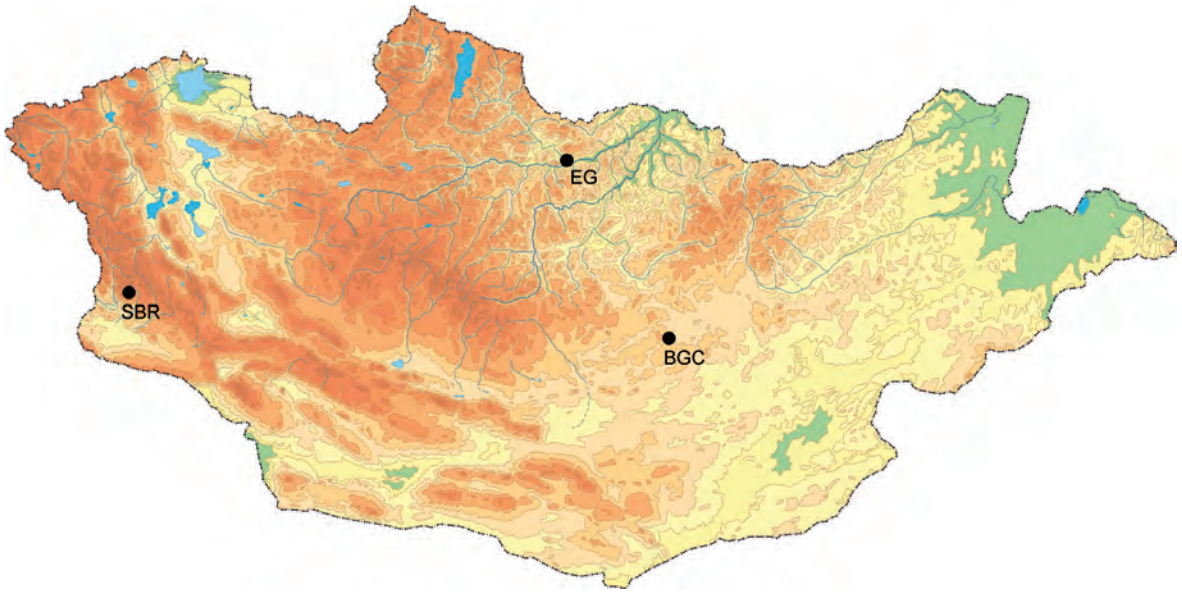


Fig. 1. Site locations discussed in text. EG Egiin Gol, SBR Shombuuzyn Belchir, BGC Baga Gazaryn Chuluu.

in Xiongnu society may be addressed through the combined assessment of skeletal material and associated mortuary contexts. Understanding the complexities of the term "age" is something of which researchers are often unaware. Age essentially consists of three categories which are termed social age, biological age and chronological age (Gowland 2006; Halcrow/ Tayles 2008). Social age is the age a person is perceived to belong to within his or her community, biological age is equivalent to physiological age and is based upon biological changes of the skeletal associated with development and ageing processes, chronological age is simply the time a person has lived from birth to death. Osteologists primarily deal with biological age of the skeleton because other categories cannot be directly addressed through the skeletal material at their disposal. However, by utilising a multi-dimensional approach which incorporates mortuary context and skeletal remains, questions pertaining to both social and biological age can be approached.

For instance at the site of Shombuuzyn Belchir (SBR) several cases are of interest within the context of the study of age. The individual designated as SBR-12 was that of a young male aged between 15 and 18 years at the time of death. SBR-13 is a fully adult male aged between 35 and 45 years. Despite this divergence in age both individuals were interred with bone bow plates, arrowheads and spearheads (Miller et al. 2009a). By this simple comparison it can be suggested that although physiologically SBR-12 would not be considered completely developed (biologically) as an adult, socially this person may have been considered as a complete adult, as evidenced by the fully adult funeral rite which they were afforded. An additional example concerning the study of age, may be found in the case of SBR-36, an infant aged approximately 0.5 to 1 year at age of death. This particular example featured a high degree of preservation with extensive soft tissue present on the remains, as well as textiles. This individual was interred in a small stone cist with a sheep/goat cranium and vertebrae placed to the north of the cist (Miller et al. 2009a). The infant was buried with an amber bead, a silk covering over its face, and swaddled in an intricate construction of leather and fur wrapping. Due to the remarkable preservation of these clothing materials it is possible to see that some degree of forethought and consideration went into the burial of this individual. This example illustrates that in some cases individuals of

even a very young age were at times afforded independent interments and significant degrees of funerary expenditure. Furthermore, though this investment may only be a reflection of the infant's kin or group affiliation, it also illustrates that at this point the infant may have progressed into a social stage in which they were seen as an 'embodied' individual, if for no other reason than their interment in a singular (individual) burial context (Meskell 1994).

While here I have provided only a short discussion of theoretically driven research agendas which may be approached through skeletal material, the importance of incorporating both skeletal remains and mortuary context cannot be overstated. This brief assessment illustrates the possibilities which even very small or singular examples can provide for our awareness of socio-cultural complexities which are evident in Xiongnu mortuary rituals.

The Study of Physical Activity in the Past

The attempt to discover the nature of and evidence for certain human activity in the past by using skeletal material is certainly not a new objective in the fields of bio-anthropology or osteology. However, researchers outside of these disciplines are often unaware of the complexities and complications involved with the study of human activity based on the analysis of skeletal remains. An enormous corpus of literature exists in the fields of forensics, biological anthropology and osteology which address questions pertaining to evidence for physical activity that can potentially be observed on human skeletal remains. For extensive reviews of this topic see Kennedy (1989), Stirland (1998) and Knüsel (2000).

Many studies which have attempted to determine physical activities from skeletal material have met with varying degrees of success and an extremely critical view is often taken by researchers when analysing the results of this research (Waldron 1994; Knüsel 2000). Furthermore it has generally been determined that only under exceptional circumstances has it been possible to recognise precise human activity on the basis of skeletal material alone. Critics have strongly cautioned against the degree to which researchers in the past have tried to say too much about specific physical activities or occupations with essentially too little evidence. Of course there is always the aspiration to attempt to gain as much as possible from what little evidence that we do recover but, it is imperative to be cautious, lest, as Waldron (1994, 98) suggests, our 'critical faculties be overwhelmed'.

With these considerations in mind, most researchers have concluded that when human remains are examined on a group basis it is sometimes possible to obtain a certain degree of information pertaining to overall group workload, sex differentiation in workload, and age related differences in workload patterns (Waldron 1994; Knüsel 2000). Two activities which are of interest in Eurasian archaeological studies include the search for evidence of habitual horse-riding and weapon use, such as archery. As a suggestion, one promising area of enquiry pertaining to weapon use and handedness may be found in an examination of musculo-skeletal markers (MSM's) in combination with asymmetry in the upper limb bones. For example, two individuals excavated in 2008 at Shombuuzyn Belchir exhibited marked asymmetry in the upper limbs. Each of these individuals was interred with archery materials. A closer examination of individuals interred with weapons and a detailed study which includes examination of degenerative joint disease, MSM's, asymmetry and handedness, as well as trauma patterns may provide more

insight into habitual weapon-use related activities. Questions pertaining to habitual horse riding activities are more difficult to address. This is due to the fact that the analysis of lower-limb MSM's is much less straight-forward because of the weight-bearing responsibilities of the lower extremities. Furthermore, the role of genetics and environment on the expression of MSM's is still poorly understood and researchers should bear this in mind before embarking on this type of analysis. While some studies have led to possible suggestions of activity or occupation we should remember, as Stirland (1991) points out, that it will never be possible to extract from the general to the particular, i.e. we will never be able to determine horse riders from non-horse riders or archers from non-archers based purely on skeletal material alone. In summary, while these methods may provide some degree of information pertaining to past human activities, many considerations must be addressed before meaningful conclusions can be drawn.

DIET

The study of human behaviors related to subsistence is an integral component to any comprehensive investigation of life in the past. The analysis of human skeletal remains provides a direct link to dietary behaviors on both an individual and group basis. The analysis of diet through the use of human remains may be addressed through multiple lines of evidence. These can include dental wear and pathology, such as ante-mortem tooth loss, rates of dental decay as well as calculus and caries prevalence and severity rates. Other evidence may be found in indicators of 'stress' possibly related to nutrition and episodes of illness, such as linear enamel hypoplasia and cribra orbitalia, and through the chemical analysis of bone collagen and dentine for the purpose of stable isotope analyses (Ambrose 1993). A preliminary isotopic study of carbon and nitrogen in human bone collagen of 30 adult individuals inhabiting the Egiin Gol valley (EG) in northern Mongolia and Baga Gazaryn Chuluu (BGC) in the north Gobi has revealed a clear and significant difference in carbon and nitrogen isotope ratios between the two study population samples. The BGC sample has on average a 1.7 per mil higher ^{15}N and 1.0 per mil higher ^{13}C than the EG sample, with little overlap in the distributions of individuals from the two sites. These early results may reflect a greater dependence of the BGC population on protein derived from meat and milk from domestic livestock, whereas the EG population may have depended on a more mixed diet which included a higher proportion of protein from vegetable and wild animal sources (Machicek 2011). Although additional studies are in progress, these findings offer a promising area of future enquiry into more detailed analysis of variation in subsistence regimes both within and between divergent mobile-pastoralist groups.

The examination of dentition from Xiongnu skeletal material provides an additional means for assessing dietary consumption and overall health in these populations. An analysis of dental pathology of 20 adult individuals from Egiin Gol is presented (Fig. 2). Caries were assessed by recording the number and location of carious lesions, calculus was assessed by noting both presence/absence data for each individual (utilised for Fig. 2) and as a severity score of 0 = no trace, 1 = minor or minimal, 2 = moderate, 3 = severe as described in Brothwell (1981). Ante-mortem tooth loss (AMTL) was recorded for each skeleton as presence/absence as well as the number of teeth lost ante-mortem for each individual. Periapical abscesses were recorded as number present and location for each individual, periodontal disease was recorded as present or absent

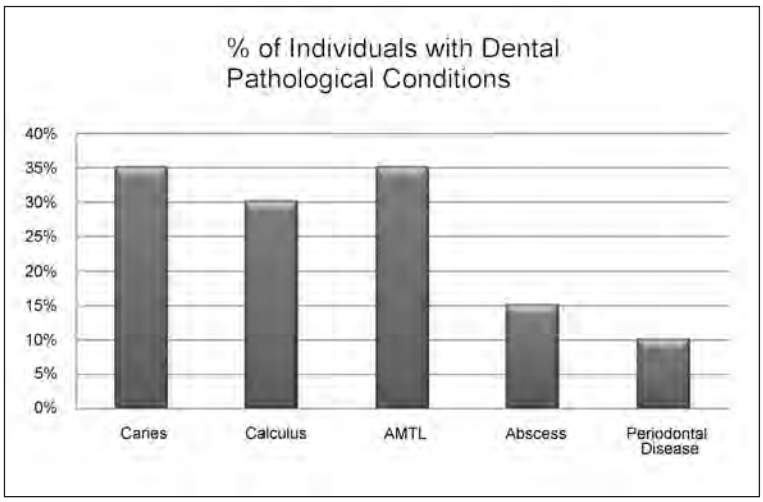


Fig. 2. Dental pathology assessment of 20 adult individuals from Xiongnu contexts at Egiin Gol.

on the basis of alveolar resorption of more than 5 mm. The standards and methodologies used for recording these conditions are based on Brothwell (1981) and Hillson (1996).

The most common conditions were carious lesions (n = 7 individuals) and ante-mortem tooth loss (n = 7 individuals). This was closely followed by the presence of calculus (n = 6 individuals). Although this is not a particularly large sample size several observations can be made. Particularly the presence of caries is notable in that these lesions typically reflect consumption of carbohydrates. The presence of calculus is generally indicative of a high degree of consumption of protein and also indicative of a lack of oral hygiene. The similar degree of caries and calculus may be indicative of more mixed dietary input, though further studies will be needed to substantiate this possibility. The low degree of abscesses and periodontal disease is reflective of a generally low prevalence of dental disease within the sample. These findings may be contrasted to a study of a later Mongol period sample of 26 adult individuals where not one carious lesion was found but a high degree of calculus was observed as the most common condition.

In summary, the combination of both isotopic analyses and dental pathology and wear studies will allow for more comprehensive conclusions to be made concerning past dietary habits of these populations (Schutkowski 2008). Furthermore, the use of additional evidence for diet provided by paleobotanical studies and faunal analyses can further contribute to this line of enquiry. Future research applied to the study of dietary variation both within and between these groups has the potential to provide better insight into patterns of land management, resource availability and exploitation as well as trade and socio-economic circumstances in the Xiongnu period.

Health and Disease

Considering health and disease in past populations provides an additional means for understanding the nature of human societies in the past. An appreciation of the degree of health within and between groups as well as disease severity and prevalence rates can allow researchers to

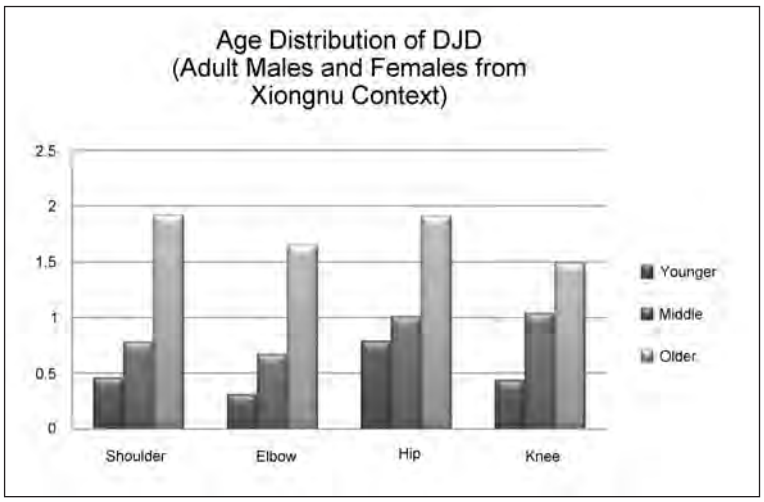


Fig. 3. Joint disease index of adult individuals (n = 39) from Xiongnu contexts from Egiin Gol and Baga Gazaryn Chuluu. Young adult = 18–25, middle adult = 25–45, older adult = 45+.

more fully comprehend the social dynamics of daily life. This area of research is also applicable at both individual and group level and may allow for skeletal remains from disparate locations to be utilised in comparative context. For example, the results of an analysis of degenerative joint disease as it is reflected throughout the ageing process on a sample of adult individuals (n = 39) derived from Xiongnu contexts at EG and BGC is provided below (Fig. 3). This figure illustrates the severity and distribution of joint disease which serves as an index of the condition which is calculated as the sum of arthritis scores divided by the sum of joint surfaces scored and is averaged for groups of individuals in the respective age categories. The prevalence and severity of the condition was assessed by observing individual joint surfaces which were then scored as 0 = no trace, 1 = trace or minimal, 2 = minor, 3 = moderate, 4 = severe (after Bridges 1991). Surfaces for each joint were macroscopically examined for the presence and severity of lipping, porosity and eburnation, as these are thought to be indicative of degenerative joint disease (Rogers 2000; Roberts/Manchester 2005).

This analysis illustrates several findings. Primarily, this displays an increase in the prevalence and severity of the condition as age increases. This is to be expected as joint disease is known to increase in severity throughout the individual lifespan. However, it also provides an indication of a continuation of workload throughout life, as the condition does not appear to trail off at any point. Additionally, it is possible to observe that in the younger categories loading and stress is found on joints of young individuals, suggesting that a significant degree of workload may have begun in the early adult age stages presented here.

An additional potential source of information concerning general health in past populations can be found in other commonly occurring conditions/diseases. This information is easily applicable to wider archaeological and anthropological studies and should be considered. For instance, on a single individual excavated from Shombuuzyn Belchir, burial 13, several Schmorl's nodes were present on the thoracic vertebrae (Fig. 4). Schmorl's nodes are depressions or 'cavitations' which are commonly found on the vertebral bodies of individuals from both past and present populations. This particular individual was aged approximately 35 to 45 years at time of death. Recent clinical studies of modern cases of Schmorl's nodes have been carried out and

Fig. 4. Shombuuzyn Belchir, burial 13. Thoracic vertebrae with Schmorl's nodes indicated.

the information derived from these assessments may be applicable to bioarchaeological research as well (Faccia/Williams 2008). These clinical studies have shown that generally individuals experience a significant degree of pain and discomfort at the site of the condition. Although it must also be acknowledged, that the relationship between the lesions and back pain experienced is still poorly understood (Faccia/Williams 2008). It has also been suggested that due to the aetiology and formation processes of the lesions they may be potential indicators of a high degree of physical activity involving the area of the spine where the nodes are present. On older individuals they may represent the cumulative stress of a long life of labour involving specific areas of the back. Future studies which record the presence and location of Schmorl's nodes on individuals excavated from divergent time periods and environmental settings have the potential to elucidate further information concerning the aetiology and implications of the presence of these lesions. Both Schmorl's nodes and degenerative joint disease are conditions found widely throughout prehistoric skeletal samples and more detailed and integrated assessments have the potential to reveal much about general pain and suffering in the past on both an individual basis as described here, and population levels.

Concluding Remarks

The intention of this overview has been to provide a starting point for future research utilising human skeletal material excavated from burial contexts of the Xiongnu period. These considerations will not only enhance and contribute to anthropological and archaeological research being applied to these assemblages but offer a substantial basis for future enquiries which incorporate human skeletal remains. It is essential that we aim to use all the available lines of evidence to elucidate knowledge concerning these past societies. Too often there is an overabundance of concern with more sensationalist studies of human mortuary practice, i.e. human sacrifice, violent death, rare artifacts etc., which obscures the wealth of information that can be obtained concerning the ordinary everyday lives of people. It is essential that researchers are aware of this potential so that human skeletal material is given appropriate consideration with regards to recovery, conservation, storage and analysis. The study of the human body provides unique opportunities to expand upon the areas of research which have been discussed here as

well as additional areas of enquiry such as genetics, migration patterns and paleo-demographic reconstructions. The human body is our most direct link to our own human past in its most literal sense and should be acknowledged and treated as such.

Acknowledgements

Several institutions and projects must be acknowledged for their kind support and for generously facilitating the research presented here: The Khovd Archaeology Project with the National Museum of Mongolia and the Silk Road Foundation, the Baga Gazaryn Chuluu Archaeology Project and the Institute of Archaeology of the Mongolian Academy of Sciences, and the National University in Ulaanbaatar. Research funding has been generously provided by the Council of American Overseas Research Centers, the National Museum of Natural History (Smithsonian Institution) and the Natural Environment Research Council (UK).

XIONGNU PASTORAL SYSTEMS – INTEGRATING ECONOMIES OF SUBSISTENCE AND SCALE

Cheryl A. Makarewicz

Economic activities conducted at household and extended family levels are important contributors to the emergence and development of social organization and political complexity at regional scales. While agro-pastoral production is often dismissed as hopelessly fixated on subsistence and fundamentally incapable of contributing to the regional economies of state-level societies, research strongly suggests that agro-pastoralists activities carried out at the level of residence group are capable of consistently producing products in excess of subsistence needs, and articulate readily with and participate in regional economic systems[1]. In the pastoralist context of Inner Asia, where domestic animal herding has provided the subsistence backbone of nomadic societies for millennia, pastoral systems likely played an important role in the evolution of steppe political structures. This paper explores the productive potential of different animal husbandry practices, examines the ways in which the various herd management strategies that shape pastoral systems can be documented archaeologically, and discusses the potential articulations of these systems with the broader Xiongnu economic milieu.

The Xiongnu confederation was a hierarchically organized nomadic polity centered in Mongolia consisting of an externally unified, internally specialized and organized conglomeration of competing and cooperating pastoral nomadic groups over an expansive territory[2]. Headed by a centralized court and nomadic elite supported by a deep administrative structure, the Xiongnu engaged in extensive trade and exchange with agriculturist groups in southern Siberia and Han China. The use of pastoralism, low-level plant agriculture in some areas, and the presence of walled settlements, which may have served as focal nodes for the distribution of animal and plant products, suggests that Xiongnu economic systems were complex entities that funneled household production into regional and supra-regional networks. While there has been much research examining the conduits through which exotic foreign goods moved into the Xiongnu polity[3], and to a lesser extent, how those goods supported Xiongnu political organization (Barfield 1981; Honeychurch/Amartüvshin 2006a), the role of everyday production, as realized through local pastoral systems, in higher-level economic spheres remains to be explored.

Pastoral production is a central component of the 'multi-resource nomadism' strategy in use during the Xiongnu period. This strategy reduces productive risk through exploitation of a diversified resource base, use of storage technologies, and calculated negotiation of social relations (Honeychurch/Amartüvshin 2007). Moreover, it provides a mechanism that affords households and extended family groups the opportunity to slide into parallel economic and socio-political pathways that, although overlapping, are realized through different interaction spheres at local,

1 Fall et al. 1998; Hedlund 1979; Stein 1987; Marx 1977.
2 Honeychurch/Amartüvshin 2006a; 2007, but see Barfield 1981 and Di Cosmo 1994.
3 Jettmar 1967; Ishjamts 1994; Davydova 1996; Konovalov 2008a; 2008b.

regional or supra-regional levels. Accordingly, pastoral systems likely served as critical linkages between local subsistence economies and broader, regional ones.

Defining the productive potential of pastoral systems requires a detailed documentation of the specific animal management strategies used by nomadic groups, which in turn provide insight into how these systems were organized in reference to each other on a local and regional basis, and how they were manipulated and reformulated in light of the socio-political expectations and ambitions of various actors. In this paper I discuss several herd management strategies and their impact on pastoral production, and consider the ways in which certain analytical techniques, in particular zooarchaeological and stable isotopic approaches, lend themselves well to detecting husbandry practices in the ephemeral archaeological record left by pastoral nomads. Initial results of faunal and isotopic analyses of faunas recovered from Xiongnu sites located in Baga Gazaryn Chuluu, Mongolia are also presented.

XIONGNU SUBSISTENCE STRATEGIES

The Xiongnu are frequently portrayed in ancient written histories and modern archaeological studies alike as purely nomadic pastoralists who perpetually wandered the steppe in search of grass and water for their herds while depending solely on their beasts to feed and shelter themselves (Sima Qian 1959, 2879; Watson 1961b, 129; Kradin 1996; 2000). Fortunately, this rather narrow view is being replaced by a more sophisticated understanding of the Inner Asian pastoralists as 'multi-resource nomads' who exploit a wide spectrum of wild and domestic plant and animal resources that are accessed and maintained through flexible mobility patterns ranging from long-distance movements to short logistical forays (Cribb 1991; Salzman 2000; Honeychurch/Amartüvshin 2007).

Although it is now clear that the Xiongnu participated in a mixed economy that included herding, agriculture or plant cultivation, and hunting and gathering of wild foodstuffs (Honeychurch/Amartüvshin 2007), the central importance of sheep, goat, cattle, camel, and horse exploitation in the Xiongnu subsistence economy remains unquestionable. The importance of animals in Xiongnu lifeways are reflected in burial practices: domesticates were routinely deposited as funerary offerings in graves and monumental complexes, suggesting that domestic herd animals were deeply embedded components of Xiongnu identity and belief systems. Equally important, animals served as an easily transportable resource base, a source of household wealth, and producers of raw materials that could be processed into marketable goods. In addition, by maintaining taxonomically diverse herds in the ecotonally varied and strongly seasonal environments that characterize Inner Asia, Xiongnu herders could maximize animal product off-take, some of which could be entered into supra-household level economic systems, while reducing their own subsistence risks.

While it is apparent that herd animals served as the common economic foundation underlying the Xiongnu polity, even the basic form of pastoral subsistence systems in use during this period of socio-political transformation has yet to be defined. The general deficit of subsistence data suitable for reconstructing Xiongnu pastoral systems is due in part to the ephemeral nature of occupation sites formed by nomadic herders, but the assumption that pastoralist strategies are relatively homogeneous across time and space, and therefore undeserving of additional attention,

still persists. Similarly, pastoral production and consequently, herd management systems, are often conceived as strictly local, household level enterprises that do not intersect with broader, more regional economic and political structures (Barfield 1989; Fletcher 1986).

The implicit use of this model, which relegates pastoral production to an inconsequential position in regional economies, has a significant impact on the current conceptualization of the emergence and internal dynamics of the Xiongnu polity. Within a framework that conceives of pastoral activities as fundamentally limited to the household level, pastoral societies are defined and dictated by a uniform and inwardly focused pastoral system that concentrates solely on household subsistence, leaving nomadic groups bereft of the dynamic mechanisms needed to participate in broader economic and political spheres over the long term. Accordingly, pastoralists are dependent on interaction with and access to various external resources originating from adjacent, established agrarian states to catalyze broader, internal developments in political and economic organization (Khazanov 1984; Barfield 2001a).

However, recent research has strongly suggested that Inner Asian polities have indigenous origins and emerged out of a uniquely Inner Asian interaction of subsistence practices focused on intensive domestic animal husbandry, long-range mobility, and an extensive relationship with a steppe landscape (Honeychurch/Amartüvshin 2006a; Miniaev 1985; Wright et al. 2009). Embedded within this singular admixture of animal-based subsistence and extensive landscape use was a cohesive collection of pastoral systems that not only contributed to the rise of Inner Asian polities, but likely served as a common medium through which the structure of nomadic political organization could be expressed and manipulated. These pastoral systems likely operated as a concatenation of differentiated and elastic animal management strategies that were simultaneously enacted on household herds, and possibly on large conglomerate herds similar to those seen in the modern "khot ail"[4], forming an integrated complex of pastoral production that was capable of achieving both subsistence and 'subsistence-plus' economic goals. Furthermore, these systems may have also been intentionally configured to define and coordinate regional economic networks, as well as modulate steppe social and political organization. The transfer of household-level production to higher-level economic and political networks could be actualized through cooperative intra-household and group decision-making and action, negotiation between households and established kinship structures or social institutions within heterarchical or hierarchical organizational frameworks, or direction of pastoral groups by a political institution. The task now is to determine how these mechanisms, and others, influenced the structure and processes of sociopolitical change within the Xiongnu confederacy.

Xiongnu Pastoral Systems – Linking Husbandry Practices with Economies of Scale

Pastoralism is an animal exploitation strategy that focuses on the use of domesticates for their ante-mortem products of milk, fiber, transportation, and progeny, and post-mortem products of meat, fat, and skin. Herders seek to ensure a steady and continuous generation of these prod-

4 For a brief discussion of residential groups called "khoton" or "khot ail", see Simukov 1933.

ucts through the use of and participation in cohesive pastoral systems that emphasize delayed-returns. These systems tend to be carefully structured yet flexible economic complexes that are comprised of a series of interwoven husbandry practices that together attempt to optimally balance immediate and future subsistence needs, grazing availability, and the social goals of herding households while maintaining herd security over the long term. Animal husbandry practices commonly employed by herders include, but are certainly not limited to, breeding, weaning, fodder provisioning, mobility, and harvesting. Herders enact a variety of these strategies on their herds with various timings and intensities in order to extract a certain type and quantity of animal product and maintain herd security. Each of these strategies may be differentially applied to individual animals, portions of herds, entire herds, and according to the taxon, age, and sex of herd animals, at varying intensities and schedules. Far from being rigid practices, these husbandry strategies are highly malleable, and are constantly adjusted and re-combined by herders in response to and in anticipation of dietary needs, shifts in environmental conditions, and the demands of social and political realities.

Faunal remains represent an easily accessible and abundant source of data that faithfully record not only the broad subsistence strategies pursued by herders, but also decision-making pertaining to animal husbandry practices at the level of individual herders. Zooarchaeological, isotopic, and genetic data are all contained in animal bone specimens and, when these analytical approaches are used in combination with careful and critical considerations of the ethnographic record, these techniques offer a powerful way to build and test models centered on evaluating the structure of Xiongnu pastoral practices. However, one of the major obstacles in the way of this endeavor is the general dearth of archaeofaunas obtained from domestic occupations. Recent excavations in Egiin Gol (Wright 2006) and the Khanui valley (Houle 2010) indicate that animal bone is well-represented in otherwise ephemeral settlement sites (see also Houle/Broderick, this volume), but the low research priority given to excavating domestic deposits suggests that it will be some time before faunal assemblages reflecting the harvesting strategies that produce them materialize.

Fortunately, animal remains are a primary feature of Xiongnu mortuary complexes, and the intensive research focus over the past decade on excavating burial locales has produced an abundant faunal record. Horse, cattle, and sheep and goat remains, usually complete skulls, fore- and hind-extremities, vertebrae, and ribs, were frequently placed with the Xiongnu dead as part of ritual activities associated with the interment of local elites in countless monumental tombs. However, while this expanding collection of animal remains recovered from burial contexts is providing exciting new information on the ritual aspects of Xiongnu culture, ritually-deposited animal remains represent an interpretive challenge for zooarchaeologists looking to reconstruct animal-based economic strategies. Such contexts beg the question of whether animals that are incorporated into and killed as part of mortuary activities are harvested according to subsistence-based decisions, or slaughtered according to belief systems that, when expressed against the backdrop of a ritual context, may result in the selective kill-off of animals in ways that are incongruent with quotidian herd management? Conclusions based on archaeofaunas from such specialized contexts are to be treated with caution, but serve as examples of the kinds of interpretations that could be more robust if based on samples more trustworthily representative of economically-based herding decisions.

In the case of pastoralists, who must balance the immediate and future productive and reproductive potential of their herds against unpredictable fluctuations in graze availability, seasonal environmental conditions, and socio-political relationships, it is likely that a complex interplay of decisions grounded in both mundane subsistence choices and ritual traditions influenced the

composition of funerary offerings. Status expression, wealth signaling, and social customs and expectations may all contribute to the selection and subsequent deposition of funerary offerings that do not reflect the best economic interests of herding households. However, until the social and ritual role of animals in Xiongnu mortuary activities are better understood, it is assumed here that domestic faunas placed in Xiongnu burials represent animals belonging to the same herd and represent herder decisions regarding pastoral production. While this assumption is clearly not entirely justified, I pursue it here in order to demonstrate the kinds of data that may be extracted from faunal assemblages formed by pastoral activity.

Although a wide array of animal management strategies are available to herders, each of which impacts the quality, quantity, and predictability of products obtained from herds, discussion here will center on those focused on harvesting and weaning, two practices that readily impact the type of animal products produced and can be observed in the zooarchaeological and isotopic records.

Harvesting Herds

Harvesting is a husbandry practice that entails the intentional slaughter of individual or select groups of animals at certain timings and intensities. By manipulating herd demography, herders seek to structure the quantity of production of meat, milk, hair, and live animals while taking into consideration graze, stored fodder, and water availability. The production of ante- and post-mortem products in pastoral herds is detected through analysis of kill-off profiles constructed from tooth and bone specimens yielding ageing data (Fig. 1). Payne's (1973) classic model describing milk, meat, and wool production, which assumes herders optimize for specific production goals, is widely used for interpreting harvesting profiles constructed from archaeological remains. Specifically, the milk model predicts the slaughter of the very youngest male animals in order to maximize the amount of milk available for human consumption. For meat-oriented production, the expectation is that male animals will be harvested when they reach their optimal weight as juveniles, and females removed once their reproductive potential has dropped off. An exploitation strategy focused on fiber production entails the gradual slaughter of both male and female animals as their hair production falls off. This production model has been recently expanded by Vigne and Helmer (2007), who have attempted to refine the resolution of Payne's theoretical profiles by adding two new curves, 'Milk B' and 'Meat B', in order to describe additional ways these productive outcomes may be achieved. These supplementary harvesting curves model in greater detail how shifting the timing of animal slaughter impacts the quantity and quality of ante- and post-mortem products, but whether or not it is possible to isolate these harvesting practices in archaeological faunal assemblages at such resolutions remains to be seen.

Since all of the productive models discussed here are calibrated to optimization conditions, they are best considered as heuristic devices that provide a point of reference against which archaeological patterns may be compared. The models described above are based on the herding strategies employed by Middle Eastern pastoralists, who, in contrast to Inner Asian herders, are generally situated in marginalized environments and within the context of sedentary agriculturalists. Recent research using interview data collected from modern Mongolian herders

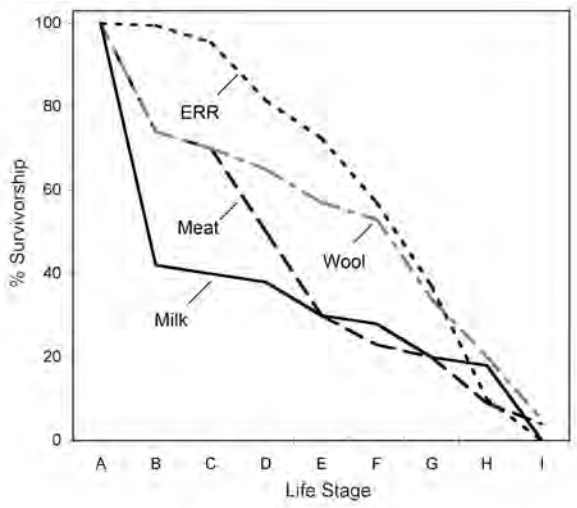


Fig. 1. Harvesting models based on the production of meat, milk, and wool according to Payne (1973). Preliminary model for extreme risk reduction (ERR) based on interview data and preliminary analyses of ethnographic faunal remains recovered from Mongolian winter camps. Life stage corresponds to approximate age groups (A 0–2 months; B 2–6 months; C 6–12 months; D 1–2 years; E 2–3 years; F 3–4 years; G 4–6 years; H 6–8 years; I 8–10 years).

and ageing data obtained from caprine mandibles recovered from winter camp bone assemblages suggest that an additional curve, one reflecting a uniquely Inner Asian harvesting strategy that tends towards fairly extreme risk reduction, should also be considered (Fig. 1)[5]. This practice emphasizes long-term retention of animals so that females and a high proportion of males survive well into adulthood, long after optimal body weight, milk production levels, and fiber growth rates have been achieved.

In choosing this risk reduction strategy, herders store meat and fiber 'on the hoof' for an extended duration in an effort to ensure that their economic base is readily available during times of predictable and unpredictable graze shortage, a condition that negatively impact herds. However, while this strategy lowers overall risk to herders' subsistence base, it can confer lower productive returns over the long term. For example, during the winter months when herder reliance on animal meat and fat is highest, animal body weight is at its lowest. Herders who wait to slaughter animals until this time are faced with markedly diminished off-take relative to harvesting strategies that emphasize earlier kill-off and subsequent processing of meat for storage. Similarly, the quality of fiber production decreases incrementally as sheep and goats age, but energetic intake in the form of limited graze and fodder resources remains the same. However, despite the imbalance between production and intake variables, a herder often chooses to keep very old animals because they can still reliably provide products. Interestingly, this conservative harvesting practice can actually be viewed as a strategy of ultra-delayed returns – one that is designed to take into account foreseeable periods of exceptional shortages that are predictable in their occurrence but unpredictable in terms of onset and severity. Such a strategy has tremendous value in environments where herds may suffer catastrophic losses from sporadic events, e.g. a "zud" winter disaster.

5 C. Makarewicz, Securing resources in shifting pastures: Herder approaches to animal management in the pastoralist landscapes of Mongolia. Unpublished report in possession of author 2009.

Superficially, this conservative harvesting strategy seems so intensely focused on extreme herd security that herders appear unable to increase production beyond subsistence-level and thus are unable to break into more complex economic arrangements. However, for established and skilled herding households, this strategy routinely results in the production of milk, fiber, and live animals in excess of what the household or extended kin group requires for subsistence. This is not to say that Inner Asian pastoralists never employ harvesting strategies that are focused exclusively on extracting either milk, hair, or meat. What is important to emphasize here, however, is that an acutely conservative harvesting strategy concentrating on the retention of a high proportion of animals in a herd until very old ages does not necessarily reflect a narrow focus on herd security at the expense of all other exploitation strategies. Instead, low kill-off may reflect and can reliably result in the production of surplus production of both ante- and post-mortem products, which can then be entered into economies of scale.

An Example from Baga Gazaryn Chuluu

Examination of kill-off profiles constructed from caprine mandibular specimens recovered from Xiongnu burials located in Baga Gazaryn Chuluu (BGC) hints at variation in the harvesting practices employed by herders during this period. Since this preliminary study will focus on harvesting strategies applied to caprine herds, only mandibular tooth wear data for sheep and goats are presented here; a detailed documentation of these faunal assemblages, including skeletal part representation, epiphyseal fusion, and metrical data, are described elsewhere (Makarewicz 2010). BGC 128 is a Xiongnu ring burial dated to 2010±35 uncal. BP and is one of eight graves in a cemetery. The burial contained a wooden coffin, ceramics, and the complete skulls, vertebrae, and extremities representing a minimum number of 23 caprines[6] and three cattle. Mandibular tooth wear data for caprines indicate a wide age range of animals interred in the burial from infant to extremely old animals, although the assemblage is markedly skewed towards very old individuals (Fig. 2). Half of the mandibular specimens belong to animals older than 4–6 years in age, and 30% of the mandibular assemblage can be attributed to animals aged between 8 and 10 years. The presence of newborn animals younger than two months suggests mortuary activities associated with BGC 128 took place during the early spring months. For cattle, tooth wear data indicate the placement of a juvenile, young adult, and mature adult in the BGC 128 burial.

BGC 576 is a single Xiongnu ring burial located immediately northeast of Baga Gazaryn Chuluu that yielded over 485 bone specimens representing a minimum number of 15 sheep, three goats, three cattle represented by a juvenile and two adult animals, and three horse represented by a juvenile, mature adult, and a very old individual. Unusual for a Xiongnu burial in the Baga Gazaryn Chuluu area, BGC 576 contained complete lower forelimbs, e.g. radius and ulna, as well as complete metacarpals. Metric analyses of fused and unfused epiphyseal ends of radii belonging

6 The Minimum number of individuals are as follows: MNI_{sheep}=8; MNI_{goats}=7; $MNI_{sheep/goat}$=8.

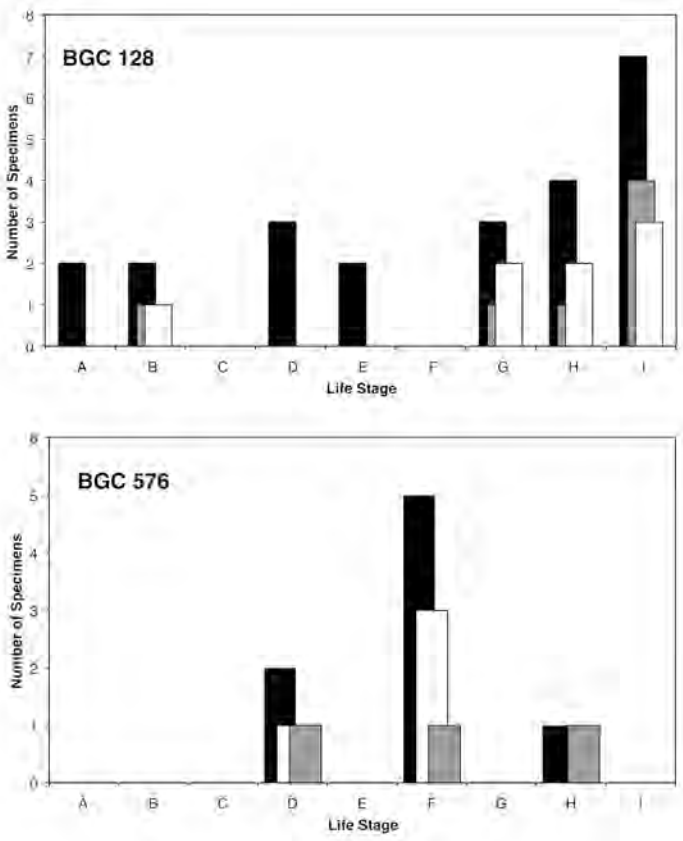


Fig. 2. Kill-off profile for Xiongu sheep/goats (black bars), goats (grey bars), and sheep (white bars) from BGC 128 and BGC 576. Approximate age groups established according to mandibular tooth wear stage (Payne 1973).

to sheep, which are moderately sexually dimorphic so that the unfused bones of juvenile males are the same size or larger than the fully fused bones of adult females (Zeder 2001), indicate that the majority of sheep interred in the burial were adult male animals. Analysis of caprine mandibular tooth wear indicates sheep and goats belonging to several different age groups were interred in BGC 576, although the majority of animals were killed off between 3 to 4 years in age (Fig. 2).

Comparison of the BGC 128 and BGC 576 caprine demographic profiles against the theoretical curves described above (Fig. 1) indicate that very different harvesting strategies with distinctive productive outcomes were being used by herders. The combined sheep/goat survivorship curve from BGC 128 indicates a gradual kill-off of caprines so that over 60% of the theoretical herd survives beyond 4 to 6 years in age. In contrast, the BGC 576 curve reveals two distinct culling peaks, with the first focused on the moderate slaughter of animals aged between 1 and 2 years, followed by a markedly more intense kill-off of individuals aged between 3 and 4 years.

The general pattern seen at BGC 128 of moderately high survivorship of very young and juveniles combined with a pronounced kill-off of old animals is consistent with harvesting strategies of aggressively reducing risk to the herd while emphasizing intensive fiber production. The 'gap' visible in the kill-off profile indicating an absence of individuals aged between 2–3 years in the assemblage is thought provoking. Although this pattern may reflect herder decisions to hold onto animals as part of herd conservation strategy, it seems more likely that this group of prime-aged animals were unavailable for slaughter. Since both male and female animals have reached their highest level of productive potential at this time, caprines in this age group are the

most likely to be entered into economies of scale (Stein 1987; Wapnish/Hesse 1988; 1991; Crabtree 1996), ultimately for the purpose of provisioning other groups within the Xiongnu with animals and their products. Keeping in mind that these conclusions are based on assemblages recovered from mortuary contexts, these harvesting strategies, one suggesting intensive wool production while simultaneously focusing on extreme herd security, and the other possibly indicating the export of prime-aged animal into regional economic systems, aim at surfeit productive outcomes that can be articulated with supra-household, and even regional, economic systems.

Weaning Strategies

Milk provides a renewable, seasonally abundant and calorically rich food source that may be transformed via processing into a variety of long-lasting, storable dairy products that can serve as a dietary buffer during periods when the abundance of other foodstuffs is deficient. Unfortunately, processed dairy goods are generally imagined by some researchers as a product constraint to household use and of limited value in exchange economies (Sasson 1998), presumably due to the assumed perishability of and lack of external demand for dairy products. However, there is a solid body of ethnographic evidence, as well as increasing archaeological evidence, documenting market exchange of dairy products in economically complex agro-pastoralist societies (e.g. Noy-Meir/Seligman 1970; Grandin 1988; Sadler et al. 2010). Moreover, even within pastorally-oriented economies, dairy products are frequently traded and exchanged (Holden et al. 1991; Sandford 1983). The flow of such goods depends on the social organization of the societies through which goods move, the degree of heterogeneity in household level and small-scale cooperative production, and the strategies herders use to acquire milk from lactating females.

Weaning, the practice of manipulating the duration and amount of suckling by young animals, is key to dairy production at both the subsistence and subsistence-plus levels. While the total quantity and quality of milk produced by herds is determined in part by environmental conditions that influence animal health, in particular the abundance of graze, the availability of which can be adjusted through use of additional management strategies such as mobility, herder control of animal age at weaning strongly modifies milk off-take. However, the use of a weaning strategy for the purposes of off-taking milk for human consumption and excess production at sustainable levels involves carefully balancing animal health with pastoral economic goals. In the case of Inner Asia, modern herders employ a weaning strategy that focuses on ensuring infant and lactating female survival rather than maximizing milk off-take for their own use. In Mongolia, herders allow infant sheep and goats to suckle freely throughout the first three months of life, and usually do not begin milk off-take until the summer rains have started in late June to early July, when new plant growth provides young animals with an alternative, nutritious food source. This weaning strategy is in sharp contrast to that used by Middle Eastern pastoralists, who often forcibly wean infant animals at approximately one month in age in order to reserve milk for their own consumption. While the use of such an intensive weaning strategy results in the immediate benefit of abundant dairy availability early in the summer season, the potential for negative outcomes over the longer term is high. Lambs and kids weaned too early in life display lower body weight and are more susceptible to disease compared to animals enjoying a longer

suckling period (Wahome et al. 1994; Malau-Aduli et al. 2003), and consequently, young animals in Middle Eastern pastoral herds routinely suffer high mortality rates due to malnutrition. In comparison, the more conservative weaning strategy utilized by Mongolian herders is very effective in promoting survivorship of the very youngest herd animals. Significantly, the use of this strategy does not necessarily mean that herders sacrifice a facet of their subsistence base. Skilled herders who carefully arrange various husbandry practices that involve maximizing animal exposure to quality graze invariably extract milk from herds in amounts beyond what a single herding household can consume.

Establishing the role of milk production in Xiongnu economies of scale requires the use of a biologically based proxy that can help estimate the productive output of milk available to and used by pastoralists beyond their own subsistence needs. Based on the premise that earlier weaning provides more milk for herder use, shifts in the nitrogen isotopic composition of incrementally sampled tooth dentin provide such a view into this aspect of pastoral production. Nitrogen isotopes values in proteins are determined in part by trophic level, so that a stepwise ^{15}N-enrichment of ~3‰ is often observed with each level up on the foodweb (De Niro/Epstein 1978; Minagawa/Wada 1984). Suckling animals are one step above their mothers, so that weaning will result in a decrease in the nitrogen isotope values of animal tissues (Fogel et al. 1989; Balasse et al. 2001; Balasse/Tresset 2002). The weaning process is recorded in the appositional growth structures of tooth dentin, which, when sampled incrementally and is isotopically expressed as a decrease in $\delta^{15}N$ values from the topmost, youngest portion of the tooth, the tooth crown, to the lowest, oldest portion of the tooth, the root (Balasse et al. 2001; Balasse/Tresset 2002). Although animal age at weaning may be impacted by differences in lactation duration caused by variation in environmental conditions, it may be possible to further detangle environmental and cultural inputs through analyses of other isotope species and morphological markers indicating nutritional stress such as enamel hypoplasia (Niven et al. 2004).

Nitrogen isotopic analyses of caprine first molars, which form before and after the period during which weaning occurs (Hillson 1986), from a modern sheep and goat that were each herded in the Baga Gazaryn Chuluu area (Fig. 3A.B), and from a Xiongnu animal from BGC 576 (Fig. 3D) identified as belonging to either a sheep or a goat, reveal moderate differences in the timing of weaning. For the modern caprines, the initially low $\delta^{15}N$ values observed in the uppermost portion of the tooth formed before birth reflects *in utero* uptake of the mother's plant-based diet, and the general enrichment in $\delta^{15}N$ values displayed by the modern sheep relative to those from goats are likely due to disparities in the feeding behaviors of each individual. Caprines are generalized mixed feeders, but sheep tend to ingest more graze and goats more browse (Balasse/Ambrose 2005). The moderate differences in diet combined with considerable nitrogen isotopic variation in desert-steppe flora of Mongolia likely accounts for this pattern (Makarewicz/Tuross 2006).

Beyond *in utero* signals and broad differences in feeding behaviors, the $\delta^{15}N$ curves for the modern caprines illustrate differences in the weaning strategies used by herders. The sheep was likely permitted to suckle without herder interference, as is suggested by the absence of a decrease in $\delta^{15}N$ values expected with weaning (Fig. 3A). Modern herders will employ this strategy when they are concerned about the health of suckling animals. By diverting nutrient- and fat-laden milk to lambs and kids, herders dramatically improve animal body condition (Rook/Thomas1983). Significantly, this strategy results in the loss of product for that season, and it is most often applied broadly to entire animal cohorts when the security of the herd is so severely threatened that that the future existence of the herd is in question. The moderate drop in nitrogen

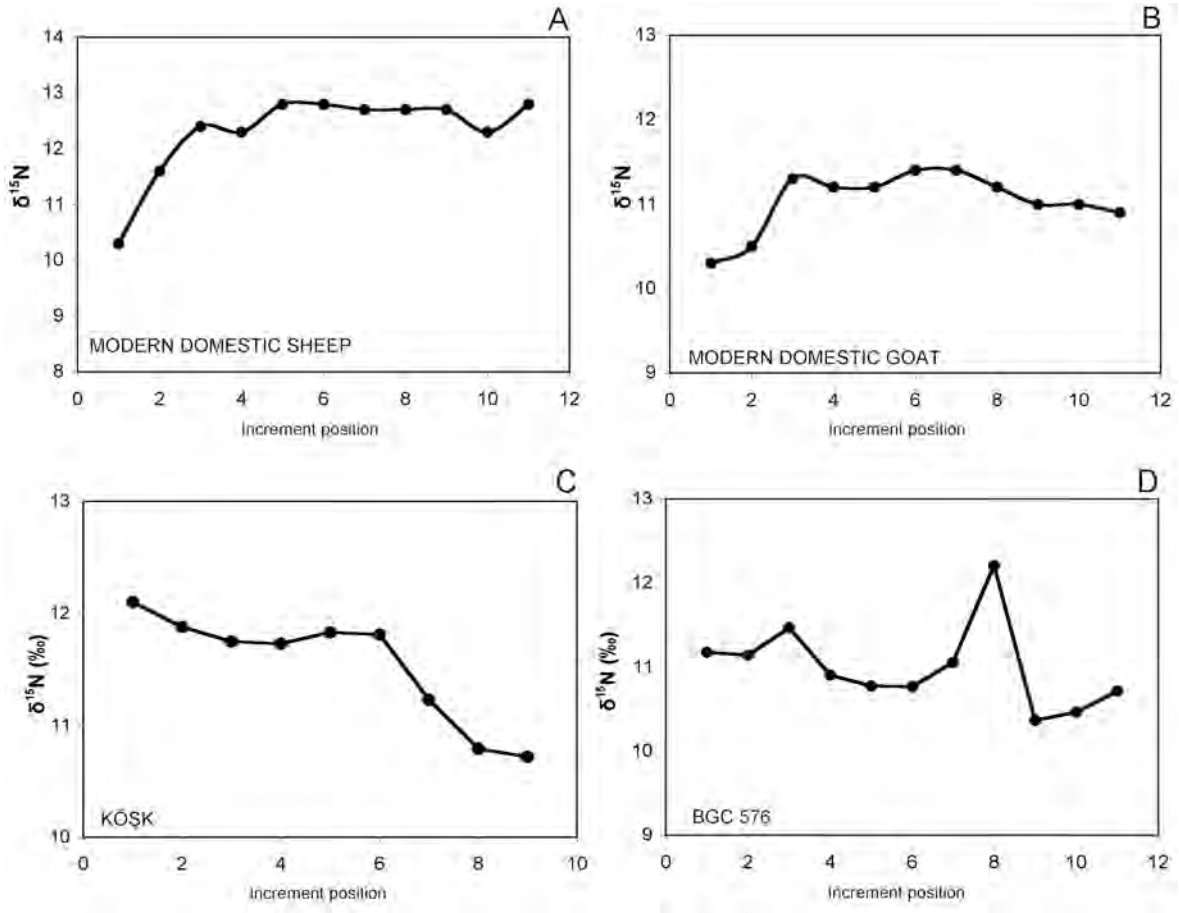


Fig. 3. Patterns of nitrogen ($\delta^{15}N$) isotopic variation in tooth dentin collagen. A a modern sheep from BGC; B a modern goat from BGC; C a Xiongnu caprine from BGC 576; D a Chalcolithic caprine from Köşk Höyük, Turkey. Each increment position represents a band approximately 2 mm in width, with Position 1 representing sampled removed from the topmost portion of the teeth e.g. the occlusal surface.

isotope values seen in the goat molars suggest a relatively early weaning strategy was applied to this animal, although it was likely a relatively gentle one that permitted the animal to suckle while being introduced to graze (Fig. 3B). This strategy is expected for moderate off-take of milk use for household subsistence and supra-household exchange.

Comparison of the patterns of nitrogen isotopic change observed in modern caprines with those yielded by a caprine identified as belonging to either a sheep or goat from Köşk Höyük (Layer I), a Chalcolithic settlement located in Turkey dated to ~5300 to 4800 cal BC, emphasizes the potential range of variation in weaning strategies used in pastoral societies (Fig. 3C). Zooarchaeological analyses of faunas from Köşk Höyük indicates use of mixed pastoral strategies that produced milk, meat, and fiber, but iconographic evidence of bovids being milked suggests that dairy was a key part of the economy (Arbuckle 2006). When juxtaposed against modern BGC caprines, the animal from Köşk Höyük exhibits a clear and marked decrease in $\delta^{15}N$ values suggestive of a relatively early and abrupt weaning strategy where animal access to the teat was severely limited. As a more aggressive weaning practice, this strategy would rapidly increase the availability and quantity of milk, and, when enacted on a sufficient number of animals, has the potential to produce a consistent surplus.

The $\delta^{15}N$ pattern visible in the Xiongnu caprine is not entirely similar to the curves and weaning strategies described above (Fig. 3D), but appears to represent an early start of the weaning process similar to that seen at Köşk Höyük, though with a more gradual reduction of milk intake like that seen in the domestic goat from BGC. This weaning strategy, when applied across herds, might indicate a moderate focus on milk production that would serve household subsistence needs as well as provide some products that could be entered into an exchange system. The nitrogen isotope spike visible towards the bottom of the tooth may be due to ingestion by the animal of plants characterized by high $\delta^{15}N$ values.

Although additional nitrogen isotope curves obtained from caprines with known weaning histories are needed in order to establish a comparative standard against which archaeological patterns can be evaluated, these preliminary examples illustrate how different weaning strategies might be evident in the isotopic record. Moreover, contrary to the supposition that dairy product use is confined to household subsistence because the volume of production is not high enough to breach into extra-mural economies (Bar-Yosef/Khazanov 1992), through use of some these weaning strategies in conjunction with other animal husbandry practices, supra-household milk production can be a regular achievement.

CONCLUSION

These few examples detailing harvesting and weaning strategies serve to demonstrate how herding activities conducted at the household level can result in the consistent excess production of ante- and post-mortem animal products that could then be entered into higher-level economic systems. Household herding practices converge and fold into cohesive pastoral systems that play a critical role in the formation, maintenance, and development of social organization and political complexity. It is likely that these pastoral systems, and the administrative networks they supported economically, alternately competed against and cooperated with each other to work toward some common, presumably political goal. By characterizing pastoral systems through documentation of management strategies that directly measure productive potential (harvesting and weaning) and those that monitor access to landscapes (mobility), we may be able to better define political fluidity and organization within the Xiongnu confederation.

XIONGNU POPULATION HISTORY IN RELATION TO CHINA, MANCHURIA, AND THE WESTERN REGIONS

Christine Lee, Zhang Linhu

Introduction

The Xiongnu were a multiethnic and multilingual nomadic empire and may have been a coherent ethnic entity as far back as the first millennium BC. While the core of the Xiongnu was located in the Khangai Mountains and areas to the east in central Mongolia, the borders of the empire stretched from the present-day areas of Xinjiang in the west, Manchuria in the east, Inner Mongolia to the south, and Lake Baikal to the north. Through their military conquests and alliances, the Xiongnu were able to control the movement of people along the Silk Road and the northern regions of China (Di Cosmo 2002; Honeychurch/Amartüvshin 2006a; Yü 1986; 1990).

Previous studies based on archaeology, history, linguistics, DNA, and physical anthropology have hypothesized on the origins and interactions of the Xiongnu[1]. This study will address the population history of the Xiongnu people using dental nonmetric traits. This research has assembled the largest database, to date, of Xiongnu and neighboring population samples and will allow insight into which populations contributed to the formation of the Xiongnu people.

There are three main hypotheses on the origins of the Xiongnu group. The first hypothesis which has gained wide acceptance among archaeologists in China and Mongolia is that the Xiongnu are descended from the previous local Slab Grave populations in eastern Mongolia. Archaeological studies have deduced this from similarities in grave structure, associated artifacts, and subsistence economy (Batsaikhan 2002, 233; Di Cosmo 2002, 163–166; Törbat 2004, 147; 2006). D. Tumen (2004), using cranial metric traits, found continuity within Mongolia from the Bronze Age through the Iron Age, i.e. Xiongnu, and as far as modern day Mongolians. She concluded that the people in Mongolia had a long unbroken history of cranial metric distinctiveness from the Chinese since the Neolithic period. Keyser-Tracqui and others (2003) conducted mtDNA and Y-chromosome analyses from 62 skeletons found at the Xiongnu cemetery of Burkhan Tolgoi in the Egiin Gol valley, Bulgan aimag in northern Mongolia. The majority of the individuals sampled were of Asian descent, as would be expected of a Xiongnu cemetery.

A second hypothesis suggests that the Xiongnu originated from within northern China. Yü (1990, 120–121), based on historical records, concluded that the Xiongnu originated in the Ordos

1 Alekseev/Gochman 1983; Barfield 1989; Di Cosmo 1999a; 2002; Enoki et al. 1992; Keyser-Tracqui et al. 2003; 2006; Kessler 1993; Kyzlasov 1992; Ma/Sun 1992, 227; Miniaev 1985, 74–76; Psarras 1995, 110-112; So/Bunker 1995; Törbat 2004, 147; Tumen 2004, 311; Yü 1990, 118–119.

Fig. 1. Map of all samples after Lee 2007. 1 Tuchengzi; 2 Longxian; 3 Dashanquan; 4 Shuiquan; 5 Sandaowan; 6 Bei Wei; 7 Lamadong; 8 Sanzuizi; 9 Chengpuzi; 10 Zhenzishan; 11 Xicha; 12 Guoxian Yaozi; 13 Yinniugou; 14 Takhiltyn Khotgor; 15 Gol Mod 2; 16 Noyon Uul; 17 Ögiinuur; 18 Tevsh Uul; 19 Kharkhorin; 20 Delgerkhaan; 21 Kholonbuir; 22 Ongon; 23 Taojiazhai; 24 Nileke; 25 Chandman'. Red dots mark the Xiongnu sites.

region of Inner Mongolia, or Manchuria. S. Miniaev (1985) has hypothesized that the Xiongnu may have descended from the Upper Xiajiadian culture in Inner Mongolia based on similarities in burial type. Ma and Sun (1992) suggest that the Xiongnu originated from Shaanxi province in China and then pushed into Inner Mongolia and Mongolia. Psarras (1995, 110) suggests continuity between Xiongnu and Xianbei burials, implying the adoption of Xiongnu cultural traits by the Xianbei and possible intermarriage. Another possible form of interaction in the region is revealed by Linduff's (2008) gender study of Xiongnu sites in Inner Mongolia. Her mortuary analysis shows that female burials are from the local population and the males are migrants. This pattern is consistent with a military expansion into a new area.

The third hypothesis suggests that the Xiongnu originated to the northwest of modern day Mongolia, from southern Siberia in Central Asia. Psarras (1995) links the structures and burial assemblages of Xiongnu burials to the Scythian/Saka burials of Central Asia. This type of burial may originate from the Afanasievo or Karasuk culture in southern Siberia (Askarov et al. 1992). Due to long term economic and political alliances with this region (Di Cosmo 2002, 249–251; Yü 1986, 391–392), the Xiongnu may have had some admixture with non-Asian populations from the West.

No.	Name	Province	County	#	Dates
	CENTRAL PLAINS				
1	Tuchengzi	Inner Mongolia	Huheaote, Helinge'er	153	475 BC–221 BC
2	Longxian	Shaanxi		94	475 BC–221 BC
	NORTHEAST				
	UPPER XIAJIADIAN				
3	Dashanquan	Inner Mongolia	Chifeng. Kalaqm	19	770 BC–475 BC
4	Shuiquan	Inner Mongolia	Chifeng. Aohan	33	475 BC–221 BC
	XIANBEI				
5	Sandaowan	Inner Mongolia	Ulaan Chag. Chahe'er	13	25 BC–220 AD
6	Bei Wei	Shanxi	Datong	26	386 AD–534 AD
7	Lamadong	Liaoning	Chaoyang, Beipiao	60	337 AD–410 AD
	KITAN				
8	Sanzuizi	Inner Mongolia	Chifeng, Nmgcheng	38	916 AD–1125 AD
	MEDIEVAL INNER MONGOLIA				
9	Chengpuzi	Inner Mongolia	Siziwangqi	18	1279 AD–1368 AD
10	Zhenzishan	Inner Mongolia	Duolun	37	1279 AD–1368 AD
	NORTH				
	ORDOS				
11	Xicha	Inner Mongolia	Huheaote. Qingshuihe	14	1300 BC–1000 BC
12	Guoxian Yaozi	Inner Mongolia	Ulaan Chab, Liangcheng	5	770 BC–221 BC
13	Yinniugou	Inner Mongolia	Ulaan Chab, Liangcheng	31	770 BC–221 BC
	MONGOLIA				
14–18	Xiongnu	Multiple		132	300 BC–200 AD
19–22	Mongol	Multiple		65	1100 AD–1500 AD
	NORTHWEST				
23	Taojiazhai	Qinghai	Xining	75	206 BC–420 AD
	WESTERN REGIONS				
24	Nileke	Xinjiang	Yili, Pangkeke	106	500 BC–221 BC
25	Chandman'	Uvs	Ulaangom	97	770 BC–475 BC
	TOTAL			1169	

Tab 1. The total of sites from 1st millennium BC through 1st millennium AD (after Lee 2007). Numbers correspond to numbers on Fig. 1.

Materials and Methods

For the original study of several periods (Lee 2007) a total of 1,169 individuals were scored from 18 archaeological sites (Tab. 1)[2]. In the present study I will only focus on relevant aspects for the Xiongnu period. The comparative site samples from the 1st millennium BC through 1st millennium AD consist of 726 individuals from 13 sites. Most of the comparative sites were chosen based on a probability of interaction with the Xiongnu due to geographic proximity, economic interactions, political alliances or warfare (Fig. 1). The Xiongnu period (300 BC–200 AD) sample consists of 132 individuals collected from 38 sites all over Mongolia. The samples from aristocratic cemeteries studied here include individuals from the earliest excavations at the sites of Noyon Uul (Rudenko 1969) and Takhiltyn Khotgor (Navaan 1999; Volkov/Dorzhsüren 1963) as well as more recent excavations at the site of Gol Mod 2 (Miller et al. 2006). The individuals

2 These collections are housed at two institutes in Mongolia, the National University of Mongolia and the National Museum of Mongolia and two institutes in China, the Institute of Vertebrate Paleontology and Palaeoanthropology, Chinese Academy of Science, Beijing and the Research Center for Chinese Frontier Archaeology, Jilin University, Changchun.

from the aristocratic square tombs are probably culturally and ethnically Xiongnu. The individuals from the common circular burials are culturally Xiongnu but ethnically representative of the people within the greater Xiongnu empire. While each site sample represents only a few individuals, Xiongnu cemeteries can contain over 200 burials.

The Chinese population is represented by the sites of Tuchengzi (Nei Menggu 2006) and Longxian. The Tuchengzi site (475–221 BC), Inner Mongolia, is a Han Chinese military garrison stationed on the frontier from the Zhao state (Gu 2007). The Longxian site (475–221 BC), Shaanxi province, is located within the borders of the Qin state. These samples are included to test if the Xiongnu were absorbed by the Chinese after their defeat in 50 AD.

The Ordos sample includes the sites of Xicha (1300–1000 BC) (Nei Menggu/Qingshuihe 2001), Yinniugou (770–221 BC) (Nei Menggu 1982; Nei Menggu et al. 2001), and Guoxian Yaozi (770–221 BC) (Nei Menggu 1989), Inner Mongolia. The Ordos archaeological sites in Inner Mongolia exhibit non-Chinese artifacts or lifeways and are believed to represent nomadic people from central Mongolia (Yang 2004). Recently many archaeologists have argued that these sites are local populations which have adopted some cultural aspects of the Xiongnu, without evidence of a population migration (Psarras 1995, 118). Burials are within wood coffins with a burial niche at the head. Offerings such as cattle, sheep, horse, deer bones, and ceramics were placed within the burials. Both burial construction and offerings suggest a relationship with neighboring nomadic cultures (Di Cosmo 1999a, 888).

The Upper Xiajiadian archaeological culture is represented by two sites Dashanquan (1000–300 BC) (Zhongguo et al. 2002) and Shuiquan (475–221 BC) (Suo et al. 2005), Inner Mongolia. These samples were included to test the Miniaev (1985) hypothesis the Xiongnu were descended from the Upper Xiajiadian.

The northwest China sample is represented by the site of Taojiazhai (206 BC–420 AD), Qinghai province (Qinghai 2007). This site represents the local Qiang people and an influx of Han Chinese immigrants (Zhang 2009). It is included in this study as this area was controlled by the Xiongnu and Han Chinese at various times (Debaine-Francfort 1995, 342).

The Xianbei sample is represented by three sites from northeast China. The earliest sample is from the Sandaowan site (25 BC–220 AD), Inner Mongolia (Wei 2004). This site dates to the Eastern Han Dynasty, while the Xianbei were part of the Xiongnu empire. Burial artifacts included ceramics, sheep bones, Chinese mirrors, bronze plaques, and bone ornaments (Wei 2004). The second Xianbei sample is from the Lamadong site (337–410 AD) (Chen 2009; Wan 2004) Liaoning province and dates to the period of disunion after the fall of the Xiongnu empire and Han Dynasty (Liaoning 1999, 154–155; Twitchett/Tietze 1994, 44–47). The final Xianbei site is from Bei Wei (386–534 AD), Shanxi province, the capital of the Northern Wei dynasty.

Regions to the west of the Xiongnu core are represented by the sites of Chandman' (Novgorodova et al. 1982) and Nileke (Liu 2002; Zhang 2009). This area was controlled by the Xiongnu and is possibly where they retreated after their final defeat (Yü 1990, 147–149). The Chandman' site (700–400 BC) represents the Altai mountain Scythian/Saka archaeological culture, Uvs aimag, western Mongolia. Later the area was absorbed by the Xiongnu empire. The Nileke site (550–221 BC) belongs to the Tianshan mountain Scythian/Saka culture. This site is located in northwestern Xinjiang, near the border with Kazakhstan. It is thought to have been a copper producing center (Di Cosmo 1999b, 944; Liu/Li 2002, 109–110) and is located in an area where the Xiongnu may have retreated after their final defeat (Yü 1990, 149).

Dental Nonmetric Traits

The present study uses a fairly new methodology for this area, dental nonmetric traits. The majority of previous population studies in China and Mongolia used cranial metric or DNA data to detect population trends (Fu et al. 2007; Gu 2007; Keyser-Tracqui et al. 2003; 2006; Tumen 2004). Dental traits are genetically controlled variations which occur on the crown or roots of deciduous and permanent maxillary and mandibular teeth. Sources of dental nonmetric variation include an abnormal number of teeth (congenital absence of the third molar, supernumerary teeth), unusual shape or size (extra cusps and roots, peg incisors, cusp 7), abnormal enamel formation (odontomes, enamel extensions), and disruptions in tooth eruption (winging, diastema) (Scott/Turner 1997).

Dental Trait	Key tooth	Breakpoint
Maxilla		
Interruption Groove	Incisor2	1
Tuberculum Dentale	Incisor2	1–6
Hypocone	Molar2	0–1
Cusp 5	Molar1	1–5
Carabelli'sCusp	Molar1	2–7
Enamel Extension	Molar1	1–3
Root Number	Molar2	3
Root Number	Premolar1	2
Peg/Absence	Molar3	1–2
Mandible		
Cusp Number	Premolar1	2–9
Cusp Number	Premolar2	2–9
Y-Groove	Molar2	Y
Cusp Number	Molar1	6
Cusp Number	Molar2	4
Deflecting Wrinkle	Molar1	3
Protostylid	Molar1	2–7
Cusp 6	Molar1	1–5
Cusp 7	Molar1	1–5
Root Number	Molar1	3
Root Number	Molar2	1
Root Number	Premolar1	2

Tab. 2. Dental traits used in this study.

Previous dental nonmetric studies have detected trait complexes which can distinguish among various populations of the world such as European (Ullinger et al. 2005), Sub-Saharan African (Irish 2006), Central Asian (Haeussler/Turner 1992), and East Asian (Turner 1987; Lee 2007). The East Asian trait complex includes shovel shaped incisors, three-rooted lower molars, congenitally missing third molars, and five-cusped lower molars. The European trait complex includes double-rooted premolars, Carabelli's cusp, double-rooted canines, and four-cusped lower molars. This study area should contain populations which exhibit the Central Asian and East Asian dental complexes. The Central Asian dental complex contains dental trait frequencies between East Asian and European population dental trait frequencies.

21 dental nonmetric traits specific to discerning among Asian populations were collected using the Arizona State University dental anthropology system. The dental plaques assist in scoring each trait's expression on a numerical scale from 0–9. The results are then divided into presence or absence for each trait. The breakpoint for presence of a trait is standardized from previous dental nonmetric population history studies (Tab. 2). The key tooth scored

for each trait is based on the most genetically stable in its field (Turner 1990; Scott/Turner 1997).

Statistics

The mean measure of divergence statistic (MMD) was developed by C. Smith (Berry/Berry 1967; Sjøvold 1977). It calculates the phenotypic differences between two samples at a time. The MMD result between two populations is considered significant when the MMD is equal to or greater than twice its standard deviation (Sjøvold 1973). The MMD is usually modified by the Freeman-Tukey transformation suggested by Green and Suchey (1976) to correct for small sample sizes and trait correlations. The original MMD scores were multiplied by 100 to generate whole number results. MMD scores from 0–9 can be read as indicating the populations are fairly similar and probably share a common ancestry, 10–19 moderately dissimilar, and over 20 they are distinct unrelated populations (Hawkey 1998). The mean measure of divergence scores will then be used in cluster analysis and multidimensional scaling to gain a better visual representation of their interrelationships.

Results

The mean measure of divergence results (Fig. 2) show a complex set of interactions in northern China. The Xiongnu are similar to the Taojiazhai samples. They are closely related to the Tuchengzi, Chandman, and Nileke samples. The Xiongnu do not appear to be related to the Upper Xiajiadian or Ordos populations. The close relationship between the Xiongnu and northwestern China Taojiazhai may be due to a common shared ancestor. The relationship with Tuchengzi may be due to some admixture between the Han Chinese and the southern Xiongnu. The Chandman and Nileke samples show some admixture with the Xiongnu, possibly indicating longstanding interaction between these peoples.

The Inner Mongolian samples are closest to each other, supporting population continuity within the region, with limited admixture from neighboring populations. The Han Chinese Tuchengzi and Longxian are related to each other due to a shared common ancestry. The Taojiazhai sample is close to the Chinese samples due to a large amount of Chinese migration and admixture. The largest MMD scores are from the non-Asian Nileke and Chandman sites. These are the two most genetically distinct populations compared to the other samples.

Cluster analysis was performed to give a picture of the relationships among the samples (Fig. 3). The results show four separate clusters or possible gene pools. The first cluster is comprised of the Xiongnu. The second cluster includes the Tuchengzi, Longxian, and Taojiazhai representing the Han Chinese and the Qiang people. The third cluster of sites is located in Inner Mongolia. The non-Asian Chandman and Nileke sites comprise the last cluster. These four clusters show population continuity within each region, with little admixture among regions.

Finally the MMD scores were plotted using multidimensional scaling (Fig. 4). Multidimensional scaling separates the samples into five groupings. The first grouping comprises the Xiongnu. The second grouping includes the Longxian, Tuchengzi, and Taojiazhai samples. The third group is made up of Chandman and Nileke. The samples from Inner Mongolia are further divided into two subgroupings. The Xianbei and Upper Xiajiadian samples are closely related.

	MON	XIO	KIT	MIM	XIA	TUC	LON	UPX	ORD	TAO	CHA	NIL
Mongol		2	0	7	7	9	4	5	7	3	3	7
Xiongnu			0	9	6	4	6	11	8	2	3	3
Kitan				4	2	1	6	2	4	4	2	0
Medieval IM					4	9	5	2	6	12	5	10
Xianbei						8	7	0	3	5	11	16
Tuchengzi							4	6	15	4	15	18
Longxian								6	14	5	14	19
Upper Xiajiadian									0	3	13	22
Ordos										10	5	13
Taojiazhai											12	19
Chandman'												5
Nileke												

Fig. 2. Mean measure of divergence (MMD) results.

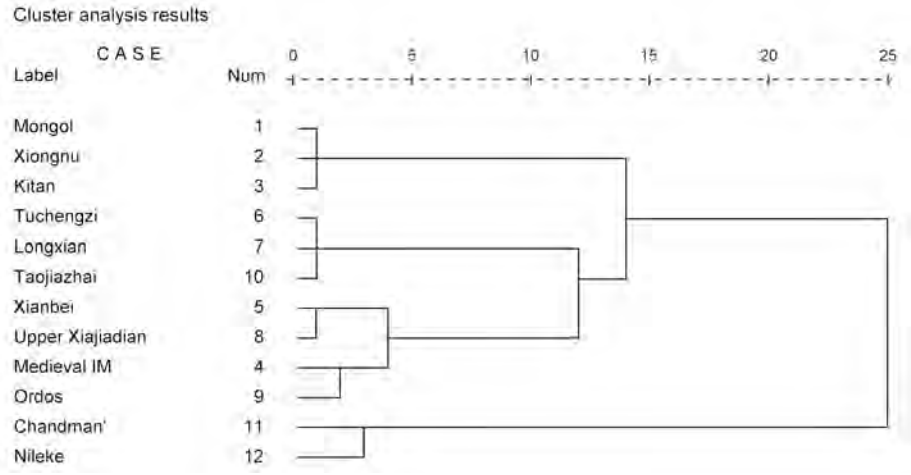


Fig. 3. Cluster analysis results.

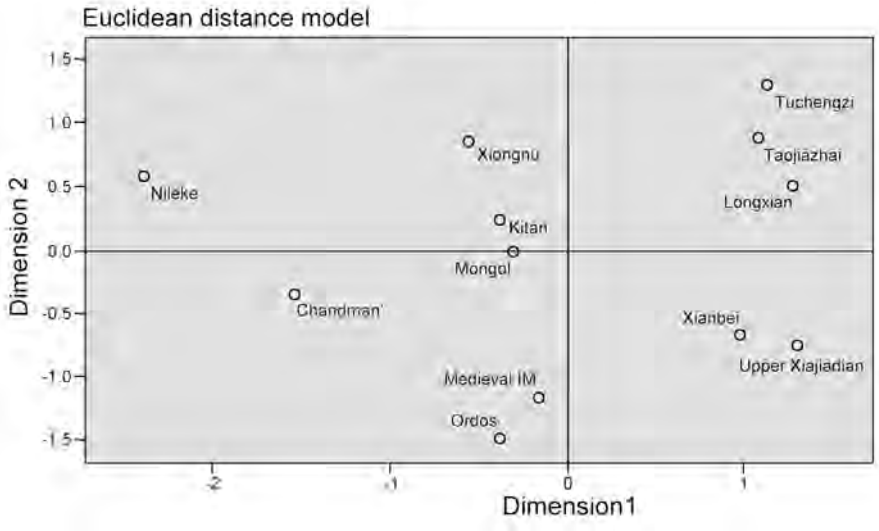


Fig. 4. Multidimensional scaling results.

The last group includes the Ordos samples. All of the Asian samples are closer to each other than to the non-Asian samples. Multidimensional scaling results again show population continuity within their respective regions through time.

CONCLUSIONS

The dental nonmetric traits reveal several patterns of population movement through time in northern China and Mongolia. The strongest factor affecting population interaction in this study was the geographical proximity of the archaeological sites. The three samples sites of this study that lie outside of China proper, Chandman', Nileke, Taojiazhai, show some admixture with the Xiongnu. It is possible that the western frontier of the Xiongnu empire was more permeable than the eastern frontier. This is an interesting finding as Chandman' and Nileke are non-Asian sites but interacted with the Xiongnu more than many other Asian populations. These two sites and Taojiazhai were dissimilar from the Xiongnu in language, material culture and subsistence strategies. It is possible that this fluid movement of people is tied to the Silk Road trade routes. The Xiongnu had a limited amount of contact with the Chinese. While the results do not disprove some interaction between the Xiongnu and the Han Chinese, the amount of Xiongnu who did intermarry with the Han was negligible.

The Xiongnu are not closely related to the Xianbei, Upper Xiajiadian, and Ordos samples. This implies that the barrier to intermarriage with the populations represented by the eastern samples was much stronger than to non-Asians, Qiang (proto-Tibetan), and Chinese. This may be evidence of a political barrier since they had similar subsistence strategies and material culture, and language. All of the results shows the Xiongnu have no genetic relationship to the Upper Xiajiadian sample. The data also suggest that after the Xianbei conquered the Xiongnu, there was little intermarriage between these populations. Finally, the populations within the Ordos area did not originate among the Xiongnu. While the Xiongnu may have expanded southward to incorporate the Ordos region, they did not contribute genetically significantly to the local populations. This supports the appearance of Xiongnu cultural traits in Inner Mongolia and Manchuria was the importation of objects and technology, but not a migration of Xiongnu people.

Unfortunately the Bronze Age population samples of Mongolia, Slab Grave and Khirigsuur, are too small for statistical analysis. However some information on the origins of the Xiongnu can be discussed. The Xiongnu are not closely related to the populations from the Central Plains, Inner Mongolia, or Manchuria, therefore their ancestors probably do not originate from these regions. The Xiongnu are probably a local development from within Mongolia dating back at least to the Bronze Age, Slab Grave burials (1200–400 BC). It is unclear where they may have resided before this time. The Xiongnu may have already resided in Mongolia during the Neolithic period or earlier. However, until more skeletal remains are located within Mongolia from these earlier time periods, this question cannot be explored further at this time. The other possibility which has not been disproven yet is the Xiongnu originated from Central Asia or southern Siberia. Bronze Age and Iron Age comparative samples from Russia and Kazakhstan are needed to explore this hypothesis further.

GRAVE MATTERS: RECONSTRUCTING A XIONGNU IDENTITY FROM MORTUARY STONE MONUMENTS

Erik G. Johannesson

Introduction

The identification of peoples and individuals is an integral component of archaeological research, particularly mortuary archaeology, since most analyses become immaterial, or at least less meaningful, if the subjects under investigation are not known. As a result archaeological materials are often attributed to particular groups of people thought to be representative of distinct social or ethnic identities (Jones 1997, 2; Agbe-Davies/Bauer 2010, 20). As some archaeologists have asserted (Insoll 2007, 1) one might question if there is any type of archaeological inquiry that is not in some way concerned with identity. Hence, in a volume on the Xiongnu there is an implicit question of what that term actually means and represents. In this chapter I will discuss the interpretation of archaeological identities in the context of Xiongnu archaeology. It is not my intention to discuss the historical evidence of the polity that the Chinese referred to as the Xiongnu, but rather how the material culture regimes of this polity reveal important clues about the identity of the people who produced them. In other words, what does the material itself, the archaeological signature that archaeologists today refer to as Xiongnu, suggest about the construction and reconstruction of identities during Late Iron Age in Mongolia?

Based on fieldwork conducted at Baga Gazaryn Chuluu in Dundgov' aimag of Mongolia, I contend that mortuary practices during the Xiongnu period are indicative of a political economy that normalized and standardized funerary ritual. This standardization in turn created some of the material commonalities and characteristics that we now identify as Xiongnu. Hence, I argue that the term Xiongnu should not imply ethnic affiliation, but instead denotes material congruence in ritually and politically oriented materials. An inquiry of this kind must also consider the social backdrop, against which these identities were created. Therefore I will also include a discussion on the material records of the Late Bronze and Early Iron Age that precede the formation of the Xiongnu polity in order to identify continuities and discontinuities of the latter with preceding periods that may be indicative of changes in social practice related to identity formation.

Identity and Mortuary Monuments at Baga Gazaryn Chuluu

Baga Gazaryn Chuluu (BGC) is a constellation of granite cliffs and ridges measuring approximately 85 km² situated in a broad expanse of desert steppe just north of the Gobi Desert (Fig. 1). Between 2003 and 2008 the Baga Gazaryn Chuluu Archaeological Survey Project conducted

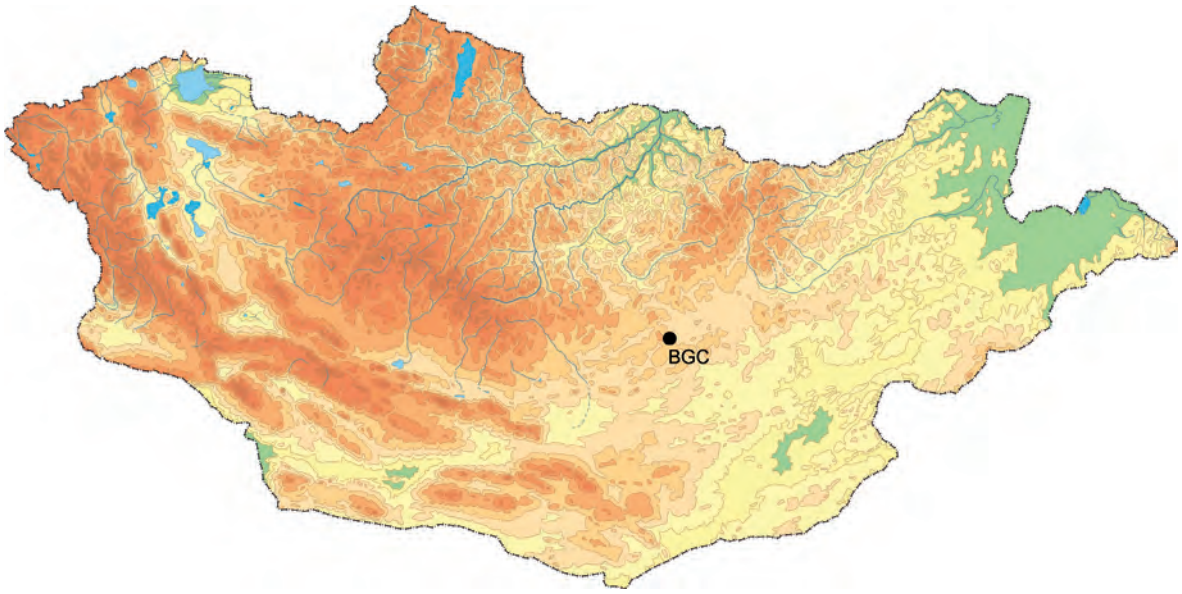


Fig. 1. Location of Baga Gazaryn Chuluu (BGC).

systematic intensive pedestrian survey of approximately 240 km² of BGC and its hinterland in addition to extensive excavation (Amartüvshin/Honeychurch 2010). The purpose of the project was to identify, catalogue, and document archaeological sites in the area and to create a comparative database for mortuary stone monuments in Mongolia. At the project's conclusion in 2008 roughly 1,750 archaeological sites had been identified of which 876 could be assigned to the Middle to Late Bronze and Early Iron Ages (roughly 1500–200 BC). A qualitative assessment of these sites suggests that Xiongnu burials represent a conspicuous disruption of previous mortuary traditions at BGC and are intentionally placed apart from preceding monuments. In comparison to Bronze Age mortuary monuments, whose structure and composition are extremely diverse, Xiongnu graves of the Late Iron Age exhibit considerable uniformity, a greater investment in funerary assemblages, and a diminishment of visibly prominent features. These observations have significant implications for assessing Xiongnu identity at BGC, and consequently elsewhere in Mongolia, especially when viewed against the backdrop of the formation of a centralized Xiongnu polity and any accompanying regional socio-political change.

Identity and historical lineage has been a central element in archaeology since its earliest inception. Throughout the history of archaeology, material remains have been attributed to various "peoples" and historical groups while historical genealogies have been created in attempts to link modern societies with their assumed primordial origins. Over the years, the orientation of research has changed and increased emphasis has been placed on social actors' self-identification, processes involved in the construction of group boundaries, and interaction between socio-cultural groups, and investigations have asserted that the nature of identities is multivalent and dynamic depending much on the historical situation[1].

1 An abundance of literature exists on this topic; see for example Pohl/Reimitz 1998; Pohl 1999; Gillett 2002, as well as earlier works, including Radcliffe-Brown 1965; Leach 1965; Evans-Pritchard 1970; Bergquist et al. 1975; Bourdieu 1977; Giddens 1979; Fowler/Fowler 1986; Hides 1996; Härke 1997; Jones 1997; Fardon 1987; Handler 1988; Rowlands 1994; Gillespie 2001; Insoll 2007; Sanz et al. 2008.

In the context of Mongolian archaeology, material congruence during the Xiongnu era does not denote that people are ethnically "Xiongnu", but rather that they act in ways that produce a seemingly uniform material signature. Assessing identity during the preceding Late Bronze and Early Iron Ages in Mongolia (1500–200 BC) is further complicated by the fact that the bulk of archaeological materials are derived from mortuary contexts. Mortuary remains occupy a particular, if not unique, role for reconstructing the identity of the deceased as well as that of attendant mourners and society at large, which may be reflected in the choices enacted in the construction of graves, placement of accompanying objects, and arrangement of human remains. Mortuary practice thus represents an important nexus in which the identity of the deceased, as well as that of the surviving community, can be reaffirmed or transformed. However, it should be noted that the inherent symbolic nature of mortuary contexts renders straightforward explanation and assessment of identity problematic.

In light of this discussion, mortuary monuments at BGC, and by extension elsewhere in Mongolia, cannot be directly attributed to specific ethné or peoples. The term Xiongnu should not be construed as an ethnonym to qualify Xiongnu material culture or to connote historical genealogy. Xiongnu mortuary monuments are instead best viewed as material manifestations of social structure and ideology on display in funerary ritual. These are, of course, related to ethnicity, but not in a direct way since both are affected by social actions rather than "social beings". Similar social norms, symbolism, and rituals, especially as pertains to power, can and are adopted by groups of various tribal or ethnic affiliation (for examples see Earle 1997; Stein 1998) for a host of different reasons. Therefore, the appearance of Xiongnu mortuary monuments involves human actors adopting new frameworks of reference in regard to mortuary ritual and ideology which need not have anything to do with ethnicity. Instead, given the symbolic nature of burials and their innate association with ritual, uniformity in mortuary practice during the Xiongnu period is more appropriately associated with ideological and political identity. This is even more probable since Xiongnu material is also associated with the formation, during the late Iron Age, of a strong political entity in Mongolia. These points are perhaps best illustrated by turning to the archaeological record itself.

Late Bronze and Early Iron Age Mortuary Monuments at BGC

The Late Bronze to Early Iron Age transition (ca. 1500–200 BC), which led to the formation of the Late Iron Age Xiongnu polity, represents an archaeologically complex time period. The full range and distribution of mortuary monuments of these periods is still not fully established across Mongolia, but there are arguably three dominant monument types: khirigsuurs, slab burials, and eventually the circular tombs of the Xiongnu. These monuments are found across Mongolia and southern Siberia and co-occur at BGC as well. As of 2008, 340 khirigsuurs, 287 slab burials, and 165 Xiongnu circular tombs have been identified at BGC. In order to contextualize the presence of these monuments at BGC and their association with particular identities, it is necessary to also describe them inclusively as they occur regionally across Mongolia.

Khirigsuurs are monuments comprised of a central stone mound of unaltered rocks of varying sizes. The central mound is often surrounded by a circular or square fence of aligned stones, although some mounds lack this feature. In some instances, satellite features of small mounds of

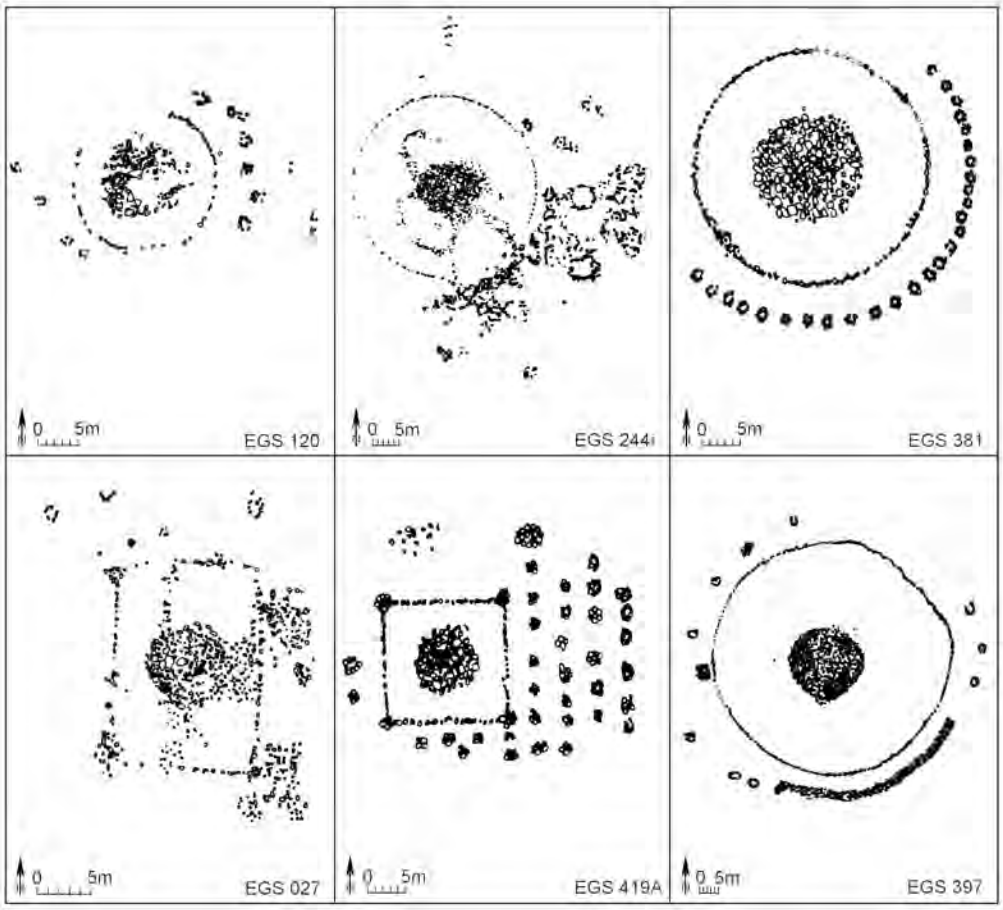


Fig. 2. Examples of some of the variability possible in khirigsuur construction (after Wright 2007, 360).

rocks or small circular arrangements of rocks – the latter of which have contained crushed burned bone, larger faunal remains, and ceramics – are found outside this perimeter fence. The diameter of khirigsuurs, including the perimeter fence, average in size from 10–40 m, but can in some cases can be substantially larger (e.g. Allard/Erdenebaatar 2005, 3). Despite similar vocabularies, structural variability is a defining characteristic of khirigsuurs. They exhibit tremendous diversity in their construction, which can manifest in the presence or absence of perimeter fences, the circular or quadrangular shape of these fences, the presence of additional mounds at the corners of square perimeter fences, the types, distribution, and number of satellite features, the filling in of the space between the central mound and the perimeter fence with small stones, and additional idiosyncratic features (Fig. 2). The diversity inherent in khirigsuur construction across Mongolia and its potential impact on interpretation is exemplified by various attempts to classify these monuments locally resulting in several "types" of khirigsuurs being used by different archaeologists[2]. This variability in both structure and definition encumbers identification of temporal or spatial horizons of khirigsuur construction across Mongolia. Nonetheless, broadly speaking, this is a persistent mortuary tradition that endures from ca. 1500–800 BC.

2 E.g., Wright 2006, 246; Frohlich et al. 2008, 95; Houle 2010, 14; Jacobson-Tepfer et al. 2010, 16.

There appears to be an overarching regional understanding of what constitutes a khirigsuur and how to build one, but with a range of available choices in the precise manner of their construction and composition (Wright 2006, 261; 2007, 363). Khirigsuurs can thus be said to constitute a loose architectural narrative in mortuary practice that is understood regionally but enacted and contextualized locally in different ways.

Allard and Erdenebaatar (2005, 3) have noted the presence of horse heads in the satellite mounds around the larger khirigsuur monuments in Khanui Valley of central Mongolia, most notably at Urt Bulagyn, but this phenomenon does not appear to be replicated in satellite features elsewhere in Mongolia. The burials beneath the central mounds of these monuments are comprised of a shallow pit or stone lined cist usually oriented east to west. The funerary assemblages of khirigsuurs are rarely extensive and not particularly diverse. In fact, Frohlich and others (2008, 103) argue that in Khövsgöl aimag of north-central Mongolia, khirigsuurs contain no artifacts at all. Furthermore, the relatively shallow depth of these burials in conjunction with adverse taphonomic processes and extensive pillaging episodes have often resulted in the conspicuous absence of any materials, even human remains. Consequently there is a general dearth of knowledge pertaining to khirigsuur funerary assemblages and associated mortuary rituals, and instead the majority of research has focused on the construction and placement of the monuments themselves (e.g. Wright 2007; Houle 2009). It should also be noted that khirigsuurs are not the only Bronze Age mortuary monuments in Mongolia. Quadrangular burials[3] and stone mounds dating to this period have been found throughout Mongolia and southern Siberia. Another seldom researched monument, the so-called shape-burial, is also found interspersed across Siberia, eastern Mongolia, and Inner Mongolia (Amartüvshin/Zhargalan 2008, 85). Shape-burials are characterized by a surface demarcation of rocks in a shape resembling an "hour glass", which covers a shallow burial pit in which the deceased is placed face down with the head oriented to the east. These monuments have been dated to 1200–800 BC, which makes them contemporaneous with khirigsuurs, but the relationship between these monument types remains unknown.

Khirigsuurs are found in abundance at BGC and occur throughout the research area both individually as well as in small clusters. The placement of these monuments takes advantage of the natural topography of the area to maximize their visual prominence in the landscape. They are located in and along valleys, ridgelines, bluffs, and at the *termini* of ridge noses. Upon traversing the landscape, khirigsuurs are readily visible from great distances and appear to be constructed towards that end – i.e., they were built to be seen and experienced by people who lived in or traveled through the area and can thus be viewed as commemorative devices. The variability in khirigsuur construction noted elsewhere in Mongolia is repeated at BGC and mounds are found with both square and circular perimeter fences, as well as some without. Satellites, though not common at BGC, are found at some khirigsuurs and are sometimes found to be "shared" between one or more khirigsuurs. The range of construction at BGC is so diverse that monuments originally believed to belong to later periods were upon excavation determined to be khirigsuurs of the Bronze Age. Although several diagnostic ceramics have been recovered, no human remains have been found in the central mounds or any of the satellites excavated. Some isolated osteological elements of faunal remains have been recovered, but none resembling anything akin to the abundant horse crania found in the Khanui valley. The lack of osteological materials at BGC is not surprising, however, given the relatively shallow depth of khirigsuurs and

3 The term most often used in Mongolian literature is "dörvölzhiin bulsh" – see definition below.

Fig. 3. Baga Gazaryn Chuluu. Slab burial.

overall poor preservation of finds in the area. Nevertheless, in spite of poor taphonomic processes, artifacts retrieved from khirigsuurs and accompanying satellites cannot be said to be representative of extensive funerary assemblages.

64 shape-burials have also been identified throughout the research area, and in 2007 a quadrangular burial was, upon excavation, found to be contemporaneous with khirigsuur construction, dating to ca. 1200 BC. This inhumation burial was oriented east to west, was very shallow, and was accompanied by very fractional remains of a sheep, a cow, and a horse. The presence and date of this burial in conjunction with shape-burials suggests that alternative mortuary practices and monuments existed concurrently with khirigsuur construction at BGC during this period. However, given the poor chronological resolution of these burial types, not only at BGC but throughout Mongolia, the prevalence of such alternative burials is unclear. What is significant is that these alternatives existed, and such alternatives imply that identity, whatever it may have been, could in some instances be expressed differently in mortuary practices.

Khirigsuurs become less prevalent around 800 BC at which time a new mortuary tradition, the slab burial, emerges in central and eastern Mongolia. As the name suggests, slab burials are graves that are composed of standing stones placed in a quadrangular arrangement above a shallow burial pit oriented east to west (Fig. 3). Slab burials can range in size from 1.5–4 m, but can be substantially larger with a length of 10 m and slabs reaching as high as 2 m above the ground surface[4]. Consequently, this raises the question of how these monuments are designated as a

4 It should be noted here that there is a difference in classification and meaning between the term "slab burial" in English and its Mongolian counterpart, "dörvölzhiin bulsh", literally meaning "quadrangular burial". This is significant as the English terminology implies the presence of upright slabs as a defining characteristic of these monuments whereas the Mongolian designation is slightly more generalized.

matter of archaeological practice and in what way, if at all, this impacts the local and regional identification and distribution of these monuments.

A number of archaeologists have noted a spatial affinity between khirigsuurs and slab burials (Tsybiktarov 2003, 91; Honeychurch et al. 2009, 339). Slab burials are often found in association with khirigsuurs and can in some cases be found incorporated into the khirigsuur complexes themselves either as additional satellites or along or just outside the perimeter fence. When excavated, the mortuary assemblage of slab burials can include the interment of the deceased, horse remains, horse trappings, ceramics, arrowheads, bronze items and even military helmets (Tsybiktarov 1998; Volkov 1995; Wright 2006). However, these assemblages are rarely extensive and funerary materials from slab burials are arguably still quite meager in comparison to later periods.

At BGC, slab burials, like khirigsuurs, are found throughout the research area and also take advantage of the natural topography for visual effect. They are typically found in small linear clusters of three to nine graves with singular examples being relatively rare. The spatial relationship between khirigsuurs and slab burials noted above is replicated at BGC, where most slab burials are found in the vicinity of a khirigsuur. Archaeologists have noted that in general slab burials, being fewer in number and relatively small in size, leave a small impression on the landscape (Honeychurch et al. 2009, 336). However, this observation does not hold true for BGC, where slab burials are not only quite common, but leave an arresting impact on the landscape. The visual prominence of slab burials in the area is conspicuous (Fig. 2; 3). In addition there is a directional component to their visibility at BGC. Those burials that are oriented precisely east to west (90°/270°) are clearly visible, often over very large distances, from the west while facing in an easterly direction, but not from the east. So conspicuous is this directional visibility that even when using GPS units to relocate or revisit burials they were invariably overshot if approached from the east because they were simply not visible from that direction. Hence, at BGC slab burials constitute a considerable and very noticeable part of the mortuary landscape, and, at least in this locale, the impression of slab burials is anything but small.

Although numerous slab burials have been excavated at BGC, very little material has been recovered from them. Nevertheless, slab burials excavated in other parts of Mongolia with better preservation have rarely yielded an abundance of artifacts, and extensive funerary assemblages are also exceedingly uncommon (Takahama 2005, 71); an observation, which when coupled with the relative poor preservation at BGC, may explain the overall lack of materials there. The materials that have been recovered range from isolated osteological human and faunal elements and ceramics, to a few metal objects and an imported turquoise bead. Also of note at BGC is the presence of other burial types that date to the same period and which further indicate that alternative burial practices were possible at this time.

To summarize, the Late Bronze and Early Iron Ages preceding the advent of the Xiongnu polity is characterized by a striking diversity in monument placement and construction. Both khirigsuurs and slab burials appear to reflect loosely defined criteria for construction and arrangement in which variation results from particular choices by the builders of each monument. The structures of khirigsuurs and slab burials require significant investments in labor, and this investment was directed at the monuments themselves rather than the accompanying burial assemblages. Given the visual component of both monument types and the diversity in their construction, it is likely that they were meant to be seen and experienced by people using the locales in which they were placed. They were thus commemorative devices for the dead, which inscribed the deceased into a continually evolving landscape of stone monuments. However, in

both cases there were instances when people, for reasons that are yet unknown, were not buried in either of the predominant monument types, but were accorded different burials altogether.

XIONGNU MORTUARY FEATURES AT BGC

Poor chronological resolution hampers precise identification of the formation of the Xiongnu polity archaeologically. Nevertheless, the appearance of Xiongnu material regimes entailed sweeping changes in mortuary practice that completely transformed the mortuary landscape throughout Mongolia and southern Siberia. Xiongnu material culture regimes are dominated by two primary burial types, the squared ramped "terrace" tombs and the more common circular tombs. Large mortuary complexes of the Xiongnu elite containing numerous monumental square tombs have been documented in what is believed to be the core of the Xiongnu confederacy in central Mongolia and the immediate surrounding areas[5]. However, these tombs are the exception rather than the norm in Mongolia and southern Siberia and are mentioned only in passing here since they specifically do not occur at BGC. Instead the other more common monument type, the Xiongnu circular tomb, came to replace khirigsuurs and slab burials at BGC.

Unlike khirigsuurs and slab burials, Xiongnu circular tombs typically occur in clusters or larger cemeteries and lack the same degree of visual prominence as the preceding monument types (Fig. 4). In fact not much investment appears to have been made in the superstructure of these monuments, and instead the preponderance of resources were spent on the funerary assemblage within the burial. 165 Xiongnu circular tombs have been identified in the area of BGC. Yet, unlike slab burials and khirigsuurs, they are seldom located within the central terrain of BGC but are primarily found in clusters along the edges of the central rocks. Moreover, the placement of Xiongnu tombs in the area is significant in that they are found specifically in areas where preceding monuments are absent. Hence, there appears to be an intentional physical separation of Xiongnu monuments from preceding mortuary arenas in the area. Xiongnu graves also exhibit a significant standardization in orientation, structure, and placement of objects within the burial. Although most tombs have been looted, they nevertheless yield a considerable amount of artifacts such as beads, arrowheads, gold objects, bone and birch bark objects, remains of wooden coffins, ceramic vessels, and pieces of lacquered objects. Overall the frequency and number of funerary artifacts found in Xiongnu tombs at BGC are on an order of magnitude far greater than the assemblages of preceding monument types. Standardization and possible regulation of ideologies on display in funerary ritual is also suggested by the absence of archaeologically visible alternative burial practices after the appearance of Xiongnu material culture regimes. At BGC, Xiongnu tombs also exhibit a specialized treatment of faunal remains. Similar to the large square tombs found elsewhere, the northern area of the chambers in circular graves found at BGC typically contained a niche holding crania and hooves of goat, sheep, and cattle. In addition, a number of tombs were

5 See for example, the Khanui and Khünüi valleys (Allard et al. 2002; Miller et al. 2006; Mongolie 2003) and Noyon Uul (Rudenko 1969) in central Mongolia, as well as Il'movaia Pad' (Konovalov 2008a; 2008b) and Tsaram (Miniaev/Sakharovskaia 2006; 2007a) to the immediate north in southern Siberia, as well as Takhiltyn Khotgor in far to the west in the Mongolian Altai (Miller et al. 2008).

Fig. 4. Baga Gazaryn Chuluu. Xiongnu circular tomb around which the topsoil has been removed. Additional tombs can be seen in the background illustrating their low visual impact on the landscape.

accompanied by small secondary stone features located to the south of the grave, which consisted of a buried stone cist containing disarticulated goat and sheep remains.

Discussion

There appears to be a conspicuous disconnect between Xiongnu circular tombs and previous mortuary traditions at BGC that can be summarized by the following trends:

1. The placement of Xiongnu graves in locations where other monuments are absent physically separates them from the ritual spaces of preceding mortuary monuments.
2. Xiongnu circular tombs lack the externally prominent visible components of previous monuments and exhibit greater investment in the funerary assemblages and furnishings rather than in the surface features of the monuments themselves.
3. In spite of comprehensive pillaging activities in antiquity, Xiongnu tombs still yield a considerable amount of material evidence, in the form of numerous imports, that attest to an access to long-distance socio-economic networks.
4. The increased homogeneity of Xiongnu tombs compared to khirigsuurs and slab burials, including their placement in clusters or cemeteries, suggests greater regularity in funerary customs and ideologies.

5. Xiongnu tombs exhibit a greater emphasis on and standardization of the inclusion of faunal remains in the funerary assemblage, particularly of livestock which served as pastoral resources.

In turning to questions of assessing identity, these observations are significant. The relatively low number of graves for each of the main monument types in the three periods discussed here (Late Bronze Age, Early Iron Age, Late Iron Age) suggests that they are not representative of the entire population that produced them. Instead, they are likely expressive of some segment of the population that was accorded an altogether different status in life in comparison to the rest of society. In most cases, these monuments are thought to correspond to the elite in the Late Bronze and Early Iron Ages (Tsybiktarov 2003, 93; Honeychurch et al. 2007a) as well as the Xiongnu period[6].

The diversity in construction and placement of khirigsuurs and slab burials suggests that identities and social ideologies were expressed locally. However, they nevertheless conform to a regionally recognized framework of practice and range of choices that could be made to create these monuments. Hence the picture that emerges at BGC is one in which local lineages of leadership are variously expressed and inscribed in the area through the act of building khirigsuurs and slab burials. Identities thus had a distinctly local articulation while collectively contributing to create the impression of regional homogeneity as a result of similar frameworks of reference for how to articulate those identities. Given the diversity in the construction and placement of khirigsuurs and slab burials at BGC, it is difficult to reconcile that they should be indicative of a particular or unified ethnic group. Instead, the apparent diversity implies the local expression and inscription of identity that made use of architectural narratives that were regionally recognized and understood. The presence of alternative mortuary practices at this time further suggests that there was ample flexibility in how identities could be expressed through mortuary practice. It is as yet uncertain what types of identities were represented in these alternative monuments, but their very existence implies a general absence of strict rules and ideologies on display in funerary practice at this time.

The nature of Xiongnu materials at BGC is very different. Xiongnu mortuary monuments represent a complete disruption of previous mortuary traditions. The entire repertoire of funerary practice is completely transformed, from the visibility, placement, and orientation of burials, to the size and nature of their accompanying assemblages. The overall impression of Xiongnu circular tombs at BGC is one of sameness. Not only are burials not inscribed prominently on the landscape, but they are also placed together in cemeteries or small clusters thereby precluding and forestalling the expression or inscription of individual identity. The uniformity of Xiongnu mortuary practices is of such an order that the structure and content of Xiongnu circular tombs at BGC corresponds almost identically to the recurring uniformity of Xiongnu tombs elsewhere in Mongolia (Miller 2009). The uniformity of Xiongnu circular tombs suggests that with the formation of a central polity in Mongolia, mortuary practices became considerably standardized. The appearance of such uniformity in mortuary practice from a previous situation of relative diversity warrants further discussion.

6 Brosseder 2009; Miller 2009; Other scholars have expressed alternative views on the attribution of elite status to these mortuary monuments of the Bronze Age (e.g. Frohlich et al. 2008) and Xiongnu periods (e.g. Törbat 2004).

From the aforementioned implication of material congruence for assessing identity, it should be noted that it is unlikely that khirigsuurs, slab burials, and Xiongnu circular tombs at BGC are the result of the successive appearance of different peoples or ethnicities. Instead, they may more accurately be viewed as resulting from different ideologies and available choices in funerary repertoires of local lineages of leadership. As such, prior to the appearance of Xiongnu tombs, there was some flexibility in how local leaders could express their presence and identity locally through the construction of visibly prominent mortuary monuments. There appears to have been considerable agency on the part of local communities to make their own choices in how the dead were inscribed on the landscape. The range of available choices seemingly decreased with the emergence of Xiongnu mortuary practices, which confer an impression of sameness at BGC, as well as elsewhere in Mongolia. The only overt deviation from this uniformity in the regions attributed to the Xiongnu is in the construction in a few places of the square ramped tombs of the upper echelon of the Xiongnu elite.

Against the backdrop of the formation of a centralized polity in Mongolia, it is thus likely that Xiongnu material culture regimes are indicative of a political identity – an identity expressed in mortuary practice and monuments that symbolically incorporated local communities and local leaders into a regional Xiongnu political economy. Hence, the emergence of larger elite tomb complexes in only certain locales of Mongolia and southern Siberia and not at all in most areas such as BGC, concurrent with a standardization of mortuary practice on the local level that disrupts previous mortuary traditions, may be viewed as evidence of political change on a broader regional scale. The appearance of Xiongnu material culture regimes and associated mortuary traditions at BGC thus suggests the formation, whether by adoption or coercion, of a distinct Xiongnu political identity. This identity was a conscious separation from previous identities that were expressed symbolically in local landscapes of mortuary stone monuments consisting of khirigsuurs and slab burials. Xiongnu mortuary practices thus emphasize a distinct Xiongnu identity while discontinuing the ideological expression of local lineages of leadership to incorporate outlying regions into a broader Xiongnu political sphere. Xiongnu material culture appears to be the result of new ritual practices in mortuary behavior that were motivated and driven by political considerations. The observations at BGC and their discussion of further regional implications made in this chapter are of course still preliminary, but serve to illustrate the importance of reconsidering identity during the Xiongnu period. Additional research, both locally and regionally, will undoubtedly contribute valuable insights with which to address this issue and will likely yield significant information relating to social and political change in Bronze Age and Iron Age Mongolia.

Acknowledgements

I would like to thank William Honeychurch, Chunag Amartüvshin, and Joshua Wright for their continuous and steadfast support over the years and for providing the opportunity to conduct research at Baga Gazaryn Chuluu. Special thanks are also due to fellow research staff at BGC: Zhargalan Burentogtokh, Jeremy Beach, and Michelle Machicek. I would further like to thank Bryan Miller and Ursula Brosseder for inviting me to contribute to this volume and for reading and providing comments on previous drafts of this chapter. Any mistakes contained herein are, of course, solely my own.

CAUGHT IN THE ACT: UNDERSTANDING XIONGNU SITE FORMATION PROCESSES AT BAGA GAZARYN CHULUU, MONGOLIA

Albert Russell Nelson, William Honeychurch, Chunag Amartüvshin

The Xiongnu period of Mongolian prehistory, ca. 4th/3rd century BC to 2nd/3rd century AD, is well known as the time of initial state emergence among the nomads of the eastern steppe and the first nomadic polity in a long line of states and empires centered in present day Mongolia (Honeychurch/Amartüvshin 2006a). During this era of political consolidation, mortuary customs across a vast area of eastern Eurasia became uniform enough that archaeologists have a high probability of recognizing Xiongnu period burials from surface features alone. While there is certainly variability across the ancient eastern steppe and over the three to four hundred year extent of the polity (Miller 2009), the ring shaped clusters of embanked stones grouped into cemeteries of between 50 to 400 features, have been documented across much of Mongolia (Tseveendorzh 1985; 1989).

It has been argued that these cemeteries contain the tombs of common herders (Törbat 2004) or the burials of local and intermediate elite (Honeychurch et al. 2007a). Others have pointed out that the Xiongnu period mortuary record is still poorly defined, and that the concept of "steppe aristocracy" is for the time being somewhat unclear (Brosseder 2009). As Brosseder rightly points out, beyond the problem of poorly defined concepts and their overuse, Xiongnu period mortuary contexts are among the most consistently disrupted features of the Mongolian record, so much so, that it is extremely difficult to assess differentiation, let alone attribute to it sophisticated socio-political interpretations.

The problem of disruption is frustrating for archaeologists but not impenetrable; and as ancient behavior, the study of these activities and their material traces may in fact shed light on local relations and political process among steppe peoples. Animal and other natural causes of disruption in mortuary contexts are also prevalent in Xiongnu period tombs. However, frequent observation of looting tunnel features, differential exposure of animal and human bone, and intrusive materials or, in some rare cases, even intrusive individuals, all point to large scale and fairly comprehensive human disruption as a primary site formation process. The intentions behind these behaviors were probably various and may have changed over time but in general we can view them in one of three ways: as either part of the funerary process involving re-entry of the closed context for ritual reasons, as pillaging to extract useable or valuable materials, or as purposeful desecration constituting a symbolic act of opposition (see also Brosseder 2009).

While the first interpretation of disruption as part of mortuary ritual is certainly a possibility, the disorderly state of most Xiongnu period burials suggests that the latter two activities are more probable explanations. Preliminary evidence has been presented for both pillaging and desecration activities in burial contexts predating the Xiongnu period by as much as 1,500 years

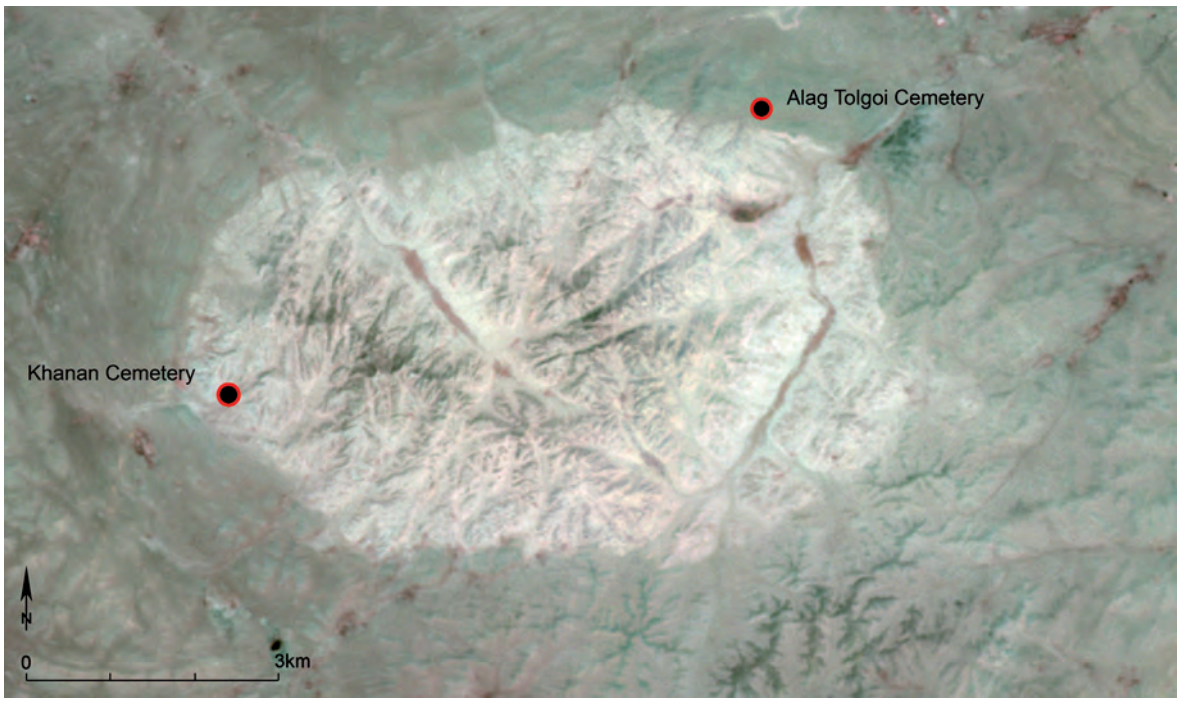


Fig. 1. Map of the Baga Gazaryn Chuluu region in the Middle Gobi with locations of two Xiongnu period cemeteries indicated.

during the Bronze Age (Frohlich et al. 2009). Slab burial contexts of the Early Iron Age (ca. 800–400 BC) also exhibit highly patterned disruption, probably best understood as pillaging since upper body portions having the majority of decorative items are generally absent from the burial (Erdenebaatar 2002). Pillaging and desecration, however, need not be regarded as having mutually exclusive motivations or outcomes; and while distinguishing one from the other may prove difficult, analyzing the methods of disruption and its dating can help to contextualize these activities. In this discussion we offer observations and analysis to address such disruption acts as a part of Xiongnu mortuary site formation at Baga Gazaryn Chuluu (BGC) in the Dundgov' aimag, Mongolia (Fig. 1).

The BGC region is defined by a central granite ridge system with several high peaks rising dramatically from a surrounding plain of otherwise low relief. The granite ridges have exfoliated and eroded, leaving deep water cut valleys with sandy soils derived from granite parent material as well as wind-blown loess deposits. Precipitation in the area is currently 150–180 mm annually and the granites absorb and store rainwater resulting in springs, surface water, and a water table accessible by shallow wells. Surface water erosion has carved major linear valleys through the ridges, the broadest two of which extend from the center of the ridge system outward to the northwest and in a northeast-southwest trending direction along the eastern flank of the ridges (Fig. 1). BGC is an area rich in mountain wildlife with robust pasture for livestock and good seasonal campsite locations for winter and summer. A collaborative Mongolian-American project conducted full coverage pedestrian survey at BGC from 2003 to 2006 followed by a bioarchaeology project from 2007 to 2008 (Nelson et al. 2009a; Wright et al. 2007).

Over the course of the six year archaeological exploration at BGC, human remains representing 54 individuals were recovered from some 100 excavated mortuary features and cave

burials. These individuals span a range of temporal horizons from the late Bronze Age (ca. 1400 BC) through the 19th century, although the Xiongnu period is by far the most extensively recorded, constituting 32 of the 54 individuals (59%). In the BGC region, our project recorded Xiongnu period cemeteries falling into two general size categories, large and small. Large cemeteries have upwards of 100 or more stone ring features covering an area of several hectares, while the smaller cemeteries typically have fewer than a dozen stone ring features and cover an area of less than a hectare (Amartüvshin/Honeychurch 2010). These kinds of feature groups appear to be typical of many regions of Mongolia, though their frequency begins to fall off sharply in the more arid regions to the south of BGC. Among the Xiongnu period cemeteries documented by the pedestrian survey, excavations at two, the Khanan and Alag Tolgoi cemeteries (Fig. 1), have provided observations on the process of post-depositional disruption.

The Khanan Cemetery

The Khanan site (BGC 076) is located on the western edge of the BGC granite ridge system. It consists of a medium breadth valley defined by eroded granite fingers and peaks, extending roughly westward in orientation. The area today is used as a winter campsite for a local herding family and water wells to the west of the granites are nearby. The site is particularly notable for its extensive evidence for re-use over the centuries. In addition to having a small Xiongnu period cemetery of seven ring features, the immediate vicinity has impressive khirigsuurs and "shaped burial" (shorgoolzhin bulsh) monuments from the mid-2nd millennium BC, Türkic balbal alignments of the 6th to 7th centuries AD, and Buddhist rock inscriptions of the 19th century AD, as well as numerous unidentified sites (Amartüvshin/Honeychurch 2010). Three stone ring features were selected for excavation as part of a sample of Xiongnu period small cemeteries from the western sectors of BGC. Our excavations documented sub-adult and adult tombs all of relatively simple construction and shallow depth. All contexts had been disrupted and the artifacts recovered were few and fragmentary. Radiocarbon analyses on samples of human bone suggest that the interments were not entirely contemporary and probably took place during the 2nd century BC and then during the later 1st century BC to 1st century AD (Fig. 2). We begin with a brief description of two neighboring burial contexts excavated in 2006.

Excavation of EX06.08 was begun by clearing the surface stones arranged in a disrupted ring pattern and measuring approximately 5 m in diameter (Fig. 3,1). The burial pit feature was oriented due north and was excavated to the floor of the burial chamber at 1.48 m. The internal construction of the burial chamber consisted of stones positioned around the walls of the burial pit and encircling the area of original body placement (Fig. 3,2). No evidence of a wooden coffin or wooden chamber was found, as has been the case in other Xiongnu period mortuary contexts. Ceramic sherds, human and animal bones and bone fragments were recovered throughout the fill of the burial pit as were several large and medium sized stones. Faunal remains were few and difficult to identify but included the bones of both small and large ungulates with at least one small and one large animal present based on the minimum number of individuals (MNI) count (Hite forthcoming). The burial chamber contained several disarticulated human bones, several fragments of heavily corroded iron, and a ceramic vessel in an almost complete state positioned along the northwest side of the burial pit (Fig. 3,3–7). Along

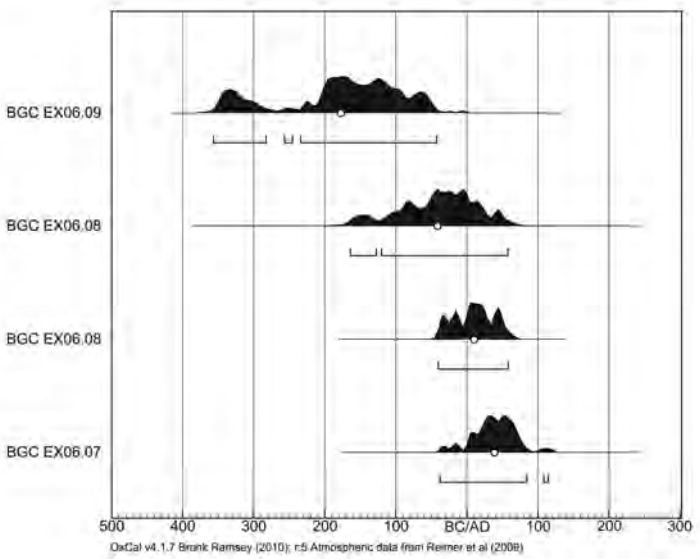


Fig. 2. Radiocarbon distributions for excavated contexts at the Khanan cemetery (underlying brackets mark the 95% probability range).

the southern margins of the burial chamber, small bone extremities (tarsal elements) were recovered more or less *in situ* suggesting that the original orientation of the interred individual was towards the north.

The surface feature of EX06.09 was an irregular shaped ring of approximately 5.3 m in diameter (Fig. 4,1). The internal construction of the burial and orientation was similar to that described for EX06.08 above (Fig. 4,2). Depth of the burial chamber floor was 1.1 m below surface and the fill of the burial pit included medium to large sized stones, ceramic sherds, and human and faunal remains mixed throughout. Animal bones provided evidence for parts of at least one adult equid and one adult bovid based on MNI counts (Hite forthcoming). In addition to non-diagnostic ceramic sherds, several badly corroded iron fragments were recovered including one fragmentary tanged trilobe arrowhead (Fig. 4,3–8).

In the case of these two burials at the Khanan site, the process of disruption can be reconstructed on the bases of anatomy and the differential preservation of human bone. Bleached and exfoliated bone recovered from 1–2 m below the present surface can generally be demonstrated to have become weathered through some process of post-depositional exposure on the surface and in this case, clearly not from ritual curation and secondary burial. Features EX06.08 and EX06.09 were located immediately adjacent to one another, and as with many of the features explored on this project, both had been re-opened in antiquity. The primary interment of the EX06.08 feature appears to have been a sub-adult aged 10–13 years at the time of death based on degree of dental eruption in the recovered maxilla and bones of the feet found in undisturbed context in the southern end of the tomb chamber. These tarsal elements were consistent with the bulk of the skeletal material in this feature, representing an individual of this age range. No skeletal element duplication or size discrepancies were observed in the excavation at these lower levels. In the fill above, however, were a set of adult tibial shafts, bleached, weathered and exfoliated, which were definitely indicative of a second individual.

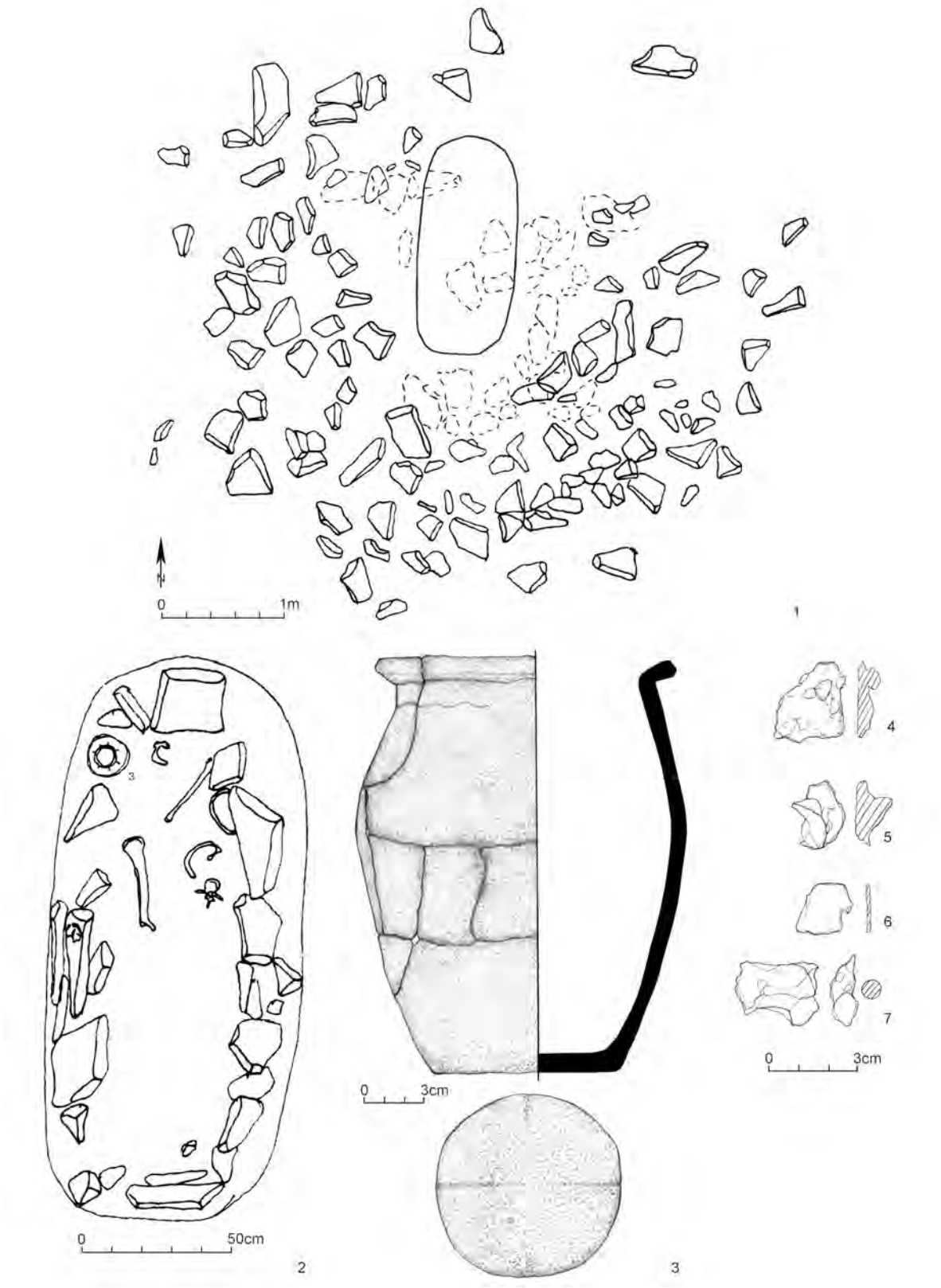


Fig. 3. Khanan, EX06.08. 1–2 Plan of the burial surface feature and internal chamber arrangement; 3 drawing of an almost complete Xiongnu style wide mouthed jar; 4–7 fragments of highly corroded iron.

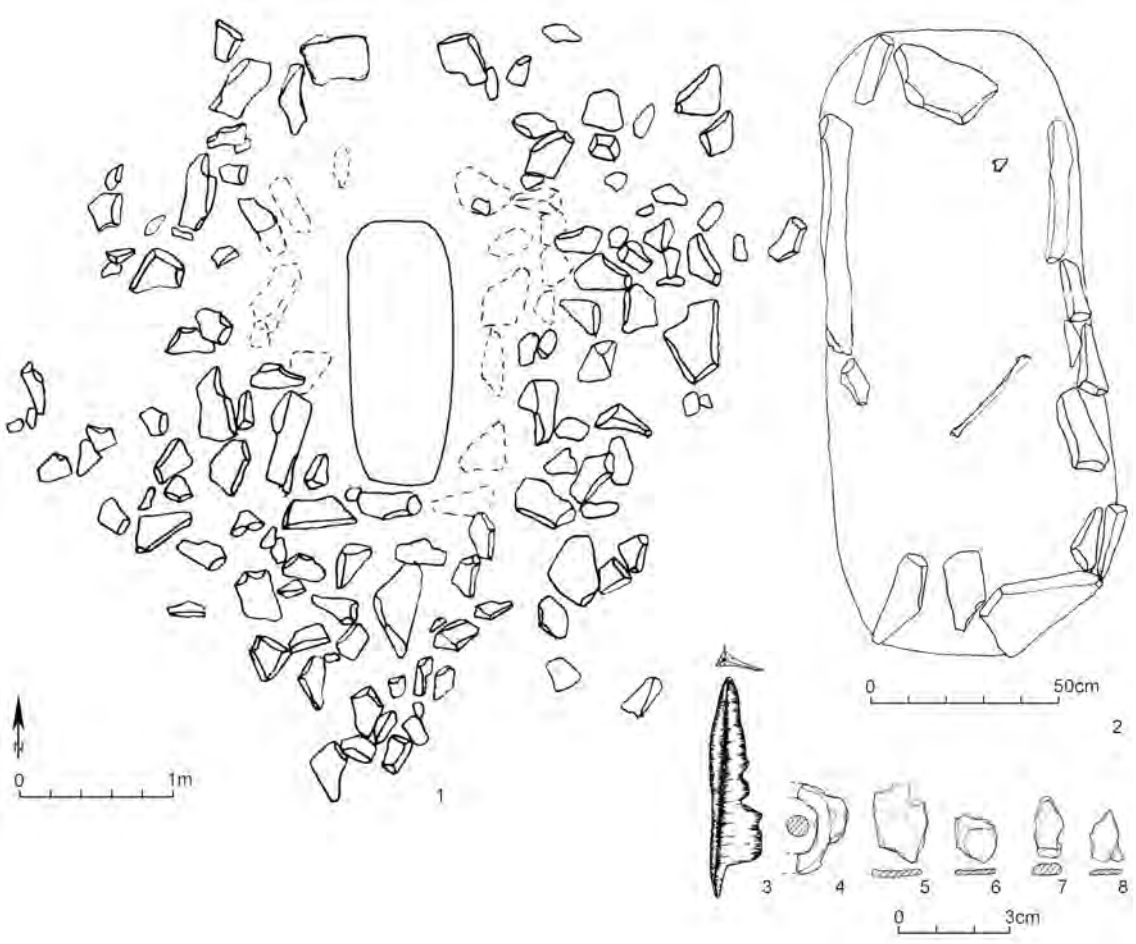


Fig. 4. Khanan, EX06.09. 1–2 Plan of the burial surface feature and internal chamber arrangement; 3–8 fragments of highly corroded iron recovered.

From the adjacent excavation, EX06.09, the fragmentary and incomplete remains of an adult, a probable male, were recovered. Part of this inventory included a fibula consistent in length with the tibial shafts recovered from the previous feature, EX06.08. The preservation of the bone, generally poor, was practically identical with that of the tibial shafts, suggesting that the disruption sequence for these two features was the same as our excavation sequence centuries later. After the child's tomb had been rifled, the adult's tomb was opened, and the fill simply thrown on top of the open child's pit, adjacent to it. The adult's pit was left unfilled, with bones scattered about, some of which were on the surface on the child's tomb. This bone was weathered for some time, possibly years, until natural forces filled the two pits back to surface level through Aeolian processes and in-washing (Nelson 2006).

While we cannot assess the chronology of this disruption sequence, the disarticulated nature of most of the skeletal material in the two burials shows that the bodies had degraded to the point that skeletal elements were no longer articulated, suggesting a time period at least several years after interment. The method of entrance was by excavation directly down the burial shaft to reach the chamber with no intentional effort to backfill the resulting open pit. Those who participated showed neither concern for preserving the contexts nor a desire to conceal their

activities from local observers, suggesting no sense of affiliation with those buried nor any sanction associated with such disturbance. The destruction of adjacent, smaller features with subadult interments, including EX06.07 which contained the burial of an infant, suggests systematic but relatively uninformed and random rifling of every context as a rapid check for any contents of value. These activities were clearly carried out at a time when the Xiongnu legacy held little importance and perhaps even negative connotations for local people.

The Alag Tolgoi Cemetery

To the north of the granite ridges of BGC in a low swale lying between granite boulders and a high pasture covered hill are the two small Xiongnu cemeteries at Alag Tolgoi (Amartüvshin/Honeychurch 2010). Like the Khanan site, Alag Tolgoi has a number of features prior to and post-dating the Xiongnu period including a large late Bronze Age khirigsuur feature, a field of Mongolian burials of the imperial period, a microlithic scatter, and a nearby scatter of Xiongnu period ceramics, evidently from a seasonal campsite. Today these sites are located along an important local roadway leading to an area in the north having low hills and shallow basins of surface water. To the west of the dirt road is a Xiongnu cemetery (BGC 721) on a low slope with seven stone ring features of which one has been excavated but not yet dated (EX08.19).

To the east of the road and approximately 200 m distance from the western cemetery is a seven burial Xiongnu cemetery in which all features have been excavated. The Alag Tolgoi eastern cemetery (BGC 510 & 515) is partially contemporary with the Khanan cemetery, but the burials have larger surface constructions, deeper interments, and more complex burial chambers. The artifacts and faunal remains recovered from the eastern cemetery were also impressive, though again fragmentary and degraded. Artifacts included bronzes, imported beads, a number of gold items, lacquer ware, as well as the more common finds of ceramic and oxidized iron implements (Amartüvshin/Honeychurch 2010). Radiocarbon analyses have been carried out on human bone samples from four of the seven contexts and will be reported in detail in a forthcoming publication (Machicek 2011). The dates overlap in time and suggest that the cemetery was in use during the mid 2nd to 1st centuries BC. Two excavations at the Alag Tolgoi cemetery, EX08.02 and EX08.04, help to further contextualize post-depositional processes at BGC.

The first example, EX08.02, provides little in the way of dating for the re-entry of the burial but does provide evidence for the method of disruption. The patterns found within this context also help us to understand what went on in the burials immediately adjacent to it. The EX08.02 Xiongnu burial consisted of a deep interment beneath a substantial stone ring feature on the surface of approximately 6.5 meters diameter (Fig. 5). The original construction of the burial consisted of a pit of more than two meters in depth and a chamber having a wooden plank coffin and stone slabs lining the chamber around the sides of the coffin (Fig. 6,1). The burial was oriented to the northwest (330°) with a small alcove area beyond the northwest coffin edge where most faunal remains were recovered. For the entire context, including animal bones from the burial pit fill, MNI counts reveal the presence of three adult bovids and one subadult, one adult equid, and 6 adult and five subadult ovid/caprids (Hite 2008). The contents of the burial had been entirely disturbed in antiquity with human bone, faunal material, and artifacts mixed in the burial fill. Artifacts from the burial included gray ware decorated ceramic sherds (Fig. 6,11),

Fig. 5. Alag Tolgoi, EX08.02. Surface feature.

micro-fragments of red lacquer ware, a pendant (Fig. 6,8) and five beads made from semi-precious stone, glass, and bone (Fig. 6,3–7), a container made of birch bark (Fig. 6,2), and several corroded iron fragments (Fig. 6,9.10).

The individual buried in this context was an adult female, aged approximately 34–41 years based on the recovery of most of the human skeletal remains which were in a much better state of preservation compared to those found at Khanan. Though most of the skeletal material was recovered from the fill, we unearthed a left tibia and both fibulas in their anatomically correct position at 2.47 m below surface in the southern portion of the context. Slightly above this level, a floor of cracked mud, such as might be seen in a dry lake bed, was encountered. The mud, when wet, had filled in over and around the bones from the interred individual. An irregularity in the mud surface, visible about the center of the photograph, may be a foot print from someone in the pit as the mud was drying (Fig. 7). Given the generally good preservation

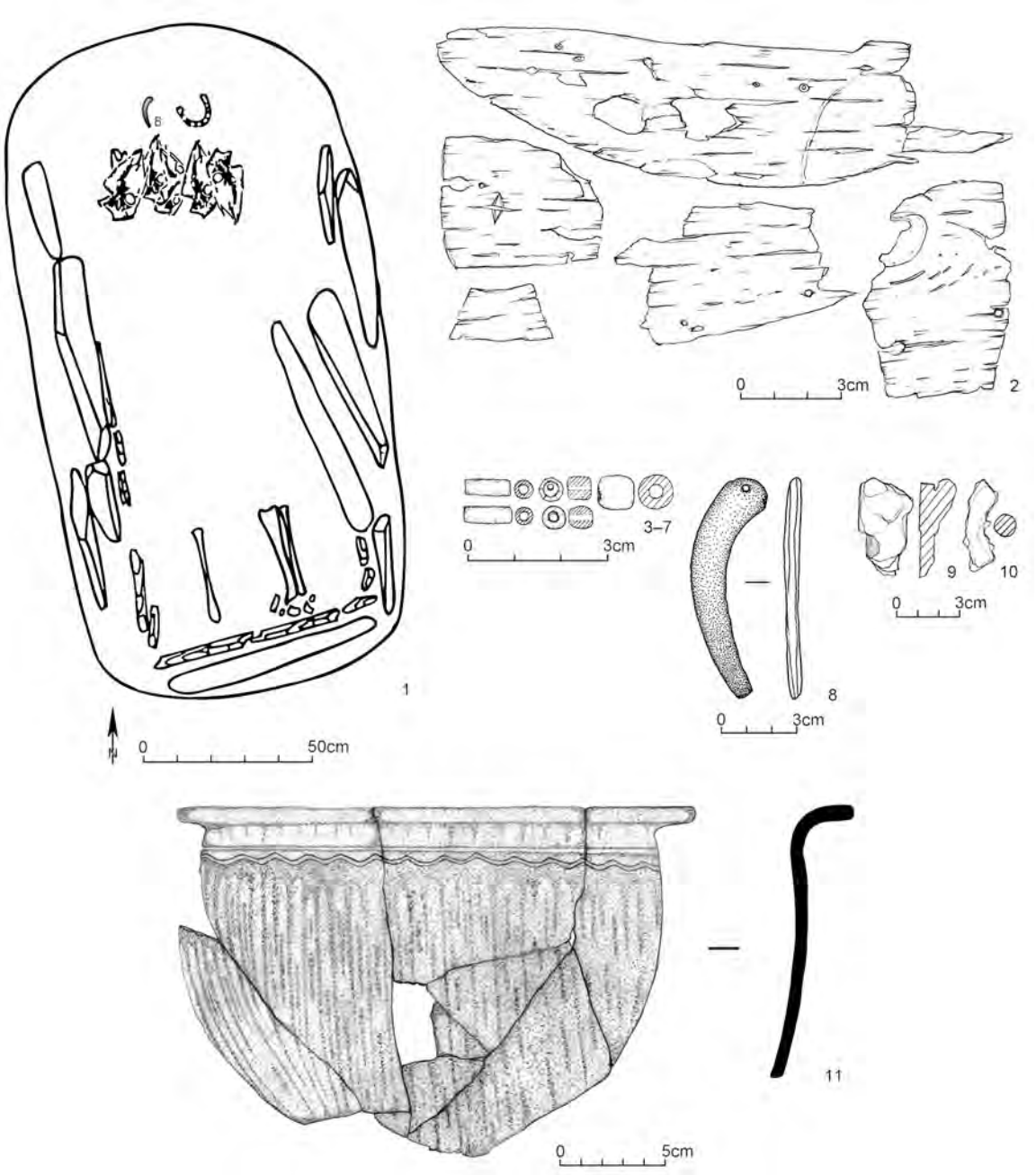


Fig. 6. Alag Tolgoi, EX08.02. 1 Burial chamber plan; 2 birch bark fragments originally of a container; 3–7 various beads; 8 stone pendant; 9–10 corroded iron objects; 11 diagnostic ceramic fragments.

of bone from this feature, it is not likely that the trench remained open for long. Following this disruption event, a mix of soil, bone, rock, and broken artifacts was returned to the burial pit.

While cracked mud was found only in the southern part of the coffin interior, bone and artifacts were scattered throughout the burial shaft and chamber fill from north to south suggesting that the entire burial pit was open to the air. Several larger human skeletal elements, including the skull, were piled on what was once a linear ledge cut into the soil above the coffin and stone slab

Fig. 7. Alag Tolgoi, EX08.02. Photo showing the southern end of the burial chamber with dried and cracked mud inside the wooden coffin.

walls on the northwest of the feature. This positioning seems to be the result of an individual sorting through the contents of the coffin while removing the larger skeletal elements for better access to artifacts and materials. As with the Khanan burials, the excavation of this feature argues for disruption in antiquity with an interest in retrieving items of value. Whether desecration of the context was also an objective is more difficult to discern; however, these activities were clearly carried out in a manner that would have attracted notice and therefore we assume they were conducted with either impunity or perhaps with the support of the surrounding community.

The EX08.04 excavation at the Alag Tolgoi cemetery provides a classic example of disturbance and re-deposition with some chronological parameters for the disturbance episode. In this case we were interested to find an intrusive individual buried within the burial shaft fill. We refer to the two occupants of the burial as EX08.04a, the intrusive individual encountered in the upper levels of excavation, and EX08.04b, the original interment, found in the burial chamber. The burial of EX08.04 neighbors that of EX08.02 and had somewhat similar size, depth and construction characteristics. The stone surface feature was ring shaped and approximately 6.1 m in diameter (Fig. 8,1) and the internal burial chamber was constructed at 2.2 m below surface and consisted of a stone lined pit and wooden coffin (Fig. 8,2). The excavation of this burial was begun as a profile cut, leaving a balk through the center of the grave to illustrate a vertical distribution of materials in what was known to be a disturbed context. A compact layer of stones within the burial pit was encountered at 0.6 m below surface with evidence for disruption and removal of stones in the northern section. As work proceeded, a human in-

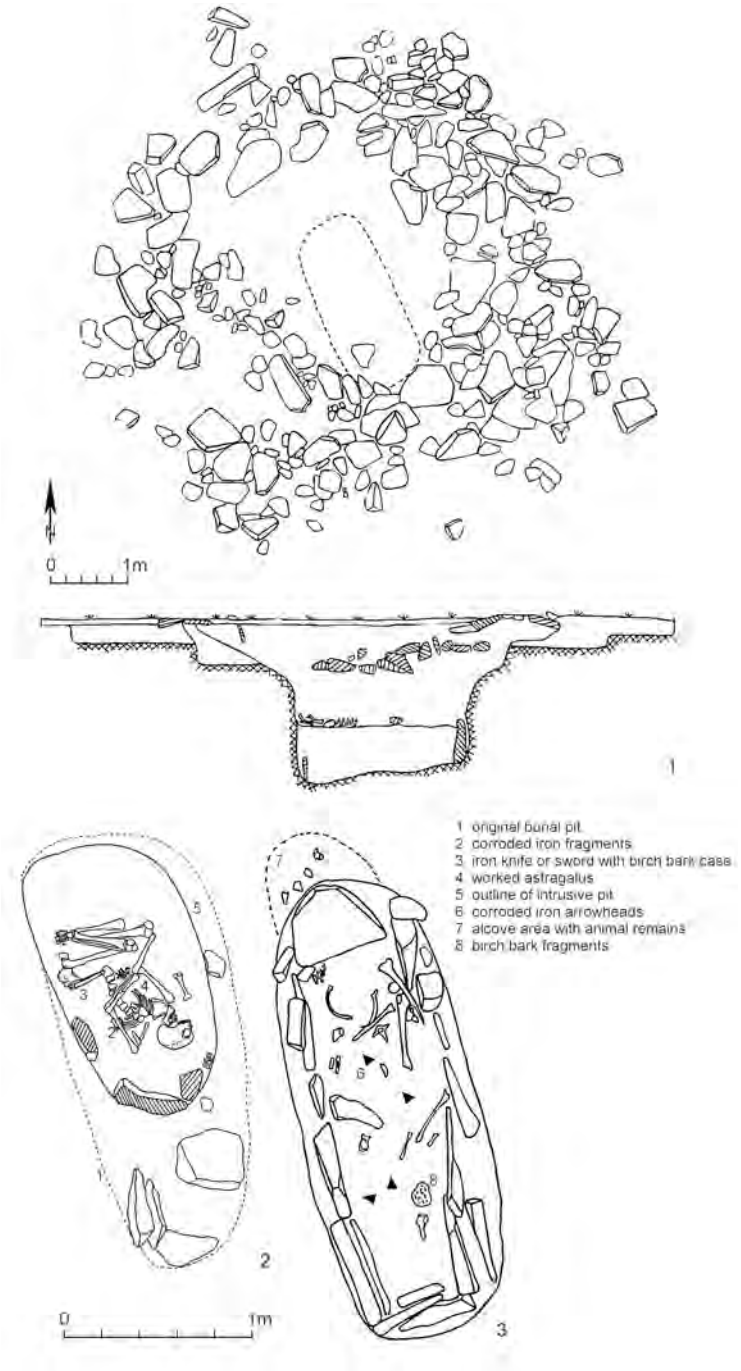


Fig. 8. Alag Tolgoi, EX08.04. 1 Surface feature and burial profile with north to the left; 2–3 intrusive and original burial plans.

terment oriented to the southeast was discovered at 1.28 m depth (Fig. 10), above the level at which the Xiongnu remains are generally expected. This individual, a male aged somewhere between 25 and 44, was recovered in an undisturbed flexed position lying on his right side (Fig. 8,2). A 26 cm long iron artifact encased in birch bark, possibly a knife or sword with case, was found at hip or waist level (Fig. 9,1.13), stratigraphically superior to the skeleton such that

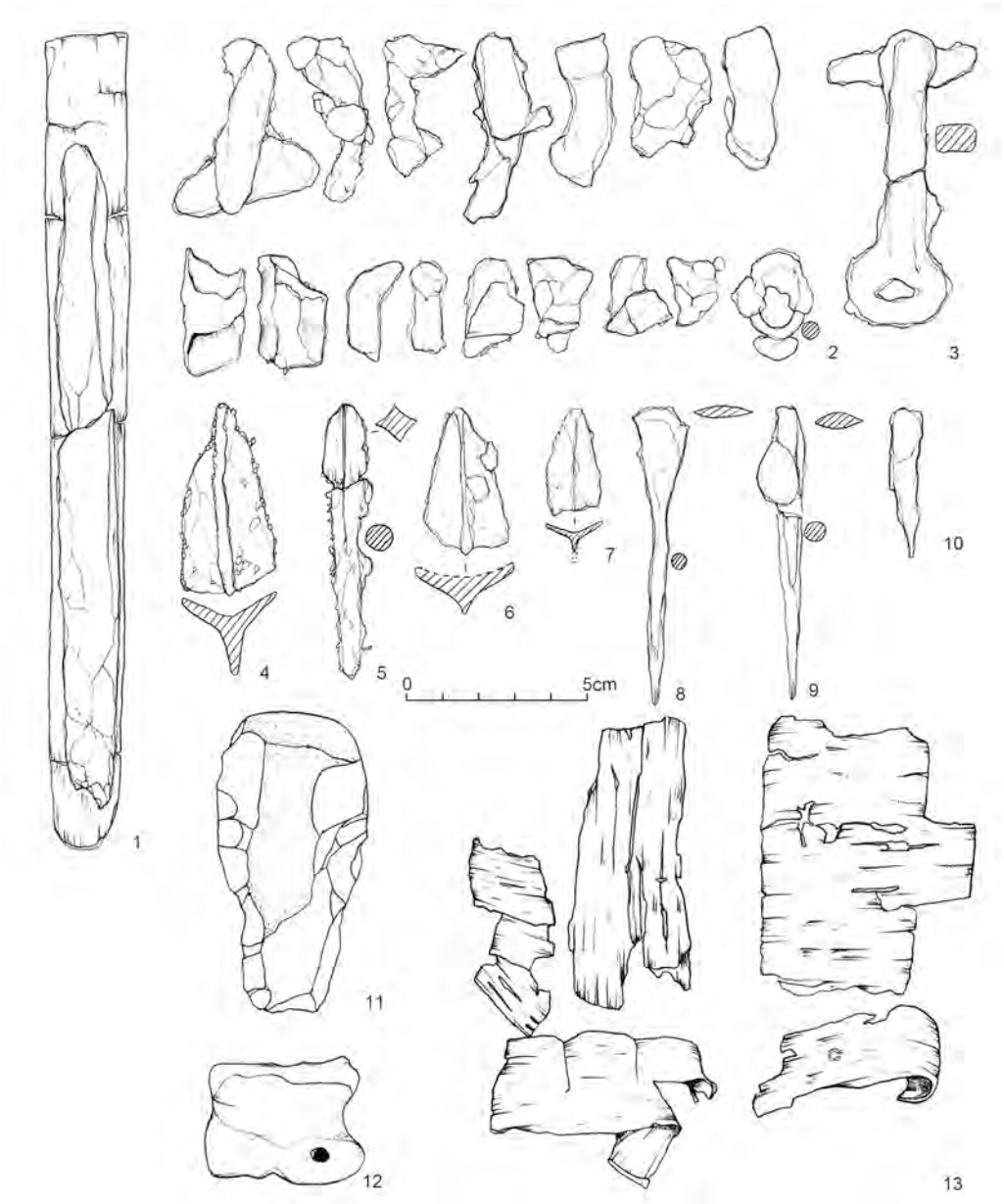


Fig. 9. Alag Tolgoi, EX08.04. Major artifacts recovered from the burial context. 1 Iron knife or short sword in birch bark case; 2–3 corroded iron fragments including possible bridle implements; 4–10 corroded iron arrowheads, 11 intrusive bifacially worked lithic artifact; 12 modified astragalus; 13 fragments of birch bark.

it would have been on his left side when interred. In addition, a few corroded iron fragments as well as a worked and perforated ovid/caprid astragalus were associated with this individual (Fig. 9,12).

Continued excavation to the bottom of the feature yielded a second interment which had been disturbed in antiquity some time after its initial deposition. The burial chamber was reached at 2.2 m deep and contained a wooden plank coffin oriented to the northwest and a northern niche with faunal remains (Fig. 8,3). This internal construction and the artifacts found in the lower burial chamber are all indicative of a Xiongnu period burial. In addition to those

Fig. 10. Alag Tolgoi, EX08.04. Photo showing the intrusive individual (EX08.04a) who was interred in the upper levels of the burial pit of an earlier Xiongnu period tomb.

mentioned above, artifacts from the lower chamber included several fragmentary and corroded iron fragments of which some can be identified as arrowheads and possibly items of horse gear (Fig. 9,2–10), several birch bark fragments with holes for fitting individual pieces together (Fig. 9,13), thin leather fragments with holes for stitching, and a small number of ceramic sherds. The faunal assemblage included an MNI count of two adult bovids and one subadult, one adult equid, and two adult and two subadult ovid/caprids (Hite 2008). The Xiongnu period skeletal remains which were those of a male aged between 20 and 40 years were in a fragmentary and incomplete state. They were also differentially bleached and exfoliated, suggesting some period of surface exposure for some of the skeletal elements before later being re-deposited in the burial pit. Given the disarticulated nature of the EX08.04b skeleton, mostly piled along the north wall of the tomb while the looters were in the process of rifling through grave furnishings, we would suggest that the disturbance of this tomb took place well after the body had fully decomposed.

The burial feature or a restricted entrance tunnel was probably left open to the air by pillagers but probably for a longer period of exposure than was the case with the adjacent EX08.02 burial. It was certainly open long enough to provide an opportunistic burial pit when individual EX08.04a died and was interred in the open burial shaft. The quality of preservation of this intrusive individual is fair to poor, suggesting either a shallow burial that filled in over time, or as seems more likely, a comparably porous fill, allowing for a more rapid rate of post-decompositional bone degradation from seasonal water leaching. Indeed, minor displacements of some of the skeletal elements in this interment, for example the lum-

bar vertebrae and gaping mandible, suggest the presence of void pockets in the enveloping soil matrix during the initial period of the individual's decomposition process. Therefore, one interpretation of this context is that individual EX08.04a died while the looter's pit remained open, and his contemporaries made an opportunistic use of the pit for his burial, covering him up subsequently with the backfill debris left by the original looters (Nelson et al. 2009b). Radiocarbon dating of human bone samples supports the chronology of this interpretation. The Xiongnu period burial dates to the period of general use for the Alag Tolgoi cemetery at circa 2nd to 1st centuries BC while the intrusive individual dates somewhat later to circa 2nd to 4th centuries AD (Machicek 2011), placing an upper limit on the time period of burial disruption.

All contexts excavated at Alag Tolgoi showed pervasive signs of disruption in antiquity and in all cases, as at the Khanan cemetery, the process of disruption had to have been an obtrusive and very public display of destruction. We can imagine the Alag Tolgoi cemetery as a field of open pits strewn about with human and animal bones, small items, and broken pots. Fragments of these pots are still recoverable on the surface of the site and occasionally the mixing of intrusive items from nearby contexts is indicative of this scenario. For example, from the upper levels of EX08.04 we recovered a single amber bead which matches exactly a set of beads from a neighboring burial. We also recovered a large bifacially worked stone artifact associated with a nearby lithic scatter of the Paleolithic or Epipaleolithic period. The presence of both these artifacts in EX08.04 demonstrates the dynamic post-depositional history of the cemetery with sequences of disinterment and probably both intentional and natural re-filling events. If the time frame given by the EX08.04 excavation is indicative of disruption activities at BGC, then sometime during the period between the early 2nd and early 4th centuries AD comprehensive burial pillaging was not only conducted but tolerated or even condoned. Given the similarities in the methods of disruption, it is very possible that much of the pillaging was carried out over a relatively short period of time within the two century date range given by the radiocarbon analysis. Based on Chinese historical sources, this time frame coincides with a period of multiple military defeats, factional infighting, and defection from Xiongnu ranks followed by the eventual political collapse of the state.

Conclusion

One of the most interesting aspects of the BGC project has been coming to understand the wide range of preservation conditions acting on skeletal and artifactual materials in the BGC archaeological record. While excavation tells us a good deal about mortuary process, the social and political context of burial disruption requires more study and understanding on the part of archaeologists and bioarchaeologists. The observations made in the BGC region as a result of our inquiry into Xiongnu period habitation in the Gobi Desert region have given us some tentative hypotheses to begin testing in other regions of Mongolia, Inner Mongolia, and Siberia. The potential link between political dissolution and burial pillaging and/or desecration may be an important part of understanding ancient steppe politics.

As with most studies, this one raises as many questions as it answers. For example, with reference to our understanding of site formation processes, after the dissolution of the Xiongnu

polity and the systematic tomb plundering that went on, were burial grounds again rifled by subsequent Türk, Uighur, or Mongol groups in the same way? Or were the old Xiongnu grounds by then thought to have been previously plundered and lacking in any contemporary symbolic pertinence and therefore left largely alone? In other words, is what we excavate in some cases the result of multiple openings and re-openings of the same feature by successive groups, as the current wave of burial plundering across the Mongolian steppe may suggest? Our recovery of the EX08.04a individual in an undisturbed state argues that following the initial desecration of the BGC burial grounds, subsequent groups went on to other pursuits. This observation also argues for the importance of the contemporary political context as part of the motivation for disruption and not just for the recovery of valuables.

A farther reaching set of questions may be asked about the history of disruption activities on the steppe. Archaeologists are now beginning to make arguments based on material evidence for disruption and desecration dating back centuries prior to the Xiongnu period. Therefore, the events that transpired at the Khanan and Alag Tolgoi cemeteries were in fact already a long tradition among steppe peoples. These activities had specific understandings and seem to be connected with the emergence and growth of political inequality across eastern Eurasia (e.g., Honeychurch et al. 2009; Houle 2009). Therefore, the ways in which mortuary processes changed in terms of ceremonial activities, constructions, participation, and furnishings probably had an influence on the understandings and enactment of burial disruption. In a kind of answer response format, the meaning of ritualized death and its materialization followed by disruption of that material statement became an underlying conversation over time regarding power relationships, conflict, and competition. We believe that by paying closer attention and theorizing about this underlying "conversation" through mortuary related acts, archaeologists have a significant opportunity to learn how the earliest forms of eastern steppe politics transpired.

Acknowledgements

The Baga Gazaryn Chuluu Project received generous support from many individuals and organizations. We would like to thank the Wenner-Gren Foundation, the National Geographic Society, the National Science Foundation, the National Endowment for the Humanities, Center for the Study of Eurasian Nomads, and the Smithsonian National Museum of Natural History. Our work would not have been possible without the kind encouragement of D. Tseveendorzh, Director of the Institute of Archaeology, Mongolian Academy of Sciences. Thanks are also due to the people of Baga Gazaryn Chuluu who were extremely generous and hospitable throughout our project. This research was greatly assisted by Joshua Wright, Zagd Batsaikhan, Diimaazhav Erdenebaatar, Daniel Rogers, William Fitzhugh, and Bruno Frohlich. Special thanks are extended to our research staff members Michelle Machicek, Zhamsranzhav Gerelbadrakh, Zhargalan Burentogtokh, Purvee Khatanbaatar, Eric Johannesson, Emma Hite, Jeremy Beach, and Dorzh Molor.

THE ANIMAL IN THE XIONGNU FUNERAL UNIVERSE: COMPANION OF THE LIVING, ESCORT OF THE DEAD

Hélène Martin

Introduction

When animal remains are uncovered in a funerary context, the question of whether or not they are associated with human deposits must be answered, and their nature must be specified: offerings to the deceased, leftovers from a funeral meal, or purely symbolic representations whose function is to intervene between the world of the living and the world of the dead. While the answer to the first two questions usually depend on archaeological and taphonomic data issues, which can generally be resolved though the course of excavations and/or laboratory analyses, the third is more complex. Indeed, it requires identifying the intention behind the deposit. To illustrate this point, I will discuss the importance of animal species in the Xiongnu funeral universe.

Recent studies show the Xiongnu as an independent civilization engaged in both sedentary and nomadic lifestyles (Törbat 2004; 2006; Holotová-Szinek 2007). Nevertheless, despite having drawn economic subsidies from agriculture, their way of life seemed to be predominantly based on livestock, and they therefore maintained a close relationship with animals such as cattle, goats, sheep and, more importantly, horses.

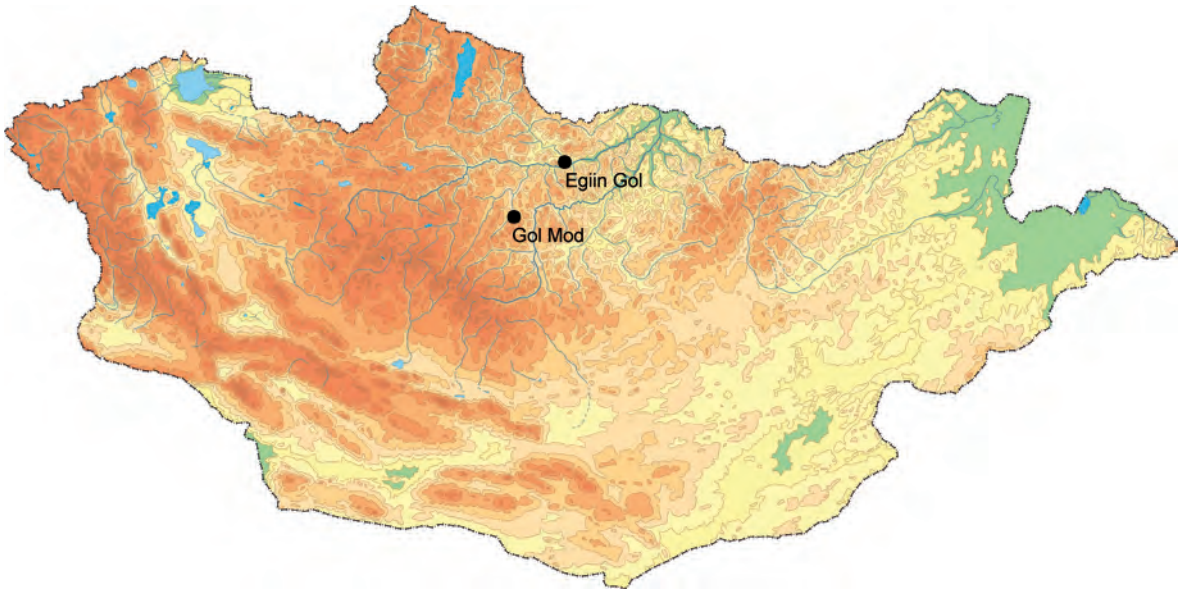


Fig. 1. Location of the sites discussed.

For these distinguished nomadic riders, horses, faithful companions in life as well as in death, were an integral part of the culture's belief system. Many of their remains have thus been found in the tombs. Recent archaeozoological studies conducted on animal remains unearthed from these graves, remains which consist of well-preserved materials from an enclosed environment, have helped to define this interaction between man and animal.

The observations described in this paper are based on studies carried out on various tombs from two cemeteries: the Gol Mod 1 necropolis, Arkhangai aimag, and the Burkhan Tolgoi cemetery, located in Bulgan aimag in the valley of the Egiin Gol, a tributary of the Selenge (Fig. 1). The data collected will contribute to the reconstruction of funerary gestures and practices, and thus also to the reconstruction of the spiritual concerns behind them.

The Archaeological Record

Animal Remains from Gol Mod 1

This cemetery stretches for about 400 hectares, at an altitude of approximately 1,400 meters, and is located on the northern, eastern and southern sides against a mountain reaching 2208 meters at its peak. It is bordered to the south by the Nariin Gol and to the north by the Gol Mod stream. It includes more than 380 burials and consists of two main types of mortuary complexes: (a) the larger quadrangular, sometimes rectangular or trapezoidal, shaped terrace tombs with a ramped entryway, and (b) the more modest burials marked by a simple stone circle. The smaller burials can be independent or linked to a monumental complex, in which case they are regarded as satellite tombs (Mongolie 2003; Desroches/André 2007).

The animal remains studied come from the T20 monumental tomb and from three satellite burials of the T416 tomb complex, from tomb 416-B, 416-E, and 416-F.

The Monumental Terrace Tomb 20

This tomb's construction dates approximately to the first century AD. The full excavation of it allowed for the drawing of the tomb architecture and clarification of the deposits, including many animal remains (Desroches/André 2007). The tomb has an entryway on the south side roughly 18 meters long, and a wooden chamber 4 × 3 m at the bottom of the roughly 18 m deep tomb pit. I will now introduce the animal deposits from the deepest levels to the higher levels, thus likely following the order in which they were deposited during the interment. At the deepest levels of the pit, on the eastern side of the burial chamber, animal remains that had probably been in containers of copper alloy were discovered. The excavated remains yielded evidence of the initial presence of pieces of horse and caprine meat (saddle, rump, fillet and loin) and therefore qualify as food-type deposits. The first three lumbar vertebrae of a horse older than five years old, and a portion of a mature horse's coxal, were identified. The latter was severed in front of the acetabulum. It is not impossible that this piece comes from the same subject as the lumbar vertebrae. In addition, a tibia from an immature caprine, for which it is not possible to specify whether it is a sheep or a goat, was also found. Finally, a rib fragment, for which it is not possible to specify

whether it belonged to a horse or bovine, was also found. Regarding the horse deposits, it is not possible to specify whether the remains identified in this level belong to some of the individuals deposited in the levels above, but such an equation cannot be excluded.

Around the middle levels of the tomb pit, i.e. about 8 m above the funeral chamber, and on the northern side, many animal remains were found in a layer of charcoal and ash. The skull of a bullock approximately two years old, including the mandible and hyoid bone, as well as the remains of forelimbs, radio-ulnar, metacarpus, carpus and phalanges, probably belonging to the same animal, had been deposited there. A portion of rib was also found. The sex of the animal cannot be specified. No evidence relating to its method of slaughter or carving was found on these pieces, though they were particularly damaged.

Aside from the bullock remains, almost all the animal remains found in this level relate to horses. 16 subjects are represented, eight males and eight females. The skull, mandible and the first cervical vertebra were systematically deposited (Fig. 2; 3). No elements from hyoid bones were found, but they were probably destroyed *in situ* from the acidic sandy sediment. 32 portions of forelimbs including the radio-ulnar, the pisiform, the carpus, the metacarpus and the three phalanges were arranged near these horse heads, in anatomic order. Obviously, it is not easy to establish a strict connection between particular heads and portions of limbs. However, the sizes of the pieces and their state of maturation indicate that the various pairs of identified limbs belong, in all likelihood, to the same subjects as the identified skulls. The analyses carried out showed that each horse was definitely represented by its head as well as by its first two cervical vertebrae and its two "forearms", which were purposefully deposited in anatomical arrangements.

Two horse sacra were also found in this level. It cannot be excluded that they belong to two of the adults identified, but it is not possible to specify to which ones. In addition, some extremely damaged rib remains, which could not be exactly determined, were uncovered in this level. It is possible that they also belong to the horses, since triple deposits of skulls, limbs, first ribs were common within Xiongnu mortuary contexts.

No evidence of killing or meat carving has been found on these remains. It is therefore not possible to specify whether the portions of horses that were deposited included organic matter or if they had been totally or partially de-fleshed. However, the phalanges were extremely damaged, crushed, and sometimes destroyed[1]. Some were deformed, and thus show that the bone was fresh at the time of deposit on the layer of hot charcoals. A total of 16 horse heads, eight female and eight male, probably separated from the body at the first cervical vertebra, were deposited in the T20 tomb. The animal "forearms" had also been deposited and placed before the head in anatomical position. This arrangement referred to the image of animals in a "natural walk" position, the metacarpus slightly folded under the radius and the phalanges forming an angle with it. It cannot be specified whether the males were stallions or geldings. These horses were mostly relatively young subjects, or adults, with the exception of two old males. Indeed, the ages of the represented subjects span from one and a half year old to more than ten years old, the females being slightly younger than the males. The average size of the animals at the withers is 1.44 m. This stature is closed to the higher limit of Przewalski horses whose size is usually between 1.20 m and 1.50 m. These animals have a p1 or "wolf tooth" on most mandibles: this is an archaic characteristic that is common among modern Mongolian horses. All heads looked towards the north and were placed on their right or left side. The position of these

1 This was particularly the case for the third phalanges.

Fig. 2. Gol Mod. Tomb 20. Deposition of horse remains in the charcoal layer
(photo Mission archéologique française en Mongolie, Jerôme Magail).

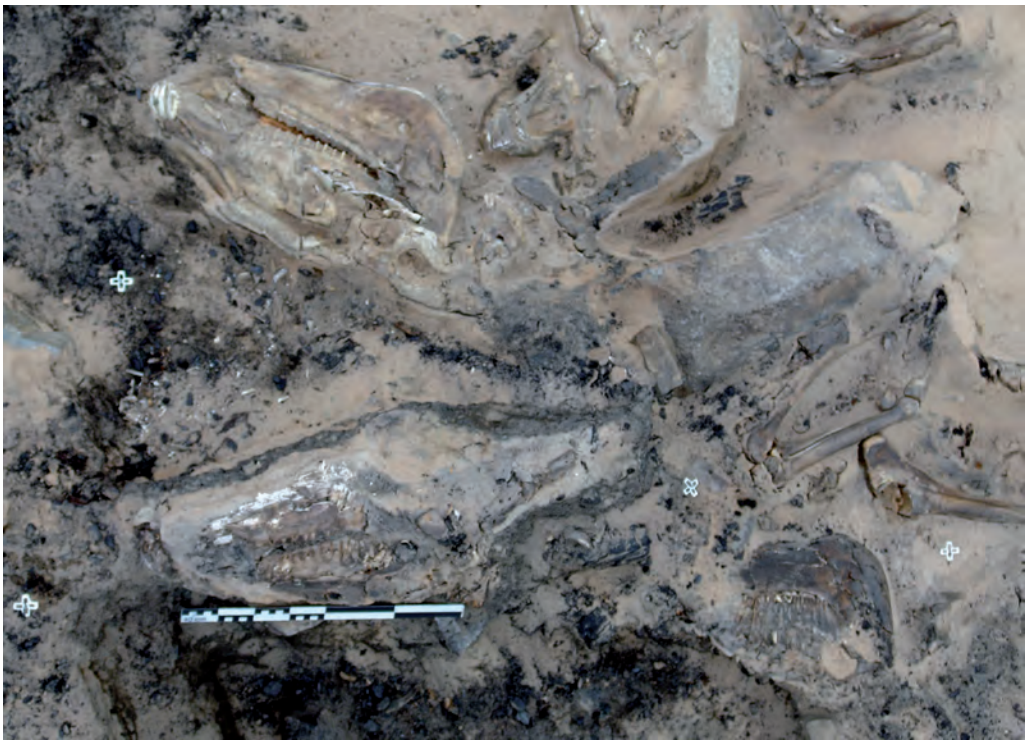


Fig. 3. Gol Mod. Tomb 20. Depositions of horse heads and lower extremities
(photo Mission archéologique française en Mongolie, Jerôme Magail).

remains in the pit clearly indicates an association of the animals to the funeral interment, while at the same time isolating them from the chamber of the deceased. The cumulative deposits can be considered in their original contexts as they consist of almost exclusively horses and are represented by large quantities and certain parts that reflect a clear choice.

The season of the animals' slaughter was examined through the analysis of the cementum rings on the dental remains. This precise determination can be of great value to research, since, in Central Asia, it has been observed that timings of death and burial were not always synchronous. The burial was sometimes delayed, for reasons including severe weather conditions, and the obvious factor of scale in the construction of a tomb as significant as tomb 20 necessitated relatively long efforts, even with the presence of many participants. It is not impossible that the death of an individual might sometimes occur well before the completion of tomb construction. The determination of the season(s) of killing is therefore essential for understanding these funerary practices.

The results show that the horses and the bullock were all slaughtered during the summer period, which corresponds to our current summer. Moreover, the fact that some phalanges underwent a deformation upon contact with the still burning charcoal indicates that the deposited bones were fresh and therefore the deposit of these animals followed most likely very closely the slaughter – a few days later at the most. The large amount of heads and limbs from horses, as well as some preserved connections, seems to suggest that the slaughter of these animals was carried out at the time of the interment of the deceased. However, further complexity of funeral rites must still be considered.

One cannot exclude the possibility that the slaughter of animals might have occurred prior to the burial of the deceased. Extreme weather conditions may have allowed for relatively good preservation of some of the animals' bodies after slaughter, thus allowing for the death, the burial, and the animal sacrifices to possibly occur at different times. In order to pursue this further, one would need to compare the timing of the slaughter of the animals associated with the tomb with the timing of the person's death. Unfortunately, since such analyses have yet not been carried out on human dentition remains, the comparative timings cannot be determined. However, this is one key question for the reconstruction of the funeral ritual. Nevertheless, the following typology of offerings can be proposed from the animal deposits of tomb 20:

Beside the burial chamber: depositions of portions of horse and caprine meat, perhaps originally in copper alloy containers, functioned as food offerings to the deceased.

A few meters above the burial chamber: on a level apparently devoted to the deposit of sacrificed animals on a bed of charcoal embers, were arranged horse heads and "forearms," in a way that evokes walking animals, as well as the head and forelimbs of a bovine. These comprise partially deposited and, maybe, partially consumed animals, as meat is sometimes ritually consumed at the time of offerings to deceased persons and/or deities. Thus, the more fleshy parts are not well represented in this level of the grave. It is important to remember that among the burial deposits were also food offerings taken from more meaty portions of numerous horses and a bovine, and that these could have come from some of the animals already represented by their heads and their "forearms".

Perhaps also closely related to these assortments of animal parts, are the pieces of harness ornamentation decorated with semi-fantastical beasts (see Eröösl-Erdene, this volume) placed in the eastern part of the burial chamber, an area far separated from the upper deposits of horse and bovine remains. Several depictions of a horse-headed animal with artiodactyla legs, probably *cervidae*, and *ibex* horns were placed on silver-covered iron plaques. These decorative elements,

together with the horse remains in the upper charcoal and ash layer, open the door to a symbolic dimension closely linked to the Xiongnu imagination.

The Satellite Burials of the T416 Terrace Tomb

The animal remains from within six satellite tombs, set in one row along the eastern side of the monumental T416 complex, were also researched. Tomb 416-B, though disturbed, yielded a fragment of horse acetabulum found in the sediment and a proximal portion of left bovine tibia discovered near the place where the deceased's left foot would have been. Along the western edge of the burial pit, a portion of deer antler was discovered. It is a shedded antler including a portion of the beam and two brow tines, from a male aged over three years old. The most interesting deposit is a horse head found in the northern sector of the tomb, placed at the same level of the initial human interment and outside the furnishing that contained the deceased's body. Given its nature and situation, this young horse's head fits entirely within the mortuary traditions of the Xiongnu. This strongly suggests that it was found in its original location of the grave.

The left petrosal bone was discovered near these remains. It appeared by its ventral side and its position relative to the dental series places it in the "logical anatomical situation". The covering bone had completely disappeared. The presence of this petrosal bone in "anatomical position" is important because it seems to endorse the initial presence of a cranium, most probably complete, of which only this piece and the jugal teeth remain, the covering bone having been destroyed. Thus, the presence of upper and lower teeth as well as the left petrosal bone in anatomical position suggests the initial presence of a complete horse head, and field observations show that it rested on its frontal side. It is important to note that no trace of the hyoid bone was found.

Since the bone matrix was destroyed, no potential evidence of carving and/or meat extraction, for example of the cheeks, could be observed. For the same reason, no clues related to the manner of separation, slicing or cutting, of the head from the animal's body could be found. It is thus also not possible to determine whether the animal died of natural causes or was slaughtered. The state of dental maturation shows that the animal was approximately three years old when it died. Further dental analyses indicate that its death occurred during the summer, but this estimation could be refined by conducting a cementochronological analysis[2].

It is difficult to specify the exact timing of deposition, and thus whether this deposit was a primary or secondary one, as well as to estimate the time between the initial tomb installation and its subsequent disruption. However, considering the nature and position of the dental remains, it is reasonable to assume that they are in primary position and that the head bone would have been deposited on its frontal side with the muzzle oriented northwest. Indeed, at the time of discovery, the jugal teeth were in anatomical position. The right-side ones appeared on their occlusal surface, and the left-side ones on their vestibular, mesial or distal, surface. Although the surrounding bone was destroyed, the teeth can be seen as lying "down" in a loose anatomical position. The dental arch, thus defined, was located to the northwest of the interment, most

2 Again it would also be interesting to verify, through cementochronological analysis of human remains, whether the season of the deceased's death and that of the horse are the same.

probably placed outside this container, more or less at the level of the initial location of the deceased's head. The jugal teeth, as well as the incisor teeth (also superior), which were later found in the same area, were in anatomical position. The partial dental series included the fourth premolar, the first and the second upper right molars and the first and the second upper left molars, in anatomical position. The lower jugal teeth, which were very damaged, and for which it was not possible to specify the rank (premolar or molar), had manifestly slipped slightly from their initial position and were also discovered near the upper left jugal teeth, indicating that the mandible was probably also initially present. The upper jugal teeth were located a little lower, as the head was resting on its frontal side. The third lower left incisor was found near the initial location of the nasal bone. This indicates that it shifted from its original location, maybe during the disturbance that occurred after the deposit. It appeared on its medio-lingual side, the apex being directed towards the supposed location of the mandible. The teeth were extremely damaged, some having been destroyed that only debris remained. It is important to note that the fourth upper right premolar and the third lower right incisor are not worn out, just as the other jugal teeth are not very worn out, which indicates that the animal was approximately three years old. As no canine was found, this would tend to indicate that the horse was female, but it is not possible to be certain on this point, since the absence of these teeth could be the result of the poor conservation conditions. However, under similar conditions, canine remains were discovered in other tombs belonging to this complex. The third lower incisor shows a large crown, stretched in the mesio-distal direction, which is a morphological character that can be found in *Equus caballus*. In this accumulation of animal remains, a fragment of horse coxal bone was also identified. From an interpretative perspective, while the coxal fragment and the bovine tibia in the burial seem like food remains, perhaps linked to funerary rituals, the horse head appears rather like a deposit with a symbolic sense.

Regarding the deer antler, it was discovered in an area of the burial penetrated by post-deposit disruption. Its situation thus suggests that it was an abandoned tool used by looters for digging, an interpretation that accords with related situations of objects found in European pre-historic graves. This conclusion, however, may be premature, due to the fact that the antler cannot be directly connected to such an activity. We must also consider the possibility that its location may have a more symbolic significance as an offering to the deceased. Given the altered state of the antler, especially its surface, it was not possible to detect evidence of its use as a digging tool – evidence that can only be determined through the use of a microscope.

In tomb 416-E, a distal portion of a bullock's left scapula, a large sesamoid bone and a distal portion of a horse's left humerus, as well as portions of ribs not specifically identified, were found. In tomb 416-F, a particularly damaged head from a young horse, approximately three years old, had been buried on its frontal side at the same level as the deceased. As in the case of tomb 416-B, the horse head seems to be in primary position and deposited on its frontal side, the muzzle looking towards the north-west, the disruption having occurred probably in a minimum of 1.5–2 years after deposit. Also, like the remains of the horse head in tomb 416-B, the strict anatomical position of the horse's lacteal and definitive incisors in tomb 416-F means that the head was "fresh", i.e. still with organic matter, when it was buried. Evidence observed during excavation shows that decomposition occurred in a contained space, rather than exposed to the open elements, with the sand gradually replacing the destroyed bone matter. The dental maturation stages indicate that this horse also died during the summer period. As with the other horse heads mentioned, the absence of canine teeth makes it impossible to

determine the sex of the animal, and the poor preservation of bone material prevents examination for evidence of meat extraction, manner of severing from the body, or exact cause of death.

The remains identified in these three graves affirm patterns of animal deposition observed in other Xiongnu funerary contexts. On the other hand, the remarkable quantity of horses and the assemblage of portions of these animals placed within the monumental tomb 20, demonstrates a slightly different practice, for which it is possible to consider that the animals were partially deposited in the grave and perhaps partially consumed.

The Animal Remains from Burkhan Tolgoi in the Egiin Gol Valley

In the majority of cases at Burkhan Tolgoi, the heads, tails, and forelimbs, and sometimes also the two first pairs of ribs, of individual animals were deposited in burial niches, each set of remains wrapped in the animal's skin. The offerings consisted of mostly caprine and bovine, as well as horses. Sexes varied and ages ranged from fetuses to older adults. Although the animal offerings were placed almost exclusively in burial niches just north of the head, outside of the containments for the deceased, many bones were also found in the upper portions of the human interment areas or in the fill of the burial pits, removed from their original positions as a result of grave disturbance. Many of the tombs were oriented east-west, though the majority was constructed with the head of the deceased oriented north, as is standard in Xiongnu graves elsewhere. But in all cases at Burkhan Tolgoi, the burial niches were placed to the head of the deceased. Of the more than 100 burials at this cemetery, the majority of which contained animal remains, the following summary considers twelve example burials in detail.

Tomb 15 is oriented north, as are the majority of Xiongnu burials[3]. At the bottom of the burial pit, a funeral chamber contained a coffin in which had been deposited a young man's body to which seven arrowheads and the remains of a bow were associated. Next to the funeral chamber, the remains of another container were uncovered, including two bone sticks. To the north of the burial chamber and its coffin, a niche contained the remains of various animals: male and female sheep, a goat, a bullock and a horse. The deposits included all or part of the heads of these animals, as well as the phalanges, and evidence was found to indicate that these remains initially consisted of skins wrapped around each animal's head. The horse remains also included the tail and the first two pairs of ribs.

Tomb 18 is also orientated towards the north, and was filled with ash, charcoal and rubified sediment. In the higher levels of in the southwest portion of the burial pit, surrounded by four small stones, a shedded deer antler of an adult male had been deposited. The tomb fill also yielded caprine and bovine remains of limbs, scapula, femur, humerus, and phalanges, as well as fragments of an undetermined bird-bone diaphysis, though these remains, as a result of burial disturbance, were probably found not in their original location.

Aside from this disturbed collection of animal bones, most of the deposits were located in a niche on the northern side of the tomb, towards the back of the pit and separated from the containment of deceased. These deposits consisted mainly of hides over the heads, the ends of the

3 Specifics of this burial and its remains are published in a more detailed analysis (Crubézy et al. 1996).

limbs, and the tails of 17 animals, three of which were fetuses. Among these are five bovine, including a bull and a calf or heifer, five caprine out of which four were goats, and four horses, including a colt or filly, two adult females and one adult male. The vast majority of recovered hides had been wrapped around the animals' heads before being deposited; however, two of them, belonging to bovine, seem to have been spread out, one of them against the back of the niche. The first two pairs of ribs were also associated with these offerings, generally deposited with the animal hides, most of the time beneath the head. The bovine and horse skulls were oriented north and the caprine skull were oriented east or west. Bone preservation was sufficient to determine that the separation of the head from the spine was done at the atlanto-occipital joint and carving marks are evident on some occipital condyles.

The animal remains were found in fairly good condition, though, on the bovine, apical cysts with a periosteum reaction were found. In connection with this, it is important to mention that stage 2 anthesopathyes were reported on all first phalanges that could be associated to the bull, on the front side of the proximal end. An extension of the front distal articular face of these same phalanges was also observed. These phenomena are usually related to draught activities and may be the results of cart pulling. Of the four horses found in the niche, two still wore elements of harnesses, particularly the bit in the mouth. As for the bullock, two metal circles close to the horn bases on its forehead also seem to represent evidence of harnessing equipment.

The horse remains were the last deposited in the niche, with the fetuses as the final depositions. A horse fetus was found on top of a mare's skull, against the northern wall of the niche, and the same was observed for a bovine fetus. The bones of a third fetus, from a caprine, were closely interlocked within a goat's skull. It is not possible to specify whether these fetuses are the offspring of the adult females identified in the niche, but the disposal of the horse fetus overtop the skull of the mare suggests such a possibility. In this light, it is also important to note that a portion of human fetus coxal was found on the top of the coffin containing the human skeleton.

Cementochronological analyses were conducted on the teeth of the deposited animals, as well as on one of incisor teeth of the deceased. The results indicate that the deceased, as well as two goats, two horses, and the calf, died during the summer season. Precision on some remains revealed that a bovine died at the beginning of the summer season and another died at the end of the winter season. These collective results show that most of the subjects, including the humans, died during the summer. Pathology on the bovine that died outside the summer period shows that they might have suffered from cement growth mode problems[4]. The animals could still have been deposited in the summer if they had died earlier, their remains having been stored, and then deposited in the tomb. They could also have been sacrificed during a ceremony whose purpose is indeterminable from the archaeological contexts.

Cementochronological analysis conducted on an upper human canine in tomb 19 indicates that this individual, like others, died during the summer season. In the burial niche, located just to the north of the head of the deceased, a deposit of animal remains was carried out in three phases. The first phase consisted of an installation, in the far western corner of the niche, of a bovine hide along with phalanges, tail, and head. The skin was wrapped around the head, which was placed facing west, and the first two left ribs had been deposited under the skull. In the eastern corner of the niche was placed a goat head, oriented north, and phalanges, both wrapped together in goat skin. In the second phase, the hides from three male or female goat kids had

4 At this stage, it is important to remember the apical cysts observed on certain teeth.

been deposited. As with the first bovine and goat, these rolled up skins were wrapped around the head and phalanges of each animal. In two cases, the first two pairs of ribs were also found under the skull. The skulls each faced north, north, and northeast. The third phase consisted of the deposit of a filly, whose skull was placed looking west, with a bone bit in its mouth. The skin containing the head and phalanges was once again rolled up. Under the skull were placed two first symmetrical ribs, one of which had ossified rib cartilage.

In tomb 20, the hides of two adult goats and one kid had been deposited wrapped around their respective animal heads. One adult skull faced north, and the other faced west. The hide of a calf or heifer as well as a goat were also deposited, perhaps at the back of the niche, those these remains were disturbed from their original position. Additional evidence of the initial presence of the remains of two adult bovine and another calf or heifer was also found, but these remains, too, were scattered as a result of burial disruption. It appears that the first pairs of ribs were deposited for each of these animals. At the center of this niche, three bovine hemi-mandibles had been deposited, stacked on top of one another. No horse remains were found in this tomb.

In tomb 25, two bovine hides, rolled up with the heads, phalanges, and tail, had been deposited at the back of the burial niche, again, separated from the body of the deceased. The skulls were each oriented east. The unwrapped sacra, tails, and rear legs portions of a bovine and caprine were also deposited. Analyses carried out on the dental remains of two bovine, as well as on a human first premolar, indicate that all three specimens died during the summer season.

In tomb 26, horse, caprine, and bovine sacra had been placed in the antechamber located at the head of the coffin. On top of this, probably removed from their original positions in the course of burial disturbance, were found a caprine sacrum, three first sacral vertebrae, one from a very young horse and the other two from very young bovine, and an indeterminate caudal vertebra. Within the coffin, perhaps placed on a dish, were the sacrum and caudal vertebrae of a caprine. The deposits in the burial niche may be divided into two phases. The first phase included the placement of four horse hides, each wrapped around the heads, phalanges, and sometimes tails of the respective animals before deposition: a young colt whose skull was oriented east; a mare skull oriented southeast; and two young horses of indeterminable sex, whose skulls were oriented southeast and north. Each of the horses had a bit in its mouth and, in some cases, remnants of metal harnesses. The second phase included the deposit of two hide-wrapped sets of skulls and first pairs of ribs: one of a bovine oriented east, and the other a horse facing north with a bit was placed in its mouth. Observations were made of a periosteum reaction on both the horse and the bovine dental arches. For the bovine, an extension of the distal articulary facets is probably related to a traction activity.

Many animal remains were found in the filling of tomb 27, including sacra, two horse, four bovine, three caprine, a few vertebrae, and a caprine ankle bone which had been punctured[5]. However, most of the remains were found in the niche laid out at the head end of the outer coffin. In this space was deposited a head, phalanges, tail, and first two pairs of ribs from a bovine, all wrapped in its hide and then covered with a large stone. Both maxillas showed a strong periosteum reaction. The phalanges were placed under the ribs, suggesting that the ribs had originally been deposited inside the wrapped skin, unlike the skin-wrapped deposits of animal bones in other burials. The head and phalanges of a young male horse, wrapped in its hide, were also

5 Incised astragali have been found in Xiongnu tombs elsewhere, including several deposits of marked bones in burials at Ivolga in Transbaikalia (Davydova 1996) and a large discovery of 36 marked and burnished astragali in a single child burial of a satellite grave at Gol Mod 2 cemetery in Mongolia (Miller et al. 2006).

deposited in the niche. Although all the bones were in place, the skull and the mandible had been disarticulated before being deposited beside one another and evidence of carving was found on the right-side occipital condyle. Both maxillas show a strong periosteum reaction, and apical cysts were found at the roots of the first and second premolars. Within the outer coffin, apparently out of their original position, sacra from caprine, a bullock, and a young horse were found, the latter two of which could possibly belong to the animals represented by their heads in the niche. Seasonal analyses on a bovine tooth and a human tooth indicate that both died during the summer.

In the fill of tomb 28, pieces of a horse femur diaphysis were discovered, as well as many rib fragments. The femur had been cut up and showed signs of carcass processing. It also showed a stage 2 anthesopathy on the epicondylian muscle. The head, phalanges, and tail of a bovine, probably a bull, were wrapped in its hide and set in a burial niche outside the head of the coffin. The first two pairs of bovine ribs were also placed with these remains, one pair on the muzzle and the other underneath it, and a bovine sacrum, probably from the same animal, was placed in the niche as well. The maxillas both showed a stage 3 parodontopathy with important periosteum reactions. The same type of deposit was found for the remains of a male horse, with the bit and shank of a harness in its mouth, along with a horse sacrum that may have belonged to the same animal. The beginning of metopism is visible on the skull, and a parodontopathy at stage 0–1 on the maxillas. Sacrum fragments from another horse and a portion of caprine spine were placed at the back of the niche. The cementochronological analysis performed on a lower human canine shows that the subject died during the summer season.

In the niche of tomb 29, remains of a tongue, cervical vertebrae, sacrum, and limbs of a horse were deposited. The head of a male horse, which could possibly have come from the same subject, was found in a higher level placed in a stone containment. Bovine cervical vertebrae were also found, and the atlas exhibited pathological evidence suggesting the animal might have been ill. The analysis of a first human molar indicates that death occurred at the end of the winter season.

Tomb 30 was heavily disturbed. In the upper level of fill, bovine remains consisting of a portion of a left maxilla, a sacral vertebra, and two third phalanges, as well as a caprine lumbar vertebra, were discovered. In the burial niche, bone fragments of a skull, extremities of four limbs, and two pairs of first ribs from a bovine, perhaps connected to the remains in the fill, were unearthed. Two first phalanges show an extension of the distal articular surface, and a third shows an anthesopathy on the front side of the distal end, all symptoms suggesting traction activity for this animal. In addition, several connected caprine lumbar vertebrae from a kid were found at the bottom of the tomb.

Tomb 31 contained two people oriented east-west, only one of whom was buried in a wood coffin and had a head niche with animal bones, and the burial fill had many big pieces of charcoal. In the niche near the head of the one wooden coffin was placed the hide of a calf or heifer, approximately eight months old, wrapped around a skull oriented east, the same as the two human interments. The two first pairs of ribs had been placed under the skull. Portions of caprine spines and sacra belonging to several caprine and a single bovine had also been deposited. Cementochronological analyses performed on a calf tooth and a human premolar indicate that both died at the end of the summer season.

Tomb 33 was also oriented east-west, but contained only one individual. In the burial fill, along with large pieces of charcoal, were found two lower incisors, a sacral vertebra, and a left calcaneum fragment of a bovine, a horse premolar, a caprine rib and sacrum, and an undeter-

mined fragment of hyoid bone. In the middle of the burial pit, at a depth of 1.70 m, a bovine head was found oriented west, along with the first two pairs of ribs, which had been placed under the skull. The jaw had been dislocated, leaving one hemi-mandible articulated with the skull and the other resting on the head bone. In the niche at the bottom of the burial, located 2.15 m deep, were deposited four limb extremities (phalanges), a sacrum, and four sacral vertebrae from a bovine, most likely connected with the remains in the pit fill. Two additional sacral vertebrae and a sacrum from a young bovine were deposited as well. Also in the niche were placed six caprine sacra, among which were two adults, three younger ones, and a juvenile, kid or lamb, and two lumbar and three sacral vertebrae from a young caprine. Six caudal vertebrae from a young animal that could not be specifically determined were found.

Conclusion

The above investigations emphasize the pervasiveness of animal offerings in Xiongnu funerary practices. Despite disturbances in all the burials and the disruptions of the deposits within, the animal remains in these tombs provide an overall impression of the herds of the deceased going into realms beyond, and exhibit a hierarchy of species among the remains deposited, with horses at the pinnacle. The nature and position of the animal remains are thus not random, but represent intentional deposits that reflect the spiritual concerns of different groups within a larger cultural group.

Even though the tomb types vary, from monumental terrace tombs to small circular graves, many similarities in practices of animal offerings are evident at both Gol Mod 1 and Burkhan Tolgoi. The same collection of species is represented, and the same collections of animal parts have been deposited. These remains represent two types of offerings: first, food type donations which constitute offerings to the deceased or leftovers from a funeral meal organized in tribute to them, and second, purely symbolic donations that represent a sort of escort accompanying the deceased in the afterlife (Brun 2001; Méniel et al. 2005). The second type is particularly true for horses, but also for some remains of bovine and caprine, which could symbolize the livestock that belonged to the deceased. Whereas the represented species are the same for both types, the organization of deposition is different. Thus, at Burkhan Tolgoi, offerings often consist of hides wrapped around the animal heads, or spread out, and deposited in a niche separate from the body of the deceased. At Gol Mod 1, on the other hand, of the burials examined, no niches were constructed in the tombs. Instead, the animal remains were placed in the tomb fill, always outside the container in which the deceased was laid. Heads, portions of limbs, and sacra were deposited instead of hides. However, these observed differences must be moderated since the only animal remains analyzed at the Gol Mod 1 necropolis were from a monumental tomb and smaller satellite tombs, that is to say, from much larger and much smaller mortuary contexts than those at Burkhan Tolgoi. While some variability exists within the practices, the same assemblage of *taxa* and the same portions of animal remains were chosen. Furthermore, these types of deposits fit within the context of burial practices in Central Asia at the beginning of our era (Roux 1963; Tseveendorzh 1992; 1999; Schiltz 1994).

In addition, archaeozoological analyses of data concerning seasonality seem to evidence, in the cases of both Gol Mod 1 and Burkhan Tolgoi, that the killing of animals occurred mostly in summer or spring and that the burials of these offerings were not delayed, even though in some

rare cases, the death of some animals deposited would have occurred earlier than the subject's death and burial.

At both sites, it seems that there is some degree of hierarchy within the meanings of the deposits, with the horse representing the most "noble" animal. They are often deposited last, as in the niches at Burkhan Tolgoi, or in large quantities, as in the monumental tomb 20 at Gol Mod 1. The same kind of observations were made for the satellite graves at Gol Mod 2 necropolis (Miller. et al. 2006), where the taxa identified, as well as the nature of the animal remains deposited, constitute a standard assemblage similar to that outlined above. The remains identified at this site are mostly skulls, vertebrae, and elements of hind limbs, which correspond to those traditionally observed in a large number of Xiongnu tombs within Mongolia and Buriatiia. The distribution of remains varies widely between the graves, some containing numerous remains while others contain only a single bone or even a mere bone fragment, though horse remains are the most abundant. It is likely that the horses deposited in tomb 20 of Gol Mod 1 functioned in the role of escorts. This is also the case for the animals whose remains were deposited in niches set in the tombs of Burkhan Tolgoi, and which might have represented the livestock that belonged to the deceased.

Despite differences in depositional patterns of these "offerings", a certain continuity can be observed in the funerary gestures and related functions, as well as the beliefs that induced them. Indeed, these remains, which were categorically associated with the deceased while deposited separately from the body, relate to issues of identity among these groups. Recent research purports the presence of a powerful Xiongnu confederation, within which the beliefs of different groups were incorporated permanently into funerary rites throughout the regions. But variations, such as orientation of the individuals and the placement of animal remains to accompany the deceased, illustrate either chronological changes or regional differences expressed by distinct groups (Törbat et al. 2003; Batsaikhan 2002). Obviously, in a cemetery such as Burkhan Tolgoi that was in use for several centuries, these minor variations are sometimes difficult to appreciate. Across such differences, however, there appears a degree of continuity in the spiritual concerns of the group to provide accompaniment for the deceased into the beyond. The animal, a faithful constant companion of the living, would thus become the escort of the dead during the long transition.

It is significant to note the absence of dog remains in any of the above examined burials. Several dogs were found in the burials at Burkhan Tolgoi, but these were rare. Nevertheless, dogs have been found in other Xiongnu cemeteries of Mongolia like Burkhan Tolgoi, Tevsh Uul in Övörkhangai aimag (Tseveendorzh 1985; 1989), Morin Tolgoi (Mon-Sol 2001) and Baruun Khairkhan (Tseveendorzh 2000) in Töv aimag near Ulaanbaatar, as well as Khirgist Khooloi in Gov'-Altai aimag of Western Mongolia (Tseveendorzh 1985; 1989). All dogs were buried with special rituals, oriented in the same way as humans, all located on the left side, and some in coffins[6]. Researchers tend generally to consider that the horse was a "carrier" while the dog is viewed more as a "guide" in the afterlife (Törbat 2004; 2006; Batsaikhan 2002). The dog and the wolf were among the Xiongnu as a "totem", and those roles seem to persist from the past into the present.

The place of animals, particularly horses, in symbolic expressions during "prehistoric" periods pervades both Asia and Europe. Many tombs, rich or more modest, have yielded remains of horses – Man's eternal companion and a great influence in history. Populations of wild horses roamed Europe and Asia until the end of the last glaciations, and by the Paleolithic period horses

6 See Törbat 2004; 2006. We would like thank Tsagaan Törbat for our precious discussions and for the information provided to us.

constituted prime game animals for hunters. In European prehistory, Herodotus mentioned that for the so-called "royal" Scythian kurgans, hundreds of horses were deposited in the graves during the funerals of chiefs (Berguet 1964). Its presence as a faithful companion is testified as early as the Neolithic period in graves of the Khvalynsk culture in the region of the Volga and the Dnieper (Anthony et al. 1992; Anthony/Brown 2000), and the relationship between horse and man in funerary contexts developed further during the Iron Age in France. According to J. Gomez de Soto and J. Roulière-Lambert (1984) the importance of the horse is part of a European phenomenon during the Iron Age, particularly well illustrated by many graves of horsemen in Central Europe and the Iberian peninsula. During Iron Age II, closely associated deposits of horses and men occurred throughout Gaulle (Arbogast et al. 2002). Horse remains were discovered in the graves of necropolises as well as their surroundings, either in attached pits or in penned ditches. Thus, both in Europe and Asia, we may observe a universal engagement in the funeral symbolic primacy of the horse.

As for the Xiongnu of eastern Central Asia, the symbolic significance of animals is visible mostly through the deposits of faunal remains, but can also be seen in some artifacts such as the silver-decorated harness ornaments in tomb 20 at Gol Mod 1 (see Erööl-Erdene, this volume). On the larger pear shaped ornaments are depicted composite animals, whose head and body, and seemingly tail as well, are of a horse, limbs are from an artiodactyla (perhaps a *cervidae*), and horn(s) and beard are those of an ibex. Depictions of this same composite creature on the smaller silver-covered medallions include small wings on the shoulder and the thigh. These representations signify a concept in which several horned animals played a central role in the universe and may have had the role of mediator, thus enabling the deceased to move into the supernatural world beyond.

Similar evidence was found for older cultures in eastern Kazakhstan. There, in the princely kurgan of the 3rd century BC site of Berel', 13 horses were discovered, on the foreheads of which fake ibex horns had been fixed. In Kurgan 1 at Pazyryk in the Altai, S. Rudenko and M. Griaznov uncovered the remains of ten horses deposited outside the burial chamber (Rudenko 1970), indicating that animal sacrifices during funerals were often organized on a vast scale. According to J. Magail (2003, 199) "the most important rituals must have been carried out when the clan was about to cover the tomb".

During these ceremonies, the human/animal relationship could, in fact, be illustrated in a very complex way. Thus, even in the middle of the 18th century, Gmelin (1751–1752) drew attention to the union of the living and the dead during these feasts where horses could be partially eaten and partially buried in the grave or exhibited beforehand being placed in the tomb (Brunaux 2000). This may also be suggested for the animals placed in the Xiongnu tombs of both Gol Mod 1 and Burkhan Tolgoi, where the portions of the animals corresponding to the more meaty parts are missing.

Acknowledgements

This study is part of the international research project conducted by the Mission archéologique française en Mongolie (MAFM). In this regard we want to thank Jean-Paul Desroches, Director of MAFM, Director Damdinsüren Tseveendorzh, Guilhem André, Ursula Brosseder, Bryan Miller, Chimiddorzh Erööl-Erdene, Juliana Holotová-Szinek. My special thanks belong to Tsagaan Törbat for his precious information and for the many positive discussions we had about Xiongnu culture.

GENDER RELATIONSHIPS AMONG THE "XIONGNU" AS REFLECTED IN BURIAL PATTERNS

Yang Jianhua

The examination of gender relationships from burial contexts is an important tool in understanding Xiongnu social structure. Within the Xiongnu polity, however, there were many ethnic groups with different funerary rites, and this makes the study of gender relationships more complicated. It is easier to study gender divisions with mortuary data than settlement data, working through examinations of burial size and form, quantitative and qualitative analyses of burial objects, and studies of spatial distributions of male, female, and children's burials. This study examines social relationships among the Xiongnu using data from previously published reports concerning male and female burial distribution, grave style, and grave goods.

Xiongnu sites are mainly distributed in Mongolia and Transbaikalia, but include a handful of sites in northern China. Burials from two sites in Transbaikalia, Dyrestui and Ivolga, and one in northern China, Daodunzi, were thus used for this study. Two sites, Maoqingguo and Guoxianyaozi, of the early Warring States period of the late 5th–4th century BC in northern China were used for comparative material. The excavation reports offer details, such as a burial plan for each cemetery and the sex and age of the deceased, and show all funerary objects.

Dyrestui Cemetery

A total of 130 graves from Dyrestui were excavated and published, providing a good analytical sample (Miniaev 1998). The whole cemetery can be divided into clustered groups of burials arranged north to south, numbering III, IV, V, VI, I, and II respectively (Fig. 1). With the exception of cluster VI, the center of each cluster has some large tombs with surface stones and a shaft pit beneath containing an inner coffin and outer coffin. These are similar to typical Xiongnu burials found throughout Mongolia. Several smaller pit graves with no discernible stone coverings also surround the larger stone-covered pit tombs in the center of the clusters. Judging by spatial distribution and size, we can see that the deceased in the stone-covered tombs constitute those of a higher social status than in the other burials.

78 individuals were aged and sexed for the report, accounting for 60% of all the burials (cf. Miniaev 1998, 104–106). According to these results, single adult males, or an adult male and female pair, were buried in all the pit tombs with a stone covering. The only exception was burial 43 in cluster III, which contained a child (Fig. 2). This burial also contained the only bronze cauldron in the cemetery, which shows that some children had a higher social status. Men, women, and children were buried in the surrounding pit graves. Since the larger stone-covered

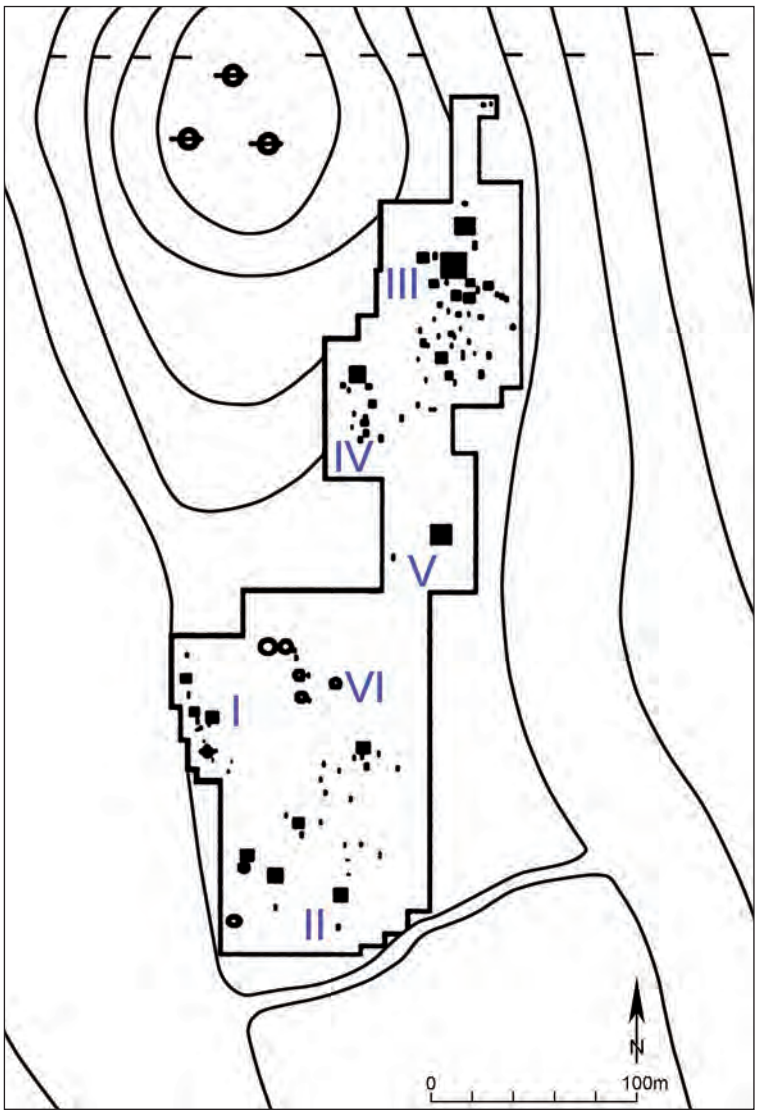


Fig. 1. Dyrestui. Ground plan of cemetery (after Miniaev 1998, Fig. 6).

tombs were heavily looted in ancient times, we cannot sufficiently analyze or compare the objects from them. We can, however, compare burial objects from the numerous other undisturbed male and female burials.

Bronze openwork plaques constitute the most ornate burial offerings in the cemetery yet were seldom found interred with men. Instead, bone bow plates, arrowheads, and spoon-shaped pendants were the items of male burials[1]. The burial objects from some female burials, on the other hand, were both large in number and high in quality. The most lavish of them are found from two groups including (a) burials 49, 51 and 52, and (b) burials 102, 106, 107, and 108.

1 These items were restricted to male burials, with one exception: a female in burial 118 was interred with several spoon-shaped pendants.

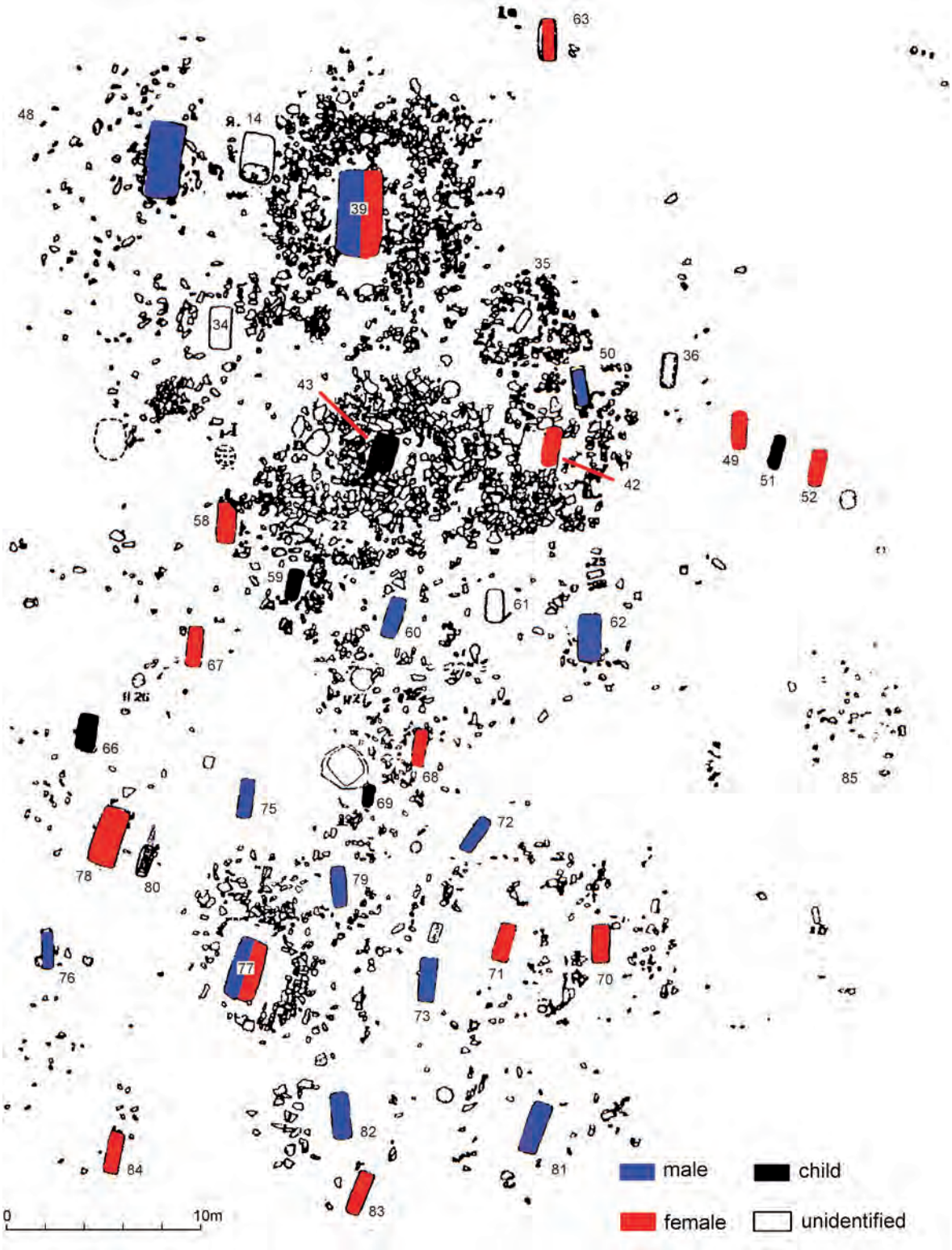


Fig. 2. Dyrestui. Cluster III with large stone covered tomb 39, and burials 43 and 51 of children, and 49 and 52 of young women (after Miniaev 1998, Fig. 29).

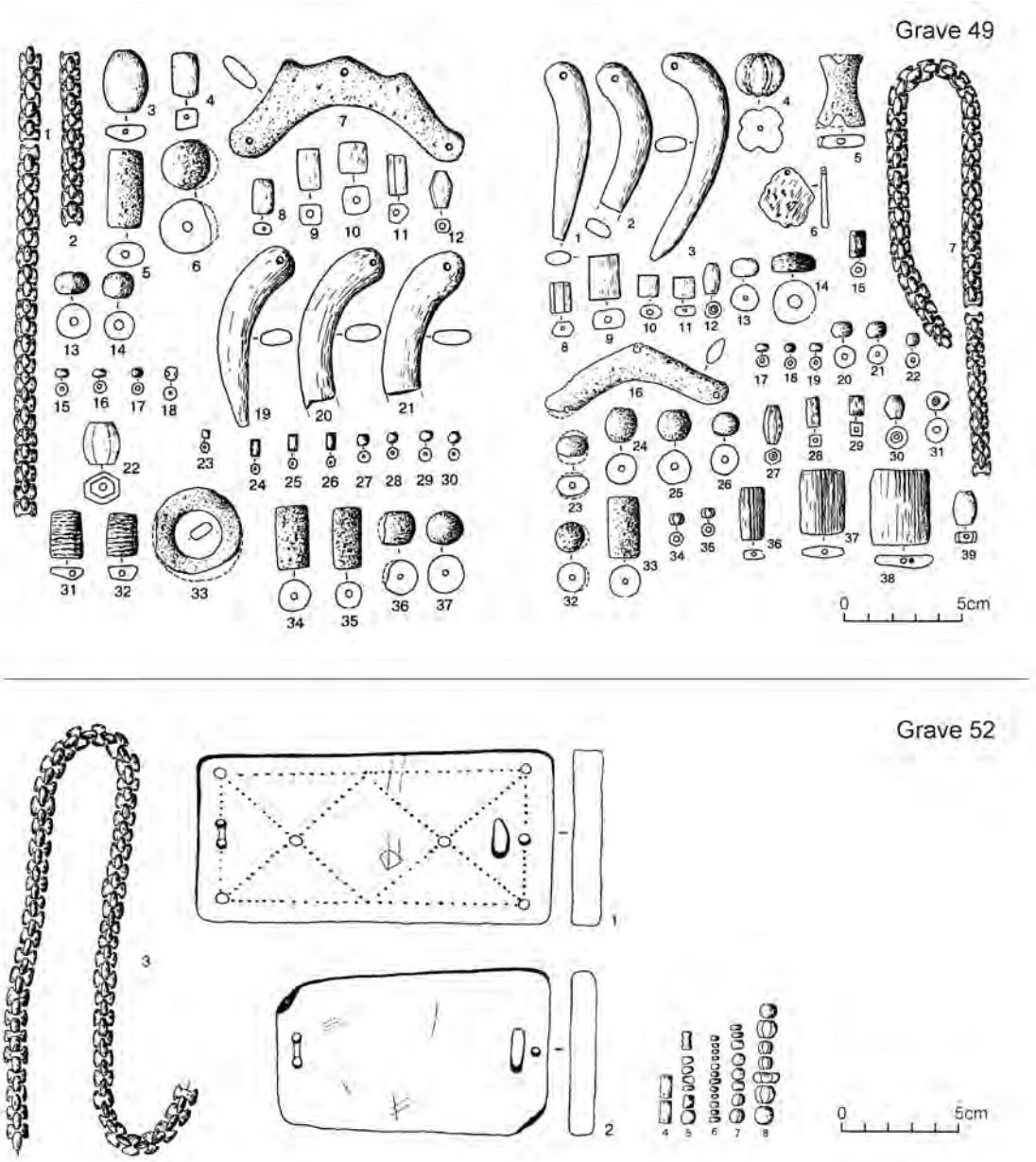


Fig. 3. Dyrestui. Ornaments from burials 49 and 52 (after Miniaev 1998, Pl. 32–34; 36).

It can be noted that single female pit burials sometimes had a richer amount of burial goods than those of men in pit burials, however no single female burials were found in central stone-covered burials. This suggests that leading males were higher than all females in social status, but some females were richer than some males even though their social status was lower than that of men. In other words, while men in general had higher social status than women in Xiongnu society, there were exceptions.

The group of smaller pit burials 49, 51 and 52, located in cluster III (Fig. 2), contained two young females around 20 years old and a child. These burials are located east of the large stone burial 39, and at the eastern edge of the whole cemetery. They are arranged in a line from east to west with the child of burial 51 in the middle (Fig. 2). The main burial goods were beads and

Fig. 4. Dyrestui. Cluster II with female burials 102 and 106–108 (Miniaev 1998, Fig. 26).

other ornaments, such as sickle-shaped and hanger-shaped ornaments (Fig. 3). The other group of burials 108, 107, 102 and 106 were older females in their fifties except for burial 106 which yielded a young woman (Fig. 4). These four graves contained many ornaments but no pottery (Fig. 5). Burial 107 was located in the middle, with burial artifacts including a variety of beads as well as bronze rectangular plaques, animal ornaments, and openwork rings. Burials 102 and 108 were nearby, and contained a similar assemblage of beads, bronze rectangular plaques and openwork rings. Burial 106 of a young woman was located on the other side, with only openwork rings and beads as burial artifacts (Fig. 5).

These two groups of female burials represent two ornamental assemblages – the first containing sickle-shaped stone ornaments, the second bronze openwork plaques and rings. The women of these two groups were the richest of those in the unlooted burials and were interred with the most elaborate ornaments in the cemetery, and they can thus be assumed to hold higher social status than commoners. In conclusion, this cemetery shows that some men had a high social status, and some women were richer than common people.

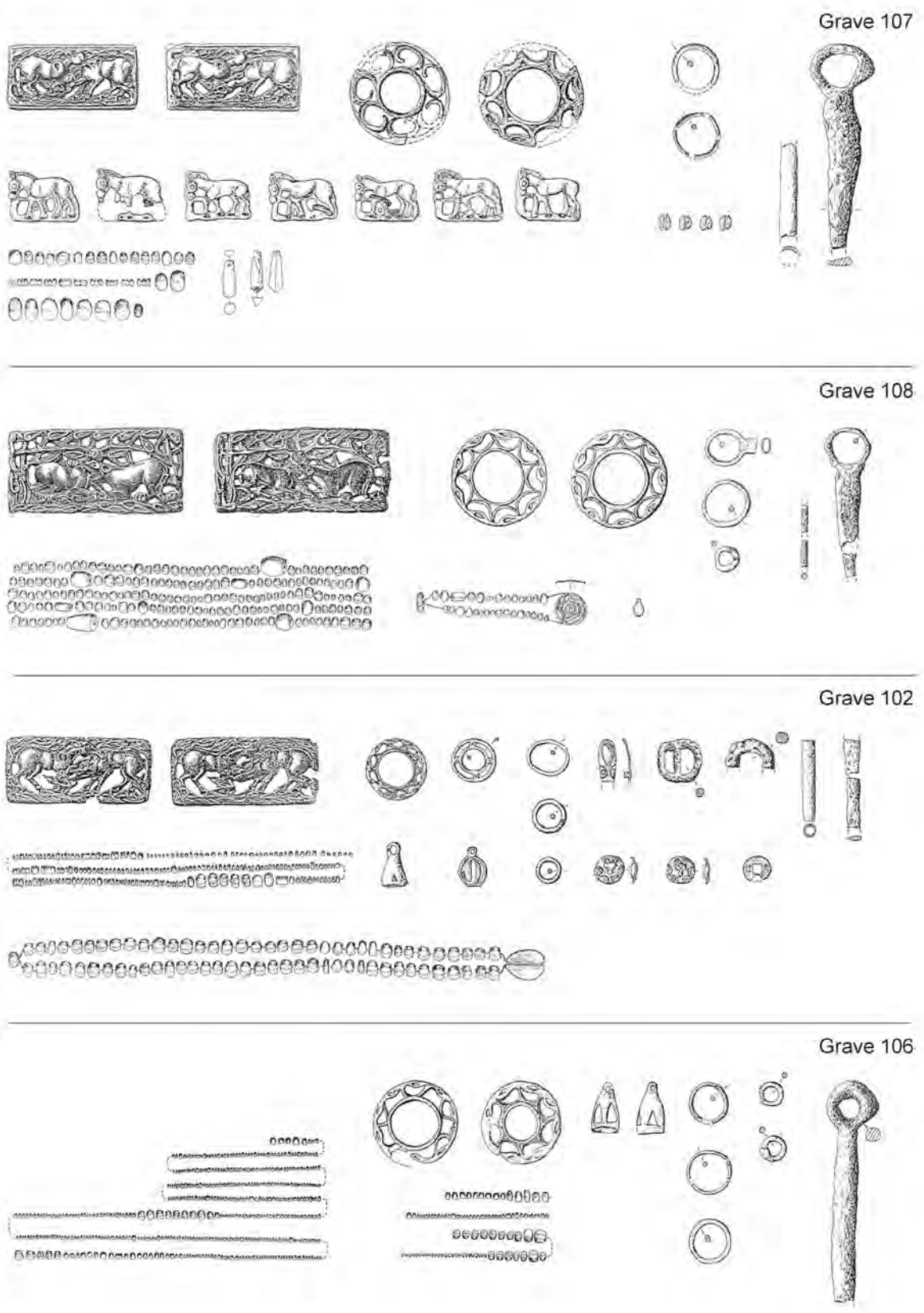


Fig. 5. Dyrestui. Ornaments from burials 102 and 106–108 (after Miniaev 1998, Pl. 84–86; 88–89; 91).

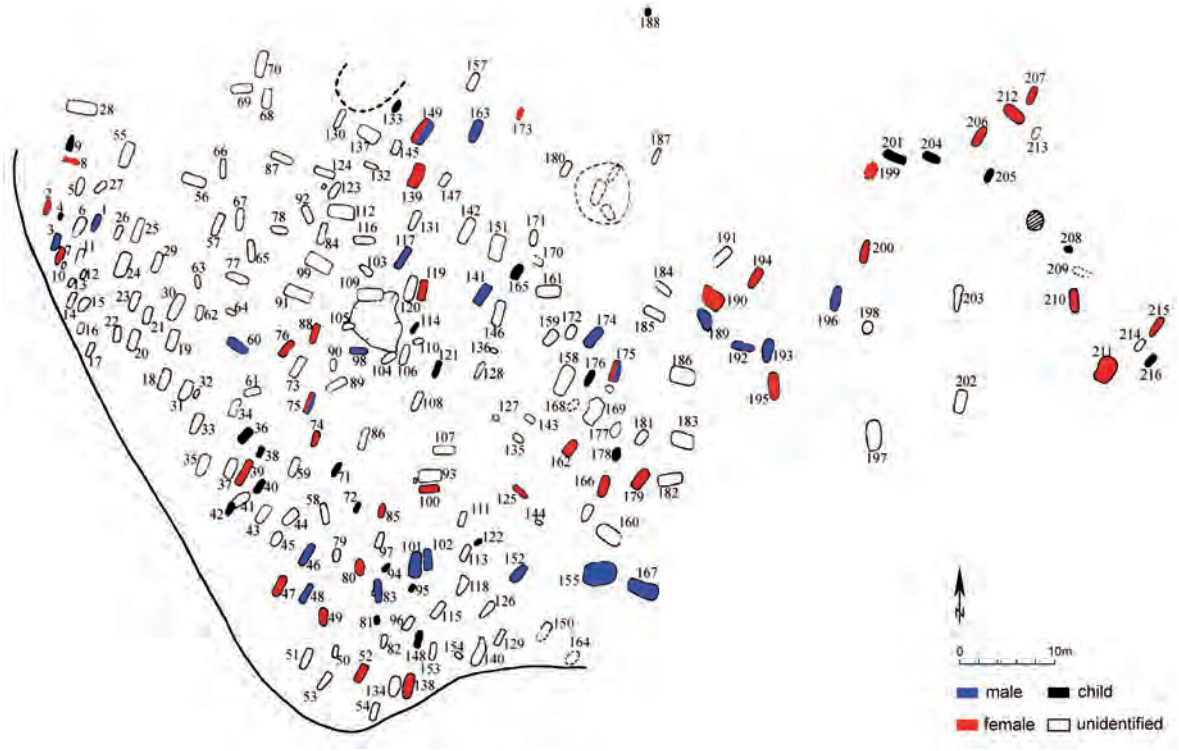


Fig. 6. Ivolga. Ground plan of cemetery (after Davydova 1996, Pl. 2).

Ivolga Cemetery

This cemetery contains 216 burials with 244 individuals, of which only 64 (or 26% of the cemetery) were systematically sexed (Davydova 1996). All burials were shaft pits except six, which had no pit. The burial distribution at this site differs greatly from the Dyrestui pattern of center burial and satellite burials (Fig. 6). For example, there are five pairs of adjacent man and woman burials[2] instead of arrangements around a central male. Also, there were no stone-covered tombs at Ivolga, which are characteristic of Xiongnu cemeteries.

82 of the graves contained pottery, which amounts to 60% of all 138 burials with grave goods, and the most vessels in a single grave was seven. At Dyrestui, only 26 burials contained pottery, or 20% of the 91 burials with burial grave goods. Only men were buried with weapons, and those with weapons were buried in larger graves with more objects. However, some men without weapons were buried with more pottery. This distinction may relate to specialization, such as warriors and craftsmen. The main artifacts of Ivolga were the sickle-shaped ornaments, and fewer plaques were found than at Dyrestui. Despite differences in burial goods, no clear distinctions of social status can be discerned between males and females.

2 Paired burials: 93 and 100, 101 and 102, 119 and 120, 134 and 138, 189 and 190.

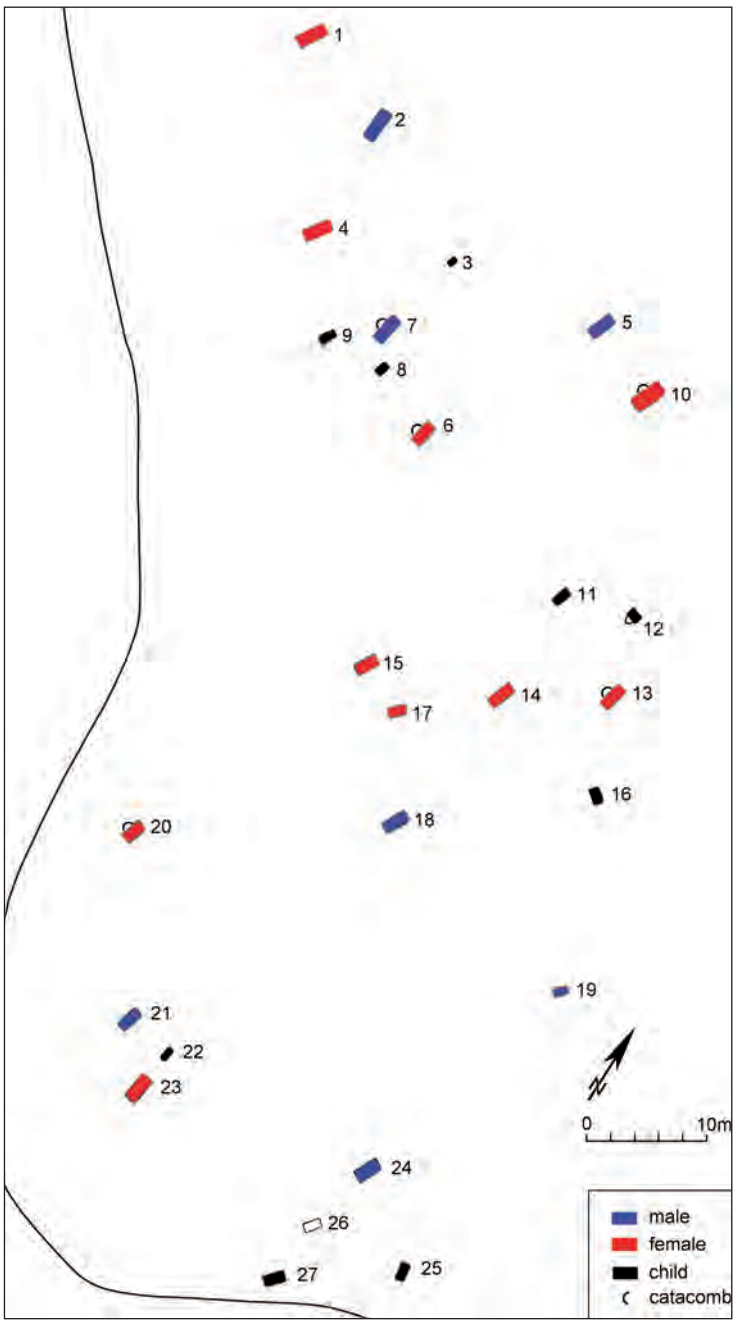


Fig. 7. Daodunzi. Ground plan of cemetery (after Ningxia et al. 1988, Fig. 1).

DAODUNZI CEMETERY

Only 27 burials were excavated from this cemetery in northern China, but all were undisturbed and the individuals systematically sexed and aged (Ningxia et al. 1988) (Fig. 7). The majority of burials were pit shaped except for six catacomb tombs with side-niche tombs that contained three females, two sub-adults, and a child. The catacomb tombs also contained the only deposits

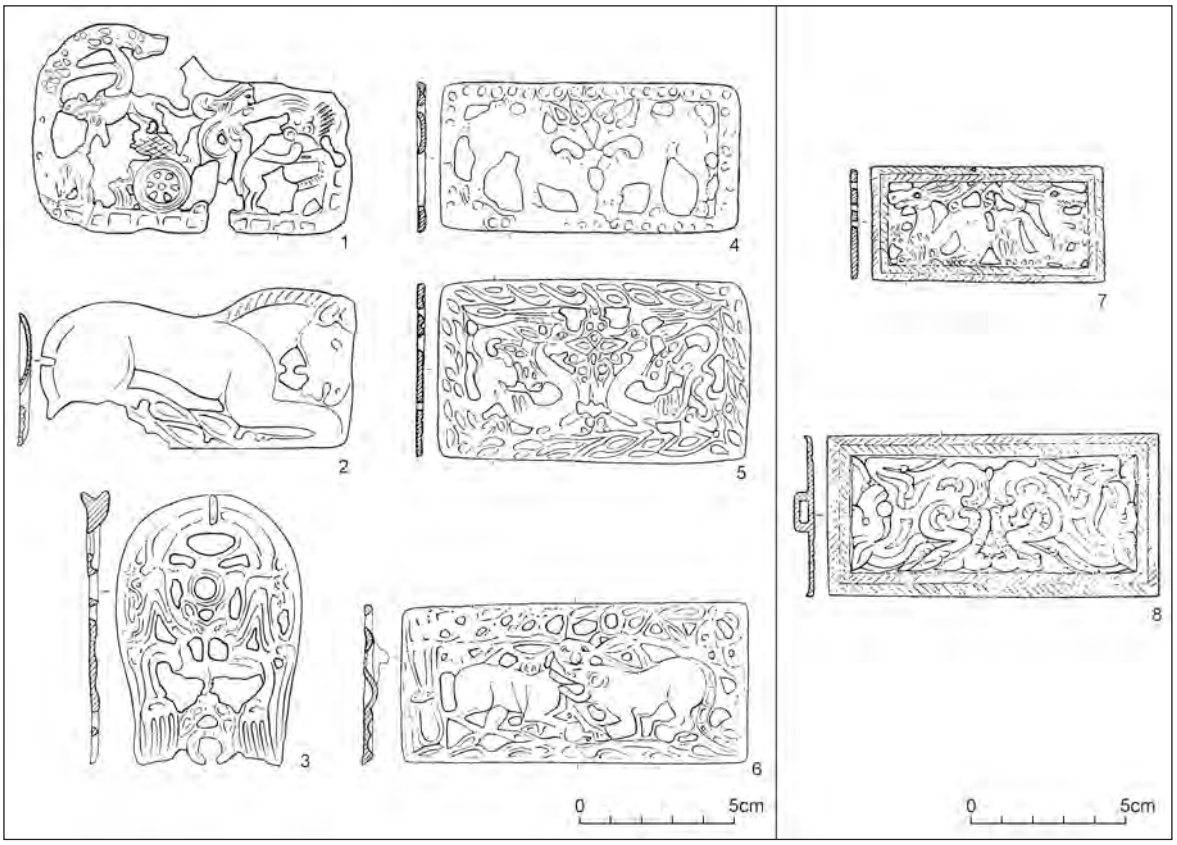


Fig. 8. Daodunzi. Two types of bronze belt plaques (after Ningxia et al. 1988, Figs. 9; 10).

of animal sacrifices. Thus, no male burials contained animal sacrifices[3]. Spatial patterns here also differ from those at Dyrestui, but there appears to be some degree of clustering: one cluster of male, female, and child burials (21–23), a group of female burials (13; 14; 16; 17), and a group of child burials (3; 7–9).

Burial goods at this site in northern China bear a significant resemblance to assemblages in Transbaikalia discussed above. Pottery, bronze rings and "wuzhu" coins were buried with adults. 21 bronze belt plaques were excavated from 11 tombs of both types. Plaques bordered by pear-shaped openwork (e.g. Fig. 8,4–6) and plaques bordered by chevron lines (Fig. 8,7.8) were both present. The relationships between plaque style, burial type, sex, and age is shown in Tab. 1.

All belt plaques were found in graves of adults, especially aged between 40 and 55, except in child burials 11 and 22. These belt plaques appear to mark social age regardless of other group affiliations. All but two plaques, in burials 5 and 19, were interred with females, reflecting similar patterns of gender differentiation in cemeteries of Transbaikalia. All pear-shape bordered plaques were buried with females and found only in catacomb tombs, and plaques with chevron lines

3 These gender differences in burial styles at the site of Daodunzi have also been recently explored by K. Linduff (2008).

Burial No.	Burial shape	Plaque types	Age and sex
1	Pit burial	Pear-shaped open work	Female 45
4	Pit burial	Pear-shaped open work	Female 40–45
5	Pit burial	Chevron lines	Male 35–40
6	Catacomb	Pear-shaped open work	Female 50
10	Catacomb	Pear-shaped open work	Female 50–55
11	Catacomb	Chevron lines	Child
13	Catacomb	Pear-shaped open work	Female 22–24
14	Pit burial	Chevron lines	Female 50
19	Pit burial	Chevron lines	Male 40
22	Stone-lined burial	not clear Infant	
23	Pit burial	Pear-shaped open work	Female 40–45

Tab. 1. Daodunzi. Plaque types related to burial form, sex, and age (after Ningxia et al. 1988).

were found in regular pit tombs of both males and females. Thus, the former plaque styles constitute an exclusive combination, while the later plaque styles constitute an inclusive combination. We should therefore pay special attention to the unique character of catacomb tombs and their female occupants. All of the interments, except for one adolescent male, were adult women interred with animal sacrifices and pear-shaped openwork plaques. The women buried in catacomb tombs undoubtedly had a high social status, and their burial treatment reflects a local variation differing from that in other cemeteries attributed to the Xiongnu.

The Cemeteries of Maoqinggou and Guoxianyaozi

These two cemeteries, located in Inner Mongolia in northern China, present comparative examples of pre-Xiongnu period burials of pastoral groups with which we can evaluate some of the patterns of gender differentiation observed in the previously discussed cemeteries. 79 burials were excavated at Maoqinggou and can be divided into two grave types: 67 with an eastern orientation and 12 of the latter graves with a northern orientation (Nei Menggu 1986). 56 of the former and all 12 of the later style graves were sexed and aged (Fig. 9).

Among the graves of eastern orientation, there are some groups of burials of the same sex and age, such as the northwestern group with 11 men, the southwestern group with four men, the central western group with four women, and the southwestern group of four children. Weapons found in the cemetery were concentrated in the above-mentioned male groups, and those in the more separate northwestern group were all made from bronze, complementing the many bronze belt plaques within those graves (Fig. 10). Weapons from the southwestern group were mainly made from iron, and few plaques were found there (Fig. 11). These probably represent different warrior groups from earlier and later stages of the cemetery. Graves of northern orientation exhibit no gender or age clusters, but there are a couple of paired burials, Nos. 15, 20 and 24, 25, like at Ivolga.

All burials at this site were pit burials. Those with an eastern orientation had steppe-style grave goods and animal sacrifices but no coffins. Those with a northern orientation contained

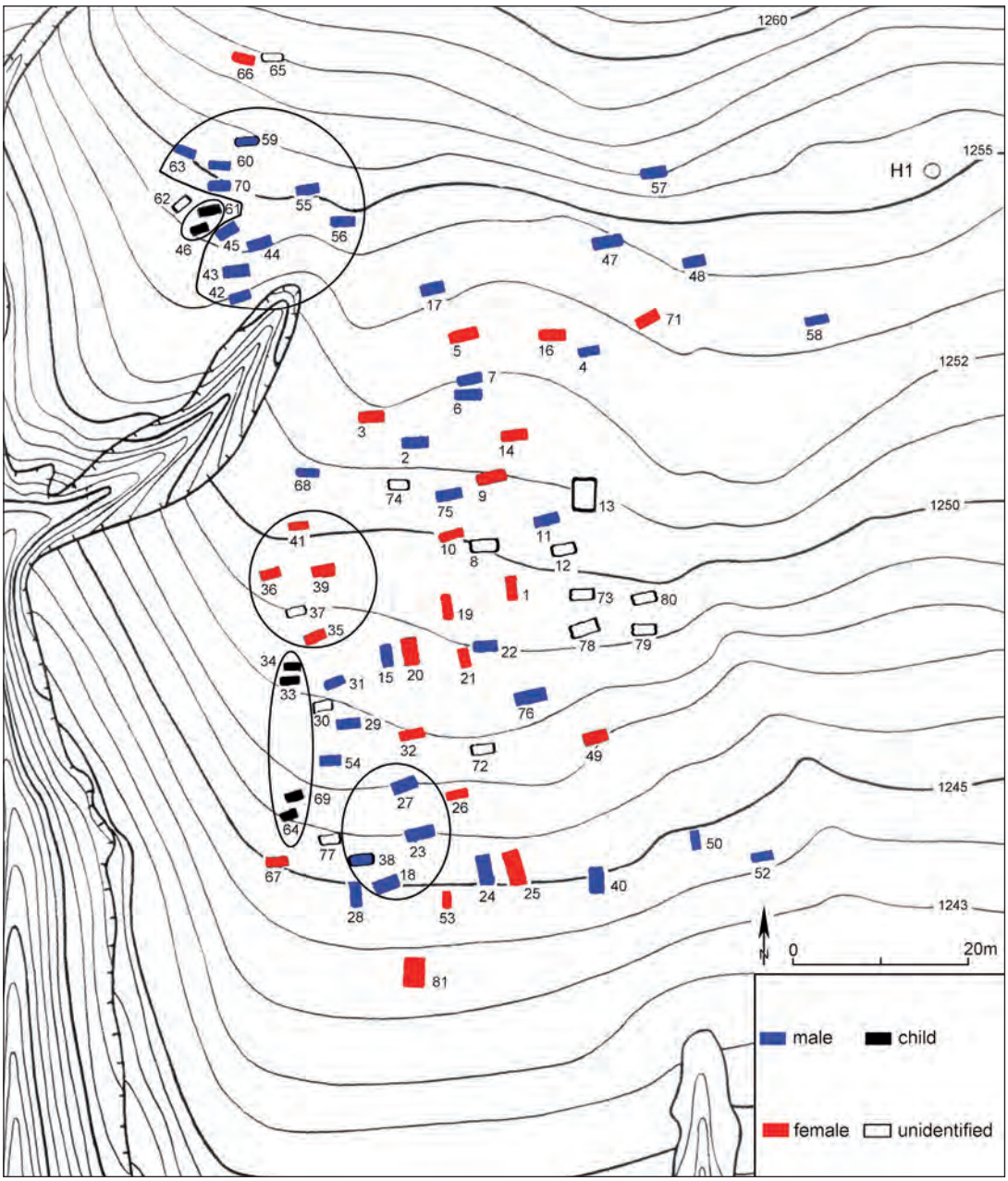


Fig. 9. Maoqinggou. Ground plan of cemetery (Nei Menggu 1986, 231 Fig.).

wooden coffins but no animals, and the only grave goods were belt hooks in female burials. The individuals in the eastern orientation burials may have been local people, while those in northern oriented graves represent immigrants moving northward from the Central Plains. According to the distribution of sexed and aged burials, gender differences existed among the local people, with the same social and material patterns as a military group. Children were buried on the margins, and the social and material patterns seem to be those of a military group. The local society may have placed military members in high status, implying that war occurred frequently and

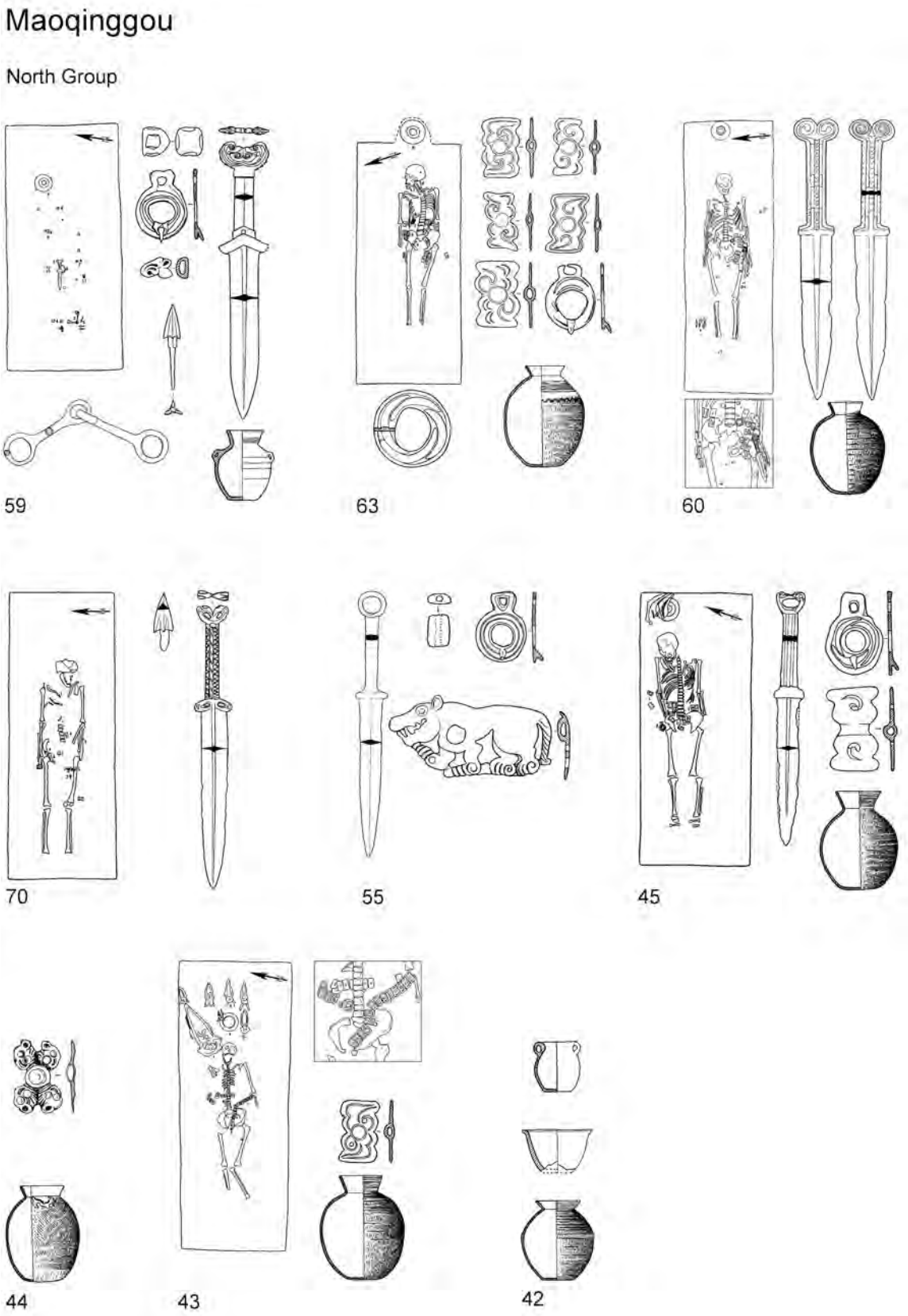


Fig. 10. Maoqinggou. North group. Warrior tombs from male groups (after Nei Menggu 1986).

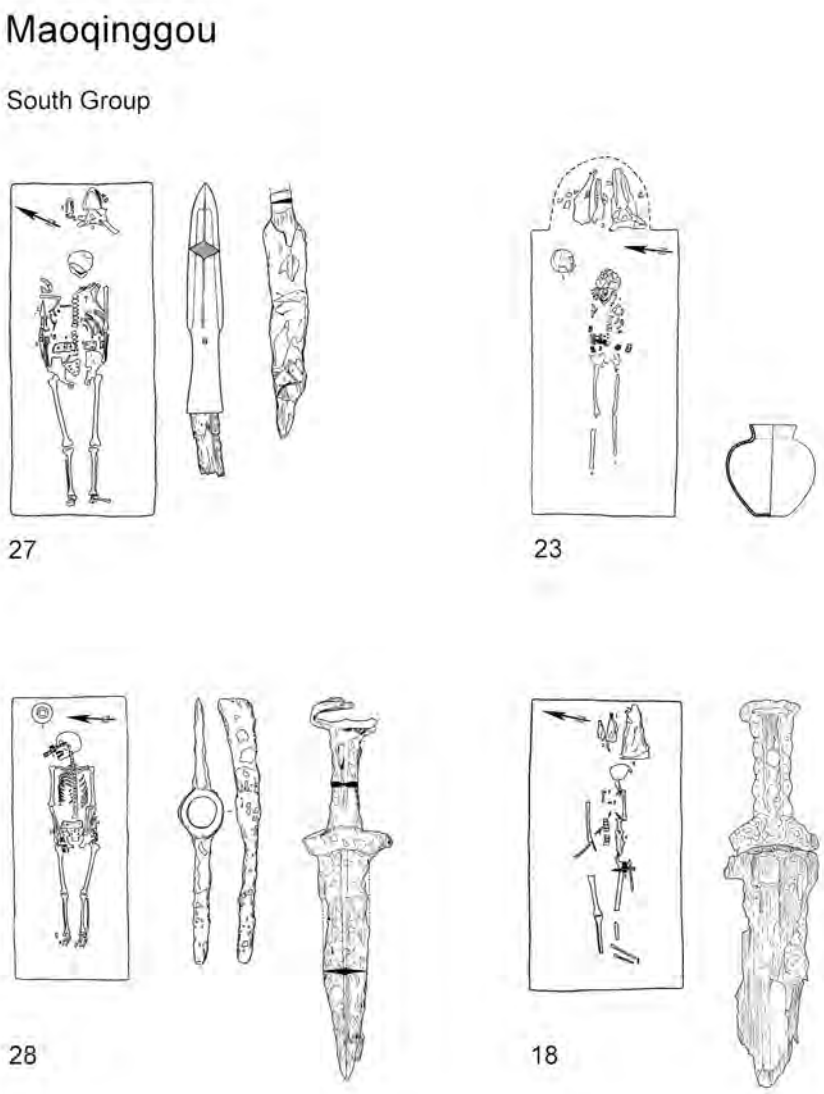


Fig. 11. Maoqinggou. South group. Warrior tombs from male groups (after Nei Menggu 1986).

there was a need to defend their territory. Burials of northern orientation contained far fewer grave goods, and thus reflect lower social status. So perhaps immigrating people were poor. Their social pattern, in which the nuclear family appears to be the basic social unit, is also quite different from that of the local people.

At Guoxianyaozi (Nei Menggu 1989), all 31 pit burials have an eastern orientation (Fig. 12). Sex and age were determined for 20 individuals, or 80% of all burials. Women were grouped in the southeastern and northern raised areas, and men were concentrated in the western portion. Unlike at Maoqinggou there are no metal weapons. Weaponry instead consists of bone arrowheads and bow pieces. A ceramic pot was found in every burial, and these vessels can be divided into two kinds: cord-patterned decoration in burials of the southern area of the cemetery in burials 1, 10, 20–22 (Fig. 13,2), and plain pottery distributed in graves of the northern portion (Fig. 13,1). If similar pottery types are a sign of clan or close kin affiliation, then pottery with

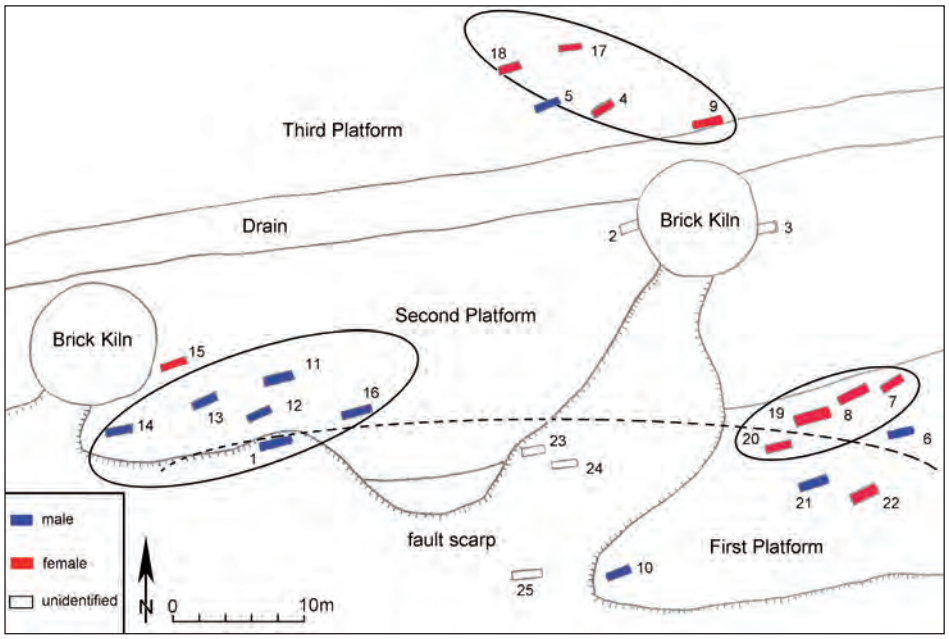


Fig. 12. Guoxianyaozi. Ground plan of cemetery (after Nei Menggu 1989, Fig. 1).

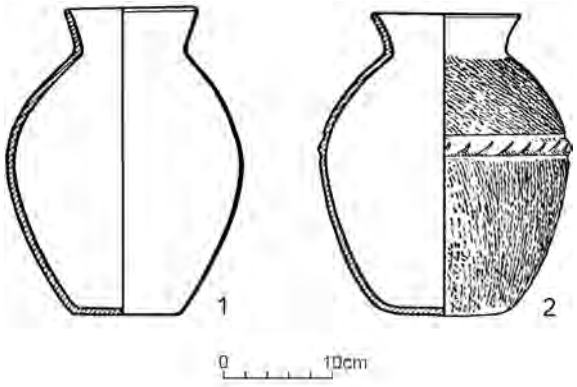


Fig. 13. Guoxianyaozi. Ceramic vessel from the cemetery (after Nei Menggu 1989, Fig. 10,5.6).

the same decoration buried together in clusters at Guoxianyaozi suggests that individuals were buried not only according to gender distinctions but close familial relations. There are, however, no signs of nuclear families clustering within the cemetery.

Discussion

The five cemeteries surveyed in this study, Dyrestui, Ivolga, Daodunzi, Maoqinggou and Guoxianyaozi are from different time periods and regions (Tab. 2).

Dates & Region	Transbaikalia	Northern China
Late 5th and 4th centuries BC		Guoxianyaozi, Maoqinggou
Late 2nd and 1st centuries BC	Dyrestui, Ivolga	Daodunzi

Tab. 2. Chronology and regions of sites discussed.

Ample archaeological materials from these sites of various regions allow us to investigate three main issues of material culture and social organization:

The origin and heritage of Xiongnu cultural elements and their relationship with material in northern China is difficult to discuss from archaeological discoveries so far. However, some clues to their relationship exist in the belt plaques found in many of these cemeteries. At Maoqinggou, we see plaques with similar contexts in the burials, combinations with other artifacts, and ornamental methods similar to those at Dyrestui (Fig. 14). The distribution of plaques in burials of many cemeteries, suggests that plaques were mainly produced for use by, or at least interment with, women. There are four burials at Maoqingguo in which plaques were found – three of them are adult female burials, Nos. 3, 4, 10, while one, burial 43, is an adult male burial (Fig. 14). The tradition of belt plaques seen in the Warring States Period of northern China appears to persist into the Xiongnu period and becomes more complicated, as with those from burial 107 of Dyrestui (Fig. 14). The contemporary belt decoration at Ivolga was much simpler, with only cowry shell ornaments and simple belt buckles, but certain elements of material culture indisputably link Ivolga and Dyrestui. As personal decoration is an important sign of ethnic identity, the similarity in belt decoration between cemeteries in northern China of the Warring States Period and the Xiongnu period in both northern China and Transbaikalia suggests a close relationship.

From the analysis of elements of material culture in all five cemeteries discussed, we can see that groups from within the Central Plains of China, across the northern frontier of China, and throughout the Mongolian steppes interacted and migrated during the Warring States Period and into the period of the Xiongnu contemporary with the Western Han dynasty. Maoqinggou and Guoxianyaozi cemeteries represent local groups along the northern Chinese frontier, but some burials at Maoqinggou demonstrate the presence of immigrating groups from the Central

Cemetery	Cultural elements	Cultural affiliation
Dyrestui	Stone burial + animals + plaque	Xiongnu
Ivolga	Pit burial + animals + pottery + walled settlement	Xiongnu, possible Central Plains
Daodunzi	Catacomb burial + plaque+ "wuzhu" with or without animals	Xiongnu, local, Central Plains
Maoqinggou southeast Guoxianyaozi	Pit burial + animals + plaque	North China
Maoqinggou north	Pit burial + belt hook	Central Plains

Tab 3. Cultural elements of the cemeteries studied.

Plains, seen in the northern oriented burials (cf. Tab. 3). Dyrestui and Ivolga are both located in Transbaikalia, but their material characteristics are quite different. Unlike Dyrestui, Ivolga had no stone covered tombs, which are typical of Xiongnu sites elsewhere, and the burials have more pottery and fewer belt plaques. In contrast, burials with pottery at Dyrestui make up only 20%

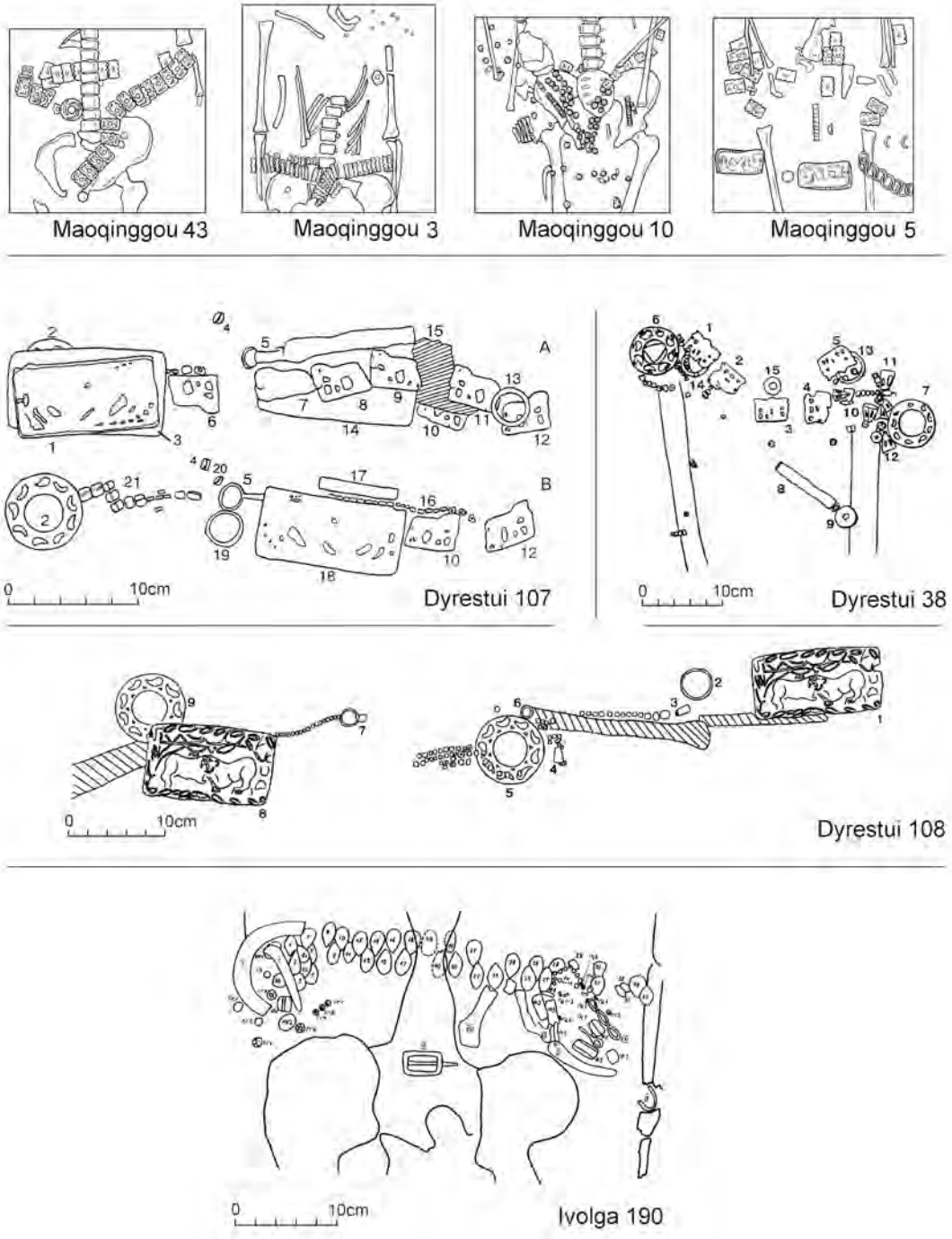


Fig. 14. Belt assemblages with open-work plaques (in situ). 1 Maoqinggou, Tombs 43, 3, 10 and 5 (after Nei Menggu 1986); 2 Dyrestui, Tombs 38, 107 and 108 (after Miniaev 1998, Pl. 6B; 87A.B; 90V); 3 Ivolga, Tomb 190 (after Davydova 1996, Pl. 55).

of all burials, but there are more belt plaques. By comparison with other sites in the Mongolian steppes, the Dyrestui burials appear more typically Xiongnu than the burials at Ivolga. There is also a large walled settlement nearby, with permanent houses and other evidence of a more sedentary lifestyle. The contrast between the material culture of Dyrestui and Ivolga suggests

that there were many ethnic groups in the Xiongnu polity, which may have practiced different social customs.

Daodunzi cemetery shows a combination of local, Xiongnu and Chinese Han cultural elements. The cemetery population probably represents Xiongnu groups who surrendered to the Han dynasty, moved within the Chinese borders, and mixed with the local people (see also Pan, this volume).

Distributions of sexed and aged burials exhibit three patterns (Tab. 4). The eastern oriented burials of Maoqinggou and Guoxianyaozi comprise the first group A, wherein gender and age groups are not organized as nuclear families. Instead, there are more similarities in grave goods, such as swords (Maoqinggou) or pottery with the same decoration (Guoxianyaozi)[4], within a single, often gender-based, spatially defined group. The second pattern B occurs among northern oriented burials at Maoqinggou as well as graves at Ivolga cemetery (Tab. 4). In these cases, there are no discernible gender or age clusters.

Burial Patterns	Cemeteries	Burial Form	Grave Distributions	Grave Goods	Derived Logic of Social Organization
A	Maoqinggou (southeastern)	pit burial	gender and age grouped without	weapons	lineage groups
	Guoxianyaozi		couple burials		pottery
B	Maoqinggou (northern)	pit burial	evenly separated couple burials	belt hooks	family
	Ivolga			weapon and pottery	
C	Dyrestui	stone-covered pit burial	center-satellite cluster, couple burials	some women with more ornaments	family, leading men and some rich women accompanied
	Daodunzi	catacomb and pit burial	evenly separated couple burials	animals and plaques in catacombs	family, local women richer

Tab. 4. Patterns of age and sex distinctions in cemeteries.

Instead, men and women are buried side-by-side, or even together in a single burial. This demonstrates the centrality of the man and woman as heads of the family, which is the basic unit of society. The third, more complex pattern C, can be found at Dyrestui and Daodunzi cemeteries (Tab. 4). In these cases, rather than spatial gender divisions, we find socially hierarchical gender distinctions. Males at Dyrestui were buried in the center of grave clusters in a pit covered by significant stone demarcations. This indicates the social privileging of men and underscores the significance of male social leadership. Females at Daodunzi received similar elevations, as they were also buried in a distinct grave type with more offerings of both grave goods and animal sacrifices. Whether in the form of grave structure or grave goods, the males and females at Dyrestui and Daodunzi, respectively, appear to have enjoyed more prestige than others.

4 It is noteworthy that the distance between Maoqinggou and Guoxianyaozi is only 40 km. However, there are many metal weapons at Maoqinggou and only bone bow pieces and arrowheads at Guoxianyaozi. This may indicate large differences in social or military developments among communities in Northern China during the Warring States Period.

EXCAVATIONS OF XIONGNU TOMBS AT DUURLIG NARS CEMETERY IN EASTERN MONGOLIA

Yun Hyeung-won, Chang Eun-jeong

Introduction

The Mongolian-Korean Archaeological Project (Mon-Sol Project), established in 1997, is a joint effort between the National Museum of Korea, the National Museum of Mongolia, and the Institute of Archaeology of the Mongolian Academy of Sciences. The purpose of this project stems from the desire to add depth to the study of ancient Korean cultures through a comparative study between cultures of Korea and Mongolia. In 2000, the project began archaeological research to shed light on the culture of the Xiongnu nomadic confederation, the first empire in the history of nomads.

Historical records about the Xiongnu were written by peoples of the areas which these nomads invaded, and thus the Xiongnu were depicted as barbarians, transliterating their name into Chinese as degrading and pejorative names connoting "slaves". Hence, historical narratives of the Xiongnu, who did not record their own history, largely incorporate the Chinese perspective. Another bias in studying this nomadic culture is a presumptive focus on the central role played by nomads in cultural exchanges between the East and the West. This tends to emphasize a characteristic of these people only as a mediator of culture and trade, overlooking the distinct culture that the Xiongnu had cultivated on their own. This archaeological project therefore endeavors to document the distinct cultural characteristics of this nomadic empire of the Xiongnu. Following after excavations in central Mongolia, the Mon-Sol Project began investigations of the large Xiongnu cemetery of Duurlig Nars, Baian-Adraga sum, Khentii aimag, Mongolia with a survey in 2002 and excavations beginning in 2006. By presenting recent excavation results, we offer a glimpse into the dynamic culture of equestrian warriors who ruled the steppe.

Location and Characteristics of Duurlig Nars Xiongnu Tumuli

Kentii aimag, in eastern Mongolia, is densely forested and is the source of three major rivers – the Kherlen, Onon, and Tuul rivers. Due to this favorable environment with an abundance of natural resources, many groups throughout history have flocked to this area, and their archaeological remains have been documented here. Duurlig Nars is approximately 500 km away from Ulaanbaatar, the capital of Mongolia (Fig. 1), and is located on a broad slope surrounded by a larch tree grove (Fig. 2). Relatively high mountains stand in the east, and steppes and knolls comprise the north and south

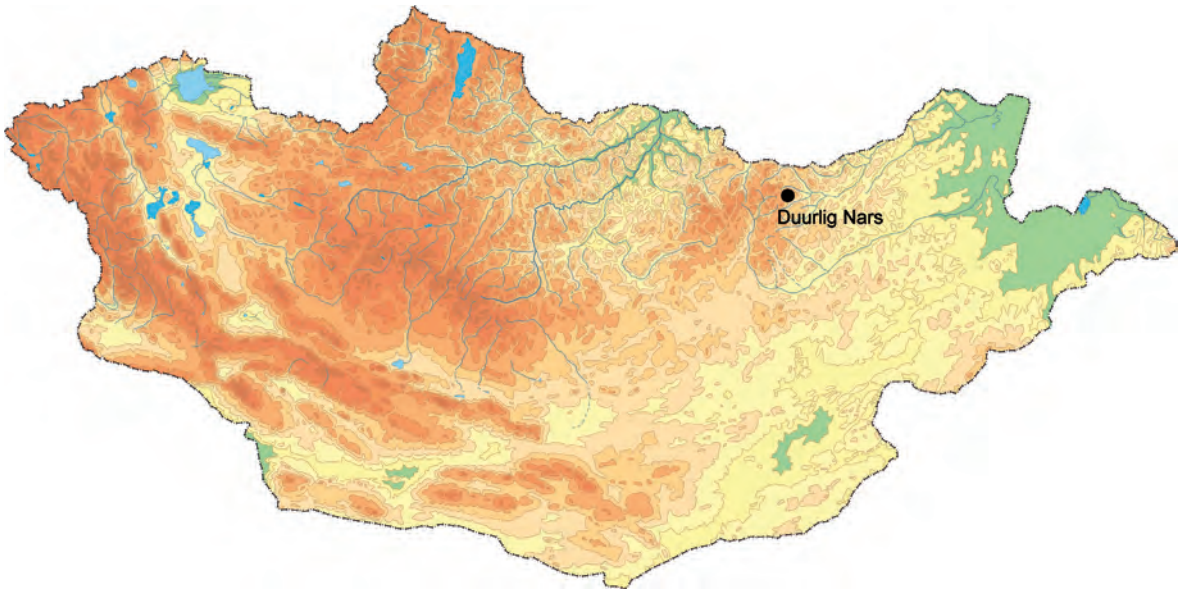


Fig. 1. Location of Duurlig Nars.

sides of the site. This site is the biggest Xiongnu necropolis within eastern Mongolia and is one of ten cemeteries that have large terrace tombs with a funerary passage. The necropolis contains about 200 Xiongnu burials, including the '凸' shaped tombs with funerary passage, the size, interior facilities, and burial goods of which are significantly greater to those of other tombs. From 2006–2007, the Mon-Sol Project team cleared the surface of two large tombs funerary passages, tombs 1 and 5, fully excavated one such tomb (tomb 2) and excavated two smaller rectangular tombs, grave 3 and 4.

The surface of tomb 5, which had begun to be cleared several years earlier by an archaeology practicum team from the National University of Mongolia, was completely cleaned to expose all layers of surface stones. The rectangular stone-covered burial measured 9 × 10 m with a 6 m long entryway outlined by stones. A small hole measuring 1.5 × 1.5 m, probably from looters, was found in the middle of the rectangular tomb. Some of the exterior stones of the burial and its entryway consisted of stone slabs. There is no evidence indicating this tomb is a satellite of a larger complex.

Tomb 1, located close to the center of the larch grove, is oriented west of north. The rectangular boundary of the burial consists of stones piled up in a distinct pattern, and the northern and eastern walls are preserved by piled stone slabs. The rectangular tomb measures 21 × 24 m, and 1 m at the highest point, and has an entryway 30 m long, which is outlined by big rocks and tapers towards the south end like a long trapezoid. The middle of the tomb collapses inward, indicating that it was probably looted. Satellite burials have been found flanking the east and west of this large tomb, but the forest trees make it difficult to assess their exact dimensions.

Tomb 2

Tomb 2 is located near the boundary between the grove in the east and the steppes, and lies 70 m southeast of Tomb 1. This north-south oriented rectangular tomb with entryway is roughly in a '凸' shape, though the south side of the rectangle is slightly shorter than the north side, creating

Fig. 2. Duurlig Nars environs.

a slightly trapezoidal shape, as does the entryway which also tapers toward the south (Fig. 3). Compared to other tombs in the necropolis, tomb 2 is relatively small. The tomb measures 9 × 11 m and the entryway is 15 m long. The surface of the tomb, which appears as an embankment, consists of rows of stone slabs around the border of the almost filled in embankment.

The center of the tomb caved inward about 30 cm, and the upper layer of the burial fill, which was otherwise a yellowish-brown sandy soil, was of blackish color containing charcoal. 1 m below the surface was a bed of rocks measuring 4–5 m, which seem to have been constructed to protect the layer beneath where the body was interred. A 1.8–2 m concave hole was found in the middle of the rocks, matching the holes made by looters. Inside the center of the burial pit and along the entryway was found a row of wooden poles, discovered first below the bed of rocks, dividing the tomb along a north-south axis, though everything was tilted about 20° inward from the caving-in of the tomb. The wooden poles were found in four subsequent layers, 50–60 cm apart[1]. In one section, the end of the row was connected to the entrance. Similar features have been discovered made of stones in other tombs, and probably served a symbolic purpose during tomb construction or funerary rituals.

We excavated the burial pit forming a stepped terrace, slowly reducing the size of the pit at consistent intervals (Fig. 4). We identified three terrace layers, and it is conjectured that the pit was constructed this way so that burial offerings could be transported to the bottom, support structures could be built, or the depth of the pit could be increased with minimal danger of collapse. As for the entryway, we dug this area at a very steep angle from the southern entrance

1 We surmise that they were connected from the edge of the burial, found within 1 m range to the south of the entrance, to the edge near the north wall of the pit.

Fig. 3. Duurlig Nars. Tomb 2 with surface stones.

Fig. 4. Duurlig Nars. Tomb 2. Excavated burial pit.

end to the third terrace, and then from here to the bottom with perpendicular excavation walls.

At the northern corner of the entryway, which was connected to the rectangular burial pit, a big stone slab was discovered, probably symbolizing a door.

The first terrace layer was found two meters below the surface. The distance between the vertical walls of the first and the second was about 50 cm on average, and holes measuring 20 cm wide and 24 cm deep were discovered at the four corners of the terrace. Inside these holes, relatively large gravel was found, though no traces of wooden poles remained. Hence, it may be assumed that the holes were temporarily used to support a tent set up for funerary rituals.

2 m below the surface, and beneath the bed of rocks, was found a round-edged square pit, 180 cm on each side that was likely a looters' hole. The wooden pole alignment, which passed through the center of this pit, had been cut off at the edge, and the pit contained many irregular layers of dark earth and fine gravel that was clearly distinguishable from the original burial pit fill. 3.5 m below the surface, we started to discover a unique structure of vertical wooden boards, 2–3 cm wide and set 25–30 cm apart, horizontal wooden strips, and wooden cross boards assembled in a rectangular shape around all four sides of the intruding hole. Many of the vertical boards, which were wood branches about 1 m long, had broken from the pressure of the eventual collapse of the burial. This structure was repeated below and seems to have been installed about every meter, probably to reinforce the looters' hole.

2 m below the first terrace, i.e. 4 m below surface, was a second terrace layer, also 50 cm wide. The four corners of the terrace were rounded with gray-colored clay spread over the surface, and no holes for support poles were found. Wooden boards, 20 cm wide and 20–25 cm apart, were discovered lying parallel to the entrance, i.e. east-west. These may have been part of a large wooden cover for protections of the burial chamber. The middle of these wooden boards were sharply bent downward, matching the collapsed contours of the center of the tomb, where looters had entered.

The third terrace layer was found approximately 1.5 m below the second terrace. Along the northern wall of this terrace, heads and lower leg bones of approximately 20 animals: 12 horses, 10 sheep, and a few goats. They had also seemingly shifted inward some from the collapse of the tomb. Horse remains were placed in the middle, and sheep and goat remains were placed to the right and left side. The lower limb bones were articulated and bent at the joints to form an x-shape. A black layer about 3–6 cm thick containing organic material was found below the bones and along the northern and eastern edges of the terrace. The organic material seemed to contain some tree bark, but further analyses will have to be made.

On the southern side of the third terrace, a black lacquered chariot was discovered. The remnants of the chariot lay on the eastern edge of the looters' pit, and were thus greatly broken. In the middle of the eastern side of the stone arrangement were found bronze end-fittings of a chariot parasol (Fig. 5) along with amorphous fragments of wood. This disruption was surely a result of the looting of the tomb. Not far from the edge of the looters pit and just below the wooden cover of the second terrace were found more of the bronze end-fittings along with the wooden stretchers and pieces of felt inserted into the ends. The other remaining excavated parts of the chariot are its right wheel, wheel axle, and chariot box for accommodating passengers or cargo. The rest of the chariot was completely destroyed by the pillagers. The entire chariot, including the spokes of the wheels, would have been thickly coated with black lacquer, but what remains is just a thin layer (Fig. 6). The spokes are 0.5 cm thick and 55 cm long, and the hub measures 15 cm in diameter. Considering these measurements, the height of the wheels would have been around 125 cm. An iron cap was affixed to the end of the axle, and inside the

Fig. 5. Duurlig Nars. Tomb 2. Bronze end-fittings of a chariot parasol.

Fig. 6. Duurlig Nars. Tomb 2. Wheel spokes and hub of black-lacquered chariot.

Fig. 7. Duurlig Nars. Tomb 2. Black-lacquered chariot box.

hub was an iron tube. Above the axle were discovered the bottom, front, and side boards of the chariot box, which were made of lacquered rectangular wooden panels that had been assembled together (Fig. 7).

Chariots are militaristically important because they were used as vehicles in times of war. Chariots such as the one found in tomb 2 symbolized a high social status, and possession of them was probably a privilege that belonged only to a ruling class. The presence of a chariot parasol, indicated by the bronze end-fittings found, was an important courtesy product in ancient China and would have been affixed to the chariot. Chinese style black lacquered chariots with elaborate bronze decorations are found especially in tombs of personages of the highest social level, and they are conjectured, from mentions in historical records, to be presents from the Han Dynasty or luxuries that were imported through trade. Analyses of the carriage structure and the elements of lacquer suggest that the carriage had been made in Han China and was subsequently imported.

Fig. 8. Duurlig Nars. Tomb 2. Chamber and coffin.

The bottom of the burial pit was reached 8 m below the surface, and a wooden chamber and a wooden coffin were found (Fig. 8). Due to the plundering and collapse of the tomb, however, they were both very poorly preserved. The chamber was oriented along a north-south axis and measured 360 × 190 × 70 cm. The chamber cover was made of thick narrow wooden boards placed width-wise. The southern part of the cover, however, did not survive the plundering. The coffin within was 200 × 80 cm and was placed off center, slightly to the south. It was about 120 cm away from the northern wall of the chamber and this space within was used to accommodate burial goods.

The lid of the coffin, unlike the cover of the chamber, consisted of long wooden planks put together lengthwise, and it is assumed that five planks about 20 cm wide were used. Traces of red lacquer were noticed on the boards. The sides of the coffin, found toppled onto the ground, were decorated with strips of 1 cm wide gold foil, arranged in a stretched lattice pattern, and gold foil "flowers" were affixed in the rhomboid spaces between, four petal flowers, or "quatrefoils", were attached in the central spaces, and half flowers were set along the edges (Fig. 8). In addition, we discovered four 40 cm long bronze clubs along the walls of the coffin. The locations of these seem to corroborate claims by other scholars, who found them in similar noble tombs, that they were used as coffin handles (Miniaev/Sakharovskaia 2007a; Miniaev 2009; André/Eröö̈l-Erdene 2004). We may thus use these bronze handles and gold decorations to estimate the dimensions of the otherwise demolished coffin. Although the forms of iron artifacts are often difficult to discern, iron objects found near the walls of the coffin are believed to be

Fig. 9. Duurlig Nars. Findings from tomb 2. 1 Silver spoon; 2 jade object; 3 bi-disk.

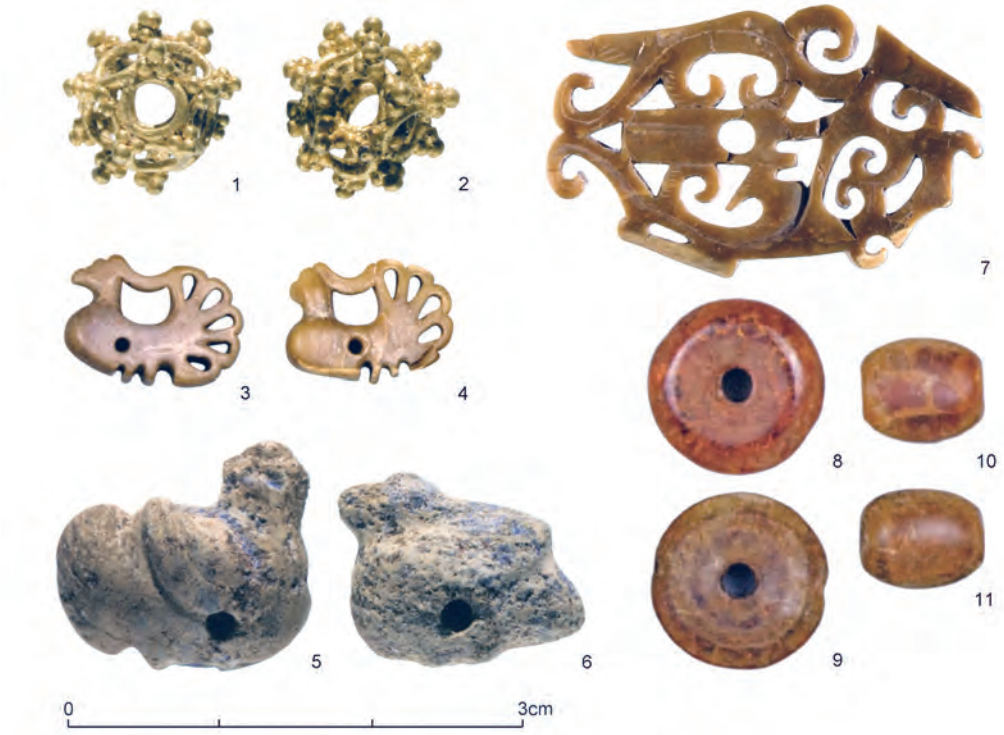


Fig. 10. Duurlig Nars. Personal ornaments from tomb 2. 1–2 Gold granulated beads; 3–4 bird-shaped talc ornaments; 5–6 bird-shaped lapis-lazuli ornaments; 7 talc pendant; 8–11 amber beads.

Fig. 11. Duurlig Nars. Findings from tomb 2. 1 Gilded bronze horse-shaped ornament; 2 gold pin ornament with turquoise insets; 3–17 tear-shaped turquoise inlay stones; 18 chinese bronze mirror fragment, TLV or "guiju"-style.

cramp irons or nails that were used to assemble the wooden boards. Organic material covered the bottom of the coffin, though a detailed analysis is required to determine the exact composition[2].

Due to the disruption caused by looting, only a few items, mainly those which had been worn by the deceased, remained inside the coffin. Near the eastern corner a small silver spoon was unearthed (Fig. 9,1). In the chest area, we discovered a jade disk and two jade pendants placed on top of one another (Fig. 9,3), as well as two granulated gold beads (Fig. 10,1), an ornate openwork talc pendant (Fig. 10,7), two bird-shaped talc ornaments (Fig. 10,3.4), two bird-shaped lapis-lazuli ornaments (Fig. 10,5.6), and four amber beads (Fig. 10,8–11). Nine small gilded bronze horse-shaped ornaments were also found scattered in the coffin (Fig. 11,1). They had remains of textile weaving on their backsides and threads tied on them, and were probably part of a belt or other clothing adornment. Also scattered in the vicinity of the coffin were granulated gold pin ornaments with turquoise insets (Fig, 11,2) and numerous tiny tear-shaped turquoise inlay stones (Fig. 11,3–17). Just to the west of the coffin were found numerous three-winged iron arrowheads and the scant remains of arrow ends and a quiver that were lacquered in black and painted with red designs.

As for textiles, an assortment of silks with various weave patterns, even a fragment with an embroidered design, a tapestry piece made of four different dye-colored threads woven into a design, and fragments of wool felt were found in and around the coffin. The silk textiles included a common thin kind called "chou" and an expensive kind called "jin", which required much effort to produce and was worn only by people of nobility.

2 Examples of putting a carpet or birch tree bark on the bottom has been confirmed elsewhere.

Fig. 12. Duurlig Nars. Findings from tomb 2. 1 Bronze incense burner with handle; 2 accompanying dish.

The space between the coffin and the wooden chamber frame contained a relatively large number of artifacts compared to the pillaged inside of the coffin. Most of the burial goods were vessels, and were discovered along the northern end of the chamber. On the northwestern side, two bronze vessels were discovered on top of each other, and directly next to them were two blackened ceramics and the remains of two lacquer wares. Just below the lacquer remains were found animal bones and an iron ladle. On the northeastern side were found two ceramic pots side by side. Cattle bones were contained within these pots, and burning was apparent on the inside and outside of the pots. Along the outer corner of the chamber, numerous iron items were arranged in a straight line.

The outer space of the southern chamber wall also yielded many burial goods. A fragmented bronze vessel was found upside down, and the space between itself and the ground contained pieces of knitted textile and tree bark stacked on top of one another. A fragmented and bent Chinese bronze mirror of the TLV or "guiju" style, was discovered with traces of burning on parts of its exterior (Fig. 11,18), and on top of it fragments of a tapestry. The area just below the bronze vessel contained a collection of iron horse-riding tack, including snaffle bits with I-shaped cheek-pieces, belt hooks, belt buckles, twisted loops, and rings. There were also numerous bronze round strap ornaments, and even some gold ornaments.

In total, the four ceramic vessels of tomb 2 included one medium cook pot (32.4 cm tall) and one small cook pot, a tall wide mouth jar (67.5 cm tall) with a small hole at the lower end of the vessel wall and a potter's wheel square with a symbol stamped into the bottom, and a slightly shorter jar (50 cm tall) with a narrower neck and much wider shoulders. Bronze vessels found

in the southern area of the chamber included the shattered fragments of a large deep dish which had been 52 cm wide, a plate, and the pieces of a spouted kettle with a handle[3]. Like the bronze mirror, these appear to have been intentionally damaged, probably related to a practice of purposely breaking burial goods as part of funerary rituals. An intact bronze tripod lamp set was also found in the northern area, consisting of a handled container for burning and a dish upon which to place the burner (Fig. 12)[4].

Tomb 3

This tomb is located only two meters to the east of tomb 2. Before the top layer of earth was removed, the outline of the few stones apparent on the surface looked circular, so we expected it to be a standard circular satellite tomb. However, the excavation of the surface revealed it to be a relatively rectangular stone arrangement. The center of the tomb, slightly depressed, had a concentrated area of charcoal and grayish-black earth, and the amount of charcoal and ash increased with the depth of the tomb. This layer of earth touched the fringe of the stone arrangement and it suggested that a broad, shallow area was first dug before the primary burial pit was created.

Directly beneath a layer of stones in the pit, a group of wooden boards, believed to have been part of a wooden cover, was found 2.3 m below the surface. The boards were oriented north-south, touching the eastern wall of the pit. The boards were consistently placed 30 cm apart, but in the southern portion, only traces of wood fiber remained scattered over a few stones. The boards were 15–25 cm wide, and the longest one was 150 cm long. In the northwest corner of the pit, slightly below the level of the wooden cover, were placed the remains of three horned sheep, and 80 cm below the wooden cover was the lid of a wooden chamber, its pieces laid widthwise. The chamber measured 320 cm long, 90–110 cm wide, narrowing toward the south, and approximately 40 cm tall (Fig. 13). A few pieces of iron found against the wood, some of

Fig. 13. Duurlig Nars. Tomb 3. The burial chamber in situ.

3 The fragments of this kettle are almost exactly like those of kettles found at Takhiltyn Khotgor (Navaan 1999) and Gol Mod (Mongolie 2003).

4 These objects, found in several Xiongnu tombs, are sometimes also deemed incense burners. Organic material found in the bronze lamp in tomb 2 awaits analysis to determine what exactly was burned within these artifacts. Such lamps, as well as fire-starting tools and other objects that give off light found in nomad graves, are surmised to have been related to specific rituals.

Fig. 14. Duurlig Nars. Tomb 3. Pottery. Not to scale.

Fig. 15. Duurlig Nars. Tomb 3. 1 Chinese bronze mirror, "siru"-style; 2 gilded iron belt plaque with bas-relief design.

which resemble four-petalled "flower" decorations found on other Xiongnu coffins, indicate the wooden framework had been decorated[5]. The bottom of the burial pit, where the chamber lay, measured 340 × 200 cm and was 350 cm below the surface.

The majority of the burial goods were discovered in the northern portion of the chamber. Two large jars were placed in either of the northern corners: a tall jar with a slightly wider mouth, measuring 38.7 cm tall (Fig. 14,1), and a somewhat shorter jar with a broader shoulder and narrower mouth (Fig. 14,2). Also in the northern end of the chamber were the remnants of a round

5 These iron pieces also had remnants of textile corroded onto their backs, evidencing that part of the wooden containment had been covered in textile and these iron ornaments had been mounted overtop such a wrapping. This pattern of iron coffin decoration has been documented in numerous other Xiongnu burials (see Miller et al. 2008).

lacquer vessel, perhaps a bowl, and a ceramic lamp 14.4 cm in diameter (Fig. 14,3), which had a joined burning cup and dish as a single piece of pottery. Other artifacts were found scattered inside the wooden framework. These include an iron arrowhead, a bronze ring, a fragment of a "siru"-style Chinese bronze mirror (Fig. 15,1), and an iron belt plaque covered with gold foil and bas-relief decoration of intertwining leaves (Fig. 15,2). A piece of a deer horn was also found in within the northern half of the chamber.

The highly disturbed state of this burial, especially in the northern end, where the chamber lid was totally removed, shows the degree of plundering in antiquity. The upper half of the body of the deceased was found prostrate on top of one of the ceramic jars and folded over the lower half, while the head was found in the wooden chamber along the western wall. The earth around the artifacts was hardened, and we presume it to be a layer formed after the disruption, rather than of the original bottom.

Tomb 4

This tomb is located 150 m to the southeast of tomb 2. By the form of the stones visible on the surface, we expected the tomb to be a small '凸' shaped burial, but excavation of the first layer showed only a few stones scattered in the area which we assumed would have an entryway. Inside the center of the round-edged and somewhat rectangular arrangement of disturbed stones was a depression with blackish soil. As we dug deeper, remains of charcoal and ash were found, concentrated in a pentagonal shape, each side measuring 200 cm. More layers of charcoal and ash were repeatedly discovered within the perpendicular burial pit, and a layer of stones continued to 1.5 m below the surface, at which point we discovered a terraced layer. The square terrace was 40 cm wide on all sides. We dug another 300 cm deep, in which the fill consisted of mixed stones and earth, until we reached the wooden chamber with a hardened layer of fine gravel over the top of the chamber. The earth inside the chamber was also firmly compacted. The bottom of the pit measured 280 × 160 cm, and the chamber set inside the pit was 270 × 100 cm and 57–60 cm tall. Although the general shape of the wooden framework was well preserved, the wooden material had thinned and degraded, so the thickness of the wood could not be determined. Nevertheless, an interior framework could be measured that was 200 cm long and tapered slightly toward the southern end. The combined wooden furnishing was therefore a long frame of 270 cm with a northern antechamber separated by the northern wall of the wood coffin, 200 cm long, pushed toward the southern end of the chamber. Pieces of gold foil strips were found on the wooden walls, and although the rhombus shaped lattice pattern was similar to that of the tomb 2 coffin, no gold-foil flower decorations were found. Instead, iron ornaments had been fixed with nails onto the wooden walls, attached overtop a thickly woven (hemp?) textile. These iron ornaments, with silver moldings in some parts, were 1.5–2 cm wide and placed about every 10 cm.

The coffin was greatly plundered, and human bones were scattered throughout. Besides a small turquoise pendant (1.9 cm), all the remaining burial goods were found in the northern antechamber area. In the eastern corner of the antechamber was a large wide-shoulder jar, 35 cm tall, with a thinly woven textile covering and horse bones found inside. Directly next to the jar, and against the northern wall of the coffin, was found a large round bellied cauldron with a foot and one handle remaining, though originally there would have been two handles (Fig. 16). The cauldron measured 37.5 cm tall in height, contained the sacrum and two lumbar vertebrae of a bovine, and had the remains of an animal skin covering that had been stretched over the top.

Fig. 16. Duurlig Nars. Tomb 4. Bronze cauldron with animal skin covering.

Toward the western end of the antechamber was a lamp bowl and its separate dish beside a small ceramic pot (19.5 cm tall). At the farthest western end of the antechamber was a lacquerware that had been pressed down against the ground. Several large mammal vertebrae remains were also found on the ground within the antechamber.

CONCLUSION

Although these sample tombs were small in comparison to other noble Xiongnu tombs, and were also greatly plundered, their findings were nevertheless anything but meager. The findings can overall be divided into Chinese goods and those of the northern regions. Numerous artifacts belonging to the Han dynasty were found, including jades, bronze vessels, lacquerwares, and bronze mirrors. The dates of the mirrors more or less match the dates of the tombs, though there are certain gaps in time. These mirrors show evidence of having been intentionally broken, and the other fragmented bronze items were probably also intentionally broken. Undoubtedly the discoveries of various precious ornaments will provide important evidence for figuring out trade in East Asia as well as the production methods of gold jewelry. These diverse findings will contribute to the clarification of cultural and political relationships between the Han Chinese society and that of the northern regions as well as provide important data for comparison with the Nangnang culture of Korea.

A COMPARATIVE ANALYSIS OF XIONGNU NOBLE TOMBS AND BURIALS IN ADJACENT REGIONS

Gelegdorzh Eregzen

Introduction

Since the discovery of rectangular-shaped tombs with entrance ramps, over 20 of these tombs belonging to the Xiongnu nobility have been unearthed and studied throughout Mongolia and Transbaikalia[1]. Given the broad exchange that the Xiongnu enjoyed with the Han dynasty in China and city-states of Central Asia ever since the reign of Modun chanyu, it is no surprise that the majority of artifacts found in these excavated tombs are of foreign origin. However, these commutable items demonstrate the existence of foreign relations and not cultural influence[2]. On the other hand, the structures of the graves carry a direct link to the cognitive experience and skill of those who built it and are thus crucial to understanding traditions and cultural influence from abroad. This paper therefore aims to compare tombs of Xiongnu nobility with those of adjacent regions, namely the Han dynasty tombs in China, the wooden-chambered tombs of Nangnang (Lelang) discovered in the Korean peninsula, and the Pazyryk culture tombs spread across the Altai region, and highlight similarities and differences between them.

Xiongnu Nobility Tombs and Burials in Adjacent Regions

Scholars who have studied the tombs of Xiongnu nobility have always noted similarities they bear with tombs found in neighboring regions, both contemporaneous as well as those dated slightly earlier. In particular, upon his examination of the findings at Noyon Uul, the Japanese archaeologist S. Umehara (1960, 19) noted that the tombs of Xiongnu nobility bore resemblance to the Han dynasty tombs found in China. Upon her excavation of a grave at Noyon Uul in 2006, N. Polos'mak argued that the grave had been dug by Chinese methods and explained this as a result of using Chinese prisoners of war as labor force in digging (Polos'mak et. al. 2008a, 85–87). Earlier, S. Rudenko (1962, 35), made the argument that the coffin and some other artifacts from Noyon Uul were of Chinese origin while the actual graves resembled the Pazyryk burials. P. Konovalov highlights the resemblance of the tombs of Xiongnu nobility not to only

1 Dorzhsüren 1961; Konovalov 2008a; 2008b; Miller et al. 2006; 2008; Miniaev/Sakharovskaia 2007; Mongolie 2003; Navaan 1999; Polosmak et al. 2008a; Rudenko 1962; Umehara 1960; Yun/Chang, this volume.

2 Miller (2009, 302–319) shows that exotic materials from China in Xiongnu tombs are not evidence for the Xiongnu becoming like the Chinese culture.

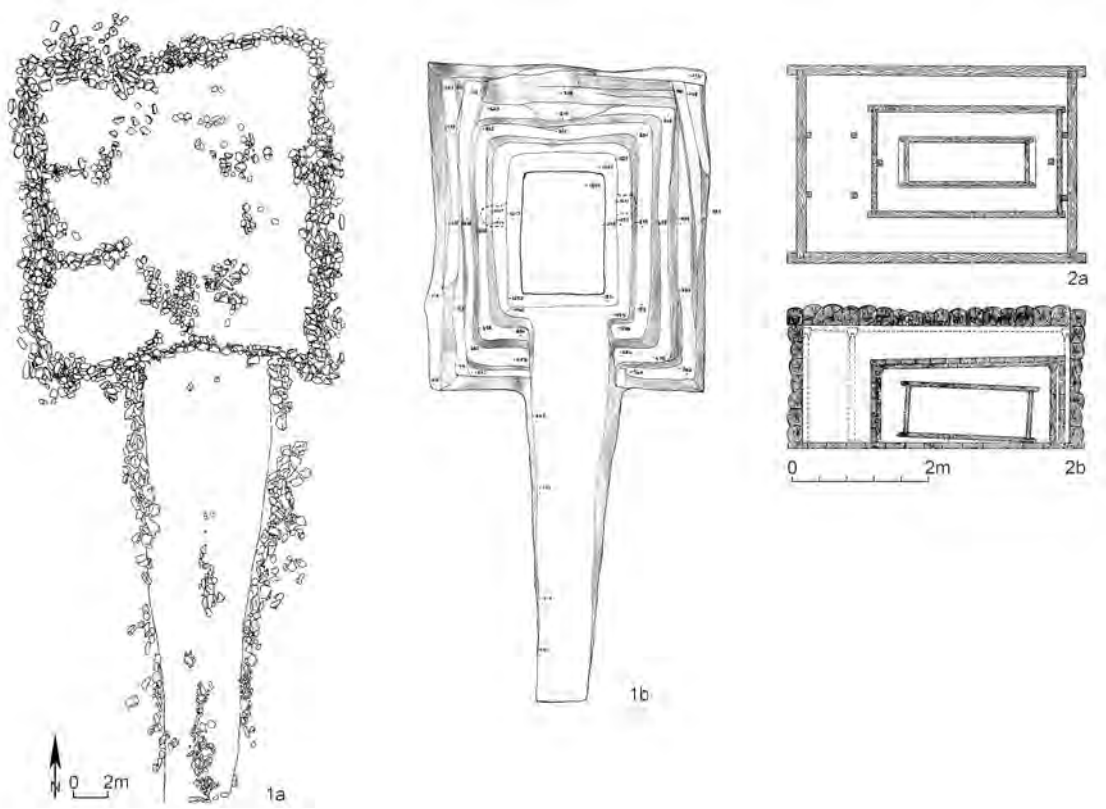


Fig. 1. Noyon Uul. 1 Surface plan (after Polos'mak et al. 2008b, Fig. 4); 2 plan of the stepped pit (after Tseveendorzh et al. 2008, Fig. 4).

Pazyryk burials but also those burials of other cultures spread across the Altai region, such as Shibe, Berel', Katanda and Tashtyk (Konovalov 2008a, 37 pp.; 2008b, 45 pp.). The present author has also contributed to the study of the tombs of Xiongnu nobility by noting their similarity in shape with wooden-chambered tombs of Nangnang found near P'yŏngyang, Democratic People's Republic of Korea, as well as pointing out chronological simultaneity of changes that occurred in both areas (Eregzen 2008, 82).

Research of the aforementioned scholars is important in that it revealed the similarities in some elements between the tombs of Xiongnu nobility and ancient burials found in adjacent regions; however, mostly only resemblances are highlighted and a systematic comparative study is missing. Hence it is hoped that by revealing similarities as well as differences between the tombs of Xiongnu nobility and the tombs of Han China, Nangnang in the Korean peninsula and Pazyryk culture of the Altai such a comparative analysis will shed light on the extent and scope of foreign cultural influence over the funerary customs of the Xiongnu nobility. To make the analogy easier to comprehend, exterior and interior structures of each of the selected tombs are compared side by side.

For the tombs of Xiongnu nobility, the interior structure is generally composed of two main parts, the grave pit and the burial chamber structure at the center (Fig. 1). The burial structure lies at the end of a ramped entry and is usually either single-layered or a double-nested timber construction. The other burial types selected as cases for comparison, Han, Nangnang, and Pazyryk, have similar forms of wooden structures; however, certain differences make all these burial types distinct.

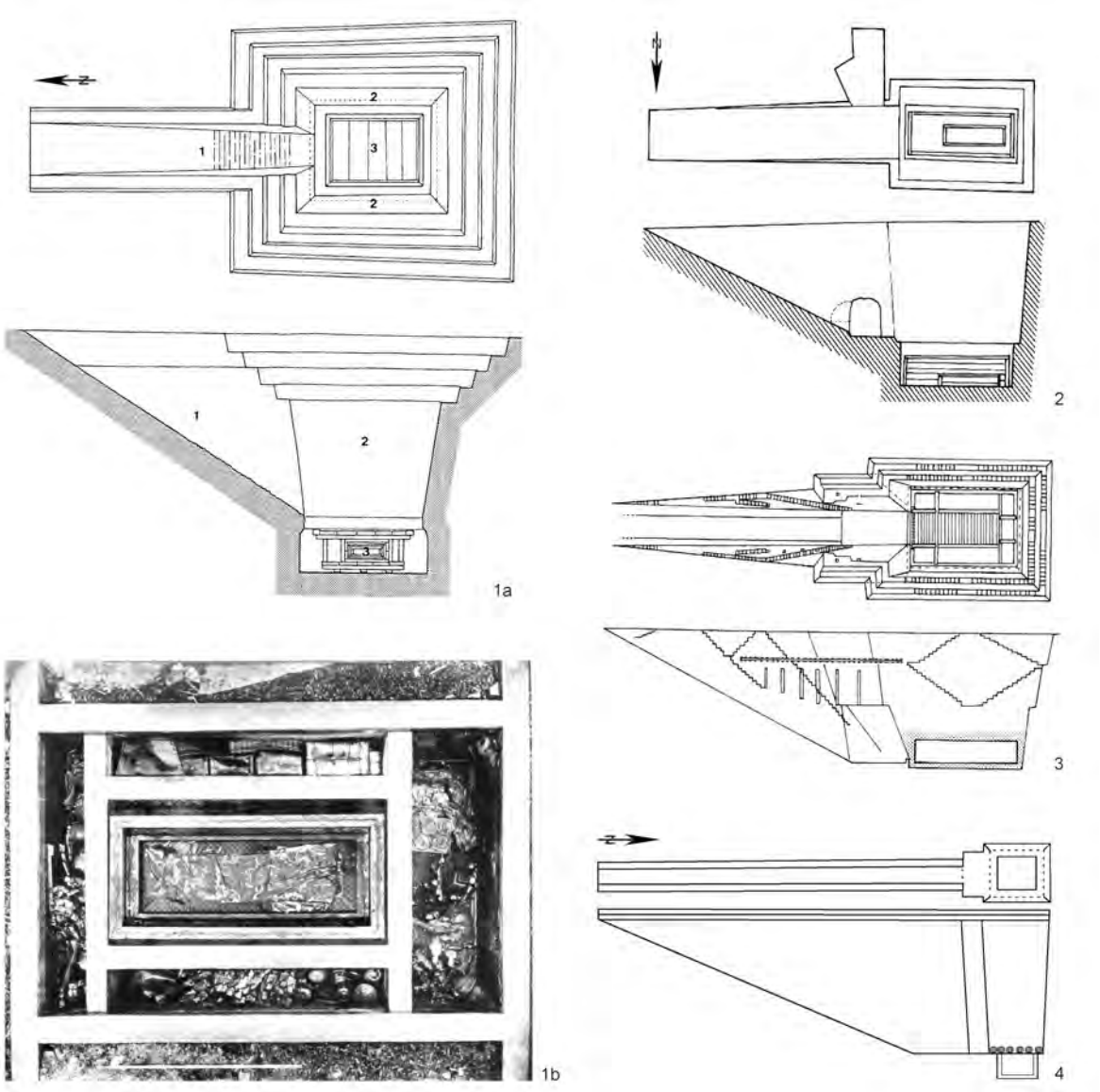


Fig. 2. Stepped pit burials in China. 1 Mawangdui, Western Han Dynasty (1a after Shin 2000, Fig. 2,2; 1b after Chen Jianming 2008, Fig. 9); 2 Shanzhao county Qin tomb; 3 Xi'an suburbs Chongchan Han tomb; 4 Xi'an suburbs Dongyu tomb 33 (2–4 after Eregzen 2010, 292 Fig. 3–5).

In Han dynasty tombs, the wooden chambers are divided by wooden frames into separate smaller compartments, making them strikingly different from the Xiongnu tombs. For example, tomb 1 of the Mawangdui cemetery, in Hunan province of southern China, has a ramp 4.84 m in length and 1.52 m in width (Fig. 2,1a). The coffin is placed at the center of the burial chamber, which is divided into several compartments by wooden frames (Fig. 1,1). As seen from the assemblage of unearthed items, the chamber was divided most probably for the purpose of placing the burial goods in accordance with their related spheres of meaning and utility.

Wooden-chambered ramped tombs have been built in China since the Shang period of the Bronze Age (mid–late 2nd millennium BC) and became widespread during the Spring and Autumns period of late Bronze Age China (8th–5th centuries BC). Initially, the larger wooden

structure served as the outer frame for the coffin, but starting in the Warring States period (5th–3rd centuries BC) and through the early Han dynasty the method of constructing the chamber underwent changes and the practice of placing additional frames within the chamber became common, eventually adding illustrations of windows and doors in the tombs to make them resemble noble residences. Then, beginning in the middle of the 1st century BC, Han tombs underwent drastic structural changes from a pit with a ramped entry to that of actual rooms with doorways, and from earthen pits and wooden chambers to brick-built architecture instead of timber. By the end of the Western Han dynasty construction of brick-chambered tombs had became common practice (Huang 2003; 2006; 2008, 239–240). From this chronology of burial traditions, it can be seen that by the end of the 1st century BC, the wooden-chambered ramped tombs of the Han dynasty had fully transformed into a brick-constructed arrangement of rooms. Assuming that the Xiongnu wooden-chambered ramped tombs did not begin to be constructed until the late 1st century BC (Brosseder 2009), evidence for any direct mutual influence between the Xiongnu and Han traditions are blurred (Miller 2009, 318–322).

Among the wooden-chambered tombs of Nangnang in Korea, one particular form of a smaller inner chamber built toward the corner of a larger outer chamber is reminiscent of the tombs of Xiongnu nobility. However, whereas in the noble Xiongnu tombs each of the chambers had coverings and the inner chambers were built either toward the middle or front wall of the outer chamber, the Nangnang tombs only had coverings for their outer chambers and the inner chambers were always built toward one of the corners of the tomb. Moreover, the tombs of Xiongnu nobility contained only one coffin, whereas multiple coffins were unearthed from Nangnang tombs (Fig. 3,2), indicating significant differences between the Xiongnu and Nangnang tombs in burial structure as well as funerary rites (Eregzen 2008, 70).

In contrast to wooden-chambered tombs of the Han or Nangnang, tombs belonging to the Pazyryk culture in the Altai region bear greater resemblance in burial chamber structure to tombs of the Xiongnu nobility (Konovalov 2008a, 38; 2008b, 45–47). For example, burials of the Pazyryk elite, such as tomb 1, had deep-dug grave pits built with timber-layered chambers, and each one of those capped with a separate covering, making them appear strikingly similar to the tombs of Xiongnu nobility (Fig. 4,1) In addition, many other similarities could be mentioned, such as the size of the chamber, the outer chamber sized about 6 m long, 4 m wide, and less than 2 m tall, the coffin decoration with thin golden plating, ritual burials of a horse in the rear area of the grave, and a horse-drawn vehicle placed overtop the coffin (Rudenko 1970). The same is true with the Shibe tomb located in Kazakhstan, which had deep-dug grave pits built with double timber-layered chambers, horse remains ritually buried at the rear, and alternating layers of earth and stone tomb fill in the grave pit. All of these features make this burial similar to the tombs of the Xiongnu nobility. Its orientation, however, differs from those of the Xiongnu; the wooden chamber of the Shibe tomb was oriented east-west, as opposed to the north-south orientation of the Xiongnu tombs.

From the above comparative analysis of burial structure, one can conclude that in terms of their chamber construction, the tombs of the Xiongnu nobility significantly differed from the wooden-chambered tombs of the Han and Nangnang, and more closely resembled the customs of nomadic and semi-nomadic peoples of the Altai region, seen in the Pazyryk tombs.

The opposite appears true in relation to the methods of digging the graves. Burial pits of Xiongnu noble tombs were dug in several layers resembling stairs, the top layer being the widest and successively narrower as the pit descended with each layer, and the southern end

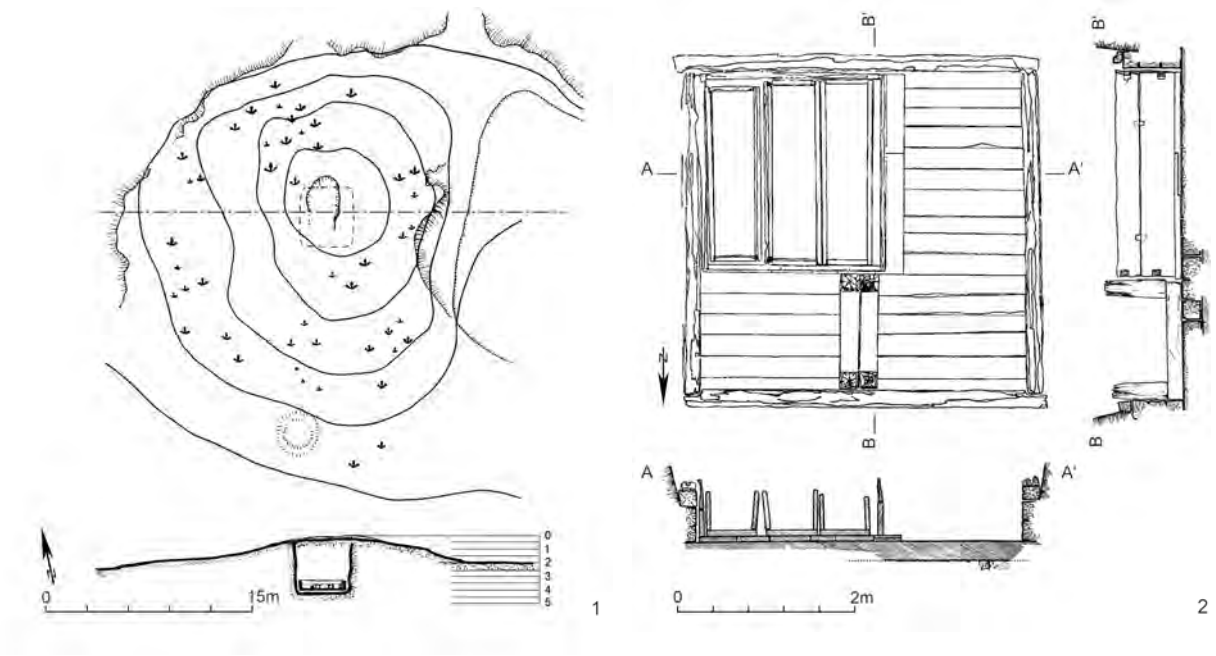


Fig. 3. Sekiganri Tomb 201, Nangnang Culture. 1 Tomb mound; 2 tomb chamber (after Chōsen 1934, Pl. 92,1; 102).

of the burial pit had sloped entrance passageway. Contrary to this practice, burial pits of tombs found in the Altai region were dug straight downwards, without narrowing toward the bottom, and have no entrance shafts. Moreover, in the burials at Pazyryk, the depth of the pit reached 4 m at most (Fig. 4), much shallower than those of the Xiongnu, which reached anywhere from 6 to 17 m. Among the tombs of Nangnang, even the larger ones are shallow in comparison to the Xiongnu tombs; and although some had entrance passageways, they bear no evidence of layered digging. On the other hand, Chinese aristocratic burials of the Warring States and Western Han had pits deeply dug in multiple layers narrowing toward the bottom, and long sloped entrance passages extending from one side of the burial pit (Huang 2003; 2006) (Fig. 2). These burial features bear striking resemblance to the pits and sloped entrances of the noble Xiongnu tombs.

Concerning the exterior appearance (i.e. visible features on the ground surface), the Xiongnu noble tombs resemble none of the aforementioned burial types. The Han dynasty tombs have large earthen mounds on top. Initially, during the Western Han period, these were square shaped, but later, by the Eastern Han period, the mounds gradually acquired a rounded shape. The tradition to create a mound of dirt over burials began in China as early as the Spring and Autumn period and became immensely popular during the Warring States period, as is evidence by the large dirt mounds on top of the regal burials of the various kingdoms. The founder of the Qin empire, Shihuangdi, had his own tomb built under a massive rectangular mountain of earth 70m wide, and the rulers of the subsequent Han dynasty continued this tradition, as is seen in the presence of rectangular dirt mounds found on top of all 11 imperial tombs of the Western Han period. During the Eastern Han period, the mounds acquired semi-circular dome shape (Huang 2008, 244). Another feature that differentiated the exterior of the Han tombs from those of the Xiongnu nobles is the practice of planting trees on top of dirt mounds. Sima Qian mentioned in the "Shiji" that the Xiongnu did not "pile dirt mounds or plant trees" when burying their deceased (Sima Qian 1959, 2892; Watson 1961b, 137; Sükhbaatar 1980, 135).

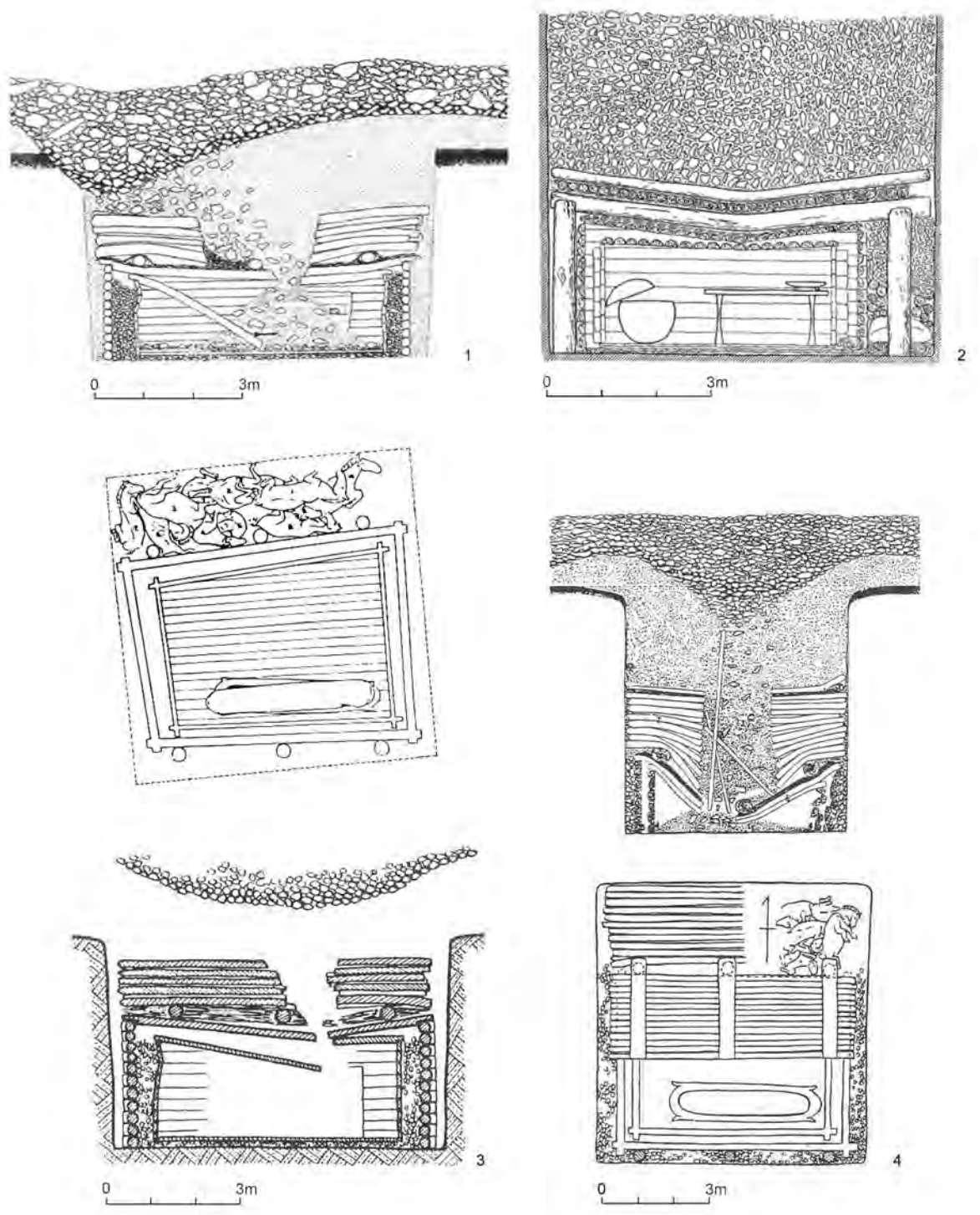


Fig. 4. Burial chambers from Pazyryk culture. 1 Pazyryk, burial 1 (after Rudenko 1970, Fig. 5A); 2 Tuekta (after Konovalov 2008b, Pl. 29,3); 3 Pazyryk, burial 3; 4 Shibe (after Eregzen 2010, 293 Fig. 3–4).

Wooden-chambered tombs of Nangnang also differ significantly from those of the Xiongnu and resembled more those of the Han dynasty. Scholars agree that the wooden-chambered tombs of Nangnang appeared as a result of the cultural influence of the Han dynasty (Nangnang 2001),

and one can equally assume that the tradition of piling dirt mounds and planting trees on top of burials was directly transmitted from the Han dynasty into Nangnang.

Whereas the East Asian cultures of China and Korea built mounds with the dirt deliberately carried in from another area, nomads and semi-nomads of the Central Asia piled up dirt dug out of the pit and piled rocks to identify the constructed tombs. Rock-piled tumulus mounds were common throughout the vast regions of Eurasia, from the shores of the Black Sea to the Mongolian Plateau, and are known in archaeological literature as "kurgans". These tumuli are believed to have been originated circa 3rd millennium BC. The majority of large burials found in the Altai region are marked by piles of stones on top of the ground surface. For example, both tomb 1 at Pazyryk and the tomb at Tuekta have round-shaped rock piles between 36–46 m in diameter (Rudenko 1970), and the tombs at Shibe also had round-shaped piles 45 m in diameter. Likewise, an identical rock pile on tomb 1 at Ak-Alakha was 18 m in diameter (Polos'mak 2001, 44), and the tombs at this site reveal exterior stone structures made in the following manner: first an outer circle of stones and then the inner space was filled with medium-sized rocks. In terms of surface appearance, the general forms of these tombs resemble the smaller ring burials of the Xiongnu but still significantly differ from the larger ramped and mounded tombs of the Xiongnu nobility. In general, rock-piled "kurgan" tumuli found across the Altai region have rounded shapes whereas the tombs of Xiongnu nobility have rectangular-shaped exterior structures and are constructed mostly with dirt more than stones on top of the graves; only the outer edges of the mounds are lined with rock formations. Moreover, not all Xiongnu tombs have large dirt piles that are elevated above the ground surface. In sum, the tombs of the Xiongnu nobility differ from those of the Altai region not only in their surface structures but also in their methods of pit construction (cp. Fig. 1; 3).

Factors Behind Foreign Cultural Influence to Xiongnu Burials

Intensive research and excavations conducted in recent years has helped create a more solid database for the study of Xiongnu noble tombs. The results of radiocarbon dating of excavated tombs as well as estimates of relative production dates for unearthed artifacts, such as bronze mirrors (see Törbat, this volume) and lacquerware from China, generally coincide and point to the late 1st century BC to 1st century AD[3]. These analyses show that the rectangular-shaped tombs with entrance shafts associated with high-ranking aristocratic Xiongnu were most probably built within the timeframe of a century and a half both before and during the 1st century AD.

Comparing the aforementioned chronology with Chinese written records sheds some light on factors that may relate to the timeframe of foreign influence from neighboring cultures into the Xiongnu funerary tradition. In particular, Sima Qian mentions that Xiongnu funerary traditions included inner and outer coffins, gold and silver ornaments, clothing and furs as well as beloved attendants who "followed in death" (Sima Qian 1959, 2892; Watson 1961b, 137; Ganbaatar 2008, 46). This description, written at the beginning of the 1st century BC, thus portrays

3 Konovalov/Brosseder 2008, 53–54; Brosseder 2009; Eregzen 2009; Eröol-Erdene 2010, 145.

Xiongnu funerary customs as they were practiced between the late 2nd to early 1st century BC, and perhaps during the preceding times. From this we can hypothesize that even before the introduction of the rectangular-shaped tombs with entrance shafts the Xiongnu had buried their deceased noblemen inside wooden structures. The late Bronze Age and early Iron Age burials unearthed at Chandman' Uul near Ulaangom, Uvs aimag, Mongolia, provide further evidence to the hypothesis that the tradition of constructing wooden-chambered tombs was already prevalent among the nomads no later than the mid-1st millennium BC (Tseveendorzh 2007). It is no surprise then that the burial structure of Xiongnu tombs differs from the Han dynasty tombs and more resembles the earlier burials of the Pazyryk and Chandman' cultures. This shows that the burial structure of the Xiongnu nobility was not a product of Han cultural influence but was an element of nomadic indigenous culture.

Still, the shape of the grave pit and methods for digging it are unquestionably the result of the Han cultural influence. One cannot rule out the possibility, which some scholars hypothesize that the grave pits were dug by Chinese prisoners of war (Polos'mak et. al. 2008a, 85–87). The more important question is, however, why during that particular period, on the threshold of the 1st century AD, did the Xiongnu built such deep graves?

Let us begin with examining the internal political situation of the Xiongnu Empire. According to historical records, in the mid-1st century BC the two brothers Huhanye and Zhizhi fought over the position of chanyu rulership, and the defeated Huhanye fled southwards seeking support from the Han dynasty. Once the Han support had been secured, Huhanye returned north, attacked his brother Zhizhi, and drove him westwards. As Huhanye, the Chinese supported victor, became the principal ruler of the Xiongnu, hostilities between the Han dynasty and the Xiongnu were temporarily lifted. Moreover, as the "Hanshu" descriptions of tribute missions show, this rapprochement allowed for an unprecedented flow of goods from China to the Xiongnu lands (Yü 1967). This factor could have caused the change in items buried with the deceased, but it seems less likely that the increase in Chinese goods in burials would alter the burial structure itself, especially the shape of the pit and burial chamber.

Interestingly enough, the size of wooden-chambered tombs and array of burial items underwent similar drastic changes almost concurrently in Nangnang, Korea. Known as Lelang to the Chinese, Nangnang was at that time a military commandery directly incorporated into the Han empire, and the Xiongnu had become a subordinate neighboring power, forced to give tribute to the Han empire. Therefore, these simultaneous changes in the Xiongnu and Nangnang tombs might have been directly or indirectly linked to close relations with the Han dynasty.

However, when the usurper Wang Mang overturned the Han dynasty and established his own Xin dynasty, his increased pressure on tributary groups of the previous Han system led many tribes to launch coups of independence from the Chinese state under the newly-founded Xin dynasty. The Nangnang were among the rebellious entities, establishing independence for about six years under the leadership of Wang Tiao (Oh 2006, 159–160). In addition to these break-offs, the Xiongnu began constantly raiding the Xin borders. When Guang Wudi restored the Han dynasty, he sought to carefully improve this situation by generously bestowing titles and riches on the rulers of states like Lelang, and repairing relations with neighboring groups like the Xiongnu. The continued strong presence of Chinese goods in the tombs of the Xiongnu and Nangnang during the 1st century AD may be attributed to this second resurgence of close relations, manifested in rewards sent by the early emperors of the Eastern Han dynasty to foreign rulers. Again, however, this development does not present sufficient cause for changes in the size and shape of the tombs.

Early emperors of the Eastern Han dynasty seemed too weak to dictate policies of neighboring kingdoms, as their predecessors had done. Instead, as the renewed Xiongnu raids and Nangnang rebellion explicitly show, Han suzerainty over its former tributaries had greatly diminished. This weakness of the Eastern Han was taken by rulers of frontier states as an opportunity to strengthen their power base and upgrade the visibility of their status. One such manifestation of an elevated status could have been enlarged tombs for nobility, in which they sought to be buried along with a large amount of goods. One cannot rule out this as a possible explanation for why the tombs of the Xiongnu and Nangnang nobility acquired shapes resembling those of the Han dynasty.

This hypothesis undoubtedly still deserves certain credit in explaining such a sudden change in the appearance of Xiongnu tombs. Still, a more practical necessity might have drawn the Xiongnu nobility to start digging their graves deeper, in stair-shaped layers. Some interesting facts that could prove this have even been recorded in history. Among the Chinese records about relations between the Xiongnu and their other neighbors, there exists a passage referring to the plundering of a chanyu tomb(s) by the Wuhuan of present-day Manchuria in 78 BC (Fan Ye 1965, 2981). The looting of the tombs of Xiongnu rulers (chanyu) by the Wuhuan was considered an act of ultimate desecration and humiliation, and therefore all necessary measures to prevent such occurrences were taken, including digging graves to the utmost possible depth and specifically selecting sandy terrain to bury their deceased rulers, as it happens that most of the tombs of Xiongnu nobility are found in sandy areas. The desire to protect their ancestral remains from looters is also seen from the fact that even in lands north of the Gobi, where such a depth of the grave was an uncommon practice prior to the arrival of the Xiongnu, indicating that they could not have borrowed that tradition from indigenous people, as the slab graves of preceding nomadic populations also tend to be much shallower than the Xiongnu tombs.

A sophisticated technology would have been needed to dig such deep graves, as in the case of tomb 20 at Noyon Uul, which sits 18.3 m deep, or tomb 20 at Gol Mod, which is 17.5 m deep. The Xiongnu tombs were a result of complex engineering construction in sandy terrain, and it is obvious that for such a challenging task they needed, and used, the methods and labor of sedentary peoples who had such an expertise. Historical records clearly indicate that a large number of Chinese prisoners of war and renegades cohabitated among the Xiongnu, and it is possible that these people were used in the construction process. Grave pits dug in stair-like, multi-layered pattern and entrance shafts that allowed for maximum depth are elements of traditional Chinese technology, evidence that Chinese labor was used in building these tombs (Polos'mak et al. 2008a).

Now let us examine why the exterior structure of Xiongnu tombs acquired such a specific and strikingly different shape from other burials. Many tombs of Xiongnu nobility are distinguishable by their "凸"-shaped stone frame visible above the ground. In some of the graves, the inner space is further constructed with stone walls, though the majority of them have simple earthen fills. In almost all cases, the burials have a slight depression in the middle, caused either by looting or natural collapsing of the interior chambers. Hence, the exterior structure of the tombs of Xiongnu nobility can be defined as "stone-framed earthen mounds". Whether the burial demarcation rose significantly above the ground surface or not, it becomes clearly visible during excavations that the stone "dams", as Mongolian archaeologists have often called these stone structures, frame the burial area and outflank the outer perimeters of the tomb pits; their size and shape do not equal but directly correlate to the grave pit.

Likewise, nearly all of the smaller standard Xiongnu burials were refilled with dirt and covered with stone demarcations which were significantly larger than the grave pit (Eregzen 2007, 231). Although the more standard graves had no structure that mounded over the surface, the round shape of the arrangement of stones matched the oval shape of the grave pit and still managed to leave a visible mark. While scholars tend to interpret this round shape in connection with looting, the intact standard tombs also have no mounded stone structure and retain a round shape, implying that all Xiongnu tombs initially had similar logics for the formation of exterior structures. Hence one can conclude that the exterior structure of both tombs of the highest nobility and standard graves were constructed with the same logic, albeit with different shapes. This supports the hypothesis that the exterior structure of the tombs of Xiongnu nobility did not reflect foreign cultural influence but were rather built by traditional methods, occasionally altered depending on the shape of the grave.

CONCLUSION

When compared to Han dynasty tombs in China, tombs of Nangnang in Korea, and Pazyryk tombs of the Altai region, the tombs of the Xiongnu nobility reveal the following: The interior structure of Xiongnu burial chambers significantly differ from the Han and Nangnang tombs and bear more similarities to the Pazyryk ones. The shapes of grave pits and methods those were dug, however, are identical to Han dynasty tombs. On the contrary, the exterior structure of the Xiongnu tombs has no similarity or resemblance to any of the burial styles found in adjacent regions. Since the wooden chambers of Pazyryk, which are very similar to those of the Xiongnu noble tombs, predate the Xiongnu period, we can assume that this form of burial structure was already spread among nomadic cultures and served as the later influence for Xiongnu graves.

However, the pits of Xiongnu tombs, especially of those of the nobility, were dug deep into the ground, which was unknown among the nomads but commonly practiced within sedentary civilizations to the south. This suggests the high probability that the Xiongnu used Chinese methods in digging the grave. The exterior structure of noble tombs was likely a novelty reflecting the change in the shape of the grave pit, as seen from the similarity between these and the more standard circular tombs believed to be those of the common people. In sum, structure of the tombs of Xiongnu nobility reflected indigenous traditions, foreign cultural influence, and novelties resulting from these influences.

[translated by Munkh-Ochir Dorjjugder]

THE EARLY HISTORY OF THE STUDY OF THE MOUNDED TOMBS AT THE NOYON UUL NECROPOLIS – THE COLLECTION OF ANDREI BALLOD AT THE IRKUTSK MUSEUM OF REGIONAL STUDIES

Grigorii L. Ivanov

Introduction

The Noyon Uul necropolis, a cemetery in northern Mongolia where aristocrats of the Xiongnu were buried, has been known to archaeologists since the spring of 1913. When speaking of the initial investigations of Noyon Uul and the monumental tombs found there, however, researchers are usually limited to the following information: the mounds at Noyon Uul were discovered by Andrei Iakovlevich Ballod, who reported this site of monuments to the East-Siberian branch of the Imperial Russian Geographical Society, and sent a collection of artifacts found by him at the site to the museum of this branch in Irkutsk. Since that time, information about the initial excavations of Noyon Uul mounds has remained brief, and the artifacts found by Ballod have in fact never been formally reported in any academic publications. The only exception is an article by Ia. Khodukin entitled "The first excavation in the Noyon Uul mountains", in which the correspondence between A. Ballod and F. Shiriaev, scientific director of the East-Siberian branch, is published (Khodukin 1926). In this publication, drawings of artifacts were shown (Fig. 1) and an inventory of the collection was given. Nevertheless, Ballod used a terminology of his own devising and documentation standards of the early 1900s in his correspondence. The present paper is therefore designed to provide precise terminology for the artifacts discovered by Ballod and to introduce, for the first time, the entire collection to the scientific community.

Background of the Collection

From 1912–1913, A. Ballod worked in Mongolia as a geologist of the Russian-Belgian company "Mongolor", and, as a geologist, he was exploiting industrial gold deposits 130 km north of the Mongolian capital of Ulaanbaatar. He assumed that a group of huge mounds with depressions in the ground were old gold mines of the area, and he dug a pit to the bottom of one of them to a depth of 3.8 m where a wooden layer covered with reeds was found. Under this layer he discovered wondrous ancient materials, including a jug and gold and bronze artifacts, all of which were sent to the museum of the East-Siberian branch in Irkutsk. Along with the collection of unearthed artifacts, Ballod added a letter that he titled "The Ancient Tombs of Unknown People

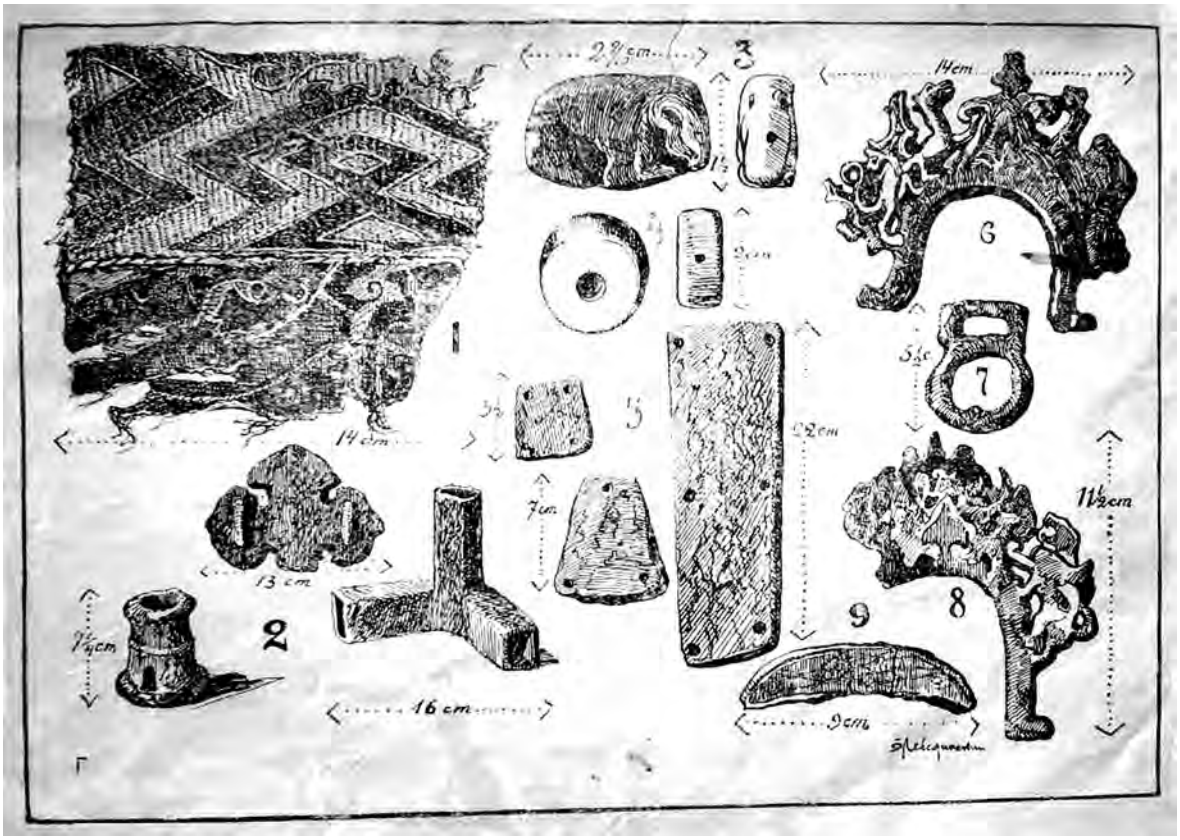


Fig. 1. Noyon Uul. First publication of the artifacts from the collection found by A. Ballod (after Khodukin 1926, 13 Fig.).

in the Upper Tributaries of the Khara River in Mongolia" (Khodukin 1926, 3–5). In this letter he described in detail the process of geological exploration that had led to the discovery of the mounded tombs at Noyon Uul[1]. The excavations led by Ballod cannot be regarded as archaeological excavations in the proper scientific sense of the word. However, looking at the details of his correspondence, we can imagine him to be an educated and intelligent man who is not indifferent to science or to the significance of cultural heritage.

F. Shiriaev, the director at the Irkutsk museum, then sent Ballod's letters with drawings and photographs to D. Anuchin, a professor at Moscow University who was the acknowledged leader of pre-revolutionary Russian anthropology and archaeology. Anuchin took this information with great interest and voiced it at a meeting of the Imperial Archaeological Society. However, the Russian scientists, including D. Klements who was working in Mongolia at that time, were not able to determine the cultural identity of the materials from Noyon Uul, nor could they give a precise terminology for the artifacts. Moreover, the site itself, the basin of the Khara river, raised similar problems of its geographical, cultural and ethnic identification (Khodukin 1926, 5)[2]. The Moscow scientific community took no specific action, limiting themselves to some brief remarks.

1 State Archive of Irkutsk oblast' (G.A.I.O.) F. 293, L. 1, D. 700, pp. 5–17.

2 State Archive of Irkutsk oblast' (G.A.I.O.) F. 293, L. 1, D. 700, p. 31.

Fig. 2. Noyon Uul. Artifacts from the collection of A. Ballod from the Irkutsk Museum of Regional Studies. Scale approx. 1 : 3.

The citizens of Irkutsk and, in particular, the members of the East-Siberian branch, after unsuccessful attempts to attract the attention of B. Petri, who was then working in Cisbaikalia, attempted to organize their own excavations of the Noyon Uul mounds. The probable reason for scholarly indifference to the Noyon Uul mounds stems from the lack of specialists of the

archaeology of the Xiongnu in Russia, as well as in the world, at that time. Excavations of 100 tombs in 16 different areas by Iu. Tal'ko-Gryntsevich in Transbaikalia in 1896, on material which is now understood as remains of the Xiongnu, also passed unnoticed to archaeological researchers at that time (Konovalov 1976, 10). Coupled with difficulties surrounding the outbreak of the First World War and the subsequent Russian revolutions, the lack of broader scholarly interest stifled aspirations of the East-Siberian branch and they were unable to organize an expedition (Khodukin 1926, 10; Konovalov 1976, 11).

Scientific study of the Noyon Uul mounds did not begin until 1925 when O. Enso, one of the witnesses of the work done by Ballod, reported the results of those initial excavations to the participants of the Mongolian and Tibetan expedition led by the Russian Geographic Society, who were at that time in Ulaanbaatar. Upon hearing of the previous discoveries and the nature of the site, P. Kozlov, the head of this expedition, sent a reconnaissance group of members to Noyon Uul. This group was headed by S. Kondrat'ev, who commenced archaeological investigations on March 24 (Rudenko 1962, 8). As a result, 212 burial mounds were documented. Seven of them were excavated, including the Ballod mound, which at that time was recorded as the largest of the entire necropolis. The majority of the recovered artifacts were deposited in the State Hermitage Museum in St. Petersburg, and the expedition even bought some previous artifacts from the widow of A. Ballod (Rudenko 1962, 12–13).

THE BALLOD COLLECTION

The artifacts of the collection can be divided into five groups according to their material: metal, i.e. bronze and gold, jade, ceramics, fragments of worked wood, bones of fish and domestic animals. Inventory numbers are provided for each of the artifacts from the collection.

- Axle finial (Fig. 2,16; No. 7217-66) cast in bronze from part of a massive wheeled cart[3]; base diameter 7 cm, interior diameter 3.5 cm, top diameter 5.4 cm, height 6.5 cm. At the lower part there are rectangular holes, measuring 1.5 × 1 cm, for inserting an axle-pin. An artifact of the same function, but of a very different style, was found later in mound No. 25 in Noyon Uul (Rudenko 1962, Pl. 24,5; 1969, Pl. 24,5).
- A four-leafed rosette (Fig. 2,13; No. 7217-41) is distantly analogous to those found in other Noyon Uul mounds (e.g. Rudenko 1962, Pl. 32,3; 1969, Pl. 32,3) as well as in Xiongnu monuments of Transbaikalia (Konovalov 1976, Pl. 19,25). One may also include in this group also three bronze fragments with loops on the back side (Nos. 7217-42.43.44).
- Bronze staple ornaments (Fig. 2,7.8; No. 7217-34.35) decorated with images of griffins and vegetation, which Ia. Khodukin believed to be handles of Chinese bells. Traces of gilding are visible on one of them. Analogous to these are a few artifacts, a complete one (Fig. 2,10; No. 7217-70) and two fragments (Nos. 7217-38.58), though they have no decoration.
- The fragment of a ring-shaped staple ornament, i.e. its the lower part, with traces of gilding (Fig. 2,11; No. 7217-36) is a part of the artifact that is analogous to those found in mound No. 6 (Rudenko 1962, Pl. 28,3.5; 1969, Pl. 28,3.5).

3 The detail of a wooden wheel rim was discovered by the group headed by S. Kondrat'ev later in 1925.

- The bronze pommels with rosettes (Fig. 2,17; Nos. 7217-67.68.69) are very poorly preserved. According to S. Rudenko they served as amulets. Analogous artifacts were later found in the Kondrat'ev mound and in mound No. 1 at Noyon Uul (Rudenko 1962, Pl. 33,5.6; 1969, Pl. 33,5.6).
- The angles (Fig. 2,15; Nos. 7217-64.65) are similar to artifacts from the mounds No. 6 and 25 (Rudenko 1962, Pl. 28,10.11; 1969, Pl. 28,10.11).
- Three small disc ornaments attached to lateral bushings (Fig. 2,18.19; Nos. 7217-50.51.52.53).
- Artifacts in the form of buttons (Nos. 7217-46.47.48.49) with round staples on the back side. According to S. Rudenko they are elements of a horse harness. They are analogous to ones found in mound No. 25 (Rudenko 1962, Pl. 21,1–3).
- The buckle (Fig. 2,12; No. 7217-45) is analogous to one found in the mound No. 6 (Rudenko 1962, 45).
- 15 fragments of gold foil (Nos. 7217-119–132). The group headed by S. Kondrat'ev found 13 more fragments in the Ballod kurgan.
- There are 32 jade plates (Fig. 2,1–6; Nos. 7217-1.3–33). Some are complete and some are in fragments. In shape some are rectangular and some are trapezoidal. The average size measures 12 × 6.5 cm.
- Fragments of pottery with smooth surface (Nos. 7217-63.71–84). They have incised horizontal and diagonal lines.
- Artifacts made of wood (Nos. 7217-86–92.94.95). All artifacts except for No. 90 and No. 92 show remains of red and black paint.
- Besides A. Ballod gathered osteological material: 2 bones of a domestic bull[4] (Nos. 7217-114.115) and fragments of fishbone (No. 7217-39).

Final Overview

In sum, the first steps of scholarly investigations of the famous necropolis at Noyon Uul began with instigations from the East-Siberian branch of the Imperial Russian Geographical Society. However, a lack of understanding from the broader community of archaeological scholars and political difficulties of the early 1900s have glossed over the significance of the finds of A. Ballod and the efforts of those in Irkutsk at that time. The collection of A. Ballod stored in Irkutsk in general matches the assemblages of artifacts from later excavations at Noyon Uul. For most of the artifacts we know comparable findings from the excavations in the recent years, however some artifacts remain unique.

4 As defined by A. Klement'eva, paleontologist of the laboratory of ancient technologies at the Irkutsk State Technical University.

AN UNLOOTED ELITE XIONGNU BARROW AT KHÖKH ÜZÜÜRIIN DUGUI-II, BULGAN SUM, KHOVD AIMAG, MONGOLIA: RELATIVE CHRONOLOGICAL DATING AND ITS SIGNIFICANCE FOR THE STUDY OF XIONGNU BURIAL RITES. PRELIMINARY REPORT

Alexei A. Kovalev, Diimaazhav Erdenebaatar, Tömör-Ochir Iderkhangai

Introduction

In August and September of 2010, the Central-Asiatic Expedition worked in the vicinity of two recently discovered Xiongnu burial grounds in Bulgan sum, Khovd aimag[1]. These burial grounds located west of the administrative center of Bulgan sum, along the northern side of Bulgan river, in a place called Khökh Üzüüriin Dugui appear to be among the most western sites attributable to the Xiongnu. Three additional burials, heavily covered with sand, were found to the east in the northern side of the Bulgan river flood plain. These may also be attributable to the Xiongnu.

Khökh Üzüüriin Dugui-III cemetery was discovered by T. Iderkhangai, hidden in a hollow surrounded by mountain slopes and containing more than 20 ordinary Xiongnu burials marked with soil mounds and edged with stones[2]. Khökh Üzüüriin Dugui-II cemetery, found by A. Kovalev, contained six burials. Five of the burials (2–6) were arranged in one line stretching southeast along the edge of the Bulgan river flood plain, though barrow 3 seemed more notable than the others[3]. The surface plan of barrow 3 appeared relatively square in shape and measured no less than 12 m across, and at its south side was a kind of entryway. Barrows 2 and 4, excavated in 2010, had already been robbed, though appeared to be ordinary stone cist Xiongnu burials with the deceased arranged with their heads oriented north-northeast. Judging by the collapse of stone constructions, the cists had either had wooden ceilings or had contained wooden coffins; however, the wood did not preserve as the bottoms of the tombs had been completely flooded with ground water.

1 The Central-Asiatic Expedition was organized by The International Association of Mongolian Studies and is in cooperation with St.-Petersburg Museum-Institute of Roerich Family, Ulaanbaatar State University, and the Institute of History of the Mongolian Academy of Sciences.

2 The location of this site is N 46°06'068" E 91°26'672", at 1,205 m elevation.

3 This particular burial (3) was located at N 46°05'367" and E 91°27'784" at an elevation of 1,165 m.

Barrow 1 at Khökh Üzüüriin Dugui-II

Barrow 1 was placed apart from the line of burials in the flood plain, 70 m southwest from barrow 2, and was covered with much sand[4]. The construction looked like a stone ring, made of dry masonry, with a hole in the middle and, from the surface, appeared to be unlooted. In the course of excavations in 2010, we discovered that the barrow had indeed not been robbed or even disturbed, and the well preserved burial construction thus required thorough graphic description[5]. Unfortunately, the level of ground water came up to 1 m above the bottom of the burial pit. We used electric pumps, which allowed us to drain the burial, but could not stop the persistent flooding of the floor of the burial chamber. In addition, the multi-layer walls of the

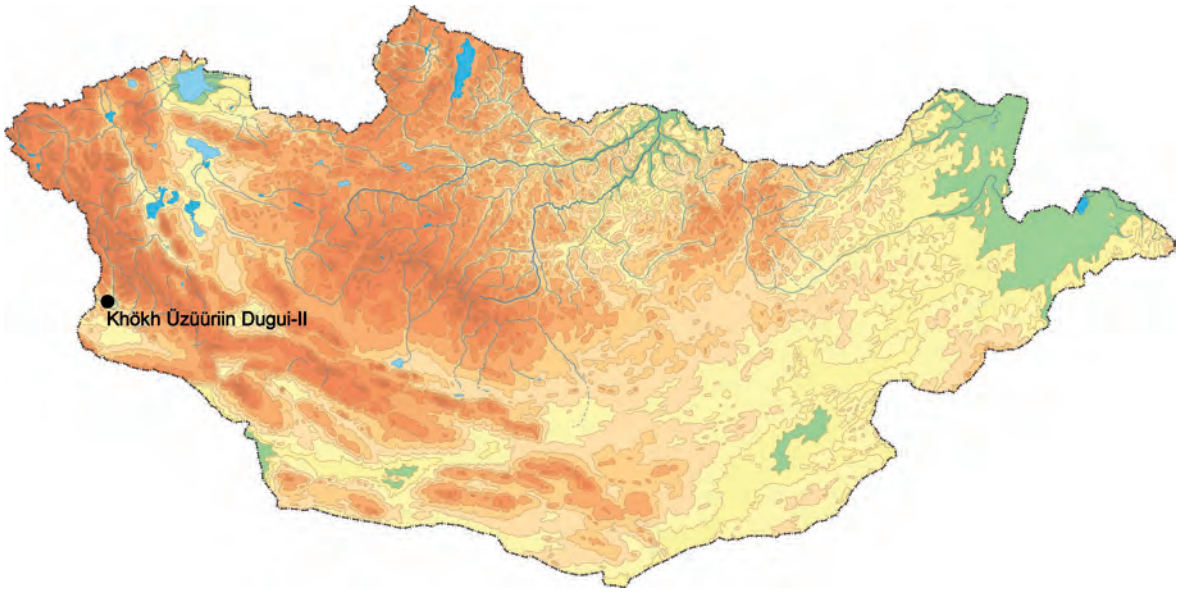


Fig. 1. Location of Khökh Üzüüriin Dugui-II.

burial chamber, which had been built from standing slabs, were kept from falling only by a layer of liquid mud that had accumulated inside the burial. The only possibility to remove all filling along the walls was to completely disassemble the stone box. As a result, not all the artifacts included in the tomb inventory could be properly cleaned. Such artifacts were extracted in whole blocks, the location of blocks of artifacts were noted, artifacts were then excavated from these groups of materials.

Our investigation revealed the following burial structure. Before the tomb had collapsed, the surface construction had been a circular mound about 7 m in diameter and 0.5 m high, with

4 Barrow 1 was located at N 46°05'372" and E 91°27'625" at an elevation of 1,162 m.

5 All drawings of stone constructions were made with a scale of 1:10, and detailed level drawings have been made for all stages of the excavation.

Fig. 2. Khökh Üzüüriin Dugui-II. Barrow 1. View from the west.

Fig. 3. Khökh Üzüüriin Dugui-II. Barrow 1. Dry masonry on the western side.

gently sloping sides and a flat top made of fine sand. The sides of the mound had been faced with 6–7 layers of stone slabs (Fig. 1). The lower slabs edged the perimeter of the mound, and each subsequent layer was laid nearer to the center of the mound, resulting in a construction of "steps" (Fig. 2). As a result the diameter of the soil mound with the stone stepped facing appeared to be 8 m. At its southern side, some of the stone facing had been washed away by river water. When we dismantled the filling of the cavity above the tomb, we found a triangular stone slab 1.7 × 0.7 m, which lay sloping to the southern side of the mound at a depth of 0.5–1.5 m under the ancient surface. Most probably it had been a stele which had been erected over the tomb, with its acute end straight up and its flat surfaces facing south and north, while the stones that lay together with it had served as rubble which surrounded its foot and kept it erect. Under the foot of the stele, the stone shell of the tomb had collapsed downward about 1 m, thus we can propose that the top of the stele had risen above the mound surface about 0.7–0.8 m.

Fig. 4. Khökh Üzüüriin Dugui-II. Barrow 1. First stone shell above the chamber, view from south-southwest.

Fig. 5. Khökh Üzüüriin Dugui-II. Barrow 1. Second stone shell above the chamber, view from south-southwest.

In the central part of the construction under the mound was a rectangular burial pit, measuring 6 × 3.5 m and 3.3 m deep, filled with sand and oriented south-southwest to north-northeast. The upper portions of the pit were discernible in the subsoil sand, and thus we were able

to continue to reconstruct the shape and size of the pit, according to the placement of stone shells above the chamber of the deceased, as vertical walls extending to the bottom of the pit. A stone cist, measuring 3 × 1.5 m, was erected at the bottom of the pit in three to four layers with vertical slabs up to 1.3 m high, and the space outside the cist had been filled with mixed horizontal layers of rocks and pebbles. The floor of the burial chamber was paved with a single layer of stone plates, which were wedged up against the stone slabs of the walls of the outer stone cist. A line of long stones was placed on the floor of the chamber along the longer axis of the outer cist, and the northern most stone was set on an incline leaning against the northern wall of the stone cist (Fig. 5). Thus, the burial chamber appeared divided into three areas – western, eastern, and northern under the inclined slab – and the burial goods had been placed according to this division. No remnants of a stone lid to the cist were found, but the fact that the fill of the pit above the unlooted cist had collapsed more than a meter indicates that there had most likely been a ceiling to the outer cist made of a material that had broken or disintegrated – most likely of wood. We also cannot exclude the possibility that wood coffins had existed within the chamber, yet wood remains did not preserve well in the soil conditions of the flood plain.

The first stone shell above the chamber, which consisted of one to two layers of slabs, had been placed directly on the supposed ceiling of the stone cist and the outer rubble fill (Fig. 3). This shell had been covered with a layer of pure sand 0.8 m thick. A subsequent stone cover was constructed over the layer of sand, at about 1.2 m below ground surface, with one to two horizontal layers of stone slabs (Fig. 4). The remainder of the burial pit was filled with pure sand. In the central part of the burial, both stone shells had sunk down 1.3 m, probably from the collapse of the now disintegrated ceiling of the outer cist.

In the "western area" at the bottom of the burial chamber (Fig. 5), we found the bones of the deceased, who had been laid on his back with his head north-northeast. To the right of the deceased's head, under the wall of the stone cist, lay an iron spearhead, and it is possible that a spear had been laid along the western wall of the cist. Near the head were found two golden earrings and a single sheet of gold, probably a covering of a hat. In the area of his right hand were found fragments of gold foil coverings. A fragment of a jasper sword sheath of the Han period, and a whetstone lay in the area of the belt.

In the "eastern area" (see Fig. 5) we found iron three-winged arrowheads with tangs and tiny bronze fragments. Along the eastern wall of the cist had been laid an iron sword with the remains of a sheath and iron sword belt buckle decorated with golden inlay, all probably of Han manufacture. A bronze spouted pot with a foot (Fig. 9,3), and a tiny bronze cup, stood by the wall of the cist near the sword.

In the "northern area", i.e., by the northern wall of the cist, numerous goat skulls and bones lay on the floor of the chamber. A bronze "zhong" vessel of Han manufacture with iron rings[6], a large bronze round-belly cauldron with ornate handles and an iron foot (Fig. 9,2), and an earthenware vessel with tamga-shaped stamps on the bottom were all placed in a row extending southward (Fig. 5). In the northeastern area of the stone cist, elements of a horse harness were found (Fig. 6; 7): iron cheek-pieces, snaffle bits, rings, and forehead badges, as well as a large bronze girth(?) buckle (Fig. 8,1) and large bronze harness fittings, or "phalerae" (Fig. 8,2).

6 A "zhong" vessel is a particular type of Chinese "hu"-style vase with a round body.

Fig. 6. Khökh Üzüüriin Dugui-II. Barrow 1. Central and northern parts of the bottom of the burial chamber, view from the south-southwest.

Fig. 7. Khökh Üzüüriin Dugui-II. Barrow 1. Elements of horse harness at the northeastern edge of the burial chamber.

The construction of the barrow and the assemblage of burial goods both indicate that the person buried there had occupied a high position within the hierarchy of Xiongnu society.

Fig. 8. Khökh Üzüüriin Dugui-II. Barrow 1. 1 Bronze girth(?) buckle; 2 elements of horse harness.

Dating of the Barrow

The ritual bronze vessel found in the burial was produced in China and should be classified in the "hu" category of vessels. In particular, it relates to "hu" vessels with a roundish body that have been called "zhong"-style vessels. The name of this form began to appear at the end of Warring States period in China (475–221 BC) and became more common by the Han period (Zhu 1995, 114–115). The entire spectrum of "hu" vessels from the Han period have been thoroughly classified and dated in a special work by Wu Xiaoping (2007a), which built upon his previous comprehensive monograph devoted to bronze vessels of the Han period (Wu 2005). Although the classification of "zhong" vessels worked out by Wu is detailed, it is nevertheless inapplicable in many situations. Unfortunately, there are no other works on the typology of Han bronze vessels that can be practically applied to the excavated materials[7].

The typology devised by Wu (2005; 2007a) uses the shape of the foot as the basic classifying variable. Types (A,B,C) are distinguished divided first by the body shape and then into subtypes (a,b,c) and then variants (I,II,III) according to differentiated bases. The classification list consists of a) neck shape, b) bend/angle of body, c) trunk proportions, and d) other approximate descriptors, like "wider mouth", "straighter neck", "more flattened trunk", etc. In addition, vessels lumped into the same categorical variant may actually differ greatly from each other. Finally, one may conclude that while this classification system is suitable for investigating differences between the vessels of the larger periods of Western Han (202 BC–9 AD) and Eastern Han

7 The recently published monumental volume the Qin and Han eras of Chinese archaeology, by the Institute of Archaeology CASS, also contains only a brief essay devoted to general typologies of bronze vessels (Liu/Bai 2010, 650–656).

Fig. 9. Khökh Üzüüriin Dugui-II. Barrow 1. 1 "Zhong" vessel; 2 cauldron; 3 spouted pot with handles.

(25–220 AD), it is useless for determining finer chronological distinctions between vessels within the 1st century BC.

The bronze vessel found in barrow 1 at Khökh Üzüüriin Dugui-II has a trumpet-shaped foot with very narrow contraction in the upper part (Fig. 9,1), and can formally be attributed to the BcII–BcIII "variants" – according to the classification of Wu (2007a) – which belong to the middle-late periods of Western Han. However, the majority of vessels in these variants include a vertical foot with wide contraction. If we consider the foot of the vessel in barrow 1 as a trumpet-shaped without a contraction, then it mostly corresponds to the AaII "variant" of the same period of time. Thus, it is necessary to ascertain a more exact dating of the vessel, and to this purpose, distinguish other attributes significant for chronology.

The barrow 1 vessel is 44 cm high, its mouth is 17 cm in diameter, and the trunk is 32.5 cm in diameter. Many vessels of such dimensions have been found in burial complexes of the middle period of Western Han, and fewer vessels in late Western Han complexes (Wu 2007a, 52–55). The barrow 1 vessel has ball-shaped trunk and a bent neck with a wide-open mouth. The earliest securely-dated burials that contained vessels of such size and of similar trunks and mouths include pit 144 from the burial complex of the Han emperor Jingdi (d. 141 BC), which contained a vessel measuring 44.3 × 35.2 cm (Wang 2003, 126–127), and the tomb of the king of Zhongshan in Mancheng, Hebei (d. 113 BC), in which were found a vessel measuring 45.3 × 34.5 × 18 cm (Zhongguo/Hebei 1980, 43; 48; 336–337). Some large vessels with spherical bodies and a bent neck have been found from complexes of the middle period of the Han epoch, i.e., until the second third of the 1st century BC. These include tomb 3 at Guyuancheng, Ningxia (18.9 × 37.6 × 46.1 cm) (Guyuan 2004, 190), tomb 3 in Wuzuofen, Guanghua, Hubei province (17.7 × 43 cm) (Hubei 1976, 158), and a possible "complex" of bronze goods, which is now kept in the Yishui County Museum of Shandong province (17.5 × 35 × 42 cm) (Kong 1993). However, all these vessels show a wide body contraction, and none of them have such a long neck and sloping shoulders as the one found in barrow 1.

The manufacture of bronze vessels in the middle-late period of Western Han had in fact been extremely uniform (Wu 2007b, 102–103), so it seems plausible to make chronological analyses based upon vessels of similar proportions and measurements. A vessel very similar to the one from barrow 1, including a trumpet-shaped foot with a narrow contraction, was found among the burial goods from a tomb, excavated in 1987 in Luzhuangzi, Nanpi, Hebei (17.5 × 35 × 44 cm) (Cangzhou 1998). This complex also included a bronze mirror, possibly of the "zhaoming" style. Its characteristic feature was twelve prominent discs framed by an eight-radial "star" designed around its eyelet, and an inscription around the edge of the mirror. Although photographs of other such mirrors do not allow for comparative examination of the details of the inscription, it is known that mirrors with such ornamental elements are dated to the middle-late period of Western Han, and definitively before the Wang Mang interregnum period (Cheng/Han 2002, 110–114; 117–123). Another vessel with sloping "shoulders" (18 × 31 × 43 cm) similar to the one from barrow 1 was found in a tomb in Laofushan, Nanchang, Jiangxi (Jiangxi 1965, 272). This cemetery also included a "zhaoming" type mirror, which has been dated to the late Western Han (Jiangxi 1965, 270).

An assemblage of Han period bronze goods discovered in 1961 in Gaoyaocun, a western suburb of Xi'an, included two "zhong" vessels with elongated necks (Nos. 18, 19, both 18.3 × 33.5 × 45.5 cm) almost identical to our barrow 1 vessel (Xi'an 1963, 68; Pl. 3(4)), yet no rings were left in the handles of either of these vessels. Yet, one vessel, of an additional three "zhong" vessels from this site, had rings of iron, which are similar to the rings of the barrow 1 vessel (Xi'an 1963, 68). We may then suppose that the other numerous "zhong" vessels at the site had originally been adorned with iron rings, and that the barrow 1 vessel is of the same type and time period as those from Gaoyaocun. This cemetery contained many vessels with inscriptions, each of which gave the year of vessel manufacture in terms of Chinese imperial reign dates that correspond to the following numerical dates (Xi'an 1963, 65–68): one "zhong" vessel (No. 17), 97 BC; one "ding" vessel (No. 14), 59 BC; two "ding" vessels (No. 12; 15), 51 BC; one "fang" vessel (No. 21) and two "jian" vessels (No. 9; 10), 46 BC; one "jian" vessel (No. 7), 24 BC; three "jian" vessels (No. 3; 4; 8), 21 BC; two "jian" vessels (No. 5; 6) and one "ding" vessel (No. 13), 19 BC; two "jian" vessels (No. 1; 2), 18 BC.

The iron spearhead, which lay near the western wall of the stone cist of barrow 1, had a "lanceolate", i.e. leaf-shaped blade and a square section of a bush. Two such spearheads were

found within the ruins of the Western Han armory in the imperial capital at Chang'an (Bai 2005, 85 Fig. 54; Pl. 52,5.9). One of those spearheads has a shortened bush (No. 4:T1-9:9), and the proportions seem very similar to the spearhead we found. Another spearhead of this type with an elongated bush was discovered in the course of excavations of the immense burial complex at Duling, which had been created for the interment of the Han emperor Xuandi (Bai 2005, 226 Fig. 5-50:2). The building of this complex began in 65 BC, though Xuandi did not die until 48 BC, and the wife of the emperor, who was also buried here, died in 16 BC. Bai Yunxiang thus attributed the above-mentioned spearhead exactly to that period of time, i.e., late Western Han, though artifacts attributed to the Eastern Han period were also found there (Bai 2005, 160–161).

The bronze buckle found among the harness elements in barrow 1 (Fig. 8,1) is analogous to a buckle found in tomb 2 at the well-dated Xiongnu burial complex of Daodunzi, Tongxin, Ningxia (Ningxia et al. 1988, 347)[8]. Tomb 2 at Daodunzi also yielded "wuzhu" coins, which the investigators attributed to the "second and third" types. Such coins date from the end of the 2nd to the beginning of the 1st century BC (Ningxia et al. 1988, 351). Similar bronze buckles were also found in barrows 39 (one large buckle) and 69 (one small buckle) of the Dyrestui burial complex (Miniaev 1998, 88–89; 93, Pl. 12,18; 53,2). A large buckle of the same kind was also found earlier by Iu. Tal'ko-Gryntsevich in a tomb of the same site (Konovalov 1976, Pl. 12,26). S. Miniaev proposed the date of Dyrestui cemetery as most probably the second half of the 1st century BC, with a possible dating of some burials from the first half of the 1st century BC (Miniaev 1998, 73). He has also proposed a rather late dating of the Ivolga settlement and burial ground: 1st century BC to 1st century AD (Miniaev 1998, 74–75). His opinion diverged from that of A. Davydova, who dated Ivolga according to Chinese imported goods of the Han as no later than the 2nd to 1st centuries BC (Davydova 1995, 41; 1996, 24–25). Pan Ling (2007) carried out the most detailed study of Chinese artifacts from the burial and settlements remains at Ivolga alongside findings of Xiongnu goods within northern Chinese territories (see also Pan, this volume). In seeming agreement with Davydova, Pan has come to the conclusion that the sites should be dated to the Western Han, and mainly from the middle period of the Western Han (Pan 2007, 63–73). In addition to the dating by Pan, we may cite data on the dating of Han arrowheads, which were found at all three above-mentioned sites. Davydova (1996, 24–25) used arrowheads for asserting an early dating of Ivolga settlement and cemetery, but this analysis relied on incomplete and out-of-date publications of Chinese materials. We can now use studies such as the newly published monograph by Bai Yunxiang (2005) that synthesizes previous and recent findings of iron goods of ancient China. In his opinion bronze arrowheads with iron shafts belong only to the Western Han period (Bai 2005, 236). Arrowheads of such kind were obtained from tomb 129 at Dyrestui (Miniaev 1998, Pl. 120,21) and tombs 88 and 192 of the Ivolga cemetery (Davydova 1996, 49; 71), as well as in dwellings 13, 43, 47 and pits 110D (two arrowheads) and 256A (also two arrowheads) of the Ivolga settlement (Davydova 1995, Pl. 29,4; 89,4; 98,9; 137,1.2; 145,1.2). Since this manner of Chinese arrowhead was only used for crossbows, and the Xiongnu had not used crossbows, these arrowheads may have been obtained as trophies. However, it seems impossible that arrowheads could have been preserved among Xiongnu people for a long time as luxury goods from China.

8 This burial complex is considered by most scholars as belonging to the Xiongnu (see Pan and Yang, this volume) and perhaps corresponds to Xiongnu groups who had surrendered to the Han empire in 121 BC and had been settled in one of the five "attached states" in the areas of Wuwei and Jiuquan (Ningxia et al. 1988, 353).

The iron forehead badges of a "drop" shape which lay in the northeastern corner of the tomb (Fig. 6) can be compared by their shape with horse forehead adornments of the late Warring States period, which were of elongated proportions. Two such "wide" bronze badges were found in a tomb in Chenyangchuancun, Xiji, Ningxia (Yan/Li 1992, 573), and the cemetery at Hulusitai, Wulatezhong houqi, Inner Mongolia included eight such badges (Ta/Liang 1986, 225). The bronze "phalerae" ornaments – concave discs with an opening through which an ornamental collar was attached (Fig. 8,2) – also find analogies in earlier materials, such as ornaments from tomb 12 at Majiayuan cemetery, Zhangjiachuan, Gansu (Zaoqi Qin-Han/Zhangjiachuan 2009, 50 Fig. 62) which dates to the late-final Warring States, i.e., middle of 3rd century BC (Wang 2009, 72). These ornamental analogies not only indicate an early dating of the burial complex at Khökh Üzüüriin Dugui-II, but also substantiate narratives of the "Shiji" and "Hanshu" that the indigenous populations of the Ordos and its neighboring areas had been incorporated into the component regions of the Xiongnu. In sum, we can conclude that barrow 1 at Khökh Üzüüriin Dugui-II dates to the 1st century BC, most probably from the third quarter of that century.

Significance of Khökh Üzüüriin Dugui-II Barrow 1 for Examination of Xiongnu Burial Rites

Barrow 1 is similar to the so called "ordinary" burials of the Xiongnu in the general shape and size of its circular mound (cf. Törbat 2004, 113-133), but the size of the burial pit and of the stone cist make it stand out among other "ordinary" burials. The carefully constructed multi-layer masonry of the mound and two stone shells covered by additional layers of sand are also unusual for "ordinary" tombs[9]. On the other hand, these peculiarities can be observed in all the so called elite "terrace" tombs of Xiongnu. The "terrace" tombs have rectangular mounds and have a stepped burial pit with a dromos entryway. Most probably these features had been adopted from burial structures of Han China. However, the surface construction with walls made of dry masonry and several stone shells in the inner filling of the tomb has never been found in burial constructions of Han China (see Huang 2003). Miniaev (1998, 73–75) was absolutely correct in his proposal that the grand Xiongnu barrows with dromos most likely date to periods no earlier than the beginning of the 1st century AD. The detailed chronological studies of artifacts from the Noyon Uul barrows carried out by Miniaev and Elikhina (2009) have confirmed this assertion. After synthesizing the available information on "terrace" tombs from Mongolia and Transbaikalia, U. Brosseder (2009, 269) stated that so far terrace tombs appear, at the earliest, in the end of the 1st century BC and most of them belong to the first half of the 1st century AD. Thus barrow 1 from Khökh Üzüüriin Dugui-II cemetery, which belongs to an earlier period than the "terrace" tombs, appears to be a unique example of an "elite" burial rite of the Xiongnu which had preceded the changing of mortuary traditions of the Xiongnu aristocracy to practices under more influence from Han China.

In 1954, Ts. Dorzhsüren excavated a barrow (No. 4 (9)) at Noyon Uul. This barrow consisted of a combined stone and soil mound about 0.5 m high and 17m in diameter, and a burial pit 3.5 m deep and 2.7 × 1.6 m at the bottom (Dorzhsüren 1962, 38–39). In this burial he found a "zhong"

9 The remains of two stone shells and two sand layers were also discovered in the relatively big barrows 43 and 48 (?) at Dyrestui cemetery (Miniaev 1998, Pl. 20; 27).

vessel of nearly the same dimensions as the one from Khökh Üzüüriin Dugui-II. The Noyon Uul "zhong" vessel is analogous to those from Chinese sites of the 1st century BC, including the above-mentioned early tombs with vessels of "B" type. Together with the "zhong" vessel, Dorzhsüren found a Chinese iron lamp with a pedestal on a narrow foot. Iron lamps of the same kind are also known from Western Han sites (Bai 2005, 263–264). A bronze cauldron with no foot was also found. These findings perhaps indicate that Noyon Uul had already functioned as an elite Xiongnu burial ground before the appearance of "Chinese" burial elements in "terrace" tombs.

Careful investigations of the modes of construction for barrows and their surface structures, conducted on particularly well-preserved burials, now allow for the determination of the main characteristic features of Xiongnu burials. Miniaev (1998, 80–83) has suggested that the use of a stone cist as an (outer) burial chamber is a primary feature of Xiongnu culture. Stone structures of the mounds over "ordinary" barrows have hardly been damaged, especially in comparison to the "terrace" ramped barrows with stone masonry mounds over top the burials, yet these "ordinary" burials have been relatively poorly documented. For most Xiongnu barrows, the remains of stone masonry walls have been found around the burial pit, not immediately over it. However, careful investigations of some of the burials at Dyrestui have documented two to three layers of masonry traced along the edge of the mounds over top burials 42, 45, 77, 98 (Miniaev 1998, Pl. 18; 24; 58; 77). It seems possible to suppose that a flattened soil mound, its slopes faced with layered stone masonry in a stepped fashion, had been a characteristic surface burial construction of the Xiongnu.

A unique earthenware vessel, found along with the two large bronze vessels in the northern area of barrow 1 at Khökh Üzüüriin Dugui-II, bore a tamga-like imprint of an undoubtedly important symbolic purpose. Other vessels with similar simple imprints on their trunks are known from other Xiongnu burials (Navaan 2002, Fig. 81–85), and one vessel from a Xiongnu tomb in Bardzan Uul, Ömnögov' aimag bore an imprint of a complicated tamga-like sign over its trunk (Navaan 2002, Fig. 30). Investigations of these signs found on objects in Xiongnu tombs are of great importance and should be conducted in comparison to other tamga-signs found on astragali, stone sculptures, slabs, and rocks of the 2nd century BC to 2nd century AD in Eurasia (Iatsenko 2001; Erdenebaaatar et al. 2002b). No direct correlates were found for the symbol on the ceramic from barrow 1, but similar symbols and practices of stamping ceramics may be seen on numerous objects.

The bronze cauldron found in the burial chamber has its closest analogy in south Kazakhstan, in kurgan 9 of the cemetery Zhaman-Tolgoi at the middle Syr-Darya river. The tomb was of the local catacomb type and contained besides this cauldron also two ceramic vessels which are similar to Xiongnu ceramics. The burial dates back to the 1st century BC or at the beginning of the 1st century AD. Historically, the area of the middle Syr-Darya belonged to the Kangju State where between 50 and 30 BC thousands of Xiongnu warriors are attested: in the first instance under chanyu Zhizhi and then in a combined army of Xiongnu and Chinese in order to defeat Zhizhi (see Han shu, 94B). Do these strikingly similar bronze cauldrons, prestigious artifacts of Chinese manufacture in both contemporaneous burials in western Mongolia and in the former Kangju territory possibly indicate that the deceased person were involved into these historical events?

10 A. G. Maksimova/M. S. Mershchiev/B. I. Vainberg/L. M. Levina, Drevnosti chardary. Arkheologicheskie issledovaniia v zone chardarynskogo vodokhranilishcha (Alma-Ata 1968). А. Г. Максимова/М. С. Мерщиев/В. И. Ваинберг/Л. М. Левина, Древности чардары. Археологические исследования в зоне чардарынского водохранилища (Алма Ата 1968) 183 Pl. 1,1.

EXCAVATIONS OF SATELLITE BURIAL 30, TOMB 1 COMPLEX, GOL MOD 2 NECROPOLIS

Diimaazhav Erdenebaatar, Tömör-Ochir Iderkhangai, Baatar Galbadrakh, Enkhbaiar Minzhiddorzh, Samdanzhamts Orgilbaiar

Introduction

The Gol Mod 2 Xiongnu royal necropolis in Öndör-Ulaan sum, Arkhangai aimag (Fig. 1) was first discovered and mapped in 2001 (Allard et al. 2002; Erdenebaatar et al. 2002a), and special attention was given to the tomb 1 complex at this burial ground, the largest Xiongnu tomb found to date, measuring 83 m from the north wall to the southern end of the tomb ramp (Fig. 2). An arc of 27 satellite burials of standard Xiongnu tombs flanks the east side of the main tomb and a single satellite burial, in which was interred the body of a horse, was placed to the north of the main tomb. All of these burials were excavated between 2002 and 2005 as part of the Mongol-American Khanui Valley Project (Miller et al. 2006). All the satellite burials of tomb 1 complex at Gol Mod 2 were heavily looted in antiquity, and only 16 burials had enough human remains to age and/or sex the deceased. However, the burial goods and chamber forms within still provide a wealth of information. This paper reports the recent completion of the excavation

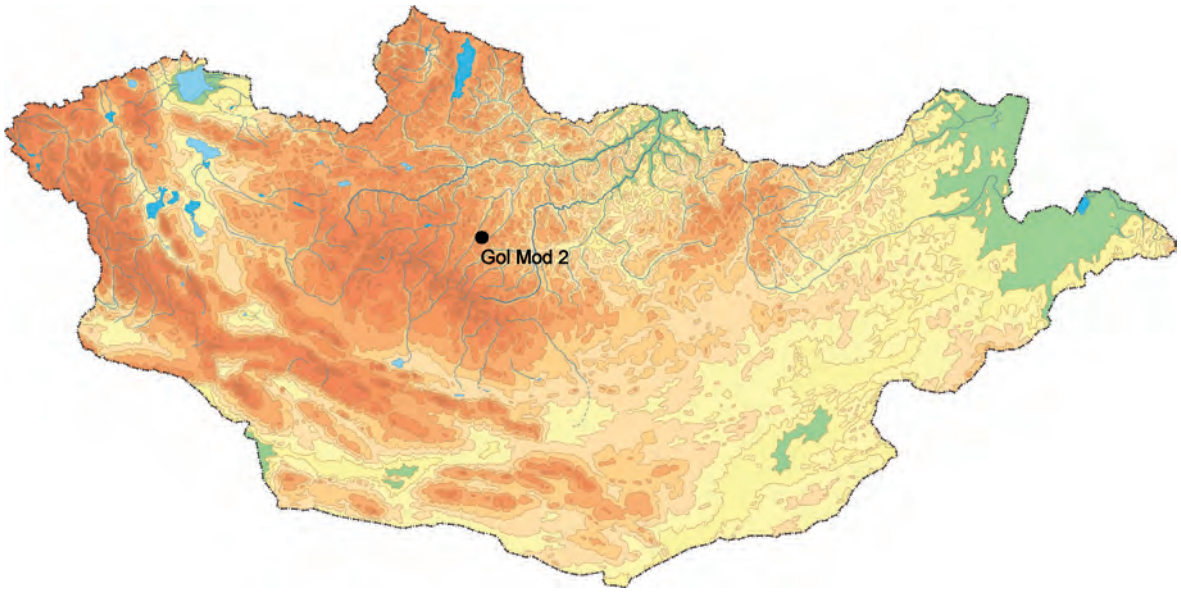


Fig. 1. Location of Gol Mod 2.

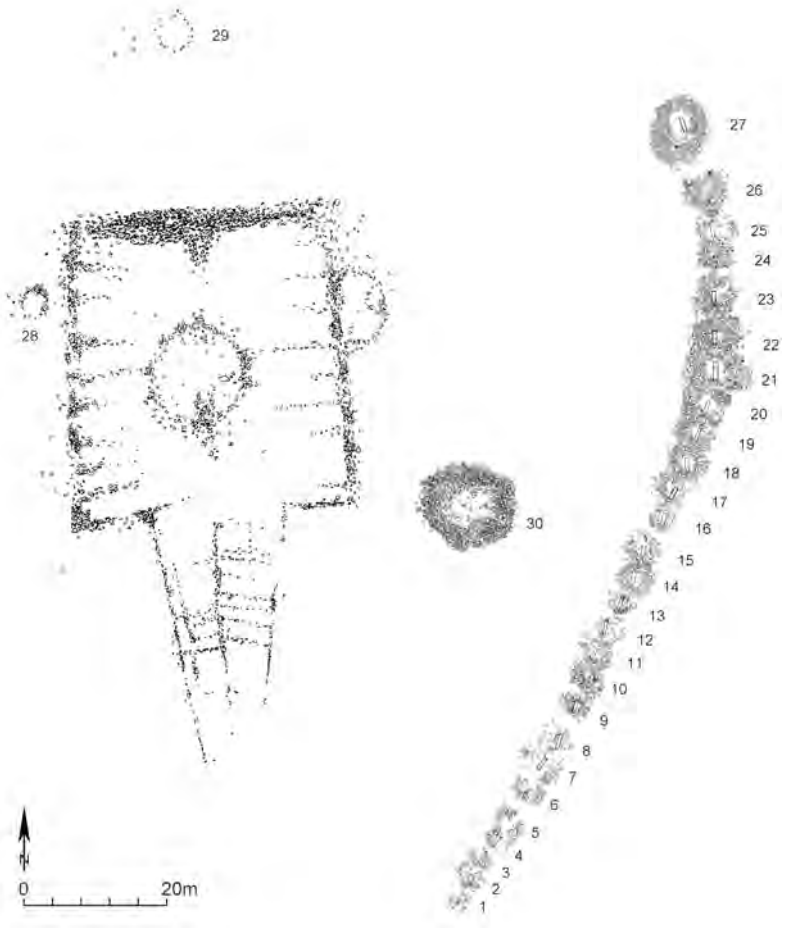


Fig. 2. Gol Mod 2. Tomb 1 complex with satellite burials (after Miller et al. 2006).

of burial 30, the largest of the accompanying graves, which lies to the east of the central tomb between the burial arc and the main mound (Fig. 2)[1].

BURIAL STRUCTURE AND FINDINGS

The surface of the burial was marked by a typical thick ring of stones, measuring 19.5 m in diameter (Fig. 3). Numerous ceramic sherds and animal bone fragments were found among the stones and within the first tens of centimeters of earth overtop the burial pit. The scattering of

1 Excavations of the tomb 1 complex have been conducted since 2006 by the Archaeology Department of Ulaanbaatar State University of Mongolia. In 2010, the Ulaanbaatar University team, as part of field training for students led by the collective authors of this paper, excavated the central area of the mound surface equivalent to the area of the collapsed burial chamber as well as completed excavations of the satellite grave of burial 30. The surface of this burial was first cleaned in 2006, and excavations in 2008 reached approximately 1 m deep in the center. This paper covers the completion of these excavations by the Archaeology Department, Ulaanbaatar State University, which was led by Diimaazhav Erdenebaatar.

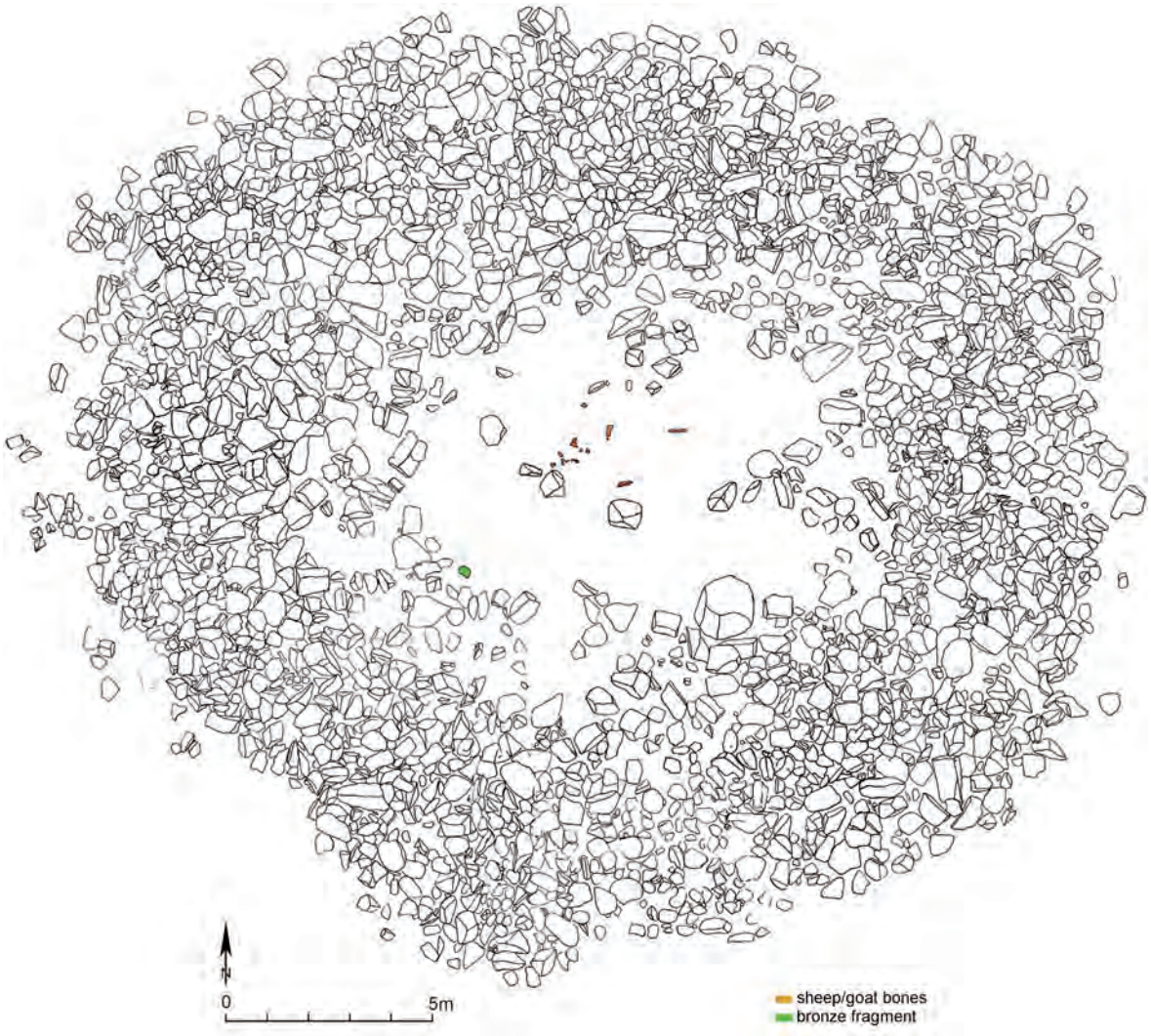


Fig. 3. Gol Mod 2. Burial 30. Surface stones (level 1).

stones, the random artifacts, and the finding of charcoal fragments in the hole within the ring of stones all indicate that the tomb was looted. The disturbed surface stones exhibited a round shape, though it may have originally been a square surface demarcation of stones.

When excavating within the central hole below the ring of stones, a continual scattering of charcoal and burnt bone fragments were found in the upper portions of the burial pit. At 1.5 m below the surface, pieces of coffin wood and pieces of iron coffin decoration were found among clusters of stones and scatters of charcoal. An increasing amount of stones were found deeper into the burial pit, and at 1.9 m below surface were found more coffin wood fragments. The dimensions of the burial pit became clearer as it descended. At 2.3 m below surface the burial pit measured 3.6 × 2.6 m, and areas of frozen earth were discovered.

The first large pieces of coffin wood and indications of the coffin lid were found at 3.3 m deep (Fig. 4). Square-shaped iron pieces of coffin ornamentation, which were rusted and thus obscuring their original quatrefoil shape, were found scattered in the northwest side of the burial pit. Portions of the rim of a large round lacquer plate could be seen just above the burial cham-

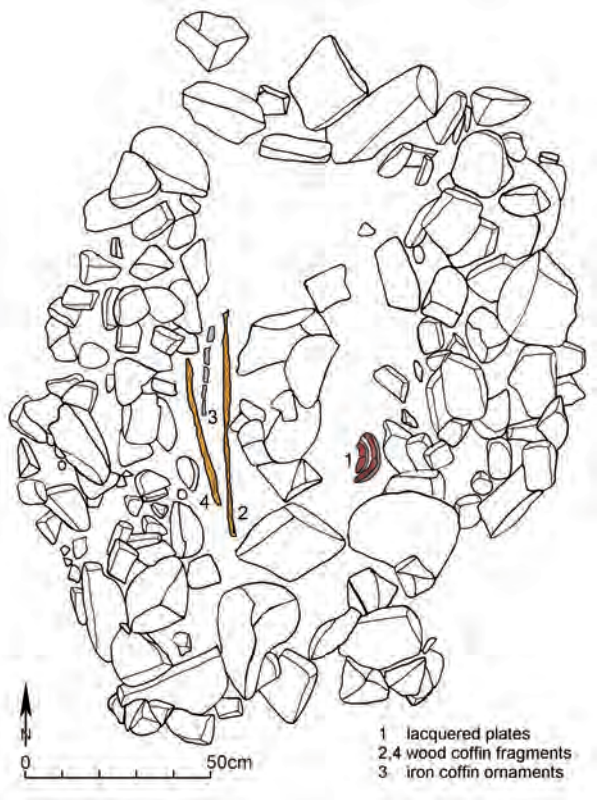


Fig. 4. Gol Mod 2. Burial 30. Top of chamber (level 5).

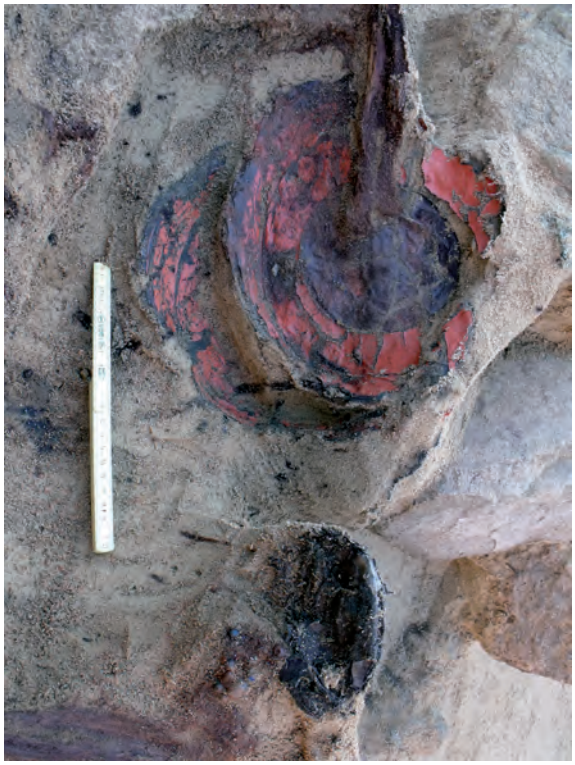


Fig. 5. Gol Mod 2. Burial 30. Lacquer plates, sheep/goat bones, and silk covered copper container with beads.

ber, which upon further excavation appeared to be two lacquered plates, stacked one inside the other with a sheep/goat shank bone laid on top (Fig. 5). Beside these lacquer vessels, were the remains of a small silk-covered copper container with a handle, inside of which were 23 amber and blue-glass beads.

The burial chamber consisted of a wooden structure, possibly logs, with stone packing outside of it and a smaller wooden coffin set inside toward the southern end (Fig. 6). A separate antechamber area was also discernible from the remains of wood. The chamber and its coffin were oriented slightly east of north. Large stones had fallen into the chamber, and the inside of the coffin had been heavily looted. However, the antechamber was undisturbed, and part of the thin wood plank coffin lid was found on top. The chamber measured 2.8 × 1.0 m, and the coffin remains measured 2.25 long and 0.75 m wide at the northern and 0.50 m wide at the southern end. The bottom of the burial pit, where the chamber and coffin sat, was at a depth of 3.40 m below the ground surface.

Numerous pieces of iron coffin decoration were found on the exterior of the coffin walls, especially at the northern end of the eastern wall and the northern wall. The arrangement of this iron coffin decoration was clearly discernible on the northern wall, showing a lattice "x" pattern with half quatrefoil "flower" pieces set into the open spaces all around (Fig. 7). Inside the coffin were found small scraps of gold and silver foil, and an iron club near the southern half. The silver foil was perhaps for covering other objects, now gone, and the gold pieces were probably ornamentation for the garments of the deceased. A small semi-circular iron piece, perhaps a

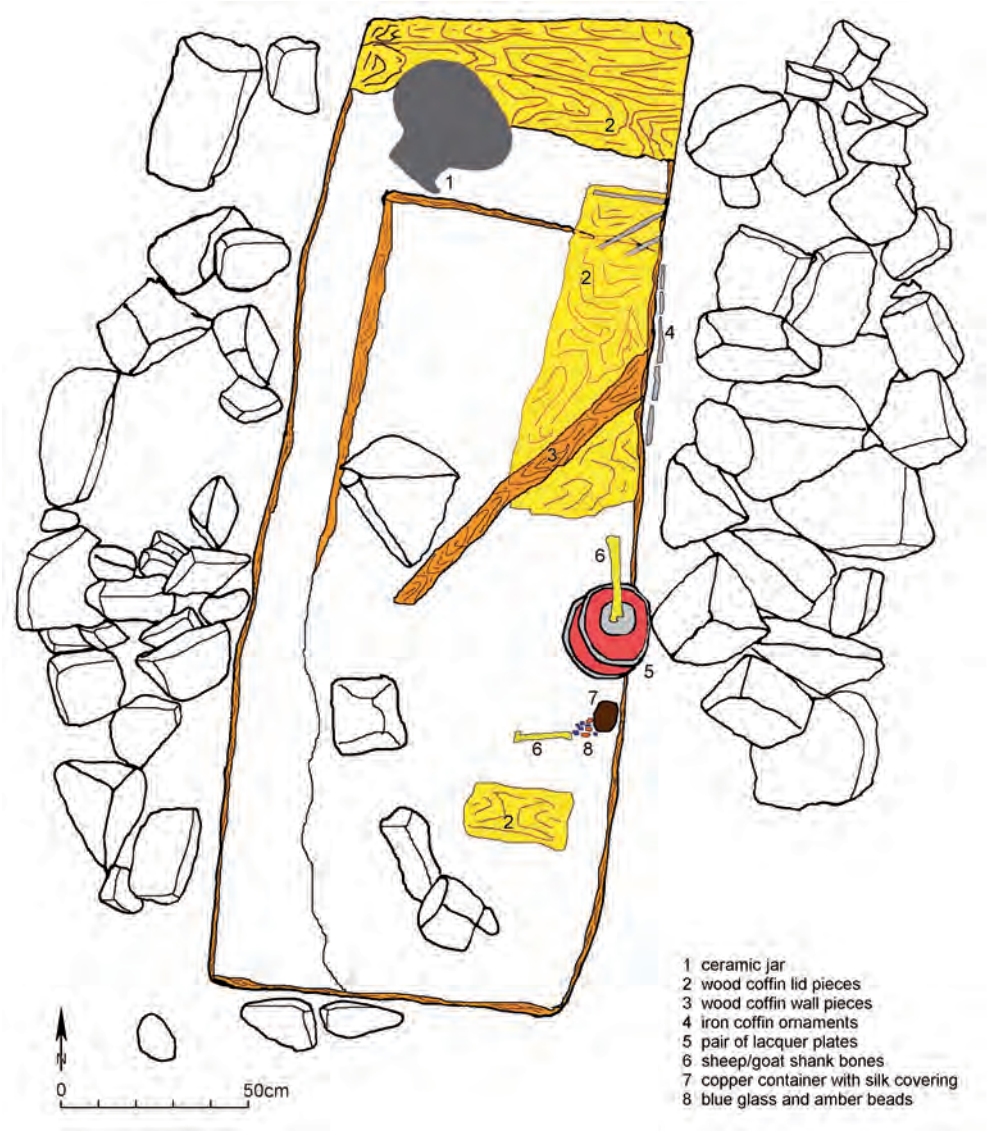


Fig. 6. Gol Mod 2. Burial 30. Coffin and chamber (level 6).

"moon", was found in the area of the deceased's head, and a fragment of a Chinese bronze mirror was found nearby in the northwest corner. Skull fragments and human teeth were found beneath a portion of the collapsed wall between the coffin and the antechamber section. The floor of the coffin had a thick deposit of organic remains, which perhaps were remnants of felt placed on the floor.

Up against the west side of the antechamber was found a large bronze basin. Inside the undisturbed antechamber were several vessels (Fig. 8). A large narrow necked jar was found on its side in the western half of the antechamber, and a wide mouth pot had been placed in the eastern half. Below the pot, in the southeast corner of the antechamber, was the deteriorated shank bone of a large mammal, cattle or horse. Beside the pot, along the north wall of the antechamber was a small flat-bottomed ceramic dish, which perhaps functioned as a lamp bowl. Just beneath the large jar, against the northern wall of the coffin, was found a small Roman glass bowl.

Fig.7. Gol Mod 2. Burial 30. Iron lattice and quatrefoil decoration on northern coffin wall exterior.

Fig. 8. Gol Mod 2. Burial 30. Vessels in the antechamber area.

Pottery

The jar and pot found within the antechamber represent the two standard types of ceramics found in Xiongnu burials (Tseveendorzh/Batsaikhan 1994). Both vessels were wheel-made and gray wares. The large jar has a narrow neck and wide shoulders, with a tapered body and a small hole near the bottom (Fig. 9,1). The jar is 50.5 cm tall, 41.0 cm wide at the shoul-

Fig. 9. Gol Mod 2. Burial 30. 1 Narrow necked jar; 2 cooking pot; 3 ceramic dish (lamp?).

der, and has a 1 cm thick wall. This vessel was perhaps used for storing liquids. The pot is 30 cm tall, 26.0 cm wide at the shoulder, and also has a 1 cm thick wall (Fig. 9,2). Inside the pot were several fragments of sheep/goat bones, indicating the use of this vessel as a cooking pot.

Fig. 10. Gol Mod 2. Burial 30. Bronze basin.

Along with these standard vessels in the antechamber, a small flat-bottomed dish with straight walls was found (Fig. 9,3). The dish measures 4 cm in height, 14.5 cm in diameter, and is 1.2 cm thick. The function of these kinds of vessels has been proposed as a lamp. Remains inside this vessel were analyzed and show that organic fiber and charcoal remains were detected. Phosphorus might indicate that bone was also burnt there[2]. Such vessels have been found made from iron,

2 We thank Jan Bemmann, Bonn, for his kind offer to provide the analysis of the substance inside the vessel. The analysis was conducted in the micro-analytical laboratory Jägers, Bornheim, Germany.

bronze, or ceramic and appear in several different forms. Some are joined double dishes, with an interior lamp bowl and exterior lamp containment dish, while others appear as two separate vessels, one placed on top of the other. Some of the smaller inner bowls also have a tiny protrusion in the middle. One such dish was found by Tal'ko-Gryntsevich (1999, Fig. 17) at Il'movaia Pad' in the early 1900s, but its form was not explained well. A joined double ceramic dish was found in one of the large square tombs at Takhiltyn Khotgor (Navaan 1999), as well as in the more standard circular burials, such as grave 2 at Barzaan Uul, Ölziit sum, Övörkhangai aimag (Navaan 2002), several graves at Burkhan Tolgoi, Bulgan aimag (Törbat et al. 2003), and grave 3 at Duurlig Nars (see Yun/Chang, this volume). More elaborate bronze dish sets have also been found, such as the one found in tomb 4 at Duurlig Nars (Yun/Chang, this volume), but these are more rare. Despite the suggestive forms of these vessels, it is still not clear if they were used as lamps or for other purposes.

Bronze Basin

The bronze basin found beside the antechamber is very similar to basins found in other large Xiongnu graves, such as those at Takhiltyn Khotgor (Navaan 1999) and Gol Mod (Mongolie 2003). The basin rims are broken and the bottom warped, but the measurements can still be reconstructed as 5 cm tall, 23.5 cm diameter, and 0.2 cm thick wall (Fig. 10). The walls of the basin had originally sloped outward, and a small ring base was cast into the underside of the basin.

Roman Glass Bowl

This small glass vessel is the most interesting and rare find within this burial, and the only one of its kind yet found in a Xiongnu grave (Fig. 11,1). The bowl measures 7.0 cm in height, 7.5 cm diameter at the mouth, 10.0 cm diameter at the widest part of the body, and has a glass wall 1 mm thick. The estimated capacity is 250 ml of liquid. The glass bowl found in burial 30 was made with a base dark blue glass with white glass strands swirled into the make. It belongs to the so-called "zarte Rippenschale", type E 184, Isings form 17 and can be dated mid to 2nd half of the 1st century AD (Lund Hansen 1988, 157–159) [3]. They are produced in different workshops. The glass bowl found in burial 30 was made with a base dark blue glass, and an almost identical bowl from Bonn was made with a base dark brown-lavender glass (Follman-Schulz 1988, Pl. 46,389). Many such glass bowls have been found within the Roman empire (Lund Hansen 1988, 159; Haevernick 1967). By the finding of the glass bowl in burial 30, they apparently also made their way along the so-called Silk Roads to Inner Asia.

Chinese Lacquered Plates

The remains of the two lacquered plates (Fig. 5) were intact, yet poorly preserved. They both measured approximately 25 cm in diameter. The sheep/goat shank bone which were laid overtop the two plates was also poorly preserved, as are the majority of the organic materials in the

3 We thank Jan Bemmann, Bonn, for the information.

Fig. 11. Gol Mod 2. Burial 30. 1 Roman glass bowl; 2 amber and blue glass beads; 3 chinese bronze mirror, "siru" style; 4 iron half-circle (moon?) coffin ornamentation; 5 iron club. 1–4 scale 1 : 2.

graves at Gol Mod 2. The majority of lacquer vessels found in standard circular Xiongnu graves are cups and bowls, so plates such as these are important rare finds.

Iron Coffin Ornamentation

Numerous pieces of iron strips and squares were found in the burial pit and on parts of the coffin wall. These were part of an often documented lattice-and-quatrefoil decorative element on Xiongnu coffins, and this decorative pattern was also found in iron for the coffins in burials 21 and 27 in the arc of satellite graves of the tomb 1 complex (Miller et al. 2006). In addition, an iron half-circle was found in the northern area of the coffin where the head lay (Fig. 11,4). Numerous examples of circle and crescent pairs, deemed sun and moon pairs, have been found attached to the northern parts of coffins or lying near the heads of the interred individuals (see Törbat et al. 2003), and this half-circle may have been a moon ornament.

An iron club, 26 cm long and 2.5 cm thick, may also have been part of the coffin adornments (Fig. 11,5). Long bronze clubs were found in the early 1900s in tombs 24 and 25 at Noyon Uul (Rudenko 1962, 121–122; Fig. 30), and A. Bernshtam (1951, 41–44) referred to them as "ritual items" comparable to Chinese ritual weapon tokens mentioned in ancient documents. Similar bronze clubs have been found in tomb 83 at Takhiltyn Khotgor (Navaan 1999), tomb 1 at Gol Mod (Mongolie 2003), tomb 7 at Tsaram (Miniaev/Sakharovskaia 2007b), and tomb 2 at Duurlig Nars (Yun/Chang, this volume), and iron clubs have been found in tomb 75 at Gol Mod (Mongolie 2003) and tomb 64 at Takhkiltyn Khotgor (Miller et al. 2009b). By the burial contexts in which they have been found, these clubs are clearly the objects of high-ranking Xiongnu individuals (Erööl-Erdene 2004, 91–92). However, by their placements in non-heavily disturbed burials against the walls of coffins, they are clearly coffin adornments and probably ornamental handles (André/Erööl-Erdene 2004).

Beads

Numerous beads had been placed within a small copper container with handle that was then covered in silk, but they spilled out of this box during the process of grave looting (Fig. 5). Eight oval amber beads, measuring 1.0–1.5 cm long and 0.8–1.0 cm thick, and 15 round blue glass beads, measuring 0.5 cm thick, were found beside the open copper container (Fig. 11,2). Beads such as these have been found numerous times in Xiongnu burials, including royal tombs at Noyon Uul cemetery (Rudenko 1962) and more regular graves at Dyrestui (Miniaev 1998).

Chinese Bronze Mirror

The mirror in burial 30 was made of white bronze and decorated with a tiger and a dragon - two of the standard set of four animals sometimes seen on Chinese bronze mirrors of the "siru" style (Bulling 1960, 26; Pl. 19) (Fig. 11,3). The diameter of the broken piece, which was virtually half of an original mirror, measures 10.2 cm. A similar fragment of a "guiju" style Chinese bronze mirror was also found near the head in burial 20 of tomb 1 complex (Miller et al. 2006). Bronze mirrors have been found in Xiongnu graves of numerous social levels, though almost all are fragmented and incomplete (see Törbat, this volume).

Conclusions

Excavations of tomb 1 complex at Gol Mod 2 are part of a long-term goal of understanding the entire mortuary complex surrounding the largest Xiongnu tomb yet found. Full excavations of such tomb complexes and their burial structures are rare, and have only been systematically pursued at a handful of locations, including Il'movaia Pad' (Konovalov 1976; 2008a; 2008b), Tsaram (Miniaev/Sakharovskaia 2002; 2006; 2007a; 2007b), and Takhiltyn Khotgor (Miller et al. 2009b). Mapping of royal cemeteries reveals a great variety in the placement of satellite graves (Allard et al. 2002). Furthermore, investigations of the relationships between central tombs and

satellite burials are critical to understanding elite mortuary practices and gaining a window into the social structure of the Xiongnu (Miniaev/Sakharovskaia 2002; Miller et al. 2006). Burial 30 is one of the few occurrences of a large grave that lies between an arc of satellite burials and a central ramped tomb. Some of the objects found within are those usually found in square ramped tombs, and the size of the chamber and surface stone structure are much larger than the majority of standard circular graves. The position of the individual buried in this tomb becomes important as it was clearly greater than those in the outlying burial arc, but still in a subsidiary position to the individual in the main tomb. Researchers should therefore focus more on entire complexes, and not only the chambers of the large tombs, in order to view broader spectrums of the Xiongnu elite. Only then may we better understand aspects of Xiongnu social hierarchy.

[translated by Bryan K. Miller]

A STUDY ON BRONZE MIRRORS IN XIONGNU GRAVES OF MONGOLIA

Tsagaan Törbat

Introduction

One important item of foreign origin found in numerous Xiongnu graves is the Chinese style bronze mirror and/or fragments thereof. Being an item of everyday utility on the one hand and having established its role as an item of funerary rites on the other, bronze mirrors have significant importance in studies of ancient societies. They also enable archaeologists to approximate the date of a given burial.

Specific studies of the bronze mirrors unearthed from Xiongnu tombs in Mongolia have not been conducted. For this reason, the present paper conducts a pilot study of classification, date and symbolism of bonze mirrors in Xiongnu funerals primarily based on the findings at Burkhan Tolgoi cemetery in Egiin Gol valley (Törbat et al. 2003), but also incorporating comparative data of identical items discovered elsewhere throughout Mongolia and the Transbaikal region.

Russian archaeologists S. Danilov, I. Filippova and A. Amogolonov studied a total of 24 bronze mirror fragments unearthed from Xiongnu tombs across Mongolia and Transbaikalia, classified them, and determined their dates (Danilov et al. 1998; Filippova 2000, 101). However, only two mirrors were found within Mongolia: one from tomb 25 at Noyol Uul and the other from tomb 25 at Gol Mod excavated by Ts. Dorzhsüren. Because of abundant findings of mirrors in the past ten years, it is worthwhile to study the findings from Mongolia and refresh the data.

Most of the bronze mirrors found in Xiongnu tombs were not intact but fragmented, which, as S. Rudenko suggests, could have been related to the ancient Chinese custom of "symbolizing with the broken mirror the loss of a spouse". The Chinese believed that mirrors possessed transcendent power and attested important symbolic significance to them. The Xiongnu therefore, Rudenko argues, might have brought the use of mirrors along with borrowing the ritual symbolism attached to them (Rudenko 1962, 91).

Elaborating on D. Raevskii's findings that "the Indo-Iranian people practiced the ritual of strengthening the bond of the newly-weds by having the bride and the groom look at one mirror, either together or one following another", N. Polos'mak (1994, 36–37) hypothesizes that "… the mirror perhaps was related to one of the most important events in one's life – the wedding – and thus could be a possible explanation behind the large number of mirrors found male and female burials of the Scytho-Sarmatian period in Central Asia".

Bronze mirrors have been found in 15 out of 174 common Xiongnu graves in Mongolia. Among these, five burials were of indeterminable sex, and two burials (22 %) were of males, six burials (67 %) were of females, and one burial (11 %) was of a pre-adult. We may accordingly

project that the Xiongnu placed bronze mirrors predominantly in graves of females (Törbat 2004, 72). It appears that the medieval Mongols inherited the Xiongnu ritual of placing mirrors in the tombs of their deceased, also predominantly in graves of females. Even among contemporary Mongolians, the ritual of placing mirrors in tombs of the females still exists. When burying a deceased woman, views of her beloved items are projected onto the mirror, which is then placed inside the coffin (Otgonbaatar 2009, 62). As one can observe from this modern ritual, the mirror is not only a funerary item by itself, but also a special representation of other items accumulated by their symbolic reflection in it.

CHINESE BRONZE MIRRORS FOUND IN XIONGNU GRAVES IN MONGOLIA

The first Chinese-style bronze mirror to be found in a grave of the Xiongnu period in Mongolia was unearthed from tomb 25 at Noyol Uul site, and was published widely (Fig. 1,9; Umehara 1960, Pl. 71; Rudenko 1962, Fig. 65; Filippova 2000, Fig. 2,4). This mirror belongs to the "siru" ("four nipples") style of mirror prominent during the Eastern Han dynasty (Filippova 2000, 105). The present location of this bronze mirror is unclear, though it might be in the collections of the State Hermitage Museum in St. Petersburg.

In 1956 and 1957 the Mongolian archaeologist Ts. Dorzhsüren excavated 26 common graves of the Xiongnu at Gol Mod on the banks of Khünüi river in Mongolia, and unearthed a fragment of a bronze mirror from tomb 25. This mirror is roughly two-thirds of a well-preserved "guiju" ("compass and gavel") style bronze mirror, also called a "TLV" mirror. Dorzhsüren identified the date of the mirror as between the 1st century BC and the 1st century AD, thereby acknowledging its significance in dating the entire range of graves excavated at Gol Mod (Dorzhsüren 1962, 43). Much to the dismay of researchers, the location of this mirror is also unknown.

In 1963 the joint Mongolian-Hungarian archaeological expedition unearthed a fragment of a bronze mirror, preserved inside a birch-bark container in tomb 1 at Naimaa Tolgoi (Fig. 3,22). This is a TLV mirror, which Ferenczy (1967, 374) thinks to be close to the mirror from Noyon Uul. Ferenczy dates the mirror from Naimaa Tolgoi to the first half of the Eastern Han dynasty, or 1st century AD, and stressed that this mirror could not be dated prior to the reign of Wang Mang, though he did not rule out the possibility of it being a later imitation of a 1st century TLV mirror (ibid.). Ferenczy (1967, 375) also dates the bronze mirror found at Gol Mod tomb 25 as belonging to the second half of the 1st century BC. The results of the radiocarbon dating of the Naimaa Tolgoi cemetery show the date of the burials as around 165±100 AD, which corrected downward to 65 AD does not contradict the relative date estimation made by Ferenczy on the basis of the bronze mirrors (Erdélyi 2000, 88). The present location of the Naimaa Tolgoi mirror is also unknown.

In 1999, D. Tseveendorzh and Ia. Tserendagva published the results of their studies on six bronze mirrors, found at various locations across Mongolia and housed at the Archaeological Laboratory of the Mongolian Academy of Sciences. These belong to the following three categories: The mirror unearthed from tomb 2 at Khudgiin Tolgoi (Fig. 1,12) was identified as belonging to the "zhaoming" ("bright light") type (Tseveendorzh/Erdély 1990). It is likely that the mirrors found in tomb 20 at Naimaa Tolgoi (Fig. 1,13) and tomb 7 at Tevsh Uul (Fig. 1,14) also belong to the "zhaoming" style.

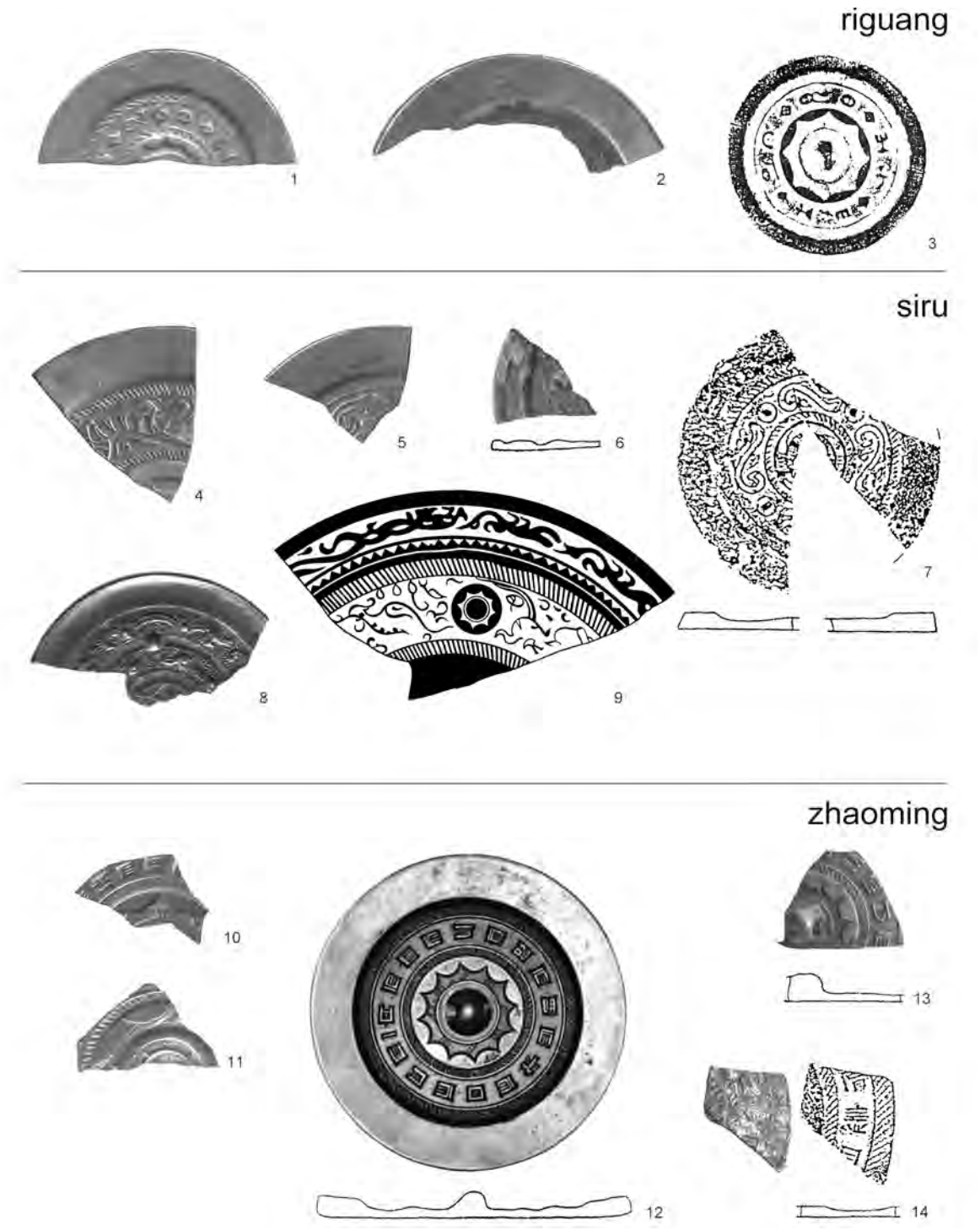


Fig. 1. Chinese mirrors of the "riguang", "siru" and "zhaoming" type from Mongolia (for identification of the mirrors see list 1).

The mirror unearthed from tomb 2 of Övgönt (Fig. 2,16) belongs to the "qingbai", or "ming-guang" type, common during the Eastern Han dynasty period, or mid-1st century AD. Similar mirrors have been found in large quantities in Shandong Province, China, believed by some

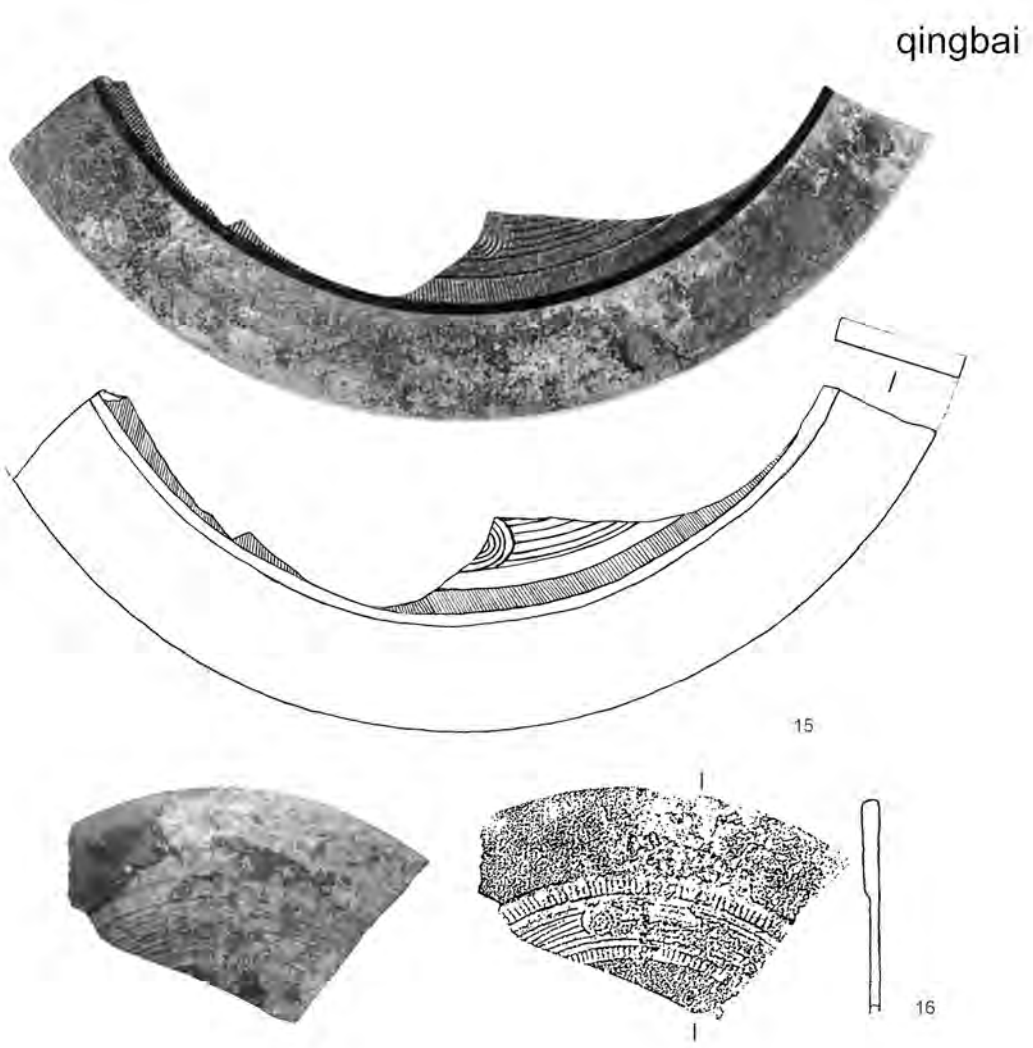


Fig. 2. Chinese mirrors of the "qingbai" type from Mongolia (for identification of the mirrors see list 1).

scholars to be the area where this style originated. Similar mirrors have also been found in Korea (Bulling 1960, 29 Fig. A; Pl. 24).

Bronze mirrors found in tomb 8 at Tevsh Uul (Fig. 1,6)and tomb 16 at Tariat (Fig. 1,7) probably belong to the "siru" style.

In 2000, the joint Mongolian-Korean archaeological expedition unearthed a fragment of a bronze mirror from a tomb at Morin Tolgoi Xiongnu necropolis (Fig. 3,23). Although having been looted in antiquity, this grave has preserved a multitude of interesting artifacts; among them was a fragment of the TLV bronze mirror. Scholars identified only a broad timeframe for the date of this mirror, as belonging to the period between 25–220 AD (i.e. the entire duration of the Eastern Han dynasty) (Yun 2003, 123). This item is now displayed in the National Museum of Mongolia.

Between 2001 and 2005 the joint Mongolian-French archaeological expedition conducted excavations at Gol Mod necropolis in Mongolia. Tomb 1 and tomb 20 each contained single fragments of bronze mirrors. The mirror found in tomb 1 (Fig. 2,15; Mongolie 2003, 147) belongs to the "qingbai", or "mingguang" style. The mirror from tomb 20 was, on the contrary, a TLV mirror (Fig. 3,17) with 19 cm width in diameter. Most probably this one dates to a period later

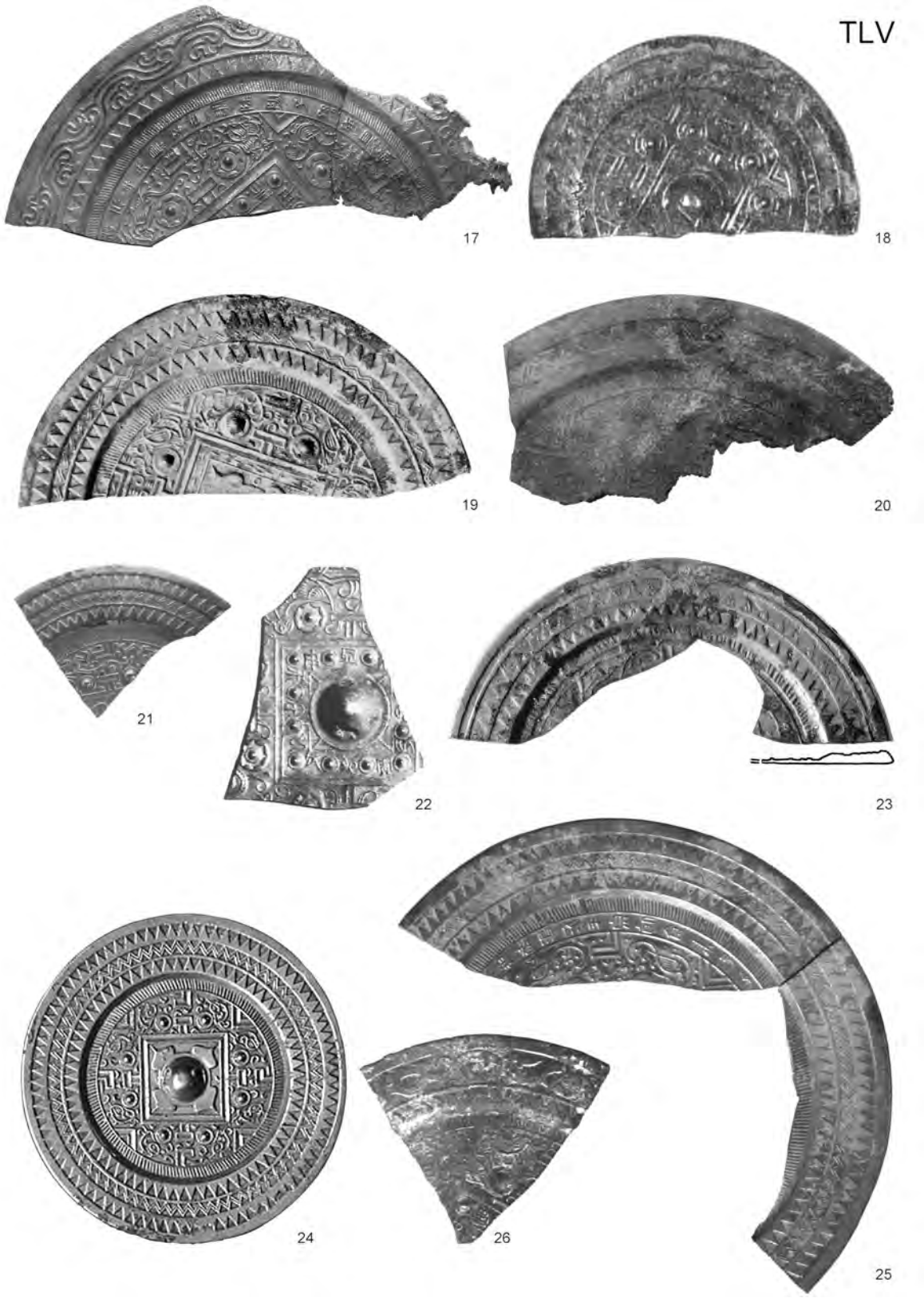


Fig. 3. Chinese mirrors of the TLV type from Mongolia (for identification of the mirrors see list 1).

than the early 1st century AD (Erööl-Erdene/Gantulga 2008, 158–161). Both fragments are now preserved at the Archaeological Laboratory of the Mongolian Academy of Sciences.

In 2001, Ts. Törbat (2003b) discovered an intact bronze mirror during excavations of tomb 6 at Ulaan Khoshuu in Tamir valley (Fig. 1,3) This mirror belongs to the "riguang" ("solar ray") type. These mirrors have traditionally been identified as being made between the 2nd and the 1st centuries BC, or during the Western Han dynasty. These began to appear during the late 2nd century BC, did not become common until the 1st century BC, and were made even as late as the 1st century AD (Bulling 1960, 26). This intact bronze mirror is now preserved at the Archaeological Cabinet of the Mongolian State University of Education in Ulaanbaatar.

In 2005 the joint Mongolian-American expedition funded by the Silk Road Foundation (USA), discovered three bronze mirrors from the above-mentioned Ulaan Khoshuu site in Tamir valley[1]. Of these, an intact TLV bronze mirror unearthed from tomb 100 with 10 cm width in diameter was particularly well-preserved (Fig. 3,24). Besides this, two fragments of a TLV mirror were found in tomb 109 (Fig. 3,25). Lai Guolong, who conducted detailed studies of these artifacts, identified the mirrors from tombs 100 and 109 as being made during the period between the reign of Wang Mang and the early years of the Eastern Han dynasty (Lai 2006, 42). An intact mirror of rather poor craftsmanship, measuring 7 cm in diameter was unearthed from tomb 160. Its decorative scheme is barely discernible and likely to be a local imitation of Han mirrors (Lai 2006, 38).

Between 2002 and 2005, Mongolian and American archaeologists discovered three bronze mirrors during the excavation of satellite burials of tomb 1 complex at Gol Mod 2 (Miller et al. 2006, 13). Two of these, found in burials 21 and 22, are likely of non-Chinese production. These circular-shaped mirrors were labeled as "bronze discs" by the archaeologists who conducted the excavation (Miller et al. 2006; Miller 2009, 229). Each of them was found inside a multi-layered cloth sac. On the contrary, the bronze mirror unearthed from burial 20 (Fig. 3,19) was actually a fragment of a Chinese mirror of TLV-style classical design. This mirror dates back to the reign of Wang Mang or a slightly later period and thus is of significance for approximating the relative date of the entire tomb 1 complex at the Gol Mod 2 necropolis (Miller et al. 2006, 13).

In 2006 the joint Mongolian-Russian archaeological expedition excavated a tomb belonging to a Xiongnu nobleman at Süzhigt of Noyon Uul. From tomb 20 was discovered a fragment of what is believed to be a metallic mirror, but detailed studies and images of the findings of this grave have yet to be published. This piece is preserved at the Archaeological Laboratory of the Mongolian Academy of Sciences.

In 2006 and 2007, the joint Mongolian-Korean archaeological expedition conducted excavation of three Xiongnu period graves at Duurlig Nars. Of these, one (tomb 2) was the tomb of a nobleman featuring the burial chamber, entryway, and rectangular stone frame above the surface, and the two others (tombs 3 and 4) were common tombs. Tombs 2 and 3 each contained a fragment of a bronze mirror (Duurlig Nars 2009, 78). The mirror found in tomb 3 was of the "siru" type (Fig. 2,8), similar to bronze mirrors of the Western Han dynasty. On the contrary, the bronze mirror found in tomb 2 undoubtedly belongs to TLV style (Fig. 3,20). Both these mirrors are currently housed at the National Museum of Mongolia.

In 2007 scholars of the National Museum of Mongolia unearthed a fragment of a TLV bronze mirror from tomb 36 at Nariiny Am (Fig. 3,26). They proposed that the mirror was "very similar to mirrors cast between 8 BC and 23 AD" (Odbaatar et al. 2008, 107).

1 Excavation reports appear in Khatanbaatar 2007 and Purcell/Spurr 2006; detailed investigations of the mirrors in Lai 2006.

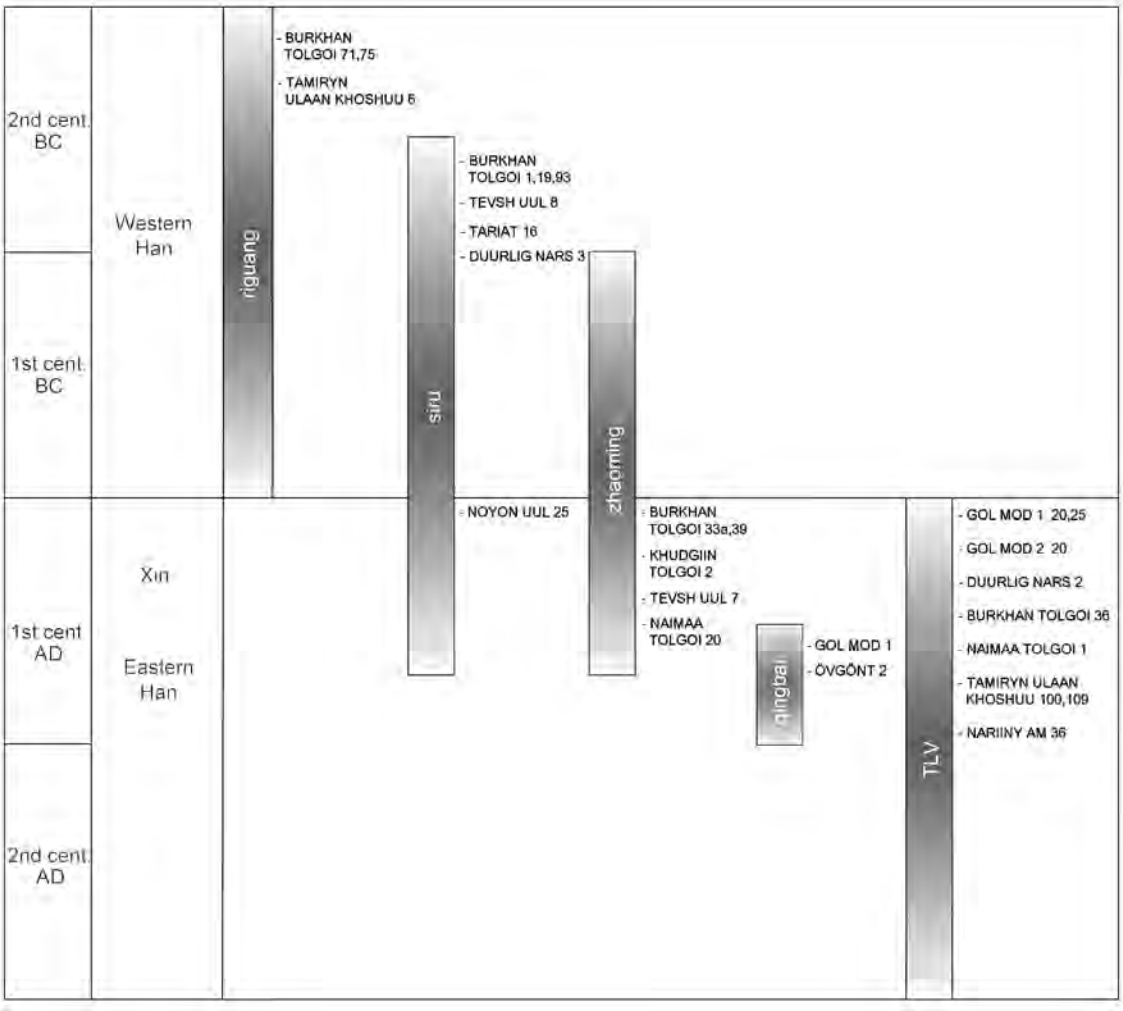


Fig. 4. Dating of the chinese bronze mirror types according to the literature.

Thus, a total of around 30 bronze mirror fragments or complete ones were unearthed from large and small graves of the Xiongnu period excavated across Mongolia. Their dating, according to the literature, is shown in Fig. 4. Of those, drawings of six bronze mirrors preserved at the Archaeological Laboratory of Mongolian Academy of Sciences are published by D. Tseveendorzh and Ia. Tserendagva (1999), and drawings of the bronze mirrors unearthed at Burkhan Tolgoi site (see discussion below) were published by Ts. Törbat, Ch. Amartüvshin, and U. Erdenebat (Törbat et al. 2003). It should also be noted that the Archaeological Laboratory of the Mongolian Academy of Sciences contains one TLV mirror of unknown origin (Tseveendorzh/ Tserendagva 1999, Pl. 2,2).

Bronze Mirrors of Burkhan Tolgoi

It is estimated that up to ten bronze mirrors were unearthed from the Xiongnu cemetery at Burkhan Tolgoi (Törbat et al. 2003, 54–97); however, only seven are now preserved at the Archaeological Laboratory of Mongolian Academy of Sciences. Stylistically, these can be attributed to the following types.

Two "riguang" mirrors dated to the period of the Western Han dynasty, also known as "inscribed mirrors" were unearthed from tomb 71, measuring 7.9 cm in diameter (Fig. 1,1), which is identical to the mirror from Tamiryn Ulaan Khoshuu (Fig. 1,3) and tomb 3 at Il'movaia Pad' from the Republic of Buriatiia (Rudenko 1962, Fig. 65v). Identical mirrors are commonly found throughout China (Cheng/Han 2002, Fig. 33; Bulling 1960, Pl. 20). A. Bulling suggests that this style of mirror is a relatively old one dating back to the 1st century BC (Bulling 1960, 27). Another mirror of the "riguang" type was unearthed in tomb 75 of Burkhan Tolgoi of which only the rim was preserved (Fig. 1,2). It is not possible to refigure the diameter.

Only one mirror of the TLV type, was discovered, from tomb 36 (Fig. 3,21). This was 11.2 cm wide in diameter. It features sharp wave-style ornament between two lines of triangles oriented outward at the edges. One side of a square panel in the center is partially preserved, featuring two spikes on both sides of the "T" shape; indicating that there were eight spikes in total. Rear parts of what were two pairs of ferocious beasts on both sides of the mirror are also preserved and visible. These undoubtedly were the Four Guardians – the depiction of two pairs of predators usually shown on two sides of mirrors. A small part of a petal suggests that the square panel in the center once featured a four-petal floral ornament. An identical mirror of unknown origin is preserved among the collection of bronze mirrors at the Archaeological Laboratory of Mongolian Academy of Sciences (Tseveendorzh/Tserendagva 1999, Pl. 2,2). An intact mirror nearly identical to this was discovered from tomb 100 at Tamiryn Ulaan Khoshuu (Fig. 3,24). But if the center of the Burkhan Tolgoi mirror presumably featured predators, the one from Ulaan Khoshuu depicted eight birds. Similar, but featuring inscriptions around the edges of the center, is the one from tomb 109 at Ulaan Khoshuu site (Fig. 3,25) and in tomb 1 at Enkhor in Transbaikalia (Filippova 2000, Fig. 1,5). Similar mirrors are extremely common across China (Ma 1998; Bulling 1960, Pl. 36), and, in particular, a mirror of this style was unearthed from a tomb dated during the middle period of the Eastern Han dynasty (Filippova 2000, 102). Likewise, a TLV mirror featuring the Four Guardians ornament was unearthed from a tomb definitely belonging to the period of the reign of Wang Mang (Lai 2006, 40).

Two bronze mirrors of the "zhaoming" type were found at Burkhan Tolgoi in tomb 33a and 39. The mirror fragment from tomb 33a (Fig. 1,10) is very small (4 × 2 cm), and its diameter cannot be calculated. Identical mirrors were unearthed from Khudgiin Tolgoi (Fig. 1,12), Naimaa Tolgoi (Fig. 1,13), and tomb 7 at Tevsh Uul (Fig. 1,14). A fragment of a similar mirror was found from tomb 51 at Il'movaia Pad' site in Transbaikalia (Konovalov 1976, Pl. 22,1). Identical mirrors are also commonly found across China, and one such mirror made in 6 AD is preserved in Japan (Bulling 1960, 23).

Another fragment of a bronze mirror of the "zhaoming" type was found in tomb 39 at Burkhan Tolgoi (Fig. 1,11). Like the one from tomb 33a, it is a small fragment (4.4 × 2.5 cm), and thus its diameter cannot be estimated.

Fragments of three bronze mirrors were found, belonging to the "siru" type ("four-spiked animal ornament"), also known as the "dragon ornament" style (Bulling 1960, Pl. 19). They were unearthed from tombs 1, 93 (Fig. 1,4) and 19 (Fig. 1,5) at Burkhan Tolgoi, the latter of which is from a mirror 9.9 cm in diameter. Mirrors of this style were widely used and were made between the Western Han dynasty and the Eastern Han dynasty (i.e. between late 2nd century BC and 1st century AD). These are commonly found across China (Ma 1998, 66). Among the discoveries of the Xiongnu period found across Mongolia, a very similar mirror was unearthed from tomb 16 at Tariat (Fig. 1,7). In addition, one mirror was unearthed from tomb 3 at Il'movaia Pad' in Transbaikalia (Rudenko 1962, Fig. 65a), and eight pieces of a single fragmented

mirror, measuring 13 cm in diameter, were found in tomb 7 at Tsaram necropolis (Miniaev/Sakharovskaia 2006, 45).

Estimation of the dates of the bronze mirrors found at Burkhan Tolgoi site shows that they were made between the 2nd century BC and the 1st century AD. If one approximates the dates of the tombs according to the relative dates of the mirrors unearthed, one finds the earliest mirrors in tombs 71 and 75, located on the northern edge of the necropolis, whereas the tombs located toward the center and the south contained mirrors made in relatively later periods.

The result of radiocarbon dating for tomb 33a shows that the tomb was built around 113–112 BC[2], which corresponds to the relative dating of the bronze mirrors found there, ranging from the 1st century BC up to the 1st century AD. Similarly, the result of radiocarbon dating for tomb 19 shows the tomb was built probably between 25 BC and 147 AD (Törbat et al. 2003, 136), corresponding to the range of 2nd century BC to 1st century AD from relative dating of the bronze mirror found there. However, the relative dating of the mirror fragment discovered in tomb 71, approximated as between 3rd and 1st centuries BC, is much earlier than its radiocarbon dating in the much later period from 1–133 AD (Törbat et al. 2003, 136). It is thus worth noting that when seen from the results of the radiocarbon dating and the relative chronologies of the specific burial goods, tombs located at the southern and especially southeastern section of Burkhan Tolgoi cemetery belong to the earliest periods while the relative dating of the bronze mirrors found there provide the entirely opposite estimations.

Discussion

According to Xiongnu customs, fragments of only one mirror are placed in the tomb. It is interesting when compared to a custom of crafting only one coffin from a single trunk of a tree, upheld in the Mongol funerary rite out of the belief that "burying two people in coffins made of a single trunk of a tree will cause additional deaths in the families of both deceased" (Qurčabilig 2003, 127). Only on one occasion did a Xiongnu tomb contain fragments of two different mirrors, in tomb 3 at Il'movaia Pad' (Konovalov 1976, 203). In the common Xiongnu tombs bronze mirrors were put usually shattered and fragmented. Interestingly however, a few occasions of intact Chinese-style mirrors have been found in tomb 2 at Khudgiin Tolgoi (Fig. 1,12) and tombs 6 (Fig. 1,3), 100 (Fig. 3,24), and 160 (Lai 2006, 37) at Ulaan Khoshuu site in Tamir valley. It is interesting that three of the four intact bronze mirrors were found from Ulaan Khoshuu cemetery. Scholars repeatedly referred to the specifics of the funerary rite this site portrayed, such as the presence of unique artifacts and the absence of weapons that makes them utterly different from the rest of Xiongnu cemeteries (Törbat 2003b; Batsaikhan 2006). The other remaining one intact mirror was unearthed from Khudgiin Tolgoi site in Arkhangai aimag, which is located not far from Ulaan Khoshuu.

Fragments of bronze mirrors were unearthed from many of the major Xiongnu period sites across Mongolia and the Transbaikalian region of Russia. Of those, three deserve specific

2 Törbat et al. 2003, 136. The radiocarbon dates can only give a very rough estimation of dates. Since the original data are yet unpublished, which would allow for a more in-depth study of the radiocarbon dates, I take them here only to determine a relative chronology of the burials under discussion. For the difficulties with radiocarbon dates see Brosseder et al. 2011.

mentioning. First of all, it is interesting that none of the 216 tombs at Ivolga cemetery in Russia contained bronze mirror fragments, while seven mirror fragments were discovered at the settlement site nearby (Davydova 1995, 35-36). Likewise, no bronze mirror fragments were found in any of the 130 features at Dyrestui in Transbaikalia (Miniaev 1998). This reflects a certain tendency and clearly show differences to the Ulaan Khoshuu cemetery, where even three complete ones and one fragmented mirror were found.

One must be cautious when assessing dates of Xiongnu sites according to the relative dates of bronze mirrors found there (Danilov et al. 1998, 121; Lai 2006). Bronze mirrors were objects of reverence and prestige within nomadic cultures, and, moreover, retained sacred symbolism and thus were often used for significantly long periods of time. The possibility of some bronze mirrors being passed on for several generations or of fragments from a single mirror being used for the funerals of several people in a lineage group should not to be ruled out (Brosseder et al. 2011). Such occurrences are of obvious detriment to precise dating of the bronze mirrors and their burials. Still, bronze mirrors have up to now been emphasized by archaeologists as important artifacts for estimating the relative dates of cemeteries and thus for creating chronologies of other artifacts. More open opportunities for calculating more realistic dates exist in comparisons of these relative bronze mirror dates with the results of absolute ^{14}C dating. Through the use of the thoroughly excavated site at Burkhan Tolgoi, this pilot study of comparing relative dating from bronze mirrors with the results of absolute ^{14}C dates reveals an opportunity to broaden the scope of chronologies for Xiongnu material.

[translated by Munkh-Ochir Dorjjugder]

List 1. Chinese bronze mirrors found in Mongolia (numbers correspond to numbers in Fig. 1–3).

Type "riguang" (Fig. 1)

1. Burkhan Tolgoi, Khutag-Öndör sum, Bulgan aimag, tomb 71 (after Xiongnu Tombs 2008, 148).
2. Burkhan Tolgoi, Khutag-Öndör sum, Bulgan aimag, tomb 75 (Photo by Ts. Törbat, Archive, Institute of Archaeology, MAS).
3. Tamiryn Ulaan Khoshuu, Ögiinuur sum, Arkhangai aimag, tomb 6 (after Törbat 2003b, Fig. 5,12).

Type "siru" (Fig. 1)[3]

4. Burkhan Tolgoi, Khutag-Öndör sum, Bulgan aimag, tomb 93; (Photo by Ts. Törbat, Archive, Institute of Archaeology, MAS).
5. Burkhan Tolgoi, Khutag-Öndör sum, Bulgan aimag, tomb 19 (Photo by Ts. Törbat, Archive, Institute of Archaeology, MAS).
6. Tevsh Uul, Bogd sum, Övörkhangai aimag, tomb 8 (after Xiongnu Tombs 2008, 182).
7. Tariat, Altanbulag sum, Töv aimag, tomb 16 (after Tseveendorzh/Tserendagva 1999, Pl. 1,1).

Type "zhaoming" (Fig. 1)

8. Duurlig Nars, Baian-Adarga sum, Khentii aimag, tomb 3 (after Duurlig Nars 2009, 78).
9. Noyon Uul, Batsümber sum, Töv aimag, tomb 25 (after Rudenko 1962, Fig. 65g).
10. Burkhan Tolgoi, Khutag-Öndör sum, Bulgan aimag, tomb 33a (Photo by Ts. Törbat, Archive, Institute of Archaeology, MAS).

3 Addendum: Burkhan Tolgoi, tomb 1 (see Xiongnu Tombs 2008, 130).

11. Burkhan Tolgoi, Khutag-Öndör sum, Bulgan aimag, tomb 39 (Photo by Ts. Törbat, Archive, Institute of Archaeology, MAS).
12. Khudgiin Tolgoi, Battsengel sum, Arkhangai aimag, tomb 2 (Photo by Ts. Törbat, Archive, Institute of Archaeology, MAS).
13. Naimaa Tolgoi, Erdenemandal sum, Arkhangai aimag, tomb 20 (after Xiongnu Tombs 2008, 101).
14. Tevsh Uul, Bogd sum, Övörkhangai aimag, tomb 7 (after Tseveendorzh/Tserendagva 1999, Pl. 2,3; Photo by Ts. Törbat, Archive, Institute of Archaeology, MAS).

Type "qingbai" (Fig. 2)

15. Gol Mod, Khairkhan sum, Arkhangai aimag, T1 (after Dschingis Khan 2005, No. 41).
16. Övgönt, Büregkhangai sum, Bulgan aimag, tomb 2 (after Tseveendorzh/Tserendagva 1999, Fig. 1.3; Xiongnu Tombs 2008, 156).

Type TLV (Fig. 3)

17. Gol Mod, Khairkhan sum, Arkhangai aimag, tomb 20 (after Erööl-Erdene/Gantulga 2008, 186).
18. Gol Mod, Khairkhan sum, Arkhangai aimag, tomb 25 (after Dorzhsüren 1961, Fig. 20).
19. Gol Mod 2, Öndör Ulaan sum, Arkhangai aimag, tomb 1 complex, satellite burial 20 (after Miller et al. 2006, Fig. 9,2).
20. Duurlig Nars, Baian-Adarga sum, Khentii aimag, tomb 2 (Duurlig Nars 2009, 78).
21. Burkhan Tolgoi, Khutag-Öndör sum, Bulgan aimag, tomb 36 (Photo by Ts. Törbat).
22. Naimaa Tolgoi, Erdenemandal sum, Arkhangai aimag, tomb 1 (after Erdélyi 2000, Fig. 31).
23. Morin Tolgoi, Altanbulag sum, Töv aimag, tomb 1 (after Xiongnu Tombs 2008, 211).
24. Tamiryn Ulaan Khoshuu, Ögiinuur sum, Arkhangai aimag, tomb 100 (after Lai 2006, Fig. 1).
25. Tamiryn Ulaan Khoshuu, Ögiinuur sum, Arkhangai aimag, tomb 109 (after Lai 2006, Fig. 3).
26. Nariiny Am, Songino Khairkhan district of the Ulaanbaatar Metropolitan Area, tomb 36 (Odbaatar et al. 2008, 110).

LACQUER EAR-CUPS FROM BURIAL MOUND 20 IN NOYON UUL

Natal'ia V. Polos'mak, Evgenii S. Bogdanov, Agniia N. Chistiakova, Liudmilla. P. Kundo

In 2006, the Russian-Mongolian Expedition excavated one of the large Xiongnu burial mounds in the Süzhigt valley of the Noyon mountains in northern Mongolia. Various goods made of organic matters and a double burial chamber made of pine were well preserved in the tomb due to the considerable depth of the grave pit of 18.35 m, ground water, and clayey soil. The grave goods assemblage includes remains of a Han chariot with lacquer body, textile, clothes, carpets, seeds and lacquer goods[1]. Three Chinese lacquer ear-cups[2] (Fig. 1; 2; 3,3) and one metal frame of the ear-handle of another cup (Fig. 3,1), which was not preserved, have been recovered. The ear-handles of the cups are reinforced with gilded metal frames and decorated with geometric motifs (Fig. 3,1.2). The interior surfaces of the cups do not bear any motifs but were painted red, or possibly brown. The exterior surfaces are decorated with four pairs of phoenix images with ornate tails painted in red and white. The bird images are interchanged with geometric motifs (Fig. 1,3; 3,3). The upper borders of the cups bear a geometric motif of lines and circles. The bottoms of all the three cups show "tamga" marks etched into the lacquered surface, and two of the cups also show angled cross marks on the bottoms and finely carved inscriptions in Chinese characters around the periphery of the bottoms. One of the cups shows 46 characters (Fig. 1,2), and the other shows only eight preserved characters. The translations of the inscriptions and their possible interpretations are published elsewhere (Chistyakova 2009), and are integrated here into a comprehensive analysis of these cups. The translation of the long inscription on cup 1 is as follows:

乘輿髹**汨**[3]畵木黃耳一升十六籥棓元延四年考工二[工]通繕**汨**工憲守佐臣文嗇夫臣勳掾臣文臣 右丞臣光 令臣譚省 ([For] the Imperial Court [produced ear-cup], lacquered, inscribed and decorated. [Foundation of] wood, and yellow ears. [Volume of] one sheng and 16 yue. In the fourth year of the Yuanyan [reign] at Kaogong, [artisan] Tong restored; inscribed by artisan Xian; headed by the

1 Polos'mak et al. 2008a; 2008b. Noyon-Uul mound 20 has yielded cups and other lacquer goods including dish fragments, box (?) fragments, scythe case and fish figurine. All the lacquer goods were fragmented. The goods were restored, conserved and prepared for exhibition in the National Museums of Mongolia. Restoration was carried out by V. G. Simonov, Grabar Art Conservation Centre, Moscow and L. P. Kundo of the Institute of Archaeology and Ethnography Siberian Branch of the Russian Academy of Sciences, Novosibirsk.

2 These cups are referred to as "erbei", ear-cups, in Chinese sources because of their ear lobe like handles on either side of the oval shaped cups. The walls of the cups found in tomb 20 are damaged and do not allow us to establish the exact size. The dimensions of cup 1 are determined as follows: the maximal diameter is 92.5 mm, the minimal diameter is 51.2 mm, the bottom height is 4 mm, the wall thickness is 4 mm on average. Cup 2: the maximal diameter is 97 mm, the minimal diameter is 52 mm, the bottom height is 4 mm. Cup 3: the maximal diameter is 76.6 mm, the minimal diameter is 40 mm, the bottom height is 3 mm, the wall thickness is 4 mm on average.

3 This character on the cup bottom has been interpreted as a combination of the water radical(氵) next to "yue" (月), though some scholars see it as "mi" (汨), which is the water radical (氵) next to "ri" (日). Here, it means "to inscribe", though it could also denote "to insert red lacquer pattern".

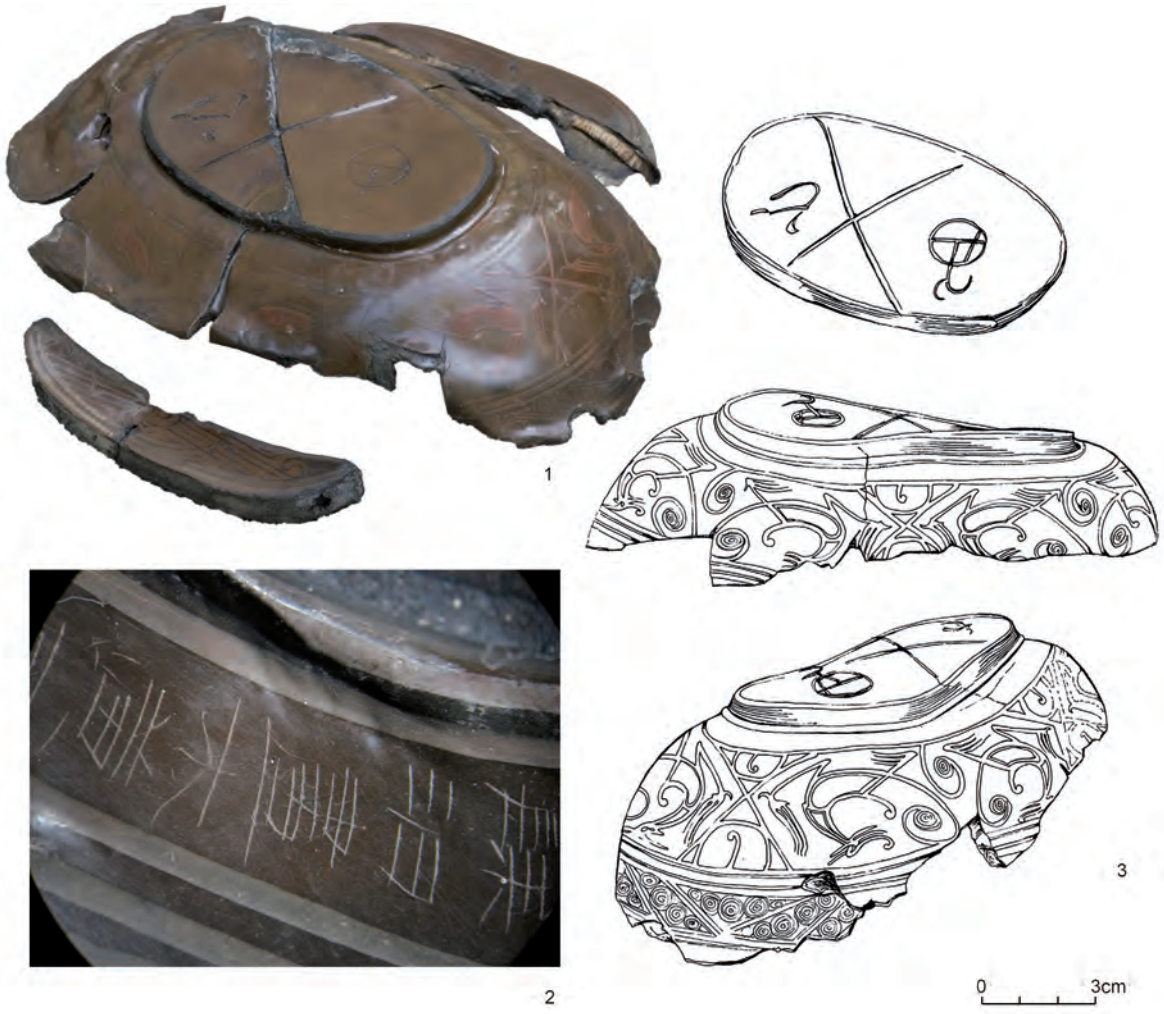


Fig. 1 Noyon Uul, tomb 20. Ear-cup 1. Photo; 2 detail of the hieroglyphic inscription; 3 drawing of the ear-cup.

Deputy (supervisor's assistant) your servant Wen, Workshop Overseer your servant Xun, Head Supervisor your servant Wen, Right Assistant your servant Guang, Director your servant Tan, for inspection).

Translation of the incomplete inscription on cup 2:

[掾]臣孝主守右丞臣忠守令臣畫省 (… Head Supervisor your servant Xiao; managed by Right Assistant your servant Zhong; headed by Director your servant Hua, for inspection).

Presently, three other identical cups bearing Chinese characters and phoenix images have been reported from Xiongnu burial mounds in Noyon Uul. One is the cup from tomb 6 in the Süzhigt valley, and it is currently housed in the State Hermitage Museum, St. Petersburg (Umehara 1960, 30; Pl. 60). Another cup was discovered by A. Simukov in the "Mongolian" burial mound in the Zuramt valley of Noyon Uul and is stored at the National Museum of Mongolia in Ulaanbaatar (L'Asie 2000, 147 Fig. 128). The third identical cup was recently recovered from burial mound 31 in the Süzhigt valley during excavations in 2009, but it has yet to be published. In addition, an identical cup was recovered from tomb 50, a woman's burial according to Konovalov's identification, in Il'movaia Pad' in Transbaikalia (Konovalov 1976, 49 Fig. 22; 198–199).

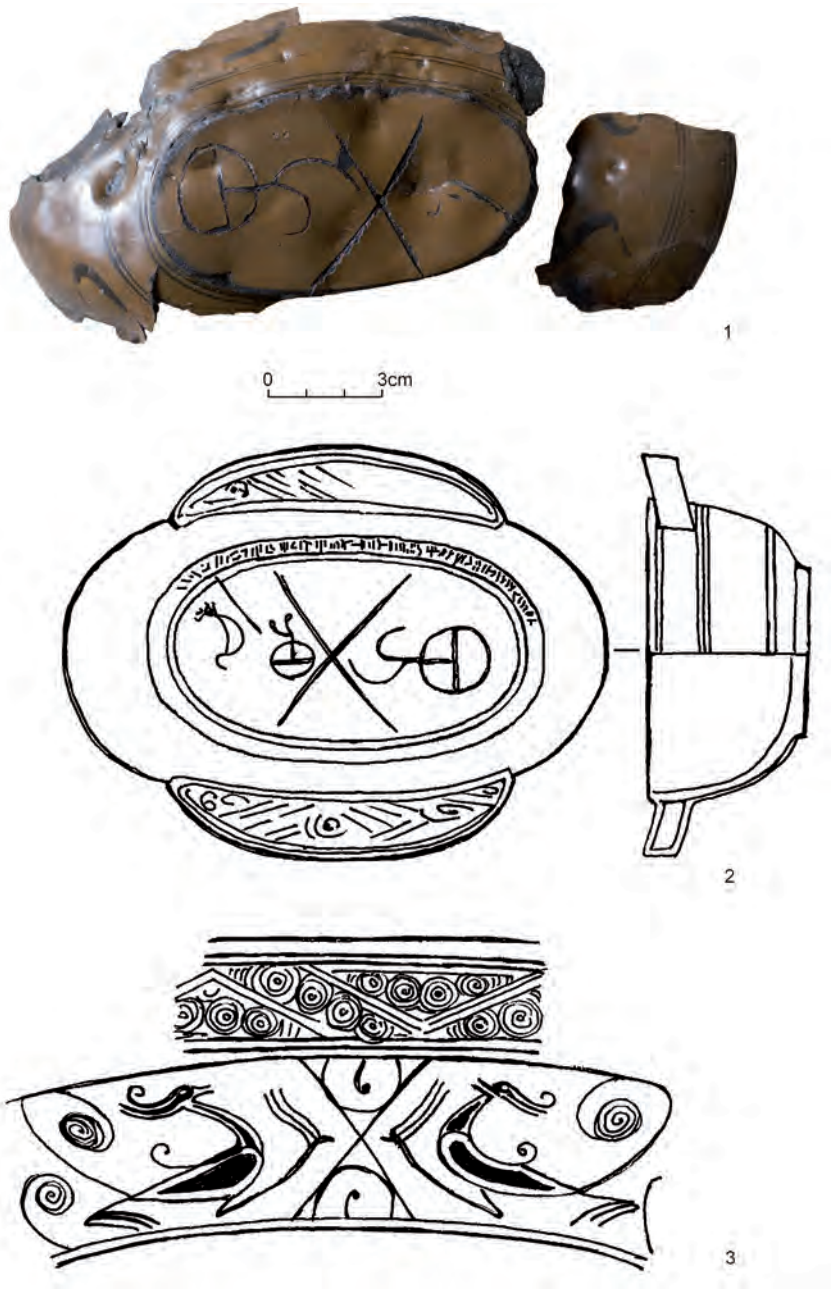


Fig. 2. Noyon Uul, tomb 20. Ear-cup 2. 1 Photo; 2 drawing of the ear-cup; 3 detail of the ornament.

Despite identical forms and decoration, all mentioned cups bear different inscriptions (Chistyakova 2009, 64–67).

Judging by the inscriptions on the above mentioned ear-cups, all were made in the Han royal workshop of Kaogong, except for the cup that was discovered by Simukov in the "Mongolian" mound. The Kaogong workshop was one of two situated in the capital at Chang'an, unlike the imperial workshops of Shu and Guanghan situated in the region of modern Sichuan province. The Kaogong workshop produced mostly weapons, chariots, and bronze wares. Lacquer goods were not the main specialty of this workshop, and lacquer cups from this workshop are of a

Fig. 3. Noyon Uul, tomb 20. 1–2 Lacquer cup handles; 3 photo of ear-cup 3.

slightly lower quality compared to those from Shu and Guanghan (Hong 2006). Nevertheless, these cups demonstrate a high skill of manufacture. Inscriptions on Kaogong, Shu and Guanghan cups were basically the same; the only difference was in the enumeration of the titles which begins with the lowest for Kaogong items and with the highest for items from Shu and Guanghan.

The Chinese inscriptions detail the technology of cup manufacturing and subsequent lacquering. The inscription says that the wooden cup was made first and then the surface was lacquered and painted. Special clerks saw to the correct technological process and the quality of products. Every material used and every operation conducted had its own name. Lacquer goods from mound 20 at Noyon Uul were fragmented, thus allowing for the study their internal structure: the wooden base, the lacquer application, and the technique of adhering the metal ear-handles[4].

- Stage 1: Making the wooden base. The cups show a diagonal orientation of the wood grains. This was likely made on purpose, because the open capillary on the cup surface stipulated a deep percolation of lacquer into the cup (Novikova 2000, 13).
- Stage 2: Coating with lacquer. The lacquer appliqué was made of lacquer sap and clay. A close-up of the breakage surface of the lacquer cup reveals the presence of a thin intermediate layer with a net-like structure resembling that of fabric. It appears that the surface was reinforced with silk fabric.
- Stage 3: Fixing the metal ear-handles and coating with gold. The transverse breakage surface of the handles shows that there is a considerably thick layer of a certain substance between the wooden base and metal frames. Physical and chemical analyses of this substance have shown that the lacquer layer and the glue are composed of the same ingredients. Presently this material represents a light and porous substance of a considerably high hardness and

4 Identifications have been carried out by E. V. Karpova and G. G. Balakina, N. N. Vorozhtsov of the Institute of Organic Chemistry, Siberian Branch Russian academy of Sciences; the chemical composition of the alloy of the "golden ears" has been identified by S. S. Shatskaia, the Institute of Solids and Mechanical Chemistry, Siberian Branch, Russian Academy of Sciences.

strength resembling polymer. Originally the substance represented a viscose paste of clay and lacquer that was easily formed and served as a sort of glue. The noted admixture of mercury (0.0016%) suggests that handle frames made of bronze with a high proportion of tin were coated with gold through amalgamation.

- Stage 4: The second layer of lacquer. The second coating was made of red lacquer from an admixture of cinnabar and brown lacquer with an admixture of umber.
- Stage 5: Designing the surface. Manufacturing a decorative design on the lacquered surface represents the final stage of lacquer cup production.

The Han goods were often decorated with carvings, but few goods demonstrate coating design elements with gold (Jiangsu 2007, 47–50). Two small fragments of lacquer goods from tomb 20 at Noyon Uul show traces of carved images over the lacquer surface.

Most cups from Xiongnu burial mounds bear minimal decoration patterns. The geometric design on the border of the lacquer cups resembles swirl designs which some Chinese scholars refer to as "whirlpools". Other researchers believe that these are the sun images and designate this motif as the "fire design". An additional interpretation labels these designs as clouds, "baoyun", precious clouds or "ruiyun", auspicious clouds (Chistyakova 2009, 60).

Phoenix images are often found on ear-cups recovered from Han burial sites throughout China. For instance, such items have been reported in southern China from the burial site at the Yalunba dam in Guizhou, Guizhou sheng bowuguan, from burial 2 close to the city of Yongzhou at the Yaoqiling mountains in Hunan (Hunan 2001, 56 Fig. 18,1), and burial 104 at the village of Yangshouxiang, Hanjiang district, Jiangsu province (Yangzhou 1991, 51), as well as far west of the Han capital from mound 62 at the Mozuizi cemetery at the Qilianshan in Gansu (Hong 2006, 165). The image of two opposing birds is possibly linked with the dual ideas about space in the yin-yang system. During the Han dynasty, the image of a pair of phoenixes and some object between them was popular and can be regarded as a variant of this image. The motif on the cup from burial 20 from Noyon Uul shows crossed lines between phoenixes. Such compositions can be perceived as images of birds at the World Tree[5].

During the Han period, the phoenix was the symbol of the Emperor and thereby represented the imperial court, in other words, the state and its ruling components. The Emperor, as an icon of virtue, was symbolized by fire and embodied as the Red Dragon or the Red Phoenix (Riftin 1980, 37). Lin Xuan in his "Non-official biography of Zhao – Flying Swallow" referred to the emperor as a phoenix. The character and the image of the phoenix were also used in the sense of the Empress or a woman connected to the Emperor. This probably explains why the goods belonging to the empress or emperor's concubines should bear the phoenix image or contain the word phoenix in their names. In light of these analogies, it seems natural that phoenix images were embedded in the decoration on goods prepared for the emperor's court. For the same reason, goods with phoenix images were included in the imperial "gifts" or tributes to the Xiongnu rulers.

In sum, lacquer goods recovered from Xiongnu sites have mostly been produced by the Kaogong royal workshops. It seems that Kaogong wares were considered less prestigious as com-

5 Evsiukov 1988, 4). Alongside connotations of the imperial rulers, the phoenix was regarded as a guard at the entrance to the Land of the Immortals. The classic legends in the "Chu ci" of the southern tradition holds that the hero Qu Yuan performed a journey driving four dragons and phoenixes (Hawkes 1959).

pared to those manufactured at the special dish-producing workshops of Shu and Guanghan, which exhibited higher skills of painting. Despite the difference in quality of manufacture, the phoenix motif on these cups could connote the empress or a woman connected to the emperor, and thus a set of cups bearing phoenix images could have been sent to the Xiongnu along with Chinese brides that were stipulations of the "heqin" treaty agreements. From the perspective of the Han court, when the chanyu rulers or their relatives received such precious cups, they were thereby accepting subjection to the Han emperor. However, Xiongnu elite most likely regarded these exquisite cups as luxuriant objects which they appropriated, and upon which they could easily carve tamga family marks and express their attitude to the Celestial Empire.

ANIMAL STYLE SILVER ORNAMENTS OF THE XIONGNU PERIOD

Chimiddorzh Eröol-Erdene

Introduction

Scholars believe that the animal style in precious metals ornamentation first appeared circa 2nd millennium BC as a result of internal developments among the peoples of Central Asia (Tseveendorzh 1981, 57–59). Artifacts crafted in the animal style continue to be found throughout Bronze Age contexts as well as flourished in graves of the Xiongnu and developed in periods thereafter. Ten sites containing the monumental tombs of Xiongnu nobility have been discovered across Mongolia and South Siberia, and investigations of these sites have intensified since the year 2000[1]. As an example of animal style in Xiongnu art, this article presents the decoration on silver ornaments unearthed from tomb 20 at the aristocratic cemetery of Gol Mod located in Arkhangai aimag of central Mongolia (Fig. 1).

In 1956, the Mongolian archaeologist Ts. Dorzhsüren excavated 26 small tombs at the site of Gol Mod and began the excavation of a large burial, though could not complete this larger excavation. Based on a comparative analysis of a glass crochet and a mirror pendant to the chalcedony-inserted belt, he estimated the date of the necropolis to over 2,100 years old (Dorzhsüren 2003, 109–116). Since 2000, a joint Mongol-French Archaeological Expedition (MAFM) has been operating at Gol Mod and has conducted excavations of 15 small burials and the burial chambers of two large Elite tombs. In addition, precise documentation of the site discovered 420 tombs, and a renewed map of the necropolis was accordingly drawn[2]. In 2005, the Mongol-French Expedition unearthed several pieces of silver decorated ornaments featuring bas-relief images of unicorns, in both round and elongated shapes, found on the eastern side of the burial chamber of tomb 20 (Fig. 1).

Characteristics of the Artifacts

Six elongated silver ornaments, in the form of edged ovals, were unearthed, each weighing 92 g and measuring 14.3 cm long, being 0.4 cm thick, and 7 cm wide at the lower portion (Fig. 2, 9–11). Ornaments with silver and gold plating were made by bending the thin metal foil around the edges of an iron backing. On the obverse side, within 0.5 cm-wide frames, are depicted in

1 See Tseveendorzh et al 2007a; Polos'mak et al. 2008a; Brosseder 2009; Miller 2009; Eregzen, this volume.

2 See André 2002; Desroches/André 2007; Erdenebaatar/Eröol-Erdene 2003; Mongolie 2003; Gol Mod 2002; Eröol-Erdene/Gantulga 2008.

Fig. 1. Silver ornaments from Tomb 20 at Gol Mod (after Erööl-Erdene 2007a, Fig. 2).

bas-relief the profiles of an artiodactyla, with the front right and rear left legs rampant. Although the torso of the beast resembles a deer, it has an equine head. From the forehead grows a huge horn with crooked tip. Hairs are depicted protruding along the mane as well as from the chin and below the chest of the animal. Of the six discovered silver ornaments, three of the beasts are depicted facing right and three are depicted facing left.

Eight silver ornaments of rounded shape were unearthed, featuring the same unicorn beast, each weighs 9–12 g, measures 4.3 cm in diameter and is 0.4 cm thick (Fig. 2, 1–8). The ornaments are crafted in the same silver-wrapped iron plate method as the elongated ones. On these round ornaments the unicorn is depicted as lying with legs crossed under the torso and the tail rampant. Unlike the other depictions of the unicorn, the beast on the round ornaments has winglets on its chest and hips. Of the eight discovered round silver ornaments, four of the beasts are depicted facing right and four are depicted facing left. Clouds are also shown on either side of the beast, beside the horn and beneath the legs, perhaps with the purpose of conveying the other-worldly, celestial nature of this creature. Like the other unicorn depictions, the very realistically illustrated torso of the beast resembles an antelope (*capra sp*.), mountain gazelle (*gazella*) or deer, but has an equine head. Most likely this is the depiction of a "belget göröös" ("hallowed gazella"), a non-existent mythical unicorn creature[3]. The presence of an equal number of beasts facing in opposing directions of right and left, clearly show that these decorative silver ornaments were paired as parts of a single pendant chain (Fig. 2).

3 The definitions of species are courtesy of Dr. D. Tsendzhav of the Institute of Biology, Mongolian Academy of Sciences. He has also provided us with interesting information that single-horned antelopes are not totally unrealistic, but can rarely be found as pathological abnormalities. We also have an oral witness about the skull of a single-horned antelope in possession of Mr. Zunduidagva, resident of Binder sum, Khentii aimag, Mongolia. One should note that the Mongolians upheld the strict custom prohibiting hunting of such rare species.

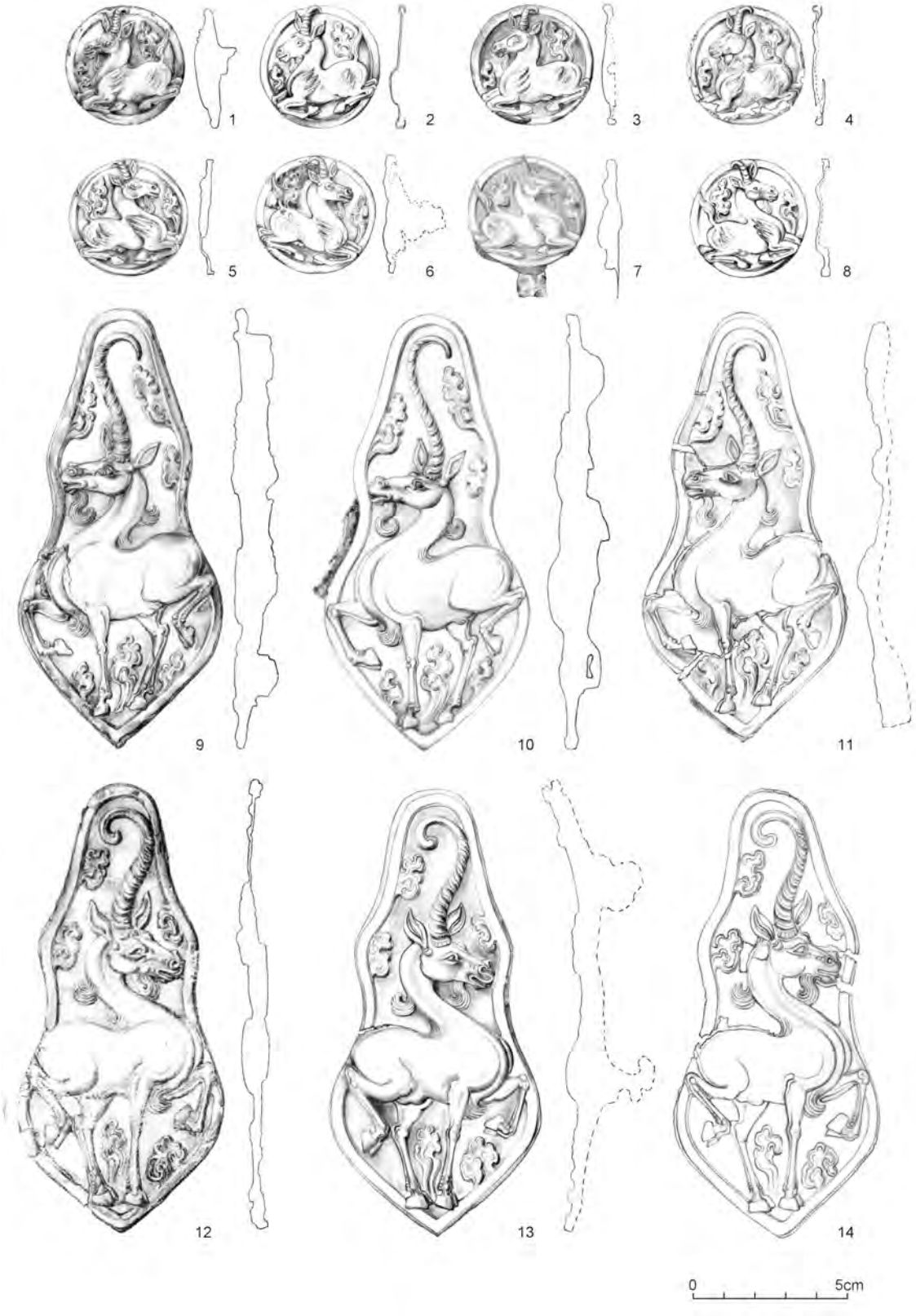


Fig. 2. Silver ornament of the horse gear.

No.	Site Depicted animal Metal	Decoration of Saddlery Breast strap	Decoration of Saddlery Crupper
1	Gol Mod, burial 20 unicorn gilded silver		
2	Noyon Uul, burial 6 yak silver		
3	Noyon Uul, burial 6 deer silver	–	
4	Noyon Uul, burial 20 unicorn silver		
5	Noyon Uul, burial 20 dragon silver	–	
6	Noyon Uul, burial 20 mountain gazella silver		
7	Tsaram, burial 7 mountain gazella silver, bronze		

Fig. 3. Ornaments found in Xiongnu tombs (1 after Eröol-Erdene 2007a, Fig. 2; 2–3 after Rudenko 1962, Pl. 36,3; 37,3; 4–6 after Tseveendorzh et al. 2007a; 2007b, Fig. 9; 7 after Miniaev/Sakharovskaia 2007b, Fig. 3,5.6).

No.	Site Depicted animal Metal	Ornaments
1	Nangnang culture, Korea Seogami-ri, burial 219 dragon silver	
2	China Putuo Tonggu, Guangxi unicorn, qilin gilded silver	
3	China Shizhaishan, Tomb 7, Yunnan fabulous bird, phoenix gilded bronze	
4	China burial fabulous bird, phoenix gilded bronze	

Fig. 4. Ornaments found in Korea and China (1 after Nangnang 2001; 2–4 after Sun 2001, Fig. 8,7).

Use of Ornaments and Depictions of Mythical Beasts

The decorated silver ornaments unearthed from numerous Xiongnu noble tombs are of two shapes: elongated and rounded. Some are plated with gold, and one was discovered as a single piece crafted from bronze. Scholars have paid attention to the form of their decorative motifs, but have not addressed the specific purpose, utility, or meaning of these artifacts. This article attempts to clarify the function of these items and some issues of the significance related to the "belget göröös" unicorn.

Silver ornaments identical to those found at Gol Mod were discovered in large quantities from the tombs of Xiongnu nobility across Mongolia and Buriatiia (Fig. 3), including tomb 6 (Rudenko 1962, Pl. 36,3; 37,1.3.) and tomb 20 at Noyon Uul (Tseveendorzh et al. 2007a, 300; 2008) necropolis as well as tomb 7 in the Tsaram necropolis (Miniaev/Sakharovskaia 2007b, 162 Fig. 3,5.6). Similar artifacts have also been unearthed from tombs other than the royal Xiongnu burials (Fig. 4). Chalcedony-inserted elongated artifacts discovered in graves tombs of Nangnang culture in the Democratic People's Republic of Korea were identified by Korean scholars as decorations of horse crupper (Nangnang 2001, 39; 55; 57; 61). In addition, Han dynasty tombs have yielded similar fan-shaped decorative pieces, often called "silver petals", which Chinese scholars have identified as the items of a horse harness. These were found in princely tombs of far south China in Shizhaishan, Yunnan province and Putuo, Guangxi as well as a tomb in central China at Xiaomintun, Henan (Sun 2001, 103–104)[4].

4 This decorative element continued into later periods, for example, as depicted on horse figurines of the mid–late 1st millennium AD Northern Dynasties of China. These decorative ornaments had varying ornaments depending on the status of the aristocrats; these also differed by weight and size (Sun 2001, 102–103).

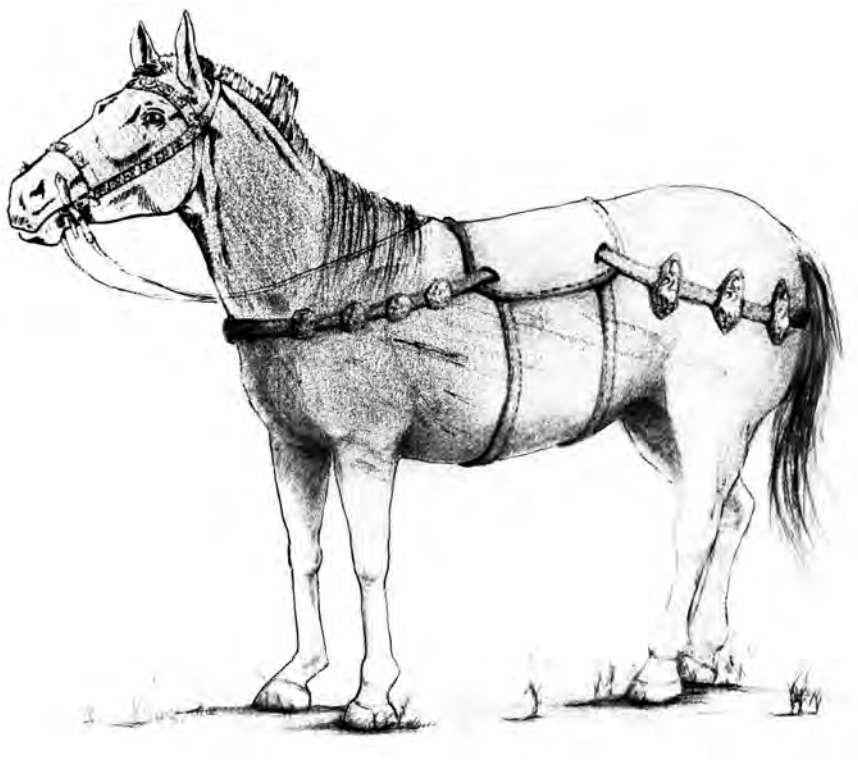


Fig. 5. Restored image of breast straps and cruppers (reconstruction by the author).

These items were unearthed from tombs which also contained lacquer-plated chariots, further evidencing their utility as equestrian decoration. The positioning of these ornaments inside tombs, namely to the left or right of the inner chamber, is also not coincidental.

In order for a horse to pull a carriage, wagon, or sleigh, a reliable and practical harness is needed. With the advent of saddles emerged a need for broad strappings to firmly hold the saddle under the horse's barrel, and thus emerged the breast-strap and crupper (Bünchin 1978, 81; Songino 1991, 121). From the above-mentioned information, we may assess that the rounded-shaped decorative silver ornaments were attached to breast-straps and the elongated-shaped ones were attached to cruppers (Fig. 5).

Stylized depictions of various beasts are present not only on silver ornaments but also in many occasions sewn onto felt rugs or carved onto bone decorations of the Xiongnu. The presence of decoration with mythical beasts in the noble tombs of the Xiongnu might be connected to their revered position in society. On the other hand, the presence of such beasts within tombs could also be related to perceptions of the afterlife among the Xiongnu (see Martin, this volume). Some scholars believe that these depictions can be interpreted by the cosmological myths of the Xiongnu (Sükhbaatar 1980, 145).

Besides the "belget göröös" or "unicorn", silver artifacts unearthed from the Xiongnu noble tombs also feature yaks, deer, mountain gazelles and dragons. Identical decorative silver ornaments discovered in tomb 6 at Noyon Uul site depict what is generally believed to be a yak, but some scholars perceive it as a stylized depiction of a predator (Dorzhsüren 2003, 267). A silver ornament depicting a single-horned antelope excavated recently from tomb 20 at Noyon Uul

(Fig. 3,4) is similar to those unearthed at the Gol Mod site. In addition, ornaments from China have floral decoration, and some also feature velvet scoters, lions and chimerical creatures known in Chinese mythology as "qilin" (Sun 2001, 103–104).

This beast was described in detail almost two millennia after these noble Xiongnu tombs by a 19th century Mongolian legend V. Inzhannash, in Chapter 56 of his "Khökh sudar", completed in the 1870s[5]. He narrates the legend of a sudden appearance of a beast with the body of an antelope and a single horn on the head before Chinggis Khan's troops as they stood at the very doorsteps of India. It demanded, in human voice, for the troops to report to the Great Khan and tell him to withdraw immediately. When Chinggis Khan inquired his minister Yelü Chucai on what the beast was and why it spoke the human language, the minister replied that it was the "jiaoduan" antelope that inhabits the farthest corner of the universe.

Although this legend narrated in "Khökh sudar" has origins in a much later period, the physical appearance of the beast, described in great detail, matches the depictions on the silver ornaments, and the fact that it is narrated as speaking the human language, conveying divine will, and living in "the farthest corner of the universe" attracts much interest. Most likely, these attributes were inserted to the passage for the purpose of emphasizing the unearthly, divine origins of this creature. Still, the presence of several gender-specific terms for this animal in Mongolian language dictionaries, listed as "jiu duwan göröged", proves of the existence of certain perceptions about it among the Mongols[6]. According to the "Zhi yuan" dictionary judges of the ancient Mongols wore headgear with a single horn on top[7]. Because these were worn by guardians of the law, most likely the horn symbolized the manifestation of integrity and justice.

Many legends about a beast with one horn exist in cultures of East Asia. Among the Tibetans it is called "hariharimo", and the Vietnamese have a similar concept as well. In China, it is called a "qilin", transliterated as "kirin" and "kilin" in Japanese and Korean, and appears as early as narratives of the famous scholar Confucius (551–479 BC). On many occasions the Chinese "qilin" has a dragon-shaped body, but a lion- or deer-shaped body is not uncommon. The "qilin" is considered to be an extremely tranquil creature and is believed to never attack with its horn. A single horn symbolizes a unitary beginning of authority, in the sense that a single ruler shall govern the universe. Moreover, a man who rides a "qilin" is believed to be a wise and immortal sage. Even the phrase "child of a qilin" is sometimes used for gifted children. The "qilin" does not kill other creatures, nor does it not pound the grass; it commutes in the air and consumes magic seeds[8], characteristics that in some cases coincide with what is written in "Khökh sudar".

Legends in the West also refer to creatures with one horn – licorn, unicornus, monoceros, Einhorn and the like. As early as the Hellenic period, a legend exists about a unicorn that

5 B. Inzhannash, Khökh sudar, Vol 3 (Ulaanbaatar 2005). Б. Инжаннаш, Хөх сударVol. 3 (Улаанбаатар 2005) 1757–1758.

6 Norzhin, Mongol khelnii tailbar tol' (Zhengjiakou 1999). Норжин, Монгол хэлний тайлбар толь (Чуулалт хаалга хот 1999) 996; 1347; Tsevel 1966: Ia. Tsevel, Mongol khelnii tovch tailbar tol': 30 000 orchim ug (Ulaanbaatar 1966). Я. Цэвэл, Монгол хэлний товч тайлбар толь: 30 000 орчим үг (Улаанбаатар 1966), 84; 122.

7 G. Badrakh, Chingisees deed üeiin mongol khuvtsasny ögüülber (Ulaanbaatar 2006). Г. Бадрах, Чингисээс дээд үеийн монгол хувцасны өгүүлбэр (Улаанбаатар 2006), 21–22.

8 E. M. Meletinskii, Mifologicheskii slovar (Moskva 1990). Е. М. Мелетинскии, Мифологический словар (Москва 1990).

Fig. 6. Depictions of unicorn in Medieval European art (after A. Roob, Alchimie et mystique [Köln, Paris, London 2009]).

befriends the goddess Artemis, and they are depicted together on many paintings of the later Medieval artists (Fig. 6). In some Western encyclopedias, the unicorn is described as a beast with a deer body, a horse head, and a single crooked horn, and is believed to be captured and ridden only by a virgin [9].

CONCLUSION

One can see that both the Oriental and Occidental cultures possessed legends of unicorn beasts with similar characteristics, such as wisdom, piety and justice, but the perceived physical appearances of this mythical creature differ from culture to culture. It is interesting that the "belget göröös" unicorn depicted on silver ornaments from tomb 20 at the Gol Mod Xiongnu necropolis differs sharply from the Chinese "qilin" unicorn, but is virtually identical to the medieval European depictions. Especially similar are the key elements of an artiodactyla torso, equine head, and long curved horn. If we assume that these decorative silver ornaments were only used by the members of Xiongnu aristocracy, then the chariots found in their tombs were likely put there to carry the souls of the deceased to heaven and perhaps the unicorn beasts were present to serve as guardians of that path to afterlife.

[translated by Munkh-Ochir Dorjjugder]

9 Encyclopédie des symbols. Encyclopédies d'aujourd'hui (Paris 1996); C. G. Jung, Psychologie et Alchemie (Paris 1970) 552–554.

CERAMIC ROOF TILES FROM TERELZHIIN DÖRVÖLZHIN

Sergei V. Danilov, Natal'ia V. Tsydenova

Introduction

The study of Xiongnu settlements began in 1928 with the excavations at the site of Ivolga, at the time referred to as Nizhneivolginsk, by G. P. Sosnovskii and has continued until today within the territories of Russia and Mongolia. Fortified settlements were intensely studied at Ivolga and Baian Under. For a long time, the semi-subterranean style houses, excavated and studied at Ivolga and Dureny, had been considered to be the main type of Xiongnu dwellings (Davydova 1985). Ground surface buildings were also examined at a site on the river Yenisei near Abakan in Khakasiia (Kyzlasov 2001), at Ivolga (Davydova 1985), at Baian Under in Buriatiia (Danilov 1998), and at some sites in Mongolia (Perlee 1961; Danilov, this volume). The reasons for the emergence of stationary residences and sedentary sites, some of which had, perhaps, the function of cities in the nomadic Xiongnu society, can be better fathomed through more detailed investigations of these sites. Details of the construction techniques of buildings become clearer in the course of the archaeological investigations.

One of the essential constructional elements of buildings was the roof, which protected the structures from rain, from cold in winter, and from heat in summer. At first, one can distinguish between two types of roofings for Xiongnu buildings. The first type of roof covering is a gabled construction, consisting of posts, beams and sod, typical of the semi-subterranean houses at Ivolga, where such construction was documented in detail through careful excavation. The second type is the roof covered with tiles.

All the ceramics from a fully excavated building with a tiled roof near Abakan, the so-called Tasheba palace, were kept to serve as material for further research, but by an unfortunate occurrence, the tiles stored in the Abakan Museum were destroyed (Kyzlasov 2001, 67). The tiles from Xiongnu settlements in Mongolia, on the other hand, have not yet received adequate appreciation in the literature. So far there is only a very general description available for this essential component of Xiongnu building construction traditions. In this respect, interesting data from a tiled roof was obtained in the course of the excavations begun in 2007 at the Xiongnu settlement of Terelzhiin Dörvölzhin[1].

The tiles from Terelzhiin Dörvölzhin show a direct analogy with the tiles from the Bürkhiin settlement, located less than 20 km southwest of Terelzhiin Dörvölzhin, and both were studied by the Mongolian researcher Kh. Perlee (1961). Further similarities can be found in the materials

1 The work is executed within the framework of the program of the presidium of the Siberian Branch of the Russian Academy of Sciences "Historian-cultural heritage and spiritual values of Russia", direction "Archaeological values of Russia", project "Khunnu: origin, culture, ethnic history, political genesis".

from the excavations of the building near Abakan. Aside from similarities in the basic roof tiles, only the disk-shaped roof tile ends, called "wadang" in Chinese literature, are designed differently. Chinese characters appear on the end-disks from Abakan[2], while ornamental motifs are found on the end-disks from Terelzhiin Dörvölzhin.

The site of Terelzhiin Dörvölzhin is located on the southern foothills of Khentii mountain system, 18 km north-east from Möngömor't sum in the Terelzh river valley, a right tributary of Kherlen river, on its left bank (Danilov 1998). Excavations at this settlement site were started on the south-eastern side of the central building, and at the very beginning of excavations a great number of large and small fragments of tiles were found in clusters throughout the exposed area. It is clear that different types of roof tiles were used, illustrated by the different sizes and shapes of the tiles, but for the time being the exact manner of the roof construction is not yet clear. In some places tiles were found in 5–6 layers on the slope of the hillock, the remains of the building foundation, so that the end-disks, which have ornaments equivalent to those of the Han dynasty found in China, were found closer to the edge of the building[3].

THE ARCHAEOLOGICAL RECORD

The Main Types of Tiles

The total mass of tile fragments weighed several hundred kilograms. According to our preliminary examination they may be attributed to four basic types of tiles, although it is clear that after a more detailed analysis the number of variants will inevitably increase. The more distinguished types of tiles are characterized by the following features:

Type I: Broad plates, most of which have been flattened or smashed, about 35–36 cm wide and 45 cm long, with a thickness of about 2 cm, concave in cross-section (Fig. 1,1). On both flat sides there is a line decor, which is more even and accurate on the convex side. One part of the convex side is almost always decorated with a drawn wavy line, in most cases framed by two parallel straight lines. Only rarely a single wavy line or a wavy line in combination with one straight line occurs. The width of the decorative band and the width of the grooves measure on average 0.3–0.5 cm. This pattern is one of the most characteristic ornaments of Xiongnu pottery. On several fragments textile imprints are observed, medium-sized weave, probably of a textile strap.

The side parts are decorated with vertical incisions, usually two or three. Some fragments show traces of vertical incisions, outlining further lines (Fig. 1,2). Sometimes the angles are rounded by the same mode of incision. These techniques seem to have been applied on the dried but still moist and moldable material. The color of the tiles is a fairly uniform dark brown-straw. The tempering is visually identified as a relatively homogeneous, dense mass with uniform inclusions.

Type II: The narrow half-cylindrical tiles with a width of about 20 cm and a length of 45 cm are about 2 cm thick and generally smaller and more concave in comparison with the first type (Fig. 1,3).

2 The numerous characters which appear on the Abakan tiles provide phrases in praise of the "Son of Heaven", which is the name for the Chinese emperor.

3 We thank A. L. Ivliev, Vladivostok, for the determination of the tile decorations.

Fig. 1. Terelzhiin Dörvölzhin. Different types of roof tiles.

They have line imprints mostly on the outside (convex) surface. Another feature is the presence of the neck, which is 1.5 cm thick and is narrower than the body, and which does not show the line imprints. This type of tile has the same pattern, a wavy line between two straight lines in the upper part, close to the mouth (Fig. 1,3). Sometimes this ornament of a wave form is found on the neck. The neck itself is a hand-formed element as is indicated by the traces of joints and the traces of finger depressions on the inside of the tile of type II. One single specimen had rounded cutting

Fig. 2. Terelzhiin Dörvölzhin. End-disk pattern types.

holes about 2.5 cm in diameter, which were cut in the tile when it was still moist (Fig. 1,4). Tiles of this type show the same fairly uniform gray-brown color. The tempering, visible in the breakage, is visually identified as a relatively homogeneous, dense mass with uniform inclusions.

Type III: End-disks with a diameter of about 17–18 cm, a thickness of about 2 cm, and relief decoration on the outer surface (Fig. 1,5). In total, five major types of ornamentation were observed (Fig. 2). On four of them a division of the circle into four equal sectors by relief lines is visible. In the sectors on the diagonal there are ornaments in relief decoration grouped in pairs opposite to each other: "ж" and "х", "ж" and "s", "х" and "х". There are squared impressions with a large convex "knob" in the central part of the disks (Fig. 2,1.4). There are disks without division into sectors, and instead two symmetrically curved S-lines are depicted (Fig. 2,3). On these and other types of disks with a simple ornament (Fig. 2,2) the convex "knob" is not framed by a square impression. Some disks have a ridge along the edge, the others have poorly formed ridges or do not have them at all (Fig. 2,1). In most cases end-disks are found in fragmented form, as separate elements, with a "border" on the inside (Fig. 2,4). In some cases they are attached to the narrow half-cylindrical tiles. And one piece was found with a cut corner. The disks

are mostly of a fairly uniform gray-brown color. The clay is visible in the breakage as a relatively homogeneous, dense mass with uniform inclusions. Some fragments have a whitish covering.

Type IV: The standard size of the flat paving tiles remains unclear (Fig. 1,6), though the thickness is about 3 cm. There is a decoration on the outer surface, also stamped in the form of four sections of parallel relief lines. They are whitish in color.

The Method of Tile Manufacturing

Several ways of manufacturing tiles can be ascertained by the external features. We would like to first consider analogous materials and the manufacturing techniques suggested by previous researchers. L. Kyzlasov (2001) proposed that the broad flattened roof tiles of the Tasheba palace had been made on log models over which the clay pieces were dried, thus obtaining thus their convex-concave shape. The narrow half-cylindrical tiles were made from the form of a tube made on a potter's wheel which were then were cut in two and had a neck attached to each half before firing (Kyzlasov 2001; 2006). The Chinese characters which are depicted on some end-disks were made by using wooden stamps.

The same methods of manufacturing tiles can be seen for the tiles from Terelzhiin Dörvölzhin. However, it is not clear how the wide flattened tiles were separated from the template. By comparing them to medieval ceramic tiles of Mongol period settlements, we can see that the later tiles were made on templates using coarsely woven textile, which left imprints on the inside of the tile when lifting the half-finished product (Kiselev et al. 1965, 89–90).

The narrow, half-cylindrical tiles were made with the same methods as the tiles from Tasheba. First a tube was formed on the potter's wheel, which was cut into two halves. The production on a potter's wheel is clearly indicated by the horizontal thin lines on the inside, as well as on the neck of the narrow tiles.

The broad and narrow tiles were hand-built, as evidenced by the tape joints with a width of about 5 cm, visible on the inside (Fig. 3,1). In fact, the drawing-out of the clay and traces of sticking the band to the "body" is observed on the inner side in the same direction. The neck and the "body" of the narrow half-cylindrical tiles were bonded together during the molding of the inside, while the clay was daubed from the body to the neck. The attaching of the neck usually was done with a palette-knife, and sometimes impressions of fingers in the inner side were left and were not smoothed over (Fig. 3,2). The height of the neck was not clearly fixed, rather it was determined "by eye" and ranges from 6 to 7 cm. We can see traces of vertical cuts on the lateral sides of the tiles; the vertical incisions were notches of attachment pieces. All of these cuts were made on a raw and only partially dried half-finished product. The decoration of the end-disks appears to have been executed by using stamp-models, which also would have been the method for decorating the flat paving tiles. On the basis of the relative homogeneity of the tiles' color, except for some end-disks, we can say that the firing took place in ovens under a controlled temperature.

The Way of Placing Tiles

Based on the similarity to tiles at the Tasheba palace, we can also reconstruct the sequence of tile installation as described by L. Kyzlasov (2001, 69): "On the sloping roof, rows of broad tiles

Fig. 3. Terelzhiin Dörvölzhin. Tiles with details of forming and master artisan signs. 3 not to scale.

were packed from the top to the bottom, which were fastened by iron clamps to beams through the holes left in the clay before baking. They had fallen down on their convex sides, with the upper rows above the lower rows". At the intersection of each broad tile, all of which were placed convex sided up, the narrower end with neck attachment was placed under the edge of the next tile, creating an overlap from one tile to the next. At the end each row of such overlapping broad tiles were fastened by end-disks. This case was recorded for a large collection of roof tiles at the southwestern side of the building. In addition, there were also many fragments of paving tiles, which once again confirms that this area was the front of the building. At Terelzhiin Dörvölzhin, however, just a few forged nails were found and no iron clamps are recorded, but we did discover some narrow half-cylindrical tiles with holes cut in the middle (Fig. 1,4).

The Master Artisan Signs

In the course of analyzing the materials from Tasheba palace, L. Kyzlasov also described "letters" drawn on the raw clay of tiles, which he defined as signs of master artisans. The symbols were drawn on the raw clay before firing. This occurrence is observed not only for the tiles of the building near Abakan (Kyzlasov 2006, 182 Fig. 29) but also for the tiles of Terelzhiin Dörvölzhin. Perhaps these signs can be understood via the same explanation of master artisan signs which used a variant of the tamga style marks (Fig. 3,3.4). Marks found on the bottoms of Xiongnu pottery and on some bone implements at other sites (e.g. Davydova 1995) appear simi-

lar (see also Polos'mak et al., this volume). The trident-like signs which occurred on tiles from Tasheba were also found on bottoms of ceramic vessels from Burkhan Tolgoi cemetery (Törbat 2003, 97 Fig. 8) and ceramic and bone artifacts from Gol Mod 2 necropolis (Miller et al. 2006, 16 Fig. 9,3.4).

Comparison with Xiongnu Pottery

Comparing the roof tiles of Terelzhiin Dörvölzhin with examples of other ceramics, it appears that, in principle, the tiles were made in accordance within the same technological and decorative traditions of the Xiongnu pottery.

The decorative bands on tiles in the form of incised wavy lines, often between two straight lines, is one of the most characteristic features of Xiongnu pottery. For example, the pottery of Transbaikal documented at the Ivolga settlement and cemetery complex (Davydova 1985, 40, Fig. 6, 14) and the necropolis of Il'movaia Pad' (Konovalov 1976, Pl. 24,6), as well as the pottery of the Burkhan Tolgoi cemetery in Mongolia (Törbat 2003a) are all ornamented in this manner.

Also the tradition of line-decorating made by using a ribbed palette-knife on the raw clay was applied on the ceramic tiles (Davydova 1985; Konovalov 1976, 195; Törbat 2003a). But the decoration was carried out less carefully than on the vessels. In contrast to the decoration of the tiles, the decor of the pottery is usually smoother.

Another sign of the similarity of producing ceramic tiles and vessels during the Xiongnu period could be the manner of forming by hand. In his examination of Transbaikal Xiongnu pottery at the sites of Ivolga, Il'movaia Pad', Cheremukhovaia Pad' and Dyrestuiskii Kultuk, P. Konovalov (1976, 195) noted that "vessels were made from strips of clay on a non-rotating potter's wheel". So while there seems to have been a tool for mounting the clay originals, forming was still done by hand. Ts. Törbat came to the same conclusion when analyzing the manufacture of vessels from the Burkhan Tolgoi cemetery, in which he noticed that the method of joining the neck to the body was executed similarly until the last stages of the production (Törbat 2003a).

Conclusion

Summing up, it should be noted that these are preliminary results of analyzing ceramic tiles of the Terelzhiin Dörvölzhin settlement site. Further field and laboratory investigations of the tiles, their location within the building remains, and other specifics will allow for a more thorough reconstruction of the buildings. These details of Terelzhiin Dörvölzhin may be added to knowledge gathered from other Xiongnu settlements as well in order to create a comprehensive understanding of building construction. The building and the settlement to which it belongs are from the flourishing epoch of the Xiongnu empire. Certain borrowed architectural elements, such as floral ornamentation of the end-disks, reflect the close vicinity with Han China. Nevertheless, it is clear that the tiles were made according to the Xiongnu tradition of ceramics production. This tradition is represented by the line and drawn wave-ornament decor as well as the ways of shaping the ceramics.

XIONGNU ARCHAEOLOGY

Bonn Contributions to Asian Archaeology

Volume 5

Edited by

Jan Bemmann

XIONGNU ARCHAEOLOGY

Multidisciplinary Perspectives of the First Steppe Empire in Inner Asia

Edited by
Ursula Brosseder, Bryan K. Miller

2011
Vor- und Frühgeschichtliche Archäologie
Rheinische Friedrich-Wilhelms-Universität Bonn

656 pages, 285 figures, 16 tables

The conference and the publication were generously financed by
Silkroad Foundation
Gerda Henkel Stiftung

Ein Titelsatz ist bei der Deutschen Bibliothek erhältlich
(http://www.ddb.de)

Desktop Publishing and Design: Matthias Weis
Translations: Authors, Emily Schalk, Daniel C. Waugh, Munkh-Ochir Dorjjugder,
Iulia Gavrilova, Ursula Brosseder, Bryan K. Miller
English language editors: Bryan K. Miller, Susanne Reichert, Daniel C. Waugh,
Image editing: Gisela Höhn
Final editing: Ursula Brosseder
Printing and binding:
Freiburger Graphische Betriebe – Freiburg
Printed in Germany

Cover illustration: Nicole Schmitt, idea Jan Bemmann

ISBN 978-3-936490-14-7

Dedicated to our Mongolian Friends on the
2,220th Anniversary of the Founding of the
First Empire on Mongol Territory by the Xiongnu

ADDRESS OF THE AMBASSADOR OF THE FEDERAL REPUBLIC OF GERMANY TO MONGOLIA

Germany is one of the most important partners of Mongolia within the European Union, and this strong relationship is reflected in the impressive vibrant exchanges and cooperation in various fields.

German scholarship is one of the leading forces in Eurasian Archaeology. With the four-day "International Conference on Archaeological Research in Mongolia", initiated and organized by the University of Bonn and the German Archaeological Institute in 2007, for the first time research teams from various countries met and discussed the state of archaeological research in Mongolia. Germany thus demonstrated its prime position of international leadership for promoting scholarly dialogues on archaeological research in Mongolia, and simultaneously furthered understanding of Central Asian history and its pan-continental influence on both East Asian and European history. By 2009, the proceedings of this conference were published in a monumental volume produced by Bonn University and funded by Gerda Henkel Foundation.

The subsequent "International Conference on Xiongnu Archaeology" held in 2008, organized by the University of Bonn and the University of Pennsylvania, focused on the culture and empire of the Xiongnu (or Asian Huns) who are thought by some scholars to be the predecessors of the European Huns. The publication associated with this conference, comprises the latest research in this field, presents directions for future studies, and demonstrates the necessity to revise existing perceptions in favor of more multi-faceted and interdisciplinary views which can relate to investigations in other parts of the world. A substantial portion of this book deals with the interaction of the Xiongnu in a broader Eurasian setting, and aims to bring this region into world-wide discussions of large political entities.

The German Embassy in Mongolia participated in the Xiongnu conference by hosting a reception and a talk by the American political analyst Claudio Cioffi-Revilla from George Mason University, USA. His research, which combines modern political modeling systems and the studies of ancient states, demonstrates a powerful connection between social dynamics of ancient and modern times. These ties between ancient states and modernity have become ever more prominent in present-day politics, as the President of Mongolia, Tsakhia Elbegdorj, has announced the year 2011 as the 2,220 year anniversary of the founding of the first Empire in Eurasia, established by the Xiongnu in the territory of present-day Mongolia in 209 BC. In accordance with prime attention to this anniversary, the Mongolian government has allocated funding to permanent establishments, such as new institutions for cultural studies and heritage preservation, and even the creation of a new, expanded exhibition hall at the National Museum especially for national treasures of the Xiongnu period.

In honor of this anniversary we are proud to present this volume to Mongolia combined with best wishes for the future.

Pius Fischer — Ulaanbaatar, June 2011

CONTENTS

MORTUARY EVIDENCE OF SOCIAL DYNAMICS

INTERREGIONAL INTERACTION

FOREWORD OF THE SERIES' EDITOR

The Xiongnu, who established "the first and most stable nomadic empire the world has ever seen" (Barfield 2001, 23), are not only the focus of the present tome, but, even more so, are held in great esteem in the self-awareness of modern Mongolia. All of the contributors are very pleased to present this book in the year 2011 in commemoration of the foundation of the first steppe empire in Inner Asia by the Xiongnu 2,220 years ago – a celebration announced by the President of Mongolia, Tsakhia Elbegdorj. It is an honor for us that the German Embassy in Ulaanbaatar has chosen this volume as the German cultural contribution to this anniversary celebration.

Like many larger endeavors, this book, too, has its own history. In the beginning, it was the idea of two younger determined scientists to assemble the leading researchers and heads of excavations involved in the field of Xiongnu archaeology at a conference in order to exchange ideas and opinions on this subject. Ursula Brosseder and Bryan K. Miller were able to gain the Silkroad Foundation (California USA) as financial supporters of their plans and the American Center for Mongolian Studies (ACMS) as local organizers of the conference in Ulaanbaatar. Thanks to the exceedingly professional and experienced work of Brian White and Enkhbaatar Demchig of ACMS, the conference on "Xiongnu Archaeology", held on October 16–18, 2008, in Ulaanbaatar, still remains a pleasant memory among the participants. The conference was planned in close and customary friendly cooperation between four institutions: the Institute of Archaeology of the Mongolian Academy of Sciences, the National Museum of Mongolia, the University of Pennsylvania and the University of Bonn. The evening receptions given by the embassies of the Federal Republic of Germany and the United States of America in Mongolia formed a distinguished backdrop, exemplifying the constant support shown by both countries to activities of archaeological researchers in Mongolia.

In general, the entire scope of research activities in a single field usually cannot be circumscribed within one conference alone, and the papers presented at the conference alone clearly would not suffice for a comprehensive work worthy of publication. Therefore, the two organizers of the conference, who are also the editors of this volume, developed the concept for a publication of the conference proceedings which would encourage previous participants to expand their respective contributions and to bring them up to date and which would acquire contributions from additional renowned researchers in this field. The result of this concept is an imposing and weighty (in the two-fold sense of the word) compendium on the archaeology and history of the Xiongnu. Represented in this tome are not only the traditional approaches, but also the most recent results of on-going field research projects and of modern scientific analyses, whose potential for future research should not be underestimated and which now enable initial insights into the spheres of herd management and nutrition.

The fact that hitherto a volume such as this had not appeared led me to include it in our series of publications at Bonn University. Research in this area certainly profits from the fact, that no other epoch in the history of Mongolia been studied archaeologically so well and has been

explored by so many international expeditions and specialists. To demonstrate simply the great international interest in the Xiongnu, let it be noted here that dissertations on the first steppe empire are either on-going or being completed at many universities in the USA, France, Switzerland, Korea, China, Russia, and of course Mongolia.

The publication of this volume was made possible by an additional contribution from the Silkroad Foundation as well as the Gerda Henkel Foundation, both of which have already provided funding for numerous projects on the archaeology of Mongolia. The two editors were responsible for editing and redaction of the volume, assisted by Cornelia Majehrke, Bonn, while Susanne Reichert, Bonn, supported the English language corrections. Image editing was in the experienced hands of Gisela Höhn, Bonn, and Matthias Weis, Bollschweil, managed the typesetting, layout and printing in his usual great competence. The volume was published by the Freiburger Graphische Betriebe.

In conclusion, I extend my sincere thanks to all participants in this endeavor for their industrious work and commitment.

Jan Bemmann April 2011

PREFACE

It is a pleasure to provide some introductory remarks for this pathbreaking volume, just as it was a great honor to have contributed concluding thoughts to the conference on which it was based. As a member of the Silkroad Foundation's Board of Advisers and editor of the Foundation's journal, I am particularly pleased to highlight the role the Foundation has played in supporting excavation of Xiongnu sites in Mongolia and in the publication of their results. The Foundation was a major sponsor of the conference in 2008 in Ulaanbaatar whose papers are being published here along with other solicited contributions on Xiongnu archaeology. Other sponsors of that conference and the current volume are credited elsewhere here; to them I express deep gratitude. Without them, this significant landmark in the advancement of Xiongnu studies could not have been passed.

The following remarks combine ones I made at the conference with my impressions from reading the pre-publication versions of most of the articles in this volume. As with any good scholarly contribution, this volume both looks back and projects ahead. That is, we find here on the one hand engagement with some of the earliest attempts to study the Xiongnu and summaries of excavations, and on the other hand theoretical and methodological perspectives which should help broaden and deepen our understanding of the Xiongnu in the years ahead.

It is clear that one of the challenges of this field of study, as with any involving a broad spectrum of international specialists, is effective communication of results and engagement with the work of others whose languages – both in the sense of the vernacular and in the broader sense of conception and methodology – may not be ones we command. While fields of study evolve and methodologies change, it often takes some time for those changes to be reflected in current practice and analysis. One may not always agree with new approaches, but surely one must actively engage them. It is precisely for this reason that events such as the First International Conference on Xiongnu Archaeology are held and their papers then published. To hold such a conference is a logical outcome of the significant fact that there are so many joint projects in Mongolia involving scholars from the host country working alongside those from many other countries. This process of collaboration has not only resulted in the production of significant new factual knowledge, but perhaps more importantly has served as the means for the sharing of ideas in ways that strengthen the foundations for further advancements in our understanding of the remarkable past of the peoples of Mongolia.

In my remarks at the closing session of the conference in 2008, I offered a few thoughts about what the future of Xiongnu studies might involve. I began with a question:

If we were to meet for a similar conference of Xiongnu specialists in ten or twenty years, what might we hope to see which has changed in Xiongnu archaeology compared to what we know in 2008?

First, what might we hope would have been accomplished in field work? I think one of our priorities should be to extend considerably the good work in field survey and mapping which

is already underway in some of the vast territories once occupied by the Xiongnu. It is clear even from low-resolution surveys that there is a huge number of sites waiting to be identified. Arguably some of them are the ones where we are more likely to find undisturbed remains. There is much we have yet to learn to contextualize individual burials both spatially and chronologically and to learn about a broad cross-section of Xiongnu society, not just those connected with the ruling elite in the central places of the Xiongnu polity.

While this may seem like a heretical thought, one might even argue that prioritizing intensive survey (such as that done in the Khanui valley) over excavation for a time would make sense, especially if it may still be difficult to ensure that excavations are carried out with necessary employment of the most advanced archaeological methods. While we are not in danger of soon exhausting the number of Xiongnu burials that might be excavated, it would be unfortunate if we did not maximize the amount of information which can be obtained from them. As several of the papers below emphasize, one of our highest desiderata is to learn more about the realities of daily life of the Xiongnu – how they interacted with their local environment, exploited resources, etc. Intensive survey has begun to provide interesting insights for the eventual answering of such questions, as now increasingly do some of the new analytical techniques for studying such artifacts as faunal remains.

In the field, we certainly might hope in ten or twenty years to have learned a lot more about Xiongnu settlement sites (for a broad, if not deep survey of settlement archaeology in Mongolia, see Waugh 2010). To date, few are known, and few have been systematically investigated. One of the most promising new developments has been to develop methodologies for identifying small "open-air campsites" (see Houle/Broderick, this volume), in contrast to the arguably much rarer walled enclosures such as Ivolga or the yet-to-be-studied Khermen (Tamir 2) – if indeed it is a Xiongnu site. The latter is huge, and to begin to learn from it would require a major commitment of resources (see Purcell/Spurr 2006). I think if I had to make the choice between excavating yet another square-ramped tomb, with the virtual guarantee of finding interesting artifacts, or undertaking a multi-year project (assuming it could be funded) at a settlement site where there is greater uncertainty as to what might be discovered, I would opt for the latter project.

The second thing I would hope we might see in the next decades is the training of additional cadres of highly skilled archaeologists and the provision of the means for their employment in the field. In particular, it seems to me that it is essential to focus on such training here in Mongolia and in the other areas where the Xiongnu material is to be found. Obviously a lot has been accomplished, where successful international collaborations have had as one very important result the sharing of ideas and new methodologies. Yet, as we know, funding for such ventures is always uncertain, and none of us would suggest it is by any means sufficient to support all that we would wish to see done. I have to wonder whether there might not be greater coordination across the range of expeditions undertaken every year in order to achieve the greatest result from limited resources.

One important contribution to the process of ensuring the highest quality of the work would be to try to enhance the technical capacity of the laboratories in which the analysis of finds should best take place. To date, as I understand it, material has often been sent out of Mongolia or Buriatiia for analysis in Novosibirsk, St. Petersburg, Paris, Seoul, or Bonn. A concerted effort to obtain funding for new equipment and the training of those to operate it might obviate the necessity of doing the analysis elsewhere. To have the resources available locally might ensure that certain kinds of analysis be done routinely, rather than be abandoned for want of the capacity to carry them out.

Another desideratum worth mentioning here concerns conservation. As recent experience has shown, e.g., in the Mongolian-American Khovd Project, having a highly trained conservator in the field, properly equipped, can make a huge difference. I have to imagine that such individuals are not only relatively few, but that obtaining their services to work at Xiongnu sites may be difficult. Presumably there is a great deal that might be done to train conservators and to improve the techniques which might be specific to the preservation of Xiongnu material. We should want to arrive at a point where the conservators would be from the host country, and not have to be lured from the outside.

The third area I would emphasize is cooperation and the sharing of information. One of the goals of our conference has been to lay the basis for greater cooperation and sharing for the future. I should note that, despite the numerous felicitous examples to the contrary, not only in Xiongnu archaeology but also in many other fields of scholarly endeavor, what is sometimes noteworthy, alas, is not the degree of cooperation amongst the experts, but rather rivalry and lack of cooperation.

We badly need a clearing house for sharing our results and making them readily available as quickly as possible. There are various projects underway for at least certain areas of Eurasian archaeology which might provide the framework for a Xiongnu-specific clearing house (see the reports published in The Silk Road 2,2, 2004). Whether this will have been realized in a decade or two is a good question, but eventually there probably will be an electronic database that will connect much of Eurasian archaeology (both past and ongoing work) through the Internet. While we should want to coordinate with such undertakings in order to adopt compatible standards, there is no reason why a Xiongnu database should not be undertaken sooner. This would require though agreement on common standards for recording and processing information and then trying to ensure that individual projects conformed to those standards.

Once that has been done, it would be possible to post excavation reports in some kind of standard format. We are well aware of the substantial delays which historically have plagued the publication of archaeological reports – indeed some of the most interesting results from excavations long ago in Mongolia have never been published, and there are numerous unanswered questions about what exactly was discovered and what the archaeological context was. The digital age now provides us with the means to get the information out in timely fashion, without incurring the kind of financial outlays which publication of archaeological reports in hard copy tends to involve. In addition, the clearing house would involve retrospective digitizing of earlier work in the field, the translation of reports so that they would be available in at least two or three major scholarly languages, the creation of a forum for ongoing discussion, a Xiongnu blog, if you wish, and presumably much more. There really needs to be an ongoing bibliography of Xiongnu studies. Since so often relevant material is published in editions that are almost impossible to obtain or are in languages not all of us read, something needs to be done to facilitate access.

What we might be aiming for here is a project that perhaps could be christened the IXP, the International Xiongnu Project, analogous to the International Dunhuang Project, based at the British Library (http://idp.bl.uk), which has already achieved so much for Dunhuang studies. Now, such an undertaking requires commitment, personnel and money. I do not have a magic solution for obtaining any of those, but Xiongnu specialists surely could start engaging in conversations about how to meet these challenges.

In conclusion, I must reiterate my optimism that the Xiongnu conference in 2008 and this volume of its papers will have a significant impact on Xiongnu studies in the future and not

result merely in a one-time exchange of ideas. I would hope that, were I around to see it in a decade or two, the field of Xiongnu archaeology would have been so transformed that it might, from my perspective of 2008 to 2010, almost seem like a foreign country.

Daniel C. Waugh December 2010

BELT PLAQUES AS AN INDICATOR OF EAST-WEST RELATIONS IN THE EURASIAN STEPPE AT THE TURN OF THE MILLENNIA

Ursula Brosseder

Introduction

For many inhabitants of the steppe such as the Xiongnu[1], Turkic peoples and Avars[2], but not them alone[3], the belt was an important component of dress. In general, belts did not denote a specific ethnic identity (Pohl 1998, 40 pp.; 50 p.), but were rather a component of a "social language" and a sign of individual status[4]. The meaning of belts can differ greatly among peoples: as the heart of power, a sign of rank, the sign of adulthood, a spiritual status symbol, and many more (Pohl 2002, 184; Schopphoff 2009).

Recently C. Kost convincingly reviewed the Chinese terms "xibi", "xubi", "shibi" and "sibi" used in the written records for belts in association with northern barbarians[5]. Since all these words sound similar, in her opinion it is not unlikely that they are a phonetic circumscription of a foreign loanword. Kost also shows that the word "xianbei" can designate a belt, which raises the question if the Xianbei are named after their belts or vice versa. In sum she demonstrates that belts which are associated with "northern barbarians" have a specific terminology that distinguishes those belts from the Chinese ones. Moreover the occasions of mentioning the belts indicate their important function: the emperor sent those belts to the barbarians or gave them as a gift to high ranking officers (Kost 2010).

1 In the following article the term "Xiongnu" is used mainly as an aid in communicating. In the scientific literature a general consensus seems to prevail to denote the archaeological materials of the Later Iron Age between Lake Baikal and parts of northern China with the term "Xiongnu" (see also Pan, this volume). In Russian and Mongolian literature the term "Khunnu" or "Khünnü" is used. Generally it has to be stated that the archaeological cultures or cultural groups in the area outlined are not yet defined, and therefore in terms of a strict methodology it is not adequate to uncritically transfer a name from the written records, which, moreover refers only generally to the areas north of the Great Wall rather than to a specific set of known territories. Since it is not the aim of this contribution to solve this problem, I will accommodate with the term "Xiongnu period" that pertains to the areas of southern Russia, Mongolia, and parts of northern China.

2 Turkic and Avar people share their preference for multipart belt sets; for the Turkic period in Mongolia see especially stone statues with depictions of multipart belt sets.

3 Belts repeatedly play an important role in the early- and proper medieval period in Europe; cf. Schopphoff 2009. At various times and in various cultures belts were associated with prestige and status as well as masculinity and strength. Cf. for example Runde 1999; Werner 1974; Daim in Pohl/Reimitz 1998, 86; 90. – But they are also known to be of importance to women as can be seen in the Songs of the Nibelungs ("Nibelungenlied") and the importance of the belt for Brünhild.

4 Pohl 1999, 127; 135–136. In this respect it is interesting to note that the Turkic loanword "kur" in the Hungarian language designates belt and rank at the same time; see A. Róna-Tas/Á. Berta/L. Károly, West Old Turkic. Turkic Loanwords in Hungarian. Part 1: Introduction, A–K (Wiesbaden 2011) 567–570, s. v. kor.

5 See in more detail Kost 2010.

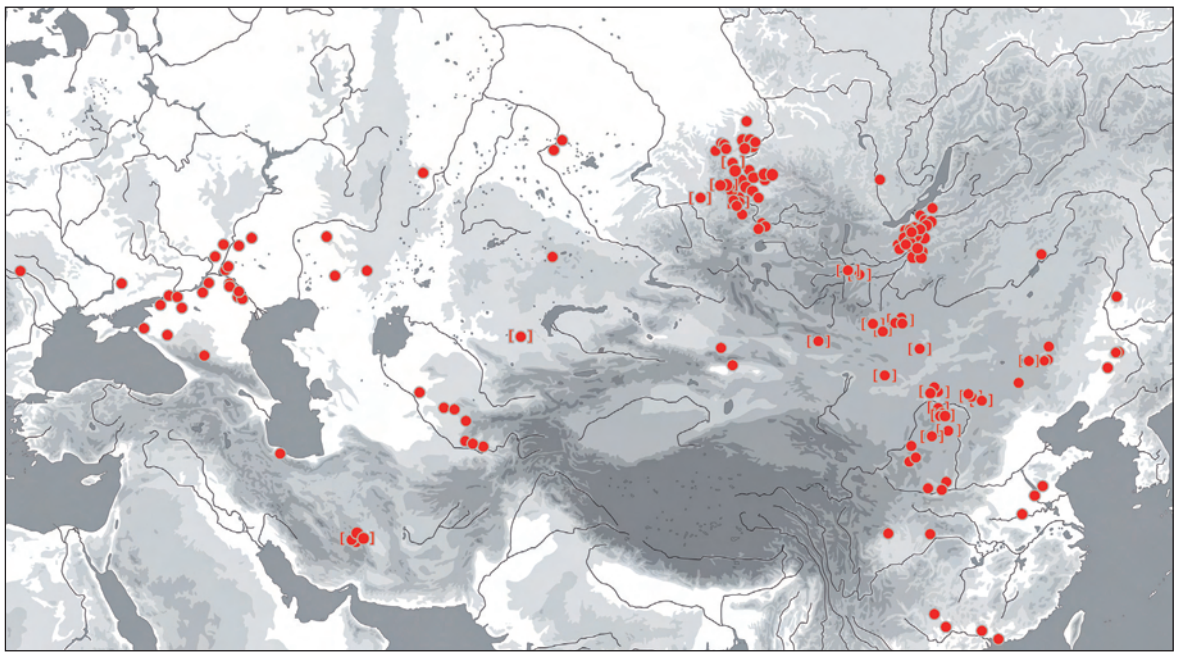


Fig. 1. Draft of an overall distribution map of belt plaques and ostentatious belts from the 2nd century BC to the 1st century AD (credits see lists 1–9 and Sun 1994).

In the "Secret History of the Mongols", one of the few own written sources of these steppe peoples, the significance of the belt for the Mongols is reflected in two incidents:

When Temujin renewed the bond of friendship with Dshamukha, he presented his friend with, among other things, a golden belt (Haenisch 1948, 30; Secret History, ch. 3). On a second occasion, as a sign of his disfavor, Temujin ordered Kasar to be bound, and he took Kasar's cap and belt. When Hoelun entered the camp, Temujin trembled with fear before her. Enraged she descended from her wagon, freed Kasar from his chains and returned his head covering and belt to him (Haenisch 1948, 115; Secret History, ch. 10).

Archaeologically we trace belt plaques in better furnished graves as well as in ostentatious burials between the 2nd century BC and the 1st century AD across Eurasia, from China in the east to the Black Sea in the west as visible on a draft of a distribution map (Fig. 1)[6].

Although there were richly furnished graves that contained belt plaques in centuries before and after that time, this phenomenon then was spatially more limited. The widespread tradition, discernible within a rather narrow time span of demonstrating status and prestige through the wearing of a belt that is indeed fascinating and demonstrates the openness of the Eurasian steppes and the "steppe highway" and has been the subject of studies before (e.g. Ghirshman 1979, 175 p.; Takahama 2002; 2009).

6 Concerned here in archaeological terms are groups of finds of the late Iron Age in Siberia (cf. Parzinger 2006, 711), often described in Russian works as of the "Hunno-Sarmatian" period (e.g. Stepnaia Polosa 1992). In China it is the time of the Qin and above all the Han dynasties.

Because of the meaning of belt plaques for their bearers and the respective communities as well as their broad distribution, they offer an excellent test case to gain insight into the social dynamics of the communities and the processes of interaction among the elite[7].

Approaches to the Interpretation of Foreign Finds and Features in Contexts

In reviewing the written records and the archaeological data at hand, W. Honeychurch asks how earlier exchange prefigured the commercial Silk Roads of the 1st millennium AD. Honeychurch proposes that the patterning he observes for western objects in Xiongnu contexts, fits best a "model of non-local prestige goods used in support of indigeneous politics" [8].

The dissemination of objects over a vast area can have various reasons. H. Steuer (1992), under the title "Object migration as a source of communication", presented a compilation of those possibilities. Objects of daily life and of luxury can arrive in places other than their origin through the exchange and trade of goods, as war booty and plunder of robbery, as contribution or charge, or as the personal possession of travellers, pilgrims or migrants. They can also be transported as ideas: for example, as a method of production in the mind of a craftsman and then produced in a new locality and ultimately imitated according to already transported patterns (Steuer 1992, 401 p.). Concerned here are not only the objects, but also the spread of innovations, forms of houses and technology. The adaptation of similar traits in lifestyle and in behavior is a reaction to a prototype and is likewise an expression of communication. To illustrate this point: in medieval Europe, for example, enamelled glass reflects not only communication resulting from trade relations, but also communication within society, when a person wished to express his rank and economic affluence by using these drinking vessels as a sign of elevated social standing (Steuer 1992, 404).

S. Hansen brings us one step further by pointing out some aspects of exchange mechanisms using the example of Late Bronze Age prestigious goods[9]. He observed that the furnishing of graves and hoards of the social elite is determined by trans-regional norms. Thus, it is unlikely that such objects are trade goods, but similar ideas of depositions across large areas can be explained, according to Hansen, by a dense communication network. Carriers of such a network can only be the social elites, because they determine the "correct" use of prestigious goods in ritual contexts. Generally, the exchange of women or of goods, for example as gifts, is a medium of creating bonds and has an economic component since exchange of goods may not be confused with innocent gifting. Naturally such contacts also serve the establishment of trade contacts. D. Quast (2009) observed similar mechanisms for the early medieval periods and illustrated the interlocking nature of various forms of exchange (Fig. 2).

7 Belt plaques have been investigated in many studies following different lines of inquiry, especially with regard to animal style decoration. Cf. for example Davydova 1971; Devlet 1980; Miniaev 1995; Bunker 1997a; Bogdanov 2006. However, far fewer works constitute trans-regional studies that also include finds in the west. One exception is the short study by Takahama 2002. On the history of the belt and belt plaques in China, see So/Bunker 1995, 77 pp.; So 1997, 70 pp.; Lu/Shan 2007; Kost 2010.

8 W. Honeychurch, From Steppe Roads to Silk Roads: Inner Asian Nomads and Early Interregional Exchange. In: R. Amitai/M. Biran (eds.), Eurasian Nomads as Agents of Cultural change (Honolulu, in print).

9 S. Hansen, Aspekte des Gabentausches und Handels währen der Urnenfelderzeit in Mittel- und Nordeuropa im Lichte der Fundüberlieferung. In: B. Hänsel (ed.), Handel, Tausch und Verkehr im bronze- und früheisenzeitlichen Südosteuropa. Südosteuropa-Schriften 17 (München, Berlin 1995) 67–80; esp. 78–79.

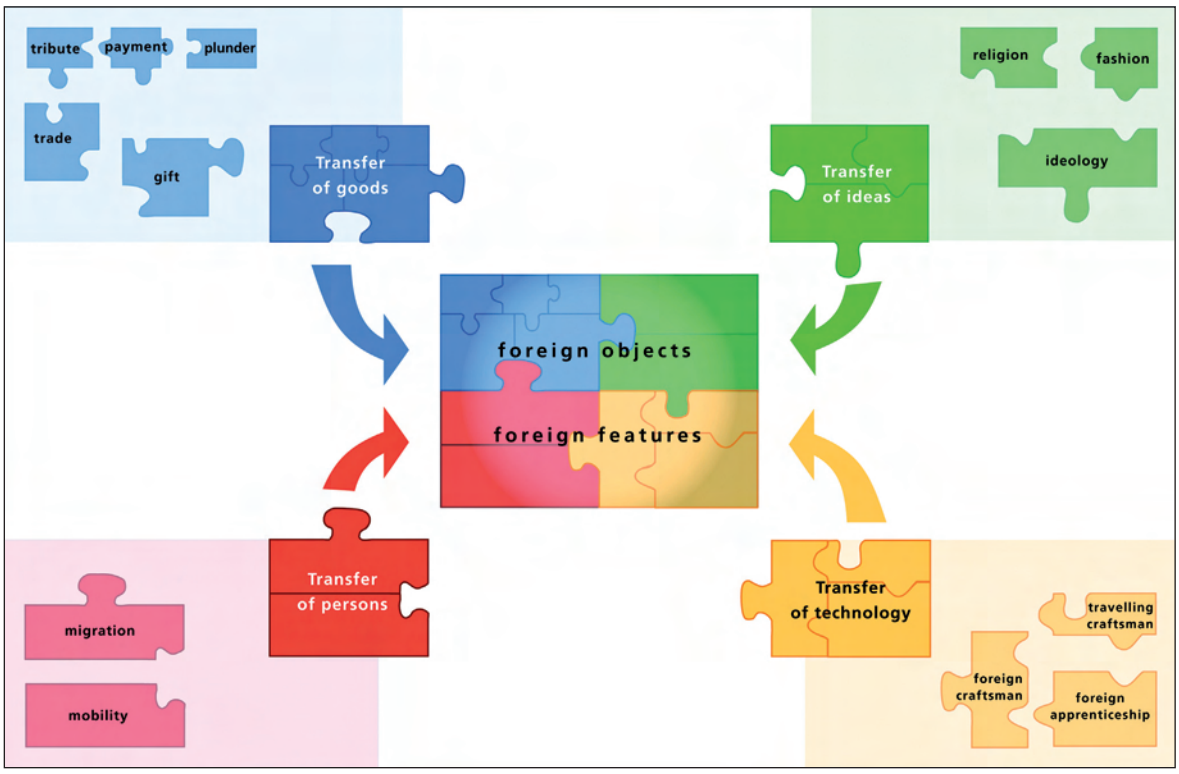


Fig. 2. Possible ways of interpreting foreign finds and features (after Quast 2009, 22 Fig. 16).

He summarizes that in the case of the princely burials of the Late Roman Iron Age in eastern and northern Europe – despite regional differences – the elite burials show marked similarities regarding imported Roman glass and bronze vessels which indicate standardised offerings of drinking ware, tableware and washbasin sets (Quast 2009, 3). "Overall, the burials of the Late Roman Iron Age elites [of Eastern and Northern Europe] do, indeed, display closer links to each other than to their regional surrounding. This is particularly so in the case of the prestigious objects. The costume elements were more strongly rooted in their regional sphere. … The members of the different elites, at any rate employing comparable status symbols, would have regarded each other as equal-ranked, and expressed this by exchanges of gifts and by marriages amongst each other. The burials of the elites offer proof of comparable systems of values, which, in contrast to trade, reflect intellectual exchange and which eventually established a supra-regional ideology of power. There is no need for direct contact amongst all participants, as regions of communication could be created through chain communication (i.e. neighbour-to-neighbour contact)" (Quast 2009, 3–5). In sum, elite communication can be identified when wide-ranging relations are reflected in the homogeneity of status symbols and the use of exclusive goldsmith techniques, while funerary practices, elements of the dress, and pottery remain local. In contrast to this kind of communication, Quast finds, secondly, migration characterized – regarding graves – by conformity in terms of specific mortuary customs and grave goods as well as costume styles and accessories in regions far apart (Quast 2009, 15). The third category, concerning mobility and trade, he sees indicated by foreign objects which generally exhibit a wide-ranging distribution, but which emerge mostly only in burials as foreign details. Funerary rites and grave-goods remain in conformance to local culture" (Quast 2009, 21). To distinguish trade from mobility is in his view particularly a matter

of quantitative difference: "whereas trade was responsible for mostly wide-ranging distributions and a cumulative occurrence of finds, mobility was responsible merely for isolated foreign finds" (Quast 2009, 17). Naturally, one cannot always assign foreign finds to one of those three possibilities of exchange as there are many more variants, as illustrated in Fig. 2.

In the following I shall use belt plaques as a case study in order to gain insight into the dynamics of exchange across the Eurasian steppes and see which pieces of the jigsaw puzzle can be identified and if they are applicable even for such a vast space.

The State of Source Materials and their Publication

The distribution map (Fig. 1) shows distinct concentrations of belt plaques in several geographic regions, concerning which a brief overview of the present state of available source material will be presented in the following. The state of publications and sources in northern China, the Ordos region and the provinces Liaoning and Jilin, is sparse, for although a large number of belt plaques is known, they often derive from the art market and, thus, their origin and context are unknown[10]. Moreover pieces from modern excavations are frequently not published with their complete context, thereby greatly reducing the possibilities for interpretation. The most important site for the investigation of belt plaques of the western Han period in the Ordos region remains the necropolis at Daodunzi, which was published summarily and provides insight into the burying community there[11].

The second region displaying a distinct concentration of belt plaques is Transbaikalia. There in the eastern area under study, we find the most closed find contexts since two cemeteries, Ivolga and Dyrestui, were excavated and published in their entirety (Davydova 1996; Miniaev 1998).

Farther west in the Minusinsk Basin the state of source material and publications is not very yielding. Although the compilation of the numerous belt plaques by M. Devlet (1980) points to their wide distribution, almost all of the belt plaques derive from older excavations and are presented without any grave contexts or find associations.

In southern Uzbekistan and Tajikistan a fairly good number of grave contexts brought to light during Soviet excavations have been published, so that here the basis of information is supportive (e.g. Mandel'shtam 1975; Litvinskii 1973). The situation is quite the opposite in Iran, where only one belt plaque documented together with its grave context is available (Sono/Fuksai 1968). For the majority of belt plaques that are in collections, for example, the Foroughi Collection, it is assumed that the objects stem from the region around Kerman but their grave contexts remain unknown (Ghirshman 1979).

The greatest number of publications on grave contexts containing belt plaques concern those objects found in the Volga-Don-area, the foreland of the northern Caucasus and the northern Black Sea area. Nevertheless, there too rich graves inventories were often published in compar-

10 An approximate origin can be deduced for only those pieces preserved in collections of the early 20th century, for example, the Mayer, Carter, Smith and Loo Collections formed in the 1920s, and the first three were connected with Franz August Larson (see T. Kawami in Bunker 1997a, 99 pp.). These examples are designated with a signature in parentheses on distribution maps, which should aid in distinguishing them from the collection objects that are not mapped, which derive from later collections presented only in lists.

11 Ningxia et al. 1988; for the publication of the 32 graves the material is classified according to types and listed in tables, so that the inventory of each grave can be reconstructed. However, due to this manner of publication, the typology of objects as well as information about their position in the grave are unknown and cannot be checked.

ably short preliminary reports or only in exhibition catalogues in order to relay an impression of their beauty, whereas detailed and crucial information is seldom supplied[12].

One problem for the investigation of belt plaques is the basis for relative and absolute chronology of the Eurasian steppe during the time span under study here. In view of the many and different traditions in research and the vast size of this area alone, a fine relative chronology for the various respective areas, which would link them by means of find complexes to time horizons, cannot be expected. This deficit cannot be recompensed in the following study. Therefore, reference will be made to existing studies, for example, the work of H. Parzinger (2006), in which find groups of the late Iron Age in the Eurasian steppe are linked to one another and correlated with neighboring regions. For Sarmatian graves in the northern Black Sea area reference is made to dates given in the pertinent literature. As a correction, here, the complexes to be addressed are compared with one another and their finds are correlated in order to combine them in one time horizon. However, finer chronological differences between distant areas cannot be solved within the framework of this study. Nonetheless, taking this background into account, the following study on belt plaques of the Eurasian steppe during the late 2nd and 1st century BC to the 1st century AD should enable useful insight into the communication processes of the elite at that time.

The Archaeological Material

History of Belt Plaques

The history of belt assemblages can be traced solely on the basis of documented archaeological sources and is restricted by the fact that only metal components of the belt can be assessed[13]. Viewing the history of belt assemblages of the first millennium BC in Asia against this background, it is notable that belts adorned with small bronze plates already appear at that time almost contemporaneously in western[14] and eastern Asia. Maoqinggou, one of the few cemeteries in Inner Mongolia of that time period which is excavated to a large extent and fully published allows for insight into the history of belt assemblages. Besides smaller plaques on belts found in some 75% of the graves[15], large rectangular plaques, some decorated with the animal style, were present in later phases of the 5th–3rd century BC (Maoqinggou 1992, 28 pp.), albeit in only six of the

12 Cf. for example the grave at Dachi: Gabuev 2005, 16 p. 3–9; L'or 2001, 203 pp.; Bespalyi 1992.

13 For the importance of belts in the early Iron Age in Inner Asia see for example the depictions of belts on deer stones (Pierres à cerfs 2011; Törbat et al. 2011). For the late Iron Age the exceptional preservation of organic materials from the Pazyryk culture shows that belt pieces from organic material can be elaborate but only preserve under exceptional conditions.

14 So 1997, 70; Moorey 1967. These belt appliqués are characteristic for the Tasmola culture of the older Iron Age in Central Kazakhstan (Vishnevskaia 1992, Pl. 53,2.14.15; Parzinger 2006, 649 pp.) and also for the Bobrovskii phase in the southeastern Ural forelands (Tairov 2004; Parzinger 2006, 552 pp. Fig. 179,25–28). According to the present state of research, this kind of belt ornament appears there somewhat later than in the eastern Eurasian steppe zone (cf. Tairov 2004, 144).

15 Most belt plaques were found in the graves of males; however, they can appear occasionally in some graves of females. J. So (1997, 70) explains this disparity as a sign that the women with belt plaques were either warriors or that richly ornamented belts had significance outside the sphere of warriors as well.

22 graves attributed to this time period[16]. This indicates that large belt plaques were reserved for use by certain members of the burying community (cf. So 1997, 72; So/Bunker 1995, 81). There are numerous belt plaques made of bronze, some examples gilded or made of gold, known in China from the time of the Warring States (475–221 BC)[17]. The purpose of the elaborately decorated belt plaques to demonstrate status is unmistakable in the unusually richly furnished grave of Aluchaideng in Inner Mongolia (Tian/Guo 1980a). This attitude is likewise apparent in Kazakhstan in the 4th century BC, in the large kurgan at Issyk (Akishev 1978, Pl. 19–21) as well as in the Pazyryk culture (4th–3rd century BC). There belt plaques were made out of wood (see fn. 13) and are mostly found in the graves of males[18]. Some examples were decorated with colors or a sheath of metal foil, leading to the impression of polychrome, especially when the wooden belt was made in openwork and the underlying belt showed through[19]. In the second kurgan at Pazyryk, for example, a leather belt was preserved, displaying ornamentation of rectangular plaques of silver sheet with animal style decoration and gold sheet appliqués (Rudenko 1953, Pl. 27,1; 1970, Pl. 67A; Polos'mak/Barkova 2005, 48 Fig. 2,22g). As this belt was additionally stitched with catgut and covered with strips of tin foil, it has the appearance of cloth (Rudenko 1970, 98–99). As a rule, those rectangular belt plaques are considered as the "Xiongnu type" and interpreted as copies of bronze belt plaques found in the Ordos region and in Transbaikalia[20].

This summarising overview implies that large belt plaques were an acknowledged grave gift in the 4th to 3rd centuries BC in the region between northern China and Kazakhstan and it shows that the upper elite had unique belts.

Discussion of Belt Plaques

The First Incident of Contacts – Xuzhou Type

One of the oldest incidents of communication displayed by belt plaques is indicated by the Xuzhou type (Fig. 3; list 1). On these rectangular plaques there are two beasts of prey depicted, which tear apart a horned hoofed animal[21]. These belt plaques in collections and from the cemetery of Pokrovka 2, are mostly cast in bronze and, as a rule, the front (viewing) side is gilded, while those from the royal grave of Chu in Xuzhou, China, are entirely of gold and the craftsmanship of the highest quality (Fig. 4). Engraved on their reverse side are Chinese characters, which inform about their weight and evidence that these belt plaques were produced in China

16 Belt plaques with animal style decoration: Maoqinggou 1992, Pl. 5,12.13: grave 5; Pl. 26,11: grave 55; Pl. 37,5: grave 74. Iron belt plaques: Maoqinggou 1992, Pl. 16,2: grave 27; Pl. 18,4: grave 31; Pl. 19,2: grave 38.

17 Cf. Lu/Shan 2007, with an overview of the history of research.

18 Cf. Polos'mak 2001, 165: aside from one exception, concerned here is the belt in grave 1 of a woman in Ak-Alakha 1.

19 Cf. Tishkin, this volume. For example, belt plaques made of wood are known from Ulandryk (Kubarev 1987, Pl. 8,7; 16,6; 28,20; 53,5; 70,10), Ak-Alakha 1 (Polos'mak 1994, 38 Fig. 32,1) and Olon-Güüriin-Gol, kurgan 1 (Parzinger et al. 2009, 213 Fig. 17).

20 Kubarev 1987, 67–79; Polos'mak 2001, 165. Although a general similarity of belt plaques with those in Transbaikalia exists, the reference here to bronze plaques with openwork from that area is not convincing, with regard to chronology and both the motifs as well as the decorative style.

21 In the catalogue "Gold und Jade" (2007) the hoofed animal is addressed as a horse, whereby it actually has cloven-hooves. The combination of the body of a horse, cloven hooves and antlers, which end in raptor heads, clearly shows that the intention here was not to depict a real animal (cf. Bunker et al. 2002, 101; So/Bunker 1995, 144).

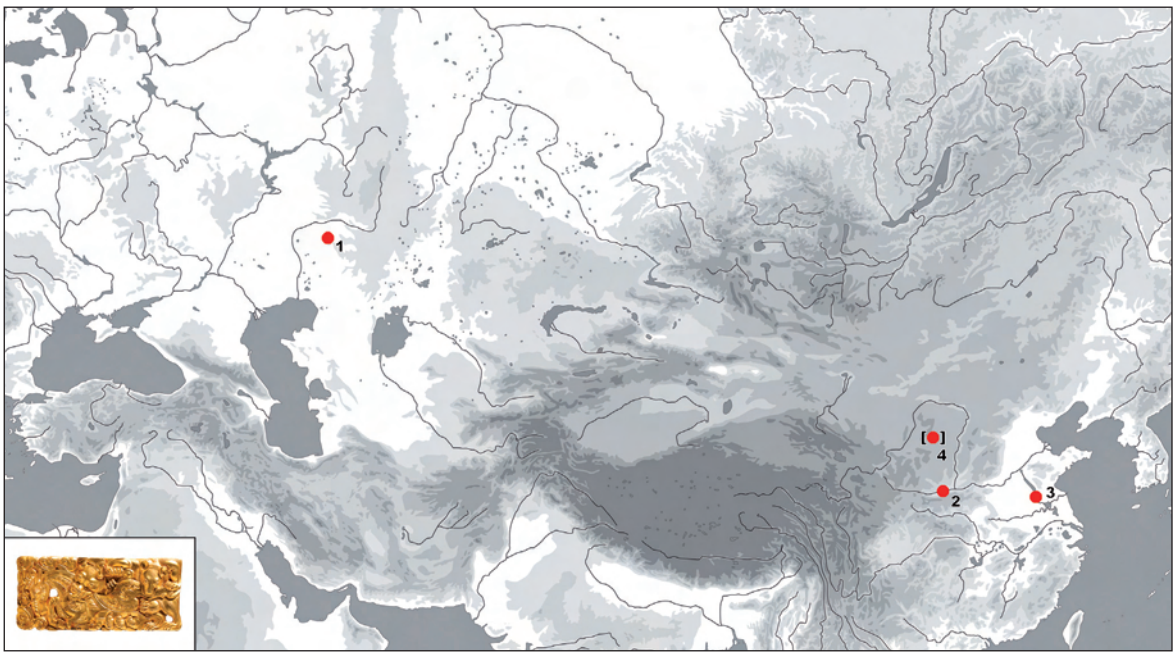


Fig. 3. Distribution map of Xuzhou type belt plaques (credits list 1).

itself (Gold und Jade 2007, 60). The grave context itself supplies a clue to its chronological position, as King Liu Wu reigned from 174 BC until his death in 154 BC (Gold und Jade 2007, 31 p.); thus, there is a *terminus ante quem* for the belt plaque[22]. It is astonishing that such a belt plaque was found in the southern Ural mountains, in Pokrovka 2, kurgan 17, grave 2 (Fig. 5)[23]. It had been deposited with the deceased, who was buried in a rectangular grave pit, in supine position with the head towards the south. The plaque lay next to the left elbow of the deceased together with arrowheads and the remains of a quiver, which led L. Iablonskii to assume the plaque as having belonged to the quiver[24]. Bunker maintains that the plaque found in Pokrovka arrived there either in the process of trade-and-exchange or as loot (So/Bunker 1995, 144; Bunker et al. 2002, 101).

It is noteworthy that such belt plaques decorated in the animal style – a symbolic sign borrowed from the nomads – were deposited even in graves of kings of the Han Empire, who were not even in the geographic vicinity of the steppe people (see below discussion 381 pp.).

22 Likewise in favor of the older date, in comparison with other openwork bronze belt plaques, are drawings visible on parts of the animal's body, as found on Chinese belt plaques of the 3rd and 2nd centuries BC (for example So/Bunker 1995, 145 no. 66; Bunker et al. 2002, 107 Fig. 76), and also in the Pazyryk culture (Rudenko 1953, Pl. 27,1).

23 The drawing of the belt buckle is not particularly good, yet at least recognisable enough to ascribe the plaque to this type. Evidently there are some disparities in the publication concerning the ascription of the finds: in the catalogue text Iablonskii assigns the buckle to grave 2 of kurgan 17 in the cemetery Pokrovka 2 (Iablonskii et al. 1994, 41) while on the illustration the belt plaque is shown amidst the finds from grave 1 (Iablonskii et al. 1994, 159 Fig. 81,13). In addition, there is a mistake in the caption for finds from grave 2: one artifact is ascribed to the cemetery Pokrovka 1 (Iablonskii et al. 1994, 163 Fig. 85; cf. also So/Bunker 1995, 144 fn. 2). The information provided in the catalogue forms the basis for the present study.

24 Iablonskii et al. 1994, 41 p. However, this interpretation is not very convincing. Namely, in Transbaikalia belt plaques were found in two different places next to the deceased: either parts of the belt were in the area of the hips (for example, in Ivolga, grave 100: Davydova 1995, Pl. 28,1; in Dyrestui, grave 102: Miniaev 1998, Pl. 83A; grave 114: Miniaev 1998, Pl. 97B), or at the side of the deceased (for example Dyrestui, grave 108: Miniaev 1998, Pl. 90B; grave 107: Miniaev 1998, Pl. 87).

Fig. 4. Xuzhou, China. Plaque of king Liu Wu (after Gold und Jade 2007, 114 p. Fig. 60).

Direct Connections – Bone or Stone Belt Plaques with Linear Geometric Ornamentation

While the Xuzhou type is only attested once at a far distance from its place of origin, one can see ties between southern Siberia, northern Mongolia, Central Asia and the Volga-Don area by belt plaques displaying linear geometric rhombic ornamentation (Fig. 6)[25]. Most of those plaques are made of bone or jet, and the decoration on some is inlaid with turquoise, coral or mother-of-pearl (Bunker 1997a, 268 Fig. 235; Davydova/Miniaev 2003, Pl. 96,7). In Transbaikalia, where most representatives of this type are known, they are evidenced in both graves and settlements (list 4). Moreover, these plaques appear in Mongolia, in Central Asia[26], farther west in the Volga-Don area and even in the northern Caucasus foreland. Such plaques with rhombic ornament are not known in the Ordos region or in northern China[27]. As these belt plaques seem to have

25 This ornament can also appear in an abbreviated cruciform way, as for example in the settlement Piterka (Liakhov/Mordvintseva 2000, 104 Fig. 2,2). We have to thank S. Takahama (2002) to thank for the initial compilation of non-metal belt plaques.

26 For example, in Kampyrtepe (Ilyasov/Rusanov 1997/1998, Pl. 6,4) and in the cemetery at Zhaman-Togai, K. 21 (Maksimova et al. 1968, 186 Fig. 5), in which were found also a sword, a dagger and diverse iron three-winged arrowheads in addition to pottery. The authors compare many of the finds with those in Transbaikalia and Mongolia (Maksimova et al. 1968, 182 pp.).

27 There, only two plaques without any decoration, one made of stone and one of bone are known in Daodunzi, Ordos region (Ningxia et al. 1988, 350 p. Fig. 14,3.4; 15,5), to which one comparable piece in Dyestui can be added (Miniaev 1998, Pl. 36,2). Further, a three-part belt made of wood is known from grave 8 in Tevsh Uul, Mongolia (Tseveendorzh 1985, 56 Fig. 3,16). Another plain belt plaque is known from Tsagan-Khuskun II, north of Lake Baikal, which in view of its form, although it is made of bronze, can be seen as a direct analogy for the undecorated bone plaques. – Another plaque, with horse depiction, is known from Tuz-Gyr, kurgan 19 in Uzbekistan (Ilyasov/Rusanov 1997/1998, Pl. 6,3; Trudnovskaia 1979, 106 Fig. 4,39); this plaque is the only female burial known with such a belt plaque from Central Asia. – Bunker (1997a, 268) compares the belt plaques inlaid with agate with those in China and the Minusinsk Basin that are cast in bronze and whose rhombic pattern is in openwork and assigns them to the late Xiongnu. Because of the wholly dissimilar technical production and looks I hesitate to compare those two groups.

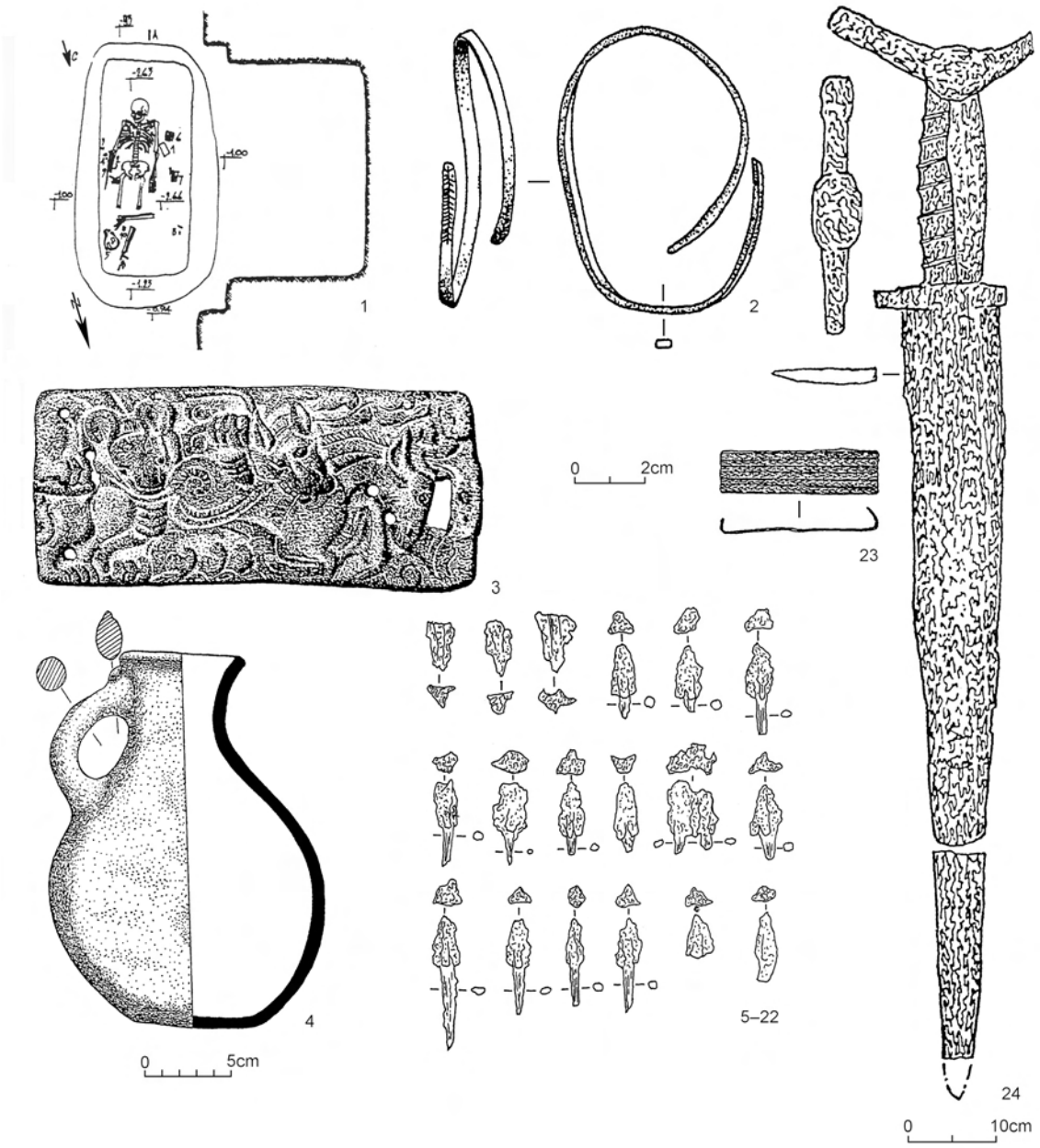


Fig. 5. Pokrovka 2, Russian Federation, kurgan 17, grave 1 (after Iablonskii et al. 1994, 134 Fig. 55; 159 Fig. 81,13; 162 Fig. 84).

been easier to produce, in contrast to those with animal style decoration, the question arises as to what kind of social environment they were found in. When observing the furnishings in the graves, it is quite conspicuous that the burials of females in Transbaikalia (list 4, no. 2; 4; 7) that contained belt plaques with rhombic décor did not count among the graves whose inventory could be regarded as rich or elaborate, as grave 52 might indicate (Fig. 7). This is just the opposite in the case of grave inventories with animal style belt plaque decoration (e.g. Fig. 21–22). The same pertains to the grave in Kaly in the Minusinsk Basin, in which only a few beads were found in addition to the belt plaque (Fig. 8). This is contrasted by the burial of a male in grave 123 in Dyrestui (Fig. 9): still discovered in the already looted grave were the fragment of a sword, parts

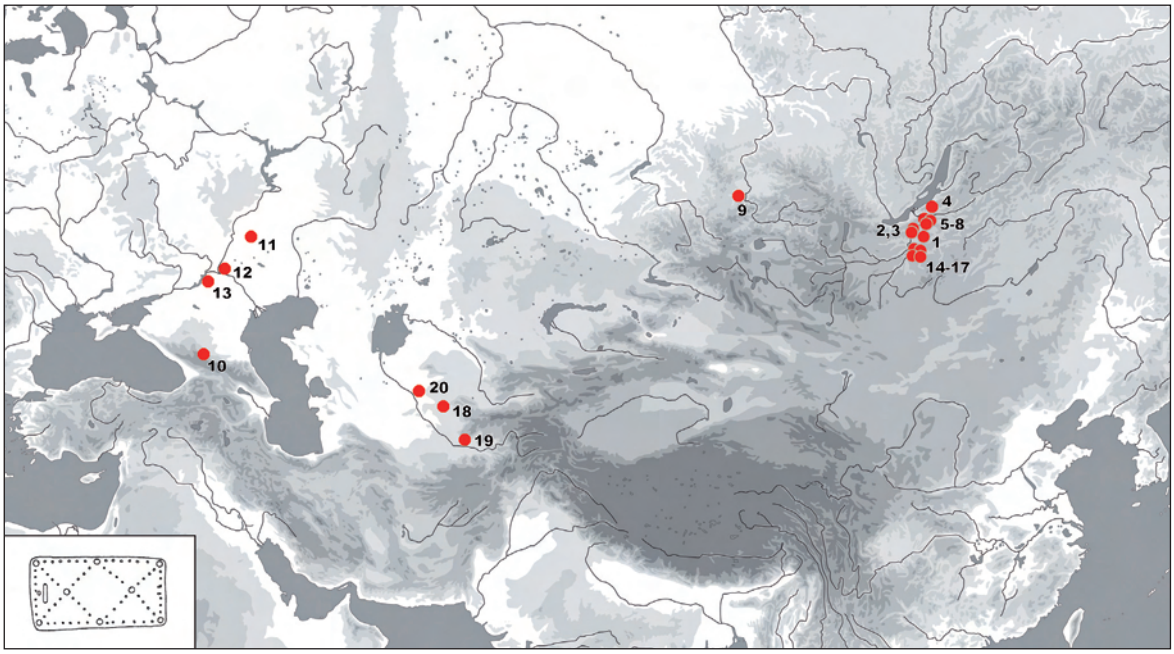


Fig. 6. Distribution map of bone or stone belt plaques with linear geometric ornamentation (credits list 4).

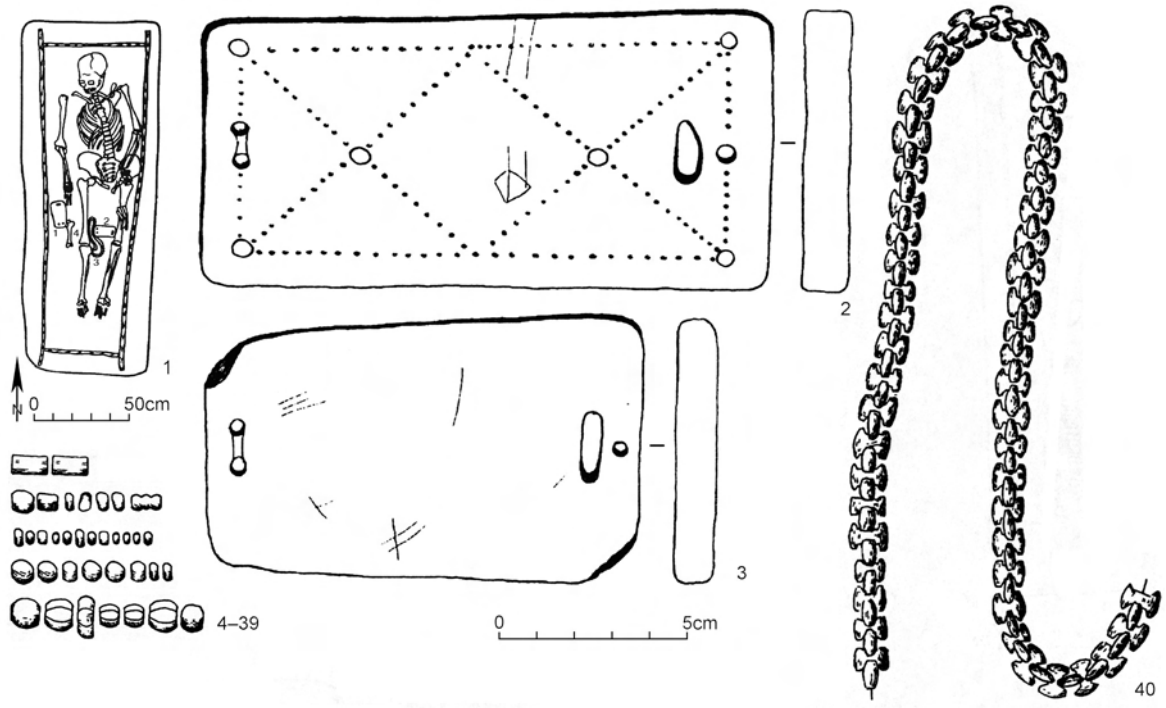


Fig. 7. Dyrestui, Rep. Buriatiia, Russian Federation, grave 52 (after Miniaev 1998, Pl. 36).

of horse-gear, a bow strengthener and diverse arrowheads as well as small iron plates, that were probably once components of a cuirass. With regard to the dating of the graves at Dyrestui, S. Miniaev concludes that most of them should be dated to the second half of the 1st century BC

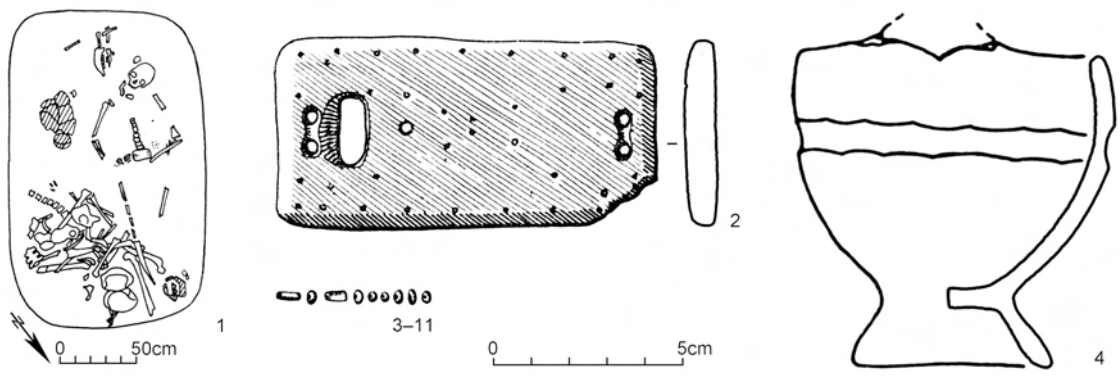


Fig. 8. Kaly, Rep. Khakasiia, Russian Federation, grave 32 (after Kuz'min 1988, 60 pp. Fig. 3,7; 14,34; 15,23).

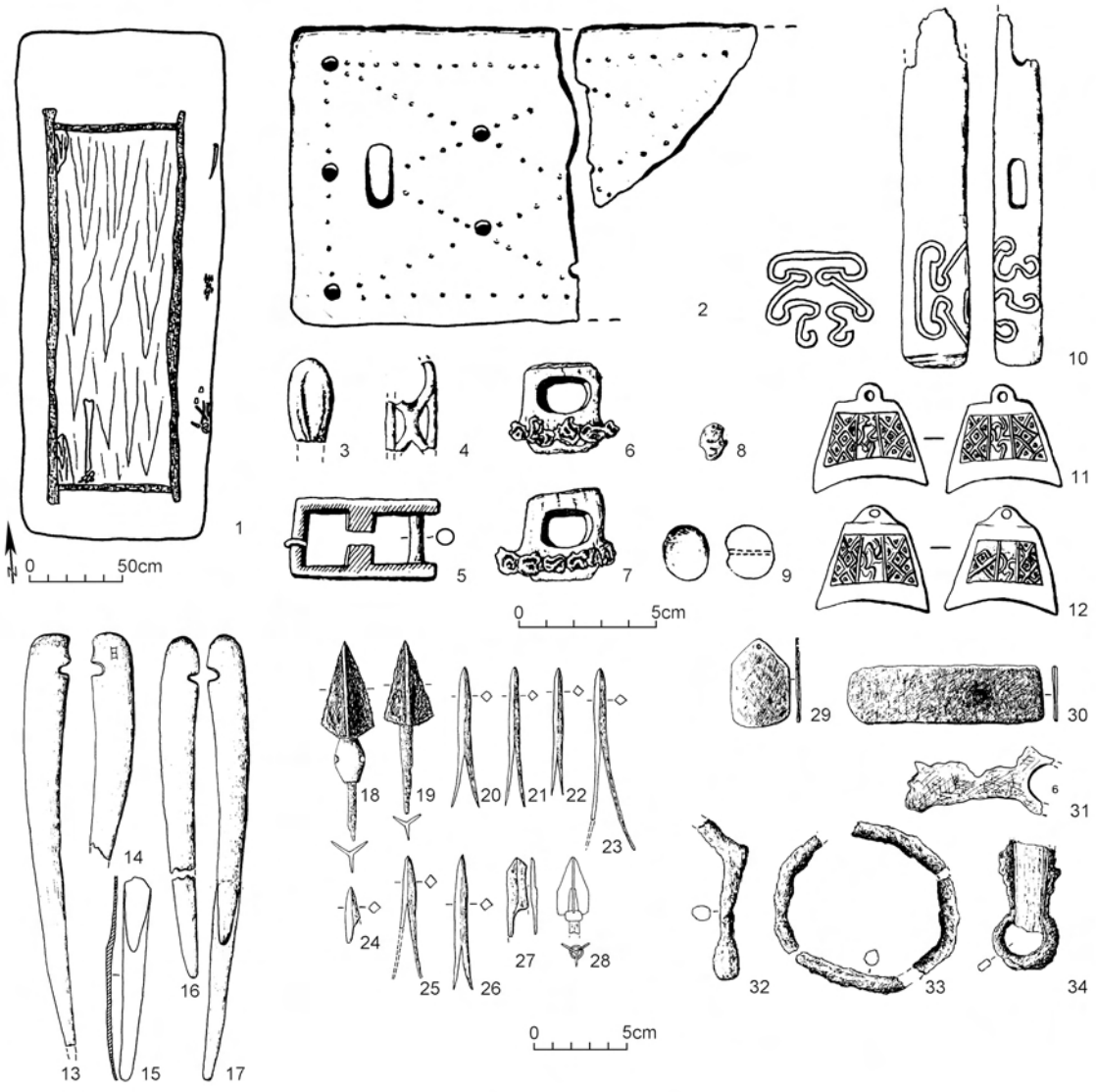


Fig. 9. Dyrestui, Rep. Buriatiia, Russian Federation, grave 123 (after Miniaev 1998, Pl. 112–114).

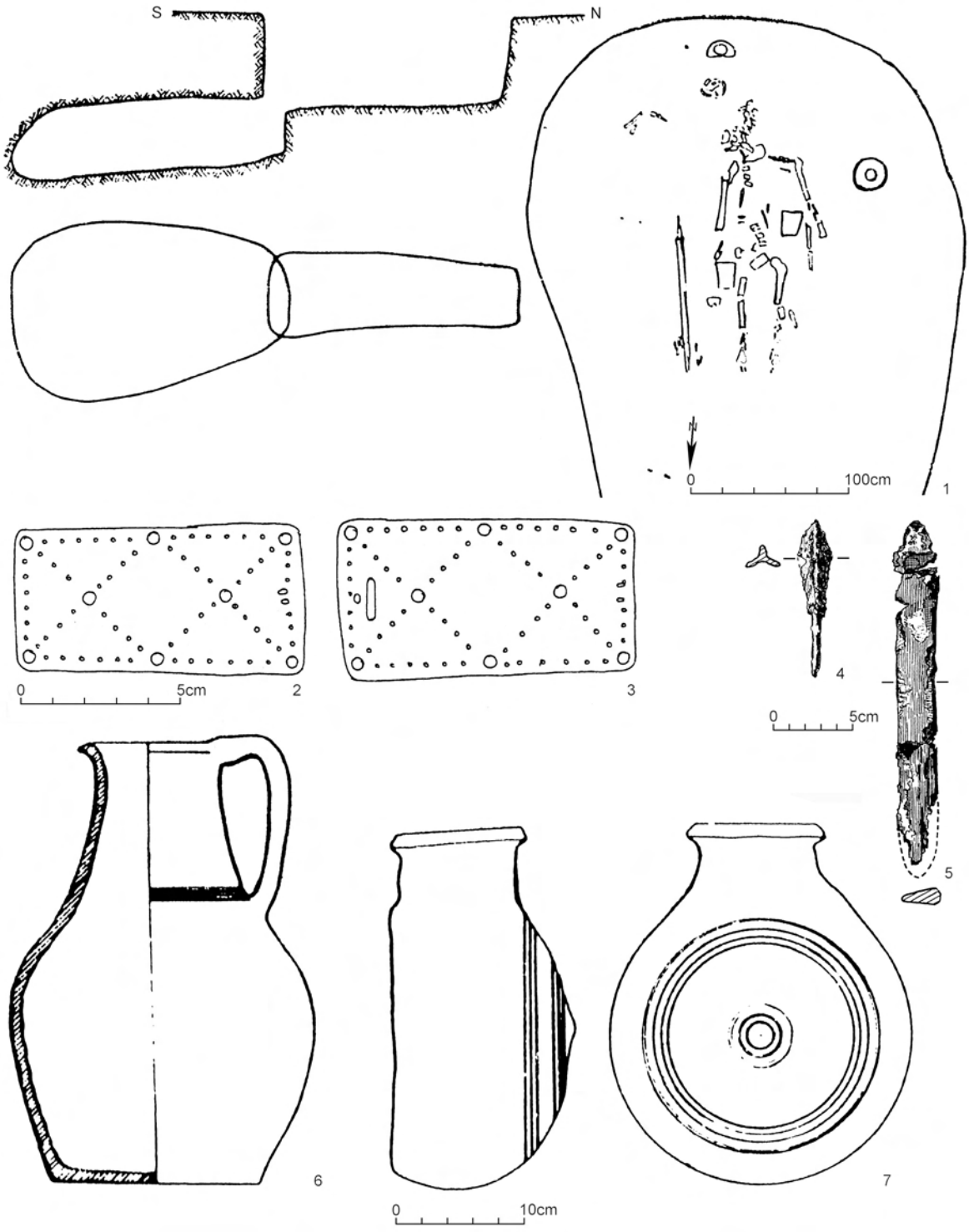


Fig. 10. Kyzyltepe, Uzbekistan, kurgan 2 (after Obel'chenko 1992; Ilyasov/Rusanov 1997/98, Pl. 10,1).

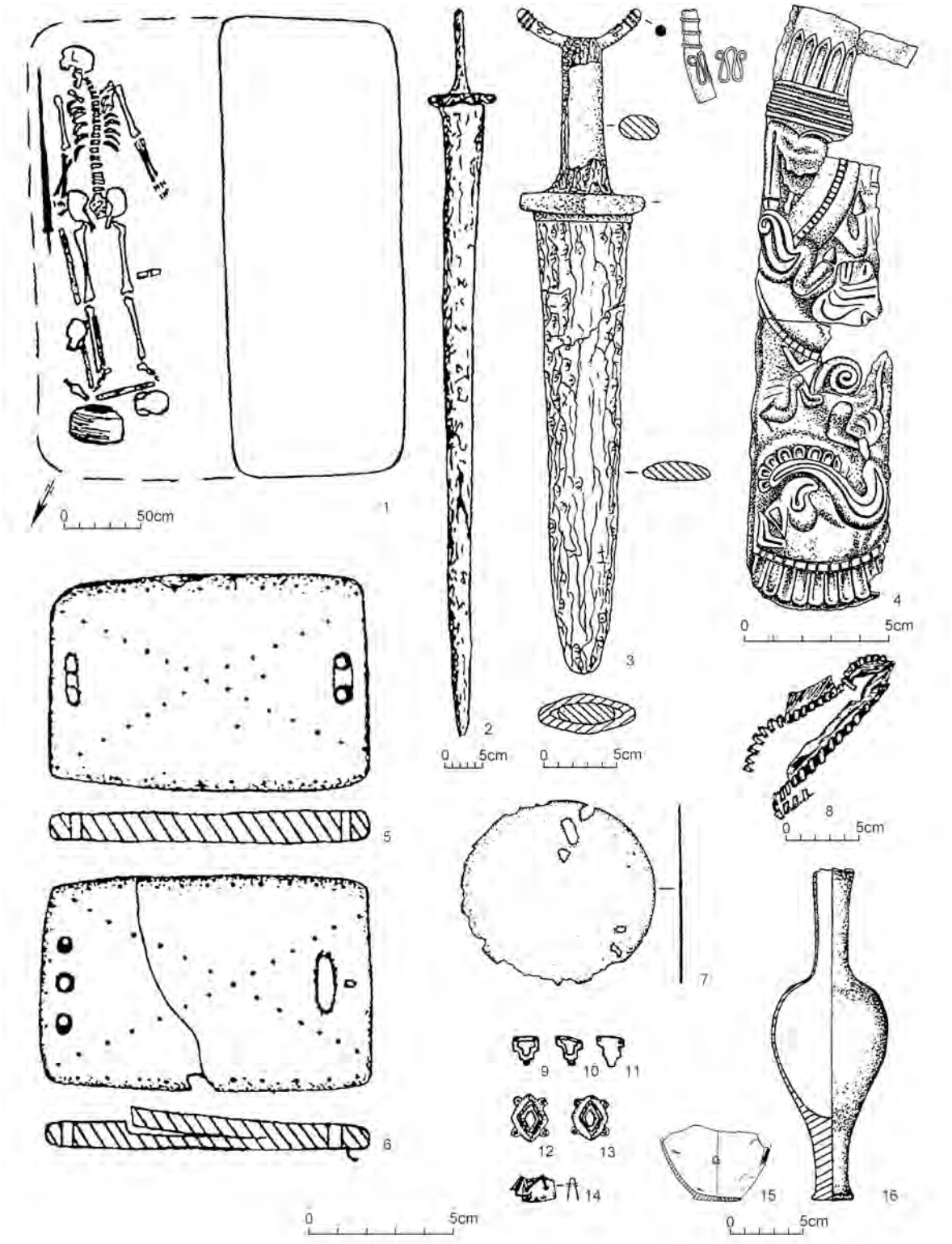


Fig. 11. Zhutovo, Russian Federation, kurgan 27, grave 4. Part of the inventory (after Mordvintseva/Shinkar' 1999, 144 Fig. 2,1; 145 Fig. 3,3; 148 Fig. 6,3–10.12).

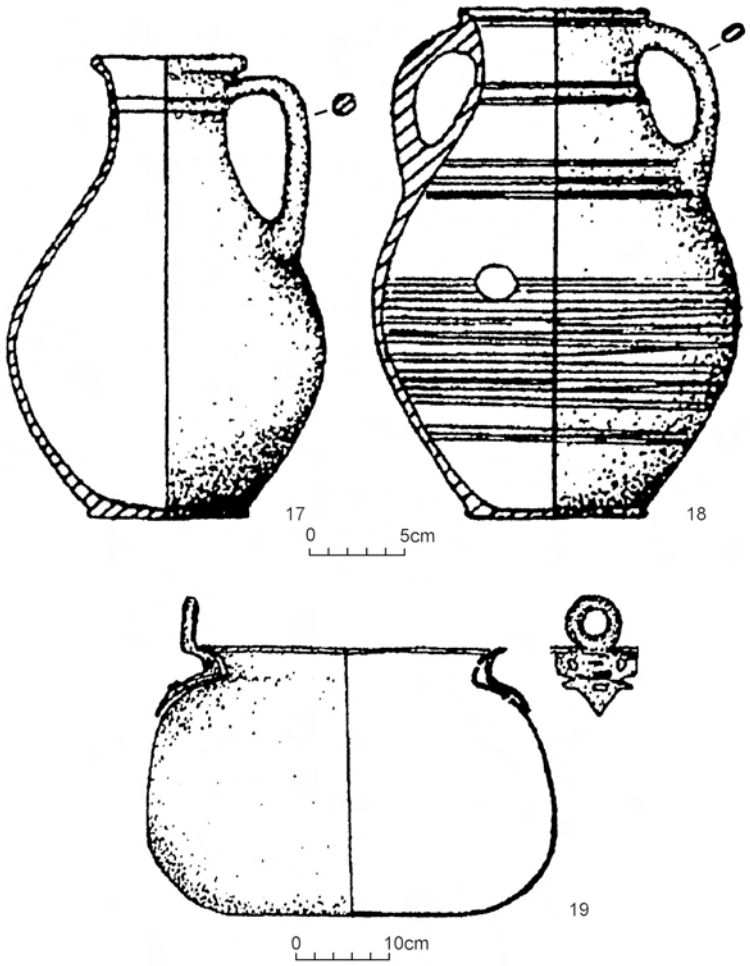


Fig. 12. Zhutovo, kurgan 27, grave 4. Part of the inventory (after Mordvintseva/Shinkar' 1999, 148 Fig. 6,1.2.11).

(Miniaev 1998, 73 pp.)[28]. One exact comparison for the belt buckle in Dyrestui is known from kurgan 2 in Kyzyltepe, Uzbekistan: the grave of an armed warrior, among whose grave gifts the sword is quite outstanding (Fig. 10). The rhomb-design on the belt plaque was inlaid with turquoise, in addition to other details, as is known on some pieces in Transbaikalia (Obel'chenko 1992, 42)[29].

Likewise elaborately furnished are the graves of males in the Volga-Don area, in which belt plaques adorned with rhomb and cruciform motifs are present. Recovered from grave 4, kurgan 27, in Zhutovo, were in addition to a belt plaque a long sword, a dagger with a sickle-shaped hilt[30] and a gold-covered sheath, a glass vessel and small gold appliqués next to a bronze cauldron

28 Miniaev (2000) suggests a stylization or simplification of originally animal style décor for the origin of geometric ornament, hence the rhombic ornament results from the stylization of two pairs of snakes (Miniaev 2000, 293 p.). His stylistic row looks convincing, however, it is worth noting that already in the early Iron Age belts are depicted on deer stones with geometric design (e.g. Volkov 1981, 126; 129,1; 137,2; 139,2; 145,2; 158,3; Pierres à cerfs 2011, 65 No. 17; 77 No. 29), some of them with "lattice-work" pattern, which could also serve as a possible derivation of this ornament.

29 The pattern on the belt plaque found in the settlement of Dureny is likewise inlaid with turquoise and mother-of pearl (Davydova/Miniaev 2003, Pl. 96,7).

30 The sickle-shaped hilt of the dagger is reminiscent of the dagger found in Pokrovka, whence the belt plaque of Xuzhou type stems (Iablonskii et al. 1994, 162 Fig. 84,3).

(Fig. 11–12). Mordvintseva and Shinkar' date the grave to the early Sarmatian period, in the 2nd–1st century BC, just as does A. Skripkin (Mordvintseva/Shinkar' 1999, 141; Skripkin 2006, 8). Similarly, in Piterka, where in kurgan 3, grave 9, two different belt plaques were found, one made of agate with a semicircular end and cruciform motif and one openwork bronze plaque with geometric designs, further grave goods such as small gold appliqués and gold foil with animal style decoration, interpreted as the ornamentation on the dagger sheath, all point towards this burial as being that of a high-ranking person (Liakhov/Mordvintseva 2000, 108). The grave is likewise dated by the authors to the 2nd–1st century BC. Another bone belt buckle stems from the northern Caucasus foreland and belongs to the same time period (Kerefov 1988, 32 p.).

The picture of the distribution of these belt plaques reveals several areas of concentration: one in the east, in Transbaikalia and in Mongolia, one in Central Asia and one in the west between the Volga-Don area and the northern Caucasus. Even if no fine absolute dating is possible at present, and the afore-named graves can be dated only generally to the end of the 2nd and mostly to the 1st century BC, some possibly later, it is the same type of belt plaques which is used across a vast space. While in Transbaikalia and northern Mongolia such belt plaques are attested also in female burials, they are generally found in well furnished graves of warriors. The grave constructions as well as the burial contexts reveal that all those graves were local to the respective area, i.e. the warriors are not foreigners. Nevertheless they were wearing the same type of belts and thus using the same status symbol to display their rank. Since also the belts were locally made, as they show variation, this fact can only be explained by intensive communication and contact. With these plaques a connection between "Xiongnu" in the east and "Sarmatian" warriors in the west becomes visible. This connection is also displayed by other belt types.

Local Variants of Eastern Eurasia and their Connections: Openwork Belt Plaques

The wide distribution of openwork belt plaques observed between northern China, Mongolia, Transbaikalia and the Minusinsk Basin has long been known and often the subject of studies, mostly in connection with questions about the 'animal style' in decoration[31]. The present study is focused on such belt plaques that were found in graves in Transbaikalia, Mongolia and Inner Mongolia, and that date to the time of the Xiongnu or the Han Dynasty[32].

The first group consists of rectangular openwork belt plaques decorated with motifs of the animal style, as already classified by M. Devlet (1980, 9 pp.), and several variants can be distinguished.

In view of their strong similarity, 29 belt plaques, whose principal decorative motif is the battle between two equids, form a homogenous type (Fig. 13, light and dark red dots; list 2a)[33]. Cast in bronze, not all of the plaques are identical. One distinguishing feature being the design

31 Cf. among others Rostovtsev 1993; Devlet 1980, 5 pp. with a detailed presentation of the history of research; Bunker et al. 2002; Bogdanov 2006.

32 Not taken into consideration here are older belt plaques, dated to the 3rd and 2nd centuries BC (for example, Bunker et al. 2002, 100 no. 67; 107 no. 76 and So/Bunker 1995, 61 Pl. 13), because until now they are known almost exclusively in present-day China so far and do not appear to the north or the west thereof.

33 This group corresponds with group I, subgroup 2, according to Devlet (1980, 11; Pl. 7,24; 8; 9,31–34; 10). The belt plaque from Pol'kanovo which Devlet likewise assigns to this group (Devlet 1980, Pl. 9,39.40), will be excluded here, as the portrayal of the horse's body is much more realistic. Stylistically the plaques in the Sackler (Bunker 1997a, 263 no. 227) and Therese and Erwin Harris Collections (So/Bunker 1995, 95 no. 8) are comparable; yet in view of their small size, they nevertheless diverge from the pieces listed and were thus excluded.

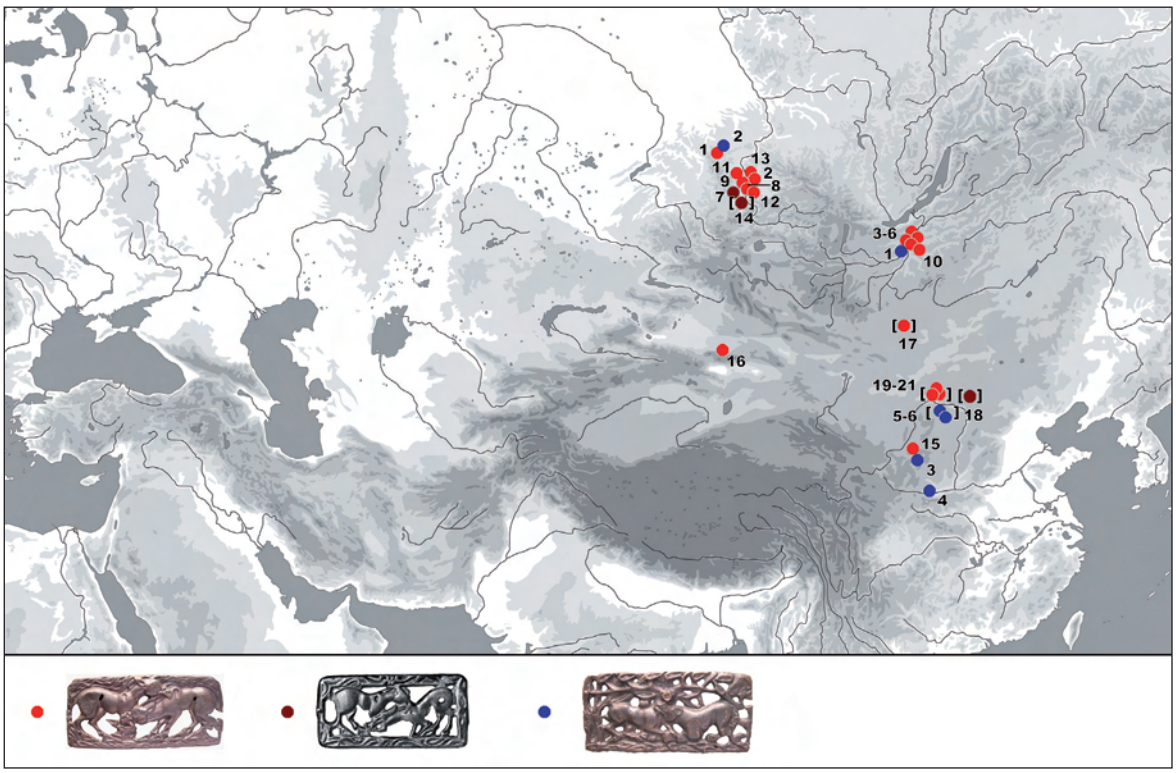


Fig. 13. Distribution map of rectangular bronze openwork plaques with animal combat scenes. Red dots: variant a, combat of two equids (credits list 2a); blue dots: variant b, feline-like beast of prey attacks deer (credits list 2b).

of the rim, which can be either a row of drop-like elements or rectangular impressions[34]. Furthermore, some plaques are rather 'massive' in appearance and display more 'vegetal' decorative elements[35], while others seem more delicate due to less material used and more empty space in between[36]. Support for absolute chronological dating is only provided by "wuzhu" coins found in grave 6 in Daodunzi and grave 102 in Dyrestui (Fig. 14–15), with a *terminus post quem* of 118 BC[37]. Referring to stylistic features, E. Bunker proposes a somewhat earlier date for one belt plaque from Mongolia (Askarov et al. 1992, 464 Fig. 1c), pointing out that instead of drop-like impressions on the rim, as found in all other belt plaques of this variant, here they represent a tree-top (Bunker 1997a, 261).

34 Bunker 1997a, 262. Both of these elements are found combined only on the plaque from Daodunzi, grave 6 (Bunker 1997a, 82 Fig. A119), and on those in the E. V. Thaw Collection in the Metropolitan Museum (Bunker et al. 2002, 132 no. 104): the lower rim and both sides are bordered with rectangular impressions, while the upper rim is lined by drop-shaped impressions.

35 Cf. for example the "massive" belt plaques from Dyrestui, graves 102 and 107 (Miniaev 1998, Pl. 84,14.15; 88), Daodunzi, grave 6 (Bunker 1997a, 82 Fig. A119) and Dongcheng (Wang 1986, 888 Fig.).

36 Cf. for example the two plaques from Dyrestui, grave 9 (Miniaev 1998, Pl. 1,7; Devlet 1980, Pl. 10,37) and grave 10 (Devlet 1980, Pl. 10,35.36). Based on the publications, a distinction cannot be made with certainty between plaques with more delicate openwork and those that are filled with more vegetal elements, as the quality of the casting must also be taken into consideration, and this cannot always be judged in the respective literature. For example, belt plaques from northern China (Bunker 1997a, 262 no. 225) are more massive and appear coarsely cast, causing larger closed surfaces, which possibly were originally meant to be openwork.

37 Bunker 1997a, 82; Miniaev 1998, 73 p. The "wuzhu" coins were produced in different series, which can be distinguished from one another and evaluated in a fine chronology (Thierry 2003, 53 pp.). Yet, the poor quality of published illustrations does not allow for a secure identification of the series. Furthermore, "wuzhu" coins were in circulation for hundreds of years (Thierry 2003, 53 pp.).

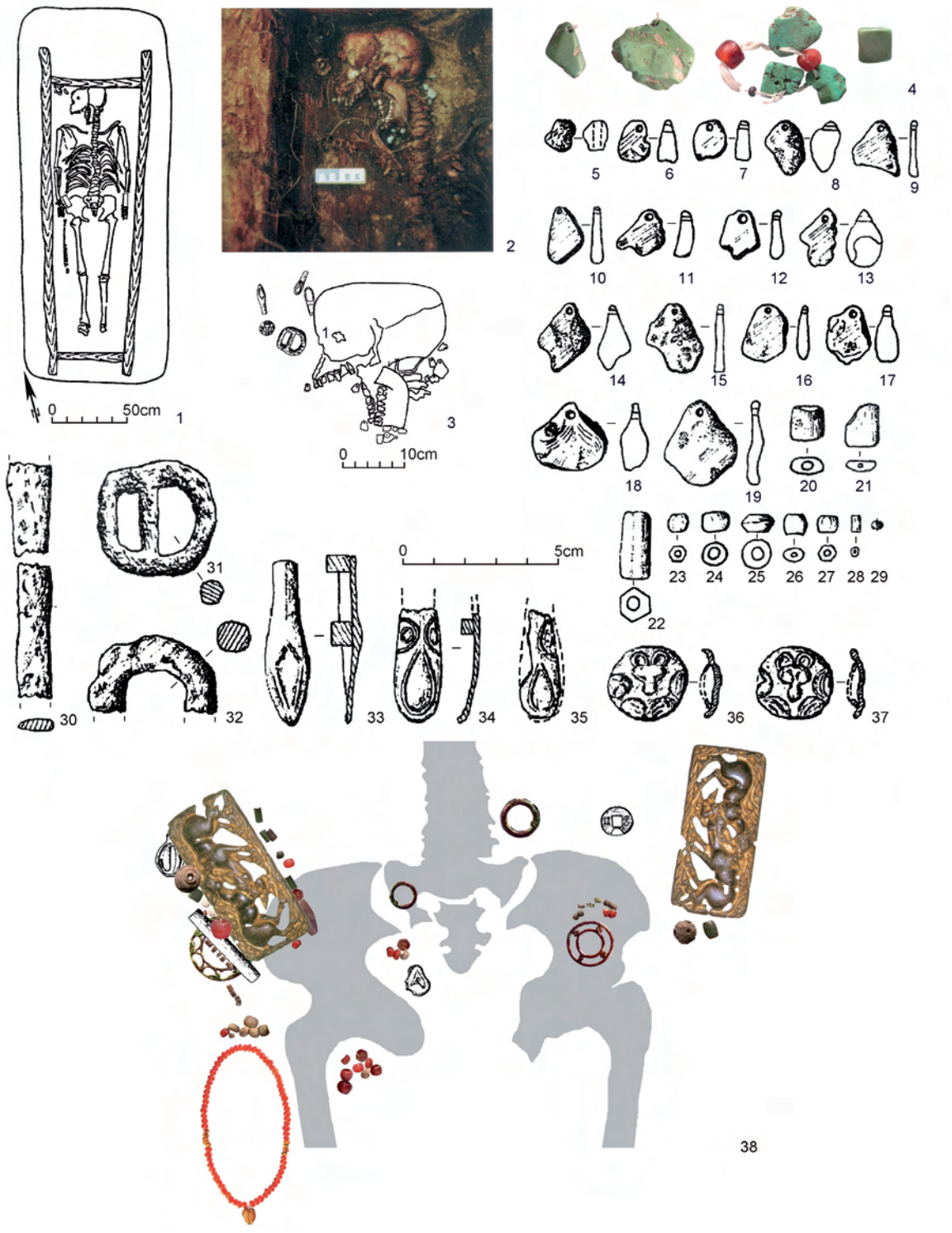


Fig. 14. Dyrestui, Rep. Buriatiia, Russian Federation, grave 102. Part of the inventory (after Miniaev 1998, Pl. 83; Miniaev/Davydova 2008, 30 pp. Fig. 20).

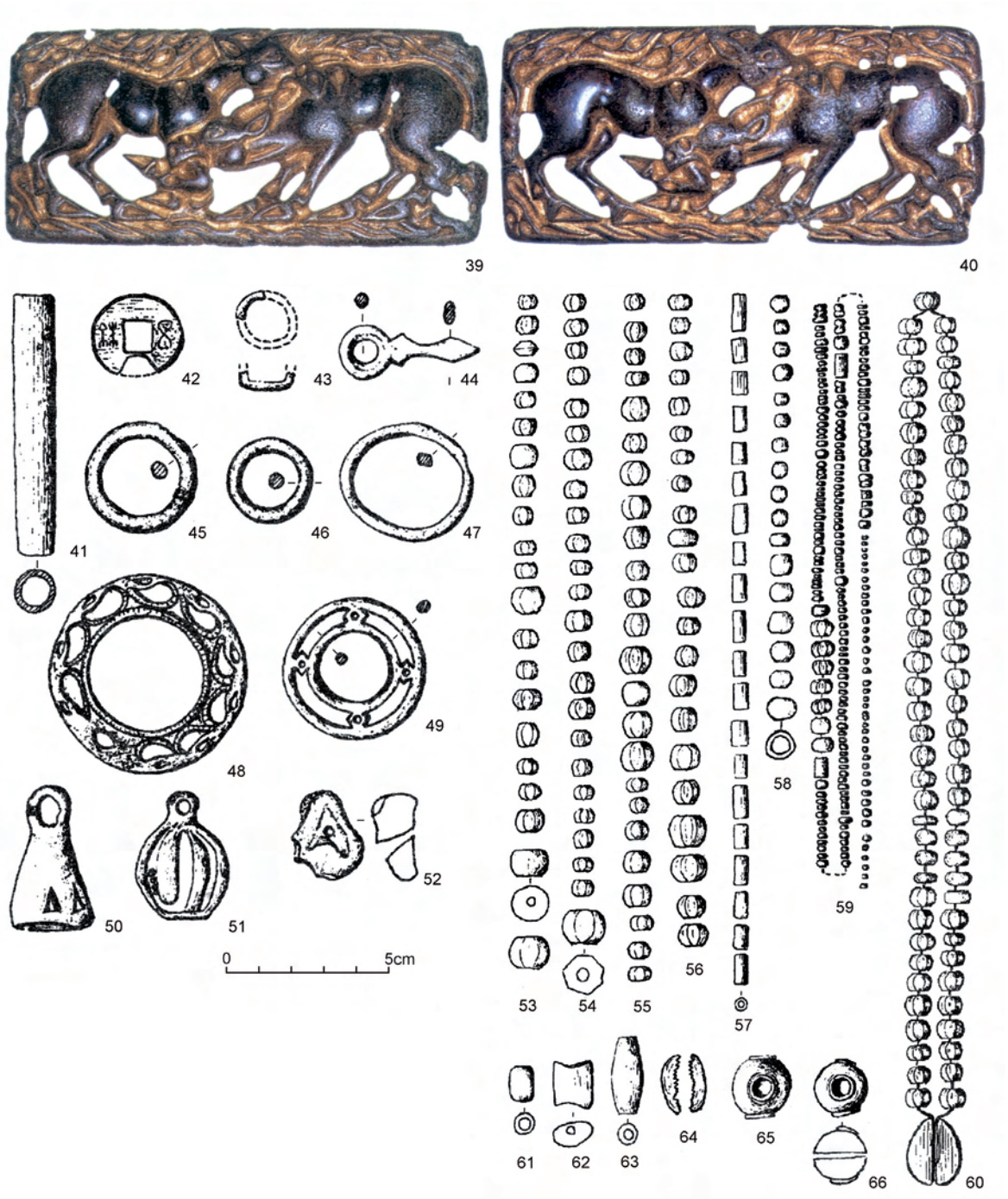


Fig. 15. Dyrestui, Rep. Buriatiia, Russian Federation, grave 102. Continuation of the inventory (after Miniaev 1998, Pl. 84–85; Miniaev/Davydova 2008, 69 p. Fig. 65–66).

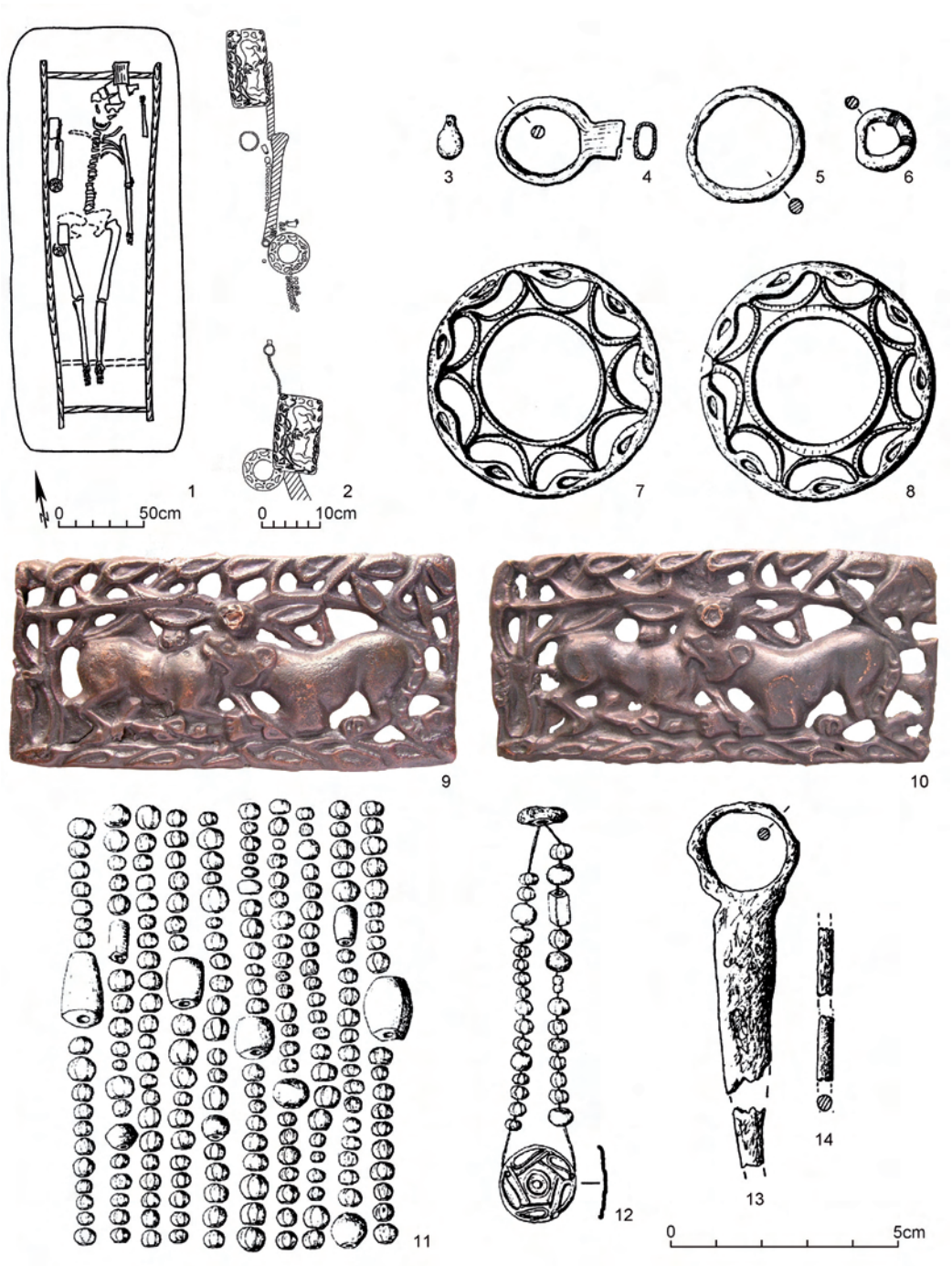


Fig. 16. Dyrestui, Rep. Buriatiia, Russian Federation, grave 108 (after Miniaev 1998, Pl. 90–91; Miniaev/Davydova 2008, 84 pp. Fig. 84; 86).

Fig. 17. Ivolga, Rep. Buriatiia, Russian Federation, grave 138 (after Davydova 1996, Pl. 39; Photos Ursula Brosseder).

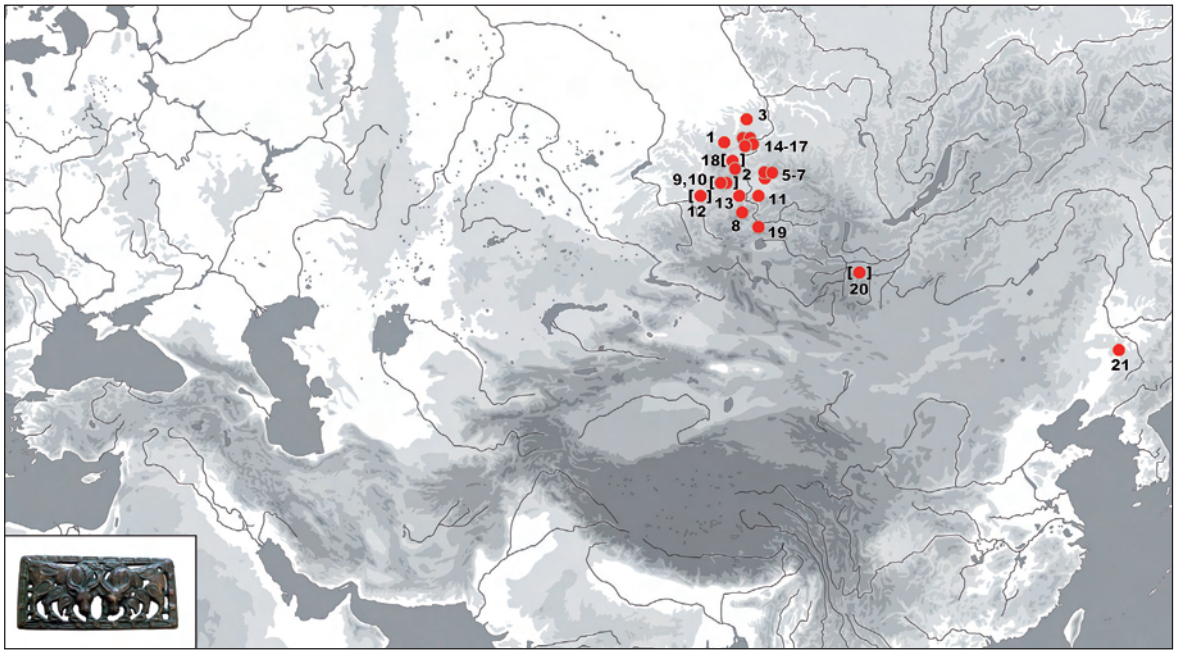


Fig. 18. Distribution map of rectangular bronze openwork belt plaques with two bulls facing each other (credits list 2d).

Mapping the known sites of these belt plaques reveals their distribution from the Minusinsk Basin, Transbaikalia and Mongolia to North China, although for the northern Chinese materials we can only identify the exact provenance of those from Daodunzi while the others come from Inner Mongolia or from the art market (Fig. 13, red dots; list 2a)[38]. One anomaly is the find in Dongcheng in Xinjiang, whose distant appearance is interpreted by Bunker as the result of the expanding Xiongnu Empire (So/Bunker 1995, 95) or of long-distance trade since such belt plaques are not typical in Xinjiang (Bunker 1997a, 261).

On 12 further belt plaques, variant 2b, the motif of a feline-like predator is depicted clawing a stag that looks towards the viewer (Fig. 13 blue dots; list 2b)[39]. The homogeneity of these plaques is emphasized by the drop-shaped design around the rim. The execution of the motif, however, is in no way uniform, and just as in variant 2a, a distinct difference can be noted between the more graceful as opposed to the more massive depiction of the animals[40]. The two bronze belt plaques in Dyrestui 108 were components of a belt placed on the right side of a 55–60-year old woman (Fig. 16). The belt plaques in Daodunzi were given to a ca. 23-year old woman, next to whose feet two undecorated plaques had been placed (U En' et al. 1990, 92 p.; 98 Fig. 14,3; Ningxia et al. 1988). The grave gift of "wuzhu" coins providing a *terminus post quem* of 118 BC is merely an indication of the temporal assignment of the grave context (Bunker

38 When studying the distribution, it should be taken into account that the plaques from northern China derive from collections and are not included in the maps.

39 Even though the belt plaque from the hoard in Kosogolskii is only a fragment, it can be assigned with certainty to this variant, as the left ear is still preserved en face and this manner of representing stags appears solely on this variant. A good comparison is the figure of a stag on a unique belt plaque in semicircular form from the Ordos region (Beifang 1995, 68 no. 91). The especially distinct drop-shaped inlays on the shoulder and belly of the animal is an element that appears repeatedly, foremost on belt plaques depicting bulls in the Minusinsk Basin and the Ordos region (group 1, subgroup 1, according to Devlet 1980, 10 p., Pl. 1–6).

40 For examples of more gracefully depicted animals, see Devlet 1980, 6 Fig. 1,10; Bunker 1997a, 266 Fig. 232a.b; for pieces with more massive animals and less openwork, see Bunker 1997a, 84 Fig. A126; Miniaev 1998, Pl. 91,11.12; E'erduosi 2006, 169.

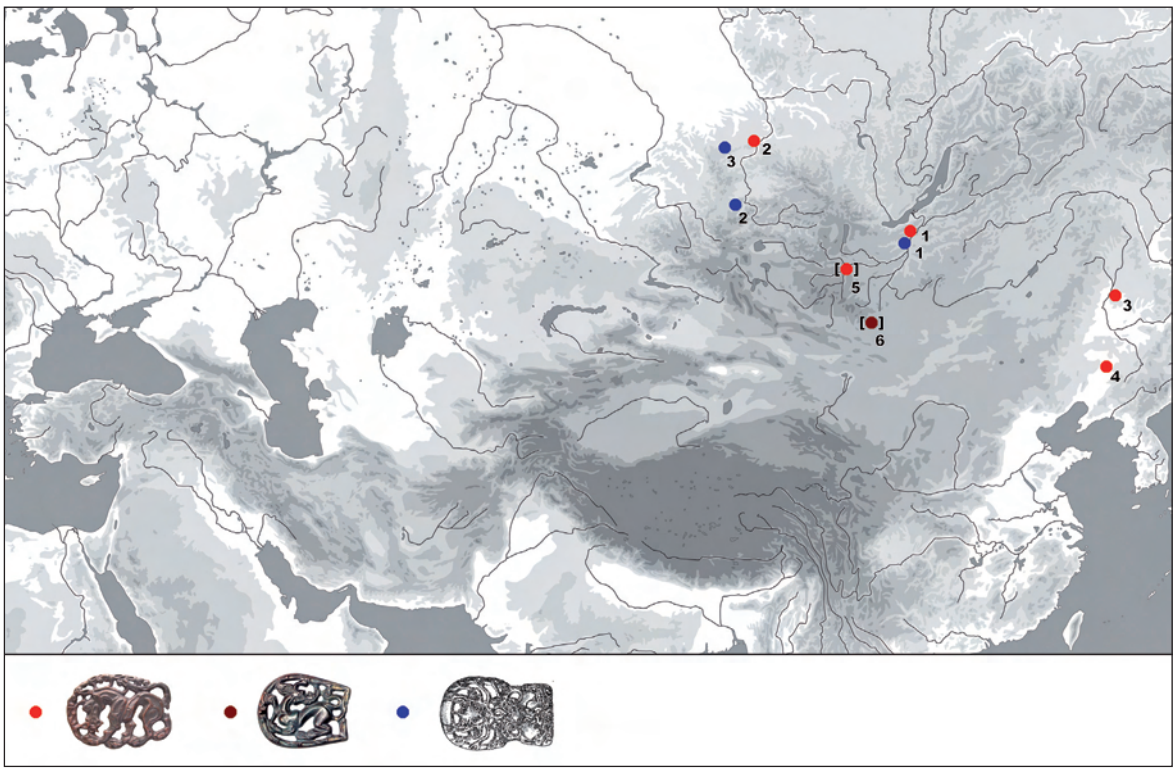


Fig. 19. Distribution map of semi-circular belt plaques. Red dots: variant a, wolf motif (credits list 8a); blue dots: variant b, wild animal above caprid (credits list 8b).

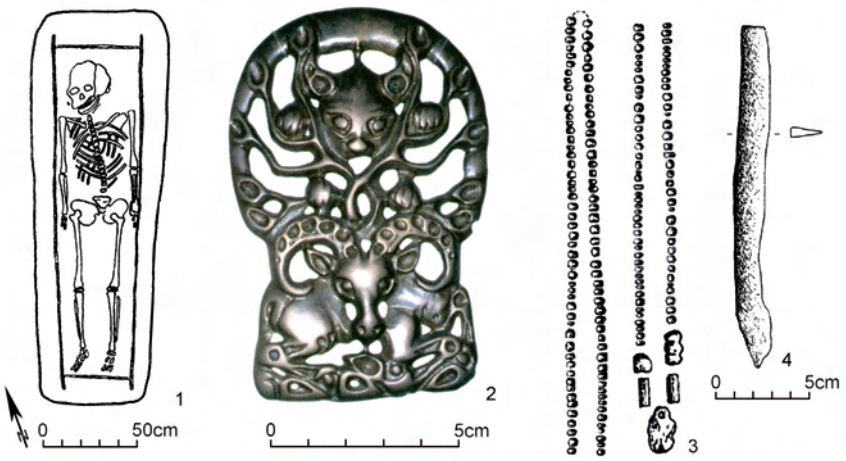


Fig. 20. Dyrestui, Rep. Buriatiia, Russian Federation, grave 128 (after Miniaev 1998, Pl. 118; Huns 2005, 43 Fig. 51).

1997a, 262). Most of such belt plaques are known from the Ordos region, but one pair is also found in Transbaikalia and one more fragment in the Minusinsk Basin (Fig. 13, blue dots).

The connection between Manchuria, the Ordos region, Transbaikalia, Tuva and the Minusinsk Basin is underlined by belt plaques with a U-shaped opening as known from Ivolga grave 138 (Fig. 17,2) and which Pan Ling has discussed (see Pan, this volume, Fig. 10).

Belt plaques almost exclusively known from the Yenisey river are those depicting two bulls standing opposite one another (Fig. 18). Few further examples are known from northern Mongolia and from Manchuria, yet unknown in Transbaikalia[41]. Accordingly, local preferences are distinctly visible in the choice of motifs as "peaceful" scenes are not to be found south of Lake Baikal. This is underlined by belt plaques in openwork with geometric ornamentation, grid-motif or "step" motif, which have their center of distribution in the Minusinsk Basin, with only a few examples known in north-eastern China, namely Xichagou and the Ordos region[42].

The strong connection between Manchuria and the Minusinsk area including Transbaikalia becomes visible with semi-circular openwork belt plaques[43]. They can be grouped into two variants. On the first variant an animal termed a "wolf" is depicted (Fig. 19, red dots; list 8a). They are known in Xichagou, China, in a Han period context (Bunker et al. 2002, 103 p.), whereas grave 100 of a male in Dyrestui can be dated generally to the Xiongnu period (Miniaev 1998, 72 pp.). Looking at the distribution and insofar as the state of publications is not misleading, it can be said that these belt plaques do not appear in the Ordos region, but instead only on the northern periphery of the entire distribution area of belt plaques, between the present-day provinces of Liaoning and Jilin, Transbaikalia and the Minusinsk Basin.

The second variation of semicircular belt plaques displays a caprid, above which rises a predatory animal that gazes at the viewer through stylised branches (Fig. 19, blue dots; list 8b)[44]. Several and very similar examples of this motif are known, but only one piece stems from a closed context, from grave 128 in Dyrestui (Fig. 20). This second variant is restricted to the area between Transbaikalia and the Minusinsk Basin[45]. In view of stylistic details, Bunker presumes the place of production of the two cast variations with openwork to be in southern Siberia (Bunker et al. 2002, 104; 111).

Connections to the West: Dragon Motif and P-shaped Belt Plaques with Depictions of Animal Combat

Returning to the openwork belt plaques so typical for the eastern area under study, one can also discern connections to the west in this group. Here I mean rectangular belt plaques that display a dragon motif (list 2c). The openwork bronze belt plaques found in grave 100 in Ivolga

41 It is interesting that bulls depicted singly on the plaques in northern China are indeed present (for example, Andersson 1932, Pl. 24,5; Bunker 1997a, 258 Fig. 219b).

42 Openwork bronze belt plaques with grid-motif appear in the Minusinsk Basin (Devlet 1980, 24 p. subgroup 3) with equivalents in northern China, both Manchuria and the Ordos region (Bunker 1997a, 268), but not in Transbaikalia. – Buckles with stepped ornament derive foremost from the Minusinsk Basin, subgroup 3b according to Devlet (Devlet 1980 cat. no. 63–77). The following examples can be assigned to this type as well: Osinsk Island, Ust'-Udinskii raion, oblast' Irkutsk, Russian Federation (Smotrova 1991, 231 Fig. 58,1–2); Xichagou, Xifeng county, Province Liaoning, China (Sun 1960, 33 Fig. 1). The buckle with a grid-pattern from Tsagan Kushun II Priol'khon, obl. Irkutsk, Russian Federation, grave 5 (Kharinskii 2003, 252 Fig. 1) belongs to subgroup 3a of buckles with a grid- or wave-motif, according to Devlet (1980, cat. no. 47–62).

43 Semicircular belt plaques have one straight side as a border, while the other narrow side is rounded like half a circle.

44 It is noteworthy that a very comparable piece for the lower part of the buckle from Dyrestui, i.e. the reclining caprids, yet not for the entire buckle, is known from northern China (Miniaev 1998, Pl. 128,1).

45 A comparable form is displayed by a semicircular belt plaque portraying two riders, found in Xichagou, Xifeng county, Liaoning Province, China (Sun 1960, 33 Fig. 2; Bunker 1997a, 79 Fig. A112) and a plaque from northern China (Beifang 1995, cat. no. 92).

Fig. 21. Ivolga, Rep. Buriatiia, Russian Federation, grave 100. Part of the inventory (after Davydova 1996, Pl. 28; Photos Ursula Brosseder).

Fig. 22. Ivolga, Rep. Buriatiia, Russian Federation, grave 100. Continuation of the inventory (after Davydova 1996, Pl. 29–30; Photos Ursula Brosseder).

(Fig. 21,22.23; 23) and those in the Sackler Collection as well as a fragment from an unknown site are amazingly similar in their production[46]. Also to be included here is the example made

46 Two belt plaques from Dyrestui, grave 118 (Miniaev 1998, Pl. 104,14) and one from northern China (Beifang 1995, 85 no. 120) can be seen as satisfactory comparisons in view of the serpentine rendering of the body, but they are designed as two dragons facing each other. Both plaques are almost identical and strongly support close relations between northern China and Transbaikalia. The fragmentary belt plaque from Sharagol likewise shows entwined dragons (Devlet 1980, Pl. 12,46), and according to Devlet forms its own variant (subgroup g; Devlet 1980, 24). As this is the only such example that is decorated with the dragon motif, here it is assigned to this group.

Fig. 23. Ivolga, Rep. Buriatiia, Russian Federation, grave 100. Reconstruction of the belt.

of nephrite in the Hotung Collection (Bunker 1997a, 88; 274), as well as the newly discovered belt plaques from grave 12 in Terezin, Tuva, for which an AMS date in the 1st century BC is available (see Leus, this volume). In all likelihood the belt plaques from Ivolga can be assigned a comparable date. The very same motif but in a different technical execution is depicted on the belt plaque from Sidorovka on the middle Irtysh river (Fig. 24,12.13; 25; 26). This piece is not made in openwork, but instead is a massive gold plate with inlays of turquoise and blue color, semi-precious stones. Even though the technical reproduction of the motif is quite different from that of bronze openwork belt plaques, the correspondences even in minute details allow its linkage without doubt to openwork plaques (cf. Mordvintseva 2003, 57). The dating of this complex is debated and varies according to different authors between the 3rd, 2nd century BC and the 2nd to 4th century AD[47]. Because of the general similarities with the bronze openwork belt plaques from Daodunzi, as well as the great similarity to the ones from Terezin and Ivolga it does not seem probable to date Sidorovka much different than the 1st century BC or the 1st century AD.

47 Linduff and Rubinson (2010) assume a 3rd century BC date for this burial, which seems quite old. A date for the grave in Sidorovka in late Sargat times, the 2nd–4th century AD, was assumed by Matiushchenko/Tatarova 1997, 82, and Parzinger 2006, 721 as connections with the Tashtyk Culture can be recognised in some of the dress components and in the pottery. However, the belt plaques could also be older (Parzinger 2006, 721 p.). The different dates proposed for this context illustrate the difficulties resulting from a lacking detailed chronology in Western Siberia.

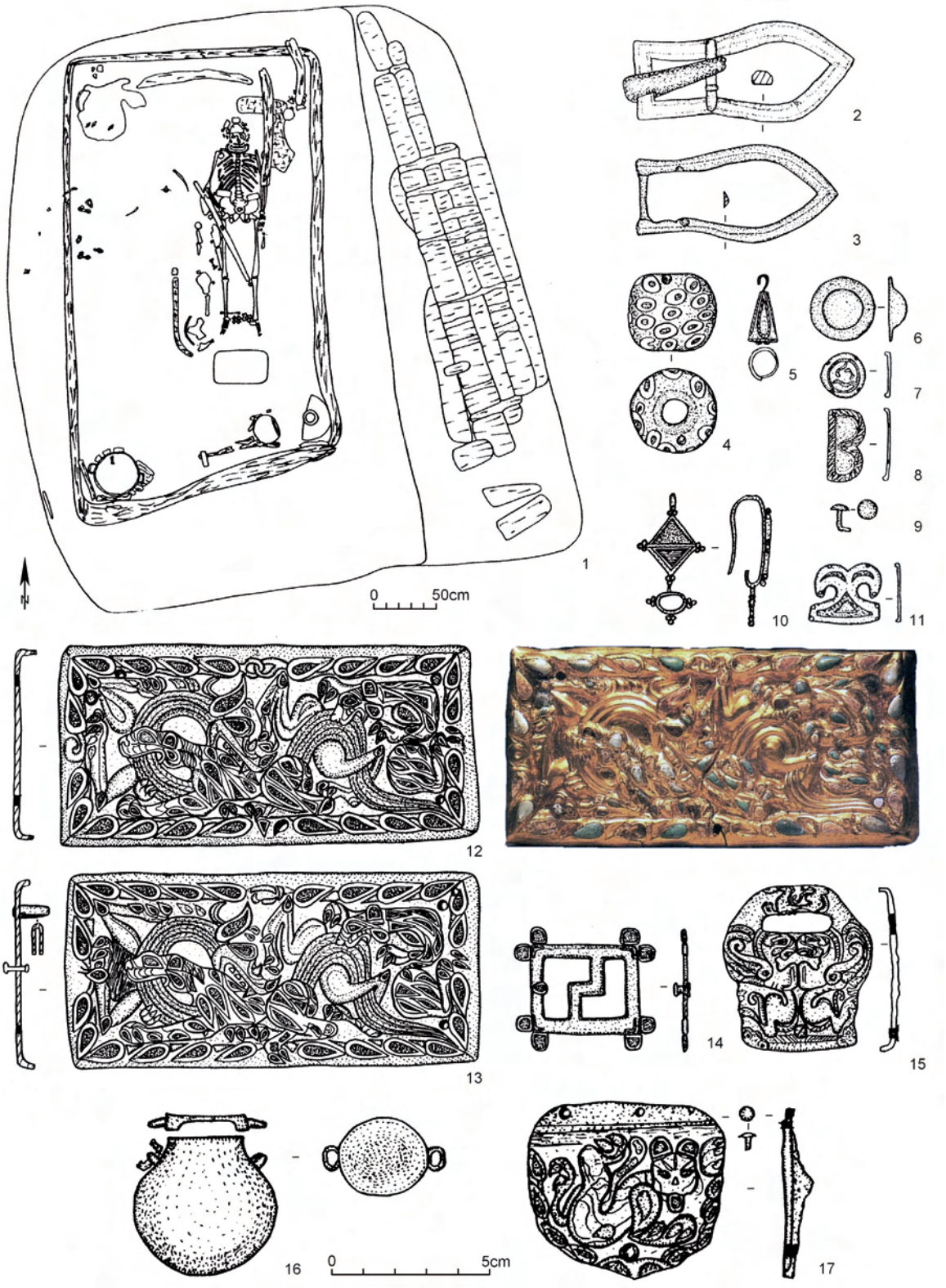


Fig. 24. Sidorovka, Russian Federation, kurgan 1, grave 2. Part of the inventory (after Matiushchenko/Tataurova 1997; Bunker 1997a, 88 Fig. A137).

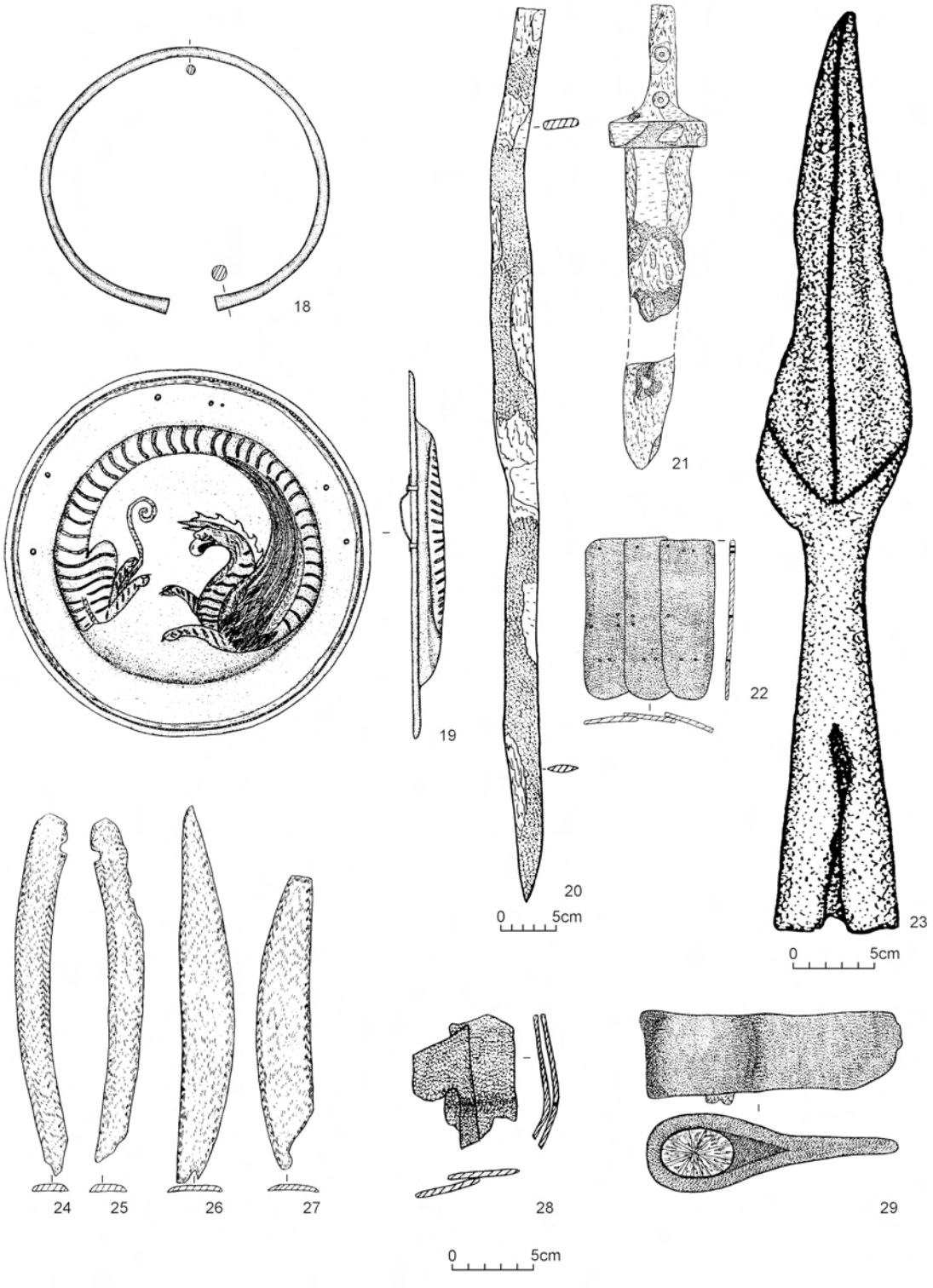


Fig. 25. Sidorovka, kurgan 1, grave 2. Continuation of the inventory (after Matiushchenko/Tataurova 1997).

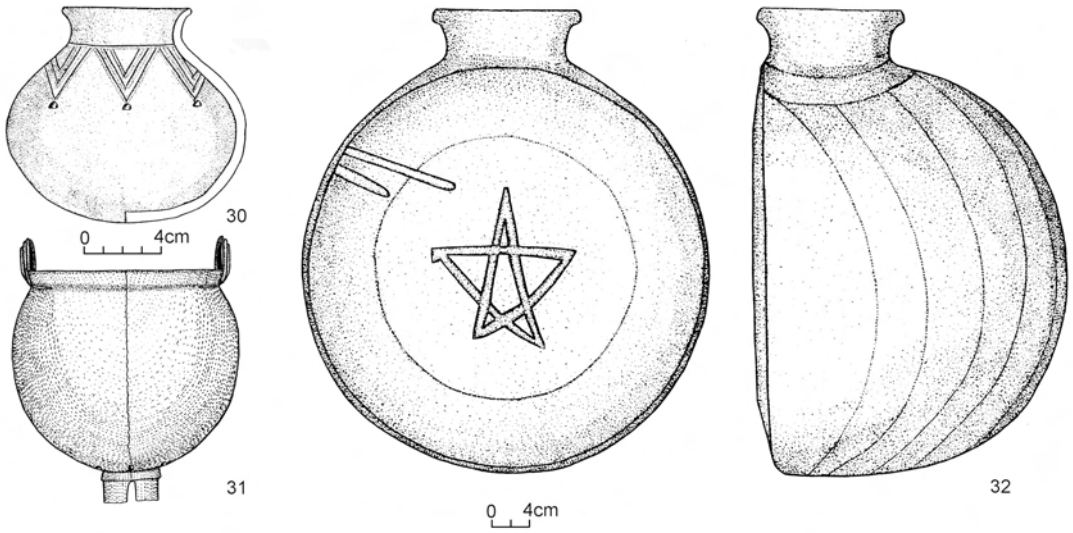


Fig. 26. Sidorovka, kurgan 1, grave 2. Continuation of the inventory (after Matiushchenko/Tataurova 1997).

Fig. 27. Belt plaques of Khapry, Russian Federation, kurgan 3 (after L'Or 2001, 179 Fig. 198; Mordvintseva 2003, 145 Cat. 74). Scale 1 : 2.

Based on the manner of production, the belt plaques found in kurgan 3, grave 6 in Isakovka, likewise located on the middle Irtysh river, are quite analogous to those from Sidorovka[48]. In addition to a large belt plaque of gold depicting a camel being attacked by a beast of prey[49], there is a belt plaque made of silver with images of dragons, whose bodies are ribbon- or serpent-like, not unlike the dragon depictions on the aforementioned variant 2c. The links to China, as

48 Isakovka, raion Nizhneomsk, obl. Omsk, Russian Federation K. 3, Grave 6 (Mordvintseva 2003, 56 p.).

49 Mordvintseva 2003, 160 Fig. 45,6. This belt plaque corresponds above all in its workmanship with those from Sidorovka; a further rectangular belt plaque with stone inlays and a scene of fighting animals is known in the Siberian Collection (Mordvintseva 2003, 131 cat. no. 40; Rudenko 1962, Pl. 2,5; 8,1).

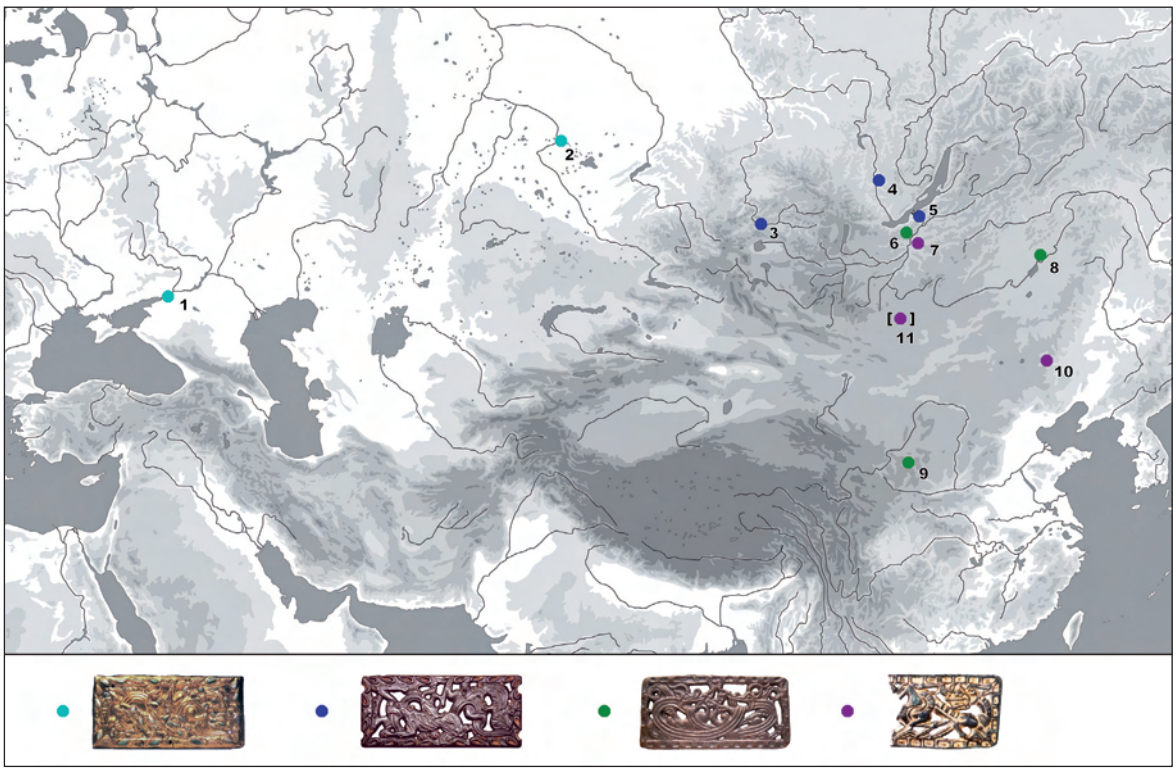


Fig. 28. Distribution of rectangular bronze openwork belt plaques with dragon combat (credits list 2c). Light blue dots: in gold-turquoise style; dark blue, green, pink dots: different variants.

seen in the replication of the dragon motif, are underscored by further grave goods from the hitherto unpublished grave at Isakovka, from which a Chinese bronze vessel and a dagger with a lacquer sheath are alleged to have been found as well (Mordvintseva 2003, 56).

Tracing belt plaques with the dragon motif farther west, there are two more examples covered with gold foil to name from Khapry on the lower Don river (Fig. 27). They also depict two fighting dragons with serpentine bodies, which can be added to the afore mentioned pieces, even though these examples are not exact analogies. The inlays in Khapry are coral and glass paste of light blue, brown and dark red color, rather than turquoise (Mordvintseva 2003, 90). Since the grave context has not been published yet, a date can only be made on stylistic grounds; V. Mordvintseva assigns this belt plaque to the 1st century AD – but with some reservation (Mordvintseva 2003, 56).

Plotting the distribution of belt plaques bearing the dragon motif reveals that they not only appear in the area already known through variants 2a and 2b, between the Ordos plateau and Transbaikalia, but that additionally they are also attested farther west displaying the motif of a dragon, which clearly came from China (Fig. 28).

The drop-shaped turquoise inlays like those that decorate the rim of the buckle from Sidorovka have been viewed as prototypes for the tear- or drop-shaped spaces of openwork of bronze belt plaques which characterize variants 2a, 2b and 2c (Bunker 1997a, 88). Drop-shaped stone inlays are a common element on objects found in Sarmatian graves, in the Siberian Collection and in Tillia Tepe or Central Asia (Mordvintseva 2003, Pl. 3; 6; 11). Nevertheless, only a few objects can be named for which a row of drop- or almond-shaped inlays frame the main space. Among these

Fig. 29. Urbiun III, Rep. of Tuva, Russian Federation, grave 32 (after Savinov 1969; Devlet 1980, Pl. 29,117).

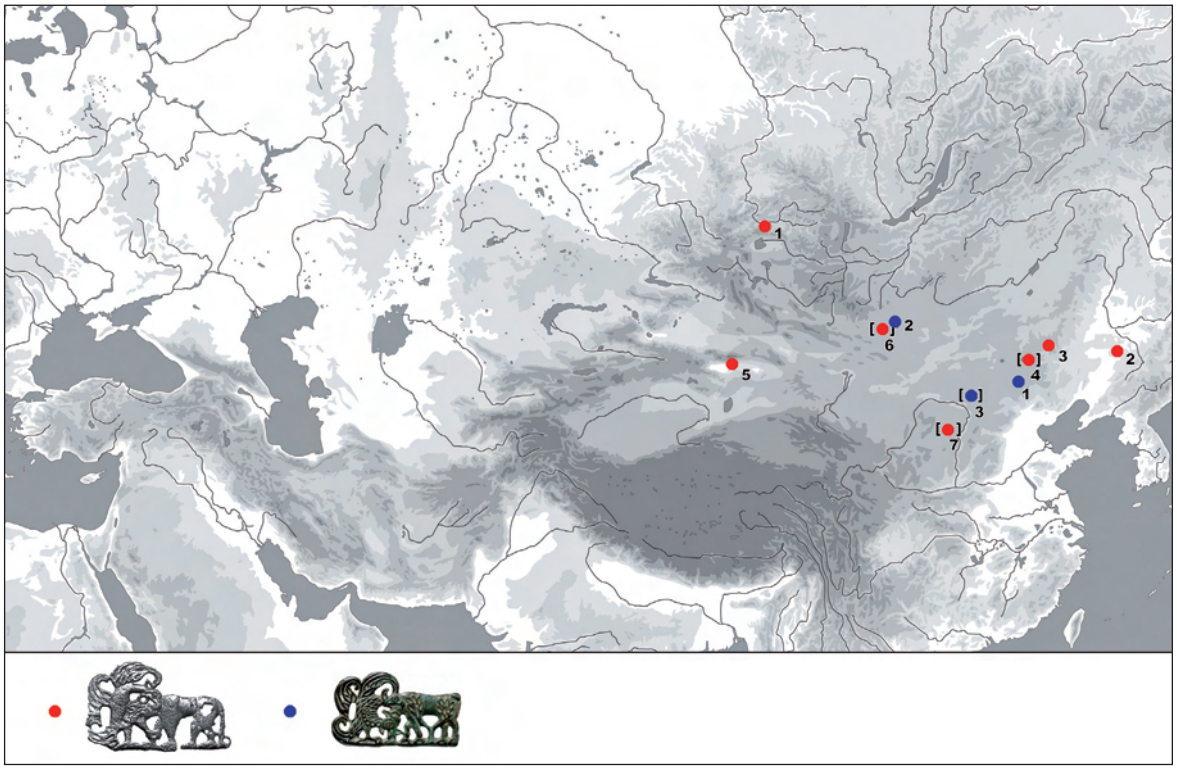


Fig. 30. Distribution map of P-shaped, openwork bronze belt plaques. Red dots: variant Urbiun, griffin attacks feline (credits list 6a); blue dots, variant of griffin attacks hoofed animal (credits list 6b).

are the round shoe buckles and another plaque from grave 4 in Tillia Tepe (Fig. 51,17.18). Without doubt the best comparisons are the two rectangular plaques in the Siberian Collection (Mordvintseva 2003, Cat. no. 41; 42; Rudenko 1966, Pl. 2,2.9) as well as the rectangular plaque of gold sheet from the Kuban area (Mordvintseva 2003, Cat. no. 84). Although, a connection indicating movement from east to west can be traced based on the dragon motif, it seems possible that – generally speaking – drop-shaped inlays point to a movement from the west, through Central Asia to the east, and both elements overlap on the middle Irtysh river.

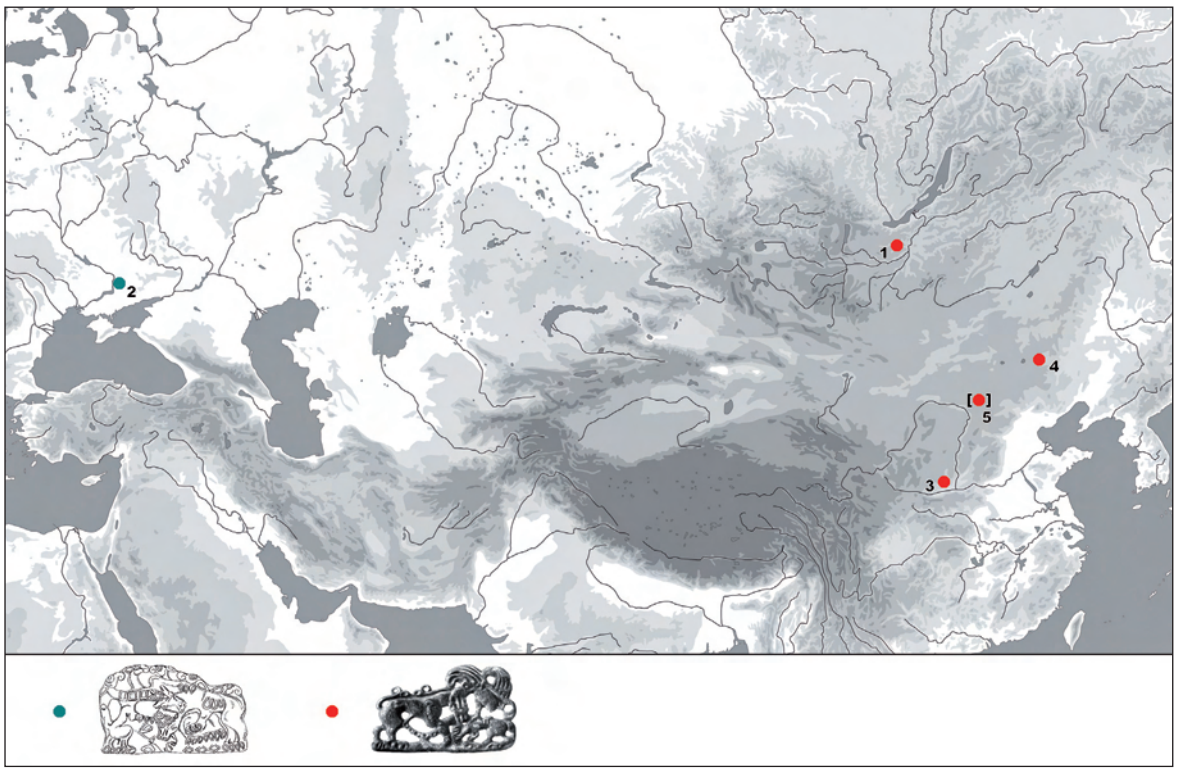


Fig. 31. Distribution map of P-shaped plaques with depiction of a combat between griffin and beast of prey with three animals involved. Red dots: bronze openwork belt plaques; blue dot: in turquoise-gold style (credits list 6c).

Turning to the group of P-shaped belt plaques, similar observations can be made with regard to rectangular plaques (cf. Devlet 1980, 13). As a rule, P-shaped belt plaques have a straight base as a common feature. The contour of the plaque, is determined by the animal bodies depicted upon it, which thus render the asymmetrical P-form or sometimes B-form appearance.

According to their particular motifs and designs, the plaques can be divided into several variants. Most variants display as a common feature the depiction of various animals in combat.

The Urbiun variant (Fig. 29,2; 30, red dots; list 6a) is very uniform: it depicts a four-legged animal of prey being attacked by a winged griffin. The goods in the grave at Urbiun were described and compared either with finds from the Tes' phase in the Minusinsk Basin or with finds from Ivolga (Savinov 1969, 104 pp.). The belt plaque found in Xichagou was associated with coins giving a *terminus post quem* of 175 BC (Bunker 1997a, 260). Only grave 1-mb of Jiaohe gou in Xinjiang, which yielded a piece of gold sheet bearing the same ornament, can be dated generally to the Han period[50].

A second variant depicts not a feline but a hoofed animal (deer?) which is attacked by a griffin (Fig. 30, blue dots; list 6b) and is one of the rare belt plaques from Mongolia for which we know the burial context (Amartüvshin/Honeychurch 2010, 238).

50 Wieczorek/Lind 2007, 266. – The motif of the winged griffin shown attacking a caprid is also found on the belt plaque from grave 114 in Dyrestui (Miniaev 1998, Pl. 98,1), although it is symmetric with two griffins instead of being asymmetric; stylistically it can be joined with belt plaques of the Urbiun variant; the same accounts for a plaque published by Bunker et al. 2002, 102 p. No. 70.

Fig. 32. Zaporozhe, Ukraine, Zaporozhskii kurgan (Mantsevich 1982, Pl. 57,2–5; Shilov 1983, 182 p. Fig. 4;5; Gold der Steppe. Archäologie der Ukraine. Exhibition catalogue [Schleswig 1991] 403 Cat. No. 161;162).

The third variant of P-shaped belt plaques shows, besides a griffin, two animals engaged in battle (Fig. 31; list 6c). The context of grave 7 in Dyrestui is provided in the documentation of an older excavation (Miniaev 1998, Pl. 2). There the belt plaque is associated with "wuzhu" coins, through which a *terminus post quem* of 118 BC can be assumed (Miniaev 1998, 72 pp.). Two examples in the Siberian Collection can be assigned to this group as well (Rudenko 1962, Pl. 4,3; 5,5). They differ from the other belt plaques of bronze in that they are made of iron, covered with gold foil, and inlaid with stones. The belt plaque from the kurgan at Zaporozhe likewise depicts a battle between animals (Fig. 32,1.2). It too consists of an iron plaque covered with gold foil and with inlaid stones; it is dated to the 1st century AD (Shilov 1983, 185 pp.; Mordvintseva 2003, 94).

A fourth variant comprises almost exclusively single finds without contexts. These are belt plaques, which show a standing ungulate, whose antlers are decorated with raptor heads[51], and

51 The antlers embellished with raptor heads link this variant with the aforementioned belt plaque from the kurgan in Zaporozhe.

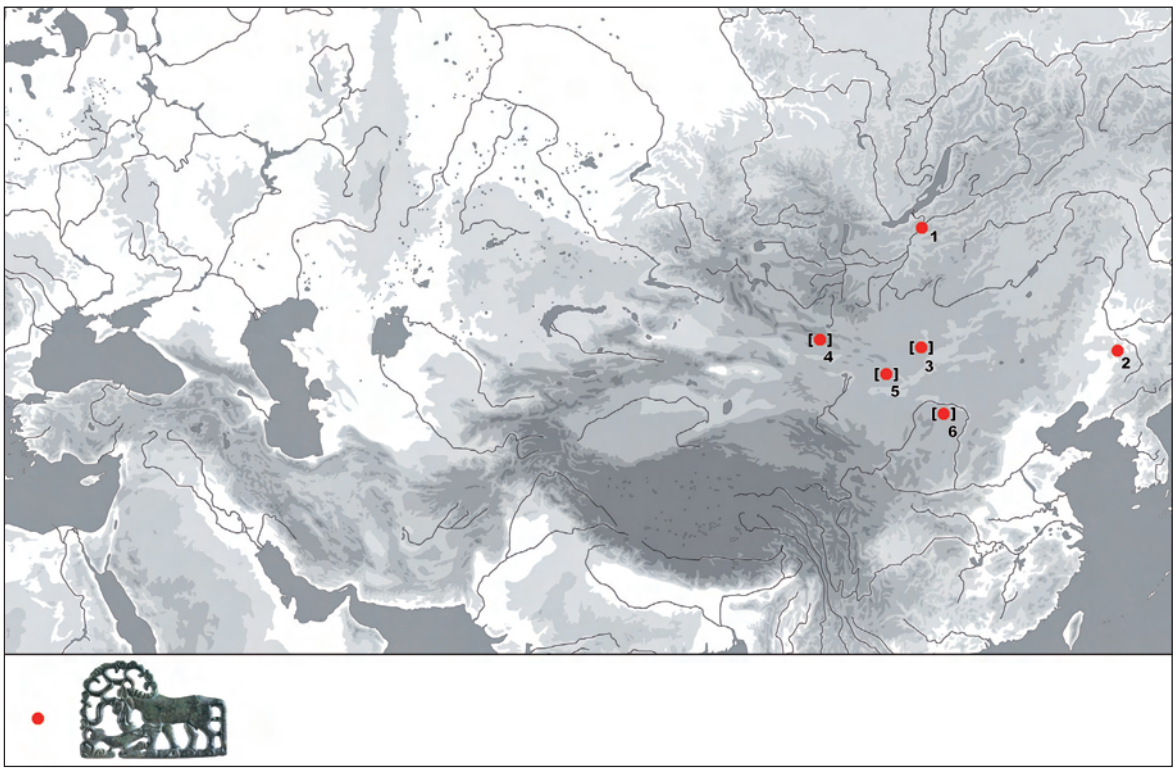


Fig. 33. Distribution map of P-shaped, openwork bronze belt plaques with depiction of a standing ungulate which is attacked by a dog-like animal (credits list 6d).

which is attacked by an animal (Fig. 33; list 6d). Only the belt plaque from Xichagou was found within a grave context. The cemetery can be dated numismatically with a *terminus post quem* to the 2nd century BC (Bunker et al. 2002, 104) and, thus, it provides a faint clue to the temporal position of this belt[52].

The last variant that should be mentioned here is constituted by P-shaped belt plaques upon which scenes are depicted – the so-called anectodal plaques (list 7). The plaques from Daodunzi (Bunker 1997a, 89 Fig. A128) and Xichagou (Bunker 1997a, 276) were the only ones found in closed contexts. Numismatic finds in these cemeteries are indicative of a *terminus post quem* dating in the last quarter of the 2nd century BC or in the 1st century BC. Furthermore, a few known belt plaques in the Siberian Collection can be added to this variant as well (Rudenko 1962, Pl. 4,5; 7,1.7).

Even more examples can be assigned to the group of P-shaped buckles, without subdividing them in more finely detailed variants. Among them special mention should be made of the gold sheet from Verkhnee Pogromnoe, as it comes from a grave context, whose date to second half of the 2nd century BC or 1st century BC is acceptable (Mordvintseva 2003, 64). Thus, it belongs to the same time horizon as the other examples farther east.

Just like among the rectangular belt plaques the group of P-shaped plaques displays local variants and connections throughout the Eurasian Steppes. Possibly, the belt plaques of the Urbiun

52 The dating of this belt plaque from Verkhneudinsk in the Siberian Collection, originally assigned to the 5th–4th century BC, was corrected by Bunker (Bunker et al. 2002, 105).

type are somewhat older than the rest of the plaques in this group. Like the belt plaques of the Xuzhou type, which are likewise somewhat older than the rectangular openwork plaques with animal depictions, this variant does not appear in Transbaikalia or in the Minusinsk Basin. Apparently the northern regions lay outside of its area of dissemination at that time.

Fig. 34. Novyi, Russian Federation, kurgan 70, grave 5 (after L'or 2001, 119 Fig. 84).

In summary, the variants of belt plaques and their distribution that have been discussed until now have shown, on the one hand, a typological division in which regional preferences within Inner Asia can be recognised, and, on the other, evidence of contacts between northern China, Central Asia and the northern Black Sea area. Thereby the belts in the east of the area under study were found in contexts that can be ascribed to the Xiongnu, whereas farther west they derive from graves that are associated with the Sarmatians. Viewed against this background, it is not far-fetched to additionally correlate the belt with two rows of cowry shells, found in Novyi, kurgan 70, grave 5 (Fig. 34) with the belt from the cemetery at Ivolga (Fig. 23) or with graves of the Western Han period, in which belts with cowry shells are relatively frequent and more likely associated with deceased persons of lower status than those persons who wore belts decorated in the animal style (Lu/Shan 2007, 51). Grave figures are known from Yangling, province of Shaanxi, shown wearing a belt with cowry shells (Lu/Shan 2007, 51 Fig. 9,1). Women depicted on ivory plaques in Begram from the 1st century AD also wear belts with two to three rows of cowry shells (e.g. Afghanistan 2008, nos. 194–197; 200; 205–207).

Aside from belts that appear either in the eastern part of the area under study or those that denote ties to the Eurasian steppe, belt plaques can be identified that appear only in the west of the area under study, that is, in the northern Black Sea area, the Caucasus foreland and Central Asia.

Local Types of Central Asia and Western Eurasia

Frame Bronze Buckle with a Fixed Prong

Compiled under this term are belt plaques, or belt hooks respectively, that consist of a bronze frame on which an animal or a scene of battling animals are embedded in the center (Korol'kova 1999, 79 p.). As a rule they display a cast fixed prong on one narrow side and are thus technically and functionally comparable with the afore-mentioned openwork belt plaques (lists 3a; 3b; 3c). Here too several variants can be distinguished among the frame belt buckles.

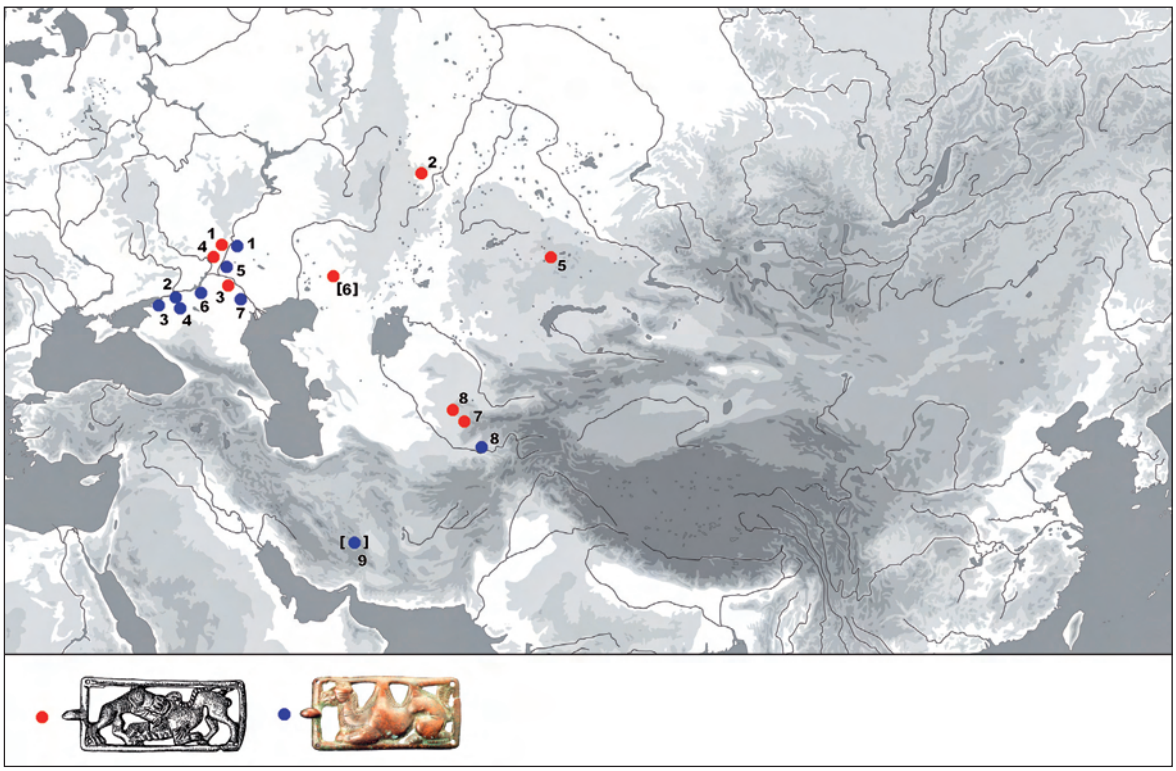


Fig. 35. Distribution map of frame bronze buckles with a fixed prong. Red dots, variant with depiction of camel combat (credits list 3a); blue dots, variant with standing or reclining camel (credits list 3b).

The first variant is denoted by the scene of battling animals, whereby a tiger is shown attacking a camel. Buckles displaying this motif are found in the area between Central Asia and the Ural mountains, the westernmost site being on the lower Volga river (Fig. 35, red dots; list 3a). In addition to the belt buckle, goods found in the grave in Petrunino (Fig. 36), included a sword, a dagger with sickle-shaped hilt and a mirror with thickened rim, among others, indicate that this was the burial of a male of high-ranking status of the early Sarmatian period (Sergatskov 1995, 153). The grave at Pisarevka can be assigned to the second half of the 1st century BC or around the turn of the millennia, BC–AD (Sergatskov/Shinkar' 2003, 168); it contained a fibula in addition to a belt buckle. Most comparable pieces come from northern Kazakhstan and Central Asia and were recently compiled by Korol'kova, who dates them to the time of the 2nd–1st century BC (Korol'kova 1999, 78 p., Fig. 6). Special mention should be made here of kurgan 1 in Karamurun II (Fig. 37), in which besides the sickle-shaped hilt of a dagger several arrowheads were also found. On the one hand, the arrowheads are of bone and have analogies in Xiongnu-period contexts in Transbaikalia[53], while, on the other, an iron three-winged arrowhead with tang is present, which finds adequate analogies in other graves containing frame belt buckles of the second variant, which will be discussed

53 Cf. Margulan 1966, 364 Fig. 55,2.3 with Davydova 1996, Pl. 9,8; 13,15; Margulan 1966, 364 Fig. 55,4 with Miniaev 1998, Pl. 63,9.

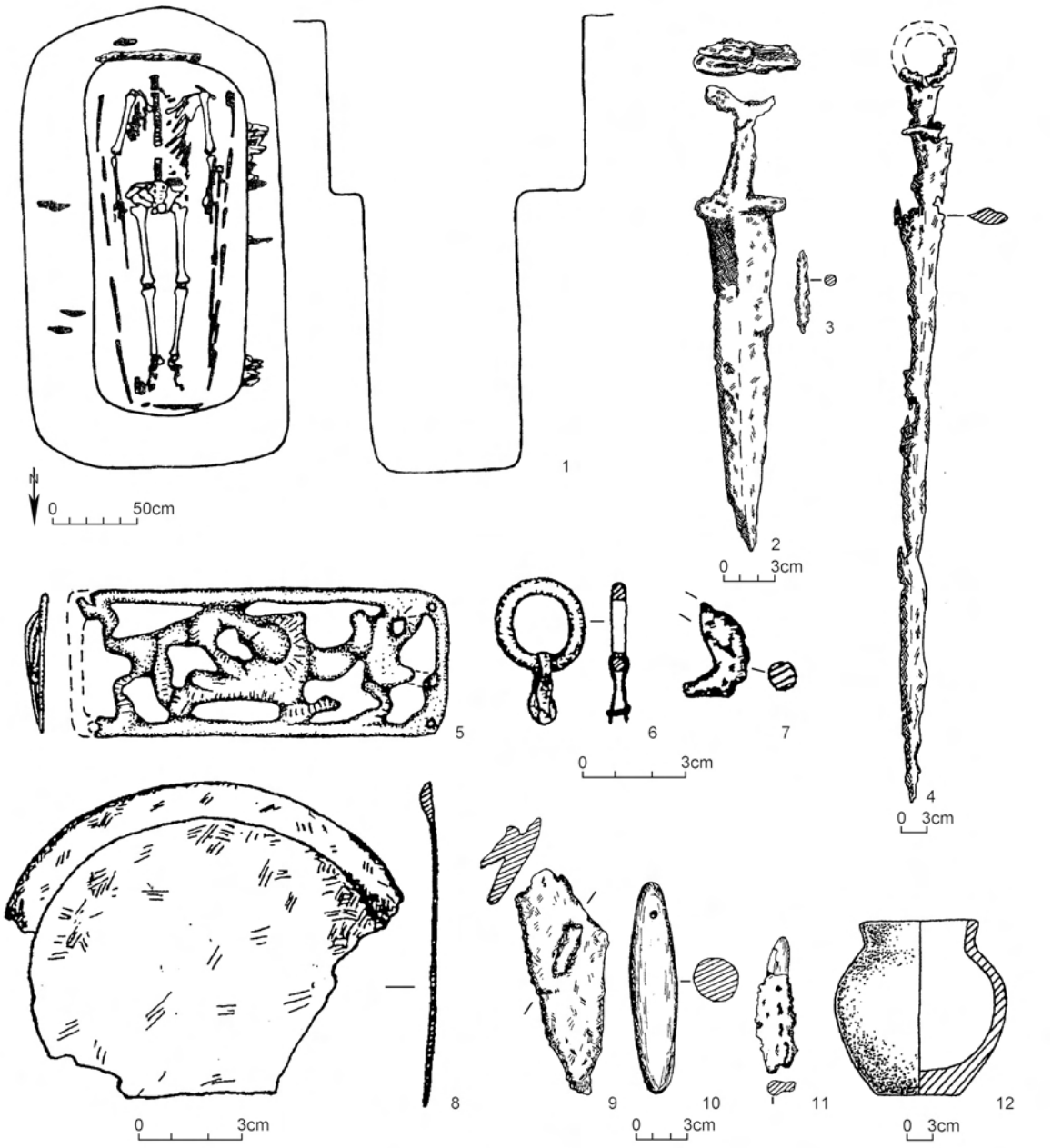


Fig. 36. Petrunino II, Russian Federation, kurgan 1, grave 14 (after Sergatskov 1995, 153 Fig. 4,9–14).

in the following[54]. Vishnevskaia, however, considers the grave as being somewhat older and places it at the end of the younger phase of the Tasmola culture (5th–3rd century BC)[55].

The second variant comprises belt buckles with a fixed prong, which bear the depiction of a reclining camel or, rarely, a standing camel (Fig. 34, blue dots; list 3b). One of these buckles

54 Cf. Margulan et al. 1966, 364 Fig. 55,6–10 with Mordvintseva/Shinkar' 1999, 146 Fig. 4,14: Belokamenka-II-88, K. 7, grave 3. Although the arrowheads in Pokrovka are in poor condition, they are likely the same type (cf. Iablonskii et al. 1994, 163 Fig. 85). The same motif – a camel attacked by a predatory animal – can be seen on the aforementioned belt plaque, but of wholly different workmanship than that from Isakovka, grave 6 in kurgan 3 (Mordvintseva 2003, 160 Fig. 45,6): it is covered in gold foil and inlaid with coral and turquoise (Mordvintseva 2003, 57).

55 Vishnevskaia 1992, 134; cf. Parzinger 2006, 650. The

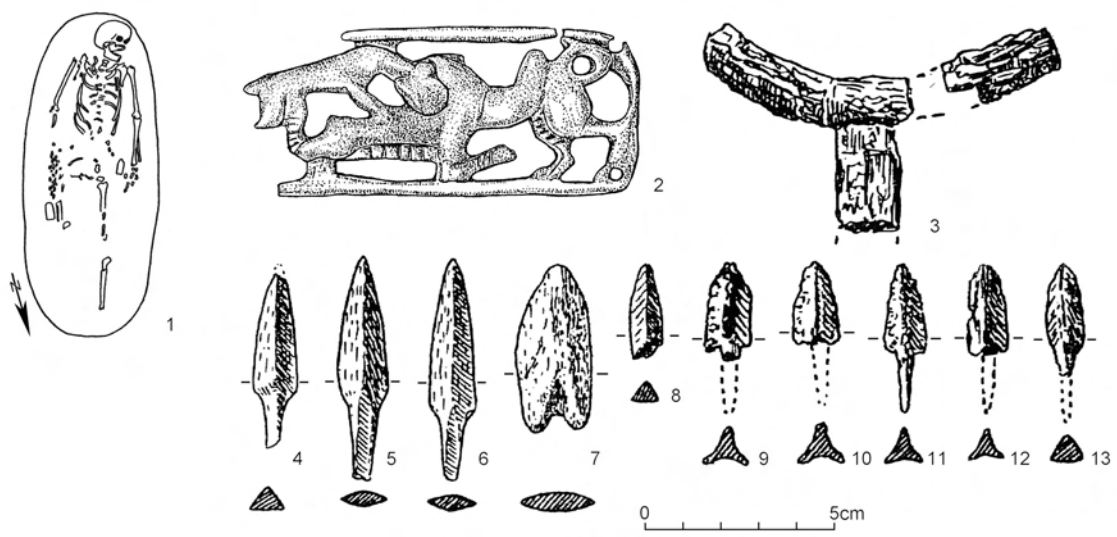


Fig. 37. Karamurun II, Kazakhstan, kurgan 1 (after Margulan et al. 1966, 364 Fig. 55).

comes from grave 3 in kurgan 7 at Belokamenka II-88: a double burial with a male and a female (Fig. 38). The belt buckle can be attributed to the man, who was buried with a long sword as well as a dagger, whose golden scabbard throat is decorated with the herring-bone motif. Both the dagger and the gold ornamentation have good analogies in the aforementioned grave 2 in kurgan 17 in Pokrovka, in which the Chinese belt plaque of the Xuzhou type was found (cp. Fig. 5). Also the fact that both of the deceased were buried with a golden spiral bracelet on the right hand is strongly indicative of the comparability of these two grave contexts[56]. As for the mirror with thickened rim found in the double burial in Belokamenka, parallels can be proposed from Petrunino, in the grave from which came the aforementioned frame belt buckle with the depiction of a tiger-camel battle (Fig. 36,8)[57]. The furnishings of the deceased male in Belokamenka can likewise be viewed as belonging to a person of higher standing and dated to the 2nd–1st century BC (Mordvintseva/Shinkar' 1999, 141). The same applies to the deceased buried in grave 2, kurgan 6 in Veselyi, who also was given a dagger in addition to a frame belt buckle with a camel depiction (Artamonov 1949, 312 pp. Fig. 16–19). The dagger and a jug have adequate analogies in the aforementioned grave in Pokrovka as well[58].

Klepikov and Skripkin date the graves containing frame belt buckles generally to the 2nd–1st centuries BC (Klepikov/Skripkin 2002, 58). The finds retrieved from the graves in which the frame belt buckles with fixed prong in both variants were found can be variously linked; for this reason their dating within the same time horizon seems likely. Observing the distribution

grave in Tastagym is likewise considered older in date, as there the buckle with the scene of fighting camels is associated with a three-winged arrowhead. In addition, the find of a leaf-shaped arrowhead is noteworthy, which, however, accidentally came into the grave (Akishev 1976, 188 p.). How this sparse information should be assessed is obviously not clear; therefore, the grave context will be rejected as a reliable basis for the early date of the camel buckle.

56 The bracelet from Belokamenka is published in a description, but not with illustrations (Mordvintseva/Shinkar' 1999, 138; cf. Iablonskii et al. 1994, 162 Fig. 84,1). A further link with other belt plaques is enabled through the dagger, which serves as a comparison with the dagger from grave 4 in kurgan 27 in Zhutovo. There the deceased was given a belt plaque with cruciform motif.

57 Cf. Mordvintseva/Shinkar' 1999, 146 Fig. 4,1 with Sergatskov 1995, 152 Fig. 4,13.

58 Cf. Artamonov 1949, 321 Fig. 18 with Iablonskii et al. 1994, 162 Fig. 84, 3.4. The jugs are not identical, but it is noteworthy that the inventory pattern is the same, consisting of a belt plaque, a dagger and a jug.

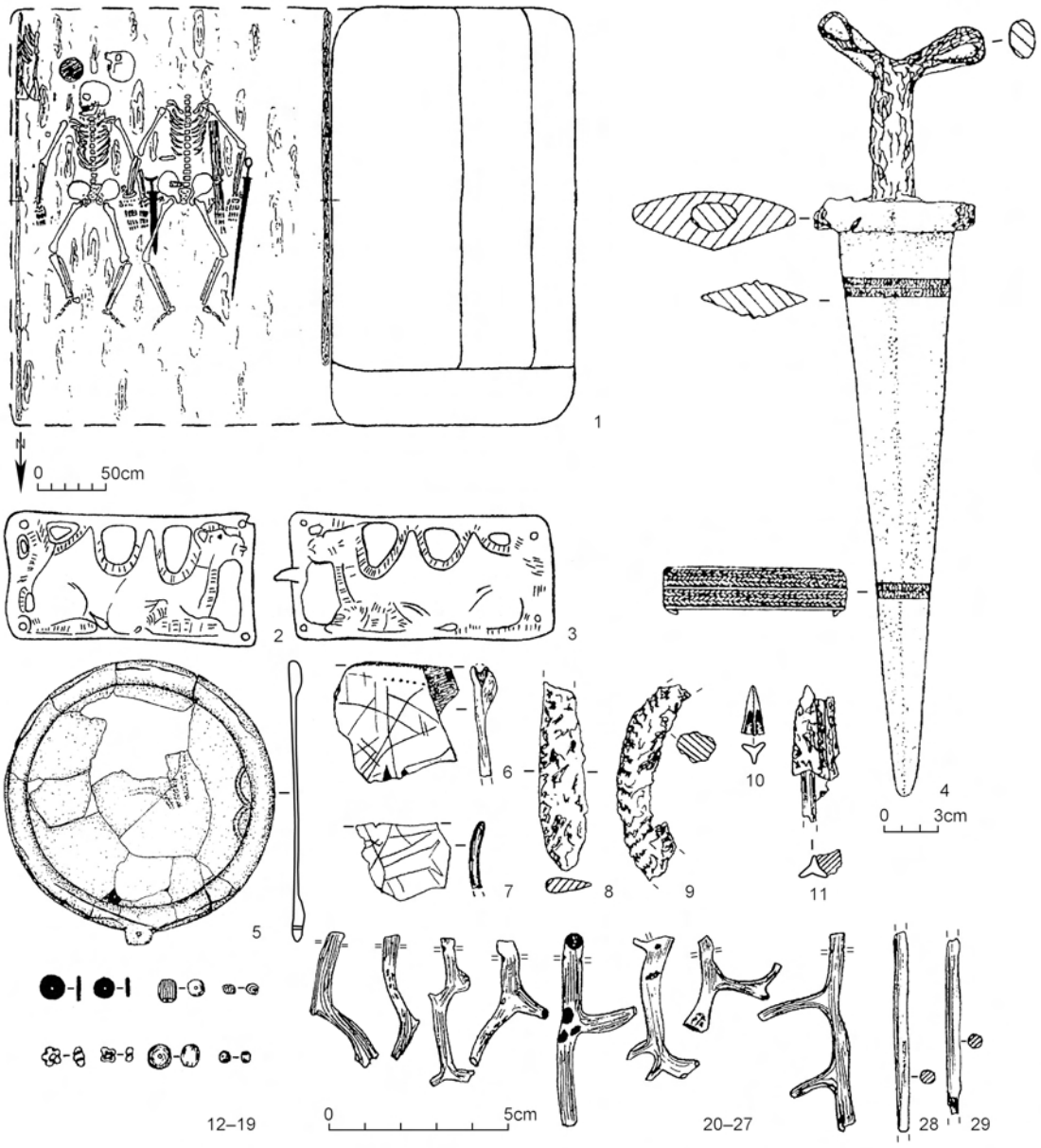


Fig. 38. Belokamenka, Russian Federation, kurgan 7, grave 3 (after Mordvintseva/Shinkar' 1999).

of both variants, it becomes apparent that they have different concentrations: Whereas frame belt buckles with the depiction of animals battling appear in the area between Central Asia and the Volga river, the variant depicting a reclining or standing camel appears foremost in the Volga-Don area and only rarely in Central Asia. The motif of a camel, as Korol'kova (1999, 76 pp. Fig. 4; 7; 8) has shown links these plaques also with China.

"Parthian" Belt Plaques

A further local variation of belt plaques are those designated as "Parthian". In his presentation of belt buckles and plaques in the Foroughi Collection, R. Ghirshman also pointed out their relatedness with those present in "Sarmatian" grave complexes (Ghirshman 1979, 173). Common

Fig. 39. Frame plaques. 1 Depiction of a wild cat, British Museum (after Curtis 2001, Pl. 13a, list 3e); 2–4 depiction of a rider (after Ghirshman 1979, Pl. 2,1.2; 3,1; list 3d); 5–6 depiction of a horned ungulate (list 3f).

to both is the fixed prong and the knob on the narrow side opposite of it[59], though, the differing motifs enable a finer typological subdivision to be made. The find contexts for belt plaques found in Iran are unknown, which is a hindrance to their cultural-historical assignment. Ghirshman's division of belt plaques is based mainly on the motifs depicted on them[60]. Accordingly, the plaques depicting riders form one group, from which two variants can be distinguished. The belt plaques in the Foroughi and the Heeramaneck collections and in the British Museum are characterised by figures of a rider in less relief extending beyond the frame and by the dotted concentric circle applied regularly in the four corners (Fig. 39,3.4; list 3d, no. 5–8). The other four buckles are stylistically heterogeneous (list 3d, no. 1–4). Those in the Foroughi collection (Fig. 39,2) and from Mechetsai in the southern Urals (Fig. 40,2) are especially similar. Although

59 Buckles with a fixed prong and button on the side opposite the prong, with a round or a figure-of-eight shape, are already known in early Sarmatian contexts (Moshkova 1960; 1963). Comparable buckles are known in the Near East – among other sites – from Susa, Tepe Giyan, Ktesiphon and Khoramrud, while related buckles display a duck's head. The last compilation and evaluation of the buckles were made by St. Hauser in 1993; they are dated to the 2nd century AD (Hauser 1993, 411 pp.; Curtis 2001, 306 p.).

60 Ghirshman 1979, 171. – The belt plaques depicting a pair, which date to the 1st to 2nd century AD and were examined in detail by Post in 1995, are very homogenous, for which reason they are mentioned only briefly here (Post 1995; list 3c). Examples of this variant are preserved without exception in private collections.

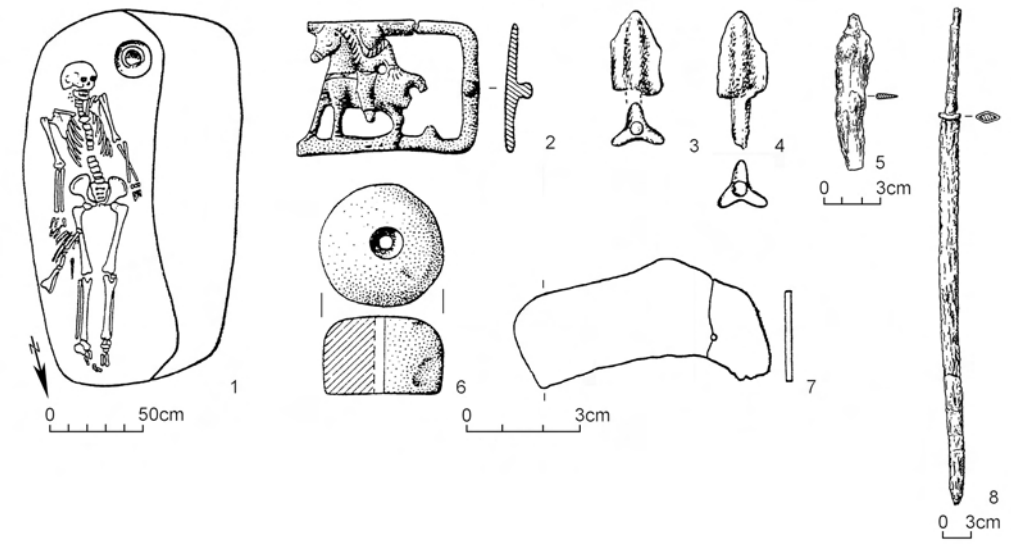


Fig. 40. Mechetsai, Russian Federation, kurgan 3, grave 11 (after Smirnov 1975, 101 Fig. 34).

the depiction on both displays little more relief than the aforementioned pieces, the figures are positioned within the frame of the plaque and do not extend beyond[61]. The belt buckle in the Heeramaneck Collection (Moorey et al. 1981, 116 Fig. 666) displays more relief in the rendering of a hunting scene and thus one can discuss its attribution: A belted rider chases a stag, which is attacked by two (?) wildcats[62]. The same modeling of the body is also found on the belt plaque in the British Museum on which a single wildcat looking backwards is pictured (Fig. 39,1), just like the buckle from Kazakhstan, which shows a mountain sheep (list 3e, no. 3; 4). Even though many of the specimens are found only in collections, the distribution map shows that the frame buckles with riders and single animals are to be found between the western bank of the Caspian Sea and Lake Balkhash (Fig. 41).

Among the frame belt buckles with images of animals, mention should be made of those with the figure of horned ungulates (Fig. 39,5.6; list 3f), which stylistically are closely related to the above named rider-buckles in the Foroughi Collection[63].

As most of the Parthian belt plaques are without any documented context, they can be dated and evaluated only to a limited extent. Ghirshman (1979, 170 pp.) compared them with depictions on full plastic figures and assigned them to the 1st to 2nd centuries AD. V. Curtis (2001, 311), on the other hand, based her study of Parthian belts on comparisons with sculptures in the round and considers it probable that Parthian belt plaques with images of animals and humans date to the 2nd and early 3rd centuries AD. Yet, she also demonstrates that repre-

61 The fragment of a frame belt buckle from Kampyrtepe, Uzbekistan, can be assigned to this variant as well (list 3d). It does not possess the knob on the opposite narrow side, which characterises "Parthian" belt buckles, and in view of its form belongs rather to group 2 of this study, however the rider motif assigns it to the frame buckles with rider depiction. The context within the settlement of Kampyrtepe is unclear (cf. Luneva 2001). The author identifies the motif as that of a winged rider upon a horse (Luneva 2001, 124 Fig. 2,7; Culture and Art 1991, 121 no. 141).

62 Likewise on a rectangular silver plaque inlaid with semi-precious stones, a stag is depicted in high relief, which however is attacked by a lion (7000 Jahre Kunst im Iran. Exhibition catalogue Villa Hügel [Essen 1962] 129 cat. no. 370). The function of the plaque is unclear; several perforations in it served for fastening. The larger round hole in the centre on the narrow side could have been for a rivet, if one wishes to assume that this was a belt plaque.

63 Cf. Ghirshman 1979, Pl. 2,3.4 with Pl. 2,1 and 3,2.

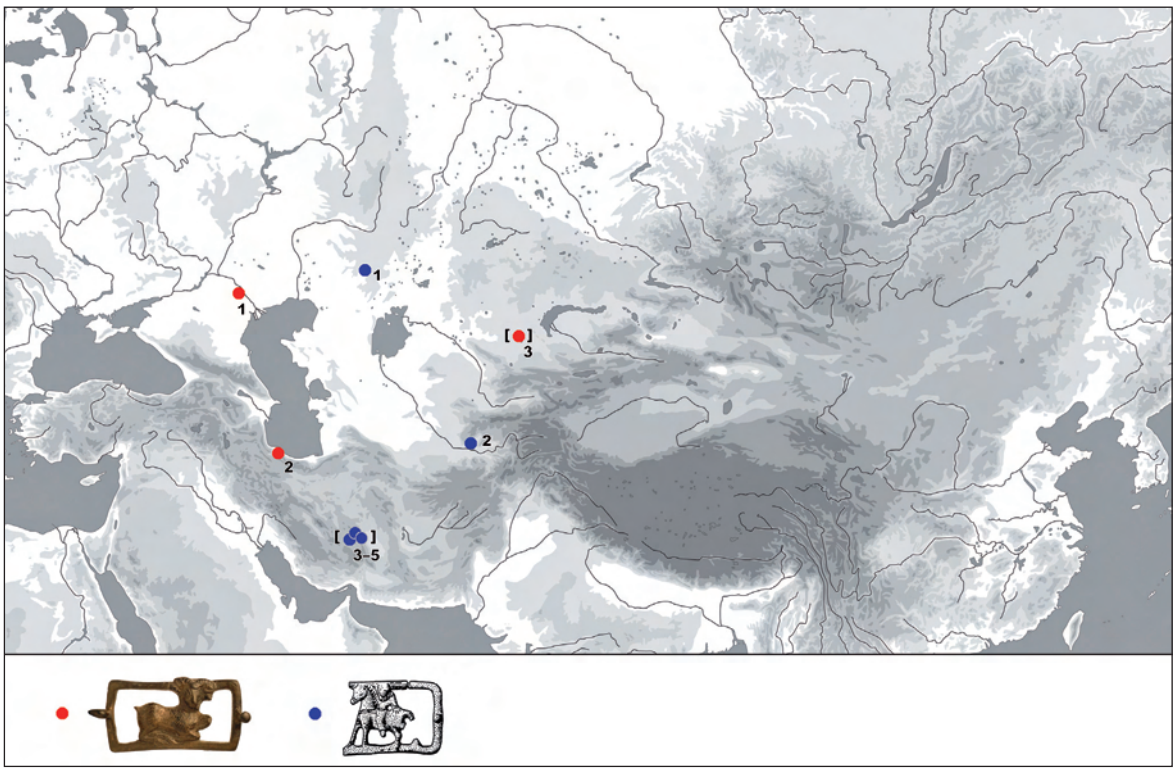


Fig. 41. Distribution map of frame plaques. Red dots: variant depicting single animals (credits list 3e); blue dots: variant depicting a rider (credits list 3d).

sentation of belts which consist of round or square belt plaques[64] already existed in the second half of the 1st century AD, albeit only on coins (Curtis 2001, 301), because sculptures of the early and middle Parthian age are scarce (Mathiesen 1992, 10 p.; 34). Most sculptures date only as late as the late Parthian period, that is, in the second half of the 2nd century and the beginning of the 3rd century AD, whereby the most detailed representations of belts are found on statues in Hatra in northern Mesopotamia, present-day Iraq (cp. Fig. 52; Curtis 2001, 302). Statues of the Kushan, to the east of the Parthian empire, also display belts with plaques; they likewise date to the 2nd to 3rd century AD[65]. However, these statues of late date and detailed representations show different belt plaques from those illustrated by Curtis from the British Museum (Curtis 2001, Pl. 12–13), and, therefore, her late dating for these particular examples is not convincing[66]. The "Parthian" belt plaques with animal and rider images are stylistically closer to frame belt buckles with camel depictions, yet those are obviously older (2nd–1st century BC).

64 As belt plaques are foremost of interest here, the illustrations of simple or knotted belts (Curtis 2001, 300 p.) are excluded.

65 Curtis 2001, 305 p. – As far as can be recognised, belt plaques of semicircular form are depicted on a clay sculpture of the temple in Dal'verzin-Tepe DT-25, which is dated to the 3rd–4th century AD (Ilyasov/Rusanov 1997/1998, Pl. 9,5).

66 Cf. Post 1995, 248 p.; Ghirshman 1979, 171. – Without question datable to the 2nd to 3rd centuries AD, and not to be confused with Parthian belt buckles (cf. Treister 2003, 247 p.) are those on which a very fully modelled Aphrodite Pandemos is depicted (cf. Treister 2003; Curtis 2001, Pl. 14a; Bilimovich 1962). These buckles display one or several rings on the lower long side and do not have a button on the reverse narrow side; there is instead a perforation on the side opposite the prong, in which appliqués could be hung (Bilimovich 1962, 44 Fig. 5). The buckles derive predominantly from the eastern Crimea and are of local, presumably Bosporean origin (Treister 2003, 248). The feature that they share with Parthian belt plaques is –

Representations of belt plaques on sculptures of the Parthian period offer clues to the social surroundings of the individuals who wore belts, as belts were worn only by kings or other high-ranking persons (Curtis 2001, 308 p.). Moreover, Post noticed that belts can be recognised mostly on medallions with half figures, whose attributes often identify them unmistakably as deities. This, thus, points towards the conclusion that wearing a belt decorated with the attributes of deities seems to have been the privilege of kings and very high dignitaries[67].

Belt Plaques of the 1st Century AD and Further Chronological Development

Elongated Belt Plaques with a Rounded Narrow Side

A later form of belt plaques in the eastern area is the tongue-shaped buckle with rounded contours, a movable prong and tapering sides (Fig. 42). Some made of silver have been dated as early as the Western Han period (e.g. Sun 1994, 56 Fig. 7,1); however, the majority of plaques made of gold or jade seem to belong to contexts of the Eastern Han (25–220 AD) or Western Jin (265–316 AD) periods[68]. In particular, golden buckles with frequent use of granulation or imitations thereof as well as multi-color stone inlays exhibit an almost 'baroque' ornamentation. Likewise with tapering sides and a fixed prong are massive belt plaques, which are usually associated with the Xianbei, such as the belt plaques found in Laoheshen, similar to the ones shown in Fig. 40,3.4[69].

The elongated form of such belt plaques is repeated in the ostentatious burial of Gol Mod T20 in Mongolia, one of those "Xiongnu" Elite terrace graves which had been excavated in the recent years (Fig. 43,2). The belt plaque with a fixed hook on the verso is manufactured as an iron base with gold foil on top and rivets of copper alloy. Belt plaques in general are rare in these elite terrace tombs, which all date at the earliest to the second half of the 1st century BC and mostly

aside from the rectangular form – the central figure, which either bursts the frame or protrudes beyond it. A buckle allegedly from Ephesos is comparable in its construction with two perforations, an argument that Treister uses in proposing its origin in the northern Black Sea area (Treister 2003, 249). The narrow sides are tapered; the central figure, a sphinx, is silver plated.

67 Post 1995, 249; cf. Brentjes 1989, 42 p. Deities as ornaments are found on the aforementioned belt plaque that displays the Aphrodite Pandemos from the Crimea (see preceding footnote). Several features allow a group of almost square belt appliqués found in Georgia to be added here (Curtis 1977): they are in openwork with depictions of animals. The manner of fastening, however, is wholly different: there is neither a fixed prong nor any button. Instead there is a large, semi-spherical rivet in each of the four corners, with which the appliqués could be fastened to the belt. Curtis also assigns them to the 1st–2nd century AD, so that these belt appliqués can be viewed as a Georgian variant of belt plaques and as the tradition of metalwork of the Koban culture (Curtis 1977, 92; 95).

68 Gold buckles are known for example from Anxiang county, grave of Liu Hong (Sun 1994, 55 Fig. 6,3; So 1997, 73 p. Fig. 8). The examples from Yanqi, Xinjiang province and in the Museum in Pyöngyang have only a general date to the Han period (Sun 1994, 55 Fig. 6,1.2). Made of jade: Luoyang, grave 15, Eastern Han period (Sun 1994, 57 Fig. 8,1). A buckle without decoration stems from Luoyang (So 1997, 73 p.). The belt plaque in the museum in Shanghai is dated on the basis of an inscription to the year 371 AD (Sun 1994, 57 Fig. 8,3). This form of belt plaques is dated in catalogues often to the Western Han period (cf. Zhixin Sun in: Bunker et al. 2002, 112 pp. and Musée Cernuschi 2005, 63 p. No. 30). Not purporting completeness, additional examples are known in Heigeda, Yanqi, Xinjiang (Bunker 1997b, 94 Fig. 1); private collections (Bunker et al. 2002, Nr. 82; 83; Zhixin Sun in Bunker et al. 2002 no. 84).

69 The following belt plaques can be assigned to this type, on which a horned horse is depicted: Laoheshen, Jilin province (Bunker 1997a, 304 Fig. W17); northern China: (Zhixin Sun in: Bunker et al. 2002, no. 85 with further comparisons) and the multipart belt from Tumd zuo Banner, Hohhot, Inner Mongolia (China 2004, 126 no. 26.) as well as Transbaikalia, Dzhidinskii raion, Buriatiia, Russian Federation: Enkhor, grave 52 (Huns 2005, 45 no. 59–60). Displaying a different decoration, but comparable in their form are belt plaques from Lingpiyao and Taoheqi (Sun 1994, 60 p. Fig. 11).

Fig. 42. Elongated, tongue-shaped belt plaques with a rounded narrow side (after Bunker et al. 2002, 112 pp. No. 82; 84; 86).

to the 1st century AD (see Brosseder 2009). However, from the terrace tomb Tsaram, kurgan 7 two iron plaques are known, smaller in size and differing in their form, but also made of an iron base covered by gold foil (Fig. 44,3). According to the authors, a satyr, a Greek mythological figure is depicted, with a big nose, whose eyebrows, eyes and mustache are inlaid with black stone whereas parts of the ears and the barrette were inlayed with turquoise. The manufacturing resembles that of the plaque of kurgan 43 in Ialoman-II in the Russian Altai (see Tishkin this volume). Here, a wooden backing was covered with gold foil, depicting a beast which looks like a dragon, for which only the eyes were inlaid with black stone. While the manufacturing of a gold foil covering a base is similar between these plaques it seems that the geographic orientation in the choice of motif is opposite: in one case the west in the other the east.

In western Mongolia, in grave 15 of the cemetery of Shombuuzyn Belchir, a cemetery where no terrace tombs are known an elongated belt plaque made of iron with a covering of gold foil was also discovered (Miller et al. 2009a, 11 Fig. 8). The radiocarbon date of a sheep bone from this context falls between 133 and 213 AD[70].

Possibly, the older published semi-circular massive belt plaques of Dyrestui also belong to these later specimen (Fig. 44,1.2). There only the gold foil with relief decoration is preserved from one plaque which was likely applied to a wooden core (Konovalov 1976, 186). The wooden base of the other plaque is still preserved. Their short form reminds vaguely of the extraordinary belt plaque from Orlat (Fig. 45; 46; list 9), even though they are smaller[71]. There, the remains of

70 See U. Brosseder/J. Bayarsaikhan/B. K. Miller/Ts. Odbaatar, Seven Radiocarbon dates for Xiongnu Burials in Western and Central Mongolia. Nüüdelchdiin öv sudlal. Нүүдэлчдийн өв судлал 11, 2011, in print.

71 Orlat: 13.5 x 11 cm (Ilyasov/Rusanov 1997/1998, 107; Dyrestui, grave 28: 9.8 × 7.4 cm (Konovalov 1976, 136 with Fig. 101; 136); Dyrestui, grave 21: 9.6 × 6.9 cm (Konovalov 1976, 186; Pl. 21,1; Miniaev 1998, Pl. 5,6; Rudenko 1969, 152 Fig. 58; Huns 2005, 55 Fig. 117).

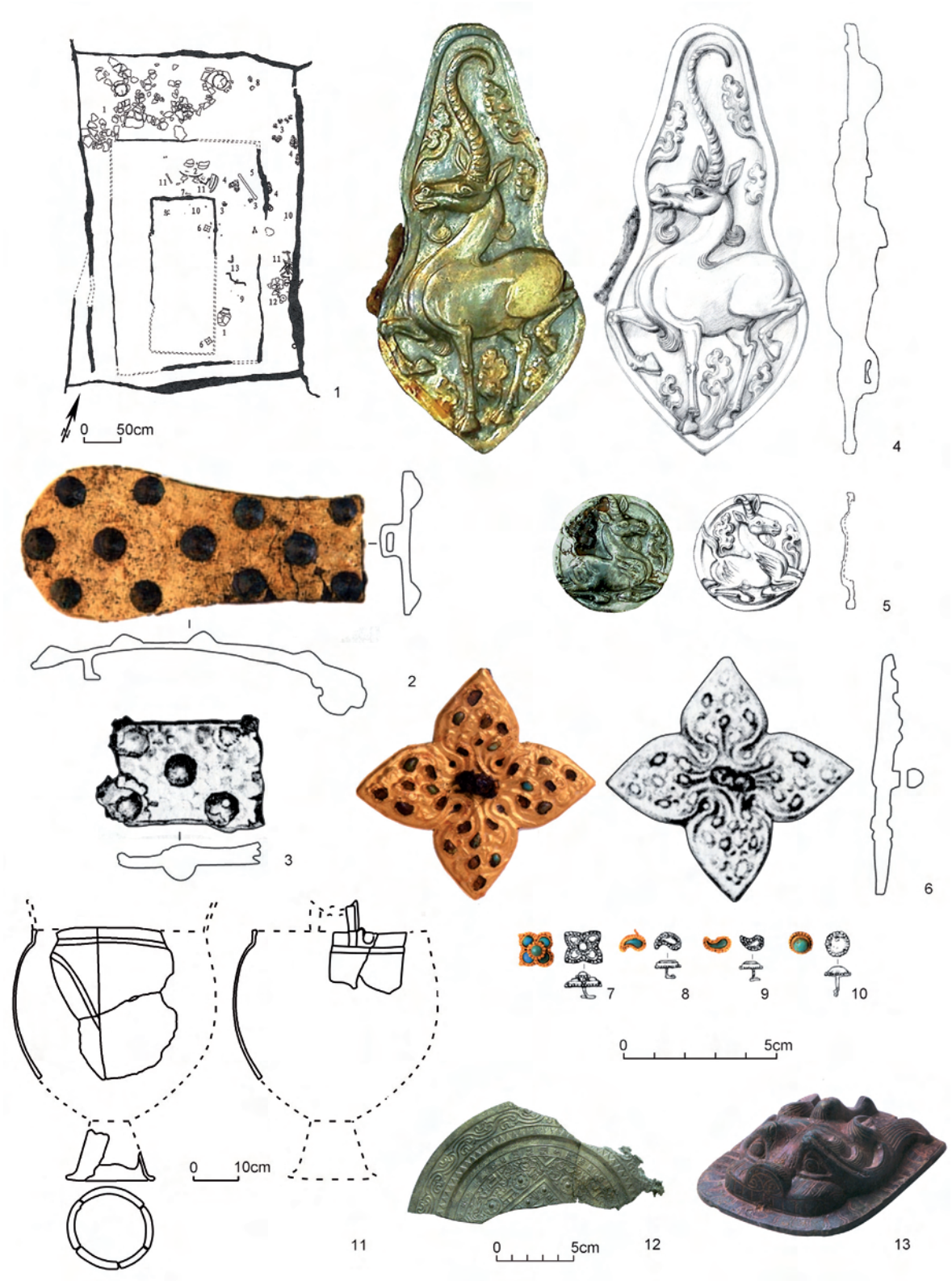


Fig. 43. Gol Mod T 20, Mongolia. Part of the inventory (after Erööl-Erdene/Gantulga 2008; Xiongnu Tombs 2008, 46 pp.).

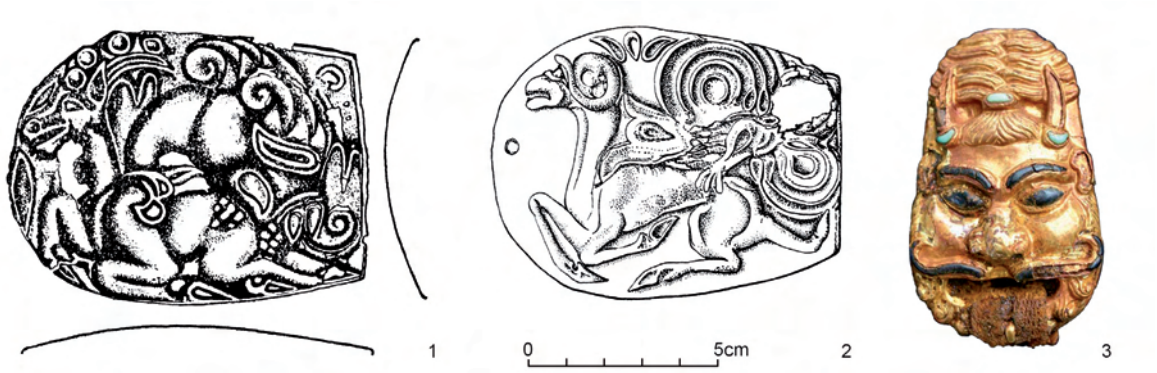


Fig. 44. Remains of semi-circular plaques from Transbaikalia. 1 Dyrestui, grave 28 (after Konovalov 1976, Pl. 21,2); 2 Dyrestui, grave 21 (after Rudenko 1969, 152 Fig. 58); 3 Tsaram, kurgan 7 (after Miniaev/Sakharovskaia 2007a, 53 Fig. 18).

a double burial were documented in a destroyed kurgan, 50 km northwest of Samarkand. Among the grave goods, the outstanding objects were weaponry with bow-and-arrow pieces, a sword with crossguard, a scabbard slide made of nephrite, and also two semicircular belt plaques made of bone, in which a hunting and a combat scene, respectively, were incised (Fig. 46,35.36). According to Ia. Ilyasov and D. Rusanov the grave dates to the 1st–2nd century AD[72]. The authors compared the belt plaques from Orlat with others in Central Asia (Ilyasov/Rusanov 1997/1998, 108 pp.), especially in order to clarify the function and dating of the plaques. That long distance connections between the site in Transbaikalia and Orlat in Uzbekistan are not a completely far-fetched notion can be shown by other groups of materials and, thus, possibly allows the conclusion that the date of the belt plaques in Transbaikalia does not differ greatly from those in Orlat, that is, the 1st–2nd century AD[73].

Furthermore, belt plaques with straight sides, one rounded narrow side and a movable prong appear during the Western and Eastern Jin periods in China (Sun 1994, 58 Fig. 9). Here, too, there are no comparable pieces known farther west, except for depictions of such belt plaques on statues of Kushan time[74]. This form of belt plaques, made of bone, is also known from "Xiongnu" satellite grave 1 of terrace tomb 82 at Takhiltyn Khotgor (Miller et al. 2008, 32 Fig. 13).

72 Ilyasov/Rusanov 1997/1998, 130. They compiled earlier discussions about the find context and its dating (Ilyasov/Rusanov 1997/1998, 107 pp.; 123 pp.). Thereby they delimit the dating by means of the grave form, while asserting the individual grave goods as hardly useful for a temporal assignment (Ilyasov/Rusanov 1997/1998, 124–125). For the argumentation towards a dating to the 3rd century AD see B. A. Litvinsky, The Bactrian ivory plate with a hunting scene from the Temple of the Oxus. Silk Road Art and Archaeology 5, 2001, 137–166.

73 Discovered in grave 2 at Orlat was a bow strengthener, for which analogies can be found in Transbaikalia (cf. Fig. 45,21–27 with Konovalov 1976, Pl. 4–5); this applies as well to the arrowheads, which even have analogies in grave 28 at Dyrestui, in which a semicircular belt plaque was found too (cf. Fig. 45,11–16 with Konovalov 1976, Pl. 1,8–9). Whereas these similarities are not surprising and very general the iron strap ends from Orlat find good analogies in Transbaikalia (cf. Fig. 45,29 with Konovalov 1976, Pl. 14,1–14) as well as in grave 1 in kurgan 19 at Sladovskii (Maksimenko/Bezuglov 1987, 185 Fig. 2,18–20). Furthermore, the same kind of iron discs with a suspension loop were present in grave 28 at Dyrestui (Konovalov 1976, Pl. 15,5–8) and in grave 1 in kurgan 19 at Sladkovskii (Maksimenko/Bezuglov 1987, 185 Fig. 2,4.5). Moreover, from Sladovskii the sword with a crossguard and a scabbard slide of nephrite can be named (Maksimenko/Bezuglov 1987, 185 Fig. 2,1.2.7), for which also a parallel from Orlat (Fig. 45,4) can be mentioned. For these scabbard slides see Trousdale in Bulletin of the Asia Institute N.S. 2, 1988, 25pp.

74 Sun (1994, 59 Fig. 10,1) refers to a statue in Hatra, with which further statues can be linked: cf. Rosenfield 1967, Pl. 8; 12; 13; 137; 139.

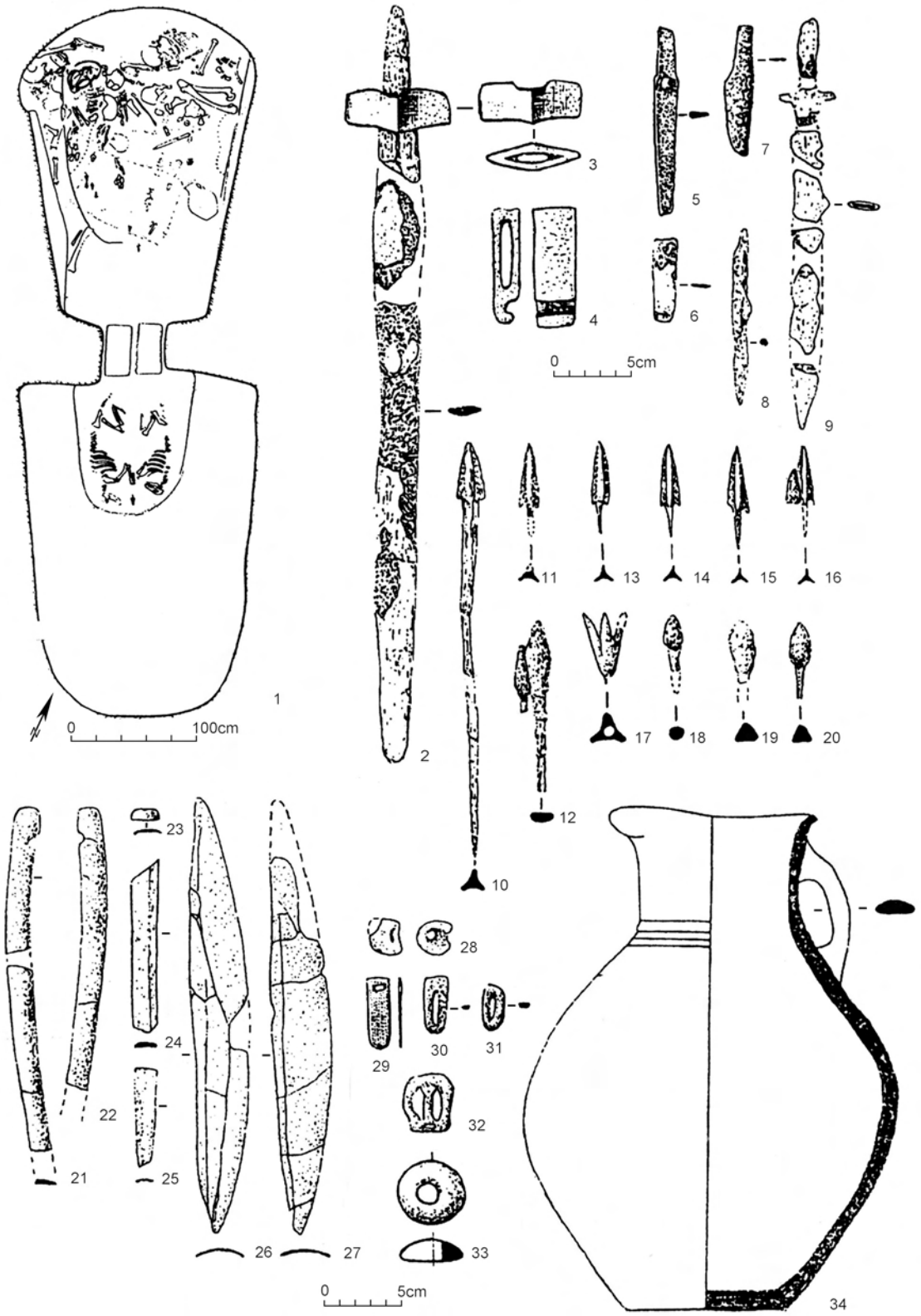


Fig. 45. Orlat, Uzbekistan, grave 2, part of the inventory (after Ilyasov/Rusanov Pl. 2–3).

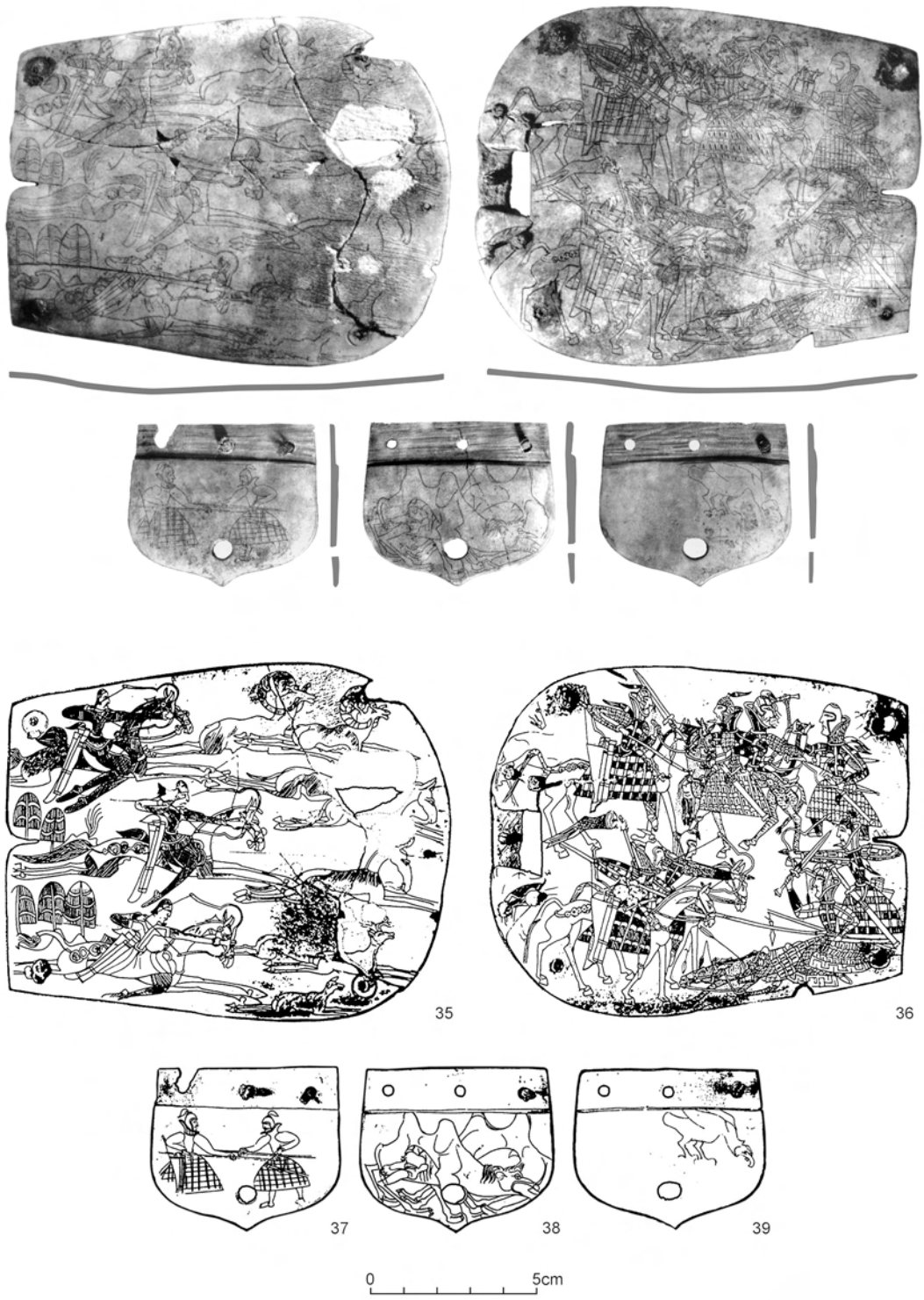


Fig. 46. Orlat, Uzbekistan, grave 2, belt plaques (after Ilyasov/Rusanov Pl. 4–5; Culture and Art 1991, 176 pp. No. 272–276)

All these examples find no parallels in the western area of study, in the northern Black Sea region or the Volga-Don region, where different type of belts are known.

Baranovka Type

Massive belt plaques with a fixed prong or rivet were grouped to the Baranovka type (list 5). The belt buckle from Baranovka site was covered in silver foil, on which a sphinx is depicted. The buckle was part of a grave inventory that included – besides a jug – a ca. 30 cm long knife. The grave is generally assigned to the middle Sarmatian period (Dvornichenko/Feodor-Davydov 1989, 38). The grave in kurgan 12 in Nikol'skoe (Fig. 47) was richly furnished and contained a similar belt plaque, which was covered with gold foil and decorated with an imaginary winged, griffin-like being with stone inlays. Among the grave goods were not only a massive thickened gold bracelet with truncated terminal, but also a dagger with a ring-shaped pommel, horse-gear with ring-shaped psaliae and a patera with a ram's head handle, designated type E, Millingen according to Nuber (1972, 45 pp.), or type 155 according to Eggers (1951)[75]. While Shilov (1975, 150–153) assigns the complex to the first half of the 1st century AD, Zasetskaia (1979, 112) dates the grave in Nikol'skoe to the second half of the 1st and beginning of the 2nd century AD. The beginning of production of the service type Millingen, consisting of a pitcher and a bowl, has been placed in the time of the Roman Emperor Claudius (Petrovszky 1993, 111; Nuber 1972, 53 p., fn. 293), and the complex of Nikol'skoe can accordingly be dated to the first half of the 1st century AD at the earliest[76].

The fragment of a comparable iron belt plaque with gold foil sheathing was found in the kurgan at Vozdvizhenskaia, which was richly furnished with weapons, horse-gear, bronze cauldrons, a glass skyphos and a silver vessel. In addition, a gold neckring with slightly thickened terminals was found in the earthen part of the kurgan (Gushchina/Zasetskaia 1989). The grave was dated to the decades around the turn of the 1st millennia BC–AD (Gushchina/Zasetskaia 1989, 88)[77].

Even though there are uncertainties concerning the fine chronological assignment, it seems that these belt plaques embody a younger tradition[78]. Once more it is apparent that plaques were

75 Paterae with a ram's head handle have been studied frequently, in most detail by Nuber (1972, 45 pp.) and most recently by Petrovszky (1993, 110 p. type IX,1 with older literature). The ram's head of the patera from Nikol'skoe can be well compared with the bowl from Haltern, whereby there it is designated as Eggers type 154 (Müller 1997, 19 p. Fig. 12 cat. no. 44).

76 A fine chronological division is indicated by bowls of the Millingen type (cf. Nuber 1972, 46; Petrovszky 1993, 110); quite comparable with the handled bowl from Nikol'skoe is that from Łęg Piekarski (Inventaria Arch. Pologne 5 [Łódź 1961] Pl. 33,5), which is dated to phase B1c, the third quarter of the 1st century AD (J. Andrzejowski, Łęg Piekarski, Ldkr. Turek, Woiw. Wielkopolskie. In: Chr. Leiber/N. Berndt/A. Kokowski [eds.], Die Vandalen. Die Könige, die Eliten, die Krieger, die Handwerker. Ausstellung im Weserrenaissance Schloss Bevern vom 29. März bis 26. Oktober 2003 [Nordstemmen 2003] 468–469), although many handled bowls cannot be used as exact typological comparisons due to their imprecise drawings or photographs (see for example Archaeologiai Értesitő 2, 1882, 71 No. 4 or Buiukliev 1986, Pl. 3,24). Hence, a better assessment seems possible only after some of the older finds and the publication of examples from Pompeii are presented anew.

77 Limberis and Marchenko (2003, 108) present the same date. The glass skyphos is type IIIa, variant 2 according to Zasetskaia/Marchenko 1995, 94; cf. also Gushchina/Zasetskaia 1989, 98.

78 A belt plaque found in Olbia was likewise dated to the 1st century AD (Treister 2003, 250 pp., Fig. 3–5; Pharmakowsky 1914, 254 pp., Fig. 78–80). This rectangular gold buckle has one straight narrow side and one rounded narrow side; a fixed hook/button and a rectangular perforation are located on the straight narrow side. Depicted upon the buckle is a winged griffin, which matches the aforementioned buckles. Possibly it compares with the bronze belt buckle covered with gold foil from the northern Black Sea area, which is rectangular with one rounded side too (Rudenko 1966, 16 Fig. 4). A frame with a fixed prong is attached to the narrow side. The buckle differss in the scene depicted upon it of fighting animals: a winged griffin attacks a horned animal.

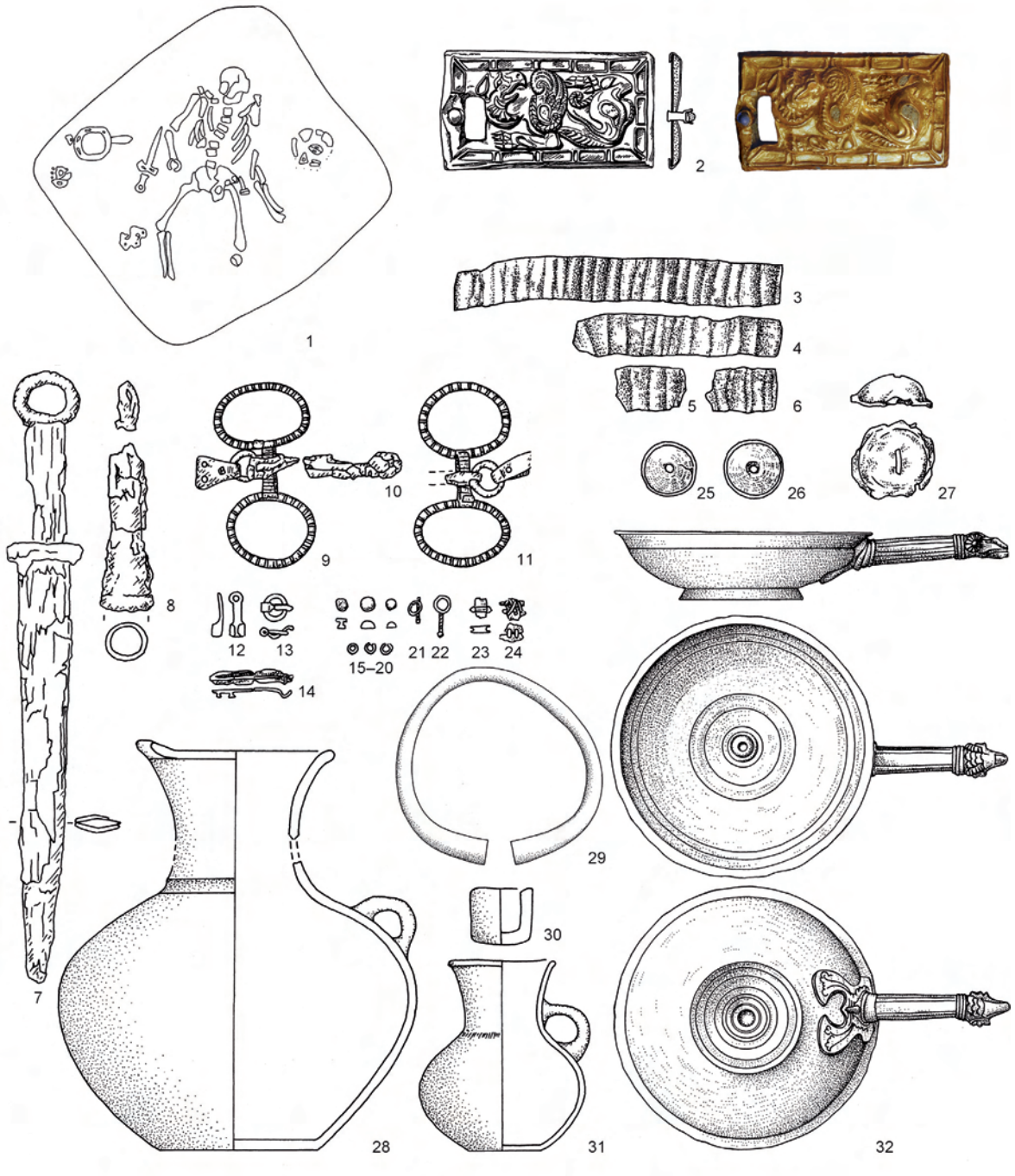


Fig. 47. Nikol'skoe, Russian Federation, kurgan 12, grave (after Tesori 2005, 154 Fig. 119; C. von Carnap-Bornheim/ J. Ilkjær, Illerup Ådal 5. Die Prachtausrüstungen [Aarhus 1996] 362 p. Fig. 233).

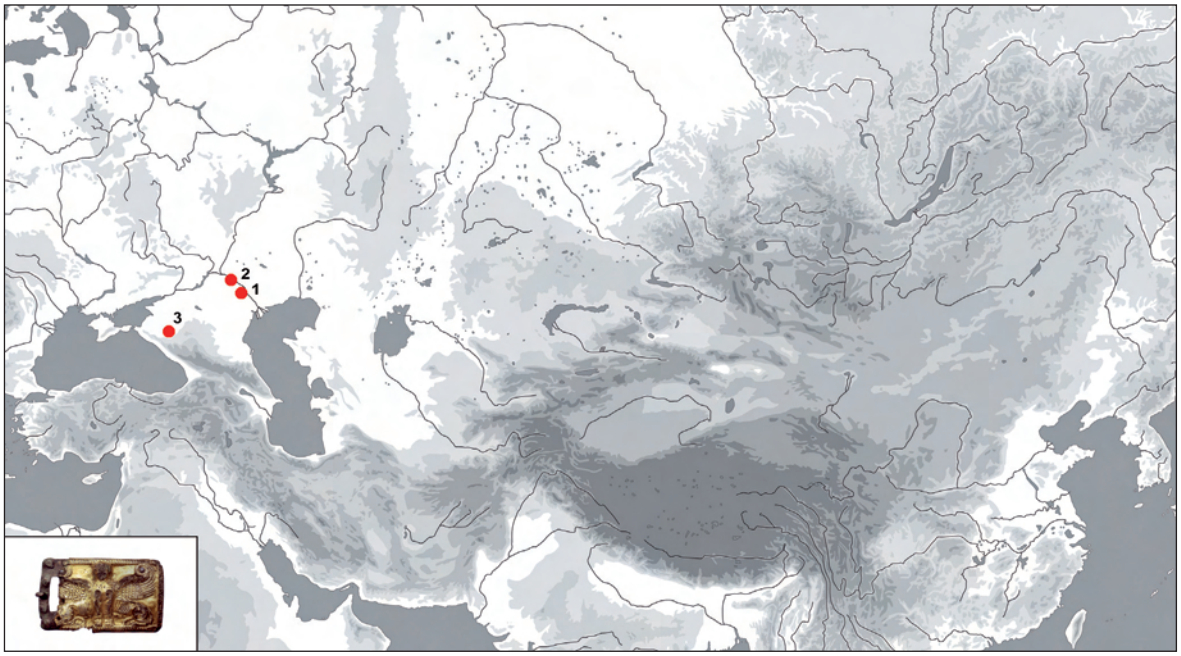


Fig. 48. Distribution map of massive rectangular plaques of the Baranovka type (credits list 5).

components of the funerary furnishings of high-ranking deceased persons. Belt plaques of the Baranovka type appear along the Lower Volga to the Black Sea Coast (Fig. 48), i.e. in the same area as frame belt buckles carrying depictions of a standing or reclining camel (cp. Fig. 35 blue dots)[79].

Besides the few plaques of the Baranovka type one can find only spectacular, unique belts in ostentatious burials of the 1st century AD.

At most, the buckle found in the richly furnished grave 1 at Porogi can be mentioned, which possesses a similar form with tapering sides and one rounded narrow side (Fig. 49; 50,21.22.29.30; Simonenko/Lobai 1991, 21 Fig. 12). This grave was dated by some scholars to the last quarter of the 1st century AD (Simonenko/Lobai 1991, 61), whereas Mordvintseva (2003, 94) places the grave in the middle of the 1st century AD. However, as exact analogies for the fibulae cannot be proposed and as a fine relative chronology for this area does not yet exist, the absolute dating of the complex is complicated. From a central European point of view the fibulae would date either to the late phase B1 or phase B2, and this would not exclude a possible date for grave 1 in Porogi to the end of the 1st or the first half of the 2nd century AD[80]. The buckle itself, which

79 Comparable belt plaques but made of iron and without any decoration are also known in Central Asia, for example, from the cemetery at Tulkhar, Tajikistan (Mandel'shtam 1966, Pl. 41,15–17; 42,5–8). Iron buckles without decoration were also found in the cemetery at Aruktar too (Mandel'shtam 1975, Pl. 14,4.7.8). The buckle from Kosika is made of different material – bone; however, it was not used as a belt buckle; it is mentioned here, because its form displays great similarity with the Baranovka type (Tesori 2005, 119 no. 63; 175 Fig. 20,2). The grave in Kosika is dated with a *terminus post quem* of second half of the 1st century BC (Treister 2005, 223–240).

80 The authors Simonenko and Lobai (1991, 53) see great similarity between the bronze fibula in the male's grave and those in the female's grave, which solely in view of the form and the manner of the bow is not convincing. Their opinion of these bronze fibulae as the smaller version of the form Almgren 67–69 is likewise questionable, for there is an earlier kind of trumpet fibula, which is close in form to Almgren 74, whereby in front view the head resembles the form Almgren 75. From a central European standpoint, it can be ascribed to either late phase B1 or the early phase B2. An overview of the state of research according to Almgren is offered by Kunow (1998). The authors further point out com-

exhibits the figure of a man holding two griffins in three-dimensional high relief, is unique, yet a few elements allow for comparison with other belt buckles. The buckle closes with a "pin", whose upper end is formed as flower petals. This form is already encountered on the buckle found in Nikol'skoe. Representation in high relief and a pin as a fastener are also features exhibited by the buckle from grave 1 in Kosika with the depiction of a porcupine (Tesori 2005, 128 p., Fig. 77; 78). The dating has been discussed extensively by Treister (2005, 223–240) who assigns this grave a *terminus post quem* of 47/46 BC. Other authors do not exclude a later dating to the 1st century AD[81].

Similar in their three-dimensional figures are the medallions on the belt from grave 4 in Tillia Tepe, which is assigned to the 1st century AD (Fig. 51; Sarianidi 1985, 150 pp.; 1989). The figure of a female, who rides upon a lion, possibly representing the goddess Nan, appears almost like fully modelled sculpture[82]. Similar belts are represented on the aforementioned statues of kings in Hatra, dated to the 3rd century AD (Fig. 52; cf. Rosenfield 1967, Pl. 136). Stylistically comparable are the two golden buckles in the British Museum and the Metropolitan Museum of Art, which allegedly derive from the area of Nihavend in Iran and which possess a knob on one side (Curtis 2001, Pl. 14). The rim of the buckles is decorated with a reserved space filled with the egg-and-dart motif and inlaid with turquoise. This kind of frame as well as the figure in high relief are found again on a golden belt plaque from Saksanokhur, Tajikistan, which is dated to the 1st–2nd century AD (Oxus 1989, 53 no. 25). The plaque depicts a rider who wears a long, belted mantel and is shown killing a wild boar. The same egg-and-dart frame is also found on the golden belt plaque decorated in animal style in the Witsen Collection (Rudenko 1966, 11 Fig. 1).

Even though the last two buckles named here do not form one and the same type, they can be linked through specific elements exhibited by both and ultimately by the fact that they are wholly made of gold. With that their datings draw near, so that it can be suggested that they were once part, *grosso modo*, of the 1st century AD, or at least that they display a trend which was later than that of the types and variants discussed above – with the exception of the Baranovka type.

Insofar as the contexts are documented, as is the case with Tillia Tepe, Porogi and Kosika, it can be stated that these gold buckles belong to the uppermost ruling class in society. These individual splendid pieces embody a means of representation and manifestation of status and prestige.

parisons with pre-Roman Dacian fibulae, considering the two bronze fibulae as Dacian imports (Simonenko/Lobai 1991, 53). The last compilation of fibulae from Roman Dacia does not offer any precise comparable pieces, but similarities to the trumpet-form fibulae of type 6b2 are present (Cociş 2004, 43; esp. Pl. 3,31), which appear above all on the lower Danube river and also in the province of Dacia and in the northern Black Sea area during the second half of the 1st century AD (Cociş 2004, 43). A satisfactory analogy is offered in the fibula from kurgan 3 in Stanitsa Kazanskaia, which according to Gushchina and Zasetskaia (1989, 37; 42) belongs to their second and third chronological group, placed in the second half of the 1st and 2nd century AD. Thereby the fibula itself is assigned to the 1st century AD or those from grave 9/1956 in Kobiakovo (Kosianenko 1987, 46 Fig. 1,1). – The silver fibula is a singular piece (Simonenko/Lobai 1991, 52); the authors firmly regard it as being typologically close to the forms Almgren 102 (small foot plate and a cord leading around the bow) and Almgren 26–28, but this comparison is not convincing. In view of the wide spiral and the low pin holder this fibula form could also be later than the bronze fibula. Here I express my thanks to Jacek Andrzejowski, Warsaw, and Jan Schuster, Łódź, for their friendly help and constructive advice.

81 Mordvintseva 2003, 87; Tesori 2005, 128. A less elaborately worked buckle of a belt was found in Novyi, kurgan 70, grave 20 (Steppengold 2003, 119 no. 84). However, it diverges in its depiction of a cowering animal, and fastening by means of a stud, which is not illustrated (or preserved).

82 Sarianidi 1985, 38 p. The motif of the riding goddess is encountered on belt buckles of the 2nd and 3rd centuries AD in the Bosporan area.

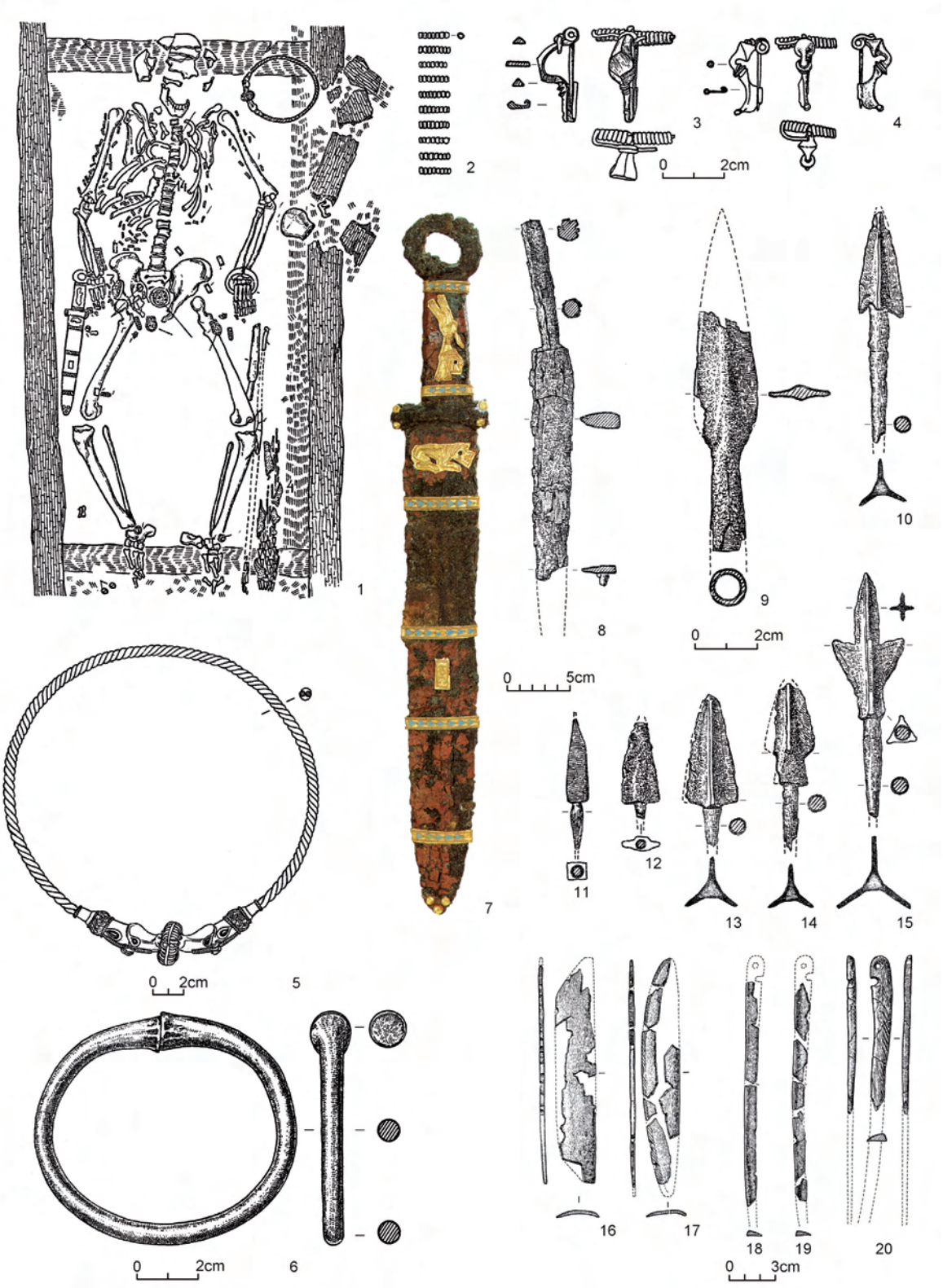


Fig. 49. Porogi, Ukraine, grave 1. Part of the inventory (after Simonenko/Lobai 1991; Ori dei Cavalieri delle steppe. Exhibition Catalogue Trento [Milano 2007] 203).

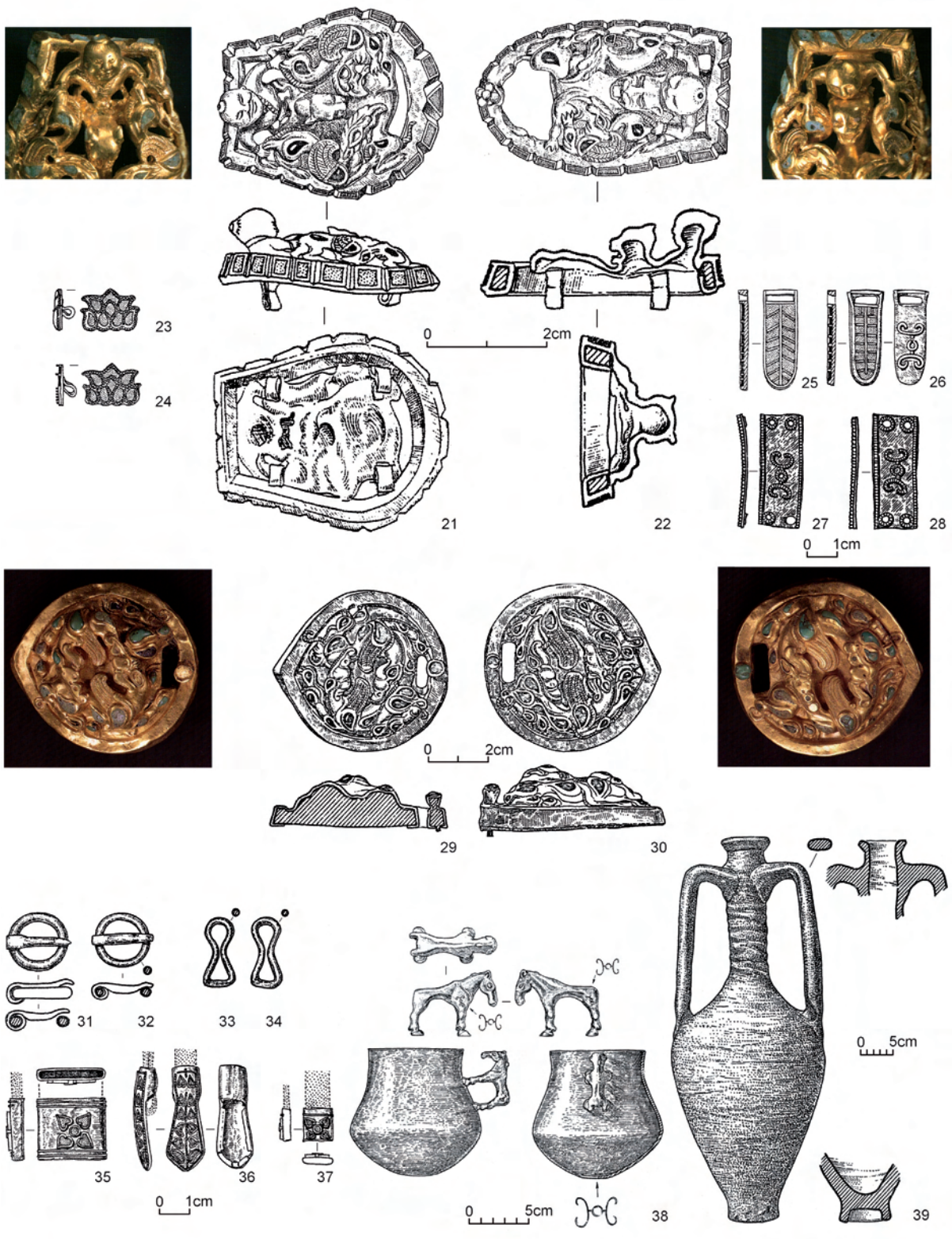


Fig. 50. Porogi, Ukraine, grave 1. Part of the inventory (after Simonenko/Lobai 1991; Gold der Steppe. Archäologie der Ukraine. Exhibition catalogue [Schleswig 1991] 404 p. Cat. no. 155).

Fig. 51. Tillia Tepe, Afghanistan, grave 4. Part of the inventory (after Sarianidi 1985).

Fig. 52. Hatra, Iraq. Statue of king Valgash (Photo Jan Bemmann, Bonn).

The closing stage of such magnificent belt plaques is possibly illustrated in the grave at Dachi (Fig. 53): although the belt is trimmed with gold openwork, an ornate belt plaque is lacking. The gold components of the horse gear, by contrast, are quite opulent, with inlays of agate, turquoise and garnet, among others. The central precious stones are conspicuously large in size, hitherto unknown in richly furnished grave complexes. That the custom of large belt plaques ends with the 1st century AD is affirmed by the ostentatious belt in grave I at Mtskheta (Fig. 54). Instead the belt is now decorated with large precious stones. The three-part belt clasp in the Hermitage Museum, which displays large intaglios and is assigned to the 2nd–3rd century AD, is possibly an example of this very trend[83].

In sum it becomes apparent that in the eastern area under study tongue-shaped belt plaques or those with straight sides and one rounded end are preferred. The same form is chosen, although the kind of manufacture can be very different and varies from gilded bronze plaques to elaborately baroque-style plaques. In the west there are three smaller specimens which were grouped to the Baranovka type and besides these only opulent magnificent belt plaques in ostentatious burials; all belt plaques found in them are unique. This notion of having unique belts is also shared by the leading people in the eastern area under study.

Discussion

Having reviewed the distribution of different belt plaque types throughout Eurasia and determined their use in time and space, the results have to be evaluated within a broader horizon in

83 Musche 1988, 271 p. no. 17; Pl. 98,17. – On the periodisation of belt fittings of the late Sarmatian period see also Malashev 2000.

Fig. 53. Dachi, Russian Federation, kurgan 1 (after Gabuev 2005; L'or 2001, 203 pp.).

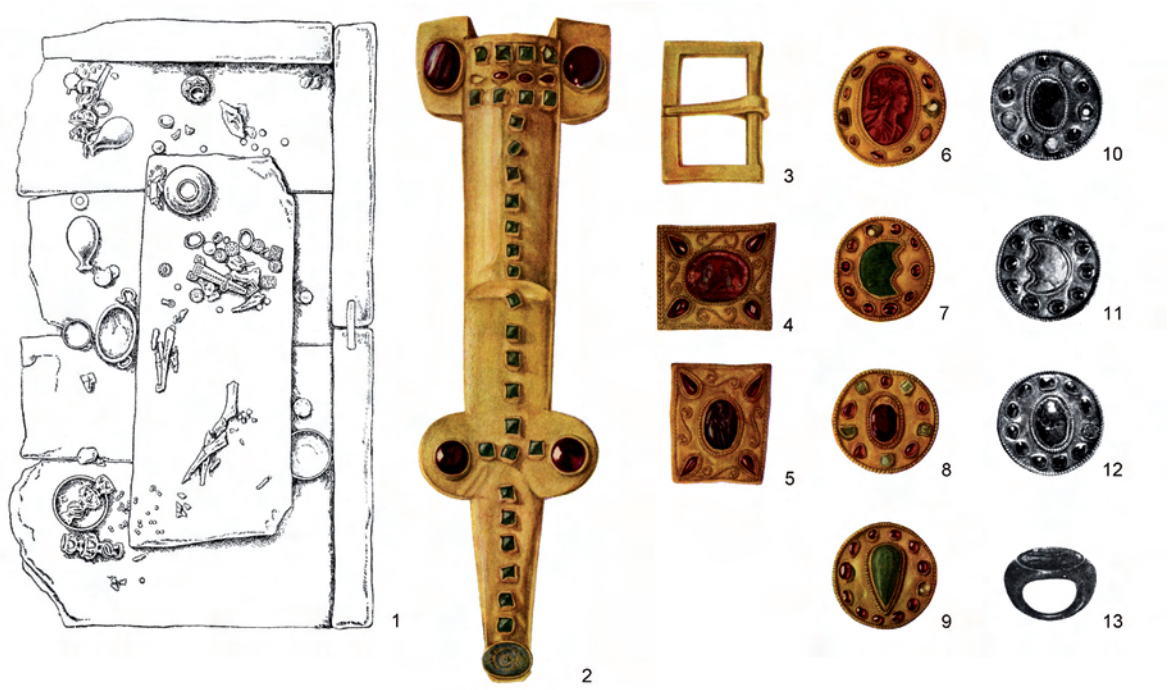


Fig. 54. Mtskheta, Georgia, grave 1. Part of the inventory (after Apadkize 1958, Pl. 1bis; 38).

order to ascertain the various ways of exchange. In this respect first the information about the production centers, second, their contextual inclusion, and third, other objects than belt plaques that indicate contact are shortly discussed.

On the Production of Belt Plaques

The question of where cast belt plaques were produced is not easily answered. Examination of the technical and stylistic execution of belt plaques has brought regional specialities to light: in the East in the Ordos region, Mongolia and Transbaikalia as well as the Minusinsk Basin belt plaques are cast in bronze in openwork, whereas oppositely to the West, on the middle Irtysh river, in the northern Black Sea area, and in Central Asia belt plaques were preferred that were worked in the gold-turquoise style. It should be noted that occasional small objects made with gold and turquoise, such as earrings, appear in ostentatious Xiongnu graves, but this does not apply to large belt plaques[84]. In China polychrome stone inlays were used for elaborate belt plaques, especially later in the 2nd and 3rd centuries AD. Turquoise inlays appear very frequently on objects from Tillia Tepe and on artifacts decorated in animal style from Sarmatian graves, but objects with rows of drop-shaped inlays as a frame around the decorative field are rare and, besides those from Tillia Tepe, are known solely in the Kuban area and on the middle Irtysh. Does this disparity possibly indicate that the emergence of this style should be sought in that area?

84 One exception could be the pair of fasteners, which were found in Tsaram (Fig. 44,3; Miniaev/Sakharovskaia 2007a, 53 Fig. 18). In view of its size, judging from the illustration, ca. 8 cm × 4 cm, it is somewhat smaller than the belt plaques. Gold with stone inlays also characterize the belt plaque from Ialoman-II (Tishkin, this volume); additional gold objects with turquoise inlays are known from Transbaikalia (e.g. Konovalov 1976, Pl. 19,19.20), Mongolia (e.g. Brosseder 2007b, 83 Fig.), and Kargali, Kazakhstan (L'Uomo d'Oro 1998, nos. 488–489; 491).

In China, there is a group of mostly gold belt plaques which are produced in a technique known as "lost-wax and lost-textile", which is a variation of the lost-wax-casting process that was implemented during the late Zhou- and in the Han period, above all in the production of belt plaques. The reverse side of the wax model of the object was strengthened with a piece of woven textile, which lastly left characteristic traces on the cast plaques (Bunker 1994, 41–42). The use of the textile is advantageous as it enables a thinner wax model to be made and therefore allows to save metal. This method of production was a Chinese method[85] and in the case of some of the extraordinary opulent gold belt plaques, it can be proven with certainty that the "lost-wax and lost-textile" method was employed[86]. Interestingly, this technique was also employed for the belt plaque from Sidorovka (Fig. 24,12.13), for some of the cast openwork belt plaques in the Siberian Collection (Bunker et al. 2002, 31; Linduff/Rubinson 2010) and the shoe buckles from grave 4 in Tillia Tepe (Fig. 49,17.18; Sarianidi 1985, 246 no. 1). The technique is thus also evidenced on pieces outside Han China to the west, at the Irtysh river and in Afghanistan. Unanswered is the question as to where the "lost-wax and lost-textile" technique was combined with many, densely set turquoise inlays. As far as I can see, evidence of this has not been confirmed in China, but only in Tillia Tepe and in Sidorovka[87]. Therefore it remains in my opinion unclear as to where those pieces were produced and if the technology was exported or if those pieces were produced in Han China and then exported.

In the case of the cast bronze openwork belt plaques from northern China, Transbaikalia, and the Minusinsk Basin the situation is different[88]. Details of the technology of the openwork belt plaques from northern China can be accessed through the previous analysis on objects of the Sackler collection (Chase/Douglas 1997). Most authors assume that there were various production centers, one of which lies in the Minusinsk Basin, another in the Ordos (Miniaev 1980, 31; Linduff/Rubinson 2010). Miniaev sees one place of production also in Transbaikalia/Mongolia (Miniaev 1980, 31). Linduff and Rubinson (2010, 179 p.) suggest that first the gold objects were produced in the lost-wax and lost textile technology for the social elite in China and later,

85 Bunker (1994, 41) assumes that this method developed out of the technique of producing lacquer objects, in which specific pieces were strengthened with a layer of lacquered textile.

86 Here to account for are, for example, the aforementioned gold belt plaque from Xuzhou (Fig. 4) and the belt plaque from grave 2 in Xigoupan (Bunker 1997a, 52 Fig. A60). This technique was also employed on cast bronze plaques (e.g., Bunker 1997, 258 no. 219a; Bunker et al. 2002, 105 No. 73; 109 No. 79; see also Linduff/Rubinson 2010, 175 p.). Based on literature alone the number of the cast rectangular bronze belt plaques with openwork discussed here that were produced using this technique cannot be determined.

87 Turquoise inlay is known for personal ornaments in China from the Warring States period, Qin and Han periods (Bunker 1994, 36); especially belt hooks were densely inlayed with turquoise. However, belt plaques in China seemed to employ only sparsely. The abundant, "framing" use of turquoise on gold plaques is seen in Sidorovka, Tillia Tepe and on some pieces in the Siberian Collection, which cannot be precisely provenanced. It is remarkable that among the many gold objects from Tillia Tepe, shoe buckles are the only ones that were produced using this technique. – Unlike Wagner and Butz (2007, 78), I think is not very likely that the drop-shaped impressions mostly found at the border of bronze openwork belt plaques from the Minusinsk Basin, Transbaikalia and northern China were actually meant for inlaying stones or paste. It is remarkable that not one single example of a bronze openwork belt plaque is known, in which such inlays are preserved. Furthermore, in many cases the worn-out form of the impressions, e.g. from Transbaikalia and the Minusinsk Basin, would also not support this assumption. Additionally, no remains of any possible glue are recognisable in the few detailed photographs (cf. for example E'erduosi 2006, 181). Altogether this presumably rather indicates that most of the drop-shaped or rectangular impressions in openwork belt plaques were not intended for inlays, but instead should be viewed as a typological rudiment.

88 As I am focusing on the openwork belt plaques and not the massive belt plaques in China, the late Warring State burial of Beikang, Xi'an, does not help to clarify the situation: in this context one male mold for a belt plaque was found, besides 24 other models (Linduff 2009; Kost 2010); the context of the burial can be dated to late Warring States period and is often used to testify that belt plaques were produced in Han China for the steppe people; however, such belt plaques were never found outside of China in the northern steppes.

during the 2nd to 1st century BC, mass production of bronze openwork plaques started in the other regions.

The later tongue-shaped gold buckles of the Eastern Han- to Jin dynasties are thought to have been produced at the royal court and then given as gifts to vassal states and allies (Zhixin Sun in Bunker et al. 2002, 114).

Contextual Inclusion of Belt Plaques

A look at the burial context in which belt plaques appear reveals regional specifics. Belts were used in a different way in Transbaikalia than in Central Asia and west of the Irtysh river. Without exception, all of the variants of belt plaques from along the Irtysh to the west, and also in Central Asia, were found in the graves of males. They comprise graves of warriors as well as ostentatious graves of the upper ruling class. By contrast, in Transbaikalia belt plaques decorated in animal style are found in graves of mature females, almost without exception[89]. Younger, adult women were buried there with a belt, which was usually decorated with rings as sole ornament (Brosseder 2007a, 887 Fig. 3). Comparable rules apply to the grave furnishings in Daodunzi in the Ordos: there 21 belt plaques are known out of 11 graves[90]. In seven cases belt plaques were deposited in the grave of a female, but only twice were they part of the grave equipment of a male. Belt plaques decorated in the animal style appear in Daodunzi too, above all in graves of mature adults (Linduff 2008, 187 pp.). Similar regularities are therefore recognizable in the choice of grave goods in the burial communities in Dyrestui, Ivolga, and Daodunzi. Belts are already attested as gifts in the graves of both males and females in the Ordos region, in the older cemetery at Maoqinggou, possibly indicative of a local tradition recognisable in that area.

On the Irtysh river, in Central Asia and in the Volga-Don area and the northern Black Sea, we encounter another cultural "code", which assigns prestigious belts to the sphere of high-ranking men and warriors. High-ranking women are indeed well known in these regions, but they are distinguished by other prestigious objects in their grave furnishings; the belt did not play a role in this respect[91].

In the Chinese Han empire belt plaques appear also almost exclusively in the graves of ruling men as, for example, among the burial goods from the grave of the king Nan Yue or the grave of the king of Chu. Attention was already drawn above to the masterful craftsmanship visible in the massive gold belt plaques of King Liu Wu. The king in Nan Yue, whose realm was located in the far south of China far from the steppe peoples, was buried with belt plaques, whose nearest analogies are known solely in northern China, in Daodunzi (Fig. 55; Zhao Mo 1998, 274). The king Zhao Mo was buried with four pairs of belt plaques and four belt hooks, all of which lay in the area of the deceased's hips, strongly suggesting that he was buried dressed in great array (Zhao Mo 1998, 274). Near Zhending, the place of birth of Zhao Mo's grandfather, and south of Beijing, is the site of Mancheng. There a princely tomb of the Han period was

89 Brosseder 2007a. A male buried with a rhomb-decorated belt plaque was found only in grave 123 in Dyrestui (Miniaev 1998). According to anthropological examinations grave 100 in the same cemetery likewise held the remains of a male; this cannot be confirmed archaeologically in view of the other grave goods. The belts were found in two different places near the deceased: either as part of the dress near the hips, or at the side of the deceased.

90 Ningxia et al. 1988; U En' et al. 1990; Bunker 1997a; Linduff 2008; cf. Kost 2010.

91 Here reference should be made, for example, to the grave of Kobiakovo (L'Or 2001, 219 pp.), Peshchannyi (L'Or 2001, 168 pp.) in the northern Black Sea area and the graves of women at Tillia Tepe (Sarianidi 1985).

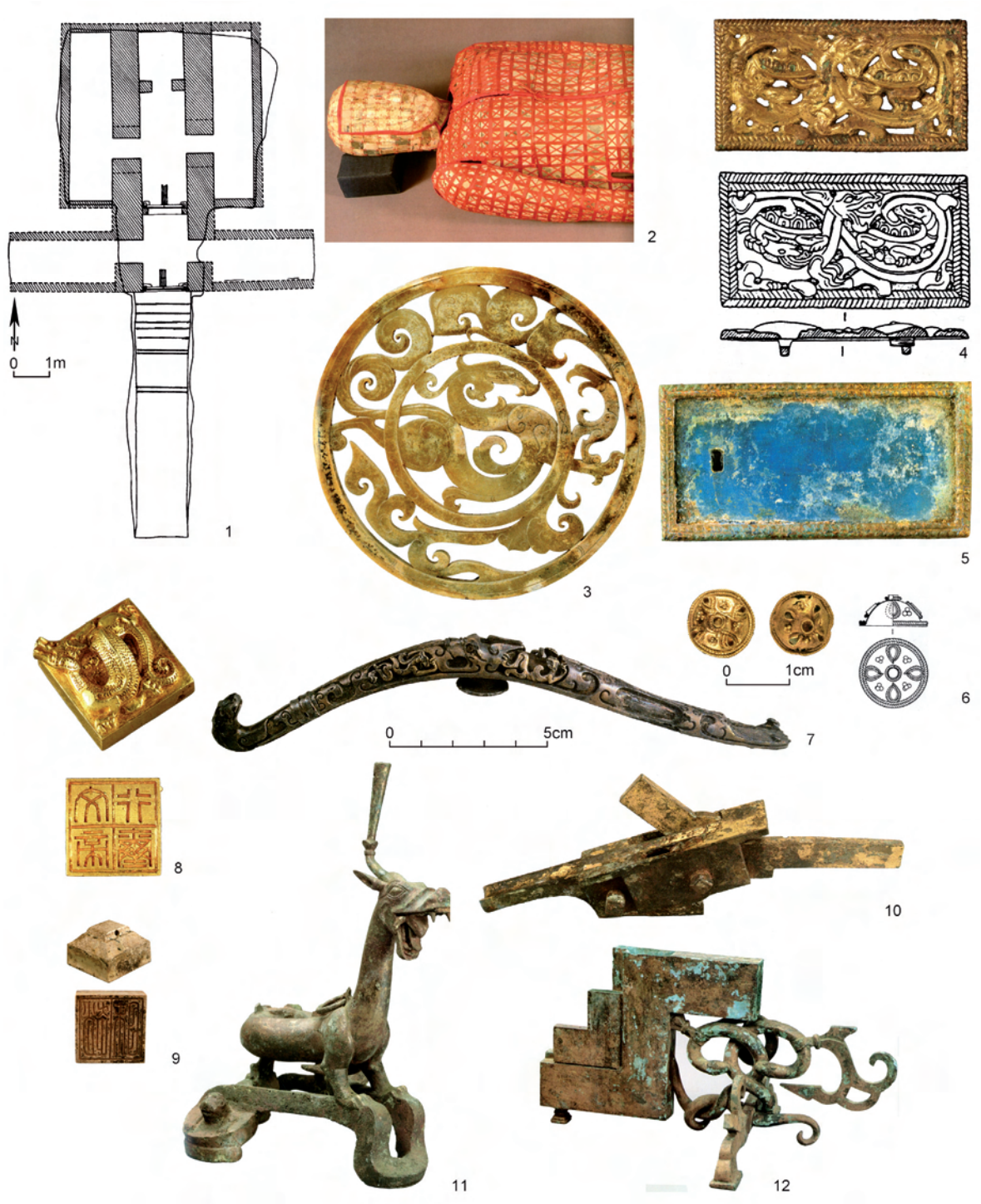


Fig. 55. Nan Yue, China. Burial of king Zhao Mo. Part of the inventory (after Zhao Mo 1998).

excavated, whose grave inventory comprised – among others – a belt plaque likewise decorated in animal style (Zhongguo/Hebei 1980, Pl. 58,3). A fascinating aspect of the objects is that a "steppe ornament" apparently found its way into the royal houses of the Han Dynasty. Is this merely yet another example in archaeology of objects from "far away" receiving special appre-

ciation[92]? Or does it reflect a fascination felt towards the people of the steppe, who at times were stronger because of their military prowess? Whichever answer may apply to these questions, the presence of highly ornate belts in graves in the homeland of the Han period shows that they served as a status symbol for the male elite[93]. Other elements, which could derive from the steppes can be the quatrefoil motif, which, however, can also be found on mirrors of the Warring States periods (Miller 2009, 327) and the latticework decoration of coffins, found on stamped bricks of Western Han tombs.

Changes in the function of objects, when crossing cultural borders of very different archaeological cultures at different times, can be observed again and again and very different transformations are thereby conceivable. Imported items are changed and given a new function and therewith a new sense, sometimes also the gender changes[94]. This is attested for the Xiongnu in many cases; they changed the function of a Greco-Bactrian silver medallion into a phalera for horse gear, found in grave 20 in Noyon Uul[95]. If it does hold true that the belt plaque from Pokrovka served to fasten the quiver, then this is yet another example of how foreign objects received a new function when incorporated into a different cultural system.

Lastly, a brief discussion should be made about grave forms and grave rites in the areas to be compared between China and the northern Black Sea. It is not surprising that local grave forms are found in each specific region. The great differences between tomb structures of the ruling class of Han China and the graves of steppe communities, from the layout of Daodunzi and Dyrestui, are self-evident. Burials in kurgans are a local specificity of societies in Central Asia and the Volga-Don- and Black Sea areas. Their form, orientation and kind of grave chamber differ distinctly from burial habits of communities in Transbaikalia, Mongolia or the steppe in present-day China.

Other Traces of Exchange

Before turning to the processes of interaction as seen in the distribution of belt plaques, a brief outline should be made of other objects that likewise are indicative of long distance contacts. It has been emphasised many times that "influences" from the East can be recognised in "Sarmatian" graves located to the north and east of the Black Sea and as far as the Volga river (Skripkin 2003; Simonenko 2001; 2003). Some of these evidential pieces are actual foreign objects, such as Chinese mirrors and Chinese lacquer boxes. Chinese mirrors appear in the northern Pontic as

92 G. Kossack, Religiöses Denken in dinglicher und bildlicher Überlieferung Alteuropas aus der Spätbronze- und frühen Eisenzeit (9.–6. Jahrhundert v. Chr. Geb.). Abhandlungen Bayerische Akademie der Wissenschaften. Philosophisch-Historische Klasse N.F. 116 (München 1999) 190 p.

93 Zhao Mo 1998, 274 with fn. 2; Lu/Shan 2007, 49; the authors even go as far as to take the value of the material into account in her considerations and link the gold belt plaques with royal graves, whereas gilded plates are status and prestige objects of princes. One exception would be the king of Nan Yue, who although a king was buried with gilded belt plaques.

94 One example to name here is the reuse of sheet-gold appliqués from a small Greek box in the grave of an Avar rider: the strips of sheet gold were taken apart and used as appliqués on a sword scabbard (Garam 1992, 157). In the grave at Altlußheim the nephrite cross-guard of the sword was reused as the chape (Quast 1999, 716). A re-use where the gender also is changed can be illustrated by Carolingian trefoil sword suspension strap distributors belonging to the male sphere, which were used by Viking women as brooches (M. Müller-Wille, Westeuropäischer Import der Wikingerzeit in Nordeuropa. Society and trade in the Baltic during the Viking Age. Papers of the VIIth Visby Symposium held at Gotlands Fornsal, Gotland's Historical Museum, Visby, August 15th – 19th, 1983 Acta Visbyensia 7 [Visby 1985] 79–102).

95 Tseveendorzh et al. 2008, 319. Interestingly, the same accounts also for "Sarmatian" phalerae, cp. V. Mordvinceva, Sarmatische Phaleren. Archäologie in Eurasien (Rahden/Westf. 2001), esp. 34 pp.

well as in the Volga-Don and Kuban areas as a rule in graves of the 1st century AD[96]. They are found regularly in richly furnished graves of middle Sarmatian date, where they were mostly the goods of women, for example, in grave 10 in Kobiakovo (L'or 2001, 231 Fig.). Imitations of Chinese script on local mirrors appear in these areas during the second half of the 1st century AD and early 2nd century AD (Guguev et al. 1991, 37 pp.; Guguev/Treister 1995, 150 pp.), although Chinese mirrors are still imitated in the 3rd and 4th centuries AD. Chinese lacquer boxes and lacquer objects are likewise known from graves of the 1st century AD in the Black Sea area, for example, catacomb grave 720 at Ust' Al'ma in the Crimea (Loboda et al. 2002, 335 Fig. 23; Puzdrovskij/Zajcev 2004, 239 Fig. 6) and kurgan 2 in Oktiabrskii-V, which is dated to the turn of the millennia BC–AD (Mordvintseva/Myskov 2005, 315). In this context also belong nephrite scabbard slides from Han China that can be found throughout Eurasia[97] and last, but not least Chinese silk that can be found in Central Asia and in the West, in burials of the elites at that time.

On the other hand, just like the belt plaques, locally produced objects should be mentioned for which comparable pieces of the Minusinsk Basin or Transbaikalia and Mongolia can be set aside, such as, the spoon-shaped strap-ends or components of horse gear[98]. These "eastern influences" in Sarmatian contexts are usually correlated with waves of migrations from the east (e.g. Skripkin 2003, 11 pp.; esp. 14).

Conversely, reference must be made to "western" objects found in Xiongnu-period contexts. Included in this category are, for example, textiles (e.g. Rudenko 1969, 90 pp.) and jewellery

96 Here note should be made with regard to the temporal assignment of the *termini post quem*, which emerge from the dating of bronze vessels associated with Chinese mirrors: Tretiaki, kurgan 16: the production of Roman casseroles of the type Eggers 140, Petrovszky V,1, is delimited by the last years of Augustus (ca. 5/10 AD) until the end of the time of Tiberius (30/35 AD) (Petrovszky 1993, 53 p.). Kobiakovo, kurgan 1: casserole of the type Gödåker (Eggers 144; Petrovszky V,5). According to Petrovszky the casserole from Kobiakovo belongs to his group c, whose production began ca. 60/70 AD and ended in the first decades of the 2nd century AD (Petrovszky 1993, 79 pp.). Found in association in grave 1 of the second kurgan at Chuguno-Krepinka were a Chinese mirror and Roman bronze vessels, including one casserole of type Gödåker (Eggers type 144), a bronze bowl of Eggers type 100 (Petrovszky type XV 1a). The beginning of production is set after ca. 25/35 AD, although most of the basins come from contexts of the late 1st century or beginning of the 2nd century AD (Petrovszky 1993, 115 pp.). Petrovszky has the time of production ending at the latest around 115/130 AD, whereby he refers to graves of the 2nd century, above all to those in the area between the northern Black Sea and the Caucasus (Petrovszky 1993, 117), which should be dated here. This information needs to be excluded, not only to avoid circuitous conclusions, but also because of the unclear local fine chronology in the northern Black Sea area. A bronze sieve can be assigned to Eggers type 160; it has a round base, which resembles older forms such as Eggers type 159 and 159a (Petrovszky 1993, 55 pp.), but the flat, paddle-shaped hilt is also characteristic for Eggers type 161 (Petrovszky 1993, 98). Petrovszky defines the time of production as between 35/45 and 140/160 AD (Petrovszky 1993, 98–101). I do not know of any exact comparisons for the small bronze fibulae with strongly molded profile ("kräftig profiliert"), as the bow is strongly bent and the spheres are relatively close together. Larger iron fibulae with strongly molded profile can be compared with type 7b according to Cociş (2004, Pl. 5,61), for which he limits the dating to the end of the 1st century AD, especially in combination with fibulae of his type 6 (Cociş 2004, 44). It should be further noted that the combination of metal vessels, that is, cauldron, basin, pitcher and silver beaker, in Chuguno-Krepinka and Łeg Piekarski II are well comparable. Thereby parts of the assemblages were complemented with local forms.

97 See J. Werner, Chinesischer Schwerttragbügel der Han-Zeit aus einem thrakischen Häuptlingsgrab von Čatalka (Bulgarien). Germania 72, 1994, 269–282; Trousdale 1975; I would like to thank Nikolaus Boroffka, Berlin for pointing these out to me. For difficulties with the dating see Quast 1999, 716.

98 Often termed "spoon-shaped pendant" in literature, the author assumes a typological relationship between "Sarmatian" examples and tube-shaped beads of bone in the Altai (Otchir-Goriaeva 2002, 372, 374). Ascribable to the same group, even though they concern other types and variants, are also "spoon-shaped" strap ends from the Minusinsk Basin (Pshenitsyna 1992, Pl. 94,43–50) and graves in Transbaikalia (for example, Miniaev 1998, Pl. 63,4.5; 50,5.6). – The same applies to the cheek-pieces with rectangular loop and disc-shaped ends, as known, for example, in Iashkul, Zhutovo and Dachi (cf. Otchir-Goriaeva 2002, 376 pp.). Disc-shaped ends were preserved in the kurgan at Zaporozhe too. Comparisons are known from Pazyryk (cf. Otchir-Goriaeva 2002, 376 pp.), the Altai (see Tishkin, this volume) and Transbaikalia in Il'movaia Pad', kurgan 54 (Konovalov 2008b, Pl. 33,8.13), as well as from China (De wereld volgens de Han. Tentoonstelling provinciehuis Antwerpen 1 september – 15 oktober 2006. Antwerpen 2006).

that resemble objects from Tillia Tepe (Brosseder 2007b). Likewise from the west is the Greek silver medallion, discovered in kurgan 20 in Noyon Uul that was used as a phalera (Tseveendorzh et al. 2010, 259). These objects were all found in the ostentatious terrace graves of the elite. But objects from the west were also found in simpler unpretentious graves of the Xiongnu period. They include glass beads and pendants from the northern Black Sea area (see Leus, this volume), ribbed melon beads, gold-covered beads and faience pendants. And recently even a Roman glass bowl, a "zarte Rippenschale", was found in grave 30 of the huge tomb complex in Gol Mod 2 (see Erdenebaatar et al., this volume). The discovery of a trapezoid belt buckle with fixed prong in Xinjiang is also noteworthy, since analogous pieces are known from the Black Sea area[99].

Since a full evaluation of the material culture displaying connections along the "steppe highway" would go beyond the limits of this study, these examples are brought forth here only to show that this interaction was reciprocal.

Conclusion – Dynamics of Interaction

This study shows that the processes behind connections visible through material culture are complex. Taking into consideration the limitations of the chronological attribution of belt plaques in Eurasia which might blur the picture, I propose that we can nevertheless see the following dynamics.

For the oldest belt plaque type which indicates long-distance contact, the Xuzhou type most probably of the 2nd century BC, appeared in isolation in Western Siberia, far away from the Chinese examples. This belt plaque remains a foreign detail in the context of Pokrovka, since only one plaque instead of a pair was found and it was possibly used for the quiver, not for the belt. Following Quast's (2009, 17) observations this should indicate mobility as cause of transfer. The reason can be various, such as plunder, as Bunker suggests (Fig. 1). Another belt plaque which was found in Urbiun, Tuva, falls into this category, however, it might very well be the case that the isolated provenance in the north is due to the state of the archaeological research.

In the 1st century BC the idea of furnishing deceased warriors with belt plaques in their graves is shared throughout the Eurasian steppes with each region choosing specific types. This indicates contacts within these regions and displays different connections within the eastern Eurasian steppes through the various types and choices of motives. There, especially in Transbaikalia (Ivolga, Dyrestui, Zorgol-I) and in the Ordos (Daodunzi) one has to take into consideration that openwork belt plaques were mostly, almost exclusively, found in graves of mature women. This kind of dissemination speaks either for an elite communication with "wide-ranging relations reflected in homogeneity of status symbols" (Quast 2009, 21) or it is an example for the transfer of women, as for example with marriage alliances, which played a crucial role in early societies.

99 See the belt from the Chahanwusu cemetery, Xinjiang (Si chou zhi lu: Xinjiang gu dai wen hua 丝绸之路: 新疆古代文化 = シルクロード新疆古代文化 [= The ancient Culture in Xinjiang along the Silk Road] [Ürümqi 2008]) 135 Fig. 5). This comparison applies in particular to the trapezoid frame of the buckle, less to the construction with a fixed prong, as buckles of the northern Black Sea area are equipped with a movable prong (for example, Loboda et al. 2002, 307–309 Fig. 8,2 or Puzdrovskii 2007, Fig. 96,3.4.6–11). These buckles are dated to the 1st century AD (Loboda et al. 2002, 309).

Long distance contacts become visible through the transfer of an idea, on the level of motifs, as shown with the dragon motif depicted on plaques, and the transfer of technology, as with manufacturing details, each of which add another element to the jigsaw puzzle. Both go hand in hand as the identical motif of a fight between dragon and tiger shows (Fig. 27).

Probably at the same time as these openwork belt plaques, at the end of the 2nd and the 1st century BC, we find well furnished warrior graves throughout the Eurasian steppes, which were equipped with the same belt plaque type with rhomb decoration (Fig. 6). As has been shown the dissemination cannot be explained by migration, i.e. a lasting change of residence, since the burial customs as well as other elements, such as pottery are of local style. At that time the elite is only visible in those graves (Fig. 9–11). Ostentatious burials at that time are missing, not only in Transbaikalia but also in the Volga region and they are only attested starting from the time around the turn of the millennia (e.g. the grave of Kosika; Brosseder 2009). The existence of the same belt type with rhomb ornament (Fig. 6) points to a more direct connection, possibly throws light on the actors involved in these interaction processes, probably through the mobility of those warriors. Compared with the numerous findings in northern Mongolia and Transbaikalia also the isolated occurrence of such belt plaques in Central Asia might speak for mobility. With these plaques however also the transfer of an idea is reflected since most likely at least some of them were locally manufactured. One can toy with the idea of linking the appearance of such warrior belts north of the Amu-Darya with historical events described in the "Han shu" (ch. 70, 94 etc.) where on several occasions close interactions between Xiongnu and Kangju warriors as well as other western powers is reported, such as in ch. 70: "Zhizhi, the Chanyu of the Xiongnu …, turned west and went to Kangju, and borrowed troops from Kangju. With troops [given by Kangju], he attacked Wusun many times"[100]. Because of a lack of a finer chronology for the warrior burials under discussion this link can only remain one possibility out of several but points to the mobility and common action of warriors. Without a fine chronology one will have also difficulties to explain the connection to the Volga region. Since there, at the same time, are also those frame buckles with camel depiction are found (Fig. 35), one can see that the region north of the Amu-Darya is well connected with the Volga region. Perhaps these belt plaques with their wide distribution reflect the role of a military aristocracy among the Xiongnu?

In the 1st century AD the situation changes and reaches a peak. If the archaeological sources are not deceiving we can trace the appearance of ostentatious burials across the Eurasian Steppes at that time. And all the deceased leaders were equipped with magnificent and unique belts (see Fig. 43; 50; 51). This demonstrates assimilation and homognization in the tradition of representing power and rank across this vast territory. However, in those graves we can trace not only the same idea but also the use of exclusive goldsmith techniques, which Quast (2009), put forth as one element that appears with elite communication.

This is the time when the Silk Roads start to emerge as commercial routes and the time when foreign goods, like Chinese mirrors and lacquer vessels, but also Roman vessels, were deposited in "Sarmatian" graves. May we link these observations? Does this indicate that after having been in contact (warrior burials) a stimulus toward more "eliteness" was given?

As it becomes evident, simple explanations, such as migration in the sense of waves of wandering groups of people, can be excluded against this background since belt plaques are concerned with completely different cultural systems.

100 J. E. Hill, Through the Jade Gate to Rome. A Study on the Silk Routes during the Later Han Dynasty 1st to 2nd centuries CE. An annotated translation of the Chronicle on the 'Western Regions' (Lexington 2009) 171–184, esp. 173; Hulsewé 1979, 47.

Finally, a position should be taken in one last aspect, upon which this study on belt plaques touches: The question has been long and repeatedly debated in research of western Europe and America as well as in Russian scientific journals, as to whether contacts existed between the Xiongnu of Inner Asia and the European Huns and if so, what form did these relations have. Answers to this issue have been presented in various fields of study, such as history, linguistics and archaeology with various explanations[101], and was dealt with in recent decades by I. Zasetskaia who has repeatedly pointed out that, when attempting to prove an association between the Xiongnu and European Huns, evidence must be sought with archaeological methods with the help of typological, chronological and spatial studies on material culture (cf. Zasetskaia 1982; 1983; Bokovenko/Zasetskaia 1993; Zasetskaia/Bokovenko 1994;). She has often referred to the obvious difficulties: scarcely any correspondence exists between the material culture of both groups for investigating the relationship between the Xiongnu and the Huns (Bokovenko/Zasetskaia 1993, 73 p.; Zasetskaia/Bokovenko 1994, 702). An exception might be seen in the cauldrons from the time of the Huns, which are found in the Carpathian Basin as well as in China (Bokovenko/Zasetskaia 1993; Zasetskaia/Bokovenko 1994; Érdy 1995). Furthermore, Zasetskaia has sought to draw arrowheads into her argumentation; she suggests that after their dissemination out of the homeland areas in northern China and Mongolia, the Xiongnu first wandered into Central Asia and later during a second wave of wanderings went from there to Europe[102]. Methodical problems in this argumentation cannot be overlooked. From an archaeological standpoint the clear division of cultural groups in the eastern steppe area and the assignment of material culture to the political unit of "Xiongnu", as known through historical documentation, is not yet fully resolved. Therefore, the basis is lacking with which the "wandering" theory could be supported. Moreover, the attempt to prove centuries' long connections by means of the category of cauldrons is methodically not convincing since cauldrons are an important element of the Scythian and Hunno-Sarmatian cultures in the vast parts of the Eurasian steppe. Those that are ascribed to the Xiongnu differ from the large, heavy cauldrons of the Huns in the Carpathian Basin or these one from Ürümchi. As long as a comprehensive study on all of the cauldrons found in the Eurasian steppe with their different series has not been presented, an argumentation using cauldrons is not convincing. Further, wanderings towards the west to Europe throughout the centuries contradict all comparable expansive movements of rider-nomads, whether they are the Avars or Mongolians, which always took place rapidly. "Nomadic empires characteristically make themselves known outside their place of origin in an apparently sudden and destructive way" (Di Cosmo 2010, 87). Why then should the rider-nomad warriors of the Xiongnu need such a particularly long period of time?

The study of Xiongnu-period material from Mongolia and Transbaikalia – belt plaques, riding equipment and weaponry – leads again and again to the ties with contemporary "Sarmatian" groups in the western part of the Eurasian steppe. Yet, links to the much later graves of the

101 Cf. Anke 1998, 5–8 with recommended literature; Érdy 1995; Wright 1997; de la Vaissière 2005; Gießauf 2006. A useful summary is newly provided by P. Tomka 2008. The potential information to be gained from archaeological sources was not analysed sufficiently by Érdy 1995; based on a selection of cauldrons the argument is not convincing. Furthermore, for him burials of horses suffice as evidence of contacts, but today still no single burial of a horse is known amongst graves that can be ascribed to the Xiongnu.

102 Zasetskaia 1983; Bokovenko/Zasetskaia 1993, 75; 84; Zasetskaia/Bokovenko 1994, 705; 710. – Other authors, for example, J. Werner (1956, 59) and B. Anke (1998, 48 pp.), refer to the connection between cylindrical cauldrons and bronze cauldrons of similar form found in the Ordos as well, yet they do not deduce a migration from this. Cf. also the methodically critical remarks of Bálint (1993).

European Huns of the 4th and 5th centuries AD cannot be demonstrated by means of archaeological material.

In this study I have tried to identify some parts of the jigsaw puzzle concerned with exchange of goods and features across the vast territories of the Eurasian steppes. Still many pieces remain not understood and the next steps in research will require a more detailed study on various other objects and cultural elements, such as grave construction and burial customs, components of dress, weaponry, horse-gear and trappings. Because of their nature of representation within a society belt plaques make a good test case. In this respect it is interesting to note that also during later periods, when the Eurasian steppes were connected between China and the Black Sea, as is the case in the Tang-Tashtyk-Avar-Byzantine period, it is again the belts, which – despite regional variation – look strikingly similar. And in China, once magnificent belts were adopted by the ruling class, they remained an important object of representation also in later dynasties.

Acknowledgements

My thank goes to Jan Bemmann, Bonn, Nikolaus Boroffka, Berlin, and Valentina Mordvintseva, Simferopol' for discussion and comments on an earlier draft as well as Catrin Kost, London, for her help with the Chinese literature.

[translated by Emily Schalk]

Credits for belt plaques[103]

List 1. Belt plaques type Xuzhou (after Bunker et al. 2002, 101; Kost 2010, motif 28; with additions)[104]

1. Pokrovka 2, Sol'-Ilekskii raion, Orenburg oblast', Russian Federation, kurgan 17, grave 1 (Iablonskii 1994, 195 Fig. 81,13). – 2. Sandiancun, Xi'an, Shaanxi province, China (Zhu/Li 1983, 24 Fig. 1; Bunker 1989, 52 Fig. 1). – 3. Xuzhou, Jiangsu province, China, Chu burial W1, burial of king Liu Wu (Gold und Jade 2007, 114 p. No. 60).
From collections: 4. North China (E'erduosi 2006, 170). – 5. Therese and Erwin Harris collection (So/Bunker 1995, 144 No. 64). – 6. Miho Museum (Lu/Shan 2007, 49 Fig. 4,4; Miho Museum. South wing [Shigaraki 1997] 216–218).

103 The belt plaques are listed according to their provenance in countries in the following order: Russian Federation, Ukraine, China, Mongolia, Central Asia. At last belt plaques from collections are named, most of them with unknown provenance. In case of the early collections, sometimes at least a region for the provenance can be attributed, which is indicated on the maps with a symbol in squared brackets. Most emphasis was put on the pieces with find contexts and even though it was aimed at, the lists cannot claim completeness, especially the ones from the art market; for the danger with pieces from the art market see generally Bunker 1989. All in all the lists show how few pieces are known with their context and thus archaeological interpretation is reduced to a minimum (cp also Kost 2010 on this aspect).

104 E. Bunker (1989) identified the following belt plaques as forgery: Musée de Mariemont and Los Angeles County Museum of Art (Bunker et al. 1970, 107 Fig. 16; 17).

7. Tokyo National Museum (Kokuritsu Hakubutsukan 2005, 31 Pl. 18, TJ 5716). – 8. Metropolitan Museum (Bunker et al. 2002, 101 No. 68). – 9. Metropolitan Museum, Rogers Fund 1918 (Bunker et al. 1970, No. 114; Bunker et al. 2002, 106 p. No. 75, Inv. No. 18.43.10). – 10. Metropolitan Museum (Rostovtzeff 1973, Pl. 25,1; Bunker et al. 1970, 131 No. 115). – 11. Ariadne Galleries (Treasures 1998, 106 p. No. 111).

List 2. Openwork rectangular belt plaques with animal style; animal combat scene (after Devlet 1980, subgroup 2, 980 Variant a, v, b and g)

List 2a. Variant a: combat of two equids (after Devlet 1980, 22 p., group 1, subgroup 2a; Kost 2010, motif 25; with additions).
1. Beresh, Sharipovskii raion, Krasnoiarski krai, Russian Federation (Devlet 1980, Pl. 10,33). – 2. Bolshoi Telek, Idrinskii raion, Krasnoiarskii krai, Russian Federation (Devlet 1980, Pl. 8,27). – 3. Dyrestui, Dzhidinskii raion, Rep. Buriatiia, Russian Federation, grave 9 (excavation Tal'ko-Gryntsevich; Miniaev 1998, Pl. 1,7; Devlet 1980, Pl. 10,37). – 4. Dyrestui, Dzhidinskii raion, Rep. Buriatiia, Russian Federation, grave 10 (excavation Tal'ko-Gryntsevich; Miniaev 1998, Pl. 3,7.8; Devlet 1980, Pl. 10,35.36; Huns 2005, 53 Fig. 105; 106). – 5. Dyrestui, Dzhidinskii raion, Rep. Buriatiia, Russian Federation, grave 102 (Miniaev 1998, Pl. 84,14.15; Huns 2005, 56 Fig. 119; 120). – 6. Dyrestui, Dzhidinskii raion, Rep. Buriatiia, Russian Federation, grave 107 (Miniaev 1998, Pl. 88,1–6; Huns 2005, 45 Fig. 57). – 7. Gora Izykh, Tashtypskii raion, Rep. Khakasiia, Russian Federation (Devlet 1980, Pl. 9,29.30). – 8. Minusinsk, Krasnoiarskii krai, Russian Federation (Devlet 1980, Pl. 9,32). – 9. Minusinsk basin, Russian Federation (Devlet 1980, Pl. 9,34). – 10. River valley Savy, Rep. Buriatiia, Russian Federation, collected by P. S. Mikhno (Devlet 1980, Pl. 10,41). – 11. Selivanikha, Minusinskii raion, Krasnoiarskii krai, Russian Federation (Devlet 1980, Pl. 8,28). – 12. Shushenskoe, Shushenskii raion, Krasnoiarskii krai, Russian Federation (Devlet 1980, Pl. 8,26). – 13. Tepsei VII, Minusinskii raion, Krasnoiarskii krai, Russian Federation, grave 25 (Devlet 1980, Pl. 7,24). – 14. Unknown site, Minusinsk Museum (Devlet 1980, Pl. 9,31). – 15. Daodunzi, Tongxin county, Ningxia province, China, burial 6 (Ningxia et al. 1988, 344 Fig. 9,6; Bunker 1997a, 82 Fig. A119). – 16. Dongcheng commune, Mulei Kazach, Autonomous Region, East-Xinjiang, China (Wang 1986, 888 Fig. 1,1). – 17. Mongolia, Töv aimag, collection B. Khurts (Monggol 2009, 86; No. 76).
From collections: 18. Inner Mongolia, China (Kost 2010, Cat. No. 33.9 after Zheng in Wenwu chunqiu 1991, 4, 1–32). – 19. Collection Sackler, former collection Colonel William Mayer (Bunker 1997a, 261 No. 224 (Inv No. V-7015; Samolin/Drew 1965, Pl. 6C). – 20. Collection Sackler, former collection Colonel William Mayer (Bunker 1997a, 262 No. 225; Inv. No. V-7011). – 21. North China (E'erduosi 2006, 180). – 22. North China (Devlet 1980, 6 Fig. 1,8). – 23. National Museum Tokyo (Kokuritsu Hakubutsukan 2005, 160 No. 29; Inv. No. TJ-5553). – 24. Collection E. V. Thaw, Metropolitan Museum (Bunker et al. 2002, 132 No. 104). – 25. Los Angeles County Museum (Moorey et al. 1981, 165 Fig. 877). – 26. State Hermitage (Devlet 1980, Pl. 8,25). – 27. Museum für Asiatische Kunst, Berlin (Wagner/Butz 2007, 78 p. No. 58). – 28. Museum of Far Eastern Antiquities Stockholm (Andersson 1932, 296–298, Pl. 31,1). – 29. Musée Barbier-Mueller, Genève (Arts des Steppes. Ornements et pièces de mobilier funéraire scytho-sibérien dans les collections du Musée Barbier-Mueller [Genève 1996] No. 48 Inv. No. 245-19).

List 2b. Variant b: feline-like beast of prey attacks deer (en face) (after Devlet 1980, 23, group 1, subgroup 2b; Kost 2010, motif 31).
1. Dyrestui, Dzhidinskii raion, Rep. Buriatiia, Russian Federation, grave 108 (Miniaev 1998, Pl. 1,11.12; Huns 2005, 45 Fig. 58). – 2. Kosogol'skii hoard, Sharipovskii raion, Krasnoiarskii krai, Russian Federation, hoard (Devlet 1980, Pl. 10,42). – 3. Daodunzi, Tongxin county, Ningxia province, China, grave 13 (Ningxia et al. 1988, 344 Fig. 9,8; Bunker 1997a, 84 Fig. A126). – 4. Liucunbao, Shaanxi province, China (Kost 2010 Cat. no. 25.1 after Wang Zhangqi in Kaogou yu wenwu 1991, 4, 6).
From collections: 5–6. Collection Sackler, former collection Colonel William Mayer (Bunker 1997a, 266 No. 232a, Inv. No. V-7005; No. 232b, Inv. No. V-3485; Samolin/Drew 1965, Pl. 5B). – 7. Palace Museum, Beijing (Wang 1993, 22 Fig. 27). – 8. National Museum Tokyo (Kokuritsu Hakubutsukan 2005, 153 No. 10 Inv. No. TJ-3995. – 9. North-China (E'erduosi 2006, 169). – 10. North-China (Devlet 1980, 6 Fig. 1,10). – 11. Ben Janssens Oriental Art, Rupert Wace Ancient Art (Ancient Bronzes 2007, 23). – 12. Musée Barbier-Mueller, Genève (Arts des Steppes. Ornements et pièces de mobilier funéraire scytho-sibérien dans les collections du Musée Barbier-Mueller [Genève 1996] No. 47 Inv. No. 240-30).

List 2c. Variant c: combat with dragons (after Devlet 1980, 23 p., group 1, subgroup 2v; with additions).
1. Khapry, selo Chaltyr', Miasnikovski raion, oblast' Rostov, Russian Federation, kurgan 3 (L'or 2001, 179 Fig. 198). – 2. Sidorovka, raion Nizhneomsk, oblast' Omsk, Russian Federation, kurgan 1, grave 2 (Matiushchenko/Tataurova 1997, 148 Fig. 27). – 3. Terezin, Chaa-Khol'skii kozhuun, Rep. of Tuva, Russian Federation, burial 12 (Leus, this volume). – 4. Island Osinsk, raion Ust'-Udinsk, oblast' Irkutsk, Russian Federation (Smotrova 1991, 231 Fig. 58). – 5. Ivolga, Ivolginskii raion, Rep. Buriatiia, Russian Federation, grave 100 (Davydova 1996, Pl. 30,22.23; Devlet 1980, Pl. 11,43; 12,44). – 6. Dyrestui, Dzhidinskii raion, Rep. Buriatiia, Russian Federation, grave 118 (Miniaev 1998, Pl. 104,14). – 7. Sharagol, Kiakhtinskii raion, Rep. Buriatiia, Russian Federation (Devlet 1980, Pl. 12,46). – 1997, 148 Fig. 27,1.2; Bunker 1997a, 88 Fig. A137; 274 Fig. 242.3). – 8. Zorgol-I, Priargunskii raion, Zabaikalskii krai, Russian Federation, grave 13 (Iaremchuk 2005, Fig. 119). – 9. Daodunzi, Tongxin county, Ningxia province, China (Beifang 1995, 85 No. 120). – 10. Toupaizi, Inner Mongolia, China (Pang Hao, Wengniuteqi faxian liang Han tong paishi. Wenwu 1998, 7, 42–43. – 11. Mongolia (Volkov 1967, Fig. 21,2; Devlet 1980, 18 Fig. 9).
From collections: 12. Collection Sackler, former collection T. C. Loo (Bunker 1997a, 274 No. 242; Devlet 1980, 6 Fig. 1,9). – 13. State Hermitage, site unknown (Devlet 1980, Pl. 11,45). – 14. Collection Hotung (Bunker 1997a, 274 Fig. 242.2; Rawson 1995, 311 Nr. 23,1; Bunker et al. 2002, 134 No. 106). – 15. Metropolitan Museum, collection E. V. Thaw (Bunker et al. 2002, 133 Nr. 105).

List 2d. Variant two facing bulls (after Devlet 1980, 20 pp., group 1, subgroup 1, type a; Kost 2010, motif 11).
1. Utinka, oblast' Kemerovo, Russian Federation, kurgan 5 (Devlet 1980, Pl. 1,1). – 2. Razliv III, close to Saragash, Khakasiian autonomous oblast', kurgan (Devlet 1980, Pl. 1,2). – 3. Ulus Kostin, Achinskogo uezda, Achinskii raion, Krasnoiarskii krai, Russian Federation; kept in State Hermitage, St. Petersburg (Devlet 1980, Pl. 1,4). – 4. Koptereva, chance find, Russian Federation; State Hermitage, St. Petersburg (Devlet 1980, Pl. 2,5). – 5.–6. Malaia Inia, chance find, Minusinsk Museum, Inv. No. 9085; 9087 (Devlet 1980, Pl. 2,6; 3,8). – 7. Malaia Inia, Minusinskii

raion, Krasnoiarskii krai, Russian Federation, chance find,; Khakaskii oblastnoi muzei Inv. No. 254-1 (Devlet 1980, Pl. 5,11). – 8. Gora Izykh, Tashtypskii raion, Rep. Khakasiia, Russian Federation; Minusinsk Museum, Inv. No. 9086 (Devlet 1980, Pl. 3,7). – 9.–10. Left bank of Yenisei, Russian Federation, chance finds, Minusinsk Museum, Inv. No. 9742-9.10 (Devlet 1980, Pl. 4,9.10). – 11. Minusinskii Uezd, Krasnoiarskii krai, Russian Federation, chance find; State History Museum, Moscow, Inv. No. 38110 (Devlet 1980, Pl. 5,12). – 12. Kuznetskii okrug, Tomskoi gubernii, chance find, Arkheologicheskii muzei TGU, Inv. No. 1276 (Devlet 1980, Pl. 6,13). – 13. Selo Abakanskoe, Minusinskogo okruga, chance find, Arkheologicheskii muzei TGU, Inv. No. 4016 (Devlet 1980, Pl. 6,14). – 14.–17. Kosogol'skii hoard, Sharipovskii raion, Krasnoiarskii krai, Russian Federation, Krasnoiarskii muzei, Inv. No. 4722-58 (Devlet 1980, Pl. 6,15–18). – 18. Minusinsk basin, Irkutskii Kraevecheskii Muzei, Inv. No. 1157-21 (Devlet 1980, Pl. 6,19). – 19. Bulgan aimag, Mongolia (Tsonzhin boldog complex). – 20. Xichagou Xifeng county, Liaoning province, China (E'erduosi 2006, 38 No. 27; 181).
From collections: 21. New York, collection Michael Dunn (Bunker et al. 2002, 139, No. 113). – 22. North China, Mengdiexuan collection (Adornment for Eternity. Status and Rank in Chinese Ornament [Denver 1994] 113 No. 32.). – 23. Los Angeles County Museum (Moorey et al. 1981, 166 Fig. 882). – 24. Ariadne Galleries (Treasures 1998, 83 No. 86).

List 3. Type bronze frame plaque with a fixed prong (after Korol'kova 1999, with additions).

List 3a. Variant a: Frame plaque with depiction of a camel attacked by a beast of prey.
1. Petrunino II, Kamyshinskii raion, oblast' Volgograd, Russian Federation, kurgan 1, grave 14 (Sergatskov 1995, 152 Fig. 4,14; 2000, Fig. 44,6). – 2. Vaniushi, Krasnoarmeiskii raion, oblast' Cheliabinsk, Russian Federation (Korol'kova 1999, 78 Fig. 6,2). – 3. Krivaia Luka VII, Chernoiarskii raion, oblast' Astrakhan, Russian Federation, kurgan 7, grave 28 (Klepikov/Skripkin 2002, 73 Fig. 4,A13). – 4. Pisarevka II, Ilovlinskii raion, oblast' Volgograd, Russian Federation, kurgan 6, burial 2 (Mamontov 2002, 258 Fig. 2,11; Sergatskov/Shinkar' 2003, 175 Fig. 5,11). – 5. Karamurun II, oblast' Pavlodar, Kazakhstan, kurgan 1 (Korol'kova 1999, 78 Fig. 6,3; Margulan 1966, 399 Fig. 64). – 6. Tastagym, Gur'evskaia oblast', Kazakhstan, destroyed burial (Akishev 1976, 189 Fig. 2b; Korol'kova 1999, 78 Fig. 6,1). – 7. Liavandak, district Samarkand, Uzbekistan, kurgan 16 (Obel'chenko 1968; 1992, Pl. 13). – 8. Shakhrivairon, district Samarkand, Uzbekistan, kurgan 2 (Obel'chenko 1978; 1992, Pl. 5; Korol'kova 1999, 78 Fig. 6,4).

List 3b. Variant b: Frame plaque with depiction of a reclining or standing camel
1. Belokamenka II-88, Staropoltavskii raion, oblast' Volgograd, Russian Federation, kurgan 7, grave 3 (Mordvintseva/Shinkar' 1999, 146 Fig. 4,17). – 2. Donskoi, raion Semikarakorsk, oblast' Rostov, Russian Federation, kurgan 1, grave 21 (L'or 2001, 143 Fig. 133). – 3. Krasnogorovka III, raion Azov, oblast' Rostov, Russian Federation, kurgan 11, grave 1 (L'or 2001, 143 Fig. 132). – 4. Veselyi, Veselovskii raion, oblast' Rostov, Russian Federation, kurgan 2, grave 6 (L'or 2001, 29; Artamonov 1949, 321 Fig. 18). – 5. Verkhnee Pogromnoe, raion Sredneakhtubinsk, oblast' Volgograd, Russian Federation, kurgan 4, grave 4 (Shilov 1975, 51 Fig. 39,10). – 6. Zalivskii, Oktiabrskii raion, oblast' Volgograd, Russian Federation, kurgan 1, grave 9 (Klepikov/Skripkin 2002, 73 Fig. 4 A7). – 7. Kosika, raion Enotaev, oblast' Astrakhan, Russian Federation, grave 26 (Klepikov/Skripkin 2002, 73 Fig. 4 A9). – 8. Babashov, Lebapshaia obl., Tajikistan, ograda 14, grave 25 (Mandel'shtam 1975, Pl. 33,8.9).

From collections: 9. Iran, collection Foroughi (Korol'kova 1999, 76 Fig. 4,12; Ghirshmann 1979, Pl. 2,5). – 10. Site unknown (Korol'kova 1999, 76 Fig. 4,13). – 11. Musée Barbier-Mueller, Genève (Arts des Steppes. Ornements et pièces de mobilier funéraire scytho-sibérien dans les collections du Musée Barbier-Mueller [Genève 1996] No. 81 Inv. No. 240-108).

List 3c. "Parthian" belt plaques with fixed prong and button on the opposite side, depiction of a pair (after Post 1995 with additions).
From collections: 1.–6. Collection Foroughi, Iran (Ghirshman 1979, Pl. 1,1–5; 3,1). – 7. British Museum, ANE 1994-6-21,1 (Curtis 2001, Pl. 13b)[105]. – 8. Ancient India Collection (C. Fabrègues in: The Crossroads of Asia. Transformation in Image and Symbol in the Art of Ancient Afghanistan and Pakistan. Cat. Cambridge [Cambridge 1992] 145). – 9. Boston, Collection William Kelly Simpson (Post 1995, Pl. 23,4). – 10. Los Angeles, County Museum of Art (Moorey et al. 1981, 115 No. 670). – 11. Collection Nasli M. Heeramaneck, Los Angeles County Museum of Art (Moorey et al. 1981, No. 672; 115 Fig.). – 12. Westfalen, Germany, private ownership (Post 1995, Pl. 23,1). – 13. Musée Barbier-Mueller, Genève (Arts des Steppes. Ornements et pièces de mobilier funéraire scytho-sibérien dans les collections du Musée Barbier-Mueller [Genève 1996] No. 80, Inv. No. 240-101).

List 3d: Frame belt plaques with fixed prong and button on the opposite side, depiction of a rider.
1. Mechetsai, Sol'-Iletskii raion, oblast' Orenburg, Russian Federation, kurgan 3, grave 11 (Smirnov 1975, 101 Fig. 34,9). – 2. Kampyrtepe, Distr. Surkhandaria, Uzbekistan (Ilyasov/Rusanov 1997/98, Pl. 7,4).
From collections: 3.–5. Iran, collection Foroughi (Ghirshman 1979, Pl. 2,1.2; 3,2). – 6. Collection Nasli M. Heeramaneck, Los Angeles County Museum of Art (Moorey et al. 1981, No. 666; 116 Fig.). – 7.–8. British Museum, ANE 1992-1-25.1 and ANE 1981-11-7.1 (Curtis 2001, Pl. 12a.b). – 9. Musée Barbier-Mueller, Genève (Arts des Steppes. Ornements et pièces de mobilier funéraire scytho-sibérien dans les collections du Musée Barbier-Mueller [Genève 1996] No. 75, Inv. No. 240-102).

List 3e. Frame plaque depicting single animals.
1. Staritsa, Chernoiarskii raion, oblast' Astrakhan, Russian Federation, chance find (Smirnov 1976, 86 Fig. 6,14). – 2. Dailaman, Province Gilan, Iran (Sono/Fukai 1968, Pl. 77,8; Obel'chenko 1978, 71 Fig. 1,4).
From collections: 3. Nagornensk, Aktiube, Kazakhstan, A. Margulan Museum of the Institute of Archaeology, Almaty, MA NG-1 (Gold and Grass 2007, 105 No. 25; l'Uomo d'Oro 1998, 159 No. 216). – 4. British Museum, ANE 1972-5-20.1 (Curtis 2001, Pl. 13a).

List 3f. Frame buckle with depiction of horned ungulate.
From collections: 1.–4. Iran, collection Foroughi (Ghirshman 1979, Pl. 2,3.4; 3,3.4). – 5.–7. Collection Nasli M. Heeramaneck, Los Angeles County Museum of Art (Moorey et al. 1981, 115 No. 667–669 Fig.). – 8.–10. Musée Barbier-Mueller, Genève (Arts des Steppes. Ornements et

105 It remains uncertain using the published literature if the piece (Post 1995, 253 No. 3) from the British Museum is identical to the one published by Curtis 2001, Pl. 13b.

pièces de mobilier funéraire scytho-sibérien dans les collections du Musée Barbier-Mueller [Genève 1996] Nos. 76–78; Inv. No. 240-100, 240-104, 240-107).

List 4. Massive rectangular belt plaques made of bone or stone, with geometric design.

1. Dureny, Kiakhtinskii raion, Rep. Buriatiia, Russian Federation, settlement, building 5 (Davydova/Miniaev 2003, Pl. 96,7). – 2. Dyrestui, Dzhidinskii raion, Rep. Buriatiia, Russian Federation, grave 52 (Miniaev 1998, Pl. 36,1; Huns 2005, 61 Fig. 141). – 3. Dyrestui, Dzhidinskii raion, Rep. Buriatiia, Russian Federation, grave 123 (Miniaev 1998, Pl. 113,8). – 4. Ivolga, Ivolginskii raion, Rep. Buriatiia, Russian Federation, grave 139 (Davydova 1996, Pl. 40,3). – 5.–7. Ivolga, Ivolginskii raion, Rep. Buriatiia, Russian Federation, settlement, from cultural layer, fragment (Davydova 1995, Pl. 16,4.6.7). – 8. Ivolga, Ivolginskii raion, Rep. Buriatiia, Russian Federation, settlement, building 21 (Davydova 1995, Pl. 37,2). – 9. Kaly, raion Beiiskii, Rep. Khakasiia, Russian Federation, grave 32 (Kuz'min 1988, 71 Fig. 14,34). – 10. Nartanskii Kurgan, selo Nartan, Nal'chik, Rep. Kabardino-Balkaria, Russian Federation, grave 7 (Kerefov 1988, 198 Fig. 8,2). – 11. Piterka, raion Piterskii, oblast' Saratov, Russian Federation, kurgan 1, grave 9 (Liakhov/Mordvintseva 2000, 104 Fig. 2,2). – 12. Verkhnee Pogromnoe I, raion Sredneakhtubinsk, oblast' Volgograd, Russian Federation, kurgan 1, grave 13 (Shilov 1975, 47 Fig. 36,1). – 13. Zhutovo, raion Oktiabrskii, oblast' Volgograd, Russian Federation, kurgan 27, grave 4 (Mordvintseva/Shinkar' 1999, 148 Fig. 6,7). – 14.–17. Salkhit, Darkhan, Selenge aimag, Mongolia (Takahama 2009, 431, Fig. 1,4.5.6.7). – 18. Kyzyltepe, district Bukhara, Uzbekistan, kurgan 2, main burial (Obel'chenko 1992, Pl. 9). – 19. Kampyrtepe, district Surkhandaria, Uzbekistan (Luneva 2001, 124 Fig. 2,1). – 20. Kuiu-Mazar, district Bukhara, Uzbekistan, kurgan 7 (Litvinskii 1973, Pl. 9,2).
From collections: 21. Tokyo, National Museum (Ilyasov/Rusanov 1997/98, 152 Pl. 10,4; Kokuritsu Hakubutsukan 2005, 126 Fig. 36, TJ-500-1).

List 5. Type Baranovka: rectangular massive belt plaque with opening and fixed prong or pin.

1. Baranovka, raion Chernii Iar, oblast' Astrakhan, Russian Federation, kurgan 13, grave 1 (Dvornichenko/Feodor-Davydov 1989, 40 Fig. 19; Tesori 2005, 155 Fig. 120). – 2. Nikol'skoe, selo Nikol'skoe, Enotaevskii raion, oblast' Astrakhan, Russian Federation, kurgan 12, grave 1 (Tesori 2005, 154 Fig. 119; Mordvintseva 2003, 136 Fig. 21 Kat. 58). – 3. Vozdvizhenskii, Kurganinskii raion, Krasnodarskii krai, Russian Federation, kurgan (Gushchina/Zasetskaia 1989, 96 pp.; Pl. 3,32).

Group of P-shaped plaques

List 6. Type P-shaped belt plaque with animal combat.

List 6a. Variant Urbiun (griffin-beast of prey-combat; after Kost 2010, motif 24a with additions). 1. Urbiun III, Ulug-Khemskii raion, Rep. Tuva, Russian Federation (Savinov 1969, 106 Fig. 51; Devlet 1980, Pl. 29,117). – 2. Xichagou, Xifeng county, Liaoning province, China (cf. Bunker 1997a, 260; Sun 1960, 33 Fig. 6). – 3. City Chifeng, Inner Mongolia (Kost 2010, Cat. No. 36.1.2

after China Archaeology and Art Digest 1997, 36–37). – 4. Jilin province, China (Wang 1992, 22 Fig. 6,2). – 5. Jiaohe-gou Bei, city Turfan, Xinjiang, China, burial 1-mb (Wieczorek/Lind 2007, 272 No. 165).
From collections: 6. Zanabazar Museum, Ulaanbaatar. – 7. Shaanxi province, China (Yu/Dai 1985, 39 Fig. 4). – 8.–9. Palace Museum, Beijing (Wang 1993, 22 Fig. 29). – 10. North China (Devlet 1980, 6 Fig. 1,11). – 11. Tokyo National Museum (Kokuritsu Hakubutsukan 2005, 161 No. 35, Inv. No. TJ-3945). – 12. Sackler collection, former collection C. T. Loo, Paris (Bunker 1997a, 260 No. 222, Inv. No. V-3127). – 13. Metropolitan Museum, former collection Michael Dunn (Bunker et al. 2002, 108 p. No. 78). – 14. Ariadne Galleries, New York (Treasures 1998, 115 No. 121).

List 6b. Variant: griffin attacks deer (after Kost 2010, motif 24b; with addition).
1. Ershijiazi, Tumote Banner, Inner Mongolia (Kost Cat. No. 14.1 after Li Yiyou in Kaogu 1956, 2, 60–61). – 2. Alag Tolgoi, Delgertsogt sum, Dundgov' aimag, burial 6 (Ex.08.13) (Amartüvshin/Honeychurch 2010, 284, No. 17). – 3. Inner Mongolia (Kost 2010, Cat. No. 33.11 after Zheng Shaozhong in Wenwu chunqiu 1991, 4, 13).
From collections: 4.–5. Collection Michael Dunn (Bunker et al. 2002, 108 p. No. 78). – 6. North China, (Kost 2010, Cat. No. 32.23; Tian/Guo 1986, 94). – 7. Museum of Far Eastern Antiquities Stockholm (Andersson 1932, Pl. 32,1).

List 6c. Variant griffin-beast of prey-combat with three animals (after Kost 2010, motif 24c with additions).
1. Dyrestui, Dzhidinskii raion, Rep. Buriatiia, Russian Federation, grave 7, excavation Tal'ko-Gryntsevich (Miniaev 1998, Pl. 2,16.17; Devlet 1980, Pl. 29,115.116). – 2. Zaporozhskii kurgan, city Zaporozhe, oblast' Zaporozhe, Ukraine (Mantsevich 1982, Pl. 57,2–5; Shilov 1983, 182 p. Fig. 4;5). – 3. Zaomiao, Tongchuan, Shaanxi province, China, Qin-Period, burial 25 (Kaogu yu wenwu 1986, 2, 10 Fig. 4,17). – 4. Wengniute, Inner Mongolia, China (Kost 2010, Cat. No. 35.1.2 after Pang Hao in Wenwu 1998, 7, 42–43). – 5. Inner Mongolia (Kost 2010, Cat. No. 33.12; Zheng Shaozhong in Wenwu chunqiu 1991, 4, 13).
From collections: 6. Siberian collection Peter I (Rudenko 1962, Pl. 4,3). – 7. Siberian collection (Rudenko 1962, Pl. 5,5). – 8. North China (Kost 2010, Cat. No. 32.22 after Tian/Guo 1986, 94). – 9. Palace Museum, Beijing (Wang 1993, 23 Fig. 30). – 10. Mengdiexuan collection (Kost 2010, Cat. No. 32.122). – 11. New York (Bunker et al. 1970, 136 Fig. 125; Devlet 1980, 6 Fig. 1,6). – 12. Therese and Erwin Harris Collection (So/Bunker 1995, 165 p. No. 90). – 13. Los Angeles County Museum of Art (Moorey et al. 1981, 166 Fig. 881). – 14. Ariadne Galleries (Treasures 1998, 80 Cat. No. 83). – 15. Museum of Far Eastern Antiquities Stockholm (Andersson 1932, Pl. 33,1). – 16. Musée Barbier-Mueller, Genève (Arts des Steppes. Ornements et pièces de mobilier funéraire scytho-sibérien dans les collections du Musée Barbier-Mueller [Genève 1996] No. 43, Inv. No. 245-60).

List 6d. Variant: ungulate with raptorheaded-antlers is attacked.
1. Verkhneudinsk, Siberian Collection Peter I (Rudenko 1962, Pl. 4,2; 22,1; Aruz 2000, 287 pp. No. 210; Zavitukhina 1998). – 2. Xichagou, Xifeng county, Liaoning province, China (Sun 1960, 33 Fig. 5; Beifang 1995, 79 No. 107).
From collections: 3. Dundgov' aimag Museum, Mongolia (Volkov 1967, Fig. 20,1; Dundgov' aimgiin muzein san khömrögöös. Дундговь аймгийн музейн сан хөмрөгөөс [2010] 6 Fig.). – 4. Bombogor sum, Baiankhongor aimag, Mongolia (Tsonzhin boldog complex). – 5. Ömnögov'

aimag, Mongolia (Tsonzhin boldog complex). – 6. North China (E'erduosi 2006, 164). – 7. Palace Museum, Beijing (Wang 1993, 23 Fig. 32). – 8.–9. Eugene V. Thaw collection, Ex collection Eskenazi (Bunker et al. 2002, 104 p. No. 72). – 10.–11. Collection Leon Levy and Shelby White (So/Bunker 1995, 146 No. 67). – 12. The British Museum (Bunker et al. 1970, 136 Fig. 124).

List 6e. P-shaped plaques, other scenes of attack or animal combat.
1. Verkhnee Pogromnoe, raion Sredneakhtubinsk, obl. Volgograd, Russian Federation, kurgan 2 (Mordvintseva 2003, 135 Fig. 20, Cat. 45; L'or 1995, 44 Fig. 62). – 2. Jianhecun, Guyuan, Ningxia, China (Bunker 1997a, 46 Fig. A46).
From collections: 3. North China (E'erduosi 2006, 173). – 4.–11. Siberian Collection Peter 1, State Hermitage St. Petersburg, Russian Federation (Rudenko 1962, Pl. 5,1; 5,2.3; 6,3.4; 8,3.4.5.6.7.8). – 12. Collection Sackler (Bunker 1997a, 260 p. No. 223; Samolin/Drew 1965, Pl. 10A; Artamonov 1973, No. 201).

List 7. Type P-shaped plaques with depiction of humans (after Kost 2010, motif 40).

1. Daodunzi, Tongxin county, Ningxia province, China, grave 10 (Ningxia et al. 1988, 345 Fig. 10,6; Bunker 1997a, 85 Fig. A218; Beifang 1995, 78 No. 106). – 2. Xichagou, Xifeng county, Liaoning province, China (cf. Bunker 1997a, 104 p.; Sun 1960, 30 Fig. 17).
From collections: 3. North China (E'erduosi 2006, 173). – 4. Palace Museum, Beijing, China (Wang 1993, 23 Fig. 35). – 5. Collection Xiwenguo Zhai (Kost 2010, Cat. No. 32.85 and 32.168). – 6. Metropolitan Museum, loan of Shelby White and Leon Levy (Bunker et al. 2002, 111 p. No. 81). – 7. Siberian collection Peter I (Rudenko 1962, Pl. 7,1; 7,7). – 8. Siberian collection Peter I (Rudenko 1962, Pl. 4,5). – 9. Collection Nasli M. Heeramaneck, Los Angeles County Museum of Art (Moorey et al. 1981, 167 Fig. 885). – 10. Collection Sackler, former collection C. T. Loo, Paris (Bunker 1997a, 275 No. 243).

List 8. Group of semi-circular openwork belt plaques.

List 8a. Variant: wolf figure (after Kost 2010, motif 7a; with additions).
1. Dyrestui, Dzhidinskii raion, Rep. Buriatiia, Russian Federation, grave 100 (Miniaev 1998, Pl. 81,8; Huns 2005, 55 Fig. 118). – 2. Mar'iasovo, Balakhtinskii raion, Krasnoiarskii krai, Russian Federation, chance find (Devlet 1980, Pl. 28,114). – 3. Dadaosnajiazi at Qiqihar, Heeilongjiang province, China (Kaogu 1988, 12 Pl. 3,6). – 4. Xichagou, Xifeng county, Liaoning province, China (Sun 1960, 33 Fig. 4).
From collections: 5. Arkhangai aimag, collection B. Khurts, Mongolia (Tsonzhin boldog complex). – 6. Arvaikheer, Övörkhangai aimag (Monggol 2009, 164, No. 75). – 7. Sackler collection (Bunker 1997a, 273 No. 241). – 8. Metropolitan Museum (Bunker et al. 2002, 103 No. 71). – 9. Musée Cernuschi (Musée Cernuschi 2005, 19).

List 8b. Variant: wild animal above caprid.
1. Dyrestui, Dzhidinskii raion, Rep. Buriatiia, Russian Federation, grave 128 (Miniaev 1998, Pl. 118,1). – 2. Gora Izykh, Tashtypskii raion, Rep. Khakasiia, Russian Federation, chance find (Devlet 1980, Pl. 28,109). – 3. Kosogol'skii, Sharipovskii raion, Krasnoiarskii krai, Russian Federation, hoard (Devlet 1980, Pl. 28,110).

List 9. Ostentatious belts or belt plaques which cannot be attributed to a specific type.

1. Dachi, city Azov, oblast' Rostov, Russian Federation, kurgan 1 (Gabuev 2005, 16 p. Cat.-No. 3–9). – 2. Kosika, Enotaevskii raion, oblast' Astrakhan, Russian Federation (Tesori 2005, 128 p. Fig. 77; 78). – 3. Mekhzavod, city Rostov, oblast' Rostov, Russian Federation, kurgan 1 (Steppengold 2003, 123 Kat.-Nr. 88). – 4. Novyi, raion Martynovka, oblast' Rostov, Russian Federation, kurgan 70, burial 5, belt with 52 cowry shells (Steppengold 2003, 119, Cat.-No. 84). – 5. Pervomaiskii, raion Kalachevskii, oblast' Volgograd, Russian Federation (Simonenko/Lobai 1991, 50 p. Fig. 27,3). – 6. Vodnyi, Krasnoarmeiskii raion, Krasnodarskii krai, Russian Federation, kurgan 1, burial 1 (Marchenko 1996, 298 Fig. 78,12; L'or 2001, 259 No. 312). – 7. Porogi, Zhampolskii raion, Vinintskii oblast', Ukraine, kurgan 2, grave 1 (Simonenko/Lobai 1991, 21 Fig. 12). – 8. Tillia Tepe, Jowzjān province, Afghanistan, grave 4 (Sarianidi 1985, Pl. 88). – 9. Saksanokhur, Tadjikistan (Oxus 1989, 52 p. No. 25; Ilyasov/Rusanov 1997/98, Pl. 9,4).
From collections: 10.–11. Iran, Nivahend (?): British Museum (ANE 1927-11-17.1: Curtis 2001, Pl. 14b); Metropolitan Museum (17.190.2055: Ghirshman 1962, 100 Fig. 112).

REFERENCES

Afghanistan 2008

Afghanistan: hidden treasures from the National Museum, Kabul (Washington D.C. 2008).

Agbe-Davies/Bauer 2010

A. S. Agbe-Davies/A. A. Bauer, Rethinking Trade as Social Activity: An Introduction. In: A. A. Bauer/A. S. Agbe-Davies (eds.), Social Archaeologies of Trade and Exchange (Walnut Creek 2010) 13–29.

Akishev 1976

A. K. Akishev, Novye khudozhestvennye bronzovye izdeliia sakskogo vremeni. In: Proshloe Kazakhstana po arkheologicheskim istochnikam (Alma-Ata 1976) 183–195. А. К. Акишев, Новые художественные бронзовые изделия сакского времени. In: Прошлое Казахстана по археологическим источникам (Алма-Ата 1976) 183–195.

Akishev 1978

A. K. Akishev, Kurgan Issyk. Iskusstvo sakov Kazakhstana (Moskva 1978). А. К. Акишев, Курган Иссык. Искусство саков Казахстана (Москва 1978).

Alcock et al. 2001

S. E. Alcock/T. N. D'Altroy/K. D. Morrison/C. M. Sinopoli (eds.), Empires: Perspectives from Archaeology and History. Conference "Imperial designs: Comparative Dynamics of Early Empires", held in Mijas, Spain, in the autumn of 1997 (Cambridge, New York 2001).

Alconini 2005

S. Alconini, The Dynamics of Military and Cultural Frontiers on the Southeastern Edge of the Inka Empire. In: B. J. Parker /L. Rodseth (eds.), Untaming the Frontier in Anthropology, Archaeology and History (Tuscon 2005) 115–146.

Alconini 2008

S. Alconini, Dis-embedded centers and architecture of power in the fringes of the Inka empire: New perspectives on territorial and hegemonic strategies of domination. Journal of Anthropological Archaeology 27, 2008, 63–81.

Alekseev/Gochman 1983

V. P. Alekseev/I. I. Gochman, Physical anthropology of Soviet Asia. Rassengeschichte der Menschheit 9 (München 1983).

Alekseev/Pershits 1999

V. P. Alekseev/A. I. Pershits, Istoriia pervobytnogo obshchestvo (Moskva 1999). В. П. Алексеев/А. И. Першиц, История первобытного общество (Москва 1999).

Alekseeva 1978

E. M. Alekseeva, Antichnye busy Severnogo Prichernomor'ia. Arkheologiia SSSR. Svod arkheologicheskikh istochnikov G1–12 (Moskva 1978). Е. М. Алексеева, Античные бусы Северного Причерноморья. Археология СССР. Свод археологических источников Г1–12 (Москва 1978).

Alesina/Spolaore 2003

A. Alesina/E. Spolaore, The size of nations (Cambridge 2003).

Allard/Erdenebaatar 2005

F. Allard/D. Erdenebaatar, Khirigsuurs, Ritual, and Nomadic Pastoralism in the Bronze Age of Mongolia. Antiquity 79, 2005, 547–563.

Allard et al. 2002

F. Allard/D. Erdenebaatar /N. Batbold/B. Miller, A Xiongnu cemetery found in Mongolia. Antiquity 76, 2002, 637–638.

Allsen 1996

Th. T. Allsen, Spiritual geography and political legitimacy in the eastern steppe. In: H. J. M. Claessen/J. G. Oosten (eds.), Ideology and the formation of early states. Studies in Human Society 11 (Leiden, New York, Köln 1996) 116–135.

AMARTÜVSHIN 2003
Ch. Amartüvshin, Egiin Gol' dakh' dörvölzhin bulshny sudalgaany zarim asuudal. In: S. Idshinnorov (ed.), Mongol-Solongosyn Erdem Shinzhilgeenii Ankhdugaar Simpozium (Seoul 2003) 83–94. Ч. Амартүвшин, Эгийн голь дахь дөрвөлжин булшны судалгааны зарим асуудал. In: С. Идшинноров (ed.), Монгол-Солонгосын Эрдэм Шинжилгээний Анхдугаар Симпозиум (Seoul 2003) 83–94.

AMARTÜVSHIN/HONEYCHURCH 2010
Ch. Amartüvshin/W. Honeychurch, Dundgov' aimagt khiisen arkheologiin sudalgaa: Baga Gazryn Chuluu (Ulaanbaatar 2010). Дундговь аймагт хийсэн археологийн судалгаа: Бага Газрын Чулуу [= Survey and bioarchaeology in the middle gobi: the Baga Gazaryn Chuluu project]. Studia Archaeologica 27 (Улаанбаатар 2010).

AMARTÜVSHIN/KHATANBAATAR 2008
Ch. Amartüvshin/P. Khatanbaatar, Khüren khondyn khünnü bulshny sudalgaa. Arkheologiin sudlal 26, 2008, 190–212. Ч. Амартүвшин/П. Хатанбаатар, Хүрэн хондын хүннү булшны судалгаа. Археологийн судлал 26, 2008, 190–212.

AMARTÜVSHIN/ZHARGALAN 2008
Ch. Amartüvshin/B. Zhargalan, Baga Gazryn Chuluund khiisen khürel zevsgiin türüü üeiin bulshny sudalgaa. Arkheologiin sudlal 26, 2008, 77–91. Ч. Амартүвшин/Б. Жаргалан, Бага газрын чулуунд хийсэн хүрэл зэвсгийн түрүү үеийн булшны судалгаа. Археологийн судлал 26, 2008, 77–91.

AMBROSE 1993
S. H. Ambrose, Isotopic Analysis of Paleodiets: Methodological and Interpretive Considerations. In: M. K. Sandford (ed.), Investigations of Ancient Human Tissue. Chemical Analyses in Anthropology (Langhorne 1993) 59–130.

ANCIENT BRONZES 2007
Ancient Bronzes from China, Ordos and the Steppes. Ben Janssens Oriental Art, Rupert Wace Ancient Art (London 2007).

ANDERSSON 1932
J. Andersson, Hunting Magic in the Animal Style. Bulletin of the Far Eastern Antiquities Museum 4, 1932, 221–321.

ANDERSSON 1933
J. Andersson, Selected Ordos Bronzes. Bulletin of the Far Eastern Antiquities Museum 5, 1933, 143–154.

ANDRÉ 2002
G. André, Une tombes princière Xiongnu à Gol Mod, Mongolie (campagne de fouilles 2000–2001). Arts Asiatiques 57, 2002, 192–205.

ANDRÉ 2007
G. André, Les Xiongnu et leurs predecesseurs dans la region de Gol Mod, province de l'Arkhangaï. In: Desroches/André 2007, 30–34.

ANDRÉ 2009
G. André, Art et archéologie aux premiers temps de la civilisation mongole. In: Trésors du Bouddhisme au pays de Gengis khan (Milan 2009) 29–43.

ANDRÉ/ERÖÖL-ERDENE 2004
G. Andre/Ch. Erööl-Erdene, Negen khürel shiidemnii tukhai. Arkheologiin sudlal 22, 2004, 110–117. Г. Андре/Ч. Ерөөл-Эрдэнэ, Нэгэн хүрэл шийдэмний тухай. Археологийн судлал 22, 2004, 110–117.

ANDRÉ/HOLOTOVÁ-SZINEK 2009
G. André (An Wei 安維)/J. Holotová-Szinek (Xi Zhifang 奚芷芳), Menggu Xiongnu guizu mudi chubu yanjiu 蒙古貴族墓地初步研究. Kaogu xuebao 2009, 1, 69–88.

ANKE 1998
B. Anke, Studien zur reiternomadischen Kultur des 4. bis 5. Jahrhunderts. Beiträge zur Ur- und Frühgeschichte Mitteleuropa 8 (Weissbach 1998).

ANTHONY/BROWN 2000
D. W. Anthony/D. R. Brown, Eneolithic horse exploitation in the Eurasian steppes: diet, ritual and riding. Antiquity 74, 2000, 75–86.

ANTHONY ET AL. 1992
D. W. Anthony/D. Telegin/D. R. Brown, Les premiers cavaliers. Pour la Science 172, 1992, 36–41.

APAKIDZE 1958
A. M. Apakidze, Mtskheta. Itogi arkheologicheskikh issledovanii 1 (Tbilisi 1958). А. М. Апакидзе, Мцхета. Итоги археологических исследований 1 (Тбилиси 1958).

ARBOGAST ET AL. 2002
R.-M. Arbogast/B. Clavel/S. Lepetz/P. Méniel/

J.-H. Yvinec, Archéologie du cheval. Des origines à la période moderne en France (Paris 2002).

Arbuckle 2006
B. S. Arbuckle, The evolution of sheep and goat pastoralism and social complexity in central Anatolia. PhD Dissertation, Harvard University 2006.

Art 2005
Art chinois. Musée Cernuschi acquisitions 1993–2004 (Paris 2005).

Artamonov 1949
M. I. Artamonov, Raskopki kurganov na r. Manyche v 1937 g. Sovetskaia Arkheologiia 11, 1949, 305–336. М. И. Артамонов, Раскопки курганов на р. Маныче в 1937 г. Советская Археология 11, 1949, 305–336.

Artamonov 1973
M. I. Artamonov, Sokrovishcha Sakov. Amu-Darynskii klad, Altaiskie kurgany, Minusinskie bronzy, Sibirskoe zoloto (Moskva 1973). М. И. Артамонов, Сокровища Саков. Аму-Дарынский клад, Алтайские курганы, Минусинские Бронзы, Сибирское золото (Москва 1973).

Aruz et al. 2000
J. Aruz/A. Farkas/A. Alekseev/E. Korolkova (eds.), The Golden Deer of Eurasia. Scythian and Sarmatian Treasures from the Russian Steppes (New York 2000).

L'Asie 2000
L'Asie des steppes d'Alexandre le Grand à Gengis Khan (Paris 2000).

Askarov et al. 1992
A. Askarov/V. Volkov/N. Ser-Odjav, Pastoral and nomadic tribes at the beginning of the first millennium BC. In: A. H. Dani/V. M. Masson (eds.), History of civilizations of Central Asia (Paris 1992) 459–472.

Atwood 2004
Ch. P. Atwood, Encyclopedia of Mongolia and the Mongol Empire (New York 2004).

Atwood 2006
Ch. P. Atwood, Titles, appanages, marriages, and officials: A comparison of political forms in the Zünghar and thirteenth-century Mongol empires. In: D. Sneath (ed.), Imperial Statecraft. Political forms and techniques of governance in Inner Asia, sixth-twentieth centuries. Studies on East Asia 26 (Bellingham 2006) 207–242.

Bachura 2008
O. P. Bachura, Rezul'taty opredeleniia vozrasta i sezona zaboia loshadei po registriruiushchim strukturam iz pamiatnikov pozdnei drevnosti Altaia. In: A. A. Tishkin (otv. red.), Drevnie i srednevekovye kochevniki Tsentral'noi Azii. Sbornik nauchnykh trudov (Barnaul 2008) 120–122. О. П. Бачура, Результаты определения возраста и сезона забоя лошадей по регистрирующим структурам из памятников поздней древности Алтая. In: А. А. Тишкин (отв. ред.), Древние и средневековые кочевники Центральной Азии. Сборник научных трудов (Барнаул 2008) 120–122.

Bacon 1958
E. Bacon, Obok. A Study of Social Structure of Eurasia (New York 1958).

Bai 2005
Bai Yunxiang 白雲翔, Xian Qin Liang Han tie qi de kaoguxue yanjiu 先秦兩漢鐵器的考古學研究 (Beijing 2005).

Baiarsaikhan/Egiimaa 2008
Zh. Baiarsaikhan/Ts. Egiimaa, Takhiltyn khotgoryn 64-r bulshny maltlaga sudalgaany ür dün. In: Xiongnu 2008, 186–201. Ж. Баярсайхан/Ц. Эгиймаа, Тахилтын хотгорын 64-р булшны малтлага судалгааны үр дүн. In: Xiongnu 2008, 186–201.

Bailiff 2007
I. K. Bailiff, Methodological developments in the luminescence dating of brick from English late/medieval and post/medieval buildings. Archaeometry 49, 4, 2007, 827–851.

Balasse/Ambrose 2005
M. Balasse/S. Ambrose, Distinguishing sheep and goats using dental morphology and stable carbon isotopes in C_4 grassland environments. Journal of Archaeological Science 32, 2005, 691–702.

Balasse/Tresset 2002
M. Balasse/A. Tresset, Early Weaning of Neolithic Domestic Cattle (Bercy, France) revealed by Intra-tooth Variation in Nitrogen Isotope Ratios. Journal of Archaeological Science 29, 2002, 853–859.

BALASSE ET AL. 2001
M. Balasse/A. Bocherens/A. Mariottie/S. H. Ambrose, Detection of Dietary Changes by Intratooth Carbon and Nitrogen Isotopic Analysis: An Experimental Study of Dentine Collagen of Cattle (*Bos taurus*). Journal of Archaeological Science 28, 2001, 235–245.

Bálint 1993
C. Bálint, Probleme der archäologischen Forschung zur awarischen Landnahme. In: Ausgewählte Probleme europäischer Landnahmen des Früh- und Hochmittelalters 1 (Sigmaringen 1993) 195–273.

BAN GU 1962
Ban Gu 班固, Hanshu 漢書, 12 Vols. (Beijing 1962).

BANG/BAYLY 2003
P. F. Bang/C. Bayly, Introduction: comparing pre-modern empires. Medieval History Journal 6, 2003, 169–187.

BANG/SCHEIDEL 2011
P. F. Bang/W. Scheidel (eds.), The Oxford handbook of the ancient state: Near East and Mediterranean (New York 2011).

BANG ET AL. FORTHCOMING
P. F. Bang/C. Bayly/W. Scheidel (eds.), The Oxford world history of empire (New York forthcoming).

BAO 1992
Bao Tong 鮑桐, Shouxiangcheng he Mangyigu kao 受降城和滿夷谷考. In: Zhongguo lishi dili luncong 中國歷史地理論叢 1 (1992), 191–200.

BAOTOU/DAMAO 2000
Baotou shi wenwu guanlichu 包頭市文物管理処/Damao qi wenwu guanlisuo 大茂旗文物管理所, Baotou jing nei de Zhanguo Qin Han changcheng yu gu cheng 包頭境内的戰國秦漢長城與古城. Nei Menggu wenwu kaogu 2000, 1, 74–91.

BARFIELD 1981
T. J. Barfield, The Hsiung-nu Confederacy: Organization and Foreign Policy. Journal of Asian Studies 41, 1981, 45–61.

BARFIELD 1989
T. J. Barfield, The Perilous Frontier: Nomadic Empires and China (Cambridge, Oxford 1989).

BARFIELD 1992
T. J. Barfield, The Perilous Frontier: Nomadic Empires and China (221 BC to AD 1757) (Cambridge 1992).

BARFIELD 1993
T. J. Barfield, The Nomadic Alternative (Englewood Cliffs, NJ 1993).

BARFIELD 2001a
T. J. Barfield, The Shadow Empires: Imperial State Formation along the Chinese-Nomad frontier. In: S. E. Alcock/T. N. D'Altroy/K. D. Morrison/C. M. Sinopoli (eds.), Empires: Perspectives from Archaeology and History. Conference "Imperial designs: Comparative Dynamics of Early Empires", held in Mijas, Spain, in the autumn of 1997 (Cambridge, New York 2001) 10–41.

BARFIELD 2001b
T. J. Barfield, Steppe Empires, China and the Silk Route: Nomads as a Force in International Trade and Politics. In: A. M. Khazanov/A. Wink (eds.) Nomads in the Sedentary World. Routledge Curzon-IIAS Asian studies series (Richmond 2001) 234–249.

BAR-YOSEF/KHAZANOV 1992
O. Bar-Yosef/A. Khazanov, Introduction. In: O. Bar-Yosef/A. Khazanov (eds.), Pastoralism in the Levant: Archaeological Materials in Anthropological Perspectives. Monographs in World Archaeology 10 (Madison 1992) 1–10.

BATNASAN 1978
G. Batnasan, BNMAU dakh' negdelchdiin azh akhuigaa khötlökh arga azhillagaa (Ulaanbaatar 1978). Г. Батнасан, БНМАУ дахь нэгдэлчдийн аж ахуйгаа хөтлөх арга ажиллагаа (Улаанбаатар 1978).

BATSAIKHAN 2002
Z. Batsaikhan, Khünnü. Arkheologi, ugsaatan züi, tüükh (Ulaanbaatar 2002). З. Батсайхан, Хүннү. Археологи, угсаатан зүй, түүх (Улаанбаатар 2002).

BATSAIKHAN 2006
Z. Batsaikhan, Foreign tribes in the Xiongnu confederation. The Silk Road 4, 1, 2006, 45–47.

BATSAIKHAN/BAATARBILEG 2002
Z. Batsaikhan/E. Baatarbileg, Arkhangai aimgiin Ögiinüür sumyn nutagt shineer oldson gurvan kherem. Arkheologi, Antropologi Ugsaatny

Sudlal 13, 2002, 36–38. З. Батсайхан/Э. Баатарбилэг, Архангай аймгийн Өгийнүүр сумын нутагт шинээр олдсон гурван хэрэм. Археологи, Антропологи Угсаатны Судлал 13, 2002, 36–38.

Batsaikhan et al. 1990
Z. Batsaikhan/D. Tseveendorzh/P. B. Konovalov, Ömnögov' aimagt maltalt khiisen tukhai tailan. Unpublished Report, Institute of History, Ulaanbaatar 1990. З. Батсайхан/Д. Цэвээндорж/П. Б. Коновалов, Өмнөговь аймагт малталт хийсэн тухай тайлан, Улаанбаатар 1990.

Bazargur 2002
D. Bazargur, Territorial Organization of Mongolian Pastoral Livestock Husbandry in the Transition to a Market Economy. Focus on Geography 47, 1, 2002, 20–25.

Bazargur 2005
D. Bazargur, Belcheeriin mal azh akhuin gazarzui (Ulaanbaatar 2005). Д. Базаргур, Бэлчээрийн мал аж ахуйн газарзуй (Улаанбаатар 2005)

Beckwith 2009
Ch. I. Beckwith, Empires of the Silk Road: A History of Central Asia from the Bronze Age to the Present (Princeton 2009).

Beifang 1995
Zhongguo qintongqi quanji bianji weiyuanhuibian 中國青銅器全集編輯委員會編. Beifang minzu 北方民族. Zhongguo qingtonqi quanji 中國青銅器全集, Vol. 15 (Beijing 1995).

Bemmann/Munkhbayar 2010
J. Bemmann/L. Munkhbayar, Im Zentrum der Steppenreiche. Archäologie in Deutschland 2010, 3, 14–18.

Bemmann et al. 2009
J. Bemmann/H. Parzinger/E. Pohl/D. Tseveendorzh (eds.), Current Archaeological Research in Mongolia. Papers from the First International Conference on "Archaeological Research in Mongolia" held in Ulaanbaatar, August 19th – 23rd, 2007. Bonn Contributions to Asian Archaeology 4 (Bonn 2009).

Bemmann et al. 2010
J. Bemmann/S. Linzen/L. Munkhbayar/M. Oczipka, An interdisciplinary expedition surveying the Middle Orkhon Valley, Mongolia – preliminary results. In: Drevnie kul'tury Mongolii i Baikal'skoi Sibiri. Materialy mezhdunarodnoi nauchnoi konferentsii (Ulan-Ude, 20–24 sentiabria 2010 g.) (Ulan-Ude 2010) 351–355. In: Древние культуры Монголии и Байкальской Сибири. Материалы международной научной конференции 20–24 сентября 2010 г.) (Улан-Удэ 2010) 351–355.

Bemmann et al. 2011
J. Bemmann/B. Ahrens/C. Grützner/R. Klinger/N. Klitzsch/F. Lehmann/S. Linzen/L. Munkhbayar/G. Nomguunsuren/M. Oczipka/H. Piezonka/B. Schütt/S. Solongo, Geoarchaeology in the Steppe. First results of the multidisciplinary Mongolian-German survey project in the Orkhon valley, Central Mongolia. Arkheologiin sudlal 30, 2011, 69–97. Археологийн судлал 30, 2011, 69–97.

Bennett/Kaestle 2006
C. C. Bennett/F. Kaestle, Reanalysis of Eurasian population history: ancient DNA evidence of population affinities. Human Biology 78, 4, 2006, 413–440.

Bennett/Stam 1996
D. S. Bennett/A. C. Stam III, The Duration of Interstate Wars, 1816–1985. American Political Science Review 90, 2, 1996, 239–257.

Bergquist et al. 1975
S. Bergquist/J. Lopez/L. Braun/J. Burchard/D. Kellerman/J. Plier/C. Ross/V. Sherman, New Webster's dictionary of the English language (Chicago 1975).

Berguet 1964
Herodote, L'Enquête. Texte présenté, traduit et annoté par Berguet P. Bibliothèque de la Pléiade 176, Historiens grecs 1 (Paris 1964).

Bernshtam 1951
A. N. Bernshtam, Ocherk istorii gunnov (Leningrad 1951). А. Н. Бернштам, Очерк истории гуннов (Ленинград 1951).

Berry/Berry 1967
R. J. Berry/A. C. Berry, Epigenetic variation in the human cranium. Journal of Anatomy 101, 1967, 361–379.

Bespalyi 1992
E. I. Bespalyi, Kurgan sarmatskogo vremeni u g. Azova. Sovetskaia Arkheologiia 1992, 1, 175–191. Е. И. Беспалый, Курган сарматского вре-

мени у г. Азова. Советская Археология 1992, 1, 175–191.

BICHURIN 1950a
N. Ia. Bichurin, Sobranie svedenii o narodakh obitavshikh v Srednei Azii v drevnie vremena, Vol. 1 (Moskva, Leningrad 1950). Н. Я. Бичурин, Собрание сведений о народах, обитавших в Средней Азии в древние времена, Vol. 1 (Москва, Ленинград 1950).

BICHURIN 1950b
N. Ia. Bichurin, Sobranie svedenii o narodakh obitavshikh v Srednei Azii v drevnie vremena, Vol. 2 (Moskva, Leningrad 1950). Н. Я. Бичурин, Собрание сведений о народах, обитавших в Средней Азии в древние времена, Vol. 2 (Москва, Ленинград 1950).

BIELENSTEIN 1986
H. Bielenstein, Wang Mang, the restoration of the Han dynasty, and later Han. In: D. Twitchett/M. Loewe (eds.), The Cambridge history of China, Vol. 1. The Ch'in and Han empires, 221 B.C.–A.D. 220 (Cambridge 1986) 223–290.

BIENEN/VAN DE WALLE 1989
H. Bienen/N. van de Walle, Time and power in Africa. American Political Science Review 83, 1, 1989, 19–34.

BILEGT 1997
L. Bilegt, Tiurki i Mongoly. Arkheologiin sudlal 18, 1997, 153–176. Л. Билэгт, Тюрки и Монголы. Археологийн судлал 18, 1997, 153–176.

BILIMOVICH 1962
Z. Bilimovich, Bronzovaia priazhka iz Nimfeia. Soobshcheniia Gosudarstvennogo Ermitazha 23, 1962, 43–45. З. Билимович, Бронзовая пряжка из Нимфея. Сообщения Государственного Эрмитажа 23, 1962, 43–45.

BIRAN 2005
M. Biran, The Empire of the Qara Khitan in Eurasian history. Between China and the Islamic world (Cambridge 2005).

BLANTON/FARGHER 2008
R. Blanton/L. Fargher, Collective action in the formation of pre-modern states. Fundamental issues in archaeology (New York 2008).

BOGDANOV 2006
E. S. Bogdanov, Obraz khishchnika v plasticheskom iskusstve kochevykh narodov Tsentral'noi Azii (skifo-sibirskaia khudozhestvennaia traditsiia) (Novosibirsk 2006). Е. С. Богданов, Образ хищника в пластическом искусстве кочевых народов Центральной Азии (скифо-сибирская художественная традиция) (Новосибирск 2006).

BOKOVENKO 2006
N. Bokovenko, The Emergence of the Tagar Culture. Antiquity 80, 2006, 860–879.

BOKOVENKO/ZASETSKAIA 1993
N. A. Bokovenko/I. P. Zasetskaia, Proizkhozhdenie kotlov "gunnskogo tipa" vostochnoi Evropy v svete problemy khunno-gunnskikh sviazei. Peterburgskii Arkheologicheskii Vestnik 3, 1993, 73–88. Н. А. Боковенко/И. П. Засецкая, Происхождение котлов "гуннского типа" восточной Европы в свете проблемы хунно-гуннских связей. Петербургский Археологический Вестник 3, 1993, 73–88.

BOURDIEU 1977
P. Bourdieu, Outline of a Theory of Practice. Cambridge studies in social anthropology 16 (Cambridge, New York 1977).

BOYLE 1972
J. A. Boyle, The seasonal residences of the great khan Ögedei. Central Asiatic Journal 16, 1972, 125–131.

BRANDT/GUTSCHOW 2003
A. Brandt/N. Gutschow, Erdene Zuu. Zur Baugeschichte der Klosteranlage auf dem Gebiet von Karakorum, Mongolei. Beiträge zur Allgemeinen und Vergleichenden Archäologie 23, 2003, 21–48.

BRENTJES 1989
B. Brentjes, Incised Bones and a Ceremonial Belt: Finds from Kurgan-Tepe and Tillia Tepe. Bulletin of the Asia Institute 3, 1989, 39–44.

BRIANT 2002
P. Briant, From Cyrus to Alexander. A history of the Persian Empire (Winona Lake 2002).

BRIDGES 1991
P. Bridges, Degenerative Joint Disease in Hunter-Gatherers and Agriculturalists from the Southeastern United States. American Journal of Physical Anthropology 85, 4, 1991, 379–391.

BROSSEDER 2007a
U. Brosseder, Fremde Frauen in Ivolga? In:

M. Blečić/M. Črešnar/B. Hänsel/A. Hellmuth/E. Kaiser/C. Metzner-Nebelsick (eds.), Scripta Praehistorica in Honorem Biba Teržan. Situla 44 (Ljubljana 2007) 883–893.

Brosseder 2007b
U. Brosseder, Les Xiongnu et leurs relations internationales. In: Desroches/André 2007, 82–84.

Brosseder 2009
U. Brosseder, Xiongnu Terrace Tombs and their Interpretation as Elite Burials. In: Bemmann et al. 2009, 247–280.

Brosseder et al. 2011
U. Brosseder/Ch. Yeruul-Erdene with D. Tseveendorj, Ch. Amartuvshin, Ts. Turbat, Ts. Amgalantugs and a contribution by M. L. Machicek, 12 AMS-radiocarbon dates from Xiongnu period sites in Mongolia and the problem of chronology. Arkheologiin sudlal 31, 2011, in print. Археологийн судлал 31, 2011, in print.

Brothwell 1981
D. R. Brothwell, Digging up bones. 3rd ed. (Ithaca 1981).

Brun 2001
P. Brun, Le cheval, symbole de pouvoirs dans l'Europe préhistorique. Catalogue d'exposition du 31 mars au 12 novembre 2001, Musée de préhistoire d'Ile-de-France (Nemours 2001).

Brunaux 2000
J.-L. Brunaux, Les religions gauloises (Ve–Ier siècles av. J.-C.): nouvelles approches sur les rituels celtiques de la Gaule indépendante (Paris 2000).

Bügd 1955
Bügd Nairamdakh Mongol Ard Ulsyn Tüükh (Ulaanbaatar 1955). Бүгд Найрамдах Монгол Ард Улсын Түүх (Улаанбаатар 1955).

Bünchin 1978
B. Bünchin, Unalga edelgeenii malyn ashiglalt, tonog kheregsel (Ulaanbaatar 1978). Б. Бүнчин, Уналга эдэлгээний малын ашиглалт, тоног хэрэгсэл (Улаанбаатар 1978).

Bunker 1989
E. Bunker, Dangerous Scholarship. On citing unexcavated Artifacts from Inner Mongolia and North China. Orientations, 6, 1989, 52–59.

Buiukliev 1986
Kh. Buiukliev, Trakiichkiiat mogilen nekropol pri Chatalka, Starozagorski okr'ag (Sofiia 1986). Х. Буюклиев, Тракийчкият могилен некропол при Чаталка, Старозагорски окръг (София 1986).

Bulling 1960
A. Bulling, The decoration of mirrors of the Han Period, a chronology. Artibus Asiae, Suppl. 20 (Ascona 1960).

Bunker 1994
E. C. Bunker, The Metallurgy of Personal Adornment. In: J. M. White/E. C. Bunker/ C. Pfeifen, Adornment for Eternity. Status and Rank in Chinese Ornament (Denver 1994) 31–54.

Bunker 1997a
E. Bunker with T. S. Kawami/K. M. Linduff/Wu En, Ancient Bronzes of the Eastern Eurasian Steppes from the Arthur M. Sackler Collections (New York 1997).

Bunker 1997b
E. Bunker, Gold Wire in Ancient China. Orientations 28, 3, 1997, 94–95.

Bunker et al. 1970
E. Bunker/B. Chatwin/A. Farkas, „Animal style" Art from East to West (New York 1970).

Bunker et al. 2002
E. Bunker/J. C. Y. Watt/Zhixin Sun/J. Ph. O'Neill (eds.), Nomadic art of the Eastern Eurasian steppes. The Eugene V. Thaw and other New York collections (New York 2002).

Burbank/Cooper 2010
J. Burbank/F. Cooper, Empires in world history: power and the politics of difference (Princeton 2010).

Cangzhou 1998
Cangzhou shi wenwu guanlichu 滄州市文物管理處, Hebei Nanpi Luzhuangzi Han mu 河北南皮蘆庄子漢墓. Wenwu chunqiu 1998, 1, 1–4.

Carneiro 1970
R. Carneiro, A theory of the origin of the state. Science 169, 1970, 733–738.

Carneiro 1981
R. Carneiro, The chiefdom as precursor of the state. In: G. Jones/R. Kautz (eds.), The Transition to Statehood in the New World. New directions in archaeology (Cambridge 1981) 37–79.

CARNEIRO 2000
R. Carneiro, Process vs Stages: A False Dichotomy in Tracing the Rise of the State. In: N. N. Kradin/A. V. Korotayev et al. (eds.), Alternatives of Social Evolution (Vladivostok 2000) 52–58.

CHANG 1986
K.-C. Chang, The Archaeology of Ancient China 4th ed. (New Haven 1986).

CHANG 1989
K.-C. Chang, Kwang-Chih, Ancient China and its Anthropological Significance. In: C. C. Lamberg-Karlovsky, Archaeological thought in America (Cambridge 1989) 155–166.

CHANG ET AL. 2002
C. Chang/P. A. Tourtellotte/K. M. Baipakov/F. P. Grigoriev, The Evolution of Steppe Communities from the Bronze Age through Medieval Periods in Southeastern Kazakhstan (Zhetysu): The Kazakh-American Talgar Project 1994–2001 (Sweet Briar 2002).

CHANG ET AL. 2003
C. Chang/N. Benecke/F. P. Grigoriev/A. Rosen/P. A. Tourtellotte, Iron Age society and chronology in South-east Kazakhstan. Antiquity 77, 2003, 298–312.

CHASE/DOUGLAS 1997
W. T. Chase/J. G. Douglas, Technical Studies and Metal Compositional Analyses of Bronzes of the Eastern Eurasian Steppes from the Arthur M. Sackler Collections. In: Bunker 1997a, 306–318.

CHASE-DUNN/HALL 1997
C. Chase-Dunn/T. D. Hall, Rise and demise. Comparing world-systems (Boulder 1997).

CHEN 1989
Ching-lung Chen, Chinese symbolism among the Huns. In: K. Sagaster (ed.), Religious and lay symbolism in the Altaic world and other papers. Asiatische Forschung 105 (Wiesbaden 1989) 62–70.

CHEN 2007
Chen Xujing 陳序經, Xiongnu shigao 匈奴史稿 (Beijing 2007).

CHEN 2009
Chen Shan 陈山, Lamadong mudi sanyan wenhua jumin rengu yanjiu 喇嘛洞墓地三燕文化居民人骨研究. PhD dissertation Jilin University 博士论文 吉林大学 (Changchun 2009).

CHEN/BAI 1994
Chen Fengshan 陳鳳山/Bai Jingsong 白勁松, Nei Menggu Zhalainuo'er Xianbei mu 内蒙古扎賚諾爾鮮卑墓. Nei Menggu wenwu kaogu 1994, 2, 27–30.

CHEN ET AL. 1987
Chen Gongrou 陳公柔 et al., Qinghai Datong Ma Liang mu chutu Hanjian de zhengli yu yanjiu 青海大通馬良墓出土漢簡的整理與研究. Kaoguxue jikan 5 (1987), 293–315, pls. 30–37.

CHENG/HAN 2002
Cheng Linquan 程林泉/Han Guohe 韓國河, Chang'an Han jing 長安漢鏡 (Xi'an 2002).

CHEN JIANMING 2008
Chen Jianming 陈健明 (ed.), Noble tombs at Mawangdui. Art and life of the Changsha kingdom: Third century BCE to first century CE. Mawangdui Han mu. Gu Changsha guo de yi shu yu sheng huo 马王堆汉墓. (长沙国的艺术与生活 (Changsha 2008).

CHILDE 1956
V. G. Childe, Piecing Together the Past: The Interpretation of Archaeological Data (London 1956).

CHINA 2004
China. Dawn of a Golden Age. Cat. Metropolitan Museum (New York 2004).

CHISTYAKOVA 2009
A. N. Chistyakova, Chinese Inscription on the Lacquer cup from Noin Ula Mound 20 (Mongolia). Archaeology, Ethnology and Anthropology of Eurasia 2009, 3, 59–68.

CHŌSEN 1934
Chōsen Koseki Kenkyū-kai 朝鮮古蹟研究會, Rakurō sai kyō tsuka 樂浪彩篋冢. Koseki chōsa hōkoku 古蹟調查報告 Vol. 1 (Seoul 1934).

CHRISTIAN 1998
D. Christian, A History of Russia, Central Asia and Mongolia, Vol. 1. Inner Eurasia from prehistory to the Mongol Empire (Oxford 1998).

CHU 1984
Chu Shibin 初師賓, Juyan fenghuo kaoshu 居延烽火考朮. In: Gansu sheng wenwu gongzuodui 甘肅省文物工作隊 et al. (ed.), Hanjian yanjiu wenji 漢簡研究文集 (Lanzhou 1984).

Chua 2007
A. Chua, Day of empire: how hyperpowers rise to global dominance – and why they fall (New York 2007).

Cioffi-Revilla 1984
C. Cioffi-Revilla, The political reliability of Italian governments: An exponential survival model. American Political Science Review 78, 2, 1984, 318–337.

Cioffi-Revilla 1998
C. Cioffi-Revilla, Politics and Uncertainty. Theory, models and applications (Cambridge, New York 1998).

Cioffi-Revilla 2002
C. Cioffi-Revilla, Invariance and universality in social agent-based simulations. Proceedings of the National Academy of Science of the United States of America 99, Supp. 3. 2002, 7314–7316.

Cioffi-Revilla forthcoming
C. Cioffi-Revilla, Power Laws of Conflict: Scaling in Warfare and Terrorism. In: C. Cioffi-Revilla (ed.), Power Laws and Non-Equilibrium Dynamics in the Social Sciences (forthcoming).

Cioffi-Revilla/Lai 2001
C. Cioffi-Revilla/D. Lai, Replication data for Chinese Warfare and Politics in the Ancient East Asian International System, ca. 2700 B.C. to 722 B.C. Murray Research Archive, Harvard-MIT Data Center http://www.hmdc.harvard.edu/ (2001).

Cioffi-Revilla/Landman 1999
C. Cioffi-Revilla/T. Landman, Evolution of Maya polities in the ancient Mesoamerican system. International Studies Quarterly 43, 4, 1999, 559–598.

Cioffi-Revilla et al. 2007
C. Cioffi-Revilla/S. Luke/D. C. Parker/J. D. Rogers/W. W. Fitzhugh/W. Honeychurch/B. Frohlich/P. DePriest/Ch. Amartuvshin, Agent-based Modeling Simulation of Social Adaptation and Long-Term Change in Inner Asia. In: T. Terano/D. Sallach (eds.), Advancing Social Simulation: The First World Congress in Social Simulation (Tokyo, New York, Heidelberg) 189–200.

Cioffi-Revilla et al. 2008
C. Cioffi-Revilla/W. Honeychurch/M. Latek/M. Tsvetovat, The MASON Hierarchies Model of Political Hierarchies and Warfare. Working Paper. Mason-Smithsonian Joint NSF/HSD Project on Inner Asia (2008).

Cioffi-Revilla et al. 2010
C. Cioffi-Revilla/J. D. Rogers/M. Latek, The MASON HouseholdWorld Model of Pastoral Nomad Societies. In: K. Takadama/C. Cioffi-Revilla/G. Deffaunt (eds.), Simulating Interacting Agents and Social Phenomena: The Second World Congress in Social Simulation (Berlin, Tokyo 2010) 193–204.

Claessen/Skalník 1978a
H. J. M. Claessen/P. Skalník (eds.), The Early State. New Babylon: studies in the Social Sciences 32 (The Hague 1978).

Claessen/Skalník 1978b
H. J. M. Claessen/P. Skalník, The early state: theories and hypotheses. In: H. J. M. Claessen/P. Skalník (eds.), The Early State. New Babylon: studies in the Social Sciences 32 (The Hague 1978) 3–30.

Cociş 2004
S. Cociş, Fibulele din Dacia Romană. The Brooches from Roman Dacia. Bibl. Ephemeris Napocensis 2 (Cluj-Napoca 2004).

Cohen 1978
R. Cohen, State origins: a reappraisal. In: Claessen/Skalník (eds.), The Early State. New Babylon: studies in the Social Sciences 32 (The Hague 1978) 31–75.

Courant 1912
M. Courant, L'Asie Centrale aux XVIIe et XVIIIe siecles: Empire Kalmouk ou Empire Mantchou? Annales de l'Universite de Lyon. Nouvelle serie 2, 26 (Lyon/Paris 1912).

Crabtree 1996
J. Crabtree, Production and Consumption in an Early Complex Society: Animal Use in Middle Saxon East Anglia. World Archaeology 28, 1, 1996, 58–75.

de Crespigny 1984
R. de Crespigny, Northern Frontier. The policies and strategy of the Later Han Empire. Faculty of Asian Studies monographs N.S. 4 (Canberra 1984).

Cribb 1991
R. Cribb, Nomads in Archaeology. New Studies in Archaeology (Cambridge 1991).

CRUBÉZY ET AL. 1996
E. Crubézy/H. Martin/P.-H. Giscard/Z. Batsaikhan/S. Erdenebaatar/B. Maureille/J.-P. Verdier, Pratiques funéraires et sacrifices d'animaux. De la représentativité au symbole. A propos d'une sépulture protohistorique de Mongolie vallée d'Egiin Gol (région péri-Baïkal). Paléorient 22, 1996, 89–108.

CULTURE AND ART 1991
Culture and Art of Ancient Uzbekistan. Exhibition catalogue, Vol. 1 (Moscow 1991).

CURTIS 1977
J. E. Curtis, Some Georgian Belt-Clasps. In: Ph. Denwood (ed.), Arts of the Eurasian Steppelands. A Colloque held 27–29 June 1977. Colloquies on Art & Archaeology in Asia 7 (London 1977) 88–120.

CURTIS 2001
V. S. Curtis, Parthian Belts and Belt Plaques. Iranica Antiqua 36, 2001, 299–327.

DAMDINSÜREN 1990
A. Damdinsüren, Mongolyn zevsgiin tovch tüükh (Ulaanbaatar 1990). А. Дамдинсүрэн, Монголын зэвсгийн товч түүх (Улаанбаатар 1990).

DAMDINSÜREN 1995
Ts. Damdinsüren, Miangan zhiliin khar'tsuulsan khüsnegt (Ulaanbaatar 1995). Ц. Дамдинсүрэн, Мянган жилийн харьцуулсан хүснэгт (Улаанбаатар 1995).

DANDAMAEV 1989
M. A. Dandamaev, Political History of the Achaemenid Empire (New York 1989).

DANILOV 1998
S. V. Danilov, Raskopki zdaniia na khunnskom gorodishche Baian Under v Dzhidinskom raione Respubliki Buriatiia. In: N. N. Kradin (otv. red.), Arkheologiia i etnologiia Dal'nego Vostoka i Tsentral'noi Azii (Vladivostok 1998) 111–114. С. В. Данилов, Раскопки здания на хуннском городище Баян Ундэр в Джидинском районе Республики Бурятия. In: Н. Н. Крадин (отв. ред.), Археология и этнология Дальнего Востока и Центральной Азии (Владивосток 1998) 111–114.

DANILOV 2004
S. V. Danilov, Goroda v kochevykh obshchestvakh Tsentral'noi Azii (Ulan-Ude 2004). С. В. Данилов, Города в кочевых обществах Центральной Азии (Улан-Удэ 2004).

DANILOV 2005
S. V. Danilov, Nazemnye zdaniia khunnov. Vestnik NGU 4, vyp. 5, Novosibirsk 2005, 65–70. С. В. Данилов, Наземные здания хуннов. Вестник НГУ 4, вып. 5, Новосибирск 2005, 65–70.

DANILOV 2009
S. V. Danilov, Preliminary Results of the Investigations on a Xiongnu Settlement in Mongolia. In: Bemmann et al. 2009, 241–246.

DANILOV/ZHAVORONKOVA 1995
S. V. Danilov/T. V. Zhavoronkova, Gorodishche Baian Under – novyi pamiatnik khunnu v Zabaikal'e. In: P. B. Konovalov (otv. red.), Kul'tury i pamiatniki bronzovogo i rannego zheleznogo vekov Zabaikal'ia i Mongolii (Ulan-Ude 1995) 26–36. С. В. Данилов/Т. В. Жаворонкова, Городище Баян Ундэр – новый памятник хунну в Забайкалье. In: П. Б. Коновалов (отв. ред.), Культуры и памятники бронзового и раннего железного веков Забайкалья и Монголии (Улан-Удэ 1995) 26–36.

DANILOV ET AL. 1998
S. V. Danilov/I. V. Filippova/A. A. Amogolonov, Kitaiskie zerkala iz pamiatnikov Khunnu. In: N. N. Kradin (otv. red.), Arkheologiia i etnologiia Dal'nego Vostoka i Tsentral'noi Azii (Vladivostok 1998) 115–121. С. В. Данилов/И. В. Филиппова/А. А. Амоголонов, Китайские зеркала из памятников Хунну. In: Н. Н. Крадин (отв. ред.), Археология и этнология Дальнего Востока и Центральной Азии (Владивосток 1998) 115–121.

DAVYDOVA 1968
A. V. Davydova, The Ivolga Gorodishche. A monument of the Hsiung-nu culture in the Trans-Baikal Region. Acta Archaeologica Academiae Scientiarium Hungaricae 20, 1968, 209–245.

DAVYDOVA 1971
A. V. Davydova, K voprosu o khunnskikh khudozhestvennykh bronzakh. Sovetskaia arkheologiia 1971, 1, 93–105. А. В. Давыдова, К вопросу о хуннских художественных бронзах. Советская археология 1971, 1, 93–105.

Davydova 1975
A. V. Davydova, Ob obshchestvennom stroe khunnu. In: A. N. Mandel'shtam (otv. red.), Pervobytnaia arkheologiia Sibiri (Leningrad 1975) 141–145. А. В. Давыдова, Об общественном строе хунну. In: А. Н. Мандельштам (отв. ред.), Первобытная археология Сибири (Ленинград 1975) 141–145.

Davydova 1980
A. V. Davydova, Novye dannye o poselenii khunnu v Durenakh. Arkheologicheskie otkrytiia 1979 goda (1980) 200. А. В. Давыдова, Новые данные о поселении хунну в Дуренах. Археологические открытия 1979 года (1980) 200.

Davydova 1985
A. V. Davydova, Ivolginskii kompleks (gorodishche i mogil'nik) – pamiatnik khunnu v Zabaikal'e (Leningrad 1985). А. В. Давыдова, Иволгинский комплекс (городище и могильник) – памятник хунну в Забайкалье (Ленинград 1985).

Davydova 1995
A. V. Davydova, Ivolginskii arkheologicheskii kompleks I. Ivolginskoe gorodishche. Arkheologicheskie pamiatniki Siunnu 1 (Sankt-Peterburg 1995). А. В. Давыдова, Иволгинский археологический комплекс I. Иволгинское городище. Археологические памятники Сюнну 1 (Санкт-Петербург 1995).

Davydova 1996
A. V. Davydova, Ivolginskii arkheologicheskii kompleks II. Ivolginskii mogil'nik. Arkheologicheskie pamiatniki Siunnu 2 (Sankt-Peterburg 1996). А. В. Давыдова, Иволгинский археологический комплекс II. Иволгинский могильник. Археологические памятники Сюнну 2 (Санкт-Петербург 1996).

Davydova/Miniaev 2003
A. V. Davydova/S. S. Miniaev, Kompleks arkheologicheskikh pamiatnikov u sela Dureny. Arkheologicheskie pamiatniki Siunnu 5 (Sankt-Peterburg 2003). А. В. Давыдова/С. С. Миняев, Комплекс археологических памятников у села Дурены. Археологические памятники Сюнну 5 (Санкт-Петербург 2003).

Davydova/Miniaev 2008
A. V. Davydova/S. S. Miniaev, The Xiongnu Decorative Bronzes. New Discoveries in Russia. The Archaeological sites of the Xiongnu 6 (St. Petersburg 2008). А. В. Давыдова/С. С. Миняев, Художественная бронза Сюнну. Археологические памятники Сюнну 6 (Санкт-Петербург 2008).

Dawson 1955
Ch. Dawson, The Mongol Mission: Narratives and Letters of the Franciscan missionaries in Mongolia and China in the thirteenth and fourteenth centuries (London, New York 1955).

Debaine-Francfort 1995
C. Debaine-Francfort, Du neolithique a l'age du bronze en Chine du nord-ouest: La culture de Qijia et ses connexions. Mémoires de la Mission Archéologique Française en Asie Centrale 6 (Paris 1995).

De Niro/Epstein 1978
M. J. De Niro/S. Epstein, Influence of diet on the distribution of carbon isotopes on animals. Geochimica et Cosmochimica Acta 42, 1978, 495–506.

Denby 2006
P. M. Denby, Application of OSL to the separation of the luminescence components from a mixed quartz/feldspar sample. Radiation measurements 41, 2006, 774–779.

Desroches/André 2007
J-P. Desroches/G. André (eds.), Mongolie, les Xiongnu de l'Arkhangaï. Монгол улс: Архангай дахь хүннүгийн судалгаа (Oulan-Bator 2007).

Devlet 1980
M. A. Devlet, Sibirskie poiasnye azhurnye plastiny II v. do n.e. – I v. n.e. Arkheologiia SSSR. Svod arkheologicheskikh istochnikov D 4-7 (Moskva 1980). М. А. Дэвлет, Сибирские поясные ажурные пластины II в. до н.э. – I в. н.э. Археология СССР. Свод археологических источников Д 4-7 (Москва 1980).

Di Cosmo 1994
N. Di Cosmo, Ancient Inner Asian nomads: Their economic basis and its significance in Chinese history. The Journal of Asian Studies 53, 1994, 1092–1126.

Di Cosmo 1999a
N. Di Cosmo, The Northern Frontier in Pre-Imperial China. In: M. Loewe/E. L. Shaughnessy

(eds.), The Cambridge history of ancient China (Cambridge 1999) 885–966.

DI COSMO 1999b
N. Di Cosmo, State Formation and Periodization in Inner Asian History. Journal of World History 10, 1, 1999, 1–40.

DI COSMO 2002
N. Di Cosmo, Ancient China and its enemies. The rise of nomadic power in East Asian history (Cambridge 2002).

DI COSMO 2009
N. Di Cosmo, Han Frontiers: Toward an Integrated View. Journal of the American Oriental Society 129, 2, 2009, 199–214.

DI COSMO 2010
N. Di Cosmo, Black Sea Emporia and the Mongol Empire: A Reassessment of the Pax Mongolia. Journal of Economic and Social History of the Orient 53, 2010, 83–108.

DI COSMO ET AL. 2009
N. Di Cosmo/A. J. Frank/P. B. Golden (eds.), The Cambridge History of Inner Asia: The Chinggisid Age (Cambridge, New York 2009).

DIAMOND 1999
J. Diamond, Guns, germs, and steel: the fates of human societies (New York 1999).

DLUZHNEVSKAIA/SAVINOV 2007
G. V. Dluzhnevskaia/G. V. Savinov, Pamiatniki drevnosti na dne Tuvinskogo moria (Sankt-Peterburg 2007). Г. В. Длужневская/Д. Г. Савинов, Памятники древности на дне тувинского моря (Санкт-Петербург 2007).

DODD 2005
L. S. Dodd, Territory, Legacy, and Wealth in Iron Age Anatolia. In: B. J. Parker/L. Rodseth (eds.), Untaming the Frontier in Antropology, Archaeology and History (Tuscon 2005) 238–260.

DORZHSÜREN 1961
Ts. Dorzhsüren, Umard Khünnü (Ertnii sudlalyn shinzhilgee). Studia Archeologica Tomus 1, Fasciculus 5 (Ulaanbaatar 1961). Ц. Доржсүрэн, Умард Хүннү (Эртний судлалын шинжилгээ). Studia Archeologica Tomus 1, Fasciculus 5 (Уланбаатар 1961).

DORZHSÜREN 1962
Ts. Dorzhsuren, Raskopki mogil khunnu v gorakh Noin-Ula, na reke Khuni-gol (1954–1957 gg.). In: S. V. Kiselev (otv. red.), Mongol'skii arkheologicheskii sbornik (Moskva 1962) 36–44. Ц. Доржсурэн, Раскопки могил хунну в горах Ноин-Ула, на реке Хуни-гол (1954–1957 гг.). In: С. В. Киселев (отв. ред.), Монгольский археологический сборник (Москва 1962) 36–44.

DORZHSÜREN 2003
Ts. Dorzhsüren, Arkheologiin sudalgaa. Erdem shinzhilgeenii büteeliin emkhtgel (Ulaanbaatar 2003). Д. Доржсүрэн, Археологийн судалгаа. Эрдэм шинжилгээний бүтээлийн эмхтгэл (Улаанбаатар 2003).

DOYLE 1986
M. Doyle, Empires. Cornell studies in comparative history (Ithaca 1986).

DRENNAN/URIBE 1987
R. D. Drennan/C. Uribe (eds.), Chiefdoms in the Americas (Lanham 1987).

DRENNAN ET AL. 2003
R. D. Drennan/C. E. Peterson/G. G. Indrisano/T. Mingyu/G. Shelach/Z. Yanping/K. M. Linduff/G. Zhizhong/M. A. R. Lacayo, Approaches to Regional Demographic Reconstruction. In: Nei Menggu dongbu (Chifeng) quyu kaoguo diaocha jieduanxing baogao 内蒙古東部 (赤峰) 區域考古調查階段性報告 Regional Archaeology in Eastern Inner Mongolia: A Methodological Exploration. Chifeng Zhong Mei lianhe kaogu yanjiu xiangmu 赤峰中美聯合考古研究項目 Chifeng International Collaborative Archaeology Research Project (Beijing 2003) 152–165.

DROMPP 1999
M. R. Drompp, Breaking the Orkhon Tradition: Kirghiz Adherence to the Yenisei Region after A. D. 840. Journal of the American Oriental Society 119, 1999, 390–403.

DROMPP 2005
M. R. Drompp, Imperial State Formation in Inner Asia: the Early Turkic Empires (6th to 9th Centuries). Acta Orientalia Academiae Scientiarum Hungaricae 58, 1, 2005, 101–111.

DSCHINGIS KHAN 2005
Dschingis Khan und seine Erben. Das Weltreich der Mongolen. Ausstellungskatalog der Kunst- und

Ausstellungshalle der Bundesrepublik Deutschland, Bonn (Bonn 2005).

Dubs 1955
H. Dubs (tr.), The History of the Former Han Dynasty by Pan Ku, Vol. 3 (Baltimore 1955).

Dunhuang 1991
Gansu sheng wenwu kaogu yanjiusuo 甘肅省文物考古研究所 (ed.), Dunhuang Hanjian 敦煌漢簡, 2 Vols. (Beijing 1991).

Duurlig Nars 2009
Duurlig narsny khünnü bulsh. Дуурлиг нарсны хүннү булш. Xiongnu Tombs of Duurlig Nars. Exhibition Catalogue National Museum of Korea (Seoul 2009).

Dvornichenko/Feodor-Davydov 1989
V. V. Dvornichenko/G. A. Feodor-Davydov, Raskopki kurganov v zone stroitel'stva Kalmytsko Astrakhanskoi i Nikol'skoi risovykh orositel'nykh sistem. In: K. A. Smirnov (red.), Sokrovishcha Sarmatskikh Vozhdei i drevnie goroda Povolzh'ia (Moskva 1989) 14–132. В. В. Дворниченко /Г. А. Феодор-Давыдов, Раскопки курганов в зоне строительства Калмыцко-Астраханской и Никольской рисовых оросительных систем. In: К. А. Смирнов (ред.), Сокровища Сарматских Вождей и древние города Поволжья (Москва 1989) 14–132.

Dvornichenko/Feodor-Davydov 1993
V. V. Dvornichenko/G. A. Feodor-Davydov, Sarmatskoe pogrebenie skeptukha I v. n.e. u s. Kosika Astrakhanskoi oblasti. Vestnik drevnei istorii 206, 3, 1993, 141–179. В. В. Дворниченко/ Г. А. Феодор-Давыдов, Сарматское погребение скептуха I в. н.э. у с. Косика Астраханской области. Вестник древней истории 206, 3, 1993, 141–179.

Earle 1987
T. Earle, Chiefdoms in archaeological and ethnohistorical perspective. Annual Review of Anthropology 16, 1987, 279–308.

Earle 1991
T. Earle (ed.), Chiefdoms: Power, Economy, and Ideology. School of American Research Advanced Seminar Studies (Cambridge 1991).

Earle 1997
T. Earle, How Chiefs Come to Power: The Political Economy in Prehistory (Stanford 1997).

E'erduosi 2006
E'erduosi qingtongqi 鄂爾多斯青銅器 (Beijing 2006).

Egami 1948
Egami Namio 江上 波夫, Yūrashia kodai hoppō bunka. Kyōdo bunka ronkō ユウラシア古代北方文化. 匈奴文化輪考 (Kyoto 1948).

Egami 1963
Namio Egami 江上波夫, The economic activities of the Xiongnu. Proceeding of 25th International Congress of Oriental Studies 5 (Moscow 1963) 353–354.

Eggers 1951
H.-J. Eggers, Der Römische Import im Freien Germanien. Atlas zur Urgeschichte 1 (Hamburg 1951).

Eich/Eich 2005
A. Eich/P. Eich, War and state-building in Roman Republican times. Scripta Classica Israelica 24, 2005, 1–33.

Eisenstadt 1993
S. N. Eisenstadt, The political systems of empires (exp. ed. New Brunswick 1993).

Emberling 1997
G. Emberling, Ethnicity in complex societies: Archaeological perspectives. Journal of Archaeological Research 5, 4, 1997, 295–344.

Enoki et al. 1992
K. Enoki/G. A. Koshelenko/Z. Haidary, The Yüeh-chih and their migrations. In: J. Harmatta (ed.), History of civilizations of Central Asia, Vol. II. The development of sedentary and nomadic civilizations: 700 B.C. to A.D. 250 (Paris 1992) 171–189.

Erdélyi 1979
I. Erdélyi, Előzetes jelentés az 1974. Évi Mongol-Magyar régészeti expedíció munkálatairól. Archaeologiai Értesítő 106, 1979, 112–126.

Erdélyi 1994
I. Erdélyi, The Settlements of the Xiongnu. In: B. Genito (ed.), The Archaeology of the Steppes. Methods and Strategies. Papers from the International Symposium held in Naples 9–12 November 1992. Istituto universitario orientale, Dipartimento di studi asiatici Series minor 44 (Napoli 1994) 553–563.

ERDÉLYI 2000
I. Erdélyi, Archaeological Expeditions in Mongolia (Budapest 2000).

ERDÉLYI 2001
I. Erdélyi, Ausgrabung einer Siedlung der asiatischen Hunnen. Acta Archaeologica Academiae Scientiarum Hungaricae 52, 2001, 145–153.

ERDÉLYI ET AL. 1967
I. Erdélyi/T. Dorjsüren/D. Navan, Results of the Mongolian-Hungarian Archaeological Expeditions 1961–1964 (A comprehensive report). Acta Archaeologica Hungarica 19, 1967, 335–370.

ERDENEBAATAR 2002
D. Erdenebaatar, Mongol nutgiin dörvölzhiin bulsh, khirgisüüriin soel (Ulaanbaatar 2002). Д. Эрдэнэбаатар, Монгол нутгийн дөрвөлжийн булш, хиргисүүрийн соел (Улаанбаатаар 2002).

ERDENEBAATAR/ERÖÖL-ERDENE 2003
D. Erdenebaatar/Ch. Erööl-Erdene, Khünnü tsergiin khuiag. Khar süld, 3, 2003, 22–28. Д. Эрдэнэбаатар/Ч. Ерөөл-Эрдэнэ, Хүннү цергийн хуяг. Хар сүлд 3, 2003, 22–28.

ERDENEBAATAR/MILLER 2006
D. Erdenebaatar/B. Miller, Gol mod-2 Excavation report (9–15 June 2006). Unpublished Field report Ulaanbaatar University 2006.

ERDENEBAATAR/MÖNKHSAIKHAN 1999
D. Erdenebaatar/G. Mönkhsaikhan, Ertnii metallyn büttsiin khar'tsuulsan sudalgaa. Arkheologiin sudlal 19, 1999, 53–63. Д. Эрдэнэбаатар/Г. Мөнхсайхан, Эртний металлын бүтцийн харьцуулсан судалгаа. Археологийн судлал 19, 1999, 53–63.

ERDENEBAATAR ET AL. 1999
D. Erdenebaatar/Ts. Törbat/U. Erdenebat, Khünnügiin üeiin shine oldvoruud. Archeologiin sudlal 19, 1999, 64–73. Д. Эрдэнэбаатар/Ц. Төрбат/У. Эрдэнэбат, Хүннүгийн үеийн шинэ олдворууд. Археологийн судлал 19, 1999, 64–73.

ERDENEBAATAR ET AL. 2002a
D. Erdenebaatar/Ch. Erööl-Erdene/N. Batbold/A. Frantsis/B. Miller, Umard Khünnügiin iazuurtny bulshny sudalgaa. Tüükhiin sudlal 33, 2002, 20–28. Д. Эрдэнэбаатар/Ч. Ерөөл-Эрдэнэ/Н. Батболд/А. Франсис/Б. Миллер, Умард Хүннүгийн язгууртны булшны судалгаа. Түүхийн судлал 33, 2002, 20–28.

ERDENEBAATAR ET AL. 2002b
D. Erdenebaaatar/F. Allard/N. Batbold/B. Miller, Khünnügiin bulshnaas oldson tamgatai shagai. Tüükhiin sudlal 33, 2002, 176–189. Д. Эрдэнэбаатар/Ф. Аллард/ Н. Батболд/Б. Миллер, Хүннүгийн булшнаас олдсон тамгатай шагай. Түүхийн судлал, 33, 2002, 176–189.

ERDENEBAATAR ET AL. 2008–2009
D. Erdenebaatar/T. Iderkhangai/E. Mizhiddorzh/B. Galbadrakh, Ulaanbaataryn Ikh surguuliin Niigmiin ukhaany fakul'tetiin Arkheologi, Tüükhiin angiin oiutnuudyn kheeriin taniltsakh ba üildverleliin dadlagyn 2008 ony tailan. Д. Эрдэнэбаатар/ Т. Идэрхангай/Э. Мижиддорж/Б. Галбадрах, Улаанбаатарын Их сургуулийн Нийгмийн ухааны факультетийн Археологи, Түүхийн ангийн оюутнуудын хээрийн танилцах ба үйлдвэрлэлийн дадлагын 2008 оны тайлан. Unpublished report Ulaanbaatar University 2008–2009.

ERDENEBAATAR ET AL. 2010
D. Erdenebaatar/T. Iderkhangai/E. Mizhiddorzh/B. Galbadrakh/S. Orgilbaiar, Ulaanbaataryn Ikh surguuliin Niigmiin ukhaany fakul'tetiin Arkheologi, Tüükhiin angiin oiutnuudyn kheeriin taniltsakh ba üildverleliin dadlagyn 2008 ony tailan. Д. Эрдэнэбаатар/Т. Идэрхангай/Э. Мижиддорж/Б. Галбадрах/С. Оргилбаяр, Улаанбаатарын Их сургуулийн Нийгмийн ухааны факультетийн Археологи, Түүхийн ангийн оюутнуудын хээрийн танилцах ба үйлдвэрлэлийн дадлагын 2008 оны тайлан. Unpublished reports Ulaanbaatar University 2010.

ÉRDY 1995
M. Érdy, Hun and Xiongnu Type Cauldron Finds throughout Eurasia. Eurasian Studies Yearbook 1995, 5–94.

ÉRDY 2003–2004
M. Erdy, Art objects from the Sidorovka Kurgan cemetery and the analysis of its ethnic affiliation. Siberian Association of Prehistoric Art Researchers Bulletin 6–7, 2003–2004, 48–52.

EREGZEN 2007
G. Eregzen, Mongolyn Khünnü bulshiig khelbereer angilakh n'. Arkheologiin sudlal 24, 2007, 226–243. Г. Эрэгзэн, Монголын Хүннү булшийг хэлбэрээр ангилах нь. Археологийн судлал 24, 2007, 226–243.

Eregzen 2008
G. Eregzen, Khünnü ba Nannany bulsh. In: Xiongnu 2008, 66–87. Г. Эрэгзэн, Хүннү ба Нанханы булш. In: Xiongnu 2008, 66–87.

Eregzen 2009
G. Eregzen 에렉젠, Monggol Hunnu mudom engu 몽골 흉노 무덤 연구. PhD Dissertation, Seoul National University (Seoul 2009).

Eregzen 2010
G. Eregzen, Khünnügiin iazguurtny bulshny bütets dekh gadny soelyn nöölög todruulakh n'. Arkheologiin sudlal 29, 2010, 274–294. Г. Эрэгзэн, Хүннүгийн язгууртны булшны бүтэц дэх гадны соёлын нөөлөг тодруулах нь. Археологийн судлал 29, 2010, 274–294.

Eregzen et al. 2008
G. Eregzen/N. Batbold/D. Bazargür/P. Aldarmönkh/Zhan Onzhon/Khuanbo Chanso, Duurlig narsny Khünnü bulshny sudalgaa. In: Xiongnu 2008, 155–168. Г. Эрэгзэн/Н. Батболд/Д. Базаргүр/П. Алдармөнх/Жан Өнжон/Хуанбо Чансо, Дуурлиг нарсны Хүннү булшны судалгаа. In: Xiongnu 2008, 155–168.

Erööl-Erdene 2004
Ch. Erööl-Erdene, Gol modny khünnü bulshny sudalgaany zarim ür dün. Arkheologiin sudlal 22, 2004, 76–109. Ч. Ерөөл-Эрдэнэ, Гол модны хүннү булшны судалгааны зарим үр дүн. Археологийн судлал 22, 2004, 76–109.

Erööl-Erdene 2007a
Ch. Erööl-Erdene, Gol Modny 20-r bulshnaas oldson "belget göröös"-iin dürst khöömöl möngön zemseg. Arkheologiin sudlaal 24, 2007, 244–257. Ч. Ерөөл-Эрдэнэ, Гол модны 20-р булшнаас олдсон "Бэлгэт гөрөөс"-ийн дүрст хөөмөл мөнгөн зэмсэг. Археологийн судлал 24, 2007, 244–257.

Erööl-Erdene 2007b
Ch. Erööl-Erdene, Khünnü bulshnaas oldson khölögt togloom (Gol modny khünnü bulshny kherlegdekhüüneer). Arkheologiin sudlal 24, 2007, 280–287. Ч. Ерөөл-Эрдэнэ, Хүннү булшнаас олдсон хөлөгт тоглоом (Гол модны хүннү булшны хэрэглэгдэхүүнээр). Археологийн судлал 24, 2007, 280–287.

Erööl-Erdene 2010
Ch. Erööl-Erdene, Khünnügiin iazguurtny orshuulgyn dursgalyn sudalgaa. Gol Modny orshuulgyn dursgalt gazryn kherlegdekhüüneer. Ч. Ерөөл-Эрдэнэ, Хүннүгийн язгууртны оршуулгын дурсгалын судалгаа. Гол Модны оршуулгын дурсгалт газрын хэрэглэгдэхүүнээр. PhD Dissertation Ulaanbaatar University 2010.

Erööl-Erdene/Gantulga 2008
Ch. Erööl-Erdene/Zh. Gantulga, Umard Khünnügiin iazguurtny negen bulshny sudalgaa. Arkheologiin sudlal 26, 2008, 149–189. Ч. Ерөөл-Эрдэнэ/Ж. Гантулга, Умард Хүннүгийн язгууртны нэгэн булшны судалгаа. Археологийн судлал 26, 2008, 149–189.

Evans-Pritchard 1970
E. E. Evans-Pritchard, Nuer Religion (Oxford 1970).

Evsiukov 1988
V. V. Evsiukov, Mifologiia kitaiskogo neolita: po materialam rospisei na keramike kul'tury Ianshao. Istoriia u kul'tura Vostoka Azii (Novosibirsk 1988). В. В. Евсюков, Мифология китайского неолита: по материалам росписей на керамике культуры Яншао. История и культура Востока Азии (Новосибирск 1988).

Evtiukhova 1947
L. A. Evtiukhova, Razvaliny dvortsa v «zemle Khiagias». Kratkie soobshcheniia o dokladakh i polevykh issledovaniiakh instituta istorii material'noi kul'tury 21 (Moskva, Leningrad 1947) 79–85. Л. А. Евтюхова, Развалины дворца в «земле Хягяс». Краткие сообщения о докладах и полевых исследованиях института истории материальной культуры 21 (Москва, Ленинград 1947) 79–85.

Evtiukhova/Levasheva 1946
L. A. Evtiukhova/V. P. Levasheva, Raskopki kitaiskogo doma bliz Abakana (Khakassiia AO). Kratkie soobshcheniia o dokladakh i polevykh issledovaniiakh instituta istorii material'noi kul'tury 12 (Moskva, Leningrad 1946). Л. А. Евтюхова/В. П. Левашева, Раскопки китайского дома близ Абакана (Хакассия АО). Краткие сообщения о докладах и полевых исследованиях института истории материальной культуры 12 (Москва, Ленинград 1946) 72–84.

FACCIA/WILLIAMS 2008
K. J. Faccia/R. C. Williams, Schmorl's nodes: clinical significance and implications for the bioarchaeological record. International Journal of Osteoarchaeology 18, 1, 2008, 28–44.

FALL ET AL. 1998
P. L. Fall/L. Lines/S. E. Falconer, Seeds of civilization: Bronze Age Rural Economy in the Southern Levant. Annals of the Association of American Geographers 88, 1998, 107–125.

FAN YE 1965
Fan Ye 范曄, Hou Han shu 後漢書 (Beijing 1965).

FARDON 1987
R. Fardon, "African Ethnogenesis": Limits to the Comparability of Ethnic Phenomena. In: L. Holy (ed.), Comparative Anthropology. Papers of the Symposium on Comparative Method in Social Anthropology, held at the University of St. Andrews, December 15–18, 1983 (Oxford, New York 1987) 168–188.

FENG 2001
Z.-D. Feng, Gobi Dynamics in the Northern Mongolian Plateau during the Past 20,000+yr: Preliminary Results. Quaternary International 76/77, 2001, 77–83.

FERENCZY 1967
L. Ferenczy, Chinese Mirror Finds from Mongolia. Acta Archaeologica Academiae Scientiarum Hungaricae 19, 1967, 371–376.

FERGUSON 2004
N. Ferguson, Colossus: the price of America's empire (New York 2004).

FILIPPOVA 2000
I. V. Filippova, Kitaiskie zerkala iz pamiatnikov Khunnu. Arkheologiia, etnografiia I antropologiia Evrazii 2000, 3, 100–108. И. В. Филиппова, Китайские зеркала из памятников хунну. Археология, этнография и антропология Евразии 2000, 3, 100–108.

FINDLEY 2005
C. V. Findley, The Turks in World History (New York 2005).

FINER 1997
S. E. Finer, The history of government from the earliest times, I. Ancient monarchies and empires (Oxford 1997).

FITZHUGH 2009
W. Fitzhugh, The Mongolian Deer stone-Khirigsuur complex: Dating and organization of a late Bronze Age Menagerie. In: Bemmann et al. 2009, 183–199.

FITZHUGH/BAYARSAIKHAN 2008
W. Fitzhugh/J. Bayarsaikhan (eds.), American-Mongolian Deer Stone Project: Field Report 2007 (Ulaanbaatar, Washington 2008).

FLETCHER 1986
J. Fletcher, The Mongols: ecological and social perspectives. Harvard Journal of Asiatic Studies 46, 1986, 1, 11–50.

FOGEL ET AL. 1989
M. L. Fogel/N. Tuross/D. W. Owsley, Nitrogen isotope traces of human lactation in modern and archaeological populations. Annual Report of the Director, Geophysical Laboratory, Carnegie Institution of Washington 1988–1989, 111–117.

FOLLMANN-SCHULZ 1988
A.-B. Follmann-Schulz, Die römischen Gläser aus Bonn. Beihefte Bonner Jahrbücher 46 (Köln 1988).

FOWLER/FOWLER 1986
F. G. Fowler/H. W. Fowler, The Oxford Handy Dictionary (London 1986).

FRACHETTI 2004
M. D. Frachetti, Bronze Age Pastoral Landscapes of Eurasia and the Nature of Social Interaction in the Mountain Steppe Zone of Eastern Kazakhstan, Unpublished PhD Dissertation, University of Pennsylvania 2004.

FRACHETTI 2008a
M. D. Frachetti, Variability and Dynamic Landscapes of Mobile Pastoralism in Ethnography and Prehistory. In: H. Barnard/W. Wendrich (ed.), The Archaeology of Mobility. Nomads in the Old and in the New World Cotsen Advanced Seminar Series 4 (Los Angeles 2008) 366–396.

FRACHETTI 2008b
M. D. Frachetti, Pastoralist Landscapes and Social Interaction in Bronze Age Eurasia (Berkeley 2008).

FRACHETTI/BENECKE 2009
M. Frachetti/N. Benecke, From sheep to (some)

horses: 4500 years of herd structure at the pastoralist settlement of Begash (south-eastern Kazakhstan). Antiquity 83, 2009, 1023–1037.

Franke 1990
H. Franke, The forest peoples of Manchuria: Kitans and Jurchens. In: D. Sinor (ed.), The Cambridge history of early Inner Asia (Cambridge 1990) 400–423.

Frohlich et al. 2008
B. Frohlich/T. Amgalantugs/J. Littleton/D. Hunt/J. Hinton/E. Batchatar/M. Dickson/Th. Frohlich/K. Goler, Bronze Age Burial Mounds (Khirigsuurs) in the Hovsgol Aimag, Mongolia: A Reconstruction of Biological and Social Histories. Arkheologiin sudlal 26, 2008, 92–114. Археологийн судлал 26, 2008, 92–114.

Frohlich et al. 2009
B. Frohlich/Ts. Amgalantögs/J. Littleton/D. Hunt/J. Hinton/K. Goler, Bronze Age burial mounds in Khövsgöl aimag, Mongolia. In: Bemmann et al. 2009, 99–115.

Fu et al. 2007
Y. Fu/H. Zhao/Y. Cui/Q. Zhang/X. Xu/H. Zhou/H. Zhu, Molecular genetic analysis of Wanggu remains, Inner Mongolia, China. American Journal of Physical Anthropology 132, 2, 2007, 285–291.

Gabasio et al. 1986
M. Gabasio/J. Evin/G. B. Arnal/P. Andrieux, Origins of carbon in potsherds. Radiocarbon 28, 2A, 1986, 711–718.

Gabuev 2005
T. A. Gabuev, Alanskii vsadnik. Sokrovishcha kniazei I–XII vekov (Moskva 2005). Т. А. Габуев, Аланский всадник. Сокровища князей I–XII веков (Москва 2005).

Ganbaatar 2008
Ia. Ganbaatar, Khünnügiin tüükh soel (Ulaanbaatar 2008). Я. Ганбаатар, Хүннүгийн түүх соёл (Улаанбаатар 2008).

Garam 1992
É. Garam, Die münzdatierten Gräber der Awarenzeit. In: F. Daim (ed.), Awarenforschungen I. Archaeologia Austriaca Monographien, Vol. 1 (Wien 1992) 135–250.

Ge 1991
Ge Shanlin 蓋山林, Yinshan wanggu 陰山汪古 (Huhehaote 1991).

Ge/Lu 1984a
Ge Shanlin 蓋山林/Lu Sixian 陸思賢, Nei Menggu jiang nei Zhanguo Qin Han changcheng yizhi 內蒙古將內戰國秦漢長城遺址. In: Nei Menggu wenwu ziliao xuji 內蒙古文物資料續集 (Huhehaote 1984) 90–100.

Ge/Lu 1984b
Ge Shanlin 蓋山林/Lu Sixian 陸思賢, Huge qi Chaolukulun Han dai shi cheng ji qi fujin de changcheng 湖格旗朝魯庫倫漢代市城及其附近的長城. In: Nei Menggu wenwu ziliao xuji 內蒙古文物資料續集 (Huhehaote 1984) 101–107.

Gerettete Schätze 2010
Gerettete Schätze. Afghanistan – Die Sammlung des Nationalmuseums in Kabul. Exhibition catalogue Kunst- und Ausstellungshalle der Bundesrepublik Deutschland, Bonn 11. Juni bis 3. Oktober 2010 (Bonn 2010).

Gheyle et al. 2004
W. Gheyle/R. Trommelmans/J. Bourgeois/R. Goossens/I. Bourgeois/A. De Wulf/T. Willems, Evaluating CORONA: A case study in the Altai Republic (South Siberia). Antiquity 78, 2004, 391–403.

Ghirshman 1979
R. Ghirshman, La ceinture en Iran. Iranica Antiqua 14, 1979, 167–196.

Giessauf 2006
J. Gießauf, Barbaren – Monster – Gottesgeißeln. Steppennomaden im europäischen Spiegel der Spätantike und des Mittelalters (Graz 2006).

Giddens 1979
A. Giddens, Central Problems in Social Theory: Action, Structure and Contradiction in Social Analysis (Berkeley 1979).

Gilbert 1975
F. Gilbert (ed.), The historical essays of Otto Hintze (New York 1975).

Gillespie 2001
S. Gillespie, Personhood, Agency, and Mortuary Ritual: A Case Study from the Ancient Maya. Journal of Anthropological Archaeology 20, 2001, 73–112.

GILLETT 2002
A. Gillett, On barbarian identity: critical approaches to ethnicity in the early Middle Ages. Studies in the early Middle Ages 4 (Turnhout 2002).

GLEDITSCH/WARD 1999
K. S. Gleditsch/D. Ward, Interstate system membership: A revised list of the independent states since 1816. International Interactions 25, 1999, 393–413.

GMELIN 1751–1752
J.-G. Gmelin, Reise durch Sibirien, von dem Jahre 1733 bis 1743 (Göttingen 1751–1752).

GODLEY 1920
A. D. Godley (transl.), The Histories by Herodotus. Loeb classical library (Cambridge 1920).

GOL MOD 2002
Gol mod. Nouvelles découvertes en Mongolie, 2000–2001. Connaissance des arts 177 (Paris 2002).

GOLD AND GRASS 2007
C. Chang (ed.), Of Gold and Grass. Nomads of Kazakhstan (o. O. 2007).

GOLD UND JADE 2007
Gold und Jade. Sensationsfunde aus chinesischen Herrschergräbern. Ausstellungskat. Kunsthalle Leoben (Leoben 2007).

GOLDEN 1982
P. B. Golden, Imperial ideology and the sources of political unity amongst the pre-Činggisid nomads of Western Eurasia. Archivum Eurasiae Medii Aevi 1982, 2, 37–76.

GOLDEN 1992
P. B. Golden, An introduction to the history of the Turkic peoples: ethnogenesis and state formation in medieval and early modern Eurasia and the Middle East. Turcologica 9 (Wiesbaden 1992).

Golden 2001
P. B. Golden, Ethnicity and State Formation in Pre-Činggisid Turkic Eurasia. Central Eurasian studies lectures 1 (Bloomington 2001).

GOLDSTONE/HALDON 2009
J. A. Goldstone/J. F. Haldon, Ancient states, empires, and exploitation. In: I. Morris/W. Scheidel, The Dynamics of Ancient Empires: State Power from Assyria to Byzantium (New York 2009) 3–29.

GOMEZ DE SOTO/ROULIÈRE-LAMBERT 1984
J. Gomez de Soto/M. J. Roulière-Lambert, Le tumulus du Bonethève à Pressignac (Charente). Une tombe de cavalier du Ier Age du Fer. Aquitania 2, 1984, 261–268.

GONGOR 1978
D. Gongor, Khalkh tovchoon. Khalkh Mongolchuudyn niigem-ediin zasgiin baiguulal (Ulaanbaatar 1978). Д. Гонгор, Халх товчоон. Халх Монголчуудын нийгем-эдийн засгийн байгуулал (Уланбаатар 1978).

GOOSSENS ET AL. 2006
R. Goossens/A. De Wulf/J. Bourgeois/W. Gheyle/T. Willems, Satellite Imagery and Archaeology: the Example of CORONA in the Altaï Mountains. Journal of Archaeological Science 33, 6, 2006, 745–755.

GORBUNOV/TISHKIN 2006
V. V. Gorbunov/A. A. Tishkin, Kompleks vooruzheniia kochevnikov Gornogo Altaia khunnuskoi epokhi. Arkheologiia, Etnografiia i Antropologiia Evrazii 2006, 4, 79–85. В. В. Горбунов/А. А. Тишкин, Комплекс вооружения кочевников Горного Алтая хуннуской эпохи. Археология, этнография и антропология Евразии 2006, 4, 79–85.

GORIUNOVA 1983
O. I. Goriunova, Kompleks bronzovogo veka mnogosloinogo poseleniia Tyshkine III (k voprosu o pozdnei bronze na Baikale). In: P. B. Konovalov (otv. red.), Po sledam drevnikh kul'tur Zabaikalia (Novosibirsk 1983) 70–75. О. И. Горюнова, Комплекс бронзового многослоиного поселения Тышкине III (к вопросу о поздней бронзе на Байкале). In: П. Б. Коновалов (отв. ред.), По следам древних культур Забайкаля (Новосибирск 1983) 70–75.

GOSLINE 2006
S. L. Gosline, Organic Globalization and Socialization of Civilization. In: Ø. S. LaBianca/S. A. Scham (eds.), Connectivity in Antiquity. Globalization as a Long-term Historical Process (London 2006), 93–112.

GOWLAND 2006
R. Gowland, Ageing the Past: Examining Age Identity from Funerary Evidence. In: R. Gow-

land/C. Knüsel (eds.), Social Archaeology of Funerary Remains (Oxford 2006) 143–154.

Grach 1980
A. D. Grach, Drevnie kochevniki v tsentre Azii (Moskva 1980). А. Д. Грач, Древние кочевники в центре Азии (Москва 1980).

Graham 1986
A. C. Graham, Yin-yang and the nature of correlative thinking (Singapore 1986).

Grandin 1988
B. E. Grandin, Wealth and pastoral dairy production: A case study from Maasailand. Human Ecology 16, 1, 1988, 1–21.

Green/Perlman 1985
S. W. Green/S. M. Perlman (eds.), The Archaeology of Frontiers and Boundaries (Orlando 1985).

Green/Suchey 1976
R. F. Green/J. M. Suchey, The use of inverse sine transformations in the analysis of non-metric cranial data. American Journal of Physical Anthropology 45, 1, 1976, 61–68.

Grinin et al. 2004
L. E. Grinin/R. L. Carneiro/D. M. Bondarenko/N. N. Kradin/A. V. Korotayev (eds.), The early state, its alternatives and analogues (Volgograd 2004).

de Groot 1921
Die Hunnen der vorchristlichen Zeit. Chinesische Urkunden zur Geschichte Asiens I. Übersetzt und erläutert von Jan Jakob Maria de Groot (Berlin, Leipzig 1921).

Grousset 1970
R. Grousset, The Empires of the Steppes: A History of Central Asia (New Brunswick 1970).

Gu 2007
Gu Yucai 顧玉才, Nei Menggu Helinge'er xian Tuchengzi yizhi Zhanguo shiqi rengu yanjiu 内蒙古和林格尔县土城子遗址战国时期人骨研究 (Changchun 2007).

Guchin zurgaatyn 1961
Guchin zurgaatyn tailbar tol' 9-r devter (Ulaanbaatar 1961). Гучин зургаатын тайлбар толь 9-р дэвтэр (Улаанбаатар 1961).

Guguev/Treister 1995
V. K. Guguev/M. Iu. Treister, Khanskie zerkala i podrazhaniia im na territorii iuga Vosotochnoi Evropy. Rossiiskaia Arkheologiia 1995, 3, 143–156. В. К. Гугуев/М. Ю. Трейстер, Ханские зеркала и подражания им на территории юга Восточной Европы. Российская Археология 1995, 3, 143–156.

Guguev et al. 1991
V. Guguev/I. Ravich/M. Treister, Han Mirrors and their replicas in the territory of South of Eastern Europe. Bulletin of the Metals Museum 16, July, 1991, 32–50.

Guizhou sheng bowuguan
Guizhou sheng bowuguan 貴州省博物館, Xi Han heiqi zhu hui leifeng wen erbei 西汉黑漆朱绘雷凤纹耳杯 [internet source] http://baike.baidu.com/view/1365980.html

Gumilev 1960
L. N. Gumilev, Khunnu: Sredinnaia Aziia v drevnie vremena (Moskva 1960). Л. Н. Гумилев, Хунну: Срединная Азия в древние времена (Москва 1960).

Gumilev 1993
L. N. Gumilev, Drevnie Tiurki (Moskva 1993). Л. Н. Гумилев, Древние Тюрки (Москва 1993).

Gurvan Gol 1994
A report on the joint investigation under the Mongolian and Japanese Gurvan Gol Historic Relic Probe Project, 1991–1993 (Ulaanbaatar 1994).

Gushchina/Zasetskaia 1989
I. I. Gushchina/I. P. Zasetskaia, Pogrebeniia zubovsko-vozdvizhenskogo tipa iz raskopok N. I. Veselovskogo v Prikuban'e (I v. do n. e. – nachalo II v. n. e.). In: Arkheologicheskie issledovaniia na iuge Vostochnoi Evropy. Trudy Gosudarstvennogo Istoricheskogo Muzeia 70 (Moskva 1989) 71–141. И. И. Гущина/И. П. Засецкая, Погребения зубовско-воздвиженского типа из раскопок Н. И. Веселовского в Прикубанье (I в. до н. э. – начало II в. н. э.). In: Археологические исследования на юге Восточной Европы. Труды Государственного Исторического Музея 70 (Москва 1989) 71–141.

Gushchina/Zasetskaia 1994
I. I. Gushchina/I. P. Zasetskaia, Zolotoe kladbishche rimskoi epokhi v Prikuban'e (Sankt-Peterburg 1994). И. И. Гущина/И. П. Засецкая, Золотое кладбище римской эпохи в Прикубанье (Санкт-Петербург 1994).

GUYUAN 2004
Guyuan bowuguan 固原博物館, Ningxia Guyuan cheng Han mu 寧夏固原西漢墓. Kaogu xuebao 2004, 2, 183–208.

HAAS 1982
J. Haas, The Evolution of the Prehistoric State (New York 1982).

HÄRKE 1997
H. Härke, The Nature of Burial Data. In: C. Jensen/K. Højlund Nielsen (eds.), Burial and Society. The Chronological and Social Analysis of Archaeological Burial Data (Aarhus 1997) 19–27.

HAEUSSLER/TURNER 1992
A. M. Haeussler/C. G. Turner II, The dentition of Soviet Central Asians and the quest for New World ancestors. Journal of Human Ecology, Special Issue, 2, 1992, 273–297.

HAEVERNICK 1967
Th. Haevernick, Die Verbreitung der „zarten Rippenschalen". Jahrbuch des Römisch-Germanischen Zentralmuseum Mainz 14, 1967, 153–166.

HALCROW/TAYLES 2008
S. E. Halcrow/N. Tayles, The Bioarchaeological Investigation of Childhood and Social Age: Problem and Prospects. Journal of Archaeological Method and Theory 15, 2008, 190–215.

HALD 1980
M. Hald, Ancient Danish Textiles from Bogs and Burials. A comparative study of costume and Iron Age textiles. Publications of the National Museum, Archaeological-historical series 21 (Copenhagen 1980).

HALDON 1993
J. Haldon, The state and the tributary mode of production (London 1993).

HALL/MINIAEV 2002
M. Hall/S. Minyaev, Chemical analyses of Xiongnu pottery: a preliminary study of exchange and trade on the Inner Asian steppes. Journal of Archaeological Science 29, 2, 2002, 135–144.

HALL ET AL. 1999
M. Hall/Z. Batsaikhan/W. Honeychurch, Radiocarbon Dates from Northern Mongolia. Radiocarbon 41, 1999, 103–110.

HANDLER 1988
R. Handler, Nationalism and the Politics of Culture in Quebec (Madison 1988).

HANKS 2010
B. K. Hanks, Archaeology of the Eurasian steppes and Mongolia. Annual Review of Anthropology 39, 2010, 469–486.

HARDT/NEGRI 2001
M. Hardt/A. Negri, Empire (Cambridge 2001).

HARMATTA 1994
J. Harmatta, Conclusion. In: J. Harmatta/B. N. Puri/G. F. Etemadi (eds.), History of civilizations of Central Asia, Vol. 2. The development of sedentary and nomadic civilizations: 700 B.C. to A.D. 250 (Paris 1994) 485–492.

HAUSER 1993
St. Hauser, Eine arsakidenzeitliche Nekropole in Ktesiphon. Baghdader Mitteilungen 24, 1993, 324–420.

HAWKES 1959
D. Hawkes (transl.), Ch'u tz'u. The Songs of the South. An Ancient Chinese Anthology (Oxford 1959).

HAWKEY 1998
D. E. Hawkey, Out of Asia: Dental evidence for affinities and microevolution of early populations from India/Sri Lanka (Tempe 1998).

HAYASHI 1984
T. Hayashi, Agriculture and Settlements in the Xiongnu. Bulletin of the Ancient Orient Museum 6, 1984, 51–92.

HAYASHI 2004
T. Haeshi, The role of sedentary people in the nomadic states: From the Xiongnu empire to the Uigur Qaghanate. In: M. Kh. Abuseitova (otv. red.), Urbanizatsiia i Nomadizm v Tsentral'noi Azii: Istoriia i Problemy. Materialy Mezhdunarodnoi konferentsii (Almaty 2004) 117–134. In: М. Х. Абусеитова (отв. ред.), Урбанизациа и Номадизм в Центральной Азии: История и Проблемы. Материалы Международной конференции (Алматы 2004) 117–134.

HEDLUND 1979
H. Hedlund, Contradictions in the peripheralization of pastoral society: the Maasai. Revue of African Political Economy 6, 15 & 16, 1979, 15–34.

Heissig 1984
W. Heissig, Ethnische Gruppenbildung in Zentralasien im Lichte mündlicher und schriftlicher Überlieferung. In: Studien zur Ethnogenese. Abhandlungen der Rheinisch-Westfälischen Akademie der Wissenschaften, Geisteswissenschaften 72 (Opladen 1984) 29–55.

Henan 1984
Henan Xinyang diqu wenguanhui 河南信陽地區文管會/Guangshan xian wenguanhui 光山縣文管會, Chunqiu zaoqi Huangjun Meng funu mu fajue baogao 春秋早期黃君孟夫婦墓. Kaogu 1984, 4, 302–332.

Herrmann 1935
A. Herrmann, Die Gobi im Zeitalter der Hunnenherrschaft. Geografiska Annaler 17, 1935, 130–144.

Hides 1996
S. Hides, The Genealogy of Material Culture and Cultural Identity. In: P. Graves-Brown/S. Jones/C. Gamble (eds.), Cultural Identity and Archaeology: The Construction of European Communities. Theoretical Archaeology Group (TAG) Series (London, New York 1996) 25–47.

Hillson 1986
S. Hillson, Teeth. Cambridge Manuals in Archaeology (Cambridge 1986).

Hillson 1996
S. Hillson, Dental anthropology (Cambridge 1996).

Hirth 1900
F. Hirth, Sinologische Beiträge zur Geschichte der Türk-Völker. Die Ahnentafel Attila's nach Johannes von Thurócz. Izvestiia Imperatorskoi Akademii Nauk. Известия Императорской Академии Наук 13, 2, 1900, 221–261.

Hite 2008
E. Hite, Preliminary faunal report for the 2008 excavations at Baga Gazaryn Chuluu, north Gobi, Mongolia. Unpublished field report 2008.

Hite forthcoming
E. Hite, Final faunal report for the 2003–2008 excavations at Baga Gazaryn Chuluu, Mongolia. Unpublished field report, forthcoming.

Holden et al. 1991
S. J. Holden/D. L. Coppock/M. Assefa, Pastoral dairy marketing and household wealth interactions and their implications for calves and humans in Ethiopia. Human Ecology 19, 1991, 35–59.

Holotová-Szinek 2005
J. Holotová-Szinek, Les relations entre l'empire des Han et les Xiongnu: vestiges archéologiques et textes historiques. Études chinoises 24, 2005, 221–231.

Holotová-Szinek 2007
J. Holotová-Szinek, Les Xiongnu de l'Arkhangaï, économie et politique in Mongolia. In: J.-P. Desroches/G. André (eds.), Mongolie, les Xiongnu de l'Arkhangaï. Монгол улс: Архангай дахь Хүннүгийн судалгаа (Oulan-Bator 2007) 40–43.

Holotová-Szinek 2008
J. Holotová-Szinek, Système économique et politique des Xiongnu de Mongolie. Découvertes archéologiques et sources textuelles. PhD Dissertation, University Paris-Sorbonne 2008.

Holotová-Szinek/André 2003
J. Holotová-Szinek/G. André, Xiongnu, Peuples des Steppes. In: Mongolie 2003, 63–87.

Honeychurch 2004
W. Honeychurch, Inner Asian Warriors and Khans: A Regional Spatial Analysis of Nomadic Political Organization and Integration. Unpublished PhD Dissertation, University of Michigan 2004.

Honeychurch in press
W. Honeychurch, Thinking political Communities: The State and Social Stratification among Ancient Nomads of Mongolia. In: P. Durrenberger (ed.), The Anthropological Study of Class and Consciousness. University of Colorado Press, Boulder (in press).

Honeychurch/Amartüvshin 2003
W. Honeychurch/Ch. Amartuvshin, An examination of Khunnu period settlement in the Egiin Gol valley, Mongolia. Arkheologiin sudlal 21, 2003, 59–65. Археологийн судлал 21, 2003, 59–65.

Honeychurch/Amartüvshin 2006a
W. Honeychurch/C. Amartuvshin, States on Horseback: The Rise of Inner Asian Confederations and Empires. In: M. T. Stark (ed.), Archaeology of Asia. Blackwell studies in global archaeology 7 (Malden 2006) 255–278.

HONEYCHURCH/AMARTÜVSHIN 2006b
W. Honeychurch/Ch. Amartuvshin, Survey and Settlement in Northern Mongolia. The Structure of Intra-Regional Nomadic organization. In: D. L. Peterson/L. M. Popova/A. T. Smith (eds.), Beyond the Steppe and the Sown. Proceedings of the 2002 University of Chicago Conference on Euro-Asian Archaeology. Colloquia Pontica 13 (Leiden 2006) 183–201.

HONEYCHURCH/AMARTÜVSHIN 2006c
U. Khanicherch/Ch. Amartüvshin, Ertnii nüüdelchdiin töriin baiguulamzhind khiisen arkheologiin sudalgaa (Egiin golyn sav nutgiin zhinsheen deer) (Ulaanbaatar 2006). У. Ханичёрч/Ч. Амартүвшин, Эртний нүүдэлчдийн төрийн байгууламжинд хийсэн археологийн судалгаа (Эгийн голын сав нутгийн жишээн дээр) (Улаанбаатар 2006).

HONEYCHURCH/AMARTÜVSHIN 2007
W. Honeychurch/Ch. Amartuvshin, Hinterlands, urban centers, and mobile setting: The "New" old world archaeology from the Eurasian Steppe. Asian Perspectives 46, 2007, 36–64.

HONEYCHURCH/AMARTÜVSHIN 2011
W. Honeychurch/Ch. Amartuvshin, Timescapes from the Past – An Archaeogeography of Mongolia. In P. Sabloff/F. Hiebert (eds.), Mapping Mongolia (Philadelphia 2011) in print.

HONEYCHURCH/WRIGHT 2008
W. Honeychurch/J. Wright, Asia, Central and North, Steppes, Deserts, and Forests, In: D. M. Pearsall (ed.), Encyclopedia of Archaeology (New York 2008) 57–532.

HONEYCHURCH ET AL. 2007a
W. Honeychurch/A. Nelson/Ch. Amartuvshin, Death and social process among the ancient Xiongnu of Mongolia. In: Ch'o-wŏnŭi taejeguk hyungno: 2000 nyon jon mudomi balgul 초원의 대체국 흉노: 2000년전 무덤의 발굴. Han-mong kongdong haksuljosa 10chunyŏn kukjehaksulsimp'ojium 한-몽 공동학술조사 10주년 기념 국제학술심포지엄 [= Xiongnu, The First Empire of the Steppes. Research of its Tombs. International Symposium in celebration of the 10th anniversary of MON-SOL Project] (Seoul 2007) 120–153.

HONEYCHURCH ET AL. 2007b
W. Honeychurch/J. Wright/Ch. Amartuvshin, A nested approach to survey in the Egiin Gol Valley, Mongolia. Journal of Field Archaeology 32, 2007, 369–383.

HONEYCHURCH ET AL. 2009
W. Honeychurch/J. Wright/Ch. Amartuvshin, Re-Writing Monumental Landscapes as Inner Asian Political Process. In: B. Hanks/K. Linduff (eds.), Social Complexity in Prehistoric Eurasia. Monuments, Metals and Mobility (Cambridge 2009) 330–357.

HONG 2006
Hong Shi 洪石, Zhanguo Qin Han qiqi yanjiu 戰國秦漢漆器研究 (Beijing 2006).

HORIUCHI ET AL. 2000
K. Horiuchi/K. Minoura/K. Hoshino/T. Oda/T. Nakamura/T. Kawai, Paleoenvironmental History of Lake Baikal during the last 23000 years. Palaeogeography, Palaeoclimatology, Palaeoecology 157, 2000, 95–108.

HOULE 2009
J.-L. Houle, 'Socially integrative facilities' and the emergence of societal complexity on the Mongolian steppe. In: B. Hanks/K. Linduff (eds.), Social Complexity in Prehistoric Eurasia. Monuments, Metals, and Mobility (Cambridge 2009) 358–377.

HOULE 2010
J.-L. Houle, Emergent Complexity on the Mongolian Steppe: Mobility, Territoriality and the Development of Early Nomadic Polities. Unpublished PhD Dissertation, University of Pittsburgh 2010.

HOULE/ERDENEBAATAR 2009
J.-L. Houle/D. Erdenebaatar, Investigating Mobility, Territoriality, and Complexity in the Late Bronze Age: An Initial Perspective from Monuments and Settlements. In: Bemmann et al. 2009, 117–134.

HOWE 2002
S. Howe, Empire: a very short introduction. Very short introductions 76 (Oxford 2002).

HU 1992
Hu Pingsheng 胡平生, Xiongnu Rizhuwang gui Han xinziliao 匈奴日逐王歸漢新資料. Wenwu 1992, 4, 62.

Hu/Zhang 2001
Hu Pingsheng 胡平生/Zhang Defang 張德芳, Dunhuang Xuanquan Hanjian shicui 敦煌懸泉漢簡釋粹 (Shanghai 2001).

Huang 2000
Huang Xiaofen 黃曉芬, Caoyuan diguo de fanrong – cong Menggu Hanguo dao Da Yuan yitong 草原帝國的繁榮 – 從蒙古汗國到大元一統. In: X. Chen 陈/Q. Wang 王 (eds.), Caoyuan guibao: Nei Menggu wenwu kaogu jingpin 草原瑰寶: 内蒙古文物考古精品 (Shanghai 2000) 55–58. [English summary p. 59–60].

Huang 2003
Huang Xiaofen 黃曉芬, Han mu de kaoguxue yanjiu 漢墓的考古學研究 (Changsha 2003).

Huang 2006
Huang Xiaofen 黃曉芬, Han de mudom gua gi jesa gioun 한대의 무덤과 그 제사의 기원 (Seoul 2006).

Huang 2008
Khuan Siaofen, Khangiin bulsh ba Khünnügiin soel. In: Xiongnu 2008, 236–251. Хуан Сяофен, Хангийн булш ба Хүннүгийн соёл. In: Xiongnu 2008, 236–251.

Hubei 1976
Hubei sheng bowuguan湖北省博物館, Guanghua Wuzuofen Xi Han mu光化五座墳西漢墓. Kaogu xuebao 1976, 2, 149–170.

Hüttel 2004
H.-G. Hüttel, Im Palast des Ewigen Friedens – Die mongolisch-deutschen Ausgrabungen im Palastbezirk von Karakorum (Mongolei). In: Expedition in vergessene Welten. 25 Jahre archäologische Forschungen in Amerika, Afrika und Asien. AVA-Forschungen 10 (Aachen 2004) 179–208.

Hüttel 2005
H.-G. Hüttel, Karakorum – Eine historische Skizze. In: Dschingis Khan und seine Erben. Das Weltreich der Mongolen (München 2005) 133–137.

Hüttel/Erdenebat 2009
H.-G. Hüttel/U. Erdenebat, Karabalgasun und Karakorum – Zwei spätnomadische Stadtsiedlungen im Orchon-Tal. Ausgrabungen und Forschungen des Deutschen Archäologischen Instituts und der Mongolischen Akademie der Wissenschaften 2000–2009 (Ulaanbaatar 2009).

Hulsewé 1979
A. F. P. Hulsewé, China in Central Asia. The Early Stage: 125 B.C. – A.D. 23. An Annotated Translation of the Chapters 61 and 96 of the History of the Former Han Dynasty. Sinica Leidensia 14 (Leiden 1979).

Hulsewé 1997
A. F. P. Hulsewé, Qin and Han legal manuscripts. In: E. Shaughnessy (ed.), New sources of early Chinese history: an introduction to the reading of inscriptions and manuscipts. Early China special monograph series 3 (Berkeley 1997) 193–221.

Hulun 1997
Hulun Bei'ermeng wenwu guanlizhan 呼倫貝爾盟文物管理站, Xinba'erhu zuoqi Yihewula Xianbei mu 新巴爾虎左旗伊和烏拉鮮卑墓. Nei Menggu wenwu kaogu wenji 1997, 2, 453–456.

Hunan 2001
Hunan sheng wenwu kaogu yanjiusuo 湖南省文物考古研究所/Yongzhou shi Zhishan qu wenwu guanlisuo 永州市芝山區文物管理所, Hunan Yongzhou shi Yaozi ling erhao Xi Han mu 湖南永州市鷂子嶺二號西漢墓. Kaogu 2001, 4, 45–62.

Huns 2005
Les Huns. Хунну (Bruxelles 2005).

Hurlet 2008
F. Hurlet (ed.), Les empires: Antiquité et Moyen âge: analyse comparée (Rennes 2008).

Iablonskii et al. 1994
L. T. Iablonskii/T. N. Trunaeva/Dzh. Vedder/Dzh. Devis-Kimboll/V. L. Egorov, Raskopki kurgannykh mogil'nikov Pokrovka 1 i Pokrovka 2 v 1993 godu. In: Kurgany levoberezhnogo Ileka 2 (Moskva 1994) 4–60; 80–178. Л. Т. Яблонский/Т. Н. Трунаева/Дж. Веддер/Дж. Дэвис-Кимболл/В. Л. Егоров, Раскопки курганных могильников Покровка 1 и Покровка 2 в 1993 году. In: Курганы левобережного Илека 2 (Москва 1994), 4–60; 80–178.

Iaremchuk 2005
O. A. Iaremchuk, Mogil'nik Zorgol-I. Pamiatnik

khunnu-sian'iiskoi epokhi Stepnoi Daurii. O. A. Яремчук, Могильник Зоргол-I. Памятник хуннусяньбийской эпохи Степной Даурии. Unpublished PhD Dissertation Zabaikal'skii Gosudarstvennyi Pedagogicheskii Universitet im. N. G. Chernyshevskogo Chita 2005.

IATSENKO 2001
S. A. Iatsenko, Znaki-tamgi iranoiazychnykh narodov drevnosti i rannego srednevekov'ia (Moskva 2001). С. А. Яценко, Знаки-тамги ираноязычных народов древности и раннего средневековья (Москва 2001).

ILYASOV/RUSANOV 1997/98
J. Y. Ilyasov /D. V. Rusanov, A study on the bone plates from Orlat. Silk Road Art and Archaeology 5, 1997/98, 107–159.

INDRISANO 2006
G. G. Indrisano, Subsistence, Environmental Fluctuation and Social Change: A Case Study in South Central Inner Mongolia. Unpublished PhD Dissertation, University of Pittsburgh 2006.

INFORMATION MONGOLIA 1990
Information Mongolia: The Comprehensive Reference Source of the People's Republic of Mongolia (MPR) (Oxford, New York 1990).

INSOLL 2007
T. Insoll, Configuring Identities in Archaeology. In: T. Insoll (ed.), The Archaeology of Identities. A Reader (London, New York 2007) 1–18.

IRISH 2006
J. D. Irish, Who were the Egyptians? Dental affinities among Neolithic through postdynastic peoples. American Journal of Physical Anthropology 129, 2006, 529–543.

IRONS 1979
W. Irons, Political Stratification among Pastoral Nomads. In: Pastoral Production and Society. Proceedings of the International Meeting on Nomadic Pastoralism, Paris 1–3 Déc. 1976 (Cambridge 1979) 361–374.

ISHJAMTS 1992
N. Ishjamts, Nomads in eastern Central Asia. In: J. Harmatta (ed.), History of civilizations of Central Asia, Vol. II. The development of sedentary and nomadic civilizations: 700 B.C. to A.D. 250 (Paris 1992) 151–169.

ISHJAMTS 1994
N. Ishjamts, Nomads in eastern Central Asia. In: J. Harmatta/B. N. Puri/G. F. Etemadi (eds.), History of civilizations of Central Asia, Vol. 2. The Development of Sedentary and Nomadic Civilizations: 700 B.C. to A.D. 250 (Paris 1994) 151–169.

ISHZHAMTS 1956
N. Ishzhamts, Khünnügiin udam ugsaa niigmiin baiguulal. ShUA-iin erdem shinzhilgeenii büteel 1 (Ulaanbaatar 1956). Н. Ишжамц, Хүннүгийн удам угсаа нийгмийн байгуулал. ШУА-ийн эрдэм шинжилгээний бүтээл 1 (Улаанбаатар 1956).

IVANOV/VASIL'EV 1995
I. V. Ivanov/I. B. Vasil'ev, Chelovek, priroda i pochvy Ryn-peskov Volgo-Ural'skogo mezhdurech'ia v golotsene: k 30-mu mezhdunarodnomu kongressu, Pekin, Kitai 1996 g. (Moskva 1995). И. В. Иванов/И. Б. Васильев, Человек, природа и почвы Рын-песков Волго-Уральского междуречья в голоцене: к 30-му международному конгрессу, Пекин, Китай 1996 г. (Москва 1995).

JACOBSON-TEPFER ET AL. 2010
E. Jacobson-Tepfer/J. E. Meacham/G. Tepfer, Archaeology and Landscape in the Mongolian Altai: an Atlas (Redlands 2010).

JAGCHID/SYMONS 1989
S. Jagchid/V. J. Symons, Peace, War, and Trade along the Great Wall. Nomadic-Chinese interaction through two millenia (Bloomington 1989).

JETTMAR 1967
K. Jettmar, Art of the Steppes: the Eurasian animal style (London 1967).

JIANG 1991
Jiang Tianwei 江天蔚, Liang Han yu Xiongnu guanxi xi 兩漢與匈奴關係系 (Xi'an 1991).

JIANGSU 2007
Jiangsu Siyang Sanzhuang lianhe kaogu dui 江蘇泗陽三莊聯合考古隊, Jiangsu Siyang Chendun Han mu 江蘇泗陽陳墩漢墓. Wenwu 2007, 7, 39–60.

JIANGXI 1965
Jiangxi sheng wenwu guanli weiyuanhui 江西省文物管理委員會, Jiangxi Nanchang Laofushan

Xi Han muguo mu 江西南昌老福山西漢木槨墓. Kaogu 1965, 6, 268–272, 300.

Jiayibian 1980
Zhongguo shehui kexueyuan Kaogu yanjiusuo 中國社會科學院考古研究所 (ed.), Juyan Hanjian. Jiayibian (Beijing 1980).

Jilin 1987
Jilinsheng wenwu kaogu yanjiusuo 吉林省文物考古研究所, Yushu Laoheshen 榆树老河深 (Beijing 1987).

Jilin/Liaoning 1997
Jilin daxue kaoguxue xi 吉林大學考古係/Liaoning sheng wenwu kaogu yanjiuso遼寧省文物考古研究所, Liaoning Jinxi shi Taijitun Xiaohuangdi Qin Han gucheng zhi shijue jianbao 遼寧錦西市郃集屯小皇帝秦漢古城之識掘簡報. Kaoguxue jikan 11, 1997, 130–153.

Jing 1999
Jing Ai 景愛, Shamo kaogu tonglun 沙漠考古通论 (Bejing 1999).

Jisl 1997
L. Jisl, The Orkhon Türks and Problems of the Archaeology of the Second Eastern Türk Kaghanate (published post mortem in cooperation of Věra Jislová and Jiří Šíma). Annals of the Náprstek Museum 18 (Praha 1997) 1–112.

Johnson/Earle 1987
A. W. Johnson/T. Earle, The Evolution of Human Societies. From foraging group to agrarian state (Stanford 1987).

Jones 1996
S. Jones, Discourses of Identity in the Interpretation of the Past. In: P. Graves-Brown/S. Jones/C. Gamble (eds.), Cultural Identity and Archaeology: The Construction of European Communities (London 1996) 62–80.

Jones 1997
S. Jones, The Archaeology of Ethnicity: Constructing Identities in the Past and Present (London 1997).

Junker 2001
L. L. Junker, The Evolution of Ritual Feasting Systems in Prehispanic Philippine Chiefdoms. In: M. Dietler/B. Hayden (eds.), Feasts: Archaeological and Ethnographic Perspectives on Food, Politics, and Power. Smithsonian Series in Archaeological Inquiry (Washington 2001) 267–310.

Juyan 1994
Gansu sheng wenwu kaogu yanjiusuo 甘肅省文物考古研究所 et al. (ed.), Juyan Xinjian. Jiaqu houguan 居延新簡 – 甲渠候官, 2 Vols. (Beijing 1994).

Karabanov et al. 2000
E. B. Karabanov/A. A. Prokopenko/D. F. Williams/G. K. Khursevich, A New Record of Holocene Climate Change from the Bottom Sediments of Lake Baikal. Palaeogeography, Palaeoclimatology, Palaeoecology 156, 2000, 211–224.

Kautsky 1982
J. H. Kautsky, The politics of aristocratic empires (Chapel Hill 1982).

Kelly 2009
C. Kelly, The end of empire: Attila the Hun and the fall of Rome (New York 2009).

Kennedy 1989
K. A. R. Kennedy, Skeletal Markers of Occupational Stress. In: M. Y. İşcan/K. A. R. Kennedy (eds.), Reconstruction of Life from the Skeleton (New York 1989) 129–160.

Kerefov 1988
B. M. Kerefov, Pamiatniki sarmatskogo vremeni Kabardino-Balkarii (Nal'chik 1988). Б. М. Керефов, Памятники сарматского времени Кабардино-Балкарии (Нальчик 1988).

Kessler 1993
A. T. Kessler, Empires beyond the great wall: The heritage of Genghis Khan (Los Angeles 1993).

Keyser et al. 2008
C. Keyser/S. Romac/C. Bouakaze/S. Amory/B. Ludes, Tracing back ancient south Siberian population history using mitochondrial and Y-chromosome SNPs. Forensic Science International: Genetics Supplement Series 1 (2008) 343–345.

Keyser et al. 2009
C. Keyser/C. Bouakaze/E. Crubézy/V. G. Nikolaev/D. Montagnon, Ancient DNA provides new insights into the history of south Siberian Kurgan people. Human Genetics 126, 2009, 395–410.

KEYSER-TRACQUI ET AL. 2003
C. Keyser-Tracqui/E. Crubézy/B. Ludes, Nuclear and mitochondrial DNA analysis of a 2,000-year-old necropolis in the Egyin Gol valley of Mongolia. American Journal of Human Genetics 73, 2, 2003, 247–260.

KEYSER-TRAQUI ET AL. 2006
C. Keyser-Traqui/E. Crubézy/H. Pamzsav/T. Varga/B. Ludes, Population origins in Mongolia: Genetic structure analysis of ancient and modern DNA. American Journal of Physical Anthropology 131, 2, 2006, 272–281.

KEYSER-TRACQUI ET AL. 2008
C. Keyser/S. Romac/C. Bouakaze/S. Amory/B. Ludes, Tracing back ancient south Siberian population history using mitochondrial and Y-chromosome SNPs. Forensic Science International: Genetics Supplement Series 1, 1, 2008, 343–345.

KHALKH 1987
BNMAU-yn ugsaatny züi, Vol. 1. Khalkhyn ugsaatny züi (Ulaanbaatar 1987). БНМАУ-ын угсаатны зүй, Vol. 1. Халхын угсаатны зүй (Улаанбаатар 1987).

KHARINSKII 2003
A. V. Kharinskii, Mogil'nik Tsagan-Khushun-II na zapadnom poberezh'e Baikala. In: Arkheologiia i sotsiokul'turnaia antropologiia Dal'nego Vostoka i sopredel'nykh territorii. Materialy XI sesii arkheologov i antropologov Dal'nego Vostoka. Tret'ia mezhdunarodnaia nauchnaia konferentsiia Rossiia i Kitai na Dal'novostochnykh rubezhakh (Blagoveshchensk 2003) 248–254. А. В. Харинский, Могильник Цаган-Хушун-II на западном побережье Байкала. In: Археология и социокультурная антропология Дальнего Востока и сопредельных территорий. Материалы XI сесии археологов и антропологов Дальнего Востока. Третья международная научная конференция Россия и Китай на Дальновосточных рубежах (Благовещенск 2003) 248–254.

KHATANBAATAR 2007
D. Khatanbaatar, Tamiryn Ulann khoshuun dakh' Khünnügiin üed kholbogdokh büleg orshuulga. Д. Хатанбаатар, Тамирын Улаан хошуун дахь Хүннүгийн үед холбогдох бүлэг оршуулга. Mongolian Journal of Anthropology, Archaeology and Ethnology 3, 1, 2007, 156–168.

KHAVRIN 2003
S. V. Khavrin, Metall nekotorykh pamiatnikov Tuvy v kontekste metallurgii Saiano-Altaia skifskogo vremeni. In: V. A. Semenov, Suglug-Khem i Khaiyrykan. Mogil'niki skifskogo vremeni v Tsentral'no-Tuvinskoi kotlovine (Sankt-Peterburg 2003) 211–213. С. В. Хаврин, Металл некоторых памятников Тувы в контексте металлургии Саяно-Алтая скифского времени. In: В. А. Семенов, Суглуг-Хем и Хайырыкан. Могильники скифского времени в Центрально-Тувинской котловине (Санкт-Петербург 2003) 211–213.

KHAZANOV 1975
A. M. Khazanov, Sotsial'naia istoriia skifov. Osnovnye problemy razvitiia drevnikh kochevnikov evraziiskikh stepei. А. М. Хазанов, Социальная история скифов. Основные проблемы развития древних кочевников евразийских степей (Москва 1975).

KHAZANOV 1978
A. M. Khazanov, Characteristic Features of Nomadic Communities in the Eurasian Steppes. In: W. Weissleder (ed.), The Nomadic Alternative: Modes and Models of Interaction in the African-Asian Deserts and Steppes. World Anthropology (The Hague 1978) 119–126.

KHAZANOV 1984
A. M. Khazanov, Nomads and the Outside World. Cambridge Studies in Social Anthropology 44 (Cambridge 1984).

KHODUKIN 1926
Ia. N. Khodukin, Pervye raskopki v gorakh Noin-Ula. Biulletin Vsesoiuzn. Nauch. Assots. Vostokovedov Irkut. Filial 1926, 1–13. Я. Н. Ходукин, Первые раскопки в горах Ноин-Ула. Бюл. Всесоюзн. науч. Ассоц. Востоковедов Иркут. филиал 1926, 1–13.

KHUDIAKOV 1996
Yu. S. Khudiakov, Problems of the Genesis of Culture of the Hunnic Period in the Altai Mountains. Ancient Civilizations from Scythia to Siberia 3, 2/3, 1996, 329–346.

KHUDIAKOV 1998
Iu. S. Khudiakov, Raskopki mogil'nika Ust'-Edi-

gan v 1990 godu. In: Voprosy arkheologii Severnoi i Tsentral'noi Azii (Kemerovo 1998) 160–206. Ю. С. Худяков, Раскопки могильника Усть-Эдиган в 1990 году. In: Вопросы археологии Северной и Центральной Азии (Кемерово 1998) 160–206.

Khudiakov et al. 1990
Iu. S. Khudiakov/S. G. Skobelev/M. V. Moroz, Arkheologicheskie issledovaniia v dolinakh rek Oroktoi i Edigan v 1998 godu. In: V. I. Molodin (red.), Arkheologicheskie issledovaniia na Katuni (Novosibirsk 1990) 95–150. Ю. С. Худяков/С. Г. Скобелев/М. В. Мороз, Археологические исследования в долинах рек Ороктой и Эдиган в 1988 году. In: В. И. Молодин (red.), Археологические исследования на Катуни (Новосибирск 1990) 95–150.

Khudiakov et al. 1999
Iu. S. Khudiakov/S. V. Alkin/Jui Su Khua, Sian'bi i Juzhnaia Sibir'. Drevnosti Altaia 4, 1999, 174–179. Ю. С. Худяков/С. В. Алкин/Юй Су Хуа, Сяньби и Южная Сибирь. Древности Алтая 4, 1999, 174–179.

Khurtsbileg 2003
Khurtsbileg, Mongolchuudyn orshuulgyn soel (Khökhkhot 2003). Хурцбилэг, Монголчуудын оршуулгын соёл (Хөххот 2003).

Kim et al. 2010
K. Kim/Ch. H. Brenner/V. H. Mair/K.-H. Lee/J.-H. Kim/E. Gelegdorj/N. Batbold/Y.-Ch. Song/H.-W. Yun/E.-J. Chang/G. Lkhagvasuren/M. Bazarragchaa/A.-J. Park/I. Lim/Y.-P. Hong/W. Kim/S.-I. Chung/D.-J. Kim/Y.-H. Chung/S.-S. Kim/W.-B. Lee/K.-Y. Kim, A Western Eurasian Male is found in 2000-Year-Old Elite Xiongnu Cemetery in Northeast Mongolia. American Journal of Physical Anthropology 142, 3, 2010, 429–440.

King et al. 1990
G. King/J. E. Alt/N. E. Burn/M. Laver, A unified model of cabinet dissolution in parliamentary democracies. American Journal of Political Science 34, 3, 1990, 846–871.

Kirillov et al. 2000
I. I. Kirillov/E. V. Kovychev/O. I. Kirillov, Darasunskii kompleks arkheologicheskikh pamiatnikov. Vostochnoe Zabaikal'e (Novosibirsk 2000). И. И. Кириллов/Е. В. Ковычев/О. И. Кириллов, Дарасунский комплекс археологиеских памятников. Восточное Забайкалье (Новосибирск 2000).

Kiselev et al. 1965
S. V. Kiselev/L. A. Evtiukhova/L. R. Kyzlasov/N. Ia. Merpert/V. P. Levashova, Drevnie mongol'skie goroda (Moskva 1965). С. В. Киселев/ Л. А. Евтюхова/Л. Р. Кызласов/Н. Я. Мерперт/ В. П. Левашова, Древние монгольские города (Москва 1965).

Klepikov/Skripkin 2002
V. M. Klepikov/A. S. Skripkin, Khronologiia rannesarmatskikh pamiatnikov Nizhnego Povolzh'ia. Nizhnevolzhskii Arkheologicheskii Vestnik 5, 2002, 47–81. В. М. Клепиков/А. С. Скрипкин, Хронология раннесарматких памятников Нижнего Поволжья. Нижневолжскии Археологический Вестник 5, 2002, 47–81.

Kljaštornyj/Sultanov 2006
S. G. Kljaštornyj/T. I. Sultanov, Staaten und Völker in den Steppen Eurasiens. Altertum und Mittelalter. Studia Eurasia 11 (Berlin 2006).

Knüsel 2000
C. Knüsel, Bone Adaptation and its Relationship to Physical Activity in the Past. In: M. Cox/S. Mays (eds.), Human Osteology in Archaeology and Forensic Science (London 2000).

Kokuritsu Hakubutsukan 2005
Chūgoku hoppōkei seidōki, Tōkyō kokuritsu hakubutsukan shozō 中国北方系青銅器. 東京国立博物館所蔵 (Tokyo 2005).

Komroff 2001
The Travels of Marco Polo. Edited and revised from William Marsden's translation, by Manuel Komroff (New York 2001).

Kong 1993
Kong Fangang 孔繁剛, Shandong Yishui yipi Handai tongqi 湖北沂水一批漢代銅器. Dongnan wenhua 1993, 3, 52–53.

Konovalov 1976
P. B. Konovalov, Khunnu v Zabaikal'e (pogrebal'nye pamiatniki) (Ulan-Ude 1976). П. Б. Коновалов, Хунну в Забайкалье (погребальные памятники) (Улан-Удэ 1976).

Konovalov 2008a
P. B. Konovalov, Usypal'nitsa khunnskogo kniazia v Sudzhi (Il'movaia Pad', Zabaikal'e) (Ulan-Ude 2008). П. Б. Коновалов, Усыпальница хуннского князя в Суджи (Ильмовая Падь, Забайкалье) (Улан-Удэ 2008).

KONOVALOV 2008b
P. B. Konovalov, The Burial Vault of a Xiongnu Prince at Sudzha (Il'movaia pad', Transbaikalia). Bonn Contributions to Asian Archaeology 3 (Bonn 2008).

KONOVALOV/BROSSEDER 2008
The Dating of Barrow No. 54 and its Significance. In: Konovalov 2008b, 53–54.

KONOVALOV/TSYBIKTAROV 1988
P. B. Konovalov/A. D. Tsybiktarov, Nekotorye materialy iz novykh khunnskikh pamiatnikov Zabaikal'ia i Mongolii. In: P. B. Konovalov/L. G. Ivashina/A. V. Tivanenko (red.), Pamiatniki epokhi paleometalla v Zabaikal'e (Ulan-Ude 1988) 95–107. П. Б. Коновалов/А. Д. Цыбиктаров, Некоторые материалы из новых хуннских памятников Забайкалья и Монголии. In: П. Б. Коновалов/Л. Г. Ивашина/А. В. Тиваненко (ред.), Памятники эпохи палеометалла в Забайкалье (Улан-Удэ 1988) 95–107.

KOROL'KOVA 1999
E. F. Korol'kova, Obrazy verbliudov i puti ikh razvitiia v isskustve rannikh kochevnikov evrazii. Arkheologicheskii sbornik 34, 1999, 68–96. Е. Ф. Королькова, Образы верблюдов и пути их развития в исскустве ранних кочевников Евразии. Археологический сборник 34, 1999, 68–96.

KOROTAEV/CHUBAROV 1991
A. V. Korotaev/V. V. Chubarov (red.), Arkhaicheskoe obshchestvo: Uzlovye problemy sotsiologii razvitiia. Sbornik nauchnykh trudov (Moskva 1991). А. В. Коротаев/В. В. Чубаров (ред.), Архаическое общество: Узловые проблемы социологии развития. Сборник научных трудов (Москва 1991).

KORYAKOVA/HANKS 2006
L. N. Koryakova/B. K. Hanks, Horse Husbandry Practices among Iron Age Trans-Ural Societies. In: S. L. Olsen/S. Grant/A. M. Choyke/L. Bartosiewicz (eds.), Horses and Humans: the Evolution of Human-Equine Relationships. British Archaeological Reports International Series 1560 (Oxford 2006) 275–287.

KOSIANENKO 1987
V. M. Kosianenko, Bronzovye fibuly iz nekropolia Kobiakova gorodishcha. Sovetskaia Arkheologiia 1987, 2, 45–62. В. М. Косяненко, Бронзовые фибулы из некрополя Кобякова городища. Советская Археология 1987, 2, 45–62.

KOSSINNA 1936
G. Kossinna, Ursprung und Verbreitung der Germanen in vor- und frühgeschichtlicher Zeit. Mannus-Bibliothek 6 (Leipzig 1936).

KOST 2010
C. Kost, Studien zur Bildpraxis im nordchinesischen Steppenraum vom 5. Jahrhundert v. Chr. bis zur Zeitenwende. Unpublished PhD Dissertation Ludwig-Maximilians-Universität, Munich 2010.

KOULKOVA 2005
M. A. Koulkova, Applications of Geochemistry to Paleoenvironmental Reconstruction in Southern Siberia. In: E. M. Scott/A. Y. Alekseev/G. Zaitseva (eds.), Impact of the Environment on Human Migration in Eurasia NATO Science Series IV. Earth and Environmental Sciences 42, 2005, 255–274.

KOVALEV/ERDENEBAATAR 2008
A. A. Kovalev (Kewalifu 科瓦利夫)/D. Erdenebaatar (E'erdeniebate'er 額爾德涅巴特爾), Mengggu guo Nan Gebi sheng Xi Xia changcheng yu Han Shouxiangcheng youguan wenti de zai tantao 蒙古國南戈壁省西夏長城與漢受降城有關問題的再探討. Nei Menggu wenwu kaogu 2008, 2, 101–110.

KOVALEV/ERDENEBAATAR 2009
A. A. Kovalev/D. Erdenebaatar, Discovery of New Cultures of the Bronze Age in Mongolia According to the Data Obtained by the International Central Asian Archaeological Expedition. In: Bemmann et al. 2009, 149–170.

KOVYCHEV 2006
E. V. Kovychev, Nekotorye voprosy etnicheskoi i kul'turnoi istorii Vostochnogo Zabaikal'ia v kontse I tys. do n.e. – I tys. n.e. Izvestiia laboratorii drevnikh tekhnologii 4, 2006, 242–258. Е. В. Ковычев, Некоторые вопросы этнической и культурной истории Восточного Забайкалья в конце I тыс. до н.э. – I тыс. н.э. Известия лаборатории древних технологий 4, 2006, 242–258.

KOZHEVNIKOV ET AL. 2001
N. O. Kozhevnikov/A. V. Kharinsky/O. K. Kozhevnikov, An accidental geophysical discovery

of an Iron Age archaeological site on the western shore of Lake Baikal. Journal of Applied Geophysics 47, 2001, 107–122.

Krader 1963
L. Krader, Social organization of the Mongol-Turkic pastoral nomads. Uralic and Altaic series 20 (The Hague 1963).

Kradin 1992
N. N. Kradin, Kochevye obshchestva (problemy formatsionnoi kharakteristiki) (Vladivostok 1992). Н. Н. Крадин, Кочевые общества (проблемы формационной характеристики) (Владивосток 1992).

Kradin 1996
N. N. Kradin, Imperiia Khunnu (Vladivostok 1996). Н. Н. Крадин, Империя Хунну (Владивосток 1996).

Kradin 2000
N. N. Kradin, Nomadic Empires in Evolutionary Perspective. In: N. N. Kradin/A. V. Korotayev/D. Bondarenko/V. de Munck/P. K. Wason (eds.), Alternatives of Social Evolution (Vladivostok 2000) 274–288.

Kradin 2002a
N. N. Kradin, Imperiia Khunnu (Москва 2002). Н. Н. Крадин, Империя Хунну. 2nd and revised ed. (Moskva 2002).

Kradin 2002b
N. N. Kradin, Nomadism, Evolution, and World-Systems: Pastoral Societies in Theories of Historical Development. Journal of World-System Research 8, 2002, 368–388.

Kradin 2003
N. N. Kradin, Nomadic Empires: Origins, Rise, Decline. In: N. N. Kradin/D. M. Bondarenko/Th. J. Barfield (eds.), Nomadic Pathways in Social Evolution. The civilization dimension series 5 (Moscow 2003) 73–87.

Kradin 2005a
N. N. Kradin, Social and Economic Structure of the Xiongnu of the Trans-Baikal Region. Archaeology, Ethnology & Anthropology of Eurasia, 2005, 1, 79–86.

Kradin 2005b
N. N. Kradin, From tribal confederation to empire: the evolution of the Rouran society. Acta Orientalia Academiae Scientiarum Hungaricae 58, 2005, 149–161.

Kradin 2008
N. N. Kradin, Early State Theory and the Evolution of Pastoral Nomads. Social Evolution & History 7, 2008, 1, 107–130.

Kradin/Ivliev 2008
N. N. Kradin/A. L. Ivliev, Deported nation: the fate of the Bohai people of Mongolia. Antiquity 82, 2008, 438–445.

Kradin/Skrynnikova 2006a
N. N. Kradin/T. D. Skrynnikova, Imperiia Chingis-khana (Moskva 2006). Н. Н. Крадин/Т. Д. Скрынникова, Империя Чингис-хана (Москва 2006).

Kradin/Srynnikova 2006b
N. Kradin/T. Srynnikova, Why do we call Chinggis Khan's polity "an empire"? Ab Imperio 2006, 1, 89–118.

Kradin et al. 2000
N. N. Kradin/A. V. Korotayev/D. M. Bondarenko/V. de Munck/P. K. Wason (eds.), Alternatives of Social Evolution (Vladivostok 2000).

Kradin et al. 2004
N. N. Kradin/S. V. Danilov/P. B. Konovalov, Sotsial'naia struktura khunnu Zabaikal'ia (Vladivostok 2004). Н. Н. Крадин/С. В. Данилов/П. Б. Коновалов, Социальная структура хунну Забайкалья (Владивосток 2004).

Kravtsova 1994
M. E. Kravtsova, Poeziia Drevnego Kitaia. Opyt kul'turologicheskogo analiza. Antologiia khudozhestvennykh perevodov (Sankt-Peterburg 1994). М. Е. Кравцова, Поэзия древнего Китая. Опыт культурологического анализа. Антология художественных переводов (Санкт-Петербург 1994).

Kriukov et al. 1983
M. V. Kriukov/L. S. Perelomov/M. V Sofronov/N. N. Cheboksarov, Drevnie kitaitsy v epokhu tsentralizovannykh imperii (Moskva 1983). М. В. Крюков/Л. С. Переломов/М. В. Софронов/Н. Н. Чебоксаров, Древние китайцы в эпоху централизованных империй (Москва 1983).

Krol' 2005
Ju. L. Krol', Otnosheniia imperii i siunnu glazami Ban' Gu. In: M. N. Bogoliubova (ob. red.), Dal'nii Vostok. Problemy geografii i vneshnei politiki v

"Istorii Khan" Ban' Gu. Issledovaniia i perevody. Strany i narody Vostoka 32, kn. 4 (Moskva 2005) 126–361. Ю. Л. Кроль, Отношения империи и сюнну глазами Бань Гу. In: М. Н. Боголюбова (об. ред.), Дальний Восток. Проблемы географии и внешней политики в "Истории Хань" Бань Гу. Исследования и переводы. Страны и народы Востока 32 книга 4 (Москва 2005) 126–361.

KUBAREV 1987
V. I. Kubarev, Kurgany Ulandryka (Novosibirsk 1987). В. И. Кубарев, Курганы Уландрыка (Новосибирск 1987).

KUBAREV/SHUL'GA 2007
V. D. Kubarev/P. I. Shul'ga, Pazyrykskaia kul'tura (kurgany Chui i Ursula) (Barnaul 2007). В. Д. Кубарев/П. И. Шульга, Пазырыкская культура (курганы Чуи и Урсула) (Барнаул 2007).

KUNOW 1998
J. Kunow (Hrsg.), 100 Jahre Fibelformen nach Oscar Almgren. Internationale Arbeitstagung 25.–28. Mai 1997. Forschungen zur Archäologie im Land Brandenburg 5 (Wünsdorf 1998).

KÜRSAT-AHLERS 1994
E. Kürsat-Ahlers, Zur frühen Staatenbildung von Steppenvölkern: Über die Sozio- und Psychogenese der eurasischen Nomadenreiche am Beispiel der Hsiung-nu und Göktürken mit einen Exkurs über die Skythen. Sozialwissenschaftliche Schriften 28 (Berlin 1994).

KUZ'MIN 1988
N. Iu. Kuz'min, Tesinskii mogil'nik u derevni Kaly. In: Pamiatniki arkheologii v zonakh melioratsii iuzhnoi Sibiri. Po materialam raskopok 1980–1984 gg. (Leningrad 1988) 55–82. Н. Ю. Кузьмин, Тесинский могильник у деревни Калы. In: Памятники археологии в зонах мелиорации южной Сибири. По материалам раскопок 1980–1984 гг. (Ленинград 1988) 55–82.

KYCHANOV 1993
E. I. Kychanov, Keshikteny Chingis-khana (o meste gvardin v gosudarstvakh kochevnikov). In: Mongolica: K 750-letiiu "Sokrovennogo skazaniia" (Moskva 1993) 148—156. Е. И. Кычанов, Кешиктены Чингис-хана (о месте гвардин в государствах кочевников). In: Mongolica: К 750-летию "Сокровенного сказания" (Москва 1993) 148—156.

KYCHANOV 1997
E. I. Kychanov, Kochevye gosudarstva ot gunnov do man'chzhurov (Moskva 1997). Е. И. Кычанов, Кочевые государства от гуннов до маньчжуров (Москва 1997).

KYZLASOV 1992
L. R. Kyzlasov, Northern nomads. In: B. A. Litvinsky (ed.), History of civilizations of Central Asia (Paris 1992) 315–326.

KYZLASOV 2001
L. R. Kyzlasov, Gunnskii dvorets na Enisee. Problema rannei gosudarstvennosti Iuzhnoi Sibiri (Moskva 2001). Л. Р. Кызласов, Гуннский дворец на Енисее. Проблема ранней государственности Южной Сибири (Москва 2001).

KYZLASOV 2006
L. R. Kyzlasov, Gorodskaia tsivilizatsiia Sredinnoi i Severnoi Azii: istoricheskie i arkheologicheskie issledovaniia (Moskva 2006). Л. Р. Кызласов, Городская цивилизация Срединной и Северной Азии: исторические и археологические исследования (Москва 2006).

LAI 2006
G. Lai, The Date of the TLV Mirrors from the Xiongnu Tombs. The Silk Road 4, 1, 2006, 36–44.

LAL 2004
D. Lal, In praise of empires: globalization and order (New York 2004).

LANDMANN 2008
T. Landman, Issues and Methods in Comparative Politics: An Introduction. 3rd ed. (London, New York 2008).

LANKTON 2003
J. W. Lankton, A Bead Timeline, Vol. I: Prehistory to 1200 CE (Washington 2003).

LAO 1957
Lao Gan 勞榦, Juyan Hanjian. Tuban zhi bu 居延漢簡 – 圖版之部 (Taibei 1957).

LATTIMORE 1940
O. Lattimore, Inner Asian Frontiers of China. Research series 21 (London 1940). Reprint 1992.

LATTIMORE 1962
O. Lattimore, Studies in Frontier History. Collected Papers, 1928–1958 (Paris 1962).

Lattimore 1979
O. Lattimore, Herdsmen, Farmers, and Urban Culture. In: Pastoral Production and Society. Proceedings of the International Meeting on Nomadic Pastoralism, Paris 1–3 Déc. 1976 (Cambridge 1979) 479–490.

Leach 1965
E. R. Leach, Political Systems of Highland Burma. A study of Kachin social structure (Boston 1965).

Lee 2002
Y. K. Lee, Building the Chronology of Early Chinese History. Asian Perspectives 41, 1, 2002, 15–42.

Lee 2007
C. Lee, The biological affinities of the Neolithic through modern period populations from China and Mongolia: The cranial and dental nonmetric trait evidence. PhD Dissertation, Arizona State University 2007.

Leus 2008
P. M. Leus, Terezin – novyi pamiatnik gunno-sarmatskogo vremeni v Tsentral'noi Tuve (predvaritel'noe soobshchenie). In: A. P. Derevianko/N. A. Makarov (red.), Trudy II (XVIII) Vserossiiskogo Arkheologicheskogo S'ezda v Suzdale 2008 g., Vol. 1 (Moskva 2008) 42–44. П. М. Леус, Терезин – новый памятник гунно-сарматского времени в Центральной Туве (предварительное сообщение) In: А. П. Деревянко/Н. А. Макаров (ред.), Труды II (XVIII) Всероссийского Археологического Съезда в Суздале 2008 г., Vol. 1 (Москва 2008) 42–44.

Levine 1999
M. A. Levine, The Origins of Horse Husbandry on the Eurasian Steppe. In: M. Levine/Y. Rassamakin/A. Kislenko/N. Tatarintseva (eds.), Late Prehistoric Exploitation of the Eurasian Steppe. McDonald Institute Monographs (Cambridge 1999) 5–58.

Lewis 1990
M. E. Lewis, Sanctioned Violence in Early China. SUNY series in Chinese philosophy and culture (Albany 1990).

Lewis 2007
M. Lewis, The early Chinese empires: Qin and Han. History of Imperial China (Cambridge 2007).

Liakhov/Mordvintseva 2000
S. V. Liakhov/V. I. Mordvintseva, Rannesarmaskoe pogrebenie u poselka Piterka Saratovskoi oblasti. Rossiiskaia Arkheologiia 2000, 3, 102–109. С. В. Ляхов/В. И. Мордвинцева, Раннесарматское погребение у поселка Питерка Саратовской области. Российская Археология 2000, 3, 102–109.

Liaoning 1999
Liaoning sheng wenwu kaogu yanjiusuo 辽宁省文物考古研究所, Beipiaoshi Lamadong sanyan mudi 北票市喇嘛洞三燕墓地. Zhongguo kaoguxue nianjian 中国考古学年鉴 (Beijing 1999).

Lieven 2000
D. Lieven, Empire: the Russian Empire and its rivals (New Haven 2000).

Lightfoot/Martinez 1995
K. G. Lightfoot/A. Martinez, Frontiers and Boundaries in Archaeological Perspective. Annual Review of Anthropology 24, 1995, 471–492.

Limberis/Marchenko 2003
N. Iu. Limberis/I. I. Marchenko, Stekliannye sosudy pozdneellinisticheskogo i rimskogo vremeni iz Prikuban'ia. Materialy i issledovaniia po arkheologii Kubani 3 (Krasnodar 2003) 106–183. Н. Ю. Лимберис/И. И. Марченко, Стеклянные сосуды позднеэллинистического и римского времени из Прикубанья. Материалы и исследования по археологии Кубани 3 (Краснодар 2003) 106–183.

Lin 1985
Lin Gan 林幹, Xiongnu tongshi 匈奴通史 (Beijing 1985).

Lin 1993
Lin Yun 林沄, Guanyu Zhongguo de dui Xiongnu zuyuan de kaoguxue yanjiu 关于中国的对匈奴族源的考古学研究. Nei Menggu wenwu kaogu 1993, 2, 127–141.

Linduff 1997
K. M. Linduff, An archaeological overview. In: E. Bunker, Ancient Bronzes of the Eastern Eurasian Steppes from the Arthur M. Sackler Collections (New York 1997) 18–75.

Linduff 2008
K. M. Linduff, The Gender of Luxury and Power among the Xiongnu. In: K. Linduff/K. S. Rubin-

son (eds.), Are All Warriors Male? Gender roles on the ancient Eurasian Steppe (Lanham 2008) 175–212.

LINDUFF 2009
K. M. Linduff, Production of signature artifacts for the nomad market in the state of Qin during the late Warring States period in China (4th–3rd century BCE). In: J. Mei/Th. Rehren (eds.), Metallurgy and Civilisation. Eurasia and Beyond. Proceedings of the 6th International Conference on the Beginnings of the use of Metals and alloys (BUMA VI) (London 2009) 90–96.

LINDUFF/RUBINSON 2010
K. M. Linduff/K. S. Rubinson, Exchange of Metallurgical Technology, Objects and People in Eurasia in the late 1st millennium BCE–early 1st millennium CE. In: Drevnie kul'tury Evrazii. Materialy mezhdunarodnoi nauchnoi konferentsii, posviashchennoi 100-letiiu so dnia rozhdeniia A. N. Bernsthama (Sankt-Peterburg 2010) 172–182. Древние культуры Евразии. Материалы международной научной конференции, посвящённой 100-летию со дня рождения А. Н. Бернштама (Санкт-Петербург 2010) 172–182.

LI 1992
Li Xingsheng 李興盛, Nei Menggu Zhuozi xian Sandaoying gucheng diaocha 内蒙古卓資縣三道營古城調查. Kaogu 1992, 5, 418–430.

LI 2001
Li Yiyou 李逸友, Zhongguo beifang changcheng kaoyi 中國北方長城考述. Nei Menggu wenwu kaogu 2001, 1, 1–51.

LITVINSKII 1973
B. A. Litvinskii, Ukrasheniia iz mogil'nikov zapadnoi Fergany. Mogil'niki zapadnoi Fergany III (Moskva 1973). Б. А. Литвинский, Украшения из могильников западной Ферганы. Могильники западной Ферганы III (Москва 1973).

LIU 1996
L. Liu, Settlement Patterns, Chiefdom Variability, and the Development of Early States in North China. Journal of Anthropological Archaeology 15, 3, 1996, 237–288.

LIU 2004
L. Liu, The Chinese Neolithic: Trajectories to Early States (Cambridge, NewYork 2004).

LIU 2002
Liu Xuetang 劉學堂, Xinjiang Yilihe Liuyu kaogu xinfaxian 新疆伊犁河流域考古新發現. Xiyu yanjiu 西域研究 2002, 1, 109–110.

LIU 2003
Liu Xujie 劉敘傑, Zhongguo gudai jianzhu shi 中國古代建築史 (Beijing 2003).

LIU/BAI 2010
Liu Qingzhu 劉慶柱/Bai Yunxiang 白雲翔 (eds.), Zhongguo kaoguxue. Qin Han juan 中國考古學. 秦漢卷 (Beijing 2010).

LIU/JI 2001
Liu Chaoying 劉超英/Ji Yankun 冀艷坤, Hebei sheng wenwu yanjiu suo zhengji de gudai qingtong daigou河北省文物研究所徵集的青銅代溝. In: Hebei sheng kaogu wenji 河北省考古文集/Hebei sheng kaogu wenwu yanjiusuo bian 河北省考古文物研究所編 (Beijing 2001) 490–512.

LIU/LI 2002
Liu Xuetang 刘学堂/Li Suyuan 李溯源, Xinjiang yilihe liuyu kaogu xinfaxian 新疆伊犁河流域考古新发现. Xiyu yanjiu 西域研究 2002, 1, 109–110.

LIVSHITS 2003
V. A. Livshits, Three silver bowls from the Isakovka burial-ground No. 1 with Khwarezmian and Parthian inscriptions. Ancient Civilizations from Scythia to Siberia 9, 1–2, 2003, 147–172.

LOBODA ET AL. 2002
I. I. Loboda/A. E. Puzdrovskij/J. P. Zajcev, Prunkbestattungen des 1. Jh. n. Chr. in der Nekropole Ust' Al'ma auf der Krim. Eurasia Antiqua 8, 2002, 295–346.

LOEWE 1964
M. Loewe, Some Military Despatches of the Han Period. T'oung Pao 51, 1964, 335–354.

LOEWE 1967
M. Loewe, Records of Han Administration, 2 Vols. (Cambridge 1967).

LOEWE 2000
M. Loewe, A biographical dictionary of the Qin, Former Han & Xin periods (221 BC–AD 24). Handbuch der Orientalistik, Abteilung 4. China Band 16 (Leiden, Boston 2000).

L'OR 1995
Entre Asie et Europe. L'or des Sarmates. Noma-

des des Steppes dans l'Antiquité. Exhibition catalogue Abbaye de Daoulas (Daoulas 1995).

L'or 2001
L'or des Amazones. Peuples nomades entre Asie et Europe VIe siècle av. J.-C. – IVe siècle apr. J.-C. (Paris 2001).

Lorentz 2008
K. Lorentz, From Bodies to Bones and Back: theory and human bioarchaeology. In: H. Schutkowski (ed.), Between Biology and Culture. Cambridge Studies in Biological and Evolutionary Anthropology 56 (Cambridge 2008) 273– 303.

Lu/Shan 2007
Lu Yan 盧巖/Shan Yueying 單月英, Xihan muzang chutu de dongwuwen yaoshipai 西漢墓葬出土的動物動物紋腰飾牌. Kaogu yu wenwu 2007, 4, 45–55.

Lucy 2005
S. Lucy, The archaeology of age. In: M. Diaz-Andreu/S. Lucy/S. Babic/D. N. Edwards (eds.), The Archaeology of Identity: approaches to gender, age, status, ethnicity and religion (London 2005).

Lund Hansen 1988
U. Lund Hansen, Römischer Import im Norden. Warenaustausch zwischen dem Römischen Reich und dem freien Germanien während der Kaiserzeit unter besonderer Berücksichtigung Nordeuropas. Nordiske Fortidsminder B 10 (København 1987).

Luneva 2001
V. Luneva, Iuvelirnye izdeliia iz Kampyrtepa. Materialy Tokharistanskoi Ekspeditsii 2 (Tashkent 2001) 113–125. В. Лунева, Ювелирные изделия из Кампыртепа. Материалы Тохаристанской Экспедиции 2 (Ташкент 2001) 113–125.

Luoyang 1959
Luoyang qu kaogu fajue dui 洛陽區考古發掘隊, Luoyang shaogou Han mu 洛陽燒溝漢墓 (Beijing 1959).

Ma 1962
Ma Changshou 馬長壽, Bei di yu Xiongnu 北狄與匈奴 (Beijing 1962).

Ma 1998
Ma Jinhong 馬今洪. Han jing 漢鏡 (Shanghai 1998).

Ma 2005
Ma Liqing 馬利清, Yuan Xiongnu, Xiongnu. lishi yu wenhua de kaoguxue tansuo 原匈奴、匈奴. 歷史與文化的考古學探索 (Huhehaote 2005).

Ma/Sun 1992
Y. Ma/Y. Sun, The Western Regions under the Hsiung-nu and the Han. In: J. Harmatta (ed.), History of civilizations of Central Asia, Vol. II. The development of sedentary and nomadic civilizations: 700 B.C. to A.D. 250 (Paris 1992) 227–246.

Machicek 2011
M. L. Machicek, Reconstructing Diet and Health in Early Nomadic Pastoralist Communities of Inner Asia. PhD Dissertation, University of Sheffield 2011.

Maenchen-Helfen 1973
O. Maenchen-Helfen, The World of the Huns. Studies in their history and culture (Berkeley 1973).

Magail 2003
J. Magail, Entre la steppe et le ciel. In: Mongolie 2003, 183–208.

Magail 2005
J. Magail, Les "Pierres à cerfs" des vallées Hunuy et Tamir en Mongolie. Bulletin du Muée d'Anthropologie Préhistorique de Monaco 45, 2005, 41–56.

Maidar 1971
D. Maidar, Arkhitektura i gradostroitel'stvo Mongolii. Ocherki po istorii [=Mongolyn arkhitektur ba khot Baiguulalt] (Moskva 1971). Д. Майдар, Архитектура и градостроительство Монголии. Очерки по истории. Монголын архитектур ба хот Байгуулалт (Москва 1971).

Maier 2006
C. S. Maier, Among empires: American ascendancy and its predecessors (Cambridge 2006).

Maiskii 1921
I. M. Maiskii, Sovremennaia Mongoliia. Otchet Mongol'skoi ekspeditsii, snariazhennoi irkutskoi kontoroi Vserossiiskago tsentral'nogo soiuza potrebitel'nykh obshchestv "Tsentro-soiuz" (Irkutsk 1921). И. М. Майский, Современная Монголия. Отчет Монгольской экспедиции снаряженной иркутской конторой Всероссийского центрального союза потребительных обществ "Центро-союз" (Иркутск 1921).

MAKAREWICZ 2010
Ch. Makarevich, Khünnü naryn malyn övölzhöö Baga Gazryn chuluuny malyn iasand khiisen zooarkheologi ba izotopyn sudalgaa. In: Amartüvshin/Honeychurch 2010, 436–449. Ш. Макаревич, Хүннү нарын малын өвөлжөө Бага Газрын чулууны малын яасанд хийсэн зооархеологи ба изотопын судалгаа. In: Amartüvshin/Honeychurch 2010, 436–449.

MAKAREWIZ/TUROSS 2006
C. Makarewicz/N. Tuross, Foddering by Mongolian pastoralists is recorded in the stable carbon ($\delta^{13}C$) and nitrogen ($\delta^{15}N$) isotopes of caprine dentinal collagen. Journal of Archaeological Science 33, 2006, 862–870.

MAKSIMENKO/BEZUGLOV 1987
V. E. Maksimenko/S. I. Bezuglov, Pozdensarmatskie pogrebeniia v kurganakh na reke Bystroi. Sovetskaia Arkheologiia 1997, 1, 183–191. В. Е. Максименко/С. И. Безуглов, Позднесарматские погребения в курганах на реке Быстрой. Советская Археология 1987, 1, 183–191.

MAKSIMOVA ET AL. 1968
A. G. Maksimova/M. S. Mershchiev/B. I. Vainberg/L. M. Levina, Drevnosti Chardary. Arkheologicheskie issledovaniia v zone Chardarinskogo vodokhranilishcha (Alma-Ata 1968). А. Г. Максимова/М. С. Мерщиев/Б. И. Вайнберг/Л. М. Левина, Древности Чардары. Археологические исследования в зоне Чардаринского водохранилища (Алма-Ата 1968).

MALASHEV 2000
V. Iu. Malashev, Periodizatsiia remennikh garnitur pozdnesarmatskogo vremeni. In: Sarmaty i ikh Sosedi na Donu. Materialy i issledovaniia po arkheologii Dona 1 (Rostov-na-Donu 2000) 194–232. В. Ю. Малашев, Периодизация ременних гарнитур позднесарматского времени. In: Сарматы и их Соседи на Дону. Материалы и исследования по археологии Дона 1 (Ростов-на-Дону 2000) 194–232.

MALAU-ADULI ET AL. 2003
B. S. Malau-Aduli/L. O. Eduvie/C. A. M. Lakpini/A. E. O. Malau-Aduli, Variations in liveweight gains, milk yield and composition of Red Sokoto goats fed crop residue-based supplements in the subhumid zone of Nigeria. Livestock Production. Science 83, 2003, 63–71.

MAMADAKOV 1987
Iu. T. Mamadakov, O pamiatnikakh pervoi poloviny I tys. n.e. v Gornom Altae. In: Iu. F. Kiriushin/V. I. Matiushchenko/L. A. Chindina (red.), Arkheologicheskie issledovaniia na Altae (Barnaul 1987) 197–203. Ю. Т. Мамадаков, О памятниках первой половины I тыс. н.э. в Горном Алтае. In: Ю. Ф. Кирюшин/В. И. Матющенко/Л. А. Чиндина (ред.), Археологические исследования на Алтае (Барнаул 1987) 197–203.

MAMONTOV 2002
V. I. Mamontov, Sarmatskie pogrebeniia iz kurgannogo mogil'nika Pisarevka II. Nizhnevolzhskii arkheologicheskii vestnik 5, 2002, 251–259. В. И. Мамонтов, Сарматские погребения из курганного могильника Писаревка II. Нижневолжский археологический вестник 5, 2002, 251–259.

MANDEL'SHTAM 1966
A. M. Mandel'shtam, Kochevniki na puti v Indiiu. Trudy Tadzhikskoi Arkheologicheskoi ekspeditsii Instituta Arkheologii AN SSSR i Instituta Istorii im. Donisha AN Tadzhikskoi SSR. Materialy i Issledovaniia po Arkheologii SSSR 136 (Moskva, Leningrad 1966). А. М. Мандельштам, Кочевники на пути в Индию. Труды Таджикской Археологической экспедиции Института Археологии АН СССР и Института Истории им. Дониша АН Таджикской ССР. Материалы и Исследования по Археологии СССР 136 (Москва, Ленинград 1966).

MANDEL'SHTAM 1975
A. M. Mandel'shtam, Pamiatniki kochevnikov kushanskogo vremeni v Severnoi Baktrii. Trudy Tadzhikskoi Arkheologicheskoi ekspeditsii Instituta Arkheologii AN SSSR i Instituta Istorii im. A. Donisha AN Tadzhikskoi SSR 7 (Leningrad 1975). А. М. Мандельштам, Памятники кочевников кушанского времени в Северной Бактрии. Труды Таджикской археологической экспедиции института археологии АН СССР и Института Истории им. А. Дониша АН Таджикской ССР 7 (Ленинград 1975).

MANDEL'SHTAM/STAMBUL'NIK 1992
A. M. Mandel'shtam/E. U. Stambul'nik, Gunno-

sarmatskii period na territorii Tuvy. In: Stepnaia polosa 1992, 196–205. А. М. Мандельштам/Э. У. Стамбульник, Гунно-сарматский период на территории Тувы. In: Stepnaia polosa 1992, 196–205.

Mania 1963
D. Mania, Archäologische Studien in der zentralen Mongolei. Wissenschaftliche Zeitschrift der Martin-Luther Universität Halle-Wittenberg 12. Gesellschaft- und Sprachwissenschaftliche Reihe 7/8, 1963, 847–888.

Mann 1986
M. Mann, The sources of social power, I: a history of power from the beginning to A.D. 1760 (Cambridge 1986).

Mann 2003
M. Mann, Incoherent empire (London 2003).

Mantsevich 1982
A. P. Mantsevich, Finds on the Zaporozhe Barrow: New Light on the Siberian Collection of Peter the Great. American Journal of Archaeology 86, 1982, 469–474.

Maoqinggou 1992
Th. Höllmann/G. Kossack, Maoqinggou. Ein eisenzeitliches Gräberfeld in der Ordos-Region (Innere Mongolei). Materialien zu Allgemeinen und Vergleichende Archäologie 50 (Mainz 1992).

Marchenko 1996
I. I. Marchenko, Siraki Kubani. Po Materialam kurgannykh pogrebenii Nizhnei Kubani (Krasnodar 1996). И. И. Марченко, Сираки Кубани. По материалам курганных погребений Нижней Кубани (Краснодар 1996).

Margulan 1966
A. Kh. Margulan, Drevniaia kul'tura Tsentral'nogo Kazakhstana (Alma-Ata 1966). А. Х. Маргулан, Древняя культура Центрального Казахстана (Алма-Ата 1966).

Markov 1976
G. E. Markov, Kochevniki Azii: struktura khoziaistva i obshchestvennoi organizatsii (Moskva 1976). Г. Е. Марков, Кочевники Азии: структура хозяйства и общественной организации (Москва 1976).

Markov 2002
S. Markov, Astragaly v pogrebal'noi obriadnosti epokhi bronzy Iuzhnogo Zaural'ia. Vestnik obshchestva otkrytykh issledovanii drevnosti 1, 2002, 39–48. С. Марков, Астрагалы в погребальной обрядности эпохи бронзы Южного Зауралья. Вестник общества открытых исследований древности 1, 2002, 39–48.

Martinova 1988
G. S. Martinova, Beginning of the Hunnic Epoch in South Siberia. Arctic Anthropology 25, 2, 1988, 61–83.

Marx 1977
E. Marx, The Tribe as a Unit of Subsistence: Nomadic Pastoralism in the Middle East. American Anthropologist 79, 1977, 343–363.

Masanov 1995
N. E. Masanov, Kochevaia tsivilizatsiia kazakhov: osnovy zhiznedeiatelnosti nomadnogo obshchestva (Moskva, Almaty 1995). Н. Э. Масанов, Кочевая цивилизация казахов: основы жизнедятельности номадного общества (Москва, Алматы 1995).

Masumoto 1993
T. Masumoto, O bronzovykh zerkalakh, sluchaino obnaruzhennykh na Altae. In: Okhrana i izuchenie kul'turnogo naslediia Altaia. Tezisy nauchno-prakticheskoi konferentsii, Vol. 2 (Barnaul 1993) 248–251. Т. Масумото, О бронзовых зеркалах, случайно обнаруженных на Алтае. In: Охрана и изучение культурного наследия Алтая. Тезисы научно-практической конференции, Vol. 2 (Барнаул 1993) 248–251.

Mathiesen 1992
H. E. Mathiesen, Sculpture in the Parthian Empire. A Study in Chronology (Aarhus 1992).

Matiushchenko/Tataurova 1997
V. I. Matiushchenko/L. V. Tataurova, Mogil'nik Sidorovka v Omskom Priirtysh'e (Novosibirsk 1997). В. И. Матющенко/Л. В. Татаурова, Могильник Сидоровка в Омском Прииртышье (Новосибирск 1997).

Matrenin 2005
S. S. Matrenin, Sposoby zakhoroneniia naseleniia Gornogo Altaia II v. do n.e. – V v. n.e. In: Izuchenie istoriko-kul'turnogo naslediia narodov Iuzhnoi Sibiri (Gorno-Altaisk 2005) 35–51. С. С. Матренин, Способы захоронения населения Горного Алтая II в. до н.э. – В в. н.э. In: Изучение

историко-культурного наследия народов Южной Сибири (Горно-Алтайск 2005) 35–51.

McIntosh 1999
S. K. McIntosh (ed.), Beyond chiefdoms: Pathways to complexity in Africa. New directions in archaeology (Cambridge 1999).

Medvedev 2003
A. P. Medvedev, The development of hierarchical structures in the bronze and early Iron Age societies of the South of Eastern Europe. In: T. Barfield/D. M. Bondarenko/N. N. Kradin (eds.), Nomadic Pathways in Social Evolution. The civilization dimension series 5 (Moscow 2003) 100–113.

Mekhovskii 1936
M. Mekhovskii, Traktat o dvukh Sarmatiiakh (Moskva 1936). М. Меховский, Трактат о двух Сарматиях (Москва 1936).

Méniel et al. 2005
P. Méniel/R.-M. Arbogast/S. Lepetz, Les animaux dans les pratiques funéraires et religieuses. In: M.-P. Horard Herbin/J.-D. Vigne (eds.), Animaux, environnements et sociétés (Paris 2005) 131–150.

Meskell 1994
L. M. Meskell, Dying young: the experience of death at Deir el Medina. Archaeological Review from Cambridge 13, 2, 1994, 35–45.

Miller 1993
D. H. Miller, Ethnogenesis and Religious Revitalization beyond the Roman Frontier: the Case of Frankish Origins. Journal of World History 4, 1993, 277–285.

Miller 2009
B. K. Miller, Power Politics in the Xiongnu Empire. Unpublished PhD Dissertation, University of Pennsylvania 2009.

Miller et al. 2006
B. Miller/F. Allard/D. Erdenebaatar/C. Lee, A Xiongnu tomb complex: Excavations at Gol Mod 2 Cemetery, Mongolia (2002–2005). Mongolian Journal of Anthropology, Archaeology and Ethnology 2, 2, 2006, 1–21.

Miller et al. 2008
B. K. Miller/J. Bayarsaikhan/Ts. Egiimaa/C. Lee, Xiongnu Elite Tomb Complexes in the Mongolian Altai. Results of the Mongol-American Hovd Archaeology Project, 2007. The Silk Road 5, 2, 2008, 27–36.

Miller et al. 2009a
B. K. Miller/J. Bayarsaikhan/Ts. Egiimaa/P. B. Konovalov/J. Logan/M. Machicek, Xiongnu Constituents of the High Mountains: Results of the Mongol-American Khovd Archaeology Project, 2008. The Silk Road 7, 2009, 8–20.

Miller et al. 2009b
B. K. Miller/J. Baiarsaikhan/Ts. Egiimaa/P. B. Konovalov/J. Logan, Elite Xiongnu Burials at the Periphery: Tomb Complexes at Takhiltyn Khotgor, Mongolian Altai. In: Bemmann et al. 2009, 301–314.

Miller et al. 2011
B. K. Miller/Zh. Baiarsaikhan/Ts. Egiima/ E. Johannesson/C. Neily/M. Machicek/J. Logan/P. B. Konovalov, Shumbuuziin-Belchir: Altain nuruuny orchim dakh' Khünnü gürnii zakh khiazgaaryn negen büleg khümüüsiin tukhai. Nüüdelchdiin öv sudlal 11, 2011, in print. Б. К. Миллэр/ Ж. Баярсайхан/Ц. Эгийма/Э. Жоханнэссон/ К. Нэйли/М. Махичэк/Ж. Логан/П. Б. Коновалов, Шумбуузийн Бэлчир: Алтайн нурууны орчим дахь Хүннү гүрний зах хязгаарын нэгэн бүлэг хүмүүсийн тухай. Нүүдэлчдийн өв судлал 11, 2011, in print.

Milner-Gulland et al. 2006
E. J. Milner-Gulland/C. Kerven/R. Behnke/I. A. Wright/A. Smailov, A multi-agent system model of pastoralist behaviour in Kazakhstan. Ecological Complexity 3, 2006, 23–36.

Minagawa/Wada 1984
M. Minagawa/E. Wada, Stepwise enrichment of ^{15}N along food chains: Further evidence and the relation between $\delta^{15}N$ and animal age. Geochimica et Cosmochima Acta 48, 1984, 1135–1140.

Miniaev 1980
S. S. Miniaev, Proizvodstvo i rasprostranenie poiasnykh plastin s zoomorfnymi izobrazheniiami (po dannym spektral'nogo analiza). In: M. A. Devlet, Sibirskie poiasnye azhurnye plastiny II v. do n.e. – I v. n.e. Arkheologiia SSSR. Svod arkheologicheskikh istochnikov D 4-7 (Moskva 1980) 29–34. С. С. Миняев, Производство и распространение поясных пластин с зооморфными изображениями (по данным спектрального ана-

лиза) In: М. А. Дэвлет, Сибирские поясные ажурные пластины II в. до н.э. – I в. н.э. Археология СССР. Свод археологических источников Д 4-7 (Москва 1980) 29–34.

Miniaev 1983a
S. S. Miniaev, Spektroanaliticheskie issledovaniia bronzovykh izdelii siunnu. In: R. S. Vasil'evskii (otv. red.), Ispol'zovanie metodov estestvennykh i tochnykh nauk pri izuchenii drevnei istorii Zapadnoi Sibiri. Tezisy dokladov i soobshchenii k nauchnoi konferentsii (6–8 aprelia 1983 g.) (Barnaul 1983) 33–35. С. С. Миняев, Спектроаналитические исследования бронзовых изделий сюнну. In: Р. С. Васильевский (отв. ред.), Использование методов естественных и точных наук при изучении древней истории Западной Сибири. Тезисы докладов и сообщений к научной конференции (6–8 апреля 1983 г.) (Барнаул 1983) 33–35.

Miniaev 1983b
S. S. Miniaev, Proizvodstvo bronzovykh izdelii u siunnu. In: Iu. F. Kiriushin (otv. red.), Drevnie gorniaki i metallurgi Sibiri. Mezhvuzovskii sbornik nauchnykh statei (Barnaul 1983) 47–84. С. С. Миняев Производство бронзовых изделий у сюнну. In: Ю. Ф. Кирюшин (отв. ред.), Древние горняки и металлурги Сибири. Межвузовский сборник научных статей (Барнаул 1983) 47–84.

Miniaev 1985
S. Minyaev, On the origin of the Xiongnu. UNESCO bulletin of international association for the study of the culture of Central Asia (Moscow) 9, 1985, 69–78.

Miniaev 1988
S. S. Miniaev, Dureny II – Mnogosloinoe poselenie v Zapadnom Zabaikal'e. Sovetskaia Arkheologiia 1988, 2, 228–233. С. С. Миняев, Дурены II – Многослоиное поселение в Западном Забайкалье. Советская Археологиия 1988, 2, 228–233.

Miniaev 1995
S. S. Miniaev, Noveishie nakhodki khudozhestvennoi bronzy i problema formirovaniia "geometricheskogo stilia" v isskustve Siunnu. Arkheologicheskie Vesti 4, 1995, 123–136. С. С. Миняев, Новейшие находки художественной бронзы и проблема формирования "геометрического стиля" в исскустве Сюнну. Археологические Вести 4, 1995, 123–136.

Miniaev 1998
S. S. Miniaev, Dyrestuiskii mogil'nik. Arkheologicheskie pamiatniki Siunnu 3 (Sankt-Peterburg 1998). С. С. Миняев, Дырестуйский могильник. Археологические памятники Сюнну 3 (Санкт-Петербург 1998).

Miniaev 2000
S. S. Minyaev, The origins of the "Geometric Style" in Hsiung nu Art. In: J. Davis-Kimball/E. M. Murphy/L. Koryakova/L. T. Yablonsky (eds.), Kurgans, Ritual Sites, and Settlements. Eurasian Bronze and Iron Age. British Archaeological Repors International Series 890 (Oxford 2000) 293–303.

Miniaev 2009
S. S. Miniaev, Elitnyi kompleks siunnuskikh zakhoronenii v padi Tsaram (Zabaikal'e). Arkheologiia, ethnografiia i antropologiia Evrazii 2009, 2, 49–58. С. С. Миняев, Элитный комплекс сюннуских захоронений в пади Царам (Забайкалье). Археология, этнография и антропология Евразии 2009, 2, 49–58.

Miniaev/Elikhina 2009
S. S. Miniaev/J. Elikhina, On the Chronology of the Noyon uul Barrows. The Silk Road 7, 21–35.

Miniaev/Sakharovskaia 2002
S. S. Miniaev/L. M. Sakharovskaia, Soprovoditel'nye zakhoroneniia "tsarskogo" kompleksa No. 7 v Mogil'nike Tsaram. Arkheologicheskie Vesti 9, 2002, 86–118. С. С. Миняев/Л. М. Сахаровская, Сопроводительные захоронения «царского» комплекса No. 7 в Могильнике Царам. Археологические Вести 9, 2002, 86–118.

Miniaev/Sakharovskaia 2006
S. S. Miniaev/L. M. Sakharovskaia, Investigation of a Xiongnu Royal Tomb Complex in the Tsaraam Valley. The Silk Road 4, 1, 2006, 47–51.

Miniaev/Sakharovskaia 2007a
S. S. Miniaev/L. M. Sakharovskaia, Investigation of a Xiongnu Royal Tomb Complex in the Tsaraam Valley, Part 2: The Inventory of Barrow No. 7 and the Chronology of the Site. The Silk Road 5, 1, 2007, 44–56.

MINIAEV/SAKHAROVSKAIA 2007b
S. S. Miniaev/L. M. Sakharovskaia, Elitnyi kompleks zakhoronenii Siunnu v Padi Tsaram. Rossiiskaia Arkheologiia 2007, 1, 159–166. С. С. Миняев/Л. М. Сахаровская, Элитный комплекс захоронений сюнну в пади Царам. Российская Археология 2007, 1, 159–166.

MISSION 2001
Mission archéologique française en Mongolie, Pratiques funéraires des Xiongnu. Travaux de la Mission archéologique française en Mongolie réalisés durant les campagnes de 1998 et 1999 dans la nécropole xiongnu d'Egiin Gol. Unpublished Report Paris 2001.

MISSION 2001–2007
Mission archéologique française en Mongolie 2007: Mission archéologique française en Mongolie, Rapports d'activité années 2001–2007. Unpublished Field Reports Paris 2001–2007.

MOGIL'NIKOV 1992
V. A. Mogil'nikov, Khunnu Zabaikal'ia. In: Stepnaia polosa 1992, 254–273. В. А. Могильников, Хунну Забайкалья. In: Stepnaia polosa 1992, 254–273.

MOGIL'NIKOV 1997
V. A. Mogil'nikov, Naselenie Verkhnego Priob'ia v seredine – vtoroi polovine I tysiacheletiia do n.e. (Moskva 1997). В. А. Могильников, Население Верхнего Приобья в середине – второй половине I тысячелетия до н.э. (Москва 1997).

MOLODIN/EFROMOVA 1998
V. I. Molodin/N. S. Evremova, Kollektsiia astragalov sviatilishcha Kucherla-1. Problemy arkheologii, etnografii, antropologii Sibiri i sopredel'nykh territorii 4. Materialy VI Godovoi itogovoi sessii Instituta arkheologii i etnografii SO RAN (Novosibirsk 1998) 300–309. В. И. Молоди/Н. С. Ефремова, Коллекция астрагалов святилища Кучерла-1. Проблемы археологии, этнографии, антропологии Сибири и сопредельных территорий 4. Материалы VI Годовой итоговой сессии Института археологии и этнографии СО РАН (Новосибирск 1998) 300–309.

MONGGOL 2009
Monggol, ch'owŏn e p'in kodae munhwa 몽골, 초원 에 핀 고대문화. Mongolyn ertnii soel. Монголын эртний соёл. The ancient culture of Mongolia. Catalogue of the exhibition at Busan Museum March 5 – May 17, 2009 (Busan 2009).

MONGOL 2003
Mongol Ulsyn tüükh (Ulaanbaatar 2003). Монгол Улсын түүх (Улаанбаатар 2003).

MONGOLIE 2003
Mongolie: Le premier empire des steppes (Arles 2003).

MONGOL NUTAG 1999
Mongol nutag dakh' tüükh soelyn dursgal (sedevchilsen lavlakh) (Ulaanbaatar 1999). Монгол нутаг дахь түүх соелын дурсгал (сэдэвчилсэн лавлах) (Улаанбаатар 1999).

MON-SOL 2001
Monggol Morin T'olgoi hyungno mudŏm 몽골 모린톨고이흉노무덤. Han-Mong kongdong haksul chosa pogo, che 2-chaek. [Mon-Sol project 1999, Mon-Sol project 2000. Research report on Korean-Mongolian joint expedition in Mongolia 2] (Seoul 2001).

MON-SOL 2003
Monggol Hodŭgin T'olgoi Hyungno mudŏm 몽골호드긴톨고이흉노무덤. Han-Mong kongdong haksul chosa pogo 3 [Hunnu Tombs at Hudgiin Tolgoi in Mongolia. Research Report on Korean-Mongolian Joint Expedition in Mongolia 3] (Seoul 2003).

MON-SOL 2004
Kungnip Chungang Pangmulgwan Monggol haksul chosa sŏngkwa 2002–2004. 국립 중앙 박물관 몽골 학술 조사 성과 2002–2004. Han-Mong kongdong haksul chosa pogo 4 [Research report on Korean-Mongolian joint expedition in Mongolia 4] (Seoul 2004).

MONSON/SCHEIDEL FORTHCOMING
A. Monson/W. Scheidel (eds.), Fiscal regimes and the political economy of premodern states.

MOOREY 1967
P. R. S. Moorey, Some Ancient Metal Belts: Their antecedents and Relatives. Iran 5, 1967, 83–98.

MOOREY ET AL. 1981
P. R. S. Moorey/E. Bunker/E. Porada/G. Markoe, Ancient Bronzes Ceramics and Seals. The Nasli M. Heeramaneck Collection of Ancient Near Eastern, Central Asiatic, and European Art (Los Angeles 1981).

Mordvintseva 1999
V. I. Mordvintseva, Nabor falarov iz kurgana 28 mogil'nika Zhutovo Volgogradskoi oblasti. Nizhnevolzhskii Arkheologicheskii Vestnik 2, 1999, 42–51. В. И. Мордвинцева, Набор фаларов из кургана 28 могильника Жутово Волгоградской области. Нижневолжский археологический вестник 2, 1999, 42–51.

Mordvintseva 2000
V. I. Mordvintseva, Nabor serebrianoi posudy iz sarmatskogo mogil'nika Zhutovo. Rossiiskaia Arkheologiia 2000, 1, 144–153. В. И. Мордвинцева, Набор серебряной посуды из сарматского могильника Жутово. Российская Археология 2000, 1, 144–153.

Mordvintseva 2003
V. I. Mordvintseva, Polikhromnyi zverinyi stil' (Simferopol' 2003). В. И. Мордвинцева, Полихромный звериный стиль (Симферополь 2003).

Mordvintseva/Myskov 2005
V. I. Mordvintseva/E. P. Myskov, Pogrebenie s ostatkami kitaiskoi lakovoi shkatulki iz mogil'nika Oktiabr'skii-V. Nizhnevolzhskii Arkheologicheskii Vestnik 7, 2005, 314–318. В. И. Мордвинцева/Е. П. Мысков, Погребение с остатками китайской лаковой шкатулки из могильника Октябрьский-V. Нижневолжский археологический Вестник 7, 2005, 314–318.

Mordvintseva/Shinkar' 1999
V. I. Mordvintseva/O. A. Shinkar', Sarmatskie paradnye mechi iz fondov Volgogradskogo oblastnogo kraevedcheskogo muzeia. Nizhnevolzhskii arkheologicheskii Vestnik 2, 1999, 138–149. В. И. Мордвинцева/О. А. Шинкарь, Сарматские парадные мечи из фондов Волгоградского областного краеведческого музея. Нижневолжский археологический вестник 2, 1999, 138–149.

Moriyasu/Ochir 1999
T. Moriyasu/A. Ochir, Mongoru koku genzon iseki hibun chōsa kenkyū hōkoku 蒙古国現存遺跡碑文調査研究報告. Provisional Report of Researches on Historical Sites and Inscriptions in Mongolia from 1996 to 1998 (Tokyo 1999).

Morris/Scheidel 2009
I. Morris/W. Scheidel, The Dynamics of Ancient Empires: State Power from Assyria to Byzantium (New York 2009).

Moshkova 1960
M. G. Moshkova, Rannesarmatskie bronzovye priashki. In: Drevnosti Nizhnego Povolzh'ia 2. Materialy i Issledovaniia po Arkheologii SSSR 78 (Moskva 1960). М. Г. Мошкова, Раннесарматские бронзовые пряжки. In: Древности Нижнего Поволжья 2. Материалы и Исследования по Археологии СССР 78 (Москва 1960).

Moshkova 1963
M. G. Moshkova, Pamiatniki prokhorovskoi kul'tury. Arkheologiia SSSR. Svod Arkheologicheskikh Istochnikov D 1-10 (Moskva 1963). М. Г. Мошкова, Памятники прохоровской культуры. Археология СССР. Свод Археологических Источников Д 1-10 (Москва 1963).

Motyl 2001
A. J. Motyl, Imperial ends: the decay, collapse, and revival of empires (New York 2001).

Müller 1997
M. Müller, Die römischen Bronzegefäße von Haltern. Ausgrabungen und Funde in Westfalen-Lippe 9a, 1997, 5–40.

Münkler 2007
H. Münkler, Empires: the logic of world domination from ancient Rome to the United States (Cambridge 2007).

Murphy 2003
E. M. Murphy, Iron Age Archaeology and Trauma from Aymyrlyg, South Siberia. BAR International Series 1152 (Oxford 2003).

Murphy 2007
C. Murphy, Are we Rome? The fall of an empire and the fate of America (Boston 2007).

Musche 1988
B. Musche, Vorderasiatischer Schmuck zur Zeit der Arsakiden und der Sassaniden. Handbuch der Orientalistik 7,1: Der alte Vordere Orient 2 B 5 (Leiden, New York, u. a. 1988).

Musée Cernuschi 2005
Musée Cernuschi. Art chinois. Musée Cernuschi acquisitions 1993–2004 (Paris 2005).

Nagata 1989
Nagata Hidemasa 永田英正, Kyoen Kankan no kenkyū 居延漢簡の研究 (Kyōto 1989).

NANGNANG 2001
T'ŭkpyŏlchŏn Nangnang = The ancient culture of Nangnang 특별전 낙랑. Catalog of an exhibition held at Kungnip Chungang Pangmulgwan, July 17–Sept. 2; and at Kungnip Kimhae Pangmulgwan, Sept. 25–Nov. 4, 2001 (Seoul 2001).

NAVAAN 1999
D. Navaan, Khünnügiin öv soel (Ulaanbaatar 1999). Д. Наваан, Хүннүгийн өв соёл (Улаанбаатар 1999).

NAVAAN 2002
D. Navaan, Arkheologiin 100 vaar sav (Ulaanbaatar 2002). Д. Наваан, Археологийн 100 ваар сав (Улаанбаатар 2002).

NEI MENGGU 1982
Nei Menggu zizhiqu wenwu gongzuo dui 内蒙古自治區文物工作隊, Liangcheng Yinniugou mudi qingli jianbao 凉城飲牛溝墓地清理簡報. Nei Menggu wenwu kaogu 1982, 3, 26–32.

NEI MENGGU 1984
Nei Menggu wenwu gongzuo dui 内蒙古文物工作隊, Huhehaote Ershijiazi gu cheng chutu de Xi Han tejian 呼和浩特二十甲子古城出土的西漢特檢. In: Nei Menggu wenwu ziliao wenji 内蒙古文物考古文集 (Huhehaote 1984) 113–124.

NEI MENGGU 1986
Nei Menggu wenwu gongzuodui 内蒙古文物工作隊, Maoqinggou mudi 毛慶溝墓地. In: Tian Guangjin田廣金/Guosuxin 郭素新 (eds.), E'erduosi Qingtongqi 鄂爾多斯青銅器 (Beijing 1986) 227–315.

NEI MENGGU 1989
Nei Menggu wenwu kaogu yanjiu suo 内蒙古文物考古研究所, Liangcheng xian Guoxian yaozi Mudi 涼城縣崞縣窯子墓. Kaogu xuebao 1989, 1, 57–81.

NEI MENGGU 1994
Nei Menggu wenwu kaogu yanjiusuo 内蒙古文物考古研究所, Zhalainuo'er gumu qun 1986 nian qingli fajue baogao 扎賚諾爾古墓1986年清理發掘報告. Nei Menggu wenwu kaogu wenji 1994, 1, 369–383.

NEI MENGGU 1997
Nei Menggu wenwu kaogu yanjiusuo 内蒙古文物考古研究所, Huhehaote shi Yulin Zhentaobuqi gucheng fajue jianbao 呼和浩特榆林鎮陶卜齊古城發掘簡報. In: Nei Menggu zizhiqu wenwu kaogu yanjiusuo bian 内蒙古自治區文物考古研究所編, Nei Menggu wenwu kaogu wenji 内蒙古文物考古文集 Vol. 2 (Beijing 1997) 431–443.

NEI MENGGU 2004
Nei Menggu zizhiqu wenwu kaogu yanjiusuo 内蒙古自治區文物考古研究所, Qingshuihe xian Chengzuizi yizhi fajue baogao 清水河縣城嘴子遺址發掘報告. In: Neimenggu zizhiqu wenwu kaogu yanjiusuo bian 内蒙古自治區文物考古研究所編, Neimenggu wenwu kaogu wenji 内蒙古文物考古文集 Vol. 3 (Beijing 2004) 81–128.

NEI MENGGU 2006
Nei Menggu wenwu kaogu yanjiusuo 内蒙古文物考古研究, Nei Menggu helinge'er xian Tuchengzi gucheng fajue baogao 内蒙古和林格爾縣土城子古城發掘報告. Nei Menggu wenwu kaogu 2006, 1, 9–16.

NEI MENGGU/JILIN 2001
Nei Menggu wenwu kaogu yanjiusuo 内蒙古文物考古研究所/Jilin Daxue kaogu xi 吉林大學考古係, Yuanshangdu chengzhi dongnan Zhenzishan xiqu muzang fajue jianbao 元上都城址東南砧子山西區墓葬發掘簡報. Wenwu 2001, 9, 37–51.

NEI MENGGU/QINGSHUIHE 2001
Nei Menggu wenwu kaogu yanjiusuo 内蒙古文物考古研究所/Qingshuihe xian wenwu guanlisuo 清水河縣文物管理所, Qingshuihe xian Xicha yizhi fajue jianbao 清水河縣西岔遺址發掘簡報. In: Nei Menggu zizhiqu wenwu kaogu yanjiusuo 内蒙古自治區文物考古研究所 (ed.), Wanjiazhai Shuili Shuniu Gongcheng kaogu baogao ji 萬傢寨水利樞紐工程考古報告集 (Huhehaote 2001) 60–78.

NEI MENGGU/TUOKETUO 2004
Nei Menggu zizhiqu wenwu kaogu yanjiusuo 内蒙古自治區文物考古研究所/Tuoketuo xian bowuguan 托克托縣博物館, Tuoketuo xian Heishuiquan yizhi fajue baogao 托克托縣黑水泉遺址發掘報告. In: Neimenggu zizhiqu wenwu kaogu yanjiusuo bian 内蒙古自治區文物考古研究所編, Neimenggu wenwu kaogu wenji 内蒙古文物考古文集 Vol. 3 (Beijing 2004) 153–217.

NEI MENGGU ET AL. 1994
Nei Menggu wenwu kaogu yanjiusuo 内蒙古文

物考古研究所/Hulunbei'ermeng wenwu guanli zhan 呼倫貝爾盟文物管理站/E'erguna youqi wenwu guanlisuo 額爾古納右旗文物管理所, E'erguna youqi Labudalin Xianbei muqun fajue jianbao 額爾古納右旗拉布達林鮮卑墓群發掘簡報. Nei Menggu wenwu kaogu wenji 1994, 1, 384–396.

Nei Menggu et al. 2001
Nei Menggu wenwu kaogu yanjiusuo 内蒙古文物考古研究所/Riben jingdu Zhongguo kaoguxue yanjiusuo 日本京都中國考古學研究所/Daihai diqu kaochadui 岱海地區考察隊, Yinniugou mudi 1997 nian fajue baogao 飲牛溝墓地1997年發掘報告. Daihai kaogu 2001, 2, 278–327.

Nelson 2006
A. Nelson, BGC 2006 report on human remains. Unpublished field report, Institute of Archaeology, Ulaanbaatar 2006.

Nelson et al. 2009a
A. Nelson/Ch. Amartuvshin/W. Honeychurch, A Gobi mortuary site through time: bioarchaeology at Baga Mongol, Baga Gazaryn Chuluu. In: Bemmann et al. 2009, 565–578.

Nelson et al. 2009b
A. Nelson/M. Machicek/J. Beach, BGC 2006 report on human remains. Unpublished field report, Institute of Archaeology, Ulaanbaatar 2009.

Nikolaev 2003
N. N. Nikolaev, Planigrafiia mogil'nika Bai-Dag II. In: Stepi Evrazii v Drevnosti i Srednevekov'e. Materialy mezhdunarodnoi konferentsii, posviashchennoi 100-letiiu so dnia rozhdeniia Mikhaila Petrovicha Griaznova, Vol. 2 (Sankt-Peterburg 2003) 260–263. Н. Н. Николаев, Планиграфия могильника Бай-Даг II. In: Степи Евразии в древности и средневековье. Материалы международной научной конференции, посвященной 100-летию со дня рождения Михаила Петровича Грязнова, Vol. 2 (Санкт-Петербург 2003).

Nikolaev 2010
N. N. Nikolaev, Mogil'nik khunnu v padi Orgoiton (predvaritel'noe soobshchenie). In: Drevnie kul'tury Evrazii. Materialy mezhdunarodnoi nauchnoi konferentsii, posviashchennoi 100-letiiu so dnia rozhdeniia A. N. Bernsthama (Sankt-Peterburg 2010) 186–192. Н. Н. Николаев, Могильник хунну в пади Оргойтон. In: Древние культуры Евразии. Материалы международной научной конференции, посвящённой 100-летию со дня рождения А. Н. Бернштама (Санкт-Петербург 2010) 186–192.

Ningxia/Tongxin 1988
Ningxia wenwu kaogu yanjiusuo寧夏文物考古研究所/Tongxin xian wenwu guanlisuo 同心縣文物管理所, Ningxia Tongxin xian Lijiataozi Xiongnu mu qingli jianbao 寧夏同心縣李家套子匈奴墓清理簡報. Kaogu yu wenwu 1988, 3, 17–20.

Ningxia et al. 1988
Ningxia wenwu kaogu yanjiusuo 寧夏文物考古研究所/Zhongguo shehui kexueyuan kaogusuo Ningxia kaoguzu 中國社會科學院考古所寧夏考古組/Tongxin xian wenwu guanlisuo 同心縣文物管理所, Ningxia Tongxin Daodunzi Xiongnu mudi 寧夏同心倒墩子匈奴墓地. Kaogu xuebao 1988, 3, 333–356.

Niven et al. 2004
L. Niven/P. Egeland/L. C. Todd, An inter-site comparison of enamel hypoplasia in bison: implications for paleoecology and modeling late plains archaic subsistence. Journal of Archaeological Science 31, 2004, 1783–1794.

Novgorodova et al. 1982
E. A. Novgorodova/V. V. Volkov/S. N. Korenevskij/M. M. Mamonova, Ulangom: Ein skythenzeitliches Gräberfeld in der Mongolei. Asiatische Forschungen 76 (Wiesbaden 1982).

Novikova 2000
O. G. Novikova, Istoriia Vostochnykh lakov. Obzor literatury. In: Vostochnoaziatskie laki. Metodika restavratsii, issledovaniia (Moskva 2000) 11–18. О. Г. Новикова, История Восточных лаков. Обзор литературы. In: Восточноазиатские лаки. Методика реставрации, исследования (Москва 2000) 11–18.

Noy-Meir/Seligman 1970
I. Noy-Meir/N. G. Seligman, Management of Semi-Arid Ecosystems in Israel. In: B. H. Walker (ed.), Management of Semi-Arid Ecosystems. Developments in agricultural and managed-forest ecology 7 (Amsterdam, New York 1970) 113–160.

NUBER 1972
H. U. Nuber, Kanne und Griffschale. Ihr Gebrauch im täglichen Leben und die Beigabe in Gräbern der römischen Kaiserzeit. Berichte der Römisch-Germanischen Kommission 53, 1972, 1–232.

ŌBA 1992
Ōba Osamu 大庭脩, Kankan kenkyū 漢簡研究 (Kyōto 1992).

OBEL'CHENKO 1968
O. V. Obel'chenko, Liavandakskaia priazhka (ikstorii rannikh Kushan). Obshchestvennye nauki v Uzbekistane 8, 1968, 53–56. О. В. Обельченко, Лявандакская пряжка (к истории ранних Кушан). Общественные науки в Узбекистане 8, 1968, 53–56.

OBEL'CHENKO 1978
O. V. Obel'chenko, Shakhrivaironskaia priazhka. In: O. V. Obel'chenko/Dzhan Mamed Ovezov/T. Khozhaniazov, Istoriia i arkheologiia Srednei Azii (Ashkhabad 1978) 68–81. О. В. Обельченко, Шахривайронская пряжка. In: О. В. Обельченко/Джан Мамед Овезов/Т. Хожанязов, История и археология Средней Азии (Ашхабад 1978) 68–81.

OBEL'CHENKO 1992
O. V. Obel'chenko, Kul'tura antichnogo Sogda. Po arkheologicheskim dannym VII v. do n.e. – VII v. n.e. (Moskva 1992). О. В. Обельченко, Культура античного Согда. По археологическим данным VII в. до н.э. – VII в. н.э. (Москва 1992).

ODBAATAR 2008
Ts. Odbaatar, Khulkhiin amny khünnü bulsh. Tükhiin sudlal 9, 2008, 21–30. Ц. Одбаатар, Хулхийн амны хүннү булш. Acta Historica Mongolici 9, 2008, 21–30.

ODBAATAR ET AL. 2008
Ts. Odbaatar/Zh. Baiarsaikhan/Ts. Aiuush/K. Li, Nariiny Amny Khünnü bulsh. Nüüdelchdiin öv sudlal 8, 2008, 104–111. Ц. Одбаатар/Ж. Баярсайхан/Ц. Аюуш/К. Ли, Нарийны Амны Хүннү булш. Нүүдэлчдийн өв судлал 8, 2008, 104–111.

OLSSON/HIBBS 2005
O. Olsson/D. Hibbs, Biogeography and long-run economic development. European Economic History Review 49, 2005, 909–938.

OTCHET 2007
Otchet ob issledovaniiakh v gorakh Noin-Ula 2006–2007 (pad' Sutszukte) v 2006 g. Отчет об исследованиях в горах Ноин-Ула 2006–2007 (падь Суцзуктэ) в 2006 г., Новосибирск 2006–2007. Unpublished Field Report, Novosibirsk 2007.

OTCHIR-GORIAEVA 2002
M. Otchir-Goriaeva, Das sarmatische Grab von Jaškul', Kalmykien. Eurasia Antiqua 8, 2002, 353–387.

OTGONBAATAR 2009
B. Otgonbaatar, Mongolchuudyn orshuulgyn zan üil (XX zuun) (Ulaanbaatar 2009). Б. Отгонбаатар, Монголчуудын оршуулгын зан үйл (XX зуун) (Улаанбаатар 2009).

OXUS 1989
Oxus. 2000 Jahre Kunst am Oxus-Fluss in Mittelasien. Neue Funde aus der Sowjetrepublik Tadschikistan (Zürich 1989).

PAN 2004
Pan Ling 潘玲, Xigoupan Handai mudi sihao mu de niandai ji wenhua tezheng zai tantao 西沟畔汉代墓地四号墓的年代及文化特征再探讨. Huaxia kaogu 2004, 2, 68–74.

PAN 2007
Pan Ling 潘玲, Yiwoerjia chengzhi he mudi ji xiangguan xiongnu kaogu wenti yanjiu 伊沃爾加城址和墓考古問題研究 (Beijing 2007).

PARK ET AL. 2010
J.-S. Park/E. Gelegdorj/Y.-E. Chimiddorj, Technological traditions inferred from iron artefacts of the Xiongnu Empire in Mongolia. Journal of Archaeological Science 37, 11, 2010, 2689–2697.

PARK ET AL. 2011
J.-S. Park/W. Honeychurch/A. Chunag, Ancient Bronze technology and nomadic communities of the Middle Gobi Desert, Mongolia. Journal of Archaeological Science 38, 4, 2011, 805–817.

PARKER 2003
B. J. Parker, Archaeological Manifestations of Empire: Assyria's Imprint on Southeastern Anatolia. American Journal of Archaeology 107, 4, 2003, 525–557.

Parkinson/Galaty 2009
W. A. Parkinson/M. L. Galaty, Introduction. Interaction and Ancient Societies. In: W. A. Parkinson/M. L. Galaty (eds.), Archaic State Interaction. The Eastern Mediterranean in the Bronze Age (Santa Fe 2009), 3–28.

Parzinger 2006
H. Parzinger, Die frühen Völker Eurasiens vom Neolithikum bis zum Mittelalter (München 2006).

Parzinger et al. 2009
H. Parzinger/V. I. Molodin/D. Tseveendorzh, New Discoveries in Mongolian Altai: The Warrior Grave of the Pazyryk Culture in Olon-Güüriin-Gol 10. In: Bemmann et al. 2009, 203–220.

Payne 1973
S. Payne, Kill-off patterns in sheep and goats: The mandibles from Aşvan Kale. Anatolian Studies 23, 1973, 281–303.

Peck 2000
J. A. Peck, Mongolian Lake Systems Record Past Climate Change. Maritimes 42, 3, 2000, 21–24.

Peck et al. 2002
J. A. Peck/P. Khosbayar/S. J. Fowell/R. B. Pearce/S. Ariunbileg/B. C. S. Hansen/N. Soninkhishig, Mid to Late Holocene Climate Change in North Central Mongolia as Recorded in Sediments of Lake Telmen. Palaeogeography, Palaeoclimatology, Palaeoecology 183, 2002, 135–153.

Peng 1999
Peng Wei 彭衛, Qin Han shiqi de yinshi – roulei shiwu 秦漢時期的飲食 – 肉類食物. In: Zhongguo yinshi shi 中國飲食史, Vol. 2 (Beijing 1999), 429–447.

Perlee 1957
Kh. Perlee, K istorii drevnikh gorodov i poselenii Mongolii. Sovetskaia Arkheologiia 1957, 3, 43–53. Х. Пэрлээ, К истории древних городов и поселений Монголии. Советская археология 1957, 3, 43–53.

Perlee 1961
Kh. Perlee, Mongol ard ulsyn ert, dundad üenin khot suuriny tovchoon (Ulaanbaatar 1961). Х. Пэрлээ, Монгол ард улсын эрт, дундад үенйн хот суурины товчоон (Улаанбатаар 1961).

Perlee 1962
Kh. Perlee, Ömnögov', Övörkhangai aimguudyn gov' talyn nutgaar ertnii sudlalyn khaiguul khiisen n'. Arkheologiin sudlal 2, 1963, 27–35. Х. Пэрлээ, Өмнөговь, Өвөрхангай аймгуудын говь талын нутгаар эртний судлалын хайгуул хийсэн нь. Археологийн судлал 2, 1963, 27–35.

Perlee/Maidar 1970
Kh. Perlee/D. Maidar, 1970 BNMAU-yn nutag devsger deer baigaa balgas, tuuriin büdüüvchilsen zurgiin todoikhoilolt. In: D. Maidar, Mongolyn khot togsony gurvan zurag (Ulaanbaatar 1970) 19–52. Х. Пэрлээ/Д. Майдар, 1970 БНМАУ-ын нутаг дэвсгэр дээр байгаа балгас, туурийн бүдүүвчилсэн зургийн тодойхойлолт. In: Д. Майдар, Монголын хот, тогсоны гурван зураг (Улаанбаатар 1970) 19–52.

Petrovszky 1993
R. Petrovszky, Studien zu römischen Bronzegefäßen mit Meisterstempeln. Kölner Stud. Archäologie der Römischen Provinzen 1 (Buch am Erlbach 1993).

Pharmakowsky 1914
B. Pharmakowsky, Archäologische Funde im Jahre 1913. Russland. Archäologischer Anzeiger 1914, 206–291.

Pierres à cerfs 2011
Les pierres à cerfs de la vallée du Haut Tamir. Khoid Tamiryn golyn sav nutag dakh' Bugan khöshöö (Ulaanbaatar 2011). Хойд Тамирын голын сав нутаг дахь Буган хөшөө (Улаанбаатаар 2011).

Pirazzoli-t'Serstevens 2007
M. Pirazzoli-t'Serstevens, A Chinese Inscription from a Xiongnu Elite Barrow in the Tsaraam Cemetery. The Silk Road 5, 1, 2007, 56–58.

Pitts 2008
M. Pitts, Globalizing the local in Roman Britain: An anthropological approach to social change. Journal of Anthropological Archaeology 27, 4, 2008, 439–506.

Pletneva 1982
S. A. Pletneva, Kochevniki Srednevekov'ia. Poiski istoricheskikh zakonomernostei (Moskva 1982). С. А. Плетнёва, Кочевники средневековья. Поиски исторических закономерностей (Москва 1982).

POGGI 1990
G. Poggi, The state: its nature, development and prospects (Stanford 1990).

POHL 1998
W. Pohl, Telling the Difference: Signs of Ethnic Identity. In: Pohl/Reimitz 1998, 17–69.

POHL 1999
W. Pohl, Social Language, Identities and the Control of Discourse. In: E. Chrysos/I. Wood (eds.), East and West. Modes of Communication. Proceedings of the First Plenary Conference in Merida. The Transformation of the Roman World 5 (Leiden, Boston, Köln 1999) 127–141.

POHL 2002
W. Pohl, Die Awaren. Ein Steppenvolk in Mitteleuropa 567–822 n. Chr. 2nd. ed. (München 2002).

POHL/REIMITZ 1998
W. Pohl/H. Reimitz (eds.), Strategis of Distinction. The Construction of Ethnic communities, 300–800. The Transformation of the roman World 2 (Leiden, Boston, Köln 1998).

POLOS'MAK 1994
N. V. Polos'mak, "Steregushchie zoloto grify" (ak-alakhinskie kurgany) (Novosibirsk 1994). Н. В. Полосьмак, "Стерегущие золото грифы" (ак-алахинские курганы) (Новосибирск 1994).

POLOS'MAK 2001
N. V. Polos'mak, Vsadniki Ukoka (Novosibirsk 2001). Н. В. Полосьмак, Всадники Укока (Новосибирск 2001).

POLOS'MAK/BARKOVA 2005
N. V. Polos'mak/L. L. Barkova, Kostium i tekstil' pazyryktsev Altaia (IV – III vv. do n.e.) (Novosibirsk 2005). Н. В. Полосьмак/Л. Л. Баркова, Костюм и текстиль пазырыкцев Алтая (IV – III вв. До н.э.) (Новосибирск 2005).

POLOS'MAK ET AL. 2008a
N. V. Polos'mak/E. S. Bogdanov/D. Tseveendorzh/N. Erdene-Ochir, The burial construction of Noin Ula mound 20, Mongolia. Archaeology, Ethnology and Anthropology of Eurasia 2008, 2, 77–87.

POLOS'MAK ET AL. 2008b
N. V. Polos'mak/E. S. Bogdanov/D. Tseveendorzh/N. Erdene-Ochir, Izuchenie pogrebal'nogo sooruzheniia kurgana 20 v Noin-ule (Mongoliia). Arkheologiia, Etnografiia i Antropologiia Evrazii 2008, 2, 77–87. Н. В. Полосьмак/Е. С. Богданов/Д. Цэвээндорж/Н. Эрдэнэ-Очир, Изучение погребального сооружения кургана 20 в Ноин-уле (Монголия). Археология, этнография и антропология Евразии 2008, 2, 77–87.

POLOS'MAK ET AL. 2008c
N. V. Polosmak/E. S. Bogdanov/D. Tseveendorzh/N. Erdene-Ochir, The Han Chariot from Noin Ula mound 20 (Mongolia). Archaeology, Ethnology and Anthropology of Eurasia 2008, 4, 63–69.

PORTER 1994
B. D. Porter, War and the rise of the state: the military foundations of modern politics (New York 1994).

PORTER 2006
B. Porter, Empire and superempire: Britain, America and the world (New Haven 2006).

POST 1995
A. Post, Parthische Gürtelschnallen aus dem Iran. Boreas 18, 1995, 247–254.

POUSAZ/RAMSEYER 2005
N. Pousaz/D. Ramseyer, Mission archéologique helvético-mongole à Boroo Gol, Mongolie: campagne de fouilles 2005. Swiss-Liechtenstein Foundation for Archaeological Research Abroad 2005, 231–249.

POUSAZ/RAMSEYER 2006
N. Pousaz/D. Ramseyer, Mission archéologique helvético-mongole à Boroo Gol, Mongolie: campagne de fouilles 2006. Annual report Swiss-Liechtenstein Foundation for Archaeological Research Abroad 2006, 175–188.

POUSAZ ET AL. 2007
N. Pousaz/D. Ramseyer/Ts. Turbat, Mission archéologique helvético-mongole à Boroo Gol, Mongolie: campagne de fouilles 2007. Swiss-Liechtenstein Foundation for Archaeological Research Abroad 2007, 219–232.

POUSAZ ET AL. FORTHCOMING
N. Pousaz/D. Ramseyer/Ts. Turbat (eds.), L'habitat Xiongnu de Boroo Gol. Mission archéologique suisso-mongole dans la province de

Selenge, Mongolie. Terra Archaeologica 7, SLSA forthcoming.

Prawdin 1953
M. Prawdin, The Mongol Empire: Its Rise and Legacy. 3rd ed. (London 1953).

Pritsak 1954
O. Pritsak, Die 24 Ta-ch'en: Studie zur Geschichte des Verwaltungsaufbaus der Xiongnu Reiche. Oriens Extremus 1, 2, 1954, 178–202.

Propp 1976
V. Ia. Propp, Fol'klor i deistvitel'nost' (Moskva 1976). В. Я. Пропп, Фольклор и действительность (Москва 1976).

Prouse 2005
T. Prouse, Mongol-American Egiin Gol-Selenge Valley Survey Report: Phytolith Analysis of Sediments. Unpublished MA dissertation, Institute of Archaeology, University College London 2005.

Przheval'skii 1875
N. M. Przheval'skii, Mongoliia i strana tangutov, Vol. 1 (Sankt-Peterburg 1875). Н. М. Пржевальский, Монголия и страна тангутов, Vol. 1 (Санкт-Петербург 1875).

Psarras 1995
S.-K. Psarras, Xiongnu culture: Identification and dating. Central Asiatic Journal 39, 1, 1995, 102–136.

Psarras 2003
S.-K. Psarras, Han and Xiongnu. A reexamination of cultural and political relations. Monumenta Serica 51, 2003, 55–236.

Psarras 2004
S.-K. Psarras, Han and Xiongnu. A reexamination of cultural and political relations (II). Monumenta Serica 52, 2004, 37–93.

Pshenitsyna 1992
M. N. Pshenitsyna, Tesinskii Etap. In: Stepnaia polosa 1992, 224–235. М. Н. Пшеницына, Тесинский Этап. In: Stepnaia polosa 1992, 224–235.

Pulleyblank 1962
E. G. Pulleyblank, The Consonantal System of Old Chinese. Asia Major 9, 1962, 58–144, 206–265.

Pulleyblank 2000
E. G. Pulleyblank, The Hsiung-nu. In: H. R. Roemer (ed.), History of the Turkic Peoples in the Pre-Islamic Period. Histoire des Peuples Turcs à l'Époque Pré-Islamique. Philologiae Historiae Turcicae Fundamenta 1 (= Philologiae Turcicae Fundamenta 3) (Berlin 2000) 52–75.

Purcell/Spurr 2006
D. E. Purcell/K. C. Spurr, Archaeological Investigations of Xiongnu Sites in the Tamir River Valley: Results of the 2005 Joint American-Mongolian Expedition to Tamiryn Ulaan Khoshuu, Ogii nuur, Arkhangai aimag, Mongolia. The Silk Road, 4, 1, 2006, 20–31.

Puzdrovskii 2007
A. E. Puzdrovskii, Krymskaia Skifiia II v. do n.e. – III v. n.e. Pogrebal'nye pamiatniki (Simferopol' 2007). А. Е. Пуздровский, Крымская Скифия II в. до н.э. – III в. н.э. Погребальные памятники (Симферополь 2007).

Puzdrovskij/Zajcev 2004
E. Puzdrovskij/Ju. P. Zajcev, Prunkbestattungen des 1. Jhs. n. Chr. in der Nekropole Ust'-Al'ma, Krim. Eurasia Antiqua 10, 2004, 220–267.

Quast 1999
D. Quast, Das „Pektorale" von Wolfsheim, Kr. Mainz-Bingen. Germania 77, 1999, 705–718.

Quast 2009
D. Quast, Communication, Migration, Mobility and Trade. Explanatory Models for Exchange Processes from the Roman Iron Age to the Viking Age. In: D. Quast (ed.), Foreigners in Early Medieval Europe: Thirteen International Studies on Early Medieval Mobility. Monographien RGZM 78 (Mainz 2009) 1–26.

Qinghai 2007
Qinghaisheng wengu kaogu yanjiusuo 青海省文物考古研究, Qinghaisheng Xiningshi Taojiazhai Han mu 2002 nian fajue jianbao 青海省西寧市陶家寨漢墓 2002 年發掘簡報. Dongya kaogu Bjuan (Beijing 2007).

Qurčabilig 2003
Qurčabilig, Mongγolčud-un oršiγulγa-yin soyol. Öbür Mongγol-un soyol-un keblel-ün qoriya (Hohehaote 2003).

Radcliffe-Brown 1965
D. R. Radcliffe-Brown, Structure and Function

in Primitive Society. Essays and Addresses (New York 1965).

RADLOFF 1892–1899
W. Radloff (ed.), Atlas der Alterthümer der Mongolei. Arbeiten der Orchon-Expedition (St. Petersburg 1892–1899). В. В. Радлов, Атлас древностей Монголии. Труды Орхонской экспедиции (Санкт-Петербург 1892–1899).

RADLOV 1989
V. V. Radlov, Iz Sibiri. Stranitsy dnevnika (Moskva 1989). В. В. Радлов, Из Сибири. Страницы дневника (Москва 1989).

RAMSEYER ET AL. 2009
D. Ramseyer/N. Pousaz/Ts. Törbat, The Xiongnu Settlement of Boroo Gol, Selenge Aimag, Mongolia. In: Bemmann et al. 2009, 231–240.

RAVICH/RYNCHINA 1984
I. G. Ravich/N. V. Ryndina, Izuchenie svoistv i mikrostruktury splavov med' – mysh'iak v sviazi s ikh ispol'zovaniem v drevnosti. Khudozhestvennoe nasledie 9, 1984, 114–124. И. Г. Равич/Н. В. Рындина, Изучение свойств и микроструктуры сплавов медь – мышьяк в связи с их использованием в древности. Художественное наследие 9, 1984, 114–124.

RAWSON 1995
J. Rawson, Chinese Jade from the Neolithic to the Qing (London 1995).

REDMOND 1998
E. Redmond (ed.), Chiefdoms and chieftaincy in the Americas (Gainesville 1998).

REISCHAUER/FAIRBANK 1960
E. O. Reischauer/J. K. Fairbank, History of East Asian Civilization, Vol. 1. East Asia, the great tradition (Boston).

REISINGER 2010
M. Reisinger, New Evidence about Composite Bows and Their Arrows in Inner Asia. The Silk Road 8, 2010, 42–62.

REITZ/WING 1999
E. J. Reitz/E. S. Wing, Zooarchaeology. Cambridge manuals in archaeology (Cambridge 1999).

RENAT 1881
J. G. Renat, Carte de la Dzoungarie: dressée par le suédois Renat pendant sa captivité chez les kalmouks de 1716–1733 (St. Petersbourg 1881).

REYNOLDS 2006
S. Reynolds, Empires: a problem of comparative history. Historical Research 79, 2006, 151–165.

RICAUT ET AL. 2004
F. X. Ricaut/C. Keyser-Tracqui/J. Bourgeois/E. Crubézy/B. Ludes, Genetic Analysis of a Scytho-Siberian Skeleton and Its Implications for Ancient Central Asian Migrations. Human Biology 76, 1, 2004, 109–125.

RIFTIN 1980
B. L. Riftin, Purpurnaia iashma: kitaiskaia povestvovatel'naia proza I–VI vekov (Moskva 1980). Б. Л. Рифтин, Пурпурная яшма: китайская повествовательная проза I–VI веков (Москва 1980).

ROBERTS/MANCHESTER 2005
C. Roberts/K. Manchester, The Archaeology of Disease. 3rd ed. (Ithaka 2005).

RODSETH/PARKER 2005
L. Rodseth/B. J. Parker, Introduction: Theoretical Considerations in the Study of Frontiers. In: B. J. Parker/L. Rodseth (eds.), Untaming the Frontier in Antropology, Archaeology and History (Tuscon 2005) 3–21.

ROGERS 2000
J. Rogers, The Palaeopathology of Joint Disease. In: M. Cox/S. Mays (eds.), Human Osteology in Archaeology and Forensic Science (London 2000) 163–182.

ROGERS 2007
D. Rogers, The Contingencies of State Formation in Eastern Inner Asia. Asian Perspectives 46, 2007, 249–274.

ROGERS 2010
J. D. Rogers, Ancient Cities of the Steppe. In: W. W. Fitzhugh/M. Rossabi/W. Honeychurch (eds.), Genghis Khan and the Mongol Empire (Houston 2009) 127–131.

ROGERS 2011
J. D. Rogers, Inner Asian States and Empires: Theories and Synthesis. Manuscript on file, Department of Anthropology, National Museum of Natural History, Smithsonian, Washington, DC.

ROGERS/CIOFFI-REVILLA 2009
J. D. Rogers/C. Cioffi-Revilla, Expanding Em-

pires and a Theory of Change. In: Bemmann et al. 2009, 445–459.

Rogers et al. 2005
J. D. Rogers/U. Erdenebat/M. Gallon, Urban Centres and the Emergence of Empires in Eastern Inner Asia. Antiquity 79, 2005, 801–818.

Rook/Thomas 1983
J. G. Rook/C. Thomas, Nutritional Physiology of Farm Animals (London 1983).

Rosenfield 1967
J. M. Rosenfield, The Dynastic Art of the Kushans (Berkeley 1967).

von Rosthorn 1923
A. von Rosthorn, Die Hochburg von Zentralasien. Asia Major Introductory Volume (= Hirth Anniversary Volume) 1923, 286–297.

Rostovtsev 1973
M. Rostovtzeff, The Animal Style in South Russia and China (New York 1973).

Rostovtsev 1993
M. I. Rostovtsev, Sredinnaia Aziia, Rossiia, Kitai i zverinyi Stil'. In: SKIFIKA. Peterburgskii arkheologicheskii vestnik 5, 1993, 57–75. М. И. Ростовцев, Срединная Азия, Россия, Китай и звериный Стиль. In: СКИФИКА. Петербургский археологический вестник 5, 1993, 57–75.

Roth/Erdenebat 2002
H. Roth/U. Erdenebat (eds.), Qara Qorum-City (Mongolia) I: Preliminary report of the excavations 2000/2001. Bonn Contributions to Asian Archaeology 1 (Bonn 2002).

Roux 1963
J.-P. Roux, La mort chez les peuples altaïques anciens et médiévaux d'après les documents écrits (Paris 1963).

Rowlands 1994
M. Rowlands, The Politics of Identity in Archaeology. In: G.C. Bond/A. Gilliam (eds.), Social Construction of the Past: Representation as Power. One World Archaeology 24 (London 1994) 129–143.

Rudenko 1953
S. I. Rudenko, Kul'tura naseleniia gornogo Altaia v skifoskoe vremia (Moskva, Leningrad 1953). С. И. Руденко, Культура населения горного Алтая в скифское время (Москва, Ленинград 1953).

Rudenko 1962
S. I. Rudenko, Kul'tura khunnov i Noinulinskie kurgany (Moskva, Leningrad 1962). С. И. Руденко. Культура хуннов и Ноинулинские курганы (Москва, Ленинград 1962).

Rudenko 1966
S. I. Rudenko, Die Sibirische Sammlung Peters I. 2nd German ed. (Moskau, Leningrad 1966).

Rudenko 1969
S. I. Rudenko, Die Kultur der Hsiung-nu und die Hügelgräber von Noin Ula. Antiquitas 3, Vol. 7 (Bonn 1969).

Rudenko 1970
S. I. Rudenko, Frozen tombs of Siberia: the Pazyryk burials of Iron-Age horsemen (London 1970).

Runde 1999
RGA XIII (1999) 175–177 s. v. Gürtel. Volkskundliches (I. Runde).

Sadler et al. 2010
K. Sadler/C. Kerven/M. Calo/M. Manske/A. Catley 2010, The fat and the lean: a review of production and use of milk by pastoralists. Pastoralism 1, 2010, 291–324.

Sagaster 1999
K. Sagaster, Die mongolische Hauptstadt Karakorum. Beiträge zur Allgemeinen und Vergleichenden Archäologie 19, 1999, 113–128.

Salzman 2000
P. C. Salzman, Black Tents of Baluchistan (Washington D.C. 2000).

Samolin 1957/58
W. Samolin, Hsiung-nu, Hun, Turk. Central Asiatic Journal 3, 1957/1958, 143–150.

Sanderson 1999
S. K. Sanderson, Social transformations: a general theory of historical development (Lanham 1999).

Sandford 1983
S. Sandford, Management of Pastoral Development in the Third World. A Wiley series on public administration in developing countries (Chichester and others 1983).

Sanz et al. 2008
I. D. Sanz/D. Fiore/S. May, Archaeologies of Art: Time, Place, and Identity in Rock Art, Portable

Art, and Body Art. In: I. D. Sanz/D. Fiore/S. May (eds.), Archaeologies of Art: Time, Place, and Identity. One World Archaeology 55 (Walnut Creek 2008) 15–29.

SARIANIDI 1985
V. Sarianidi, Bactrian Gold. From the Excavations of the Tillya-Tepe Necropolis in Northern Afghanistan (Leningrad 1985).

SARIANIDI 1989
V. I. Sarianidi, Khram i nekropol' Tillia-Tepe (Moskva 1989). В. И. Сарианиди, Храм и некрополь Тилля-Тепе (Москва 1989).

SASSON 1998
A. Sasson, The Pastoral Component in the Economy of Hill Country Sites during the Intermediate Bronze and Iron Ages: Archaeo-Ethnographic Case Studies. Tel Aviv 25, 1, 1998 3–51.

SAVINOV 1969
D. G. Savinov, Progebenie s bronzovoi bliakhoi v Tsentral'noi Tuve. In: Pamiatniki rannego zheleznogo veka. Kratkie soobshcheniia o dokladakh i polevykh islledovaniiakh instituta arkheologii 119 (Moskva 1969) 104–108. Д. Г. Савинов, Погребение с бронзовой бляхой в Центральной Туве. In: Памятники раннего железного века. Краткие сообщения о докладах и полевых исследованиях института археологии 119 (Москва 1969) 104–108.

SCHEIDEL 2009a
W. Scheidel, From the "Great Convergence" to the "First Great Divergence": Roman and Qin-Han state formation and its aftermath. W. Scheidel (ed.), Rome and China: Comparative Perspectives on Ancient World Empires. Oxford Studies in Early Empires (New York 2009) 11–23.

SCHEIDEL 2009b
W. Scheidel (ed.), Rome and China: Comparative Perspectives on Ancient World Empires. Oxford Studies in Early Empires (New York 2009).

SCHEIDEL 2011
W. Scheidel, Studying the State. In: P. F. Bang/W. Scheidel (eds.), The Oxford handbook of the ancient state: Near East and Mediterranean (New York 2011).

SCHEIDEL IN PRESS
W. Scheidel, Fiscal regimes and the "First Great Divergence" between eastern and western Eurasia. In: P. F. Bang/C.A. Bayly (eds.), Tributary empires in global history (Basingstoke in press).

SCHILTZ 1994
V. Schiltz, Les Scythes et les Nomades des steppes: VIIIe siècle avant J.-C. – Ier siècle après J.-C. (Paris 1994).

SCHOPPHOFF 2009
C. Schopphoff, Der Gürtel. Funktion und Symbolik eines Kleidungsstückes in Antike und Mittelalter. Pictura et poesis 27 (Köln, Weimar, Wien 2009).

SCHUTKOWSKI 2008
H. Schutkowski, Thoughts for Food: evidence and meaning of past dietary habits. In: H. Schutkowski (ed.), Between Biology and Culture. Cambridge Studies in Biological and Evolutionary Anthropology 56 (Cambridge 2008) 141–164.

SCOTT/TURNER 1997
G. R. Scott/ C. G. Turner II. The anthropology of modern human teeth: Dental morphology and its variation in recent human populations. Cambridge Studies in Biological Anthropology 20 (Cambridge 1997).

SEMENOV 2003
V. A. Semenov, Suglug-Khem i Khaiyrakan – Mogil'niki skifskogo vremeni v Tsentral'no-Tuvinskoi kotlovine. Trudy Rossiiskaia Akademiia nauk Institut Istorii Material'noi Kul'tury 9 (Sankt-Peterburg 2003). В. А. Семенов, Суглуг-Хем и Хайыракан – могильники скифского времени в Центрально-Тувинской котловине. Труды Российская Академия наук Институт истории материальной культуры 9 (Санкт-Петербург 2003).

SERGATSKOV 1995
I. V. Sergatskov, Novye dannye k khronologii rannesarmatskoi kul'tury. Sovetskaia Arkheologiia 1995, 1, 148–158. И. В. Сергацков, Новые данные к хронологии раннесарматской культуры. Советская Археология 1995, 1, 148–158.

SERGATSKOV 2000
I. V. Sergatskov, Sarmatskie kurgany na Ilovle (Volgograd 2000). И. В. Сергацков, Сарматские курганы на Иловле (Волгоград 2000).

SERGATSKOV/SHINKAR' 2003
I. V. Sergatskov/O. A. Shinkar', Rannesar-

matskie pogrebeniia s servernoi orientirovkoi v basseine Ilovli. Nizhnevolzhskii arkheologicheskii vestnik 6, 2003, 165–178. И. В. Сергацков/О. А. Шинкарь, Раннесарматские погребения с северной ориентировкой в бассейне Иловли. Нижневолжский археологический вестник 6, 2003, 165–178.

Ser-Odzhav 1963
N. Ser-Odzhav, Mongol-Ungaryn khamtasan ekspeditsiin shinzhilgeenii azhlin tukhai (1961 ony kheeriin shinzhilgeenii kheregdegkhüün). Arkheologiin sudlal 2, 3, 1963, 31–38. Н. Сэр-Оджав, Монгол-Унгарын хамтарсан экспедицийн шинжилгээний ажлйн тухай (1961 оны хээрийн шинжилгээний хэрэгдэгхүүн). Археологиин судлал 2, 3, 1963, 31–38.

Ser-Odzhav 1970
N. Ser-Odzhav, Ertnii Türegüüd (VI–VIII zuun). Studia Archeologica 5 (Ulaanbaatar 1970). Н. Сэр-Оджав, Эртний Түрэгүүд (VI–VIII зуун). Studia Archaeologica 5 (Улаанбаатар 1970).

Ser-Odzhav 1987
N. Ser-Odzhav, Baianligiin khadny zurag (Ulaanbaatar 1987). Н. Сэр-Оджав, Баянлигийн хадны зураг (Улаанбаатар 1987).

Service 1975
E. R. Service, Origins of the State and Civilization. The process of cultural evolution (New York 1975).

Shaanxi/Yulin 2001
Shaanxi sheng kaogu yanjiusuo 陕西省考古研究所/Yulin shi wenwu guanli weiyuanhui bangongshi 榆林市文物管理委員會辦公室, Shenmu Dabaodang – Handai chengzhi yu muzang kaogu baogao 神木大保黨 – 漢代城址與墓葬考古報告 (Beijing 2001).

Shakhmatov 1964
V. F. Shakhmatov, Kazakhskaia pastbishchno-kochevaia obshchina: voprosy obrazovaniia evoliutsii i razlozheniia (Alma-Ata 1964). В. Ф. Шахматов, Казахская пастбищно-кочевая община: вопросы образования эволюции и разложения (Алма-Ата 1664).

Shan 2009
Shan Yueying 單月英, Xiongnu muzang yanjiu 匈奴墓葬研究. Kaogu xuebao 2009, 1, 35–68.

Sharphouse 1971
J. H. Sharphouse, Leather Technician's Handbook (London 1971).

Shaughnessy 1999
E. L. Shaughnessy, Western Zhou History. In: M. Loewe/E. L. Shaughnessy (eds.), The Cambridge History of Ancient China. From the Origins of Civilization to 221 BC (Cambridge 1999), 292–351.

Shelach 2009
G. Shelach, Prehistoric societies on the northern frontiers of China: archaeological perspectives on identity formation and economic change during the first millennium BCE. Approaches to anthropological archaeology (London 2009).

Shelov 1961
D. B. Shelov, Nekropol' Tanaisa (raskopki 1955–1958). Materialy i issledovaniia po arkheologii SSSR 98 (Moskva 1961). Д. Б. Шелов, Некрополь Танаиса (раскопки 1955–1958). Материалы и исследования по археологии СССР 98 (Москва 1961).

Shen 2003
C. Shen, Compromises and Conflicts: Production and Commerce in the Royal Cities of Eastern Zhou, China. In: M. L. Smith (ed.), The Social Construction of Ancient Cities (Washington 2003) 269–289.

Shilov 1974
V. P. Shilov, Bronzovaia patera iz Astrakhanskoi oblasti. Sovetskaia Arkheologiia 1974, 1, 226–231. В. П. Шилов, Бронзовая патера из Астраханской области. Советская Археология 1974, 1, 226–231.

Shilov 1975
V. P. Shilov, Ocherki po istorii drevnikh plemen Nizhnego Povolzh'ia (Leningrad 1975). В. П. Шилов, Очерки по истории древних племен Нижнего Поволжья (Легнинград 1975).

Shilov 1983
V. P. Shilov, Zaporozhskii kurgan. K voprosu o pogrebeniiakh aorskoi znati. Sovetskaia Arkheologiia 1983, 1, 178–192. В. П. Шилов, Запорожский курган. К вопросу о погребениях аорской знати. Советская Археология 1983, 1, 178–192.

Shinekhüü 1977
M. Shinekhüü, Orkhon-Enisein bichig mongolyn malyn tamgatai kholbogdokh n'. Studia

Etnologia 5, 1977, 60–72. М. Шинэхүү, Орхон-Енисейн бичиг монголын малын тамгатай холбогдох нь. Studia Etnologia 5, 1977, 60–72.

SHIN 2000

Shin Yun min 辛勇旻, Han de mugguagmyu engu 漢代 木槨墓 硏究 (Seoul 2000).

SHIRAISHI 2002

N. Shiraishi, Mongoru teikokushi no kōkogakuteki kenkyū (The archaeological researches on the history of the Mongol empire) (Tokyo 2002).

SHIRAISHI 2004

Noriyuki Shiraishi, Seasonal migrations of the mongol emperors and the peri-urban area of Kharakhorum. International Journal of Asian Studies 1, 1, 2004, 105–119.

SHIRATORI 1902

K. Shiratori, Sinologische Beiträge zur Geschichte der Türk-Völker II. Über die Sprache der Hiungnu und der Tunghu-Stämme. Известия Императорской академии наук [=Bulletin de l'Académie Impériale de Sciences de St.-Pétersbourg] 17, 2, 1902, 1–33.

SIMA QIAN 1959

Sima Qian 司馬遷, Shiji 史記, 10 Vols. (Beijing 1959).

SIMONENKO 2001

A. Simonenko, Chinese and East Asian Element in Sarmatian Culture of the North Pontic Region. Silk Road Art and Archaeology 7, 2001, 53–72.

SIMONENKO 2003

A. V. Simonenko, Kitaiskie i tsentral'noaziatskie elementy v sarmatskoi kul'ture Severnogo Prichemomor'ia. Nizhnevolzhskii Arkheologicheskii vestnik 6, 2003, 45–65. А. В. Симоненко, Китайские и центральноазиатские элементы в сарматской культуре Северного Причерноморья. Нижневолжский археологический вестник 6, 2003, 45–65.

SIMONENKO/LOBAI 1991

A. V. Simonenko/B. I. Lobai, Sarmaty Severo-Zapadnogo Prichernomor'ia v I. v.n.e. Pogrebeniia znati u s. Porogi (Kiev 1991). А. В. Симоненко/Б. И. Лобай, Сарматы Северо-Западного Причерноморья в I в.н.э. Погребения знати у с. Пороги (Киев 1991).

SIMUKOV 1933

A. D. Simukov, Khotony. Sovremennaia Mongoliia 3, 1933, 19–32. А. Д. Симуков, Хотоны. Современная Монголия 33, 1033, 19–32.

SIMUKOV 1934

A. D. Simukov, Mongol'skie kochevki. Sovremennaia Mongoliia 4, 1934, 40–46. А. Д. Симуков, Монгольские кочевки. Современная Монголия 4, 1934, 40–46.

SIMUKOV 1935

A. D. Simukov, Materialy po kochevomu puti naseleniia MNR, I. Kochevniki i khotony Gurvansaikhanskogo raiona iuzhnogobiiskogo aimaka MNR. Sovremennaia Mongoliia 6, 1935, 89–104. А. Д. Симуков, Материалы по кочевому пути населения МНР, I. Кочевники и хотоны Гурвансайханского района южногобийского аймака МНР. Современная Монголия 6, 1935, 89–104.

SINOR 1981

D. Sinor, The Inner Asian Warriors. Journal of the American Oriental Society 101, 2, 1981, 133–144.

SINOR 1990a

D. Sinor, The Cambridge History of Early Inner Asia (Cambridge, New York, Melbourne 1990).

SINOR 1990b

D. Sinor, The Establishment and dissolution of the Türk empire. In: D. Sinor, The Cambridge History of Early Inner Asia (Cambridge, New York, Melbourne 1990) 285–316.

SJØVOLD 1973

T. Sjøvold, The occurrence of minor non-metrical variants in the skeleton and their quantitative treatment of population comparisons. Homo 24, 1973, 204–233.

SJØVOLD 1977

T. Sjøvold, Non-metrical divergence between skeletal populations. Ossa 4, 1977, 1–133.

SKALNIK 2004

P. Skalnik, Chiefdom: a universal political formation? Focaal. European Journal of Anthropology 43, 2004, 76–98.

SKRIPKIN 2003

A. S. Skripkin, Östliche und westliche Neuerungen in der materiellen Kultur der Sarmaten der europäischen Steppen in den ersten Jahrhunderten

n. Chr. In: C. von Carnap-Bornheim (ed.), Kontakt – Kooperation – Konflikt. Germanen und Sarmaten zwischen dem 1. und dem 4. Jahrhundert nach Christus. Schriften des Archäologischen Landesmususeums 1 (Neumünster 2003) 9–18.

Skripkin 2006
A. S. Skripkin, K probleme sootnosheniia rannei srednesarmatskoi kul'tur. In: Rannesarmatskaia i srednesarmatskaia kul'tury. Problemy sootnosheniia (Volgograd 2006) 5–36. А. С. Скрипкин, К проблеме соотношения ранне- и среднесарматской культур. In: Раннесарматская и среднесарматская культуры. Проблемы соотношения (Волгоград 2006) 5–36.

Skrynnikova 1997
T. D. Skrynnikova, Kharizma i vlast' v epokhu Chingis-khana (Moskva 1997). Т. Д. Скрынникова, Харизма и власть в эпоху Чингис-хана (Москва 1997).

Skrynnikova 2000
T. D. Skrynnikova, Mongolian nomadic society of the empire period. In: N. N. Kradin/A. V. Korotayev et al. (eds.), Alternatives of Social Evolution (Vladivostok 2000) 294–301.

Smirnov 1975
K. F. Smirnov, Sarmaty na Ileke (Moskva 1975). К. Ф. Смирнов, Сарматы на Илеке (Москва 1975).

Smirnov 1976
K. F. Smirnov, Savromato-sarmatskii Zverinyi stil'. In: Skifo-sibirskii sverinyi stil' v iskusstve narodov Evrazii (Moskva 1976) 74–89. К. Ф. Смирнов, Савромато-сарматский звериный стиль. In: Скифо-сибирский звериный стиль в искусстве народов Евразии (Москва 1976) 74–89.

Smith 1987
M. Smith, Household Possessions and Wealth in Agrarian States: Implications for Archaeology. Journal of Anthropological Archaeology 6, 1987, 297–335.

Smith 2003
A. T. Smith, The Political Landscape: Constellations of Authority in Early Complex Polities (Berkeley 2003).

Smith 2005
S. T. Smith, To the Supports of Heaven: Political and Ideological Conceptions of Frontiers in Ancient Egypt. In: B. J. Parker /L. Rodseth (eds.), Untaming the Frontier in Antropology, Archaeology and History (Tuscon 2005) 207–237.

Smotrova 1982
V. I. Smotrova, Nakhodki bronzovykh azhurnykh plastin v Pribaikal'e. In: Problemy arkheologii i etnografii Sibiri. Tezisy dokladov k regional'noi konferentsii, 7.–9. aprelia 1982 g. (Irkutsk 1982) 106–107. В. И. Смотрова, Находки бронзовых ажурных пластин в Прибайкалье In: Проблемы археологии и этнографии Сибири. Тезисы докладов региональной конференции, 7.–9. апреля 1982 г. (Иркутск 1982) 106–107.

Smotrova 1991
V. I. Smotrova, Pogrebenie s azhurnymi plastinami na ostrove Osinskom (Bratskoe vodokhranilishche). In: G. I. Medvedev (red.), Paleoetnologicheskie issledovaniia na iuge Srednei Sibiri. Sbornik nauchnykh trudov (Irkutsk 1991) 136–143. В. И. Смотрова, Погребение с ажурными пластинами на острове Осинском (Братское водохранилище). In: Г. И. Медведев (ред.), Палеоэтнологические исследования на юге Средней Сибири. Сборник научных трудов (Иркутск 1991) 136–143.

Sneath 2007
D. Sneath, The headless state: aristocratic orders, kinship society, and misrepresentations of nomadic Inner Asia (New York 2007).

So 1997
J. F. So, The Ornamented Belt in China. Orientations 28, 3, 1997, 70–78.

So/Bunker 1995
J. So/E. Bunker, Traiders and Raiders on China's Northern Frontier (Seattle, London 1995).

Sofaer 2006
J. R. Sofaer, The Body as Material Culture, a theoretical Osteoarchaeology. Topics in contemporary archaeology (Cambridge 2006).

Solongo 2009
S. Solongo, Luminescence dating of fired bricks from ancient Mongolian cities. In: Bemmann et al. 2009, 593–596.

Solongo et al. 2005
S. Solongo/G. A. Wagner/D. Baiar/T. Galbaatar, The chronology of brick manufacturing at the

Karakorum, Mongolia. Arkheologiin Sudlal 23, 2005, 190–195.

SONO/FUKAI 1968

T. Sono/Sh. Fukai, Dailaman III. The excavations at Hassan Mahale and Ghalekuti 1964. The Tokyo University Iraq-Iran Archaeological Expedition Report 8 (Tokyo 1968).

SONGINO 1991

B. Songino, Malyn tonog kheregsel. Mongolyn belcheeriin mal mallagaany ulamzhlal (Ulaanbaatar 1991). Б. Сонгино, Малын тоног хэрэгсэл. Монголын бэлчээрийн мал маллагааны уламжлал (Улаанбаатар 1991).

SOROKIN 1977

S. S. Sorokin, Pogrebeniia epokhi velikogo pereseleniia narodov v raione Pazyryka. Arkheologicheskii Sbornik Gosudarstvennogo Ermitazha 18, 1977, 57–67. С. С. Сорокин, Погребения эпохи великого переселения народов в районе Пазырыка. Археологический Сборник Государственного Эрмитажа 18, 1977, 57–67.

SOSNOVSKII 1934

G. P. Sosnovskii, Nizhne-Ivolginskoe gorodishche. Problemy istorii dokapitalisticheskikh obshchestv 7–8, 1934, 150–156. Г. П. Сосновский, Нижне-Иволгинское городище. Проблемы истории докапиталистических обществ 7–8, 1934, 150–156.

SPANGENBERG ET AL. 2010

J. Spangenberg/M. Ferrer/P. Tschudin/M. Volken/A. Hafner, Microstructural, chemical and isotopic evidence for the origin of late Neolithic leather recovered from an ice field in the Swiss Alps. Journal of Archaeological Science 37, 8, 2010, 1851–1865.

SPENNEMANN/COLLEY 1990

D. H. R. Spennemann/S. M. Colley, Fire in the Pit: The Effects of Burning on Faunal Remains. Archaeozoologia 3, 1990, 51–64.

STAMBUL'NIK 1983

E. U. Stambul'nik, Novye pamiatniki gunno-sarmatskogo vremeni v Tuve (nekotorye itogi rabot). In: V. M. Masson (otv. red.), Drevnie kul'tury evraziiskikh stepei. Po materialam arkheologicheskikh rabot na novostroikakh (Leningrad 1983). Э. У. Стамбульник, Новые памятники гунно-сарматского времени в Туве (некоторые итоги работ) In: В. М. Массон (отв. ред.), Древние культуры евразийских степей. По материалам археологических работ на новостройках (Ленинград 1983) 34–41.

STEIN 1987

G. J. Stein, Regional economic integration in early state societies: Third millennium B.C. Pastoral production at Gritille, Southeast Turkey. Paléorient 13, 1987, 101–111.

STEIN 1998

G. Stein, Heterogeneity, Power, and Political Economy: Some Current Research Issues in the Archaeology of Old World Complex Societies. Journal of Archaeological Research 6, 1, 1998, 1–44.

STEIN/ROTHMAN 1994

G. Stein/M. Rothman (eds.), Chiefdoms and Early States in the Near East: The organizational Dynamics of Complexity. Monographs in world archaeology 18 (Madison 1994).

STEPNAIA POLOSA 1992

M. G. Moshkova (otv. red.), Stepnaia polosa Aziatskoi chasti SSSR v skifo-sarmatskoe vremia (Moskva 1992). М. Г. Мошкова (отв. ред.), Степная полоса Азиатской части СССР в скифо-сарматское время (Москва 1992).

STEPPENGOLD 2003

E. Wamers/D. Stutzinger (Hrsg.), Steppengold. Grabschätze der Skythen und Sarmaten am unteren Don. Ausstellung Arch. Mus. Frankfurt (Frankfurt am Main 2003).

STEUER 1992

H. Steuer, „Objektwanderung" als Quelle der Kommunikation. Die Möglichkeiten der Archäologie. In: Kommunikation und Alltag in Spätmittelalter und früher Neuzeit. Internationaler Kongress, Krems an der Donau, 9. bis 12. Oktober 1990. Sitzungsbericht Österreichische Akademie der Wissenschaften, Philosophisch-Historische Klasse 596. Veröffentlichungen des Instituts für Realienkunde des Mittelalters und der Frühen Neuzeit 15 (Wien 1992) 401–440.

STIRLAND 1991

A. J. Stirland, Diagnosis of occupationally related

paleopathology: Can it be done? In: D. J. Ortner/A. C. Aufderheide (eds.), Human Paleopathology: current syntheses and future options (Washington, London 1991) 40–47.

Stirland 1998
A. J. Stirland, Musculoskeletal Evidence for Activity: Problems of Evaluation. International Journal of Osteoarchaeology 8, 5, 1998, 354–362.

Strano et al. 2007
S. E. Strano/M. F. Rosenmeier/F. Allard/S. Nergui, Lake Sediment Records of Late Holocene Climate Change in the Khanuy Valley, Arkhangai Aimag, North-Central Mongolia: Implications for Local Bronze and Iron Age Cultural Histories. Poster Presentation. American Geophysical Union Fall Meeting, San Francisco 2007.

Su 1980
Su Bai 宿白, Dongbei Neimenggu diqu de xianbei yiji 东北内蒙古地区的鲜卑遗迹. Chinese Studies in Archaeology 1980, 2, 3–43.

Sükhbaatar 1971
G. Sükhbaatar, Sian'bi naryn ugsaa garal, soel, azh akhui, niigmiin baiguulal (nen ertnees m.e. IV zuun) (Ulaanbaatar 1971). Г. Сүхбаатар, Сяньби нарын угсаа гарал, соёл, аж ахуй, нийгмийн байгуулал (нэн эртнээс м.э. IV зуун) (Улаанбаатар 1971).

Sükhbaatar 1980
G. Sükhbaatar, Mongolchuudyn ertnii övög. Khünnü naryn azh akhui, niiigmiin baiguulal, soel, ugsaa garal (m.e.ö. IV – m.e. II zuun) (Ulaanbaatar 1980). Г. Сүхбаатар, Монголчуудын эртний өвөг. Хүннү нарын аж ахуй, ниийгмийн байгуулал, соёл, угсаа гарал (м.э.ө. IV – м.э. II зуун) (Улаанбаатар 1980).

Sun 2006
Sun Baowen 孫寶文, Han yin zidian 漢印字典 (Changchun 2006).

Sun 1994
Sun Ji 孫機, Xian Qin, Han, Jin yaodai yong jinyin daikou 先秦漢晉腰帶用金銀帶扣. Wenwu 1994, 1, 50–64.

Sun 2001
Sun Ji 孫機, Zhongguo gu yufu luncong 中国古舆服论丛 (Beijing 2001).

Sun 1960
Sun Shoudao 孫守道, "Xiongnu Xichagou wenhua" gumuqun de faxian "匈奴西岔溝文化" 古墓群的發現. Wenwu 1960, 8–9, 25–35.

Suo et al. 2005
Suo Xiufen 索秀芬 et al., Nei Menggu Linxixian Shuiquan yizhi fajue jianbao 内蒙古林西縣水泉遺址發掘簡報. Kaogu 2005, 11, 19–29.

Surazakov 1989
A. S. Surazakov, Gornyi Altai i ego severnye predgor'ia v epokhu rannego zheleza. Problemy khronologii i kul'turnogo razgranicheniia (Gorno-Altaisk 1989). А. С. Суразаков, Горный Алтай и его северные предгорья в эпоху раннего железа. Проблемы хронологии и культурного разграничения (Горно-Алтайск 1989).

Taagepera 1997
R. Taagepera, Expansion and Contraction Patterns of Large Polities: Context for Russia. International Studies Quarterly 41, 1997, 475–504.

Tairov 2004
A. D. Tairov, Rannesakskie boevye poiasa. Rossiiskaia Arkheologiia 2004, 1, 140–145. А. Д. Тайров, Раннесакские боевые пояса. Российская археология 2004, 1, 140–145.

Takahama 2002
Takahama Shu 高濱秀, Yūrajiya sōban chitai no hikinzoku seitai kazaita ユーラシア草原地帯の非金属製帯飾板. Kanazawa Daigaku Kōko Kiyō 26, 2002, 50–63.

Takahama 2005
S. Takahama, Preliminary Report on Archaeological Investigations in Mongolia. Newsletter on Steppe Archaeology 15, 2005, 63–91.

Takahama 2009
Takahama Shu 高濱秀, Ouya caoyuan de jinshu paishi 歐亞草原的金屬牌飾. In: E'erduosi qingtongqi guoji xueshu yantao huilun wenji 鄂爾多斯青銅器國際學術研(會論文集 (Beijing 2009) 430–434.

Ta/Liang 1986
Ta La 塔拉/Liang Jingming 梁京明, Hulusitai qingtong qi muzang 呼魯斯太青銅器墓葬. In: Tian G./Guo S. (eds.), E'erduosi shi qingtong qi 鄂爾多斯式青銅器 (Beijng 1986) 223–226.

TAL'KO-GRYNTSEVICH 1999
Iu. D. Tal'ko-Gryntsevich, Materialy k paleoetnologii Zabaikal'ia. Arkheologicheskie pamiatniki Siunnu 4 (Sankt-Peterburg 1999). Ю. Д. Талько-Грынцевич, Материалы к палеоэтнологии Забайкалья. Археологические памятники Сюнну 4 (Санкт-Петербург 1999).

TAN 1996
Tan Qixiang 譚其驤, Zhongguo lishi dili ji 中國歷史地理集, Vol. 2: Qin, Xi Han, Dong Han shiqi 秦西漢東漢時期, 6th ed. (Beijing 1996).

TASKIN 1968
V. S. Taskin, Materialy po istorii siunnu (po kitaiskim istochnikam). Vvedenie, perevod i kommentarii V. S. Taskina, Vol. 1 (Moskva 1968). В. С. Таскин, Материалы по истории сюнну (по китайским источникам). Введение, перевод и комментарии В. С. Таскина, Vol. 1 (Москва 1968).

TASKIN 1973
V. S. Taskin, Materialy po istorii siunnu (po kitaiskim istochnikam). Vvedenie, perevod i kommentarii V. S. Taskina, Vol. 2 (Moskva 1973). В. С. Таскин, Материалы по истории сюнну (по китайским источникам). Введение, перевод и комментарии В. С. Таскина, Vol. 2 (Москва 1973).

TASKIN 1984
V. S. Taskin, Materialy po istorii drevnikh kochevykh narodov gruppy dunkhu (Moskva 1984). В. С. Таскин, Материалы по истории древних кочевых народов группы дунху (Москва 1984).

TASKIN 1989
V. S. Taskin, Materialy po istorii drevnikh kochevykh narodov v Kitae III–V vv. Vol. 1. Siunnu (Moskva 1989). В. С. Таскин, Материалы по истории древних кочевых народов в китае III–V вв. Vol. 1. Сюнну (Москва 1989).

TESORI 2005
I Tesori della steppa di Astrakhan. Katalog Palazzo Venezia, Rom 17 marzo – 29 maggio 2005 (Milano 2005).

TETERIN 1995
Iu. V. Teterin, Poiasnye nabory gunno-sarmatskoi epokhi Gornogo Altaia. In: Iu. F. Kiriushin/A. B. Shamshin (red.), Problemy okhrany, izucheniia i ispol'zovaniia kul'turnogo naslediia Altaia. Tezisy nauchno-prakticheskoi konferentsii (Barnaul 1995) 131–135. Ю. В. Тетерин, Поясные наборы гунно-сарматской эпохи Горного Алтая. In: Ю. Ф. Кирюши/А. Б. Шамшин (ред.), Проблемы охраны, изучения и использования культурного наследия Алтая. Тезисы научно-практической конференции (Барнаул 1995) 131–135.

THÉRY-PARISOT 2002
I. Théry-Parisot, Fuel Management (Bone and Wood) During the Lower Aurignacian in the Pataud Rock Shelter (Lower Palaeolithic, Les Eyzies de Tayac, Dordogne, France). Contribution of Experimentation. Journal of Archaeological Science 29, 2002, 1415–1421.

THIERRY 2003
F. Thierry, Die Geschichte des chinesischen Geldes von den Ursprüngen bis zum Beginn des 20. Jahrhunderts. In: W. Seipel (Hrsg.), Geld aus China. Ausstellungskat. Wien (Wien 2003) 25–89.

TIAN 1976
Tian Guangjin 田廣金, Taohongbala de Xiongnu mu 桃紅巴拉的匈奴墓. Kaogu xuebao 1976, 1, 131–144.

TIAN/GUO 1980a
Tian Guangjin 田廣金/Guo Suxin 郭素新, Nei Menggu Aluchaideng faxian de Xiongnu mu 內蒙古阿魯柴登發現的匈奴墓. Kaogu 1980, 4, 333–338.

TIAN/GUO 1980b
Tian Guangjin 田廣金/Guo Suxin 郭素新, Xigoupan Xiongnu mu zhi wenti 西溝畔匈奴墓之問題. Wenwu 1980, 7, 13–17.

TIAN/GUO 1986
Tian Guangjin 田廣金/Guo Suxin 郭素新, E'erduosi qingtong qi 鄂爾多斯青銅器 (Beijing 1986).

TIELI 1996
Tieling shi wenwu guanli bangongshi 鉄嶺市文物管理辦公室, Liaoning Tieling shi Qiutai yizhi shijue jianbao 遼寧鉄嶺市球檯遺址試掘簡報. Kaogu 1996, 2, 36–51.

TILLY 1985
C. Tilly, War making and state making as organized crime. In P. B. Evans/D. Rueschemeyer/T. Skocpol (eds.), Bringing the state back in (Cambridge 1985) 169–191.

Tilly 1992
C. Tilly, Coercion, capital, and European states, A.D. 990–1992 (Cambridge Mass. 1992).

Tishkin 2005a
A. A. Tishkin, Vozmozhnosti rekonstruktsii zhenskoi odezhdy khunnuskogo vremeni po arkheologicheskim materialam iz Gornogo Altaia. In: A. A. Tishkin, Snariazhenie kochevnikov Evrazii (Barnaul 2005) 195–201. А. А. Тишкин, Возможности реконструкции женской одежды хуннуского времени по археологическим материалам из Горного Алтая. In: А. А. Тишкин, Снаряжение кочевников Евразии (Барнаул 2005) 195–201.

Tishkin 2005b
A. A. Tishkin, Keramicheskie sosudy iz kurganov khunnuskogo vremeni mogil'nika Ialoman-II. In: Iu. F. Kiriushin/A. A. Tishkin (red.), Zapadnaia i Iuzhnaia Sibir' v drevnosti. Sbornik nauchnykh trudov, posviashchennyi 60-letiiu so dnia rozhdeniia Iuriia Fedorovicha Kiriushina (Barnaul 2005) 129–135. А. А. Тишкин, Керамические сосуды из курганов хуннуского времени могильника Яломан-II. In: Ю. Ф. Кирюшин/А. А. Тишкин (ред.), Западная и Южная Сибирь в древности. Сборник научных трудов, посвященный 60-летию со дня рождения Юрия Федоровича Кирюшина (Барнаул 2005) 129–135.

Tishkin 2006
A. A. Tishkin, Kitaiskie zerkala iz pamiatnikov rannikh kochevnikov Altaia. Rossiia i ATR 2006, 4, 111–115. А. А. Тишкин, Китайские зеркала из памятников ранних кочевников Алтая. Россия и АТР 2006, 4, 111–115.

Tishkin 2007a
A. A. Tishkin, Sozdanie periodizatsionnykh i kul'turno-khronologicheskikh skhem: istoricheskii opyt i sovremennaia kontseptsiia izucheniia drevnikh i srednevekovykh narodov Altaia (Barnaul 2007). А. А. Тишкин, Создание периодизационных и культурно-хронологических схем: исторический опыт и современная концепция изучения древних и средневековых народов Алтая (Барнаул 2007).

Tishkin 2007b
A. A. Tishkin, Obzor issledovanii v Zapadnoi Mongolii i na Altae. Problemy arkheologii, etnografii, antropologii Sibiri i sopredel'nykh territorii 13, 2007, 382–387. А. А. Тишкин, Обзор исследований в Западной Монголии и на Алтае. Проблемы археологии, этнографии, антропологии Сибири и сопредельных территорий 13, 2007, 382–387.

Tishkin 2009
A. A. Tishkin, Programma ksilotomicheskikh issledovanii arkheologicheskikh nakhodok iz derevnikh pamiatnikov Altaia. In: Rol' estestvenno-nauchnykh metodov v arkheologicheskikh issledovaniiakh (Barnaul 2009) 330–332. А. А. Тишкин, Программа ксилотомических исследований археологических находок из древних памятников Алтая. In: Роль естественно-научных методов в археологических исследованиях (Барнаул 2009) 330–332.

Tishkin/Gorbunov 2002
A. A. Tishkin/V. V. Gorbunov, Issledovaniia pamiatnikov rannego zheleznogo veka i srednevekov'ia v Lesostepnom i Gornom Altae. Problemy arkheologii, etnografii, antropologii Sibiri i sopredel'nykh territorii 8, 2002, 456–461. А. А. Тишкин/В. В. Горбунов, Исследования памятников раннего железного века и средневековья в Лесостепном и Горном Алтае. Проблемы археологии, этнографии, антропологии Сибири и сопредельных территорий 8, 2002, 456–461.

Tishkin/Gorbunov 2003
A. A. Tishkin/V. V. Gorbunov, Issledovaniia pogrebal'no-pominal'nykh pamiatnikov kochevnikov v Tsentral'nom Altae. Problemy arkheologii, etnografii, antropologii Sibiri i sopredel'nykh territorii 9, 2003, 488–493. А. А. Тишкин/В. В. Горбунов, Исследования погребально-поминальных памятников кочевников в Центральном Алтае. Проблемы археологии, этнографии, антропологии Сибири и сопредельных территорий 9, 2003, 488–493.

Tishkin/Gorbunov 2005
A. A. Tishkin/V. V. Gorbunov, Predmetnyi kompleks iz pamiatnika Ialoman-II na Altae kak otrazhenie vlianiia material'noi kul'tury khunnu. In: A. V. Kharinskii (otv. red.), Sotsiogenez v Severnoi Azii, Vol. 1 (Irkutsk 2005) 327–333. А. А. Тишкин/В. В. Горбунов, Предметный комплекс

из памятника Яломан-II на Алтае как отражение влияния материальной культуры хунну. In: A. B. Харинский (отв. ред.), Социогенез в Северной Азии, Vol. 1 (Иркутск 2005) 327–333.

TISHKIN/GORBUNOV 2006

A. A. Tishkin/V. V. Gorbunov, Gornyi Altai v khunnskoe vremia: kul'turno-khronologicheskii analiz arkheologicheskikh materialov. Rossiiskaia arkheologiia 2006, 3, 31–40. A. A. Тишкин/В. В. Горбунов, Горный Алтай в хуннуское время: культурно-хронологический анализ археологических материалов. Российская археология 2006, 3, 31–40.

TISHKIN/GORBUNOVA 2006

A. A. Tishkin/T. G. Gorbunova, Rekonstruktsiia uzdechnykh naborov bulan-kobinskoi kul'tury (po materialam pamiatnika Ialoman-II). In: Snariazhenie kochevnikov Evrazii. Sbornik nauchnykh trudov (Barnaul 2005) 118–122. A. A. Тишкин/Т. Г. Горбунова, Реконструкция уздечных наборов булан-кобинской культуры (по материалам памятника Яломан-II). In: Снаряжение кочевников Евразии. Сборник научных трудов (Барнаул 2005) 118–122.

TISHKIN/KHAVRIN 2004

A. A.Tishkin/S. V. Khavrin, Predvaritel'nye rezul'taty spektral'nogo analiza izdelii iz pamiatnika gunno-sarmatskogo vremeni Ialoman-II (gornyi Altai). In: Iu. F. Kiriushin/A. A. Tishkin (otv. red.), Kompleksnye issledovaniia drevnikh i traditsionnykh obshchestv Evrazii (Barnaul 2004) 300–306. A. A. Тишкин/С. В. Хаврин, Предварительные результаты спектрального анализа изделий из памятника гунно-сарматского времени Яломан-II (горный Алатй). In: Ю. Ф. Кирюшин/А. А. Тишкин (отв. ред.), Комплексные исследования древних и традиционных обществ Евразии (Барнаул 2004) 300–306.

TISHKIN/KHAVRIN 2006

A. A. Tiskhin/S. V. Khavrin, Ispol'zovanie rentgeno-fliuorestsentnogo analiza v arkheologicheskikh issledovaniiakh. Teoriia i praktika arkheologicheskikh issledovanii 2, 2006, 74–85. A. A. Тишкин/С. В. Хаврин, Использование рентгенофлюоресцентного анализа в археологических исследованиях. Теория и практика археологических исследований 2, 2006, 74–85.

TISHKIN/LUZGIN 2009

A. A. Tishkin/B. N. Luzgin, Izuchenie nakhodok bus iz pamiatnika khunnskogo vremeni Ialoman-II. In: Geografiia – teoriia i praktika: sovremennye problemy i perspektivy (Barnaul 2009) 243–247. A. A. Тишкин/Б. Н. Лузгин, Изучение находок бус из памятника хуннуского времени Яломан-II. In: География – теория и практика: современные проблемы и перспективы (Барнаул 2009) 243–247.

TISHKIN ET AL. 2004

A. A. Tishkin/V. V. Gorbunov/S. S. Matrenin, Ialomanskii arkheologicheskii mikroraion v Gornom Altae. In: S. S. Tikhonov (otv. red.), Arkheologicheskie mikroraiony Severnoi Evrazii. Materialy nauchnoi konferentsii (Omsk 2004) 93–97. A. A. Тишкин/В. В. Горбунов/С. С. Матренин, Яломанский археологический микрорайон в Горном Алтае. In: С. С. Тихонов (отв. ред.), Археологические микрорайоны Северной Евразии. Материалы научной конференции (Омск 2004) 93–97.

TISHKIN ET AL. 2007

A. A. Tishkin/S. V. Khavrin/Ia. V. Frenkel', Busy khunnskogo vremeni (po materialam raskopok pamiatnika Ialoman-2 v Gornom Altae). In: V. V. Nevinskii/A. A. Tishkin (otv. red.), Altae-Saianskaia gornaia strana i istoriia osvoeniia ee kochevnikami. Sbornik nauchnykh trudov (Barnaul 2007) 212–215. A. A . Тишкин/С. В. Хаврин/Я. В. Френкель, Бусы хуннуского времени (по материалам раскопок памятника Яломан-2 в Горном Алтае). In: В. В. Невинский/А. А. Тишкин (отв. ред.), Алтае-Саянская горная страна и история освоения ее кочевниками. Сборник научных трудов (Барнаул 2007) 212–215.

TISHKIN ET AL. 2008

A. A. Tishkin/S. V. Khavrin/O. G. Novikova, Kompleksnoe izuchenie nakhodok laka iz pamiatnikov Ialoman-II i Shibe (Gornyi Altai). In: A. A. Tishkin (otv. red.), Drevnie i srednevekovye kochevniki Tsentral'noi Azii. Sbornik nauchnykh trudov (Barnaul 2008) 196–200. A. A Тишкин/С. В. Хаврин/ О. Г. Новикова, Комплексное

изучение находок лака из памятников Яломан-II и Шибе (Горный Алтай). In: А. А. Тишкин (отв. ред.), Древние и средневековые кочевники Центральной Азии. Сборник научных трудов (Барнаул 2008) 196–200.

Tkachev 1987
V. Tkachev, Nomadic capitals in Central Asia. Information Bulletin Moscow 1987, 114–118.

Törbat 2003a
Ts. Törbat, Keramika khunnskogo mogil'nika Burkhan-Tolgoi. Erdem shinzhilgeenii bichig. Arkheologi, antropologi, ugsaatan sudlal 19, 2003, 82–100. Ц. Төрбат, Керамика хуннского могильника Бурхан-Толгой. Эрдэм шинжилгээний бичиг. Археологи, антропологи, угсаатан судлал 19, 2003, 82–100.

Törbat 2003b
Ts. Törbat, Tamiryn Ulaan khoshuuny bulsh ba Khünnügiin ugsaatny büreldekhüünii asuudald. Tükhiin setgüül 4, 2003, 6–17. Ц. Төрбат, Тамирын Улаан хошууны булш ба Хүннүгийн угсаатны бүрэлдэхүүний асуудалд. Түүхийн сэтгүүл 4, 2003, 6–17.

Törbat 2004
Ts. Törbat, Khünnügiin zhiriin irgediin bulsh (Ulaanbaatar 2004). Ц. Төрбат, Хүннүгийн жирийн иргэдийн булш (Улаанбаатар 2004).

Törbat 2006
Ts. Turbat, The Origin of Xiongnu Archaeological Culture based on Funerary Rites. Mongolian Journal of anthropology, Archaeology and Ethnology 2, 2, 2006, 22–36.

Törbat et al. 2003
Ts. Törbat/Ch. Amartüvshin/U. Erdenebat, Egiin Golyn sav nutag dakh' arkheologiin dursgaluud (Khürliin üees Mongolyn üe) (Ulaanbaatar 2003). Ц. Төрбат/Ч. Амартүвшин/У. Эрдэнэбат, Эгийн Голын сав нутаг дахь археологийн дурсгалууд (Хүрлийн үеэс Монголын үе) (Улаанбаатар 2003).

Törbat et al. 2005a
Ts. Törbat/T. Batbaiar/N. Pusa, Khünnügiin üeiin Borogiin suuringiin seramologiin sudalgaa. Tüükhiin setgüül 6, 2005, 5–23. Ц. Төрбат/Т. Батбаяр/Н. Пуса, Хүннүгийн үеийн Борогийн суурингийн серамологийн судалгаа. Түүхийн сэтгүүл 6, 2005, 5–23.

Törbat et al. 2005b
Ts. Törbat/P. Kh. Giscard/D. Batsukh, Mongol Altaid Pazyrykiin bulshiig ankh udaa maltan sudalsan tukhai. Arheologiin sudlal 23, 2005, 32–53. Ц. Төрбат/П. Х. Жискар/Д. Батсүх, Монгол Алтайд пазырыкийн булшийг анх удаа малтан судалсан тухай. Археологийн судлал 23, 2005, 32–53.

Törbat et al. 2007
Ts. Törbat/D. Batsükh/T. Batbaiar/N. Baiarkhüü/X. Jordana/P- Kh. Giscard, Baga Türgenii gol-VI Pazyrykiin üeiin tsogtsolboryn arkheologi, paleoantropologiin sudalgaa (Ur'bchilsan ür dün). Arkheologiin sudlal 24, 2007, 188–215. Ц. Төрбат/Д. Батсүх/Т. Батбаяр/Н. Баярхүү/Х. Жордана/П.-Х. Жискар, Бага түргэний гол-VI Пазырыкийн үеийн цогцолборын археологи, палеоантропологийн судалгаа (Урьдчилсан үр дүн). Археологийн судлал 24, 2007, 188–215.

Törbat et al. 2008
Ts. Törbat/P.-H. Giscard/D. Batshükh/T. Batbaiar/Kh. Jordana, Tsagaan Asgyn Pazyrykiin üeiin bulshny sudalgaany ur'dchilsan ür dün. Arkheologiin sudlal 26, 115-135. Ц. Төрбат/П.-Х. Жискар/Д. Батсүх/Т. Батбаяр/Х. Жордана, Цагаан асгын Пазырыкийн үеийн булшны судалгааны урьдчилсан үр дүн. Археологийн судлал 26, 2008, 115–135.

Törbat et al. 2009
Ts. Törbat/D. Baiar/D. Tseveendorzh/Ts. Battulga/N. Baiarkhüü/T. Iderkhangai, P.-H. Giscard, Mongol Altain Arkheologiin Dursgaluud-I: Baian-Ölgii aimag (Ulaanbaatar 2009). Ц. Төрбат/Д. Баяр/Д. Цэвээндорж/Н. Баярхүү/Т. Идэрхангай/П. Х. Жискар, Монгол Алтайн Археологийн Дурсгалууд-I Баян-Өлгий Аймаг (Улаанбаатар 2009).

Törbat et al. 2011
Ts. Törbat/Zh. Baiarsaikhan/D. Batsükh/N. Baiarkhüü, Zhargalantyn amny bugan khöshööd (Ulaanbaatar 2011). Ц. Төрбат/Ж. Баярсайхан/Д. Батсүх/Н. Баярхүү, Жаргалантын амны буган хөшөөд [= Deer stones of the Jargalantyn Am] (Ulaanabaatar 2011).

Tomka 2008
P. Tomka, Zwischen Hsiung-nu und Hunnen aus archäologischer Sicht. In: Hunnen zwischen

Asien und Europa. Aktuelle Forschungen zur Archäologie und Kultur der Hunnen. Beiträge zur Ur- und Frühgeschichte Mitteleuropas 50 (Langenweissbach 2008) 91–100.

TOLYBEKOV 1959
S. E. Tolybekov, Obshchestvenno-ekonomicheskii stroi kasakhov v XII–XIX vv. (Alma-Ata 1959). С. Е. Толыбеков, Общественно-экономический строй казахов в XVII–XIX вв. (Алма-Ата 1959).

TREASURES 1998
Treasures uf the Eurasian Steppes. Animal Art from 800 BC to 200 AD. Exhibition Catalogue Ariadne Galleries, March 25–April 30, 1998 (New York 1998).

TREISTER 2003
M. Treister, Further thoughts about Parthian and related belt and belt plaques. Iranica Antiqua 38, 2003, 247–257.

TREISTER 2005
M. Treister, On a vessel with figures friezes from a private collection, on burials in Kosika and once more on the "Ampsalakos School". Ancient Civilizations from Scythia to Siberia 11, 2005, 200–255.

TREVER 1932
K. C. Trever, Excavations in Northern Mongolia 1924–1925 (Leningrad 1932).

TRIGGER 2003
B. Trigger, Understanding Early Civilizations: A Comparatice Study (Cambridge 2003).

TRIGGER 2006
B. Trigger, The History of Archaeological Thought (Cambridge 2006).

TROUSDALE 1975
W. Trousdale, The Long Sword and Scabbard Slide in Asia. Smithsonian Contributions to Anthropology 17 (Washington D.C. 1975).

TRUDNOVSKAIA 1979
S. A. Trudnovskaia, Rannie pogrebeniia iugo-zapadnoi kurgannoi gruppy mogil'nika Tuz-Gyr. In: M. A. Itina (red.), Kochevniki na granitsakh Khorezma. Trudy khorezmskoi arkheologo-etnogradicheskoi ekspeditsii 11 (Moskva 1979) 101–110. С. А. Трудновская, Ранние погребения юго-западной курганной группы могильника Туз-Гыр. In: М. А. Итина (ред.), Кочевники на границах Хорезма. Труды хорезмской археолого-этнографической экспедиции 11 (Москва 1979) 101–110.

TSEVEENDORZH 1981
D. Tseveendorzh, Töv Aziin am'tny zagvart urlag. Shinzhlekh ukhaany am'dral 5 (Ulaanbaatar 1981). Д. Цэвээндорж, Төв Азийн амьтны загварт урлаг. Шинжлэх ухааны амьдрал 5 (Улаанбаатар 1981).

TSEVEENDORZH 1985
D. Tseveendorzh, Novye dannye po arkheologii khunnu (po materialam raskopok 1972–1977 gg.). In: R. S. Vasil'evskii (red.), Drevnie kul'tury Mongolii (Novosibirsk 1985) 51–87. Д. Цэвээндорж, Новые данные по археологии хунну (по материалам раскопок 1972–1977 гг.). In: Р. С. Васильевский (ред.), Древние культуры Монголии (Новосибирск 1985) 51–87.

TSEVEENDORZH 1988
D. Tseveendorzh, 1988 ony Khünnügiin dursgal sudlakh Mongol-Ungar-Zövlöltiin khamtarsan shinzhilgeenii tailan, Ulaanbaatar 1988. Д. Цэвээндорж, 1988 оны Хүннүгийн дурсгал судлах Монгол-Унгар-Зөвлөлтийн хамтарсан шинжилгээний тайлан. Unpublished field report, Institute of Archaeology, Ulaanbaatar 1988.

TSEVEENDORZH 1989
D. Tseveendorzh, New Data on the Archaeology of the Hsiung-nu. In: The Ancient Cultures of Mongolia (Bloomington 1989) 51–87.

TSEVEENDORZH 1992
D. Tseveendorzh, Mongolian's Archaeological, Historical and cultural Relics – "Nomads route" – International Scientific Expedition, Mongolia (Ulaanbaatar 1992).

TSEVEENDORZH 1999
D. Tseveendorzh, Mongolyn ertnii urlagiin tüükh (Ulaanbaatar 1999). Д. Цэвээндорж, Монголын эртний урлагийн түүх (Улаанбаатар 1999).

TSEVEENDORZH 2000
D. Tseveendorzh, Baga Gazryn Chuluu, Tarvagatai, Khuushiin Khotol, Baruun Khairkhany Khünnü bulsh. Arkheologiin sudlal 20, 2000, 35–60. Д. Цэвээндорж, Бага Газрын чулуу, тарвагатай, хүүшийн хөтөл, баруун хайрханы хүннү булш. Археологийн судлал 20, 2000, 35–60.

Tseveendorzh 2003
D. Tseveendorzh, Mongolyn Arkheologiin Sudalga II (Erdem shinzhilgeenii ögüülel, iltgeliin emkhetgel 1983–1992 (Ulaanbaatar 2003). Д. Цэвээндорж, Монголын Археологийн Судалга II (Эрдэм шинжилгээний өгүүлэл, илтгэлийн эмхэтгэл 1983–1992 (Улаанбаатар 2003).

Tseveendorzh 2007
D. Tseveendorzh, Chandmanii soel. Mongolyn arkheologiin tovch tol' (Ulaanbaatar 2007). Д. Цэвээндорж, Чандманий соёл. Монголын археологийн товч толь (Улаанбаатар 2007).

Tseveendorzh/Batsaikhan 1994
D. Tseveendorzh/Z. Batsaikhan, Khünnügiin shavar vaar. Arkheologiin sudlal 14, 1994, 76–107. Д. Цэвээндорж/З. Батсайхан, Хүннүгийн шавар ваар. Археологийн судлал 14, 1994, 76–107.

Tseveendorzh/Erdeli 1990
D. Tseveendorzh/I. Erdeli, Khudgiin tolgoi, Solbi uul, Naimaa tolgoin khünnü bulsh. Tükhiin sudlal 24, 1990, 105–129. Д. Цэвээндорж/И. Эрдели, Худгийн толгой, Солби уул, Наймаа толгойн хүннү булш. Түүхийн судлал 24, 1990, 105–129.

Tseveendorzh/Garamzhav 1999
D. Tseveendozh/T. Garamdzhav, Mongol orond ert tsagt zes olborlozh bolovsruulzh baisan tukhai asuudald. Arkheologiin sudlal 19, 1999, 17–25. Д. Цэвээндорж/Т. Гарамжав, Монгол оронд эрт цагт зэс олборлож боловсруулж байсан тухай асуудалд. Археологийн судлал 19, 1999, 17–25.

Tseveendorzh/Tserendagva 1999
D. Tseveendorzh/Ia. Tserendagva, Tüükhiin khüreelengiin Arkheologiin laboratorid khadgalagdazh büi khürel toliud. Arkheologiin sudlal 19, 1999, 36–52. Д. Цэвээндорж/Я. Цэрэндагва, Түүхийн хүрээлэнгийн Археологийн лабораторид хадгалагдаж буй хүрэл толиуд. Археологийн судлал 19, 1999, 36–52.

Tseveendorzh et al. 1994
D. Tseveendorzh/Z. Batsaikhan/Ts. Törbat, Khünnügiin khot suuriny asuudald. Shinzhlekh ukhaany akademiin medee 3–4, 1994,77–85. Д. Цэвээндорж/З. Батсайхан/Ц. Төрбат, Хүннүгийн хот суурины асуудалд. Шинжлэх ухааны академийн мэдээ 3–4, 1994, 77–85.

Tseveendorzh et al. 2007a
D. Tseveendorzh/N. V. Polos'mak/N. Batbold/N. Erdene-Ochir/M. Tsengel, Noen uulyn Khünnügiin iazguurtny 20-r bulshny sudalgaa. Arkheologiin sudlal 24, 2007, 288–304. Д. Цэвээндорж/Н. В. Полосьмак/Н. Батболд/Н. Эрдэнэ-Очир/М. Цэнгэл, Ноён уулын Хүннүгийн язгууртны 20-р булшны судалгаа. Археологийн судлал 24, 2007, 288–304.

Tseveendorzh et al. 2007b
D. Tseveendorzh/N. Batbold/N. Erdene-Ochir/M. Tsengel/P. Aldarmönkh, Mongol-Orosyn khamtarsan "Mongol nutag dakh' Noen uulyn bulshny arkheologiin sudalgaa" tösliin 2006 ony kheeriin shinzhilgeenii angiin tailan Ulaanbaatar AKHGBSKH. Д. Цэвээндорж/Н. Батболд/Н. Эрдэнэ-Очир/М. Цэнгэл/П. Алдармөнх, Монгол-Оросын хамтарсан "Монгол нутаг дахь Ноён уулын булшны археологийн судалгаа" төслийн 2006 оны хээрийн шинжилгээний ангийн тайлан Улаанбаатар АХГБСХ. Unpublished field report, Institute of Archaeology, MAS, Ulaanbaatar.

Tseveendorzh et al. 2007c
D. Tseveendorzh/N. Batbold/N. Erdene-Ochir/M. Tsengel, Khünnü nar Ertnii Romyn ezent gürentei khariltsaatai baisan. Erdem 4, 2007, 9–10. Д. Цэвээндорж/Н. Батболд/Н. Эрдэнэ-Очир/М. Цэнгэл, Хүннү нар Эртний Ромын эзэнт гүрэнтэй харилцаатай байсан. Эрдэм 4, 2007, 9–10.

Tseveendorzh et al. 2007d
D. Tseveendorzh/V. I. Molodin/H. Parzinger/M. Baiarsaikhan/G. Lkhündev, Mongol Altain mönkh tsevdgiin bulshny sudalgaa (Ur'dchilsan ür dünees). Arkheologiin sudlal 24, 2007, 167–187. Д. Цэвээндорж/В. И. Молодин/Г. Парцингер/М. Баярсайхан/Г. Лхүндэв, Монгол Алтайн мөнх цэвдгийн булшны судалгаа (Урьдчилсан үр дүнгээс). Археологийн судлал 24, 2007, 167–187.

Tseveendorzh et al. 2008
D. Tseveendorzh/N. Batbold/N. Erdene-Ochir/M. Tsengel/N. V. Polos'mak, Noen Uulyn khünnügiin iazguurtny bulshny sudalgaa. In: Xiongnu 2008, 305–324. Д. Цэвээндорж/Н. Батболд/Н. Эрдэнэ-Очир/М. Цэнгэл/Н. В. Полосьмак, Ноен Уулын хүннүгийн язгууртны булшны судалгаа. In: Xiongnu 2008, 305–324.

TSEVEENDORZH ET AL. 2010
D. Tseveendorzh/N. Erdene-Ochir/N. V. Polos'mak/E. S. Bogdanov, Noen Uulyn khünnügiin iazguurtniay bulshny 2006, 2009 ony arkheologiin maltlaga sudalgaany ür düngees. Arkheologiin sudlal 29, 2010, 255–273. Д. Цэвээндорж/Н. Эрдэнэ-Очир/Н. В. Полосьмак/Е. С. Богданов, Ноен Уулын хүннүгийн язгууртняы булшны 2006, 2009 оны археологийн малтлага судалгааны үр дүнгээс. Археологийн судлал 29, 2010, 255–273.

TSEVEENZHAV 1992
D. Tseveenzhav, Ömnögov' aimgiin Khanbogd sumyn tüükhen toim (Ulaanbaatar 1992). Д. Цэвээнжав, Өмнөговь аймгийн Ханбогд сумын түүхэн тойм (Улаанбаатар 1992).

TSYBIKTAROV 1998
A. D. Tsybiktarov, Kul'tura plitochnykh mogil Mongolii i Zabaikal'ia (Ulan-Ude 1998). А. Д. Цыбиктаров, Культура плиточных могил Монголии и Забайкалья (Улан-Удэ 1998).

TSYBIKTAROV 2003
A. D. Tsybiktarov, Eastern Central Asia at the Dawn of the Bronze Age: Issues in Ethno Cultural History of Mongolia and the Southern trans-Baikal Region in the Late Third–early Second Millennium BC. Archaeology Ethnology and Anthropology of Eurasia 2003, 3, 107–123.

TUMEN 2004
D. Tumen, Linguistic, cultural, and morphological characteristics of Mongolian populations. In: T. Irimoto/T. Yamada (eds.), Circumpolar Ethnicity and Identity. Senri Ethnological Studies 66 (Osaka 2004) 309–324.

TUMEN ET AL. 2006
D. Tumen/D. Navaan/M. Erdene, Archaeology of the Mongolian period: A brief introduction. The Silk Road 4, 2006, 51–55.

TURCHIN 2003
P. Turchin, Historical dynamics. Why states rise and fall (Princeton 2003).

TURCHIN 2009
P. Turchin, A theory for formation of large empires. Journal of Global History 4, 2009, 191–217.

TURKON 2004
P. Turkon, Food and status in the prehispanic Malpaso Valley, Zacatecas, Mexico. Journal of Anthropological Archaeology 23, 2004, 225–251.

TURNER II 1987
C. G. Turner II, Late Pleistocene and Holocene population history of East Asia based on dental variation. American Journal of Physical Anthropology 73, 1987, 305–321.

TURNER II 1990
C. G. Turner II, The major features of Sundadonty and Sinodonty, including suggestions about East Asia microevolution, population history, and late Pleistocene relationships with Australian aboriginals. American Journal of Physical Anthropology 82, 3, 1990, 295–317.

TWITCHETT/TIETZE 1994
D. Twitchett/K. Tietze, Liao. In: H. Franke/D. Twitchett (eds.), The Cambridge history of China, Vol. 6. Alien regimes and border states, 907–1368 (Cambridge 1994) 43–153.

U EN' ET AL. 1990
U En'/Chzhun Kan'/Li Izin'tszen, Mogil'nik Siunnu v derevne Daodun'tszy uesda Tunsin' v Ninsia. In: V. E. Larichev (red.), Kitai v epokhu drevnosti (Novosibirsk 1990) 88–101. У Энь/Чжун Кань/Ли Йзиньцзэн, Могильник Сюнну в деревне Даодуньцзы уезда Тунсинь в Нинся. In: В. Е. Ларичев (ред.), Китай в эпоху древности (Новосибирск 1990) 88–101.

ULLINGER ET AL. 2005
J. M. Ullinger/S. G. Sheridan/D. E. Hawkey/C. G. Turner II/R. Cooley, Bioarchaeological analysis of cultural transition in the southern Levant using dental nonmetric traits. American Journal of Physical Anthropology 128, 2005, 466–476.

UMEHARA 1960
Umehara Sueji 梅原未治, Mōko Noin-Ula hakken no imotsu 蒙古(イヂ・ウラ發見の遺物 (Tokyo 1960).

L'UOMO D'ORO 1998
G. Arbore Popescu/Ch. Silvi Anotonini/K. Baipakov (eds.), L'Uomo d'Oro. La cultura delle steppe del Kazhakstan dall'età del bronzo alle grande migrazioni (Milano 1998).

UPHAM 1992
S. Upham, Interaction and Isolation: The Empty

Spaces in Panregional Political and Economic Systems. In: E. M. Schortman, P. A. Urban (Eds.), Resources, Power, and Interregional Interaction (New York 1992), 139–152.

Vadetskaia 1992
E. B. Vadetskaia, Tashtykskaia kul'tura. In: Stepnaia polosa 1992, 236–246. Э. Б. Вадецкая, Таштыкская культура. In: Stepnaia polosa 1992, 236–246.

Vadetskaia 1999
E. B. Vadetskaia. Tashtykskaia epokha v drevnei istorii Sibiri (Sankt-Peterburg 1999). Э. Б. Вадецкая, Таштыксая эпоха в древней истории Сибири (Санкт-Петербург 1999).

Vainshtein 1980
S. Vainshtein, Nomads of South Siberia: the Pastoral Economies of Tuva. Cambridge Studies in Social Anthropology 25 (Cambridge 1980).

de la Vaissière 2005
E. de la Vaissière, Huns et Xiongnu. Central Asiatic Journal 49, 2005, 3–26.

Van Creveld 1999
M. Van Creveld, The rise and decline of the state (Cambridge 1999).

Van Geel et al. 2004
B. van Geel/N. A. Bokovenko/N. D. Burova/K. V. Chugunov/V. A. Dergachev/V. G. Dirksen/M. Koulkova/A. Nagler/H. Parzinger/J. van der Plicht /S. S. Vasiliev/G. I. Zaitseva, Climate change and the expansion of the Scythian culture after 850 BC: a hypothesis. Journal of Archaeological Science 31, 2004, 1735–1742.

Vasjutin 2003
S. A. Vasjutin, Typology of pre-states and statehood systems of nomads. In: N. N. Kradin/D. M. Bondarenko/Th. J. Barfield (eds.), Nomadic Pathways in Social Evolution. The civilization dimension series 5 (Moscow 2003) 50–62.

Vigne/Helmer 2007
J.-D. Vigne/D. Helmer, Was milk a 'secondary product' in the Old World Neolithisation process? Its role in the domestication of cattle, sheep, and goats. Anthropozoologica 42, 2007, 9–40.

Vishnevskaia 1992
O. A. Vishnevskaia, Tsentral'nyi Kazakhstan. In: Stepnaia polosa 1992, 130–139. О. А. Вишневская, Центральный Казахстан. In: Stepnaia polosa 1992, 130–139.

Vladimirtsov 1934
B. Ia. Vladimirtsov, Obshchestennyi stroi mongolov. Mongol'skii kochevoi feodalizm (Leningrad 1934). Б. Я. Владимирцов, Общестенный строй монголов. Монгольский кочевой феодализм (Ленинград 1934).

Volkov 1967
V. V. Volkov, Bronzovyi i rannii zheleznyi veka Severnoi Mongolii (Ulan-Bator 1967). В. В. Волков, Бронзовый и ранний железный века Северной Монголии (Улан-Батор 1967).

Volkov 1995
V. Volkov, Early Nomads of Mongolia. In: J. D. Davis-Kimball/V. A. Bashilov/L. T. Yablonsky (eds.), Nomads of the Eurasian Steppes in the Early Iron Age (Berkeley 1995) 319–332.

Volkov 1981
V. V. Volkov, Olennye kamni Mongolii (Ulan-Bator 1981). В. В. Волков, Оленные камни Монголии (Улан-Батор 1981).

Volkov/Dorzhsüren 1963
V. V. Volkov/Ts. Dorzhsüren, Khovd aimgiin Mankhan sumyn nutagt ertnii sudalyn maltlagaa khaiguul khiisen tukhai. Arkheologiin sudlal 2, 5, 1963, 51–68. В. В. Волков/Ц. Доржсүрен, Ховд аймгийн Манхан сумын нутагт эртний судалын малтлагаа хайгуул хийсэн тухай. Археологийн судлал 2, 5, 1963, 51–68.

Vovin 2000
A. Vovin, Did the Xiong-nu speak a Yeniseian language? Central Asiatic Journal, 44, 1, 2000, 87–104.

Wagner 1996
D. Wagner, Iron and Steel in Ancient China. Handbuch der Orientalistik 4, 9. 2nd impr. with corr. (Leiden, New York, Köln 1996).

Wagner/Butz 2007
M. Wagner/H. Butz, Nomadenkunst. Ordosbronzen der Ostasiatischen Kunstsammlung. Archäologie in Eurasien 23 (Mainz 2007).

Wahome et al. 1994
R. G. Wahome/A. B. Carles/H. J. Schwartz, An

analysis of the variation of the lactation curves of small East African ruminants. Small Ruminant Research 15, 1994, 1–7.

WALDRON 1990
A. Waldron, The Great Wall of China: From History to Myth (Cambridge 1990).

WALDRON 1994
T. Waldron, Counting the dead: The epidemiology of skeletal populations (Chichester 1994).

WAN 2004
Wan Xin 萬欣, Liaoning Beipiao Lamadong mudi 1998 nian fajue baogao 遼寧北票喇嘛洞墓地 1998 年發覺報告. Kaogu xuebao 2004, 2, 209–242.

WANG 2004
Wang Bailing 王柏靈, Xiongnu shihua 匈奴史話 (Xi'an 2004).

WANG 1986
Wang Binghua 王炳華, Xinjiang dongbu faxian de jipi tongqi 新疆東部發現的幾批銅器. Kaogu 1986, 10, 887–890.

WANG 2008
Wang Guihai 汪桂海, Hanjian suo jian Xiongnu dui biansai de koulüe 漢簡所見匈奴對邊塞的寇掠. Jianbo 3, 2008, 299–306.

WANG 2009
Wang Hui 王輝, Zhangjiachuan Majiayuan mudi xiangguan wenti chutan 張家川馬家塬墓地相關問題初探. Wenwu 2009, 10, 70–77.

WANG 2003
Wang Xueli 王學理, Han Jingdi yu Yangling 漢景帝與陽陵 (Xi'an 2003).

WANG 1983
Wang Weimao 汪維懋, Xiongnu Longcheng kaoban 匈奴龍城考辦. Lishi yanjiu 2, 1983, 142–144.

WANG 1992
Wang Dan 王丹, Jilin daxue cang Beifang qingtongqi 吉林大學藏北方青銅器. Beifang wenwu 1992, 3, 16–23.

WANG 1993
Wang Haiwen 王海文, Gugong bowuyuan cang E'erduosi qingtongqi 故宮博物院藏鄂爾多斯青銅器. Gugong bowuyuan yuankan 1993, 1, 16–24.

WANG/WANG 2009
S. Wang/Z. Wang, Primary Analysis on the Charcoals Unearthed from a Bronze Age Site in the Khanuy River Valley, Central Mongolia. Unpublished Report, Institute of Archaeology, Chinese academy of Social Sciences, Beijing 2009.

WAPNISH/HESSE 1988
P. Wapnish/B. Hesse, Urbanization and the Organization of Animal Production at Tell Jemmeh in the Middle Bronze Age Levant. Journal of Near Eastern Studies 47, 2, 1988, 81–94.

WAPNISH/HESSE 1991
P. Wapnish/B. Hesse, Faunal Remains from Tel Dan: Perspectives on Animal Production at Village, Urban, and Ritual Center. Archaeozoologia 4, 2, 1991, 9–86.

WATSON 1961a
B. Watson (transl.), Records of the Grand Historian of China from Shih Chi of Ssu-ma Ch'en. Records of civilization 65, Vol. 1 (New York 1961).

WATSON 1961b
B. Watson (transl.), Records of the Grand Historian of China from Shih Chi of Ssu-ma Ch'en. Records of civilization 65, Vol. 2 (New York 1961).

WAUGH 2006
C. D. Waugh, The challenges of preserving evidence of Chinese lacquer-ware in Xiongnu graves. The Silk Road 4, 1, 2006, 32–36.

WAUGH 2010
D. C. Waugh, Nomads and Settlement: New Perspectives in the Archaeology of Mongolia. The Silk Road 8, 2010, 97–124.

WEBER 1980
M. Weber, Wirtschaft und Gesellschaft. Grundriss der verstehenden Soziologie. 5th ed. (Tübingen 1980).

WEI 1998
Wei Jian 魏堅, Neimenggu zhongnan bu Han dai muzang 內蒙古中南部漢代墓葬 (Beijing 1998).

WEI 2004
Wei Jian 魏堅 (ed.), Nei Menggu diqu Xianbei muzang de faxian yu yanjiu 內蒙古地區鮮卑墓葬的發現與研究 (Beijing 2004).

WEI 2005
Wei Jian 魏堅 (ed.), Ejina Hanjian 額濟納漢簡 (Guilin 2005).

Weiers 2005
M. Weiers, Steppe und Steppenreiche bis Činggis Khan. In: Dschingis Khan und seine Erben. Das Weltreich der Mongolen (München 2005) 36–38.
Wenwu 1997
Wenwu tuxiang yanjiushi 文物圖象研究室 (Academia Sinica), Jianbo jinshi ziliaoku 簡帛金石資料庫. http://saturn.ihp.sinica.edu.tw/~wenwu/search.htm (as of September 29, 1997, last accessed: March 14, 2011).
Werner 1956
J. Werner, Beiträge zur Archäologie des Attila-Reiches. Bayer. Akad. Wiss. Phil.-Hist. Klasse Abhandl. N. F. 38 A (München 1956).
Werner 1974
J. Werner, Nomadische Gürtel bei Persern, Byzantinern und Langobarden. In: La Civiltà die Longobardi in Europa. Atti del convegno internationale Roma i Friuli 1971. Accad. Naz. dei Lincei 189, 1974 (Roma 1974) 109–139.
Wieczorek/Lind 2007
A. Wieczorek/Ch. Lind, Ursprünge der Seidenstrasse. Sensationelle Neufunde aus Xinjiang, China (Stuttgart 2007).
Wilkinson 2000
E. Wilkinson, Chinese history: A manual. Havard-Yeching Institute monograph series 52 (Cambridge 2000).
Wilkinson 2000
D. Wilkinson, Civilizations, World Systems, and Hegemonies. In: R. A. Denemark/J. Friedman/B. K. Gills/G. Modelski (eds.), World System History: The Social Science of Long-Term Change (London, New York 2000) 54–84.
Williams 2008
J. Williams, The Tahilt Region: A Preliminary Archaeological Survey of the Tahilt Surroundings to Contextualize the Tahilt Cemeteries. The Silk Road 5, 2, 2008, 42–47.
Wood 2005
E. M. Wood, Empire of Capital (London, New York 2005).
Wright 1942
Q. Wright, A Study of War (Chicago 1942).
Wright 1997
D. Wright, The Hsiungnu-Hun Equation revisited. Eurasian Studies Yearbook 69, 1997, 77–112.
Wright 2006
J. Wright, The Adoption of Pastoralism Northeast Asia, monumental transformation in the Egiin Gol Valley, Mongolia. Unpublished PhD Dissertation, Harvard University 2006.
Wright 2007
J. Wright, Organization Principles of Khirigsuur Monuments in the Lower Egiin Gol Valley, Mongolia. Journal of Anthropological Archaeology 26, 2007, 350–365.
Wright/Amartüvshin 2009
J. Wright/Ch. Amartüvshin, "Unseen by eye, unheard by ear": Archaeology of the Early Türks at Baga Gazaryn Chuluu, Mongolia. In: Bemmann et al. 2009, 349–363.
Wright et al. 2007
J. Wright/W. Honeychurch/Ch. Amartuvshin, Initial findings of the Baga Gazaryn Chuluu archaeological survey (2003–2006). Antiquity 81, 2007.
Wright et al. 2009
J. Wright/W. Honeychurch/C. Amartuvshin, The Xiongnu Settlements of Egiin Gol, Mongolia. Antiquity 83, 2009, 372–387.
Wu 2005
Wu Xiaoping 吳小平, Han dai qingtong rongqi de kaoguxue yanjiu 漢代青銅容器的考古學研究 (Changsha 2005).
Wu 2007a
Wu Xiaoping 吳小平, Handai tonghu de leixingxue yanjiu 漢代銅壺的類型學研究. Kaogu xuebao 2007, 1, 29–60.
Wu 2007b
Wu Xiaoping 吳小平, Cong mingwen kan liang Han tongqimin de shengchan jingying fangshi jiqi bianhua 從銘文看兩漢銅器皿的生產經營方式及其變化. Gugong bowuyuan yuankan 2007, 4, 100–107.
Wu 2006
Wu Yeung-chan 오영찬, Nangnang gun engu 낙랑군 연구 (Seoul 2006).
Wu'en 1990
Wu'en yuesitu 烏恩岳斯圖, Lun Xiongnu kaogu yanjiu zhong de jige wenti 論匈奴考古的幾個問

題. Kaogu xuebao 1990, 4, 409–437.

WU'EN 2007
Wu'en yuesitu 烏恩岳斯圖, Beifang caoyuan kaoguxue wenhua yanjiu – qingtong shidai zhi zaoqi tieqi shidai 北方草原考古學文化研究 – 青銅時代至早期鐵器時代 (Beijing 2007).

WU'EN 2008
Wu'en yuesitu 烏恩岳斯圖, Beifang caoyuan kaoguxue wenhua bijiao – qingtong shidai zhi zaoqi Xiongnu shiqi 北方草原考古學文化比較研究 – 青銅時代至早期匈奴時期 (Kexue 2008).

XI'AN 1963
Xi'an shi wenwu guanli weiyuanhui 西安市文物管理委員會, Xi'an Sanqiaozhen Gaoyaocun chutu de Xi Han tongqi qun 西安三橋鎮高窰村出土的西漢銅器群. Kaogu 1963, 2, 62–70.

XIE ET AL. 1987
Xie Guihua 謝桂華/Li Junming 李均明/Zhu Guozhao 朱國炤, Juyan Hanjian shiwen hejiao 居延漢簡釋文合校, 2 Vols. (Beijing 1987).

XIONGNU 2008
Ch'o-wŏnŭi taejeguk hyungno 초원의 대체국 흉노. Han-mong kongdong haksuljosa 10chunyŏn kukjehaksulsimp'ojium 한-몽 공동학술조사 10주년 기념 국제학술심포지엄. [Xiongnu, The First Empire of the Steppes. International Symposium in celebration of the 10th anniversary of MON-SOL Project] (Seoul 2008).

XIONGNU TOMBS 2008
Xiongnu Tombs in Mongolia 몽골 흉노 무덤 자료집성 (Seoul 2008).

YABLONSKY 1995
L. T. Yablonsky, Written Sources and the History of Archaeological Studies of the Saka in Central Asia. In: J. Davis-Kimball/V. A. Bashilov/L. T. Yablonsky (eds.), Nomads of the Eurasian Steppes in the Early Iron Age (Berkeley 1995), 193–197.

YAMADA 1982
N. Yamada, Formation of the Hsiung-nu nomadic state. Acta Orientalia Hungaricae 36, 1982, 575–582.

YANG 2004
Yang Jianhua 楊建華, Chunqiu zhanguo shiqi zhongguo beifang wenhuadai de xingcheng 春秋戰國時期中國北方文化帶的形成 (Beijing 2004).

YANGZHOU 1991
Yangzhou bowuguan 揚州博物館/ Hanjiang xian tushuguan 邗江縣圖書館, Jiangsu Hanjiang xian Yangshou xiang Baonudun Xin Mang mu 江蘇邗江縣楊壽鄉寶女墩新莽墓. Wenwu 1991, 10, 39–61.

YAN/LI 1992
Yan Shizhong 延世忠/Li Huairen 李懷仁, Ningxia Xiji faxian yizuo qintong shidai muzang 寧夏西吉發現一座青銅時代墓葬. Kaogu 1992, 6, 573–575.

YIKEZHAOMENG/NEI MENGGU 1980a
Yikezhaomeng wenwu gongzuozhan 伊克昭盟文物工作站 and Nei Menggu wenwu gongzuodui 內蒙古文物工作隊, Xigoupan Xiongnu mu 西溝畔匈奴墓. Wenwu 1980, 7, 1–10.

YIKEZHAOMENG/NEI MENGGU 1980b
Yikezhaomeng wenwu gongzuo zhan 伊克昭盟文物工作站/ Nei Menggu wenwu gongzuo dui 內蒙古文物工作队, Xigoupan Han dai Xiongnu mudi diaocha ji 西沟畔汉代匈奴墓地调查记. Nei Menggu wenwu kaogu inaugural issue, 1980, 1, 15–27.

YIKEZHAOMENG/NEI MENGGU 1980c
Yikezhaomeng wenwu gongzuozhan 伊克昭盟文物工作站/ Nei Menggu wenwu gongzuodui 內蒙古文物工作隊, Budonggou Xiongnu mu qingli jianbao 補洞溝匈奴墓清里簡報. Nei Menggu wenwu kaogu inaugural issue 1980, 1, 27–33.

YU/DAI 1985
Yu Ping 予平/Dai Ge 戴戈, Shaanxisheng bowuguan shoucang de Xiongnu tongpaishi 陝西省博物館收藏的匈奴銅飾牌. Wenbo 1985, 5, 32–42.

YÜ 1967
Yü Ying-shih, Trade and Expansion in Han China (Berkeley 1967).

YÜ 1986
Yü Ying-shih, Han foreign relations. In: D. Twitchett/M. Loewe (eds.), The Cambridge history of China I: the Ch'in and Han empires, 221 B.C. – A.D. 220 (Cambridge 1986) 377–462.

YÜ 1990
Yü Ying-shih, The Hsiung-nu. In: D. Sinor (ed.),

The Cambridge history of early Inner Asia (Cambridge 1990) 118–150.

Yun 2003

Iun Khen-von, Morin tolgoin Khünnü bulshny sudalgaa. In: S. Idshinnorov (ed.), Mongol-Solongosyn Erdem Shinzilgeenii Ankhdugaar Simpozium (Seoul 2003) 121–137. Юн Хён-вон, Морин толгойн хүннү булшны судалгаа. In: С. Идшинноров (ed.), Монгол-Солонгосын Эрдэм Шинжилгээний Анхдугаар Симпозиум (Seoul 2003) 121–137.

Zaoqi Qin-Han/Zhangjiachuan 2009

Zaoqi Qin-Han wenhua lianhe dui 早期秦漢文化聯合隊/Zhangjiachuan huizu zizhi xian bowuguan 張家川回族自治縣博物館, Zhangjiachuan Majiayuan Zhanguo mudi 2007–2008 nian fajiue jianbao 張家川馬家塬戰國墓地 2007–2008 年發掘簡報. Wenwu 2009, 10, 25–51.

Zasetskaia 1975

I. P. Zasetskaia, Zolotye ukrasheniia gunnskoi epokhi: Po materialam osoboi kladovoi Gos. Ermitazha (Leningrad 1975). И. П. Засецкая, Золотое украшения гуннской эпохи: По материалам особой кладовой Гос. Эрмитажа. (Ленинград 1975).

Zasetskaia 1979

I. P. Zasetskaia, Savromatskie i sarmatskie pogrebeniia Nikol'skogo mogil'nika v nizhnem Povolzh'e. Trudy Gosudarstvennogo Ermitazha 20, 1979, 87–113. И. П. Засецкая, Савроматские и Сарматские погребения Никольского могильника в нижне Поволжье. Труды Государственного Эрмитажа 20, 1979, 87–113.

Zasetskaia 1982

I. P. Zasetskaia, Pogrebenie u sela Kyzyl-Adyr Orenburgskoi oblasti (k voprosu o gunno-khunnskikh sviazakh). In: A. M. Mikliaev (red.), Drevnie pamiatniki kul'tury na territorii SSSR. Sbornik nauchnykh trudov (Leningrad 1982) 54–77. И. П. Засецкая, Погребение у села Кызыл-Адыр Оренбургской области (к вопросу о гунно-хуннских связях). In: А. М. Микляев (ред.), Древние памятники культуры на территории СССР. Сборник научных трудов (Ленинград 1982) 54–77.

Zasetskaia 1983

I. P. Zasetskaia, Klassifikatsiia nakonechnikov strel gunnskoi epokhi (konets IV–V vv. do n.e.). In: A. S. Skripkin (red.), Istoriia i kul'tura sarmatov (Saratov 1983) 70–84. И. П. Засецкая, Классификация наконечников стрел гуннской эпохи (конец IV–V вв. до н. э.). In: А. С. Скрипкин (ред.), История и культура сарматов (Саратов 1983) 70–84.

Zasetskaia/Bokovenko 1994

I. P. Zaseckaja/N. A. Bokovenko The origin of Hunnish cauldrons in East-Europe. In: B. Genito (ed.), The archaeology of the steppes. Methods and strategies. Papers from the International Symposium in Naples 9–12 November 1992 (Napoli 1994) 701–724.

Zasetskaia/Marchenko 1995

I. P. Zasetskaia/I. I. Marchenko, Klassifikatsiia stekliannykh kanfarov pozdneellinisticheskogo i rannerimskogo vremeni. Arkheologicheskii sbornik, Gosudarstvennyi Ermitazh 32, 1995, 90–104. И. П. Засецкая/И. И. Марченко, Классификация стеклянных канфаров позднеэллинистического и раннеримского времени. Археологический сборник, Государственный Эрмитаж 32, 1995, 90–104.

Zavitukhina 1998

M. P. Zavitukhina, Zolotaia plastina iz Zabaikal'ia v Sibirskoi Kollektsii Petra I. In: A. D. Grach/D. G. Savinov (red.), Drevnie kul'tury Tsentral'noi Azii i Sankt-Peterburg. Materialy Vserossiiskoi nauchnoi konferentsii posviashchennoi 70-letiiu so dnia rozhdeniia Aleksandra Danilovicha Gracha: dekabr' 1998 goda (Sankt-Peterburg 1998) 143–148. М. П. Завитухина, Золотая пластина из Забайкалья в Сибирской Коллекции Петра I. In: А. Д. Грач/Д. Г. Савинов (ред.), Древние культуры Центральной Азии и Санкт-Петербург. Материалы всероссийскои научной конференции посвященной 70-летию со дня рождения Александра Данилова Грача: декабрь 1998 года (Санкт-Петербург 1998) 143–148.

Zeder 2001

M. Zeder, A Metrical Analysis of a Collection of Modern Goats (*Capra hircus aegagrus* and *C. h. hircus*) from Iran and Iraq: Implications for the Study of Domestication. Journal of Archaeological Science 28, 2001, 61–79.

ZHANG 2008
Zhang Jinglei 张敬雷, Qinghai sheng Xiningshi taojiazhai hanjin shiqi mudi rengu yanjiu 青海省西寧市陶家寨漢晉時期墓地人骨研究 (Changchun 2008).

Zhang 2009
Zhang Linhu 張林虎, Xinjiang Yili Jilintai Kuqu muzang rengu yanjiu 新疆伊犁吉林臺台庫區墓葬人骨研究, PhD Dissertation, Jilin University (Changchun 2009).

ZHAO MO 1998
M. Prüch (Hrsg.), Schätze für den König von Zhao Mo. Das Grab von Nan Yue. Exhibition Catalogue Schirn Kunsthalle Frankfurt 5. Dez. 1998–22. Jan. 1999 (Heidelberg 1998).

ZHONGGUO 1962
Zhongguo kexueyuan kaogu yanjiusuo 中國科學院考古研究所, Kesheng zhuang di 140 hao mu 客省庄第 140 號墓. In: Fengxi fajue baogao 澧西發掘報告 (Beijing 1962), 138–140.

ZHONGGUO QIANBI 1998
Zhongguo qianbi da cidian bianzuan weiyuanhui bian 中國錢幣大辭典編纂委員會編, Zhongguo qianbi da cidian 中國錢幣大辭典 (Beijing 1998).

ZHONGGUO 2005
Zhongguo shehui kexueyuan kaogu yanjiusuo 中國社會科學院考古研究所, Han Chang'an cheng wuku 漢長安城武庫 (Beijing 2005).

ZHONGGUO/HEBEI 1980
Zhongguo shehui kexueyuan kaogu yanjiuso 中國社會科學院考古研究所/Hebei sheng wenwu guanlisuo 河北省文物管理所, Mancheng Han mu fajue baogao 滿城漢墓發掘報告 (Beijing 1980).

ZHONGGUO et al. 1981
Zhongguo shehui kexueyuan kaogu yanjiusuo 中國社會科學院考古研究所/Guangzhou shi wenwu guanli weiyuanhui 廣州市文物管理委員會/Guangzhou sheng bowuguan 廣州省博物館, Guangzhou Han mu 廣州漢墓 (Beijing 1981).

ZHONGGUO ET AL. 2002
Zhongguo shehui kexueyuan kaogu yanjiusuo 中國社會科學院考古研究所/Nei Menggu zizhiqu wenwu kaogu yanjiusuo 内蒙古自治區文物考古研究所/Jilin daxue bianjiang kaogu yanjiu zhongxin 吉林大學邊疆考古研究中心/Chifeng kaogudui 赤峰考古隊, Banzhijianhe zhongyou xian Qin shiqi yizhi 半支箭河中游先秦時期遺址 (Beijing 2002).

ZHONGYANG 1958
Zhongyang minzu xueyuan yanjiubu 中央民族學院研究部, Lidai gezu zhuanji huibian 歷代各族傳記會編 Vol. 1 (Beijing 1958).

ZHU 1995
Zhu Fenghan 朱鳳瀚, Gudai Zhongguo qingtongqi 古代中國青銅器 (Tianjin 1995).

ZHU/LI 1983
Zhu Jieyuan 朱捷元/Li Yuzheng 李域錚, Xi'an dongjiao Sandiancun Xi Han mu 西安東郊三殿村西漢墓. Kaogu yu wenwu 1983, 2, 22–25.

ZIELONKA 2006
J. Zielonka, Europe as empire. The nature of the enlarged European Union (Oxford 2006).

GLOSSARY

Note that in parentheses other spellings or the equivalent or meaning are named.

Abaoji	阿保機
Anding	安定
Ban Gu	班固
baoyun (precious clouds)	寶雲
beifang diqu (northern zone)	北方地區
Beihe (north of the river)	北河
Boyang (Baiyang)	白羊
Chang'an	長安
chanyu (shanyu, Xiongnu ruler or "khan")	單 於
Chaolukulun (stone fort)	朝鲁庫倫
Chaona (Zhaona)	朝那
Chaoxian	朝鮮
chen (servant, official)	臣
Cheng (Chengdi)	成(成帝)
Chengli gutu (Son of Heaven, in Xiongnu language)	賽犁孤塗
chou (silk)	紬
Chu	楚
Chuci	楚辭
Dai	代
Dailin	蹛林
daquanwushi (coin)	大泉五十
dazhong (great multitudes)	大眾
Di	狄
ding (cauldron)	鼎
Dingling	丁零
Dong Hu (Donghu, Eastern Hu)	東胡
Dunhuang	敦煌
Eastern Hu	(see Dong Hu)
erbei (ear cup)	耳杯
fu (cauldron)	釜
Fushi	膚施
Gekun	鬲昆
Gengshi(di)	更始(帝)
guan (jar)	罐
Guanghan	廣漢
Guanglu	光祿
Guangzhou	廣州
gudu hou	骨都侯
guiju (compass and square, TLV)	規矩
Gushi (see also Jushi)	姑師
Guyuan	固原
Han (dynasty)	漢(代)
heqin (joined kinship, peace treaty)	和親
hezong (alliance)	合縱
Hu (barbarian, northern barbarian)	胡
huang (stone ornament)	璜
Huhanye	呼韓邪 (呼韓耶)
Huimo	穢貉
Hunye	浑邪
Hunyu	渾庾
Huo Qubing	霍去病
Huyan	呼衍
ji (halberd)	戟
ji (horseman)	騎
jin (gold)	金
Jingdi	景帝
Jiuquan	酒泉
Jiyu	稽粥
jun (commandery)	郡
Junchen	軍臣
juqu	且渠
Jushi (see also Gushi)	車師
Juyan	居延
Kangju	康居
kaogong (workshop)	考工
Lan	蘭
Laoheshen	老河深
Laoshang	老上
Lelang	樂浪
Li Ling	李陵

lianghang (slanted writing surface) 兩行
Lin Hu 林胡
Liu Bang 劉邦
Liu Xuan 劉玄
Long (city) 龍(城)
Loufan 樓煩
lu (enemy) 虜
Luandi 攣鞮
Meng Tian 蒙恬
mingguang 明光
Modun (Maodun, Mode) 冒頓
nu (slave) 奴
Ordos (E'erduosi) 鄂爾多斯
pen (basin) 盆
Qiang 羌
qilin (mythical beast) 麒麟
Qin 秦
Qin Shihuangdi (Shihuangdi, the First Emperor of Qin) 秦始皇第
qingbai 清白
Qiuci 龜茲
Qiulin 丘林
Qushi 屈射
riguang 日光
Rizhu wang 曰逐王
Rong 戎
ruiyun (auspicious clouds) 瑞雲
sai (frontier garrison, strategic defense) 塞
Sanshui 三水
Shang 上
Shanggu 上谷
Shanglinyuan 上林苑
(Yujiulü) Shelun (郁久閭)社崙
Shiji (Records of the Historian) 史記
Shouxiangcheng (City for Receiving Submissions) 受降城
Shu 屬
shuguo (attached state) 屬國
Shun 順
Shuofang 朔方
si yin (private stamp) 私印
Sihe 四河
Sima Qian 司馬遷
siru (four nipples) 四乳
siru qinshou (four nipples with birds and beasts) 四乳禽獸
South of the River (the Ordos) 河南
Sulucheng 宿虜城
Tanshihuai 檀石槐
Tian Guangming 田廣明
Tian zi (Son of Heaven) 天子
Tianshui 天水
ting (station) 亭
Tuman (Touman) 頭曼
Tuoba (tribe of the Xianbei) 拓跋
wadang (disk-shaped roof tile ends) 瓦當
wang (king) 王
Wang Bian 王便
Wang Mang 王莽
Wang Sui 王遂
wanqi 萬騎
Wei 魏
wen (pot, urn) 瓮
Wu 吳
Wudi (Militant Emperor) 武帝
Wuhuan 烏桓
Wuling 武靈
Wulongwusi 烏龍吾斯
Wusun 烏孫
Wuwei 武威
Wuyuan 五原
wuzhu (coin) 五銖
Wuzhuliu 烏珠留
Xaio Jing 孝景
xi (stone ornament) 觿
Xianbei 鮮卑
Xiang Yu 項羽
Xianyun 獫狁
Xiao Wen 孝文
Xiaohuangdi 小皇帝
Xihe (West of the River) 西河
Xin'er 薪迩
Xiongnu 匈奴
Xuandi (Informed Emperor) 宣帝
Xuanlei sai 眩雷塞
Xubu 須卜
Xunyu 荀彧
Yan 燕
Yelü Chucai 耶律楚材
YiDi (collective term, barbarian people) 夷狄
Yinshan 陰山

Yuezhi (Rouzhi)	月氏
Yunzhong	雲中
Yuwen Xianbei	宇文鮮卑
zeng (steamer)	甑
Zengshan	增山
Zhang Qian	張騫
Zhanguo (Warring States)	戰國
Zhanguo ce (Strategies of the Warring States)	戰國策
Zhao	趙
Zhao Ponu	趙破奴
Zhao Xin	趙信
Zhaodi (Illustrious Emperor)	昭帝
zhaoming	昭明
Zhizhi	致支
Zhongshan	中山
Zhongyuan (Central Plains)	中原
Zhunge'er Qi	准格爾旗

INDEX OF AUTHORS

Jai Alterman, M.A.
Smithsonian Institution
National Museum of Natural History
Dept. of Anthropology, NHB 112
P.O. Box 37012
Washington, DC 20013-7012, USA
E-Mail: altermanj@si.edu

Dr. Chunag Amartüvshin
Mongolian Academy of Sciences
Institute of Archaeology
Jukov Street 77
Ulaanbaatar-51, Mongolia
E-Mail: achunag@yahoo.com

Prof. Dr. Zagd Batsaikhan
National University of Mongolia
Department of Anthropology and Archaeology
University Street 1
Ulaanbaatar 210646, Mongolia

Prof. Dr. Dr. h.c. Jan Bemmann
Rheinische Friedrich-Wilhelms-Universität
Pre- and Early Historical Archaeology
Regina-Pacis-Weg 7
53113 Bonn, Germany
E-Mail: Jan.Bemmann@uni-bonn.de

Dr. Evgenii S. Bogdanov
Russian Acadamy of Sciences, Siberian Branch
Institute of Archaeology and Ethnography
Prospekt Akademika Lavrent'eva 17
630090 Novosibirsk, Russia
E-Mail: bogdanov@archaeology.nsc.ru

Lee G. Broderick, M.Sc.
Bournemouth University
Centre for Archaeology
School of Applied Sciences
Talbot Campus, Fern Barrow
Poole, Dorset, BH12 5BB, United Kingdom
E-Mail: lbroderick@bournemouth.ac.uk

Dr. Ursula Brosseder
Rheinische Friedrich-Wilhelms-Universität
Pre- and Early Historical Archaeology
Regina-Pacis-Weg 7
53113 Bonn, Germany
E-Mail: Ursula.Brosseder@uni-bonn.de

Dr. Agniia N. Chistiakova
Russian Acadamy of Sciences, Siberian Branch
Institute of International Relations and Regional Studies
Vatutina 17/1
630078 Novosibirsk, Russia
E-mail: feng@yandex.ru

Dr. Chang Eun-jeong
National Museum of Korea
Dep. of Registration
6-ga Yongsan-dong
Yongsan-gu Seoul, South Korea
E-Mail: anarchicat@hotmail.com

Prof. Dr. Claudio Cioffi-Revilla
George Mason University
Krasnow Institute for Advanced Study
Computational Science, Center for Social Complexity
Research-1 Bldg MS 6B2, 4400 University Drive
Fairfax, VA 22030, USA
E-Mail: ccioffi@gmu.edu

Prof. Dr. Sergei V. Danilov
Russian Academy of Sciences
Institute of Mongolian, Buddhist Studies and Tibetology
Ul. Sakhianovoi 6
670042 Ulan-Ude, Republic of Buriatiia
Russian Federation
E-Mail: imbt@burinfo.ru

Prof. Dr. Nicola Di Cosmo
Institute for Advanced Study
Fuld Hall 308
Einstein Drive
Princeton, NJ 08540, USA
E-Mail: ndc@ias.edu

Prof. Dr. Diimaazhav Erdenebaatar
Faculty of Social Science
Ulaanbaatar University
5-r Khoroo, Bayanzurkh Duureg
Ulaanbaatar-51, P.O. Box-167, Mongolia
E-Mail: ediimaajav@yahoo.com

Dr. Gelegdorzh Eregzen
Mongolian Academy of Sciences
Institute of Archaeology
Jukov Street 77
Ulaanbaatar-51, Mongolia
E-Mail: eregzen@yahoo.com

Dr. Chimmiddozh Erööl-Erdene
Mongolian Academy of Sciences
Institute of Archaeology
Jukov Street 77
Ulaanbaatar-51, Mongolia
E-Mail: cheruulerd@yahoo.com

Baatar Galbadrakh, M.A.
Faculty of Social Science
Ulaanbaatar University
5-r Khoroo, Bayanzurkh Duureg
Ulaanbaatar-51, P.O. Box-167, Mongolia

Zham'ian-Ombo Gantulga, M.A.
Mongolian Academy of Sciences
Institute of Archaeology
Jukov Street 77
Ulaanbaatar-51, Mongolia
E-Mail: ganuudg@yahoo.com

Dr. Dondog Garamzhav
"Monnis Tower" 5, 6, 11 & 12th floor
1st khoroo, Sukhbaatar District, Chinggis Avenue-15
Ulaanbaatar-14240, Mongolia

Ass. Prof. Dr. Enno Giele
The University of Arizona
Department of East Asian Studies
1512 First Street
Learning Services Building, Room 122
Tucson, AZ 85721-0105, USA
E-Mail: giele@email.arizona.edu

Ivan Iu. Grebennikov, M.A.
Altaiskii Gosudarstvennyi Universitet
Kafedra Arkheologii, Etnografii i Muzeologii
Prospekt Lenina 61
656049 Barnaul, Russia

Dr. Juliana Holotová-Szinek
Hôsei University
Institute for Okinawan Studies
2-17-1 Chiyoda-ku, Fujimi
102-8160 Tôkyô, Japan
E-Mail: szinek_juliana@yahoo.fr

Ass. Prof. Dr. William Honeychurch
Yale University
Department of Anthropology
10 Sachem St.
New Haven, CT 06520-8277, USA
E-Mail: William.honeychurch@yale.edu

Ass. Prof. Dr. Jean-Luc Houle
Department of Folk Studies and Anthropology
Western Kentucky University
1906 College Heights Blvd. #61029
Bowling Green, KY 42101-1029, U.S.A.
E-Mail: jean-luc.houle@wku.edu

Tömör-Ochir Iderkhangai, M.A.
Faculty of Social Science
Ulaanbaatar University
5-r Khoroo, Bayanzurkh Duureg
Ulaanbaatar-51, P.O. Box-167, Mongolia

Dr. Grigorii L. Ivanov
Irkutsk Museum of Regional Studies
Nauchno-fondovyi otdel
Ul. K. Marksa 13 a/ia 230
664003 Irkutsk, Russia
E-Mail: ivanov85@mail.ru

Dr. Erik G. Johannesson
The University of North Carolina, Chapel Hill
Department of Anthropology
301 Alumni Building
Chapel Hill, NC 27599-3115, USA
E-Mail: erikjoh@email.unc.edu

Dr. Sergei V. Khavrin
State Hermitage
Dept. of Scientific and technical Examination
Dvortsovaia Nab. 34
190000 Sankt Petersburg, Russia
E-Mail: sergekhavrin@yandex.ru7

Dr. Alexei A. Kovalev
Legislative Assembly of St. Petersburg
190000 Isaakievskaya Place
6 St. Petersburg, Russia
E-Mail: chemurchek@mail.ru

Prof. Dr. Nikolai N. Kradin
Russian Academy of Sciences, Far East Branch
Institute of History, Archaeology and
Ethnology of the Peoples of the Far East
Pushkinskaia St. 89
Vladivostok, 690950, Russia
E-Mail: kradin@mail.ru

Liudmilla P. Kundo
Russian Acadamy of Sciences, Siberian Branch
Institute of Archaeology and Ethnography
Prospekt Akademika Lavrent'eva 17
630090 Novosibirsk, Russia

Dr. Christine Lee
Jilin University
Research Center for Frontier Archaeology
Qianjin Dajie No. 2699
Changchun, Jilin 130012, China
E-Mail: christinelee70@gmail.com

Pavel Leus, M.A.
Nansenstr. 3
12047 Berlin, Germany
E-Mail: leuss@web.de

Dr. Michelle L. Machicek
Museum Conservation Institute/National
Museum of Natural History
Smithsonian Institution
Museum Support Center
4210 Silver Hill Road
Suitland, MD 20746, U.S.A.
E-Mail: prp07mlm@sheffield.ac.uk

Prof. Dr. Cheryl Makarewicz
Christian-Albrechts-Universität Kiel
Institut für Ur- und Frühgeschichte
Johanna-Mestorf-Str. 2–6
24118 Kiel, Germany
E-Mail: cmakarew@gmail.com

Dr. Hélène Martin
INRAP et TRACES/UTAH UMR
5608 du CNRS
MSH de Toulouse
13 rue du négoce, ZA des Champs Pinsons
31650 Saint-Orens-de-Gameville, France
E-Mail: helene.martin@inrap.fr

Dr. Sergei S. Matrenin
Altaiskii Gosudarstvennyi Universitet
Kafedra Arkheologii, Etnografii i Muzeologii
Prospekt Lenina 61
656049 Barnaul, Russia
E-Mail: matrenins@mail.ru

Dr. Bryan K. Miller
University of Pennsylvania
Museum of Archaeology and Anthropology
3260 South Street
Philadelphia, PA 19104, USA
E-Mail: millerbryank@gmail.com

Enkhbaiar Minzhiddorzh, M.A.
Faculty of Social Science
Ulaanbaatar University
5-r Khoroo, Bayanzurkh Duureg
Ulaanbaatar-51, P.O. Box-167, Mongolia

Dr. Albert Russell Nelson
University of Michigan
Museum of Anthropology
Ann Arbor, Michigan 48109-1079, USA
E-Mail: arnelson@umich.edu

Samdanzhamts Orgilbaiar, M.A.
Faculty of Social Science
Ulaanbaatar University
5-r Khoroo, Bayanzurkh Duureg
Ulaanbaatar-51, P.O. Box-167, Mongolia

Prof. Dr. Pan Ling
Jilin University
Research Center for Frontier Archaeology
Qianjin Dajie No. 2699
Changchun, Jilin 130012, China
E-Mail: panling8600@yahoo.com.cn

Prof. Dr. Natal'ia V. Polos'mak
Russian Acadamy of Sciences, Siberian Branch
Institute of Archaeology and Ethnography
Prospekt Akademika Lavrent'eva 17
630090 Novosibirsk, Russia
E-Mail: natalia.polosmak@gmail.com

Prof. Dr. Denis Ramseyer
Université de Neuchâtel
Laténium, Parc et Musée d'archéologie de Neuchâtel
Institut de Préhistoire de l'Université de Neuchâtel
Espace Paul Vouga
2068 Hauterive, NE, Switzerland
E-Mail: Denis.Ramseyer@ne.ch

Dr. J. Daniel Rogers
Smithsonian Institution
National Museum of Natural History
Dept. of Anthropology, NHB 112
P.O. Box 37012
Washington, DC 20013-7012, USA
E-Mail: rogersd@si.edu

Prof. Dr. Walter Scheidel
Department of Classics
Stanford University
Stanford, CA 94305-2145, USA
E-Mail: scheidel@stanford.edu

Dr. Saran Solongo
Institute of Physics and Technology
Mongolian Academy of Sciences
Enkhtaivan Ave. 54b
Ulaanbaatar-51, Mongolia
E-Mail: saransolongo@yahoo.com

Prof. Dr. Alexei A. Tishkin
Altaiskii Gosudarstvennyi Universitet
Kafedra Arkheologii, Etnografii i Muzeologii (Kabinet 211)
Prospekt Lenina 61
656049 Barnaul, Russia
E-Mail: tishkin@hist.asu.ru

Ass. Prof. Dr. Tsagaan Törbat
Mongolian Academy of Sciences
Institute of Archaeology
Jukov Street 77
Ulaanbaatar 51, Mongolia
E-Mail: ts_turbat@yahoo.com

Natal'ia V. Tsydenova, M.A.
Russian Academy of Sciences
Institute of Mongolian, Buddhist Studies and Tibetology
Ul. Sakhianovoi 6
670042 Ulan-Ude, Republic of Buriatiia
Russian Federation
E-Mail: tsydenova@mail.ru

Marquita Volken
Rue du Rotillon 10
1003 Lausanne, Switzerland
E-Mail: Gentle.craft@vtxnet.ch

Prof. Dr. Daniel C. Waugh
University of Washington, Seattle
Department of History
Box 353560
Washington 98195, USA
E-Mail: dwaugh@u.washington.edu

Dr. Steven P. Wilcox
George Mason University
Krasnow Institute for Advanced Study
Computational Science, Center for Social Complexity
Research-1 Bldg MS 6B2, 4400 University Drive
Fairfax, VA 22030, USA
E-Mail: swilcox2@gmu.edu

Dr. Joshua Wright
Stanford University,
Postdoctoral Fellow in the Humanities
IHUM Program
Sweet Hall, 2nd Floor
590 Escondido Mall
Stanford, CA 94305-3068, U.S.A.
E-Mail: jwright3@stanford.edu

Prof. Dr. Yang Jianhua
Jilin University
Research Center for Frontier Archaeology
Qianjin Dajie No. 2699
Changchun, Jilin 130012, China
E-Mail: jhyangar@yahoo.com.cn

Dr. Yun Hyeung-won
Daegu, National Museum of Korea
200 Hwanggum-ro, Suseong-gu
Daegu Metropolitan City, South Korea
E-Mail: yundorj1@yahoo.co.kr

Dr. Zhang Linhu
Jilin University
Research Center for Frontier Archaeology
2699 Qianjin St.
Changchun, Jilin 130012, China
E-Mail: tigerforest@163.com

BONN CONTRIBUTIONS TO ASIAN ARCHAEOLOGY

Edited by Jan Bemmann

1. H. Roth/U. Erdenebat/E. Nagel/E. Pohl (eds.),
Qara Qorum City (Mongolei) 1.
Bonn Contributions to Asian Archaeology, Volume 1 (Bonn 2002).
Out of print – ISBN 3-936490-01-5

2. J. Bemmann/U. Erdenebat/E. Pohl (eds.),
Mongolian-German Karakorum-Expedition, Volume 1.
Excavations in the Craftsmen-Quarter at the Main Road.
Forschungen zur Archäologie Außereuropäischer Kulturen 8 =
Bonn Contributions to Asian Archaeology, Volume 2 (Wiesbaden 2009).
€ 98,00 – ISBN 978-3-89500-697-5

3. P. B. Konovalov,
The Burial Vault of a Xiongnu Prince at Sudzha (Il'movaia pad', Transbaikalia).
Bonn Contributions to Asian Archaeology, Volume 3 (Bonn 2008).
€ 13,90 – ISBN 3-936490-29-5

4. J. Bemmann/H. Parzinger/E. Pohl/D. Tseveendorzh (eds.),
Current Archaeological Research in Mongolia. Papers from the First International Conference on "Archaeological Research in Mongolia", held in Ulaanbaatar, August 19th–23rd, 2007.
Bonn Contributions to Asian Archaeology, Volume 4 (Bonn 2009).
€ 74,00 – ISBN 978-3-936490-31-2

5. Ursula Brosseder/Bryan K. Miller (eds.),
Xiongnu Archaeology. Multidisciplinary Perspectives of the First Steppe Empire in Inner Asia.
Bonn Contributions to Asian Archaeology, Volume 5 (Bonn 2011).
€ 80,00 – ISBN 978-3-936490-14-7

Orders and information: sekretariat.vfgarch@uni-bonn.de (1, 3–5), info@reichert-verlag.de (2)

PRELIMINARY RESEARCH ON THE SPATIAL ORGANIZATION OF THE XIONGNU TERRITORIES IN MONGOLIA

Juliana Holotová-Szinek

Introduction

As current Xiongnu studies progress toward systematization, it becomes necessary to develop a global view of the areas populated by the Xiongnu[1] people. While researchers have been focusing mainly on the monuments and unearthed artifacts, less attention has been paid to the general distribution of sites and their interrelations. In order to respond to the demand of contemporary research in different fields of Xiongnu archaeology and history, a further characterization of the space inhabited or occupied by the Xiongnu is needed. Therefore, their living environments must be considered on the same level of importance as monuments and artifacts. This study of the distribution of Xiongnu sites, based both on field campaigns led in Mongolia and on a critical approach to the Chinese written sources, aims to be a step towards an in-depth knowledge of the Xiongnu political and social system, which has been mainly studied solely through non-critical reading of Chinese written sources rather than incorporating archaeological data[2].

With more than 50 known sites associated with the Xiongnu[3], Mongolia represents not only the central part of their territories from the geographical point of view, but also the most densely inhabited zone. Nevertheless, Mongolia still remains in a certain way a terra incognita, surprising us every year with several discoveries of new sites[4]. Furthermore, the known archaeological sites in Mongolia can be regarded as mere portions of potential further discoveries,

1 Although the Mongol word "Khünnü" (Хүннү) is more appropriate to designate the northern neighbors of the Han Empire (206 BC – 220 AD) than the Chinese name of "Xiongnu," because of cultural and linguistic proximity with this ancient people, I choose to keep the Chinese term, since it is more familiar to the western world and cannot be mistaken for the European Huns (4th–6th century AD).

2 In order to illustrate this general tendency, especially strong in China, the following works can be cited: Lin 1985; Chen 2007; Wang 2004; Jiang 1991. The works of Wu'en are in this perspective exceptional, since he was always focusing on the archaeological materials as authentic testimonies of the past of the steppe (Wu'en 1990; 2007; 2008). His follower Shan Yueying has elaborated a detailed study of Xiongnu burials trying to put together the archaeological data acquired in Mongolia, in Transbaikalia and in China (Shan 2009).

3 Ts. Törbat (2004) recognizes even more Xiongnu sites, but without giving any concrete criteria to define a Xiongnu site. In general, some settlements and cemeteries, especially Chandman' Uul, are sometimes considered as belonging to the Xiongnu, but without setting forth really convincing arguments. In any case, a precise definition of Xiongnu funerary sites and settlements would be very useful for the field surveys or any further reflection about the Xiongnu society. Thus, such a study would be most welcome among archaeologist of steppe cultures.

4 For example, in 2006–2007, a Mongol-American expedition discovered and mapped the Xiongnu cemetery at Takhiltyn Khotgor in Khovd aimag (Miller et al. 2008).

as has been demonstrated by recent surveys using more thorough methodology than in the past[5]. Given the fact that archaeological sites continue to be discovered in Mongolia, China, and Transbaikalia, every interpretation of the spatial organization of Xiongnu territories has to be carefully considered.

From this perspective, a systematic approach for analyzing the internal structure of Xiongnu territories, rather than surveys of one individual area[6], proved efficient in the field and allowed for the establishment of a promising study of one complete region. The methods used and data acquired in this experimental region may not only offer approaches for other regions of Mongolia, but can also aid in a move towards a more global view of the spatial organization within the Xiongnu political entity.

THE STRUCTURE OF THE XIONGNU TERRITORIES ACCORDING TO THE ARCHAEOLOGICAL DATA

Aspects of the vast natural environment and material conditions of field work have made thorough surveys, even within a very limited territory, extremely difficult in Mongolia. In the case of Arkhangai aimag, investigations have been conducted since 1950 along the Khünüi river valley nearby Gol Mod necropolis (Dorzhsüren 1962; Erdélyi 1979; Tseveendorzh 1988). The major settlement within this region, Dörvölzhin Gazar, was mapped in 2007 by the Mongol-French Archaeological Expedition and test excavations were conducted in 2008. Although the question of whether this site may be attributed to the Xiongnu remains opened, this research contributes to more thorough studies of Xiongnu landscapes and efforts to contextualize site locations and interrelations between locales of archaeological remains in the Arkhangai region.

5 The Mongol-Japanese Joint Expedition at Gurvan Gol accomplished pedestrian and aerial surveys using satellite imaging in Khentii aimag (Gurvan Gol 1994). Topographical research and surveys have been carried out in the area of Gol Mod necropolis as well as in other parts of Arkhangai in order to examine the interrelations of Xiongnu sites in this region (Mission 2001–2007). Topographical investigations and surveys led in Khovd aimag by the Mongol-American Joint Expedition also brought precious results about the concentration of Xiongnu remains at Takhiltyn Khotgor (Miller et al. 2008). Previous studies in Egiin Gol valley showed important progress in methods of feature mapping within one locality (Honeychurch/Amartüvshin 2003; Törbat et al. 2003; Mission 2001). Also, a very interesting in depth study of space-based archaeology of the Russian Altai has been developed by a Belgian-Russian Joint Expedition in Altai using CORONA satellite imagery (Goossens et al. 2006; Gheyle et al. 2004). As for the latest technologies in spatial archaeology, such as airborne laser scanning, different photogrammetric methods, development of CAD-Based 3D drawing as a basic resource for digital reconstruction connected to the GIS mapping exploiting both contemporary and historical map sources, they are on the cusp of being introduced to the field of the Xiongnu studies. Among some the recent efforts in digital spatial approaches: Mongolian and German Expeditions in Orkhon by the University of Bonn and the German Archaeological Institute, Digital Silk Road Project of the Japanese National Institute for Informatics (project in progress, http://www.dsr.nii.ac.jp) and joint Silk Road mapping project of the Archaeological Institute in Nara and Nara International Foundation (project in progress, http://www.nifs.or.jp/silkroad).

6 The surveys generally conducted in Mongolia cannot thoroughly cover one precise area, because of the specific geomorphology, difficulties of orientation and transportation, etc. (Holotová-Szinek 2008).

The Arkhangai Region as an Example of a Site Network Study

Thanks to its very favorable natural conditions with manifold possibilities of exploiting natural resources, the Arkhangai aimag (Fig. 1), located in the central part of the Xiongnu territories, shows an uninterrupted continuity of human presence from the Palaeolithic to present day.

Fig. 1. Three of manifold ecosystems coexisting within Arkhangai aimag. 1 Bükh shar mountains: forest, forest steppe or khangai; 2 Khünüi river valley: grass steppe (photos Juliana Holotová-Szinek).

With 14 sites discovered so far, Arkhangai seems presently to be the most densely populated region of the Xiongnu. By using the following criteria of Xiongnu site location (Tab. 1), a more efficient approach for reconstructing the local site network was developed during surveys in Arkhangai (Holotová-Szinek 2008).

I. Natural resources	Geomorphology Geology Hydrography Climate Biosphere
II. Economic potential	Geological materials (building stones, salt, semi-precious stones and metals) Flora (agriculture, wood exploiting, pasturelands, gathering) Fauna (horse and cattle breeding, hunting and fishing)
III. Spatial organization	Spatial control and transportation Concentration of the population

Tab. 1. Criteria of Xiongnu site location.

Fig. 2. Dörvölzhin Gazar, Arkhangai province (photo Mission archéologique française en Mongolie).

According to the specified system of spatial analysis, the interrelations between the sites can be seen on three levels: local, regional and macro-regional.

Local Level

On a local level, we can say that the Xiongnu political entity is composed of units formed by three types of sites: settlements, necropolises or aristocratic graveyards, and cemeteries. In

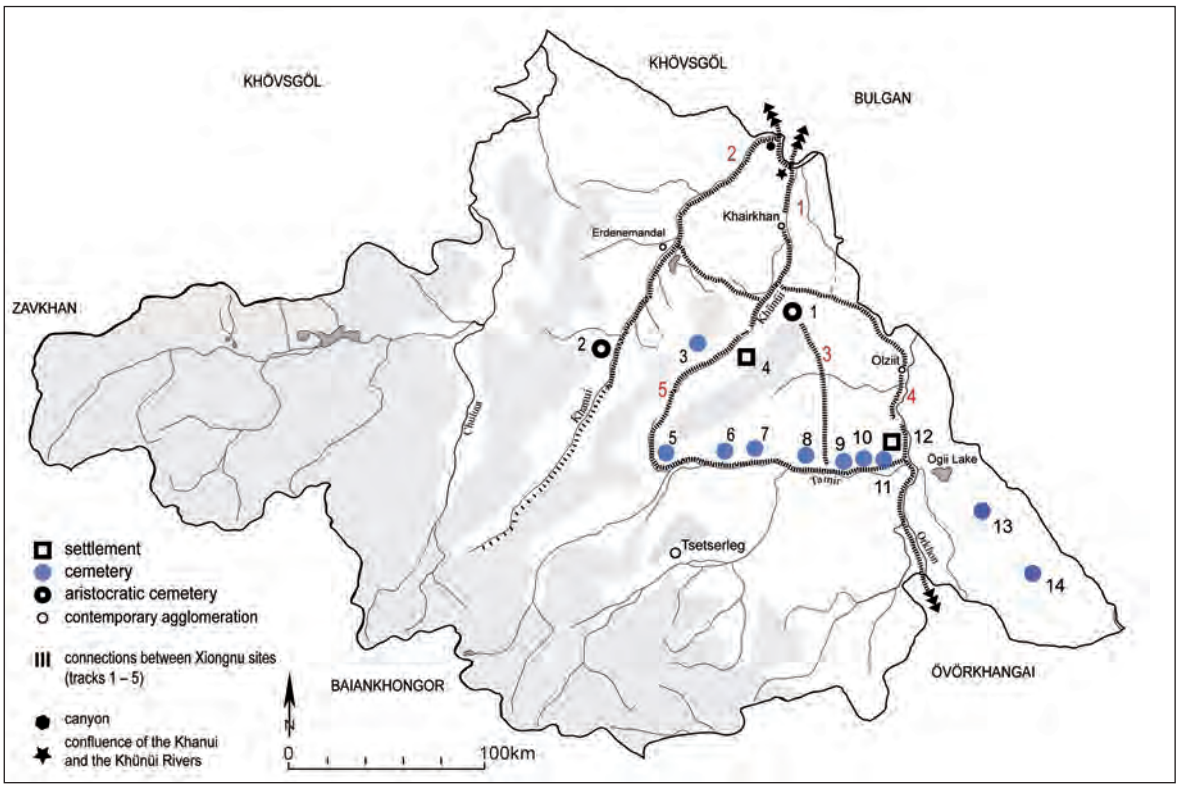


Fig. 3. Map of the spatial organization of the Xiongnu sites and their interconnections within Arkhangai region (tracks 1–5). 1 Gol Mod; 2 Gol Mod 2; 3 Naimaa Tolgoi; 4 Dörvölzhin Gazar; 5 Eezgiitiin Khuzhir; 6 Shivertiin Am; 7 Khudgiin Tolgoi; 8 Solbi Uul; 9 Gurvan Modot Uul; 10 Emeel Tolgoi; 11 Tamiryn Ulaan Khoshuu; 12 Khermen; 13 Khutag Uul; 14 Gashuuny Gol (graphics Mission archéologique française en Mongolie, Juliana Holotová-Szinek).

Arkhangai, this basic structure inspired the Mongol-French Archaeological Expedition in Mongolia team to conduct a series of surveys applying the above-mentioned criteria to the Gol Mod necropolis area. In the vicinity of the aristocratic graveyard, our team mapped and conducted small-scale excavations in the settlement Dörvölzhin Gazar located 30 km south in the Khünüi river valley (Fig. 2). Protected by the mountain range which is covered in forests, the Dörvölzhin Gazar settlement was built on a low terrace in a side valley of the Khünüi river, close to fertile alluvial soils. Even if the identity of Dörvölzhin Gazar may only be revealed by further studies, we can say already that the Xiongnu sites of the Khünüi and Tamir valleys are linked by several avenues of communication (Fig. 3, tracks 1,3–5).

A second group of sites, composed like the previous one of settlement and funerary sites, is located close to the Tamir river, not far from its confluence with the Orkhon river[7] (Fig. 3). The huge Khermen settlement seems to be connected with the Tamiryn Ulaan Khoshuu cemetery (Purcell/Spurr 2006), but may also be connected with other funerary sites in the area.

Although the Dörvölzhin Gazar and Khermen sites represent two different types of settlements according to their topography and architecture, some similar criteria were applied in the

7 Khermen was first identified by Kh. Perlee as a Kitan fortress (Perlee 1961). Subsequent studies by Ts. Batsaikhan and the Mongol-American Joint Expedition (Purcell/Spurr 2006) purported it to be a Xiongnu settlement.

placement and construction of these settlements[8]. In the case of both site groups, those who established the settlements sought a certain quality of environment, mainly a high-diversity of ecosystems irrigated by huge rivers suitable for several types of exploitation. The potential 14 Xiongnu settlements in Mongolia are located in areas rich in metal beds, salt deposits, stone fields used for constructions, semi-precious stone grounds and different types of clay for ceramic production.

Similarly connected groups of settlements and funerary sites can be hypothesized in other areas, such as the Khentii and Töv aimags, but as of yet cannot be confirmed. Future investigations in other regions could possibly confirm a frequent presence of settlements in the proximity of the funerary sites, or at least in the areas related to aristocratic graveyards.

Regional Level

The investigations in Arkhangai led during 2002–2004 and 2007 as part of the Mongol-French Archaeological Expedition in Mongolia gave me the opportunity to devise a further study of the connections among different local groups of sites on a regional level.

In the same way as their predecessors of the Bronze Age, the Xiongnu densely occupied the Arkhangai region, though mainly within the northeastern part. Exploiting the numerous benefits of the favorable natural environment, they settled especially in three valleys: those of the Khünüi, Khanui and Tamir rivers. As for the Khünüi valley, it contains at least two different types of sites: the necropolis of Gol Mod, the cemetery of Naimaa Tolgoi, and yet unconfirmed settlement of Dörvölzhin Gazar.

Khanui valley contains the huge necropolis of Gol Mod 2, while seven cemeteries and one settlement are located in the Tamir valley. Two other middle cemeteries are situated on the east bank of the Orkhon river. The analysis of the connections linking the specified localities showed a possible presence of a communication network between these three areas.

The first type of connection follows alluvial valleys (Fig. 4), namely the Khünüi river valley oriented north-south linking together three sites from south to north: the Naimaa Tolgoi cemetery, the settlement Dörvölzhin Gazar and the Gol Mod necropolis (Fig. 3, track 1). It continues to the north up to the confluence of the Khünüi and Khanui rivers. From this point starts a valley connecting the Xiongnu sites of Arkhangai to the alluvial valleys of another Xiongnu region situated in the Selenge river valley in Bulgan aimag, including important sites such as the Egiin Gol complex (Fig. 3). The ancient populations were aware of the strategic advantages of the spot situated on a cliff above the confluence of the Khünüi and Khanui rivers, as it is obvious from the presence of Bronze Age monuments and the Turk fortress Shiveet Ulaan (Fig. 5) located directly on the confluence with a very advantageous position to control the area in all directions.

From this place, a possible line of communication might have led over the crest of the hills to the west, following upstream the Khanui river. Its steep banks rise abruptly, surmounted by plateaus, until they open to the forests and larger hills. On this spot, a canyon (Fig. 6) links together the Khanui river valley containing the Gol Mod 2 necropolis (Fig. 3, track 2, Allard et al. 2002) and the Xiongnu region of Bulgan and Khövsgöl aimag.

8 The identification of Xiongnu settlements, their typology and architecture is treated in Holotová-Szinek 2008. Besides the field investigations and the above mentioned sources, this study refers to Davydova 1995; Kyzlasov 2001; Pousaz/Ramseyer 2005; 2006.

Fig. 4. Alluvial valley of the Khanui river (photo Juliana Holotová-Szinek).

Fig. 5. View from the Turk fortress Shiveet Ulaan (photo Juliana Holotová-Szinek).

After the survey in the Khünüi and Khanui river valleys, attention was paid to the possible ways between the Khünüi and Tamir river valleys. The first connection was found in the mountains nearby the Gol Mod necropolis (Fig. 3, track 3). This track of continual use, especially by

Fig. 6. Canyon linking together sites of the Khanui river valley to the Khövsgöl and Bulgan regions (photo Juliana Holotová-Szinek).

Fig. 7. Way leading though the mountains connecting the Khünüi and the Khanui river valleys (photo Juliana Holotová-Szinek).

carriages, represents an important shortcut in comparison with the track following the Khünüi valley to the south and then the Tamir valley to the east (Fig. 3, track 5), in order to get to the Tamir river Xiongnu sites. This track (Fig. 3, track 3) not only shortens the ride, but also allows

,

to protect even a huge movement of population or transportation of goods, thanks to the wide range of mountains shielding the way from both sides (Fig. 7).

Another longer way exists between the Khünüi valley sites and those of the Tamir and Orkhon basins that progresses through the hill crests located east from Gol Mod (Fig. 3, track 4) and then crosses the mountains nearby Ölziit town and follows the Orkhon river valley.

As for the third way linking the sites of the Khünüi and the Tamir valleys, which is the longest but the easiest, it is necessary to follow first the Khünüi river valley to the south, then turn east to the Tamir river valley (Fig. 3, track 5). In fact, from the Tamir and Orkhon river valleys, easily passable tracks lead to the Övörkhangai and Töv regions, also densely inhabited by the Xiongnu.

Taking the Arkhangai aimag as an example of one of the more central and highly populated Xiongnu regions, I have tried to illustrate a possible communication network. This experimental study demonstrates the actual spatial connections between different Xiongnu sites according to geomorphology and horse riding conditions.

Determining first possible communications between site groups within the region, the Khanui, Khünüi, and Tamir valleys, the connections to other regions on a macro-regional level of Bulgan, Övörkhangai, and Töv aimags were also described. The presence of such a network covering all the Xiongnu territories might be considered possible from a geographical point of view. This hypothesis also seems to be supported by the use of more efficient and rapid means of transportation.

By applying the same principles to other parts of Mongolia, it is conceivable to characterize the organization of the Xiongnu sites on a regional level. The system of territorial division of the Xiongnu political entity operated mainly according to the physical geography. At the same time, some groups of sites appear to be situated on the crossroads between important regions. Therefore, the forming of the Xiongnu regions would be due not only to the geomorphologic limits and natural conditions, but also to human factors. For instance, sites in Selenge aimag are situated between two major zones of concentrations of Xiongnu sites in Transbaikalia and Töv aimag.

On a regional level, Mongolia and Transbaikalia of the Xiongnu period can be tentatively divided into ten complexes (Fig. 8). Such a division cannot be, for the time being, applied to the Xiongnu sites in Northern China, because of the general lack of information about the structure of the Xiongnu territories there. These regions, composed at the local level of several basic units including settlements and funerary sites, may have worked as economically autonomous entities. A distribution of products from main centers of production within the regions was not noticed for any domain of craftwork or other product. It seems that most of the regions developed their own craft production in order to cover local market[9]. Objects distributed throughout all Xiongnu regions, such as Chinese lacquer wares, were imported (André/Holotová-Szinek 2009).

Macro-Regional Level

At the macro-regional level, materials from settlements and funerary deposits in all Xiongnu regions of Mongolia and Transbaikalia exhibit an important homogeneity, despite distances between the sites. This diffusion of material culture is probably due to the broad use of horse

9 This hypothesis is based on the comparison of series of common products, such as ceramic and wooden vessels, arrow heads, jewelry, unearthed in different regions of Mongolia and Transbaikalia which does not seem to be produced in centralized macro-regional workshops, but within regions (Holotová-Szinek 2008). Whereas, goods imported from China are distributed all around the Xiongnu territories (Mission 2001–2007; Konovalov 1976; Tseveendorzh 2003; Umehara 1960).

transportation as well as the capacity of the Xiongnu to exploit the geomorphologic features of the landscape for the conveyance of materials. This homogeneity indicates a strong cohesion, or even centralization, of the Xiongnu regions.

The spatial organization of the Xiongnu sites and their interrelations from local to supra-regional level reflect the political entity which appears to be a confederation of regions with a certain degree of independence, yet managed by a common center or centers. In fact, several regions with a high density of sites can be considered as possible administrative centers. Thanks to these recent results, it is now possible to imagine a confederacy with several centers, not only an absolutely centralized entity with one capital, as it is stated in the historical sources.

General Spatial Organization of the Xiongnu Sites according to Archaeological and Historical Data

In spite of the testimonies of Chinese textual sources mentioning a court of the chanyu ruler and a center where the Xiongnu were supposed to have organized annual assemblies (Sima Qian 1959, 2995–2996), it remains difficult to find one region which could be considered hierarchically superior to others within present-day China, Mongolia or Transbaikalia.

Sima Qian records that the Xiongnu organized three ritual assemblies per year in a central "city" or settlement:

> 歲正月，諸長小會單于庭，祠．五月，大會龍城，祭其先、天地、鬼神．秋，馬肥，大會蹛林，課校人畜計 (In the first month of the year, various chiefs have a lesser assembly at the chanyu court and perform sacrifices. In the fifth month [they] have a greater assembly in the settlement of Long, and perform sacrifices to ancestors, Heaven and Earth, and spirits. In autumn, when horses become fat, [they] have a greater assembly in Dailin and count and check the number of people and animals); Sima Qian 1959, 2892.

The historical texts situate the chanyu's court in Inner Mongolia[10], but this account cannot be accepted as a fact for several reasons, the high density of sites in Mongolia and Transbaikalia among them. Considering the important changes in the landscape of northern China in the modern period, we can suppose that the number of destroyed archaeological remains is much higher than in Mongolia or southern Siberia, which are low-industrialized territories. Moreover, the non-systematic research in northern China does not allow us to establish a global vision of the Xiongnu site distribution in this geographical zone. Nevertheless, unlike in Mongolia and Transbaikalia, aristocratic necropolises, being a sign of centralized power, are not found in China. Regardless of the state of research, it is therefore more appropriate to search for the central zone of the Xiongnu political entity within Mongolia and Transbaikalia, rather than in Northern China as purported by the historical sources[11].

10 Besides Inner Mongolia, the written sources mention also the northern part of the present-day Shanxi province (Sima Qian 1959, 2890–2891).

11 The authors of historical sources had only a few references to the geography of the regions above the northern border of the Han Empire. Thus, they were only able to describe the zones located within their geographic horizons and to situate their knowledge about the Xiongnu society in a roughly defined strip along the frontier, which the historiographers imagined to represent all the Xiongnu territories.

Fig. 8. Map showing a hypothesis of the spatial organization of Xiongnu sites in Mongolia (graphics Mission archéologique française en Mongolie, Juliana Holotová-Szinek).

According to the distribution of Xiongnu sites in Mongolia and Transbaikalia, three possible regions, all dated to the same period, might have functioned as such economic or even administrative centers. The first one might have been situated in the present-day areas of Transbaikalia and Selenge aimag of northern Mongolia (Fig. 8). Although these two regions are presently separated by the frontier between Mongolia and Russia, they might have formed one region during the times of Xiongnu occupation. This Transbaikalia/Selenge region is represented mainly by the Ivolga complex, containing both settlement and cemetery, and the necropolises of Il'movaia Pad' and Tsaram.

A well structured configuration of Xiongnu settlements, necropolises and cemeteries in Töv aimag of central Mongolia could form a second key region of the Xiongnu territories. However, current knowledge of this region can only identify one necropolis, that of Noyon Uul. The archaeological richness of the Töv region consists mostly of several settlements, among which the main are Terelzhiin Dörvölzhin, Bürkh and Boroo.

The Arkhangai aimag (Fig. 8) can be considered a third central zone of the Xiongnu domains, since it is characterized by an extraordinary density of archaeological sites from the Xiongnu period (Fig. 3). The centrality and high site density of Arkhangai aimag seems also to occur in earlier periods, exemplified by numerous and large Bronze Age remains which are in some cases twenty times greater than in other regions. The high density of sites in Arkhangai seems to be due to the extremely favorable natural conditions and climate, as well as to its central position within the territories occupied by the Xiongnu. In addition, if confirmed, the presence of important Xiongnu settlements like Khermen or Dörvölzhin Gazar may emphasize the economic importance of the region.

To sum up, Xiongnu sites form local groups of settlements, necropolises, and cemeteries. Several of these basic units constitute regions, among which three dominant ones can be identified. Given the fact that the sites of these three regions are dated to the same period, it might be possible that there were several contemporary centers of Xiongnu power existing at the same time. They might have, in a certain way, administrated surrounding regions. As mentioned above, the archaeological materials unearthed in different parts of Xiongnu territories show that the various regions probably enjoyed a significant degree of economic and social autonomy. At the same time, such a structure of the Xiongnu political entity does not exclude the existence of one or several main regions.

Nevertheless, insufficient data of the Xiongnu period within Northern China, Xinjiang, and even possibly the Korean peninsula or Manchuria, presently prevents a global picture of the territorial organization of the Xiongnu political entity from being drawn. For the time being, archaeological research conducted in Mongolia and Transbaikalia, being central parts of the regions inhabited by the Xiongnu, displays a collection of autonomous regions appearing like a confederation. Such concrete archaeological evidence of the Xiongnu territories should be presented in discussions of previous general hypotheses of Xiongnu politics. A confederate organization of regions as a system of territorial management might have facilitated the spatial control of large territories by a very limited number of persons. Such vast territorial domination was one of the main features of the Xiongnu entity according to the Chinese historical texts.

Territorial Domination and Spatial Control by the Xiongnu as seen through Historical Sources

Both archaeological and historical fields of investigation have implicated a similar reconstruction of the past. Even if the texts do not directly evidence the spatial organization of the Xiongnu territories, they still provide a few very interesting elements complementary to archaeological findings. The texts emphasize the strong territorial domination of the Xiongnu and their ability to control wide territories with a limited number of persons, information which correlates to the archaeological data. Despite the fact that the texts are not concerned with the present-day regions of either Mongolia or Transbaikalia, they describe the territories of northern China through detailed accounts of conflicts with the Han Empire. These accounts clearly show the presence of a political power with well-organized territories along the frontier zone known by the Chinese historiographers. Furthermore, alliances between the Xiongnu and the autonomous kingdoms within the Han Empire reveal an interesting notion. The Xiongnu Empire, which itself constituted something of a confederacy, would have understood the fragmentary nature of autonomous territories and regionalism that existed within China, despite the ideology of the Chinese Emperor's absolute power, and might thus have sought to dismantle the Han Empire by exploiting this pattern.

The majority of historical sources from the Han dynasty are devoted to the description of the Xiongnu invasions of Northern China, especially in the territories over which the Han presumed to have possession[12]. Rather than focus on territorial disputes with China in the Han

12 See the summary of Chinese historical documents and their use in Xiongnu studies discussed in the Introduction.

chronicles, special attention will be paid here to the rare but important passages which contain information regarding the nature of Xiongnu territorial domination and their relationship with the land. In general, the perceptions, interests and ideologies of the Chinese Empire have to be considered while reading the Han texts about the Xiongnu[13]. Data transmitted by Han chronicles that are discussed here have therefore been processed through a critical reading, which means not to raise doubts on every point of information but mainly to be wary of matching the historical data directly to archaeological findings. In sum, I have used the historical data neither to confirm nor to contest the archaeological materials directly, or *vice versa*. While the textual sources can elucidate some general phenomena observed from the Han attitude towards the Xiongnu, the actual lives of the Xiongnu can be reconstructed only from archaeological data.

In the eyes of Han historiographers, the Xiongnu political entity owed their existence to their territorial conquests. Throughout its history, the stability of Xiongnu power relied upon the domination of strategic territories between China and Central Asia. According to textual narratives, this process was supposed to have started between the occupation of the Ordos by the Qin general Meng Tian[14] in 215 BC and the rise of the chanyu Mode[15] in 209 BC. The Xiongnu, after having suffered a defeat by Meng Tian, withdrew from the Ordos and stayed for a certain time on the northern bank of the Yellow river. The long struggle for the Ordos region between Han China and the Xiongnu is depicted in detail by the written sources. The attention toward the Xiongnu campaigns for the Ordos stems from its proximity to the Chinese border and the Han desire for this territory. In fact, the Xiongnu most likely strongly defended numerous other regions under their domination.

As for the Ordos, after the short Chinese occupation under Meng Tian, the situation reversed under the reign of Mode in favor of the Xiongnu. Their expansion began in the east with the conquest of the Eastern Hu[16], a military action which, in the minds of the Chinese historians, revealed the importance of land as property and territory for the Xiongnu (Sima Qian 1959, 2889–2890). After this first success, Mode continued the campaigns in other regions:

13 As the problems of authenticity and reliability of the narratives of the Xiongnu transmitted by Chinese written sources deserve an entire discussion to themselves, they will not be analyzed in the present study. In brief summary of the Chinese traditional historiography, the historical texts were transmitted from generation to generation, and copies were made by scribes sometimes not sufficiently familiar with the content of the documents. Given the fact that this process, in the case of texts related to the Xiongnu, has lasted between 22 to 16 centuries, we can hardly expect to assume these textual sources are unaltered. Moreover, the textual transmission process was affected by several revision campaigns organized by subsequent dynasties. In addition, since China was at times governed by dynasties originating from the steppe, the image of the Xiongnu has changed along with fluctuating policies of the various periods. Even up to the 1990s, all historical research of the Xiongnu focused on the transmitted sources, while the unearthed more primary textual sources (e.g. Loewe 1976) were poorly studied, despite their more imminent significance. These unearthed sources include various kinds of epigraphic materials related to the Xiongnu: seals, bamboo slips, wooden tablets and steles. Unlike transmitted historical sources, these materials are less altered testimonies from the past. A preliminary analysis of these primary sources is given in Holotová-Szinek 2008, and more recent in-depth analyses are being conducted (for example, see Giele, this volume).

14 The life of the famous general of the Meng Tian (?–210 BC) is described in the "Biography of Meng Tian" in the "Records of the Historian" by Sima Qian (1959).

15 The name of the first Xiongnu chanyu may be read not only as "Modun" but also "Mode," as indicated in the commentary to Sima Qian's text. These variations of the readings of the Chinese characters 冒頓, otherwise read as "Maodun" according to standard Mandarin Chinese pronunciation, are supposed to imitate the original pronunciation of the name in the Xiongnu language.

16 According to the Han historical texts, the Eastern Hu, or Dong Hu, were supposed to live in present-day Liaoning and Jilin provinces. Despite several attempts to match some Bronze Age cultures from northern China with the Eastern Hu, their existence is not yet firmly attested by archaeological findings.

既歸，西擊走月氏，南并樓煩、白羊河南王．悉復收秦所使蒙恬所奪匈奴地者，與漢關故河南塞，至朝那、膚施，遂侵燕、代．是時漢兵與項羽相距，中國罷於兵革，以故冒頓得自彊，控弦之士三十餘萬 (When he returned [from the campaign against the Eastern Hu] he attacked the Yuezhi in the west and pushed them away; in the south, he made submit the Loufan and Boyang[17] kings of the regions South of the River[18]. He regained with dexterity all the land taken by Meng Tian serving the Qin and established the frontier with the Han South of the River, in Chaona and Fushi[19]. Then he seized Yan[20] and Dai[21]. In this period, Han armies were fighting Xiang Yu[22]. The Central Plain was paralyzed by wars, that is why Mode succeeded to establish his power and to command more than three hundred thousand soldiers); Sima Qian 1959, 2889–2890.

The Han seemed to be rather impressed by the rapid progress of the Xiongnu in enlarging their domains. However, it was essentially Sima Qian himself who raised the question about the core management of such important territories and gave the following description of the Xiongnu land administration:

諸左方王將居東方，直上谷以往者，東接穢貉、朝鮮；右方王將居西方，直上郡以西，接月氏、氐、羌；而單于之庭直代、雲中：各有分地，逐水草移徙 (Kings and generals of the left inhabit the eastern territories stretching above the Shanggu commandery[23] and joining the Huimo region and the Kingdom of Chaoxian[24] in the east. Kings and generals of the right inhabit western domains stretching to the west from the Shang commandery to the territories of the Yuezhi, Di, and Qiang. The court of chanyu is situated in the Yunzhong region and in the Dai commandery. Every group possesses its own defined territory where it moves looking for water and pastureland); Sima Qian 1959, 2891.

In the above citation regarding territorial divisions of the Xiongnu, it is interesting to observe that Chinese historiographers' geographical knowledge of the Xiongnu domains is limited to the regions lying close to the frontier of the Han empire. According to the Chinese view, the Xiongnu territories were supposed to form a thin strip following the east-west axis along the northern limits of the Han state. Yet, the territorial division of the Xiongnu in three parts according to this model of an east-west axis has not been attested by archaeological research. The regions situated farther north from the Han border, that is to say, Mongolia and Transbaikalia, remain virtually unknown by the historical texts, despite their show of the highest density of Xiongnu sites.

From the beginning of the formation of the Xiongnu political entity, the central power paid careful attention to the possession or domination of lands. This attitude seemed to surprise the

17 The Yuezhi were at that time established in the north of present-day Gansu province and in the southwest of Inner Mongolia. The Loufan and the Boyang probably resided in the Ordos region of Inner Mongolia.

18 The region of South of the River refers to the Han administrative area south of the northern bend of the Yellow River, equivalent to present-day Ordos region.

19 Chaona city was situated in the vicinity of today's Guyuan city in the south of the Ningxia province. The Fushi region was probably located in the southwest of the Shaanxi province.

20 The kingdom of Yan is located in the area of present-day Beijing.

21 Dai was a commandery of the Han Empire situated in the north of the Shanxi province near the Ordos region.

22 Xiang Yu (232–202 BC) was the prominent general of the Chu State who fought with Liu Bang, the eventual founder of the Han Dynasty, to control the Chinese kingdoms.

23 A commandery situated in the north of the Hebei province.

24 Regions situated on the Korean Peninsula or in its surroundings.

Han, since they considered the Xiongnu to be nomadic herdsmen in constant movement who did not need to be attached to the land, much less to dominate or possess it. For this reason, the Chinese historiographers Sima Qian and Ban Gu more precisely reported the strong bind of the Xiongnu with their land. Since Sima Qian stated that families and clans owned a defined territory (Sima Qian 1959, 2879), it is not because of seasonal transhumance that the Xiongnu did not value land as highly as their sedentary Chinese neighbors.

Another episode in the "Records of the Historian", even though it is narrated in an epic tone, indicates that the Han had definitely noticed the value of territory to the Xiongnu. Mode apparently preferred to concede to his Eastern Hu enemies his prized horses and even his wife rather than land in Xiongnu possession (Sima Qian 1959, 2889–2890). The same behavior can be seen throughout the history of the Xiongnu chanyu rulers. When the Han asked the Xiongnu to concede the Yinshan[25] territory, claiming that this savage land might not have any value to the Xiongnu, they obtained the following answer from the chanyu Wuzhuliu: "On this land grows a forest with excellent wood for making the shafts of arrows, and here live the eagles with the feather for fletchings" (Ban Gu 1962, 3754). According to Ban Gu, it seems that the mountain range of Yinshan had a specific traditional significance for the Xiongnu, as testified by the choice of the founder of their political power: "The chanyu Mode settled in these mountains with lush grass and rich forests, made here bows and arrows, and then organized raids from this place. It was his hunting ground" (Ban Gu 1962, 3754).

Concerning territorial domination, it is possible that the states of the Chinese Central Plains and the regions of the Xiongnu in northern China, Mongolia and Transbaikalia were equally stimulated in their centralization process. Due to their expansion into the northern territories inhabited by the Xiongnu and other peoples, the Chinese states of Qin, Zhao, and Yan succeeded in defeating other rivals for hegemonic dominance during the Warring States period that preceded the Qin and Han empires. On the other hand, after the fall of the Qin dynasty, Mode took advantage of the war for supremacy in the Chinese Central Plains between the kingdom of Chu and the rising Han state to take back the Ordos region. While Liu Bang, the future founder of the Han dynasty, led war against Xiang Yu, the king of Chu, the Xiongnu regained this major part of their territories in northern China.

Soon after, this situation led to alliances between the Xiongnu and the rebellious kingdoms of Wu, Chu, Yan, and Zhao against the imperial court of the nascent Han dynasty. Relations such as this between northern peoples inhabiting present-day Mongolia and Inner Mongolia, like the Wusun or the Xiongnu, and the States of the Central Plains are in fact based on a more ancient tradition. During the Warring States period, kingdoms situated in the east formed a vertical alliance, called a "hezong", against the dominant kingdom of Qin situated in the west. The vertical alliance included all the kingdoms, from north to south, within the eastern part of China. Most likely motivated by a common struggle similar to that against Qin hegemony, the Chinese kingdoms joined with the Xiongnu to subvert movements of the central imperial power of the Han court to dominate all of China. This political situation within the Han empire at times escalated to dramatic levels from the joint efforts of the Wu, Chu and Zhao states which were aided by the Xiongnu:

25 A mountain range stretching for about 1000 km, situated in the northern part of the Hebei province and in the east of Inner Mongolia.

孝文帝崩，孝景帝立，而趙王遂乃陰使人於匈奴．吳楚反，欲與趙合謀入邊．漢圍破趙，匈奴亦止．自是之後，孝景帝復與匈奴和親，通關市，給遺匈奴，遣公主，如故約．終孝景時，時小入盜邊，無大寇 ([In 157 BC], the Emperor Xiao Wen passed away and his successor Xiao Jing was established. [In that moment] Wang Sui of Zhao sent a secret messenger to the Xiongnu. The Wu and the Chu states rebelled, willing to form an alliance with Zhao and enter the border. But the Han surrounded [the troops] of Zhao and defeated them, and the Xiongnu were also stopped. From this point on [in 152 BC], the Emperor Xiao Jing concluded again the treaty of peace and kinship[26] with the Xiongnu, opened the border markets, offered presents and princesses to the Xiongnu, as it was originally stipulated. Down to the end of Emperor Jing [in 141 BC] raids of lesser importance frequently occurred, but no huge invasion was organized); Sima Qian 1959, 2904.

The hasty zeal of the Han to gain the favor of the Xiongnu reflects the importance of the latter in the East and Central Asian geopolitics as well as their strong territorial domination. In order to support their strategic position, the Xiongnu set up an efficient system of spatial control over large territories by a very restrained number of persons. According to the Chinese historical texts, such territorial domination was definitely one of the main features of the Xiongnu political entity, but its actual definition can only be established by archaeological data.

CONCLUSION

In the present article, I have tried to demonstrate that despite a lack of direct concordance between archaeological and historical data in this matter, each group of sources, if critically studied, yields considerable results. Textual evidence confirms the central importance of land and territories to the Xiongnu and the influence of their political entity in Eastern and Central Asia. However, the actual shape of the territories and their management, which presently resembles a confederacy of regions, can be described only through archaeological materials.

Being only a small part of a larger research project on Xiongnu living environment, the data discussed here facilitate the interpretation of monuments and artifacts in a global context of territorial organization, but employment of more thorough survey methods is essential to the further evolution of Xiongnu studies. Therefore, if we are to engage in a systematic study of global mapping of ancient and new sites, definitions of criteria for the mapping of Xiongnu sites seems to be necessary. Through the present study of spatial relations and structure of the Xiongnu political entity as well as its patterns of territorial domination, I would like to encourage more efficient methods of survey and developments of an in-depth analysis of the relations between settlements and funerary sites[27]. The present research also aims to offer a basis for the study of the political and social system of the Xiongnu based on archaeological data as well as critical readings of the texts.

26 The first "heqin" (peace and kinship) treaty with the Xiongnu was concluded in 202 BC by the founder of the Han Dynasty Liu Bang and contained among other elements the engagement of the Han to offer annual "presents" to the Xiongnu in order to maintain the peace (Sima Qian 1959, 2894). By doing so, the Han Empire paid regularly a tribute to their northern neighbors wishing to avoid their military actions. According to the political situation, the treaty was broken from time to time either by the Han or by the Xiongnu and renewed if needed.

27 Such efforts have been made by systematic pedestrian surveys of entire areas (see Wright et al. 2009).

WAS THE CENTER OF THE XIONGNU EMPIRE IN THE ORKHON VALLEY?

Jan Bemmann

Introduction

"The Orkhon valley was the cradle of the formation of many rider-nomad domains and empires, the heartland and center of mounted nomadic peoples like the Xiongnu, Kök-Türk, Uighurs and Mongols. It is the Ötükän area, the sacred promised land of the Old Turkic royal ideology, where according to tradition already the Xiongnu and Uighurs had their capital, the Kök-Türk their center of cult and authority" (Hüttel 2005, 135)[1].

"… the Orkhon valley, … the possession of which ruler's salvation (imperial fortune) and imperial power were likely already long linked, at the latest since the Xiongnu …" (Hüttel/Erdenebat 2009, 3)[2].

This hypothesis of a tradition, which began as early as the first steppe empire of the Xiongnu, of choosing the Orkhon valley as the center of authority and a religious-ideologically exalted focal point, has often been presented as a veritable fact. The significance of the Orkhon valley is beyond dispute and is impressively substantiated for the Turkic peoples by the unique memorials of Kül Tegin and Bilgä Kaghan near Khöshöö Tsaidam, for the Uighurs by the capital of Khar Balgas (Ordu Baliq), and for the Mongols by Karakorum, the first capital of the Mongolian empire. Yet, what is the basis of the argument that the Xiongnu had already established their center of rule in the Orkhon valley? It would seem that this theory, for the Xiongnu period, has not been confirmed by means of references to written sources or any archaeological monuments[3].

1 The original German text reads as follows: "Das Orchontal war die Wiege vieler reiternomadischer Herrschafts- und Reichsbildungen, Herzland und Zentrum nomadischer Reitervölker wie Xiongnu, Kök-Türk, Uiguren, Mongolen. Es ist das Ötükän-Gebiet, das heilige, verheißene Land der alttürkischen Königsideologie, wo nach der Überlieferung schon die Xiongnu und die Uiguren ihre Hauptstadt, die Kök-Türk ihr Kult- und Herrschaftszentrum hatten". – A nearly identical passage in a text that was published one year before is: "Das Orchon-Tal im Herzen der Mongolei ist die Wiege vieler reiternomadischer Herrschafts- und Reichsbildungen, Herzland und Zentrum spätnomadischer Reitervölker wie Hsiung-nu, Kök-Türk, Uighuren, Mongolen. Hier im Ötükan-Gebiet der türkischen Königsideologie, wo nach der Überlieferung schon die Hsiung-nu und die Uighuren ihre Hauptstadt, die Kök-Türk ihr Kult- und Herrschaftszentrum hatten …" (Hüttel 2004, 182).

2 The original German text reads as follows: "das Orchon-Tal, … mit dessen Besitz wohl seit alters her, spätestens aber seit den Xiongnu Königsheil (Herrschaftsglück) und imperiale Gewalt/Macht verknüpft waren".

3 H.-G. Hüttel probably considers the place named Shar Bodgar on his map to be a walled complex from the Xiongnu period (Hüttel 2004, 180 Fig. 1; Hüttel/Erdenebat 2009, 23 Fig. 1), which is suggested by a map with identical content published by his associates (Brandt/Gutschow 2003, 22 p. Fig. 1). On this map it is noted: "Shar Bodgar walled complex of the Hsiung-Nu, ca. 3rd century A.D.". All expeditions since Radloff (1892–1899, Pl. 82) have denoted, on this exact spot, the place of Khanz Khot. Most recently, Shiraishi (2002, 165 pp. Fig. 2–16) and others (Bemmann et al. 2010, 314 Fig. 7; Bemmann/Munkhbayar 2010, 16 pp.) have shown this square complex, enclosed with wall and ditch, to re-

We must therefore consider whether this is an isolated opinion or a reflection of the common attitude in the scientific community, rendering further arguments unnecessary. Thus, in the paper evidence will be sought in both written sources and in inventories of archaeological monuments that might render credible the theory that the first nomad steppe empire of Inner Asia, namely the Xiongnu, had already placed its center of authority in the Orkhon valley.

THEORIES ON THE LOCATION OF THE CENTER OF THE XIONGNU EMPIRE

Within the last few years, D. Rogers, especially, has dealt with questions of city complexes and walled places in Mongolia. He first concluded that "In Mongolia, the Orkhon River Valley served perhaps as the most important focal area for the emergence and consolidation of several different empires. It was the location of important urban centres, perhaps as early as the Xiongnu polity, but certainly during the first and second Turkic, Uighur and Mongol empires" (Rogers et al. 2005, 813). He later stated that "In a tradition that may have gone back as far as the Xiongnu, the Orkhon valley region was an area of imperial camps, sacred places, and cities. Although not based on direct archaeological evidence, the Xiongnu capital of Lung-Ch'ìen is thought to have been located in the southeastern portion of the Khangai Mountains near the Orkhon Valley"[4]. According to this, Rogers postulated a tradition that possibly extended into the Xiongnu period. While he pointed out expressly that there is no archaeological evidence of this, he did not reject the idea. However, in a contribution for a recently published exhibition catalogue, Rogers does not make even one mention of the Xiongnu as predecessors of the Mongols in the Orkhon valley (cp. Rogers 2010, 129).

Similarly, T. Allsen (1996, 124) was cautious when writing: "For centuries before the rise of the Mongols a series of nomadic polities regularly established their imperial camps and cities in the Orkhon river valley. The tradition in all likelihood goes back to the Hsiung-nu era but is first explicitly articulated as a political principle in the period of the Türk Qaghanate, 552–742".

M. Drompp (1999, 390) was likewise careful: "It is also very likely that some earlier groups, such as the peoples known in Chinese sources as Hsiung-nu … and Jou-jan … viewed the general region of the Orkhon valley as their political nucleus as well".

A general localization of power in the Orkhon valley was put forward by P. Golden[5], C. Findley (2005, 48), W. Heissig[6], M. Weiers (2005, 36) and A. Herrmann (1935, 140). N. Ishjamts, by contrast, was more specific in volume II of "The History of Civilizations of Central Asia":

semble the ideal layout of a Chinese imperial palace-city. Through numerous scattered finds at the site, it may be dated beyond a doubt to the 17th/18th century AD. In the nomination of the Orkhon valley cultural landscape for inclusion in the World Heritage List 2004 (p. 30) an oval complex east of Khanz Khot is named Khar Bondgor and is dated to the 13th century (cp. Bemmann et al. 2010, 314 Fig. 7a). Surveys in 2005 primarily recovered sherd materials of the Qing dynasty (pers. comm. E. Pohl).

4 Rogers 2007, 259. In this, Rogers refers to Allsen 1996; Ishjamts 1994; Kiselev et al. 1965; and Tkachev 1987. However, the site to which Rogers refers as "Lung-Ch'ìen" should be called "Lung-C'heng" (or "Long Cheng"), since "cheng" (not "ch'ien" or "qian") is the correct romanization spelling for the Chinese character written in the original ancient texts.

5 Golden 1982, 48: "The refugium and probably the cultic center of the Türk state was the Ötükän yıš. This had been a holy place for the Hsiung-nu and Juan-juan located in the Xangai mountains".

6 Heissig 1984, 33: "Die Juan-Juan hatten den Sitz ihres Herrschers an der gleichen Stelle am Orkhon-Oberlauf wie vor ihnen die Hsiung-nu".

"After 209 B.C., when Mao-tun proclaimed himself shan-yü, the Hsiung-nu state rapidly became a powerful nomadic empire. Lung-chêng, 'the Dragon Site', the nomadic tribal encampment and headquarters of the Hsiung-nu shan-yü, was located in the south-east spurs of the Khangay mountains, in a region where Karakorum and other political centres of the Turkic and Mongol peoples were later to come into being" (Ishjamts 1994, 154). "… it led to the establishment of an entirely new central headquarters for their shan-yü in the Khangay mountains where, in addition to his residence, they erected a sanctuary and other buildings" (Ishjamts 1994, 163).

In his seminal work "A History of Russia, Central Asia and Mongolia", D. Christian (1998, 194) stated: "His [Motun's] first capital was in northern Shansi province, but the later Hsiung-nu capital was at 'Lung-Ch'ien', 'the Dragon Site', in the Hangai mountains west of modern Ulaanbaatar, and not far from the later Mongolian capital of Karakorum". According to Christian (1998, 196), the successful campaign of the Han Chinese in 119 BC, which extended far into the area of the Xiongnu north of the Gobi desert, led to a relocation of the center of authority: "Both armies succeeded in crushing large Hsiung-nu armies, and Wei Ch'ing sacked Lung-Ch'ien. The Hsiung-nu shan-yü, I-ch'ih-hsia (126–114), was driven north of Lung-Ch'ien as far as Lake Baikal with the remnants of his armies. Here he settled in the city of Noin-Ula". This complies with the fact that Christian (1998, 186, Map 8.2) erroneously located Noyon Uul – a cemetery, not a city – on a map on the lower course of the Selenge river, about even with the modern city of Ulan-Ude in Buriatiia, and not in the vicinity of the Kharaa river, ca. 80 km north of Ulaanbaatar. "The Hsiung-nu moved their capital here [Noin-Ula] in 119 BCE, after being defeated by Han armies" (Christian 1998, 205). No fortified settlement is known from the surroundings of the renowned cemetery of Noyon Uul with its extraordinary burials, most dating to the time of the birth of Christ and the first century AD. About 45 km away lies the open permanent settlement of Boroo Gol, which, after an initial trial excavation by a Mongolian-Hungarian team in 1990 (Erdélyi 2001), in recent years has been investigated on a large scale by a Swiss-Mongolian expedition (Ramseyer et al. 2009). However, until now, no finds or architectural remains would justify the assumption that the site was a royal residence or of comparable standing.

That the center of power of the chanyu must have been relocated to the north because of the successful military campaign under Emperor Han Wudi is apparently beyond all question. "The Hsiung-nu royal residence was transferred north of the Gobi sometime after 119 B.C. and, in 106/105 B.C., it was moved once more, this time to the upper reaches of the Orkhon River, in Mongolia" (di Cosmo 2002, 250 fn. 152). Referring to Christian (1998, 194), Findley in turn "locates Long Cheng (Lung-Ch'eng) not far from modern Ulaan Baatar" (2005, 32). He as well notes that due to the wars after 119 BC, "the Xiongnu were cut off from their sacred site at Longcheng" (Findley 2005, 34).

In his PhD dissertation, B. Miller touches upon the problems of attempts to label and localize Long Cheng: "The character given in the *Shi ji* for Long 龍 retains an additional radical overtop the character for Long 龍 given in the *Han shu*, which means 'dragon'. De Crespigny [1984, 507 p. fn. 15] discredits Chinese assumptions of dragon worship mentioned in the *Han shu* as gross misunderstandings of Xiongnu customs and argues against the later attributed meaning of the place name Long cheng 蘢城 as "Dragon City" 龍城. He instead supports JJM de Groot [1921] who equates *long* 蘢/龍 to the Ongi river (онги гол) (44/47° N – 102/105° E) just south of the famous Orkhon river valley. Wang [1983] also makes a similar assertion as to the location of the so-called capital of the Xiongnu at Long cheng, and de Crespigny in the end concurs with the more general concept that the court of the chanyu probably migrated within a core region

of the Orkhon or Ongin river valleys" (Miller 2009, 114 fn. 37). N. di Cosmo (2002, 189) was already very cautious in what is still the best description, to date, of the history of reciprocal effects between Han China and the Xiongnu, when remarking on the localization of Long Cheng and proposing its location southwest of Ulaanbaatar. He also drew attention to the fact that Wang (1983, 142 pp.) placed this Long Cheng south of the Gobi desert and assumed that there were several localities that bore this name[7]. J. Holotová-Szinek (2005, 226) pointed out that the identification of Long Cheng was still an unsolved problem and, like de Crespigny, assumed a mobile center – that is, a traveling ruler and several residences.

An immense influence – without it ever being explicitly referred to as such – was surely exerted by the work of R. Grousset, "L'Empire des Steppes"[8]. With reference to Herrmann (1935)[9], Grousset (1970, 32) wrote that the Xiongnu "dominated both sides of the eastern Gobi: Upper Mongolia, where their shan-yü had one of his residences near what was to be Karakorum in the Orkhon region…" Shortly thereafter, Grousset (1970, 34) continued: "The chief residence of their shan-yü – in so far as these nomads had a residence – or at least one of his summer quarters, was, as noted, on the headwaters of the Orkhon." And so, a Korean research team, referring to Grousset, came to the statement that: "The fixed dwelling of the Chanyu was Karakhorum, which later became the capital city of Genghis Khan's Empire" (Kim et al. 2010).

EVIDENCE IN WRITTEN SOURCES

Apparently, the only texts that allow a localization of the center, or "capital", of the Xiongnu are reports on the military campaigns of 119 BC, during which troops of the Han traversed the Gobi desert for the first time and attacked the Xiongnu in the territory of present-day Mongolia.

The translation of chapter 111 of the "Shiji" by Watson (1961b, 175) narrates: "Wei Qing's army, having ridden over 1,000 li beyond the border, emerged from the desert just at the point where the Shanyu was waiting. … In the gathering dusk he [the Shanyu] mounted a team of six mules and, accompanied by several hundred of his finest horsemen, broke straight through the Han encirclement and fled to the northwest. … the Han army accordingly dispatched a party of light cavalry to pursue him in the night. Wei Qing and the rest of his army followed after … By the time dawn came, the Han army had travelled over 200 li, but they were unable to overtake the Shanyu. … He then proceeded to Zhao Xin's fort at Mt. Tianyan, where he seized the

7 Maidar (1970, 121) locates the remains of the Dragon City in Arkhangai aimag, on the banks of the Selenge river.

8 This work was first published in French in 1939, and later in German and English in 1970, Turkish in 1980, Chinese and Spanish in 1991, Russian in 2003, Mongolian in 2004, and Korean in 2005. In France, this book has gone through at least six new editions; for the German and for English versions I was able to ascertain one more new edition each.

9 Herrmann in turn bases on the translation of de Groot (1921) and on von Rosthorn (1923). He did not equate the main camp of the chanyu with Karakorum. From the description of a military campaign against the northern Xiongnu in the year 90 AD (Fan Ye 1965, 89/79, 2953), von Rosthorn concluded that "both armies descended into the valleys of both springs of the Tamir and united north of Lake T'ailun, where the residence of the chanyu stood" (Rosthorn 1923, 291). Subsequently, Rosthorn spoke of "the old Hun city on the Tamir" (ibid. 273). For this military campaign compare also de Crespigny (1984, 272), who however located Long Cheng southwest of Ulaanbaatar on the upper course of the Tuul (ibid. 270 Map 8). Von Rosthorn's emphasis is noteworthy: "… among the different nomadic peoples … was the residence of the chief nothing more than a large camp or defense ring of wagons. Therefore, in the localities that are known as the residences of their rulers and khans, there are no traces of constructions to be found today".

Xiongnu's supplies of grain and feasted his men. He and his army remained there only a day, however, and then, setting fire to all the remaining grain, began the journey home".

The translation of chapter 111 of the "Shiji" by de Groot (1921, 136) narrates: „Und so fand sich der Generalissimus, als er mehr als tausend li von den Grenzbefestigungen aus zurückgelegt hatte, dem Tan-hu und seinen Schlachtreihen, die auf ihn warteten, gegenüber. … [angesichts einer Niederlage bestieg der Tan-hu] in der Dämmerung einen mit sechs Maultieren bespannten Wagen, schlug sich mit einigen hundert rüstigen Reitern quer durch die Umfassung der Han und wandte sich zur Flucht nach Nordwesten … noch während der Nacht [setzte die Armee der Han] leichte Reiterei zu seiner Verfolgung ein, und die Kriegsmacht des Generalissimus kam nach … Bei Tagesanbruch hatten die Verfolger mehr als 200 li zurückgelegt … dann wurde das Tin-gan-Gebirge und die Stadt (oder Wall) des Tšao-Sin erreicht und der Getreidevorrat gefunden, den Hung-nŏ für die Ernährung seiner Streitmacht aufgespeichert hatte. Die Truppen verweilten hier einen Tag lang und traten dann den Rückzug an, nachdem sie die Reste des Getreides verbrannt hatten".

Watson did not compose a comment on his translation; however, de Groot (1921, 138) interpreted this text passage as follows: In 119 BC the army commander Wei Ts'ing marched with his troops from Kukuchoto through the desert to the north, to confront the chanyu on the other side of the desert. "North of the desert … at a distance of more than one thousand li from the border defenses, he succeeded in encircling the military power of the Shan-yü. One thousand li long, from Kukuchoto, but not at all in order to reach the north fringe of the desert; far more the twofold of that is necessary. Thus, it seems that the Shan-yü, when attacked by Wei Ts'ing, had crossed the edge of the desert and the latter had crossed the meridian on the longitude of Urga [now Ulaanbaatar]. If we set this conjecture next to the report in the text, that after their encirclement and defeat the Shan-yü fled to the northwest, then the Russian map shows us that they retreated in the direction of the Orkhon. Likewise there, as the text further reports, more than 200 li or ca. 85 km away from the battleground, stood the Tin-gan mountains and the 'Wall of Tšao Sin', which the Shan-yü presumably had have built at the advice of this Jabgu as bulwark against invasions of the Han. The generalissimus did not dare farther than that, and then there was the probability that the main camp and court of the Shan-yü lay on the other side of this wall in the same Orkhon valley, where in later centuries the rulers of the Turks and Uighur and founders of the world empire of the Mongols ruled, of whom ruins and inscriptions of Karabalgassun and Karakorum speak"[10].

De Groot could relocate this event in the Orkhon valley[11] only by correcting the distances given and by his reading of the geographic data[12].

10 The original German text reads as follows: "Nördlich der Wüste … in einer Entfernung von über tausend li von den Grenzbefestigungen, gelang es ihm, die Kriegsmacht des Tan-hu einzukreisen. Tausend li von Kukuchoto aus langen aber keineswegs, um den Nordrand der Wüste zu erreichen; vielmehr ist das zweifache dazu erforderlich. Es scheint also, daß der Tan-hu, als Wei Ts'ing ihn angriff, den Rand der Wüste, und letzterer den Meridian des Längengrads von Urga [jetzt Ulaanbaatar] überschritten hatte. Stellen wir diese Konjektur neben den Bericht des Textes, daß der Tan-hu nach seiner Einkreisung und Niederlage nach Nordwesten floh, dann zeigt uns die russische Karte, daß er in Richtung auf den Orchon abzog. Ebenda lagen, wie der Text weiter besagt, mehr als 200 li oder etwa 85 km vom Schlachtfelde entfernt, das Tin-gan-Gebirge und der »Wall des Tšao Sin«, den der Tan-hu vermutlich auf den Rat dieses Jabgu als Bollwerk gegen Einfälle von Han hatte bauen lassen. Darüber hinaus wagte sich der Generalissimus nicht, und es ergibt sich nunmehr die Wahrscheinlichkeit, daß des Tan-hu Hauptlager und Hof jenseits dieses Walls in demselben Orchon-tal lag, wo in späteren Jahrhunderten auch die Fürsten der Türken und Uighuren und die Gründer der Weltherrschaft der Mongolen herrschten, von denen die Ruinen und Inschriften von Karabalgassun und Karakorum sprechen" (de Groot 1921, 138).

11 Herrmann already made critical comments to this; Herrmann 1935.

12 Without doubt, the interpretation of the geographic designations in written sources and their localization are in need of a comprehensive modern interpretation,

MONUMENTS OF THE XIONGNU PERIOD IN THE ORKHON VALLEY[13]

An overview of pertinent maps and compilations of cemeteries and settlements of the Xiongnu period[14] reveals that the middle and upper Orkhon valley is almost void of finds. Furthermore, an updated mapping from a three-year survey project in the middle and upper Orkhon valley does not make any essential changes to the picture (Fig. 1)[15].

Near the edge of this area are the burial grounds of Tamiryn Ulaan Khoshuu, Ögii nuur sum, in Arkhangai aimag. After Z. Batsaikhan and Ts. Törbat had excavated individual complexes in

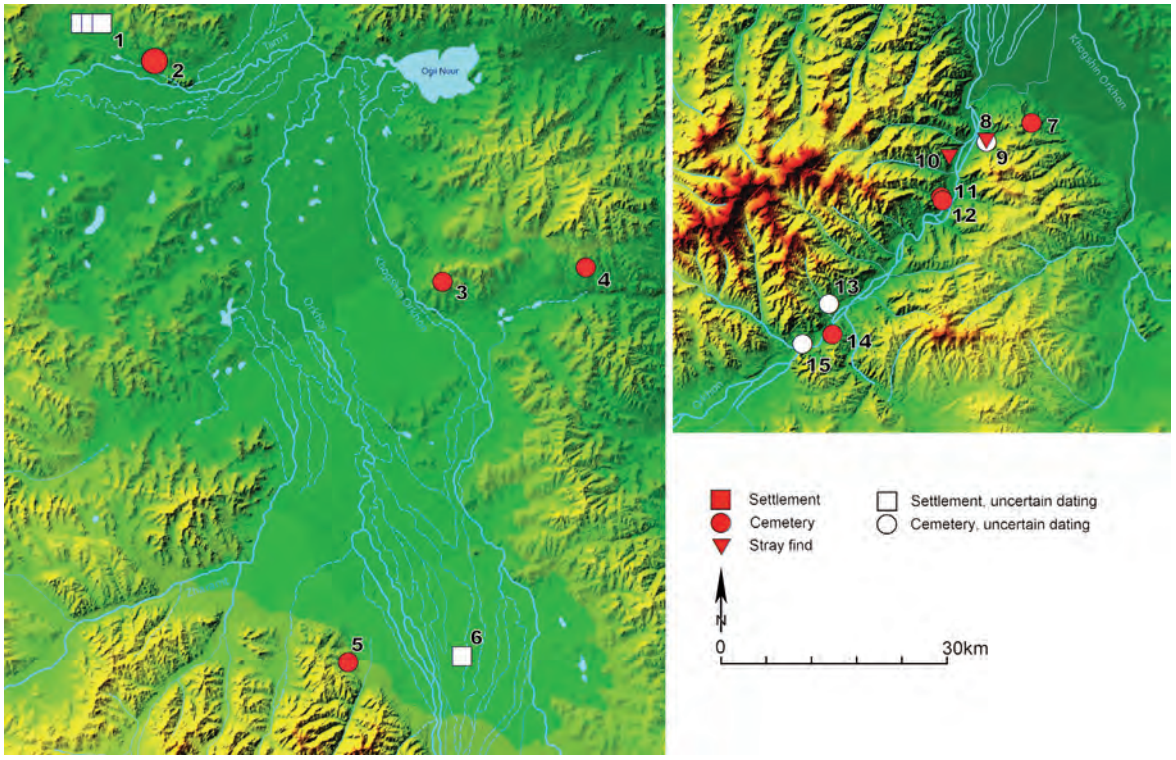


Fig. 1. Map of the Orkhon valley with sites of the Xiongnu period (drawn by Thomas Pabst, Bonn).

which should take more consideration than takes so far of natural tracks, nature zones and communication routes. This could be augmented by techniques in the Geographic Information System (GIS), as recently implemented by Honeychurch (W. Honeychurch, From Steppe Roads to Silk Roads: Inner Asian Nomads and Early Interregional Exchange. In: R. Amitai/M. Biran [eds.], Eurasian Nomads as Agents of Cultural Change. Honolulu, in press).

13 The task of describing monuments designated as Xiongnu and, with that, the Xiongnu as an archaeological category, and to comprehend its change during the 3rd century BC to the 2nd century AD as well as to filter out possible regional specificities has not been undertaken thus far. The contribution of S.-K. Psarras: "Xiongnu culture: identification and dating", does not contain what the title promises (Psarras 1995). It is indeed striking that until now scarcely any burials can be positively assigned to the early phase in the 3rd/2nd century BC and that ostentatious graves dated to this time are unknown in Mongolia.

14 Xiongnu Tombs 2008, 24 (only there with a list of sites); Holotová-Szinek/André 2003, 81; Miller 2009, 250 Fig. 6.52; 269 Fig. 6.64; Wright 2006, 111 Fig. 4.9; André 2009, 32 Fig. 10; see Brosseder/Miller, this volume Fig. 1.

15 The surveys were part of the project "Geoarchaeology in the Steppe", sponsored by Federal Ministry of Education and Research (BMBF), grant no. 01UA0801A (Bemmann et al. 2010; 2011). The abbreviation 'MOR' used in the following stands for 'Middle Orkhon valley' and 'OOR' – for 'Upper Orkhon valley'. The sites discerned within the framework of the survey were numbered in sequence. A comprehensive preliminary report will appear in the journal Eurasia Antiqua 17, 2012.

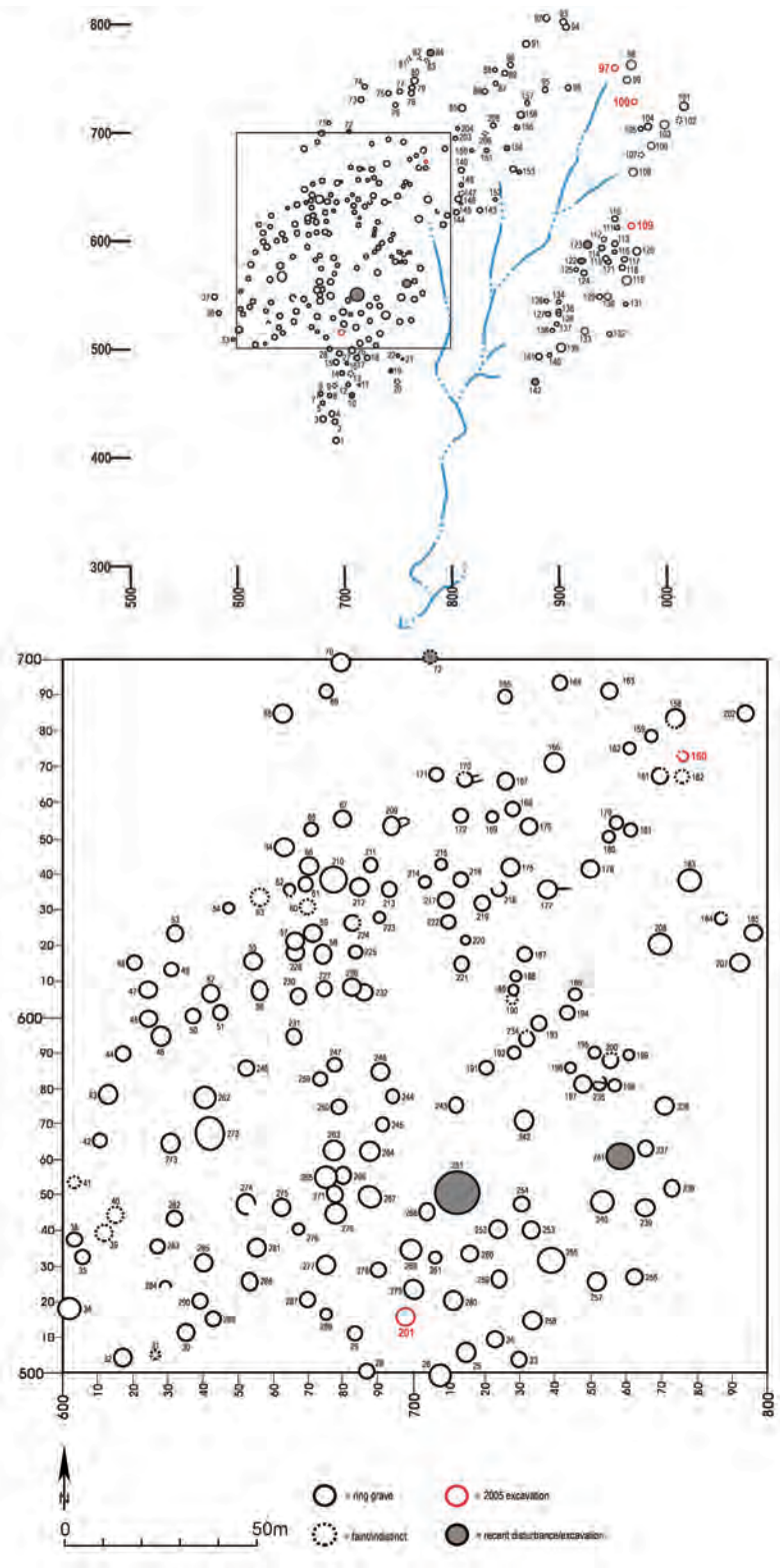


Fig. 2. Plan of the cemetery Tamiryn Ulaan Khoshuu (drawn by David Purcell).

the cemetery, in the summer of 2005 a joint project was undertaken with colleagues from the USA (Purcell/Spurr 2006; Xiongnu Tombs 2008, 107–109; Khatanbaatar 2007). The cemetery

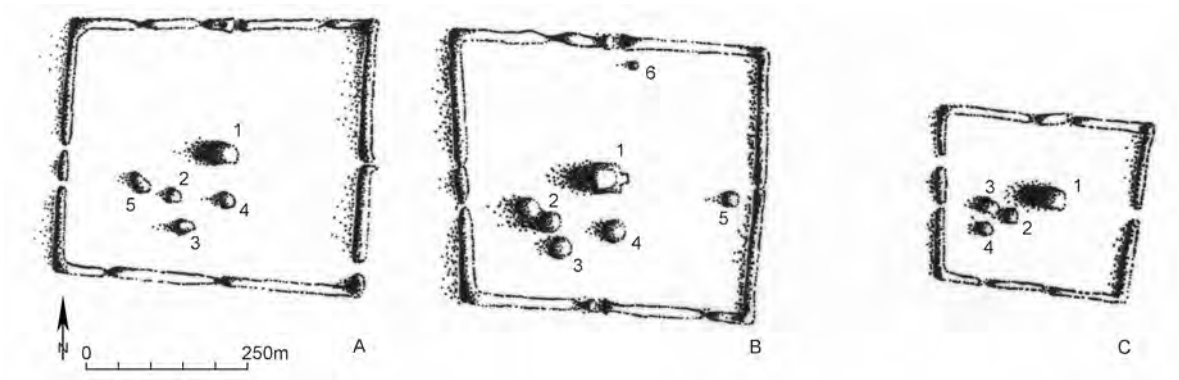


Fig. 3. Walled enclosures in the Tamir valley (after Purcell/Spurr 2006, 27 Fig. 21).

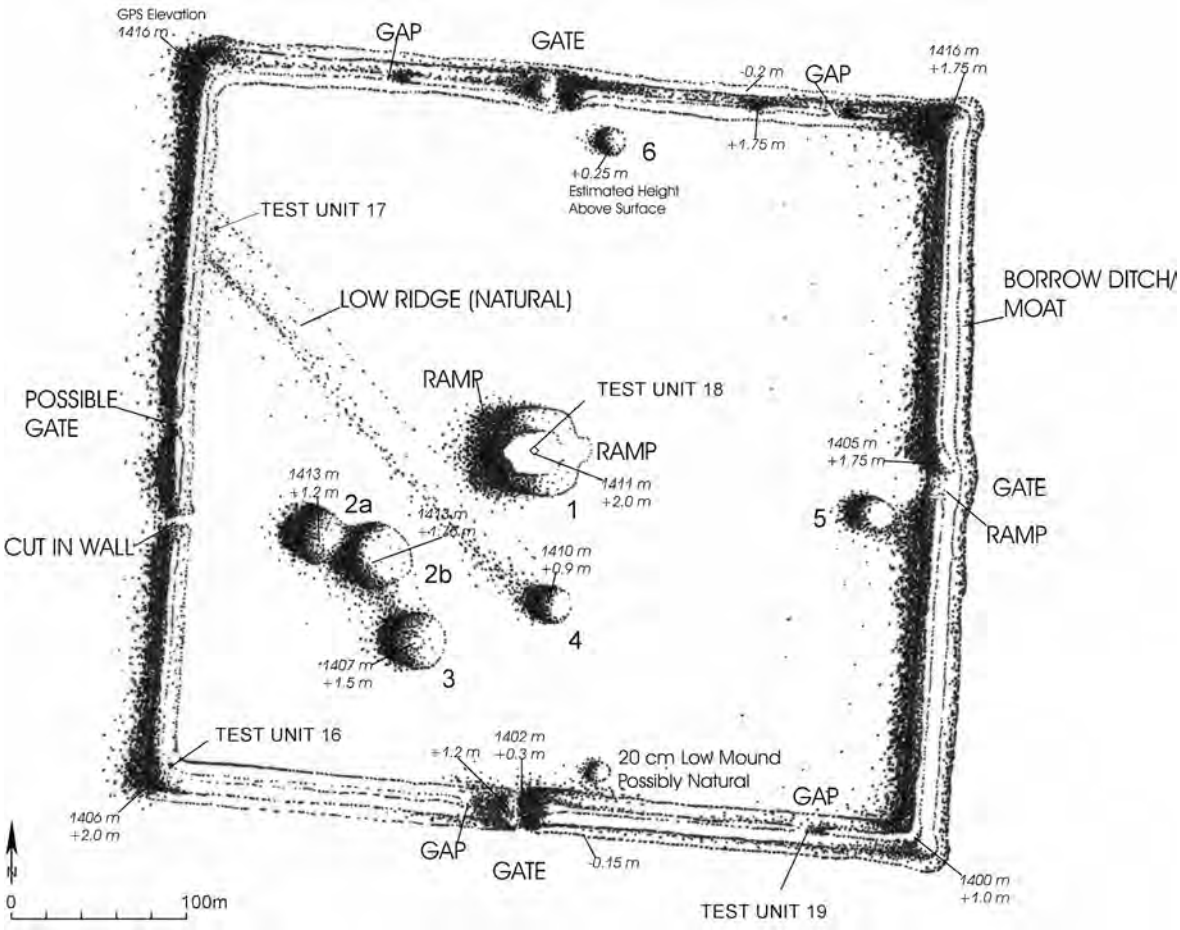


Fig. 4. Detail of walled structure B in the Tamir valley (after Purcell/Spurr 2006, 27 Fig. 22).

consists of 287 grave complexes that are visible above ground (Fig. 1,2; 2)[16], five of which were investigated in their entirety in the summer of 2005 and, based on the grave goods and grave

16 Batsaikhan (2006, 45) mentions 370 grave monuments, 16 of which have been excavated.

Fig. 5. MOR 5 in a Russian aerial photograph from September 3, 1972.
Detail from Page 1592, not to scale.

Fig. 6. Photographs of MOR 5. 1 From southwest; 2 from southeast into the enclosure (photos Jan Bemmann).

construction, can be dated without a doubt to the Xiongnu period. Following this bi-national excavation campaign, further graves were excavated until 2007 by the National University of Mongolia (Khatanbaatar 2007, 157). Although D. Khatanbaatar published a schematic plan of the cemetery in a short summary report (Khatanbaatar 2007, 163 Fig. 1), until now these excavations have only been presented in a preliminary report.

Located some 3 km north of the comprehensive burial grounds are three enclosed, almost square complexes (Fig. 1,1). This threefold complex was previously discussed in the study by Kh. Perlee; however, his plans can only be designated as rough sketches (Perlee 1961, 152 No. 154 Fig.). The plans made by Z. Batsaikhan are somewhat more detailed (Batsaikhan/Baatarbileg 2002, 36–38), and the sites were finally surveyed with a GPS Garmin handheld instrument in 2005 (Fig. 3;

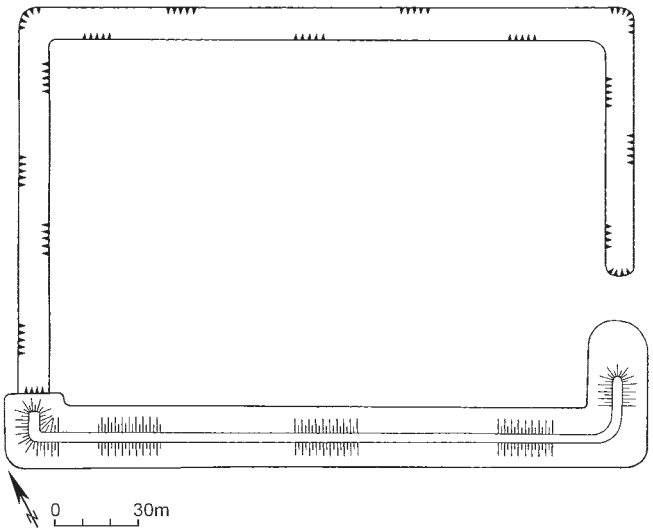


Fig. 7. Dörvölzhin Gazar, Khairkhan sum, Arkhangai aimag (after Erdélyi et al. 1967, 369 Fig. 57).

Purcell/Spurr 2006, 22). Enclosure A has walls measuring 490 and 450 m in length, complex B is enclosed by walls of 455 and 440 m length, and complex C by 335 and 275 m long walls. All three complexes display platform foundations of various sizes in the interior, and the walls are interrupted by entrances. Test units laid out in the middle complex B did not yield any evidence indicative of its periodization or use (Fig. 4), and, despite intensive surveys, no surface finds were discovered. A Russian aerial photograph from 1972 confirms that the measurements and survey observations made by the Mongol-American team in 2005 are accurate. J. Wright and others (2009, 374) reckon this Tamir site among those attributable to the Xiongnu, though Purcell and Spurr (2006, 31) merely toy with the idea of using both places as an argument for a Xiongnu capital in the Orkhon valley, recognizing the lack of chronologically diagnostic remains from these sites[17].

Located in the vast inundation zone of the Orkhon valley, characterized by countless old river arms, is a small almost square (166 × 150 m) complex, MOR-5 (Fig. 1,6). It also can be recognized relatively well in a Russian aerial photograph from 1972 (Fig. 5). Intensive field surveys of the complex in the fall of 2008 did not come across any surface finds that might have been associated with the wall construction. The next step would have been to intersect the wall with test trenches and take samples for dating purposes. However, as the site has served as a cemetery for the inhabitants of modern Kharkhorin city since the 1970s (Fig. 6), no intrusions in the ground were permitted, not even for gaining an OSL-sample. Hence, at the moment the complex's position in time cannot be determined. The site does not form a closed rectangle, which in its incomplete outline is reminiscent of the walled enclosure at Dörvölzhin Gazar in the Khünüi valley (Fig. 7). It is presumed that the latter was never completed and that it dates to the Xiongnu period[18]. The

17 A well comparable sequence of rectangular enclosures, also with different platforms in the inside, is located in Ulaan Kherem, Baiannuur sum, Bulgan aimag. The dating, however, is still uncertain (A. Ochir/A. Enkhtör/L. Erdenebold, Khar Bukh Balgas ba Tuul golyn sav dakh' khiatany üeiin khot, suriinguud [Ulaanbaatar 2005] 132 Fig. 57. А. Очир/Л. Энхт р/Л. Эрдэнэболд, Хар Бух балгас ба Туул голын сав дахь Хятаны үеийн хот, суурингууд [Улаанбаатар 2005] 132 Fig. 57).

18 Erdélyi et al. 1967, 369 p. Fig. 57; Erdélyi 2000, 67; André 2009, 35 Fig. 13; 37 Fig. 15; 38; Holotová-Szinek, this volume.

viewpoint exists among Mongolian scholars that these enclosures of an almost square layout and a paucity of finds date to the Xiongnu empire. This assumption probably stems from the work of Perlee, who investigated several near-square complexes and, in view of the pottery and roof tiles, could classify them beyond a doubt as dating to the Xiongnu times[19].

In general, the function of these walled sites in Mongolia has still not been clarified. Not only do the sites differ in dimension and location, there are apparently also distinct differences in the form and size of the interior structures and layout as well as the quantity and quality of the spectrum of finds (Honeychurch in press; Danilov 2004, 34 pp.). Departing from the 'mobility of the center', as mentioned in written sources, that is, the itinerancy of the ruler, who visited various places or residences, depending upon the season of the year, Honeychurch conjectures that the walled sites served as stations on the imperial itinerary. Danilov (this volume) distinguishes between settlements of farmers and craftsmen as in Ivolga, residences of specific members of the elite, and sites with temples or cultic buildings.

In the Orkhon valley, upon crossing the mountain ridge ca. 7 km northwest of Khöshöö Tsaidam, one reaches the cemetery Khutag Uul (GPS 47°36'20.82"N, 102°47'1.84"E), part of which was already excavated by N. Ser-Odzhav (1970; Fig. 1,3). He discovered graves of the Turkic period. In the hopes of finding further graves of this date, a Kazakh-Mongolian team began an excavation campaign in 2009, which yielded solely Xiongnu graves, yet a plan of the cemetery and a detailed report about these recent findings have not yet been published[20].

Leaving the valley in which the Turkic memorial sites are located and going to the east, one comes upon a further cemetery (Fig. 1,4), which evidently has not been investigated or measured by archaeologists or scientists, but which displays probably unprofessional intrusions (pers. comm. E. Pohl). In addition to several slab burials at this site (Fig. 8,1), circular stone settings (Fig. 8,2) were also found, which presumably date to the Xiongnu period. In the course of investigations on Uighur ostentatious graves on the west side of the middle Orkhon valley, Ts. Odbaatar discovered a Xiongnu-period burial (Fig. 1,5), containing typical grave goods, under the eastern wall of a ritual "square site" at Khulkhiin Am (Odbaatar 2008).

Located on a mountain ridge to the south of Erdene Zuu, and southeast of the probable Uighur wall complex of Zakhyn Bulag (Fig. 1,7), is one single grave, which in view of its ring-shaped form visible on the surface can be attributed to the Xiongnu (Fig. 9).

In the narrow part of the upper Orkhon valley, which runs a length of ca. 30 km south of Kharkhorin and is full of visible burial monuments, despite intensive field surveying in the years 2008–2010 only one small cemetery (OOR 226) was discovered that (Fig. 1,14), in view of its circular form stone settings, can likely be dated to Xiongnu times (Fig. 10). Ten of the graves on the gently sloping, southwest side of the valley could be identified with certainty, as could a long row of stones set in pairs, similar to those at Shombuuzyn Belchir and Takhiltyn Khotgor, both in Khovd aimag (Miller et al. 2009a, 9 Fig. 3; 2009b, 303 Fig. 2; 307 Fig. 5).

19 Perlee 1957, 43–45; 1961. He refers in his article of 1957 to Terelzhiin Dörvölzhin, Gua Dov and Bars Khot II. Perlee (1961) later found corresponding pottery in Bürkhiin and Khüreen Dov (cp. Fig. 17).

20 З. Самашев, Отчет о работах Казахско-Монгольской историко-культурной экспедиций на территории Монголии в 2009 году. Field report Almaty 2009. Unpublished report in the archive of the Mongolian Academy of Science, Institute of Archaeology.

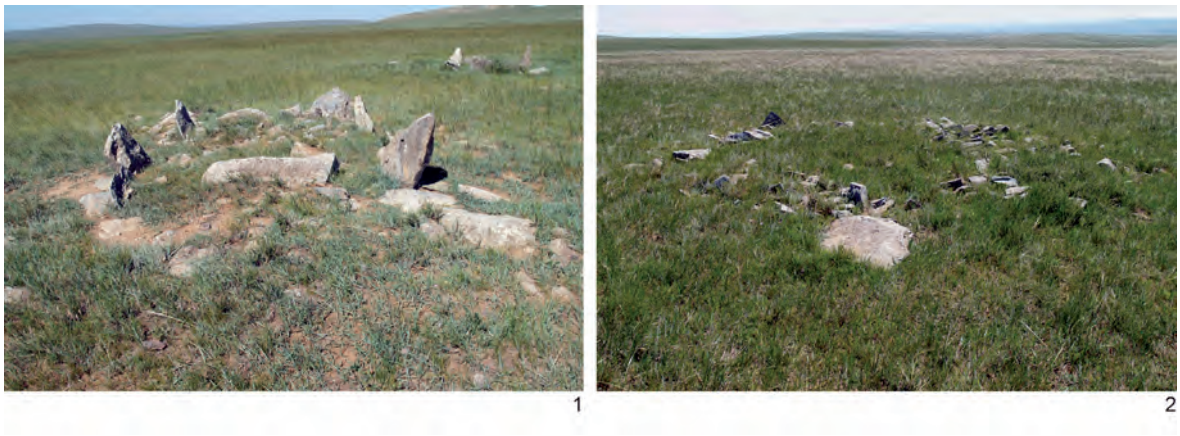


Fig. 8. Cemetery east of Khöshöö Tsaidam, Khashaat sum, Arkhangai aimag. 1 Slab burial; 2 ring-shaped grave complex (photos Ernst Pohl, Bonn).

Fig. 9. Xiongnu grave, south of Karakorum (photo Jan Bemmann).

On a large diluvial fan on the west bank of the Orkhon river were, aside from unspecific grave monuments, a Turkic statue and square features of the same date, and a khirigsuur complex, two complexes: OOR 202/18 and OOR 202/24 (Fig. 1,11–12). They were separated by a distance of 350 m and had a diameter of 8.5 m and 6 m, respectively. In view of their structure visible above ground they can probably be dated to Xiongnu times (Fig. 11).

Two circular grave complexes (OOR 70-6 und OOR 70-7) with a diameter of 6–8 m were found at the southern exit of the canyon-like part of the upper Orkhon valley (Fig. 1,15); they lie in the direct vicinity of some of the khirigsuurs in the plain. Apparently, they were destroyed by inhabitants of the neighboring gers, but in view of their present form it should not be excluded that they contained burials of Xiongnu date.

Probably previously excavated or severely disturbed, grave complex OOR 198 could likewise be dated to the Xiongnu period, based on its circular form and diameter of 8–10 m (Fig. 1,9).

Similarly, graves in the immediate surroundings had already been excavated or looted. A single Xiongnu period potsherd (OOR 199-3) was found a few meters away (Fig. 12,2; Fig. 1,8)[21]. The findspot is on the south side of a lateral valley, almost at the valley's exit and relatively high on

21 No diagnostic sherds from the Xiongnu period were found in the middle Orkhon valley, not even among the countless collected surface finds especially of ceramics. Thereby one has to consider that without shovel tests camp sites of nomads are not to be detected (see Houle/Broderick, this volume).

Fig. 10. Xiongnu cemetery OOR 226 at the southern end of the upper Orkhon valley (photos Jan Bemmann).

the slope; the view from there is towards the west-northwest, in the direction of Orkhon. Further burials of the Xiongnu period are possibly located among the larger scatter of graves OOR 221, which are distributed over a relatively steep slope towards the southeast (Fig. 1,13).

Still to mention is a bronze, three-edged arrowhead with an iron stem, discovered in a multi-phased settlement site (Fig. 12,1; 1,10). Comparable examples are found in Mangasyn Khuree and Baian Bulag, Gobi (Amartüvshin et al. and Kovalev et al., this volume), though artifacts such as this have been equated to Han Chinese arrowheads, rather than those more regularly found in Xiongnu sites.

We are still far from having registered all monuments in the Orkhon valley, between the inflow of the Tamir in the north and the Orkhon waterfall in the south. Nevertheless, through the numerous sojourns and surveys as well as the aerial and satellite images some outstanding

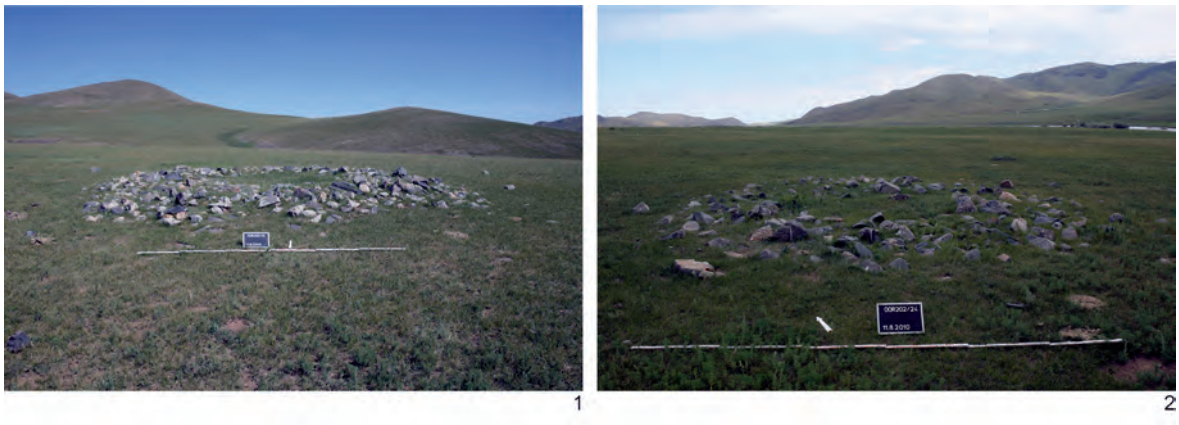


Fig. 11. Ring-shaped grave complexes in the upper Orkhon valley; 1 OOR 202/18; 2 OOR/24 (photos Birte Ahrens, Bonn).

Fig. 12. 1 Bronze arrowhead from the upper Orkhon valley (illustration Nicole Schmitt, Bonn); 2 pottery sherd from the vicinity of a disturbed grave (photo Nomguunsuren).

burial complexes or fortifications of the Xiongnu period should have been observed by now[22]. Hence, it can be stated that compared to the Bronze and later Iron Age, and even the Turkic/Uighur period, this epoch in the middle and upper Orkhon valley is pronouncedly poor in the spectrum of finds. The upper Orkhon valley even trails behind the Egiin Gol valley (Fig. 13), which was prospected in about the same length and whose monuments were registered systematically in several surveys from 1996 to 2000, though some sites were investigated via shovel test pits. "The Egiin Gol Survey covered a 40 km stretch of the Lower Egiin Gol valley, and intensively examined 246 km² of valley, terraces and ridges along the river and its tributary streams. … In total the EGS recorded 572 sites from the Upper Palaeolithic to the early twentieth century, materials and sites from the Xiongnu period were among the most common remains recorded" (Wright et al. 2009, 373). Aside from the well-known burial ground of Burkhan Tolgoi that was excavated almost entirely (Törbat et al. 2003; Xiongnu tombs 2008, 126 pp.), the Egiin Gol valley still exhibits several smaller burial areas encompassing up to six grave complexes, settlement sites and a complex, enclosed by a wall and ditch (Fig. 14; Wright et al. 2009). The last one, EGS 131, could be securely dated through the pottery and a Chinese bronze mirror. "EGS 131 is such a

22 Of course, the initial temporal assignment of the contexts found were made solely in view of the structures visible on the surface. For one reason, sometimes burials from other epochs are concealed behind typical grave forms; and for another, excavations in Baga Gazaryn Chuluu have shown that burials of the Xiongnu can also be found among atypical structures (Nelson et al. 2009a, 575 p.). Therefore, a none-too-small misjudgment must be reckoned with, which for the time being is unavoidable in the present state of research. All other surveys suffer under this situation as well.

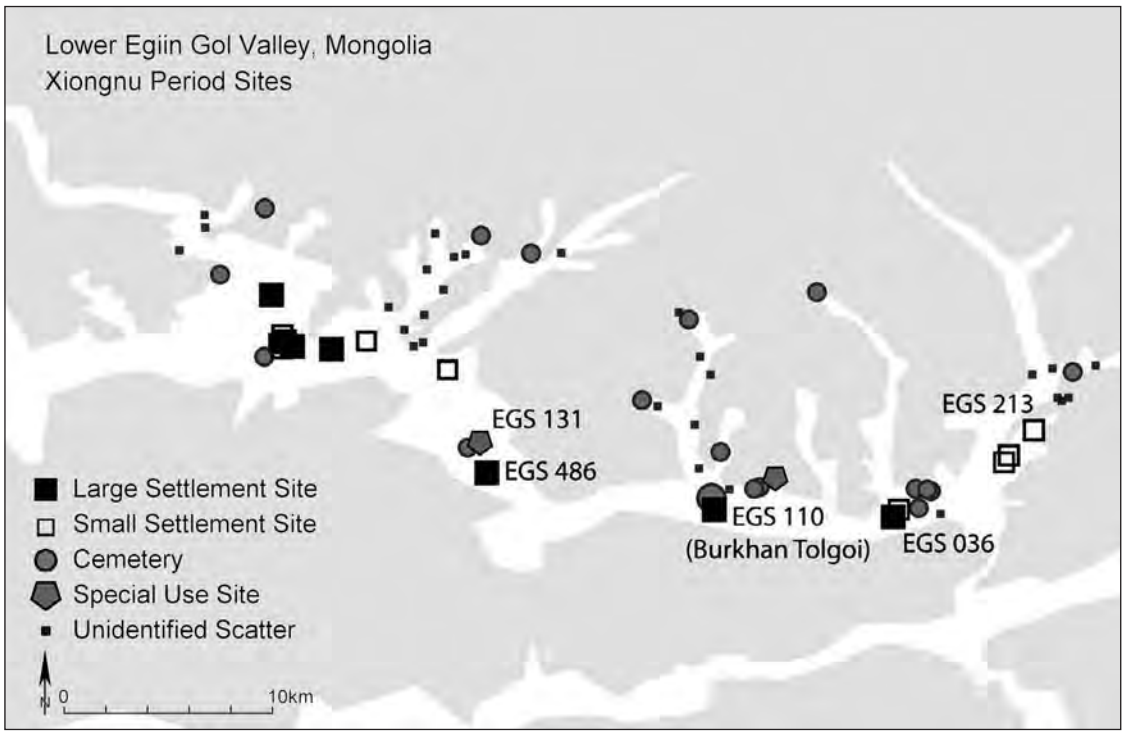


Fig. 13. Distribution of Xiongnu period sites in the lower Egiin Gol valley (after Wright et al. 2009, 374 Fig. 2).

special site, a bluff top ditched enclosure (110 × 185 m) with two contiguous areas defined by an earthen mound that now stands 0.5–0.7 m tall and a shallow ditch 0.7–1.1 m deep and 3–5 m wide" (Wright et al. 2009, 381). The interpretation has changed from "a potential defensive structure or ceremonial enclosure used on a temporary basis" (Honeychurch/Amartüvshin 2006b, 194) to "a central place in use for short term events by the later Xiongnu population of the valley, not as a settlement or fortified site" (Wright et al. 2009, 382).

To date, no terrace tombs have been discovered in the entire Orkhon valley that could be regarded as characteristic of graves of an upper class (Brosseder 2009). Neither the three square walled complexes above the exit of the Tamir valley nor the smaller complex in the Orkhon valley plain can be securely attributed to Xiongnu times without question. Considering that the Orkhon valley is alleged to have been the capital of the chanyu or a center of authority for the empire, the archaeological findings from recent surveys are extremely sparse and do not appear to justify this theory[23].

Concluding Remarks

A perusal of the often quoted relevant publications on the importance of the Orkhon valley, particularly regarding the Xiongnu period, leads to the suspicion that arguments are seldom

23 However, Christian (1998, 189) maintains: "Some regions, particularly hillier regions in the Orkhon valley, enjoyed fertile soils and rivers that could be used for irrigation farming. Here, Motun and his successors deliberately planted farming communities, often near major winter camps".

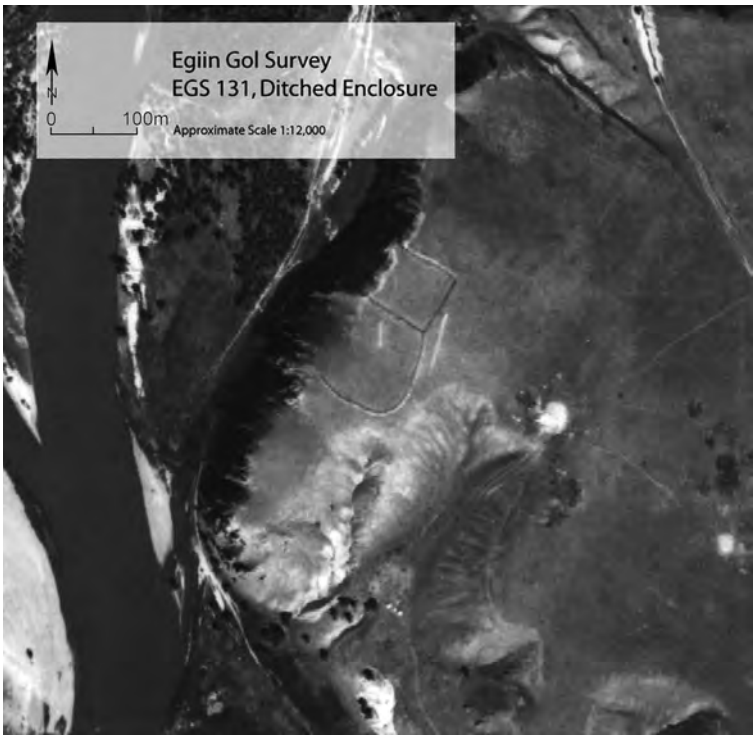


Fig. 14. Aerial photograph of EGS 131, the ditched enclosure of Kholtost Khurem (after Wright et al. 2009, 383 Fig. 7).

brought forth based on original information – be they archaeological remains or written sources. Far more, instead, seemingly confirmed results from secondary literature have been abstracted and condensed, so that, in the end, the development of a theory that purports the center of the Xiongnu to be in the Orkhon valley has entered handbooks as fact. Wholly in the sense of Drompp (1999) "Breaking the Orkhon tradition" – who in his study convincingly proved that after their victory over the Uighurs in 840 the Kirghiz did not sit firmly in the Orkhon valley and, thus, could not have been driven out by the Kitan in 924 – it can be maintained that the theory of Xiongnu centered in the Orkhon, detached from concrete evidence or contexts, should be placed *ad acta* as well. It would certainly be worthwhile to view the written sources anew, in order to gain clues about the location, structure and function of centers of authority of the respective groups of rider-nomads north of the Gobi desert and to analyse these diachronically and comparatively. In this way criteria could be ascertained as to how and where rulership is manifested in the landscape and what kind of structures should be present.

The significance that can be verifiably ascribed to the middle Orkhon valley since Turkic times has been projected backward to the time of the Xiongnu by some researchers[24]. However, this manner of argumentation should progress in the opposite direction; that is, the Xiongnu epoch should be (re)viewed starting from older periods in time and working forward in order to determine the traditions in which the Xiongnu empire was rooted. If we may accept the theory that in the late Bronze and early Iron Age the massive stone kurgans with their hundreds of

24 This does not cast doubt upon the strength of tradition, of the cultural memory as a resource for forming large bands of rider-nomads.

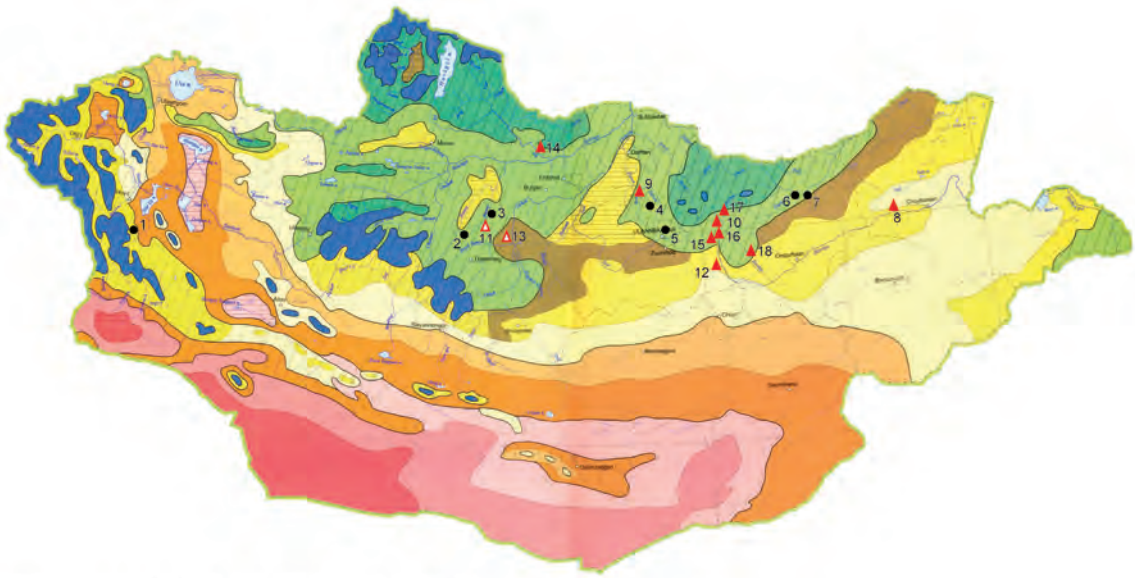
sacrificial pits are indicators of the emergence of complex societies (Houle 2010), then their dissemination and distribution should characterize the regions that were of special significance in the periods preceeding the Xiongnu, that is, in which the rank-order was firmly established (Honeychurch/Amartüvshin 2011). This would certainly apply to the Khanui and Khünüi valleys, in which monumental grave mounds of older date (Allard/Erdenebaatar 2005) and two of the very rare cemeteries of the Xiongnu with numerous terrace tombs ascribed to the elite are present (Mongolie 2003; Allard et al. 2002; Miller et al. 2006). Furthermore, located in the Khünüi valley are the well-known burial grounds of the Xiongnu at Naimaa Tolgoi with more than 20 graves (most recently: Xiongnu tombs 2008, 85 pp.; Erdélyi 2000, 33 pp.; 147 Fig. 30). Similarly, the number and quality of deer stones found in the Khanui, Khünüi and Tamir valleys far surpass the three examples known until now in the upper Orkhon valley[25]. Judging from the hitherto known number of monuments, it is therefore probable that an important center of the Xiongnu existed in the Khanui and Khünüi valleys. Both valleys belong to the mountain forest-steppe zone, which extends along the Selenge river as far as Buriatiia and in which the majority of Xiongnu period cemeteries and – with the exception of Takhiltyn Khotgor – all of the terrace tombs are located (Fig. 15).

In conclusion, one should explain exactly how the region which a ruling group preferred, and which served as a representation of their power, can be determined. The localization of the presumed "capital" of Long Cheng, or the center of the Xiongnu, based merely on written sources has not brought forth any convincing results thus far. Closely linked with this is the basic deliberation as to whether the Xiongnu rulers were configured within only one permanent capital or several residences, which the chanyu visited throughout the year in a firmly regulated turnus, as is documented, for example, for the Mongolian khans (Boyle 1972; Shiraishi 2004). With regard to the latter alternative mentioned, K. Sagaster coined the term: "institution of a movable center of power"[26]. If the center of power were so facile to relocate because it was erected completely in gers, then archaeological evidence would be extremely difficult, even impossible to find. In analogy to later epochs, like the majority of researchers I start with the assumption that there were several residences or stations for the ruling apparatus. Thereby, the winter camp was surely most important; and, likely, the most visible traces would have been left behind there, as they are even for modern winter camps.

Archaeologically, then, a center of power can only be proven through an analysis of the distribution of elite graves and burial grounds that were used over a long period of time as the resting place of the ancestors and as commemorative, tradition-sustaining sites, as well as enclosed complexes, fortifications and cities. Nevertheless, it is still under debate whether the Xiongnu had permanent settlements at all and – usually associated with that – whether they practiced agriculture. T. Barfield stands prominently for one of the theses when he proposes that "the Hsiung-nu had no cities to conquer or agricultural land to occupy" (Barfield 1981, 58). A different view is held, for example, by J. Harmatta (1994, 488): "The Hsiung-nu … were well acquainted with agriculture and had several permanent fortified settlements where handicraft flourished". Rogers and others (2005, 811) further support this view point: "By the beginnings of the Xiongnu empire (200 BC to AD 155), the great majority of urban centres consisted of

25 Magail 2005, 43 Fig. 4; cp. also André 2007, 32 p.; Pierres à Cerfs 2011; Törbat et al. 2011. See also the large-scale mapping based on Volkov of deer stones in Erdélyi (2000, 206 Fig. 93) and Fitzhugh (2009, 185 p. Fig. 4).

26 Sagaster 1999, 121. The original German term reads as follow „Institution des beweglichen Machtzentrums".



CLASSIFICATION OF NATURE ZONE AND VERTICAL ZONALITY

Latitudinal zone and subzone		Vertical zonality	Hollow zonality
High mountain zone		High mountain	
Mountain taiga zone		Mountain taiga	
Forest – steppe zone		Mountain forest – steppe	Meadow – steppe, steppe
Steppe zone	Meadow – steppe		
	Steppe	Mountain steppe	Semi – desert
	Dry steppe		
Govi zone	Desert – steppe	Dry steppe	Stepped – desert
	Semi – steppe		
Desert zone	Stepped – desert	Dessert – steppe	Extra arid desert
	Desert	Semi – steppe	
	Extra arid desert		

- Terrace tombs
- Settlement
- Settlement not dated

Fig. 15. Nature zone in Mongolia with charting of cemeteries with terrace tombs (1 Takhiltyn Khotgor; 2 Gol Mod 2; 3 Gol Mod 1; 4 Noyon Uul; 5 Selbe Gol; 6 Bor Bulag; 7 Duurlig Nars; see Brosseder 2009) and settlements and walled enclosures (8–18, credits in list 1). (Basis for map according to Geographic Atlas of Mongolia, Administration of Land Affairs, Geodesy and Cartography, Ulaanbaatar 2004, 58 p. map 44).

fortified rectilinear enclosures". The excavation of walled sites has "also confirmed reports in the Han dynasty records of sedentary, agricultural centres in use among the Xiongnu" (Honeychurch/Amartüvshin 2006b, 192). T. Hayashi (1984) presented passages in texts and archaeological evidence of the construction of fortifications and of agriculture, but did not name any cities[27]. The entire discussion surrounding the interpretation of walled spaces and of settlements is marked to great measure by excavation results in Ivolga (Davydova 1995). Indications there of agriculture are so overwhelming that there is no longer any doubt in this case. However, it is

27 Here we have Hayashi (1984, 58 Fig. 1) to thank for mapping the walled enclosures and settlements of the Xiongnu period. The site of Shuvuutain Golyn Kherem, Büregkhangai sum, Bulgan aimag, was not charted, which according to Maidar (1970, 131) dates to the Turkic epoch. This walled complex differs further through its elongated rectangular outline from the others that can be dated with certainty to the Xiongnu period.

often assumed that those carrying out the cultivation activities were not the indigenous population, but instead Chinese war captives or refugees[28]. In this case a distribution of permanent settlements would show rather the areas in which agriculture could be practiced under the conditions and possibilities of those times and not where centers of dense settlements with corresponding supply systems existed. If walled sites served mainly fortification purposes, then they would designate areas of military conflicts or regions of unrest, that is, areas in which the rulers would be particularly threatened. Thus, Hayashi assumed that Ivolga, located on the northern fringe of the archaeologically circumscribed distribution area of the Xiongnu, was erected as protection from the repeated incursions of northern neighbors, the Dingling (Hayashi 2004, 122). Therefore, in the future, fortified complexes in the Xiongnu territories should be compared with the square camps along the stretch of Han Chinese fortifications that runs through the Gobi desert, some of which, in the south of present-day Mongolia, are distinct in aerial images.

With the help of the fundamental works of Kh. Perlee (1961) and D. Maidar (1970), settlements of the Xiongnu and walled enclosures were compiled and complemented by a few new discoveries (Fig. 16). The number of 20 for the total count of complexes that are mentioned again and again in publications could not be affirmed here (cp. also Hayashi 1984, 60; 72 fn. 8), but the concentration of securely datable complexes on the upper course of the Kherlen river may find a basis in the history of research. This region is located near the modern capital of Mongolia and easily reached. Areas at a greater distance have only been studied recently. That an increase can be reckoned with is indicated, for example, by the results of a years-long survey in Egiin Gol. Walled enclosures and settlements appear preferably distributed in the mountain forest-steppe zone and, as far as can be observed, are situated on streams and rivers that provide water year-round. In general, it should be taken into consideration that scientific research on settlements and fortified sites in Mongolia is still in its infancy. The initial works of Perlee (1961) and Kiselev et al. (1965) have found minimal continuation thus far. Since the important burial grounds as well as permanent and enclosed settlements are located, for the most part, in the mountain forest-steppe zone, the capital or the center of power should be sought in this region as well.

The appearance of cities and walled enclosures is apparently always closely coupled with the existence of emerging empires. When these polities disintegrate, these specific settlement forms disappear too. For research today, this has the immense advantage that the fallen desolated cities were not built over in later times. As a rule, new cities and walled enclosures were apparently erected on new open fields rather than re-occupying previous walled enclosures. Thus, investigations of these walled sites should be carried out more intensively, as they represent a key means to a deeper understanding of the system of power and economic strategies of rider-nomads.

Acknowledgements

My thanks go to Birte Ahrens and Ernst Pohl, both Bonn University, for information about sites in the Orkhon valley. I extend my gratitude to Bryan Miller for details of the discussion about the localization of the Xiongnu capital and to Ursula Brosseder for her critical compilation

28 On Chinese in the dominion of the Xiongnu and on the interpretation of the complex at Ivolga, see Hayashi 1984, 52 pp.; 2004, 118 pp.

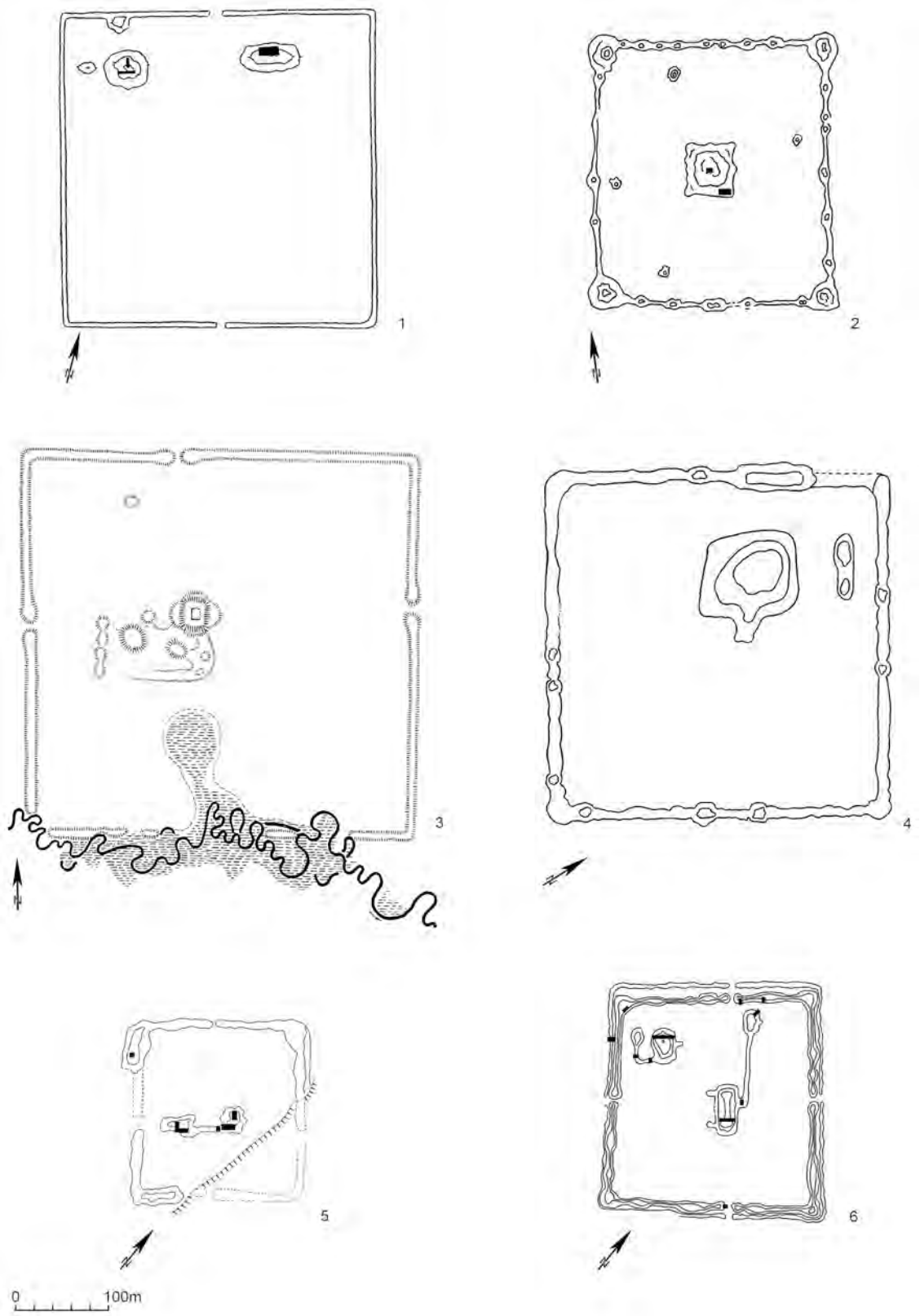


Fig. 16. Walled enclosures of the Xiongnu period in Mongolia. 1 Bars Khot II (after Perlee 1957, 45 Fig. 3); 2 Öndör Dov (after Perlee 1961, 35 Fig. 9); 3 Khüreen Dov (after Mania 1963, Pl. 13,1); 4 Gua Dov (after Perlee 1957, 44 Fig. 2); 5 Bürkhiin Dörvölzhin Gazar (after Perlee 1961, 23 Fig. 3); 6 Terelzhiin Dörvölzhin (after Perlee 1957, 44 Fig. 1).

of Xiongnu-period walled enclosures in Perlee (1961) and Maidar (1970). Special thanks goes to David Purcell, who prepared the map of the cemetery Tamiryn Ulaan Khoshuu especially for this contribution.

[translated by Emily Schalk]

List 1. Figure credits to Fig. 15.

8. Bars Khot-II (Baruun Döröögiin Kherem), Tsagaan-ovoo sum, Dornod aimag. Walled enclosure (Perlee 1957, 44 p. Fig. 3–4; Perlee 1961, 33 p.; Maidar 1970, 227 No. 1; Hayashi 1984, 58 No. 10).
9. Boroo Gol, Mandal sum, Selenge aimag. Open settlement (Ramseyer et al. 2009).
10. Bürkhiin Dörvölzhin Gazar (Kharaalchiin Kherem), Möngönmort' sum, Töv aimag (Perlee 1961, 23 Fig. 3; 33; Maidar 1970, 131 Fig.; 227 No. 3; Hayashi 1984, 58 No. 5; Mongol nutag 1999, 178).
11. Dörvölzhin Gazar, Khairkhan sum, Arkhangai aimag (after Erdélyi et al. 1967, 369 Fig. 57).
12. Gua Dov, Baianzhargalan sum, Töv aimag. Walled enclosure (Perlee 1957, 44 Fig. 2; Perlee 1961, 20 Fig. 1; 30–32; Maidar 1970, 131 Fig.; 227 No. 4; Hayashi 1984, 58 No. 8; Mongol nutag 1999, 178 p.).
13. Kheremt Talyn Gurvan Kherem, Ögii Nuur sum, Arkhangai aimag (Perlee 1961, 41 Fig. 10; 152 Cat.-No. 194; Maidar 1970, 131 Fig.; Purcell/Spur 2006).
14. Kholtost Khurem, Egiin Gol Survey No. 131, Khutag-Öndör sum, Bulgan aimag. Walled enclosure (Wright et al. 2009).
15 Khüreen Dov, Baiandelger sum, Töv aimag. Walled enclosure (Perlee 1961, 36; Mania 1963, 852 Pl. 13,1–2; Maidar 1970, 227 No. 6; Hayashi 1984, 58 No. 4; Mongol nutag 1999, 194).
16. Öndör Dov, Baiandelger sum, Töv aimag (Perlee 1961, 35 p. Fig. 9; 144 No. 65; Maidar 1970, 131 Fig.; 227 No. 7; Hayashi 1984, 58 No. 7; Mongol nutag 1999, 183).
17. Terelzhiin Dörvölzhin, Möngönmort' sum, Töv aimag (Perlee 1957, 44 p. Fig. 1; 4; Perlee 1961, 32 p.; Maidar 1970 121 p.; 227 No. 5; Hayashi 1984, 58 No. 6; Mongol nutag 1999, 186; Danilov 2009; Danilov, this volume).
18. Tsenkheriin Golyn Kherem, Zhargalantkhaan sum, Khentii aimag. Walled enclosure (Perlee 1961, 36; Maidar 1970, 227 No. 8; Hayashi 1984, 58 No. 9).

The complexes of Baian Bulag, Nomgon sum, Ömnögov' aimag (Kovalev et al., this volume) and Mangasyn Khuree (Amartüvshin et al., this volume) which without doubt served for defense purposes are not mapped.

A SUMMARY OF XIONGNU SITES WITHIN THE NORTHERN PERIPHERY OF CHINA

Pan Ling

In this paper I analyze six main sites to demonstrate the nature of Xiongnu material culture around the frontier zone of the Great Wall. In comparison with Transbaikalia and Mongolia, the amount of archaeological remains within the northern periphery of China which may be attributed to the Xiongnu is far less and occurs on a much smaller scale. Nevertheless, these remains show changes in the archaeological record which can in turn be related to frontier changes narrated in the historical accounts.

Daodunzi

Daodunzi cemetery is located in Tongxin county, Ningxia autonomous region (Ningxia et al. 1988). 32 tombs were excavated at Daodunzi, and the material artifacts of 27 of these have been published. There are two kinds of tombs in this cemetery, side-niche tombs (Fig. 1,1) and vertical pit tombs (Fig. 1,2). The vertical pits contain no domesticated animal bones, while all of the side-niche pits contain domesticated animal bones laid on a raised platform opposite the lower alcove. In most of the tombs, niches were placed at the northern side of the earthen-pits and contained ceramic or lacquer vessels. Adult interments in this cemetery all yielded remains of wood coffins, and the deceased were placed in a stretched supine position with their heads oriented north. Burial artifacts include ceramic jars, iron or bronze knives, buckles or rings, cowry shells, Han dynasty "wuzhu" coins[1], and an assortment of bronze belt plaques and bells. Based on the excavation report, the date for Daodunzi cemetery is from the middle to later stages of Western Han period, roughly from the late second through the first centuries BC. The dating is confirmed by the openwork animal design belt plaques, belt buckles and rings that are very common among Xiongnu tombs in the Western Han period, and the report thus also attributes the site to the Xiongnu.

There are many common features between the Daodunzi cemetery and Xiongnu sites in Transbaikalia, such as the Ivolga fortress and cemetery (Davydova 1995; 1996) (Fig. 2). In Daodunzi, the burial construction of vertical pit tombs and wooden coffins, treatment of the body, i.e. stretched supine position and north orientation, and custom of burying heads and hooves

1 The exact type of "wuzhu" coins found in Daodunzi cemetery are the same as those in Mancheng Han tombs (Zhongguo/Hebei 1980).

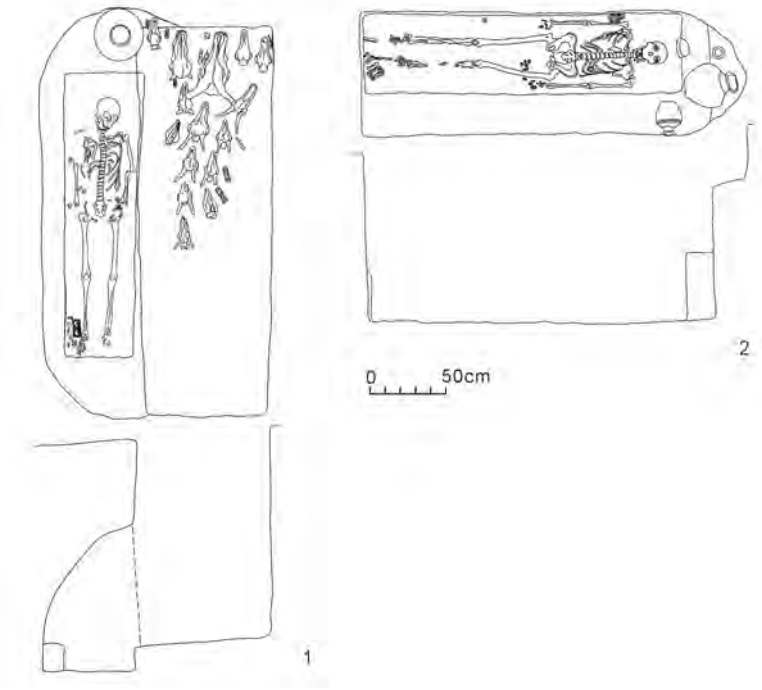


Fig.1. Daodunzi, Ningxia. Grave forms. 1 Side-niche grave (tomb 6); 2 shaft pit grave (tomb 4) (after Ningxia et al. 1988).

of sheep, cattle, and other livestock are equivalent to Xiongnu tombs in Transbaikalia. The type I ceramic jar ornamentation with wavy line and subtle vertical polished pattern also equates to ceramic traditions in Xiongnu tombs further north. The ornamentation of ceramic jars at Daodunzi resembles the decorative pattern on ceramic urns from the Ivolga fortress. The openwork animal design bronze belt plaques with either concave points or pear-like patterns around the rim and bronze rings are all buried in women's tombs. Many cowry shells or their imitations were sewn into the belts in the same fashion, as for example, in Ivolga, burial 100 (Davydova 1996, Pl. 29). Other personal adornment articles are also similar to those most common in Xiongnu tombs in Transbaikalia, including stone or bone rectangular plaques, bone tube objects with slant-cut rim, round iron belt buckles with moving prong, small bronze openwork bells, and iron knives with ring heads.

Despite these numerous similarities connecting Daodunzi to Xiongnu material culture observed in Mongolia and Transbaikalia, special characteristics of this cemetery remain (Fig. 3). The composite belts with openwork plaques and cowry shells, placed near or over the waist in typical Xiongnu tombs, are often placed near the foot of the deceased in Daodunzi. Bow and arrow equipment, which pervades male Xiongnu tombs in Transbaikalia, are rarely found at Daodunzi. The handful of side-niche tombs at Daodunzi exhibits a tradition not seen among Xiongnu burials, and probably relates to traditions from northwest China, probably from the area of the cemetery itself. In addition, many burial artifacts found at the site are seldom found in Xiongnu tombs of Transbaikalia. Chinese style bronze bells and ellipsoid hemisphere ornament are similar to those found in tombs of the Western Han period within China. Some ceramic vessel types share the same shape with those in the nearby "land between the passes" area of the Qin and Han period capitals. The small bronze pipe and bell-shaped bronze articles found

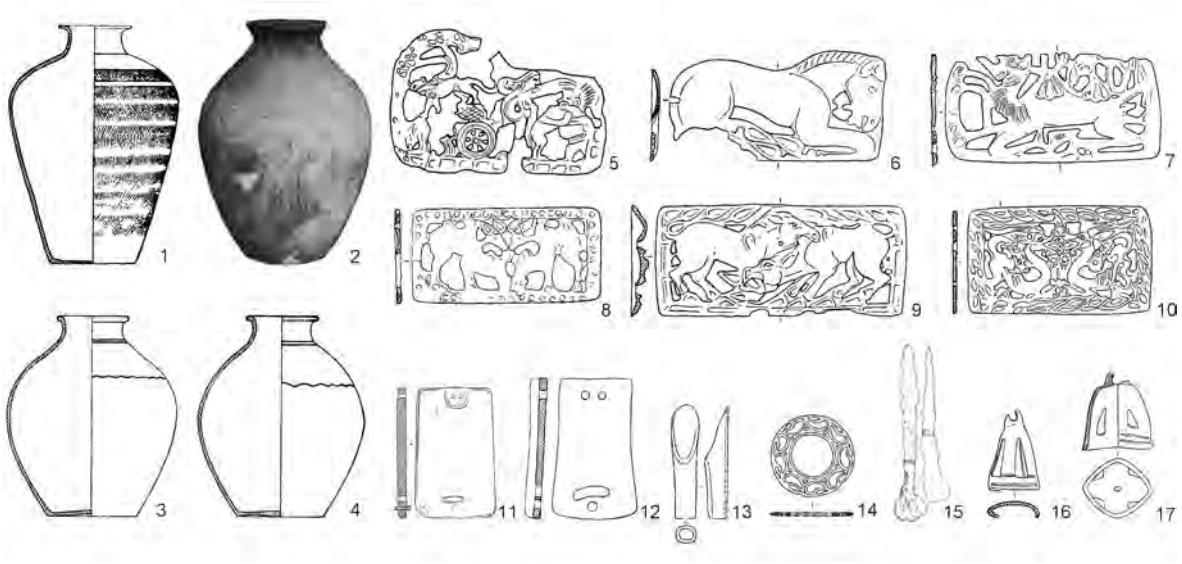


Fig. 2. Daodunzi cemetery, Ningxia. Burial goods resembling Xiongnu culture elements. 1–4 Ceramic jars; 5, 6 "P"-form openwork belt plaque; 7–10 rectangular animal design openwork belt plaque; 11 rectangular stone belt plaque; 12 rectangular bone belt plaque; 13 bone tube with slant-cut rim; 14 openwork bronze ring; 15 iron knife; 16,17 bronze bells (after Ningxia et al. 1988). Not to scale.

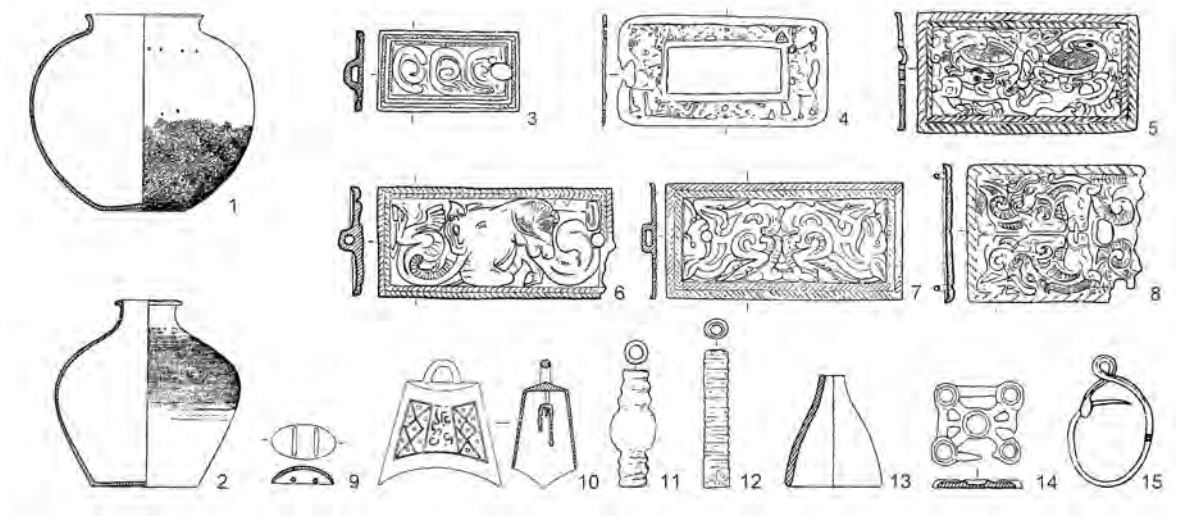


Fig. 3. Daodunzi cemetery, Ningxia. Burial goods similar to those in Qin and Han tombs of northern China and the Great Wall area. 1, 2 Ceramic jars; 3, 5–8; rectangular shallow relief bronze belt plaque; 4 rectangular bronze plaque inlayed with glass; 9 ellipsoid hemisphere ornament; 10 bronze bell; 11, 12 bronze tubes; 13 bronze ornament; 14 bronze openwork belt ornament; 15 gold earring (Ningxia et al. 1988). Not to scale.

are also common in earlier tombs of the Warring States and tombs of the Western Han period throughout northern and northeastern China. The rectangular shallow-relief bronze plaques with animal motifs such as turtles and dragons, and the rectangular bronze plaque inlaid with glass are rarely found in Xiongnu tombs in the steppes further north. On the whole, common attributes between Daodunzi and Xiongnu sites in Transbaikalia and Mongolia are more numerous than differences. The site can therefore be attributed to the Xiongnu. The date and lo-

cation of this cemetery accord with textual narratives of "attached states", "shuguo", set up by the Han government on the periphery of Chinese fortresses to help settle surrendered Xiongnu tribes beginning in 121 BC[2].

KESHENGZHUANG TOMB 140

This tomb, excavated in 1955, is located to the north of Keshengzhuang village near Xi'an city, the area of the capitals of the Qin and Han empires (Zhongguo 1962). It is a rectangular vertical earthen-pit tomb, and the head of the deceased was oriented north. However, the remains of the burial furnishing are unclear. The burial artifacts include two rectangular openwork animal and human design bronze belt plaques, two openwork bronze rings, iron knives, and other personal ornaments (Fig. 4). Unlike at Daodunzi, the bronze belt plaques and bronze rings were placed

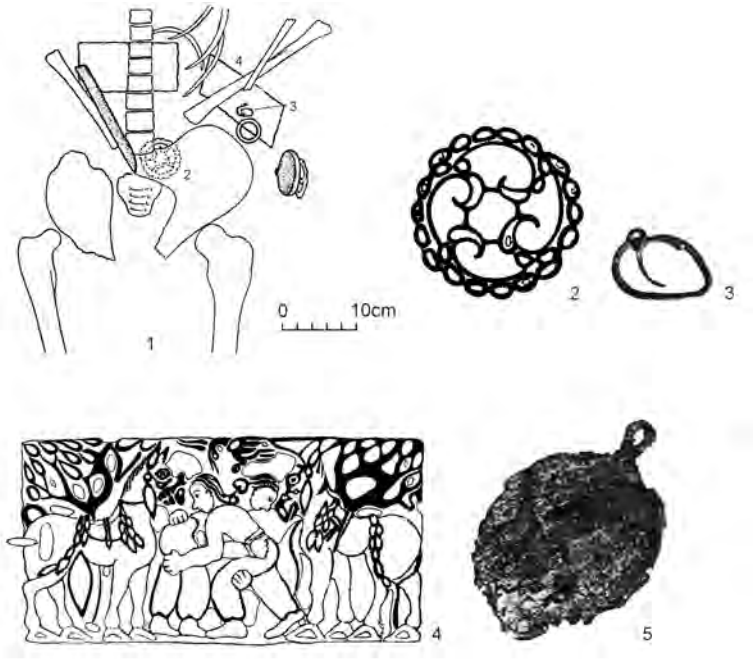


Fig. 4. Keshengzhuang, Shaanxi. Burial goods from tomb 140. 1 Detail of burial plan; 2 openwork bronze ring; 3 gold earring; 4 rectangular openwork human and animal design bronze belt plaque (one of two); 5 iron object (after Zhongguo 1962). 2–5 not to scale.

on the waist of the deceased, a custom similar to Xiongnu burials in Transbaikalia. Furthermore, the bronze openwork belt plaques and rings are those particular to female Xiongnu tombs in Transbaikalia (cf. Brosseder 2007a). There are no bow or arrow pieces in the tomb typical of male burials, and the form and placement of the bronze ornaments further suggest the deceased was

2 The Daodunzi remains may be correlated to the peripheral territories of Tianshui and Anding, located just south of the northern reaches of the Yellow river, which were established for the surrendered Xiongnu groups of the local king of Hunye.

female. The excavation report posed a probable date for the tomb, based on the associated settlement remains nearby, as late Warring States through middle Western Han[3]. The form and pattern of the openwork bronze ring are more complex than other related bronze rings in Xiongnu tombs. This may be a characteristic of the openwork rings in early times (Fig. 4).

Budonggou

This cemetery is located to the southwest of Ordos city, Inner Mongolia autonomous region and was excavated in 1980 (Yikezhaomeng/Nei Menggu 1980c). Nine tombs were excavated in the cemetery, all of which were intact. The tombs are vertical earthen-pits for single interments, with the deceased in a stretched supine position and their head oriented north. Only one tomb was a double burial. In Budonggou cemetery, the burial customs and burial artifacts are mostly similar to those of Xiongnu tombs in Transbaikalia and Mongolia (Fig. 5). Above each individual

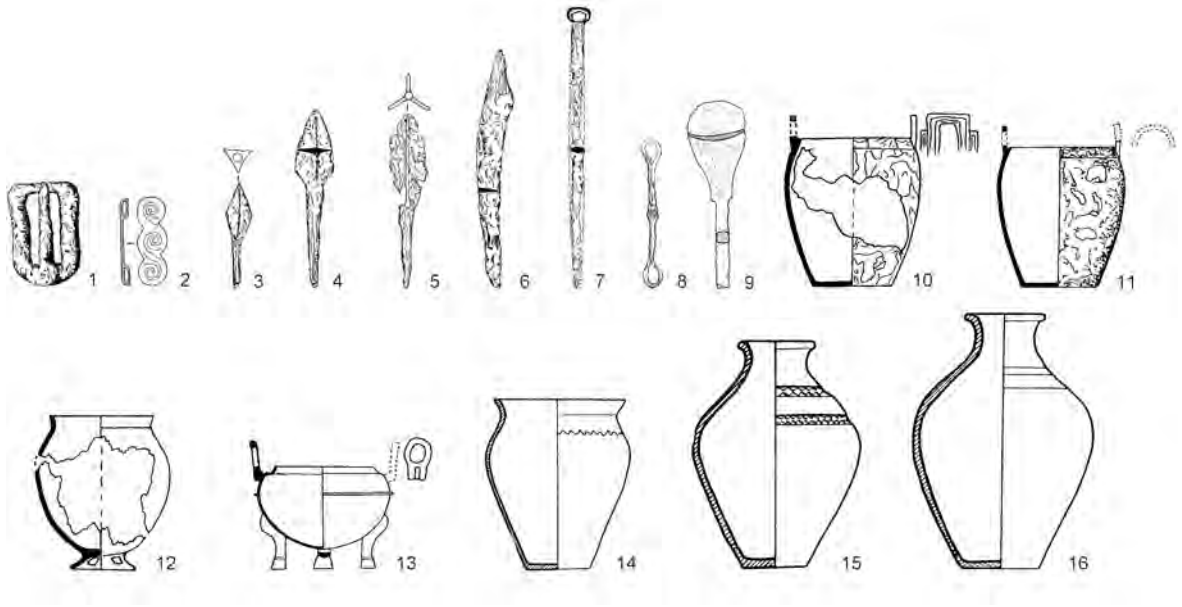


Fig. 5. Budonggou, Inner Mongolia. Burial goods from the cemetery. 1 Iron belt buckle; 2 bronze ornament; 3–5 iron arrowheads; 6–7 iron knives; 8 iron snaffle bit from horse bridle; 9 bone scoop; 10–12 iron cauldrons; 13 iron "ding"-cauldron; 14–16 ceramic jars (after Yikezhaomeng/Nei Menggu 1980c). Not to scale.

were placed the bones of horse, cattle and sheep. The shape of bone scoops, iron arrows, and iron knives are very similar to other Xiongnu tombs to the north. Wavy lines, polished vertical lines, or other geometric lines are incised on the surface of ceramics and urns, and some ceramic

3 The authors of the report emphasize that the date should be later than the nearby settlement remains of the Warring States period, yet before the construction of the royal Shanglin Garden of the Western Han period, after which time Emperor Wu forbade building any tombs nearby. This is demonstrated by the lack of any Chinese graves in the Keshengzhuang area after the middle Western Han.

jars have round holes perforated near the bottom. The ceramic pot with a big rim, deep belly, and incised wavy lines on the shoulder (Fig. 5,14) is one of the most representative pots north of the Gobi Desert. Among the confirmable Xiongnu sites within China such a pot has only been discovered at Budonggou. The bronze mirror with four gods and "guiju", TLV, design excavated in tomb 2 of Budonggou was most prevalent during the Wang Mang period to the early stage of Eastern Han period. An iron "ding"-cauldron also found in tomb 2 is very similar to one in tomb 136A at Luoyang Shaogou cemetery, which dates from the end of the Western Han to the beginning of the Eastern Han (Luoyang 1959, 116). Despite the presence of some Chinese artifacts, Budonggou cemetery may be called a Xiongnu site contemporary with the early period of the Eastern Han dynasty.

Additionally, Budonggou lies near the seat of the ancient Xihe commandery, in modern day Zhunger Qi, the location to which the Southern Xiongnu court moved in the early years of the Eastern Han dynasty[4]. As there are almost no cultural differences between this site and those Xiongnu sites to the north, the deceased here may be related to tribes of this immigrating Xiongnu group (Lin 1993). Therefore, most probably, this is a cemetery of a frontier group in northern China associated with the Southern Xiongnu, and who lived near the court.

LIJIATAOZI

This cemetery is located 9 km northwest of Tongxin county, Ningxia autonomous reign (Ningxia/Tongxin 1988). Most of the cemetery was previously destroyed, only five tombs were excavated, and among them only three tombs yielded some remains of tomb furnishings and burial artifacts (Fig. 6). Tomb 1 is a vertical earthen-pit with a wooden chamber in which three coffins are placed side by side. The tomb had been looted but still contained bronze chariot implements, lacquer ware, cowry shells, bone plates from bows, sword implements, ceramic jars,

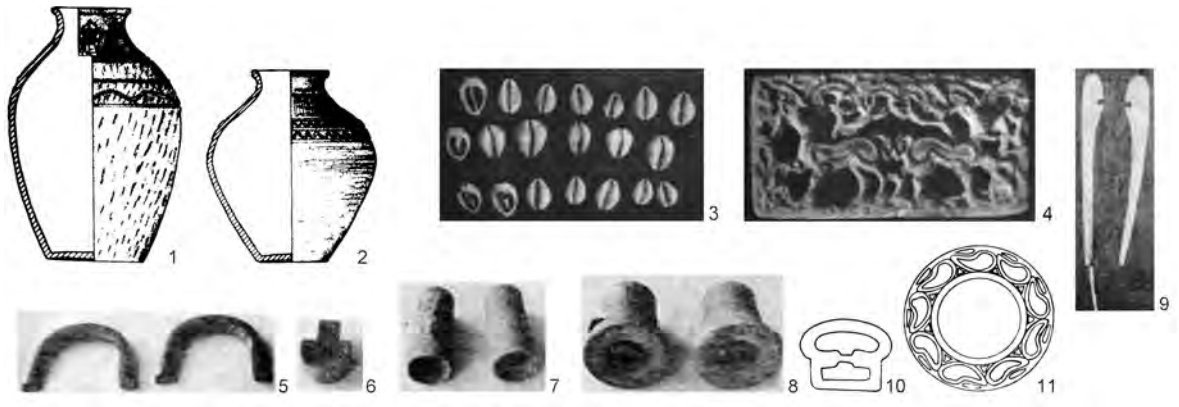


Fig. 6. Lijiataozi, Ningxia. Burial goods from the cemetery. 1, 2 Ceramic jars; 3 cowry shells; 4 rectangular animal design openwork belt plaque; 5–6 bronze implement; 7–8 bronze chariot axle pieces; 9 bone bow end-plates; 10 bronze belt buckle; 11 openwork bronze ring (after Ningxia/Tongxin 1988). Not to scale.

4 This occurred after the 26th year of the Jianwu reign of Emperor Guangwu of the Eastern Han dynasty.

"quanhuo" coins, "wuzhu" coins, and other trappings. According to the two kinds of weaponry, we can conclude that at least one occupant of the tomb was male. Tomb 2 is a small rectangular brick chamber with arched roof, and contains two coffins side by side in the chamber. The left coffin contained openwork bronze rings and cowry shells as well as "quanhuo" coins, "banliang" coins, and "wuzhu" coins. The openwork bronze rings may indicate the interment of a female. Small brick chamber arched roof tombs began to come into fashion in the later stages of the Western Han period. Based on the chronology of both "quanhuo" coins and small brick chamber arched roof tomb, the date of Lijiataozi cemetery may be pushed later to the Wang Mang interregnum period or the early stage of the Eastern Han period. Due to the overall destruction of the site, we cannot determine with any certainty overall features of the Lijiataozi cemetery. However, according to surviving burial artifacts and discernible tomb styles, the status of some buried persons is very high. Both the wooden chamber tomb and the arched roof brick chamber tomb share the structure of Chinese tombs within the inner regions of the Han empire. The remains also exhibit clear Xiongnu cultural elements observed among the burial artifacts of Daodunzi, such as the bone bow plates, openwork bronze rings, numerous cowry shells with perforated holes, rectangular animal-design bronze belt plaques, and ceramic jars with wavy lines and polished vertical lines (Fig. 6). Although both Lijiataozi and Daodunzi may be attributed to the Xiongnu, there are some differences between the two Xiongnu cemeteries in the material cultural assemblages. Lijiataozi cemetery, within the same modern county, is very near to Daodunzi cemetery, but it is from a later period and appears more deeply influenced by Han cultural elements. We can therefore conclude that this is a cemetery of Xiongnu constituents of a higher social status yet greatly influenced by Han culture.

Xigoupan

The Xigoupan cemetery is located in Zhunger Qi area, Inner Mongolia autonomous region (Yikezhaomeng/Nei Menggu 1980a; 1980b). Nine tombs were excavated in 1980, all of which were destroyed to varying degrees. This burial ground, unlike the previous ones discussed, contains tombs of disparate periods and culture groups, and only some appear to be attributable to the Xiongnu period (cf. Fig. 7). Tombs 6 to 11 are distributed from east to west along the river, while tombs 4, 5 and 12 are distributed from north to south along an adjacent tributary. A ceramic jar with a perforated pattern around the neck, similar with those in Xiongnu tombs to the north, was found in tomb 12. Tomb 4 yielded stone ornaments that copied the style of jade ornaments from the Han period (Fig. 7,1–5). Therefore, the three tombs of the second group should be from the Han and Xiongnu periods. The long-necked vase and open-rimmed jar in tomb 9, as well as the bronze finger ring, are very common among burials of the later Northern Dynasties period Xianbei groups. Because the excavated materials are published only in a short preliminary report, it is difficult to clearly define the date of these other tombs in Xigoupan cemetery. However, since tombs 6 to10 are arranged in a continuous line from east to west, with tomb 11 on the other side of the river from this line, the tombs in this distinct group very probably share the same later date as tomb 9.

The original excavation report states that tomb 4 may be dated to the beginning of the Western Han period, but analyses of the exact character of burial articles show the date to be more likely

Fig. 7. Stone ornaments and belt plaques copying shapes of Chinese jades. 1. Stone "huang" ornament; 2 stone "xi" ornament; 3 stone dancing female figure ornament; 4–5 stone ornaments; 6 stone belt plaque. 1–5 Xigoupan, Inner Mongolia, tomb 4 (after Yikezhaomeng/Nei Menggu 1980a); 6 Zhalainuo'er, Inner Mongolia, tomb 3012 (after Chen/Bai 1994). Not to scale.

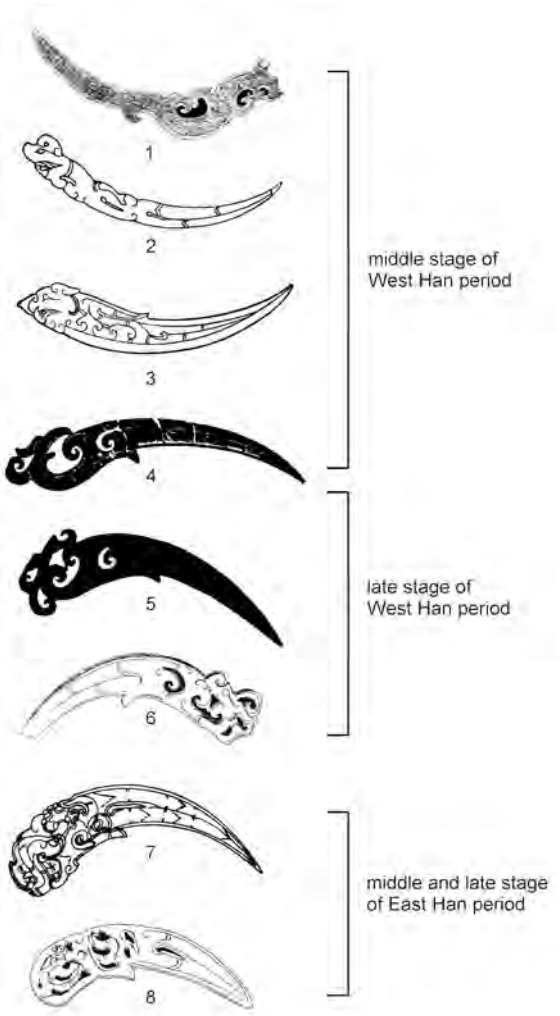


Fig. 8. Evolution of jade "xi" in Han period tombs. 1 Nanyue, Guangzhou, emperor's tomb; 2 Hanshan, Xuzhou, tomb; 3 Xiaoguishan, Xuzhou, tomb 4; Dabaotai, Beijing, tomb; 5 Qiemoshu, Yangzhou, tomb; 6 Xishan, Mangdangshan mountain, Xuzhou, tomb 1; 7 Yangguan, Huaibei, tomb; 8 Beilingtou, Dingxian county, tomb 43. 1–8 (after Pan 2004, Fig. 7-6). Not to scale.

middle to late Eastern Han and certainly no earlier than early Eastern Han (Pan 2004). This new chronological attribution may be demonstrated through the following material analyses:

No burial artifacts common to Xiongnu burials at the time of the Western Han period were found in tomb 4. Among the stone ornaments in tomb 4 which copied Chinese jades, the dragon-patterned stone "xi"-ornament has a short body, and the tapering proportions of width to length are similar to those of the Eastern Han period (Fig. 7). The turning head shape of the dragon pattern is very close to ornaments from the later stages of the Western Han period (Fig. 8). The ornamental pattern of the stone "huang" has two dragons with turning heads opposing a curling cloud pattern. This combined pattern began to appear on Chinese jade "huang" in the later stages of the Western Han period and became popular only in the Eastern Han period. The shape and pattern of the stone "huang" in tomb 4 appear closest to jade "huang" or-

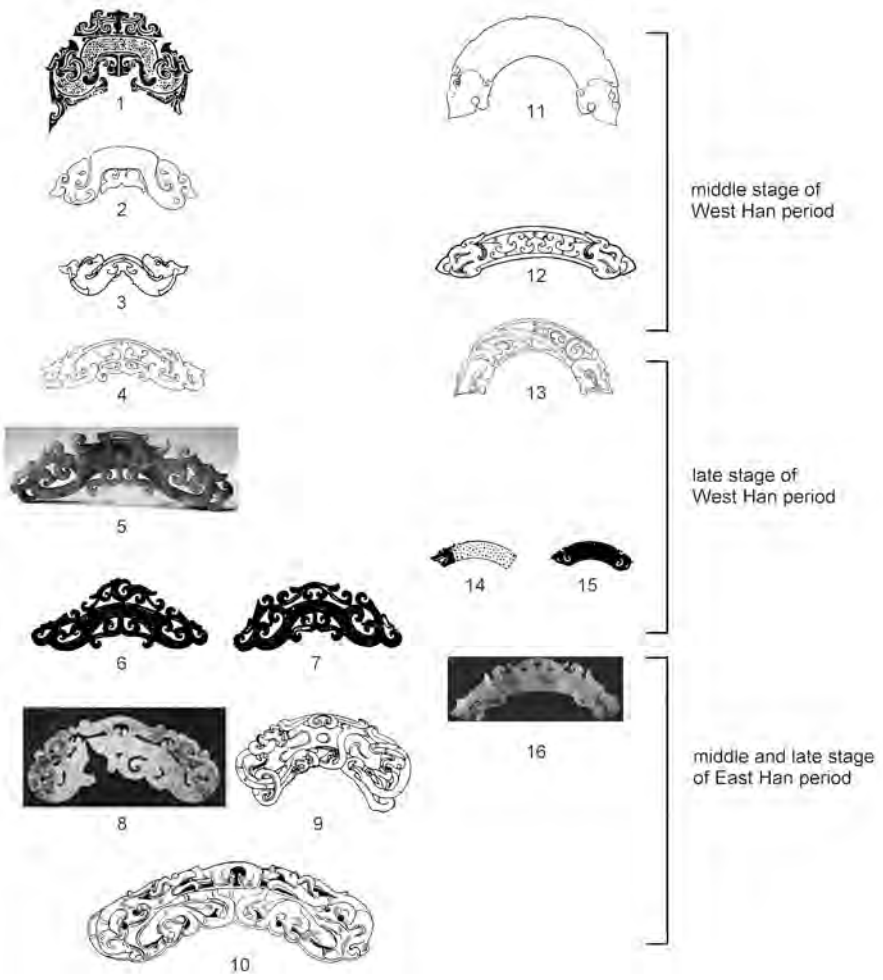


Fig. 9. Evolution of jade "huang" in Han period. 1 Sizi mountain, Xuzhou, Chu station's emperor's Tomb; 2, 11 Nanyue, Guangzhou, emperor's tomb; 3 Hanshan, Xuzhou, tomb; 4, 13 Zhangjiazhonggu, Wulian, tomb; 5 Mandangshan, Yongcheng, tomb; 6, 7 Qiemoshu, Yangzhou, tomb; 8, 9 Yangguan, Huaibei, tomb; 10 Beilingtou, Dingxian county, tomb 43; 12 Xiaoguishan tomb, Xuzhou; 14–15 Shiqiao, Xuzhou, tomb; 16 Beilingtou, Dingxian county, tomb 40 (after Pan 2004, Fig. 7-7). Not to scale.

naments from the later stages of the Western Han period (Fig. 9). Two iron belt ornaments covered with gold foil are similar to belt pieces found in tomb 139 at Ivolga cemetery (Fig. 10,1), in tomb 56 at Laoheshen (Fig. 10,3), in the Salbyk cemetery of the Tashtyk culture (Fig. 10,4), and in tomb 31 at Aimyrlyg cemetery in Tuva (Fig. 10,2). These sites range from the middle Western Han, seen at Ivolga, to the middle Eastern Han, seen at Laoheshen. The general style of these belt pieces seems to become simpler over time, but the means of attaching them does not change, namely fixing the belt implement with perforated holes along the front rim. Developments in decorative patterns and the minimalization of holes along the front show the belt piece in Xigoupan tomb 4 to be very late (Fig. 10).

The numerous and lavish personal adornments within tomb 4 at Xigoupan, including ornaments covered with gold foil, stone ornaments which copied the form of Chinese jades, gold and jade head and ear ornaments, agate and crystal strings of beads, collectively indicate that

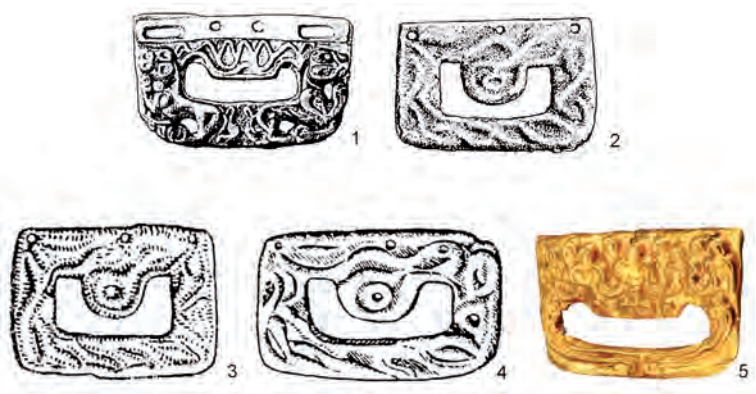


Fig.10. Evolution of "凹" shape of belt implements with perforated holes. 1. Ivolga, Transbaikalia, tomb 138 (after Davydova 1996, Pl. 39,2); 2 Salbyk, Tashtyk Culture, South Siberia (after Vadetskaia 1992, Pl. 97,36); 3 Laoheshen, Jilin, middle layer cemetery, tomb 56 (after Jilin 1987); 4 Aimyrlyg XXXI, Tuva (after Mandel'shtam/Stambul'nik 1992, Pl. 81,58); 5 Xigoupan, tomb 4 (after Yikezhaomeng/Nei Menggu 1980a). 1–4 Bronze; 5 Iron core covered with gold foil. Not to scale.

the occupant was very wealthy in life and had a very high social status. In the Han dynasty, only those people who had a high status had the opportunity to be buried with such jade ornaments in their tombs. Xigoupan, like Budongguo, is located in Zhunger Qi near the court of the Southern Xiongnu chanyu ruler. Therefore, the occupant of tomb 4 at Xigoupan cemetery was most likely an aristocrat of the Southern Xiongnu. Tombs 5 and 12, located near tomb 4, may possibly be attributed to the Southern Xiongnu of the Eastern Han, but the lack of significant remains makes this difficult to determine.

DABAODANG

The fortress and cemetery of Dabaodang, located in Shenmu county of northern Shaanxi province, were excavated in 1999 (Shaanxi/Yulin 2001). The pentagonal shaped fortress is not large, but is surrounded by a significant rammed earth wall. "Daquan wushi" coins and "wuzhu" coins of the middle and late stages of Eastern Han period excavated from the fortress help to give a chronological range to the adjacent burial ground. Judging from excavated materials, the fortress was abandoned in the middle to later stage of the Eastern Han period, though it may have been built as early as the middle to late stages of the Western Han period.

About 26 tombs were excavated in the cemetery near Dabaodang fortress. The form of the stone chamber tombs with carved wall and doorway scenes and the styles of many burial goods in the cemetery are similar to the Chinese Han tombs in the vicinity. Ceramic jars with wave pattern around the shoulder, bone scoops, bone chopsticks and bone bow plates from the fortress and cemetery are similar to those in Xiongnu tombs of Transbaikalia and Mongolia during the Eastern Han period (Fig. 11). From these observations we may deduce that the Dabaodang tombs contained people of the Xiongnu who had become significantly

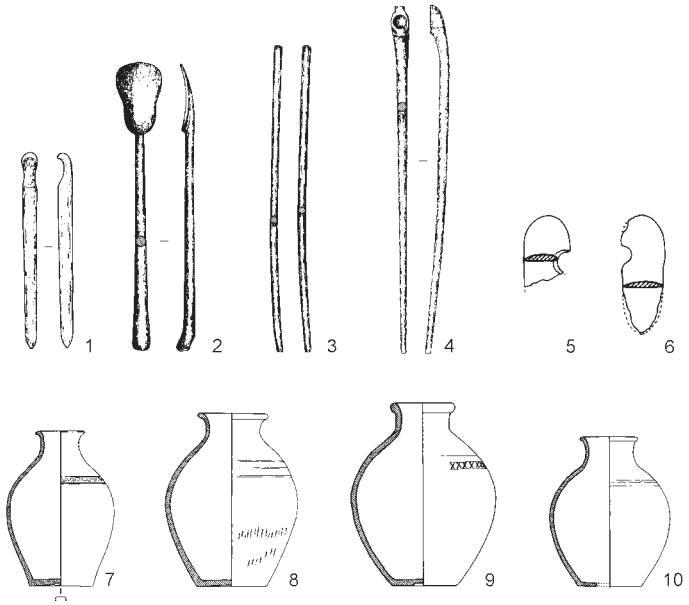


Fig. 11. Dabaodang, Shaanxi. Artifacts from the pictorial-stone tomb cemetery. 1–2 Bone scoops; 3 bone chopstick; 4 bone pipe-shaped object (brush handle?); 5–6 bone bow end-plates; 7–10 ceramic jars (after Shaanxi/Yulin 2001). Not to scale.

acculturated by Han Chinese influences. The date of the cemetery likely extends from the early to the middle or late stages of the Eastern Han, approximately the same as that of the fortress.

We cannot determine with which fortress in the written records the Dabaodang site corresponds, but we may postulate the situation of its establishment and abandonment. The excavation report asserts that Dabaodang fortress can most probably be equated with the town of the Han frontier county of Qiuci, which was the administrative seat of the governor of the Shang commandery during the Eastern Han dynasty (Shaanxi/Yulin 2001). The Han government began to arrange for northern peoples, collectively called Hu, who surrendered to the Han court to be received and settled in Qiuci county town beginning from the late stage of the Western Han period, approximately 46 BC. The abandonment of the Dabaodang fortress may relate to sudden changes in the political geography of the Chinese frontier during the Eastern Han. Later during the Eastern Han dynasty, a group of tribes including the Wulongwusi, which were the "left", or west, part of the Southern Xiongnu entity, violated diplomatic agreements with the Eastern Han government and began to invade and attack the northern frontier[5]. In these circumstances, the Han government decided to move the administrative seats of Xihe, Sanshui and Shuofang commanderies further south, leaving no place for the Qiuci county in the Chinese frontier network. This circumstance may correlate with the lower time limit of the Dabaodang fortress and stone chamber tomb cemetery.

5 This corresponds to year five of the Yonghe reign of Emperor Shun in the Eastern Han dynasty.

XIONGNU CEMETERIES ALONG THE CHINESE FRONTIER

Many of the sites in northern China that can be attributed to the Xiongnu still exhibit elements that demonstrate interaction with the Han Chinese frontier. Many of these sites were located near frontier administrative centers and forts of the Han government or within attached states established by them to settle the northern peoples within their sphere of influence. Much of the northern frontier was also dominated by the Southern Xiongnu, and some of the Xiongnu sites in this area can be attributed to them. The earlier periods show burial traditions and accoutrements extremely similar to Xiongnu sites in Mongolia and Transbaikalia. But later, there were tombs and artifacts that, despite continued elements that tied them to Xiongnu burials further north, showed more influence from Han culture.

THE SHOUXIANGCHENG FORTRESS OF THE WESTERN HAN PERIOD – EXCAVATIONS AT BAIAN BULAG, NOMGON SUM, ÖMNÖGOV' AIMAG, MONGOLIA

Alexei A. Kovalev, Diimaazhav Erdenebaatar, Sergei S. Matrenin, Ivan Iu. Grebennikov[1]

In August and September of 2009 the International Central-Asiatic expedition of the St. Petersburg Museum-Institute of the Roerich Family, the Altai State University, and the Ulaanbaatar State University, headed by A. Kovalev and D. Erdenebaatar, excavated the fortified site at Baian Bulag, in Nomgon sum of Ömnögov' aimag, Mongolia. This fortress dates to the Western Han period around the 1st century BC.

Location and Layout of the Settlement

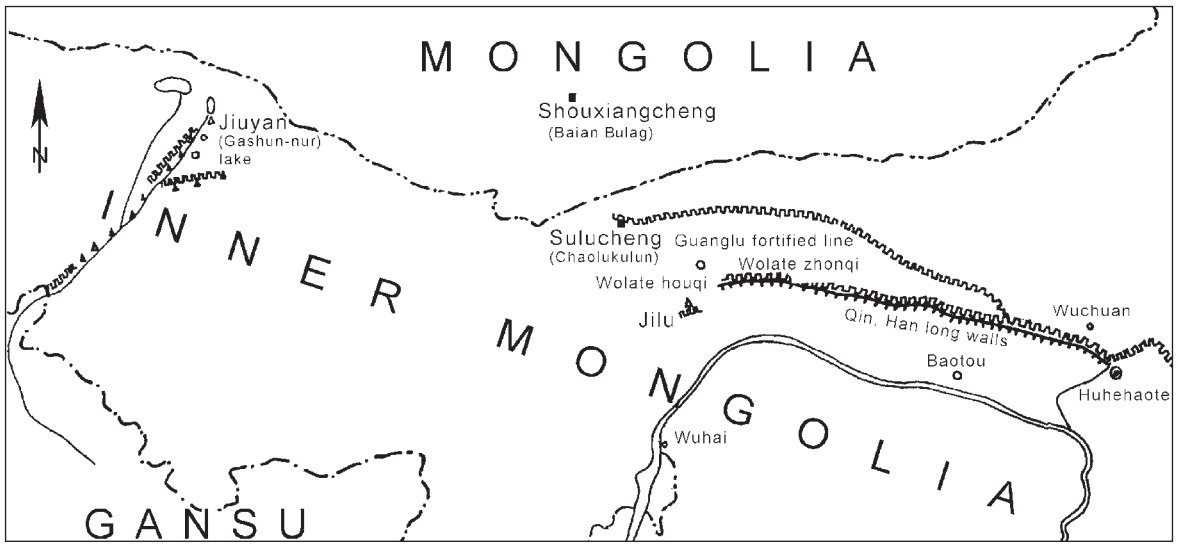
The Baian Bulag locality is situated 26 km south of the center of Nomgon sum, to the south of the Khurkhiin Mountains, and at the northern side of the Borzongiin Gobi desert (Fig. 1,1.2)[2]. Five springs well out there and flow southwards from the central part of a water-bearing layer, which is denuded there and stretches for more than 4 km east to west. On the whole, the Baian Bulag springs pour out about 12,500 liters of water per hour, according to the topographic map K-48-55. In Mongolian the name "Baian Bulag" means "rich spring". Today this place is suitable for agriculture, as modern inhabitants cultivate vegetables in the area.

Plants, which have grown for thousands of years along the outcrop of the water-bearing layer, have fixed and therefore preserved the ancient soil, while on surrounding territories the soil has completely eroded. Moreover, plants have accumulated loess and sand, brought by wind, so that a layer of aeolian soil, 1–1.5 m thick, has been deposited. The result is that an eminence oriented east-west, around 2 km long, with a height from 2–5 m, built up along the whole water-bearing outcrop, subsequently referred to here as the "bench" (Fig. 1,2; 2). From the south this eminence appears as a precipice about 2 m high. It is situated 50–100 m to the south of the springs.

We managed to trace intact cultural layers and remains of ancient constructions only on the area of the above-mentioned eminence. At the same time numerous artifacts and fragments of

1 A. Kovalev: St. Petersburg State University, Russia; D. Erdenebaatar: Ulaanbaatar University, Mongolia; S. Matrenin, I. Grebennikov: Altai State University, Barnaul, Russia.

2 The GPS position of this place is about N 42°36' and E 105°10.5'.



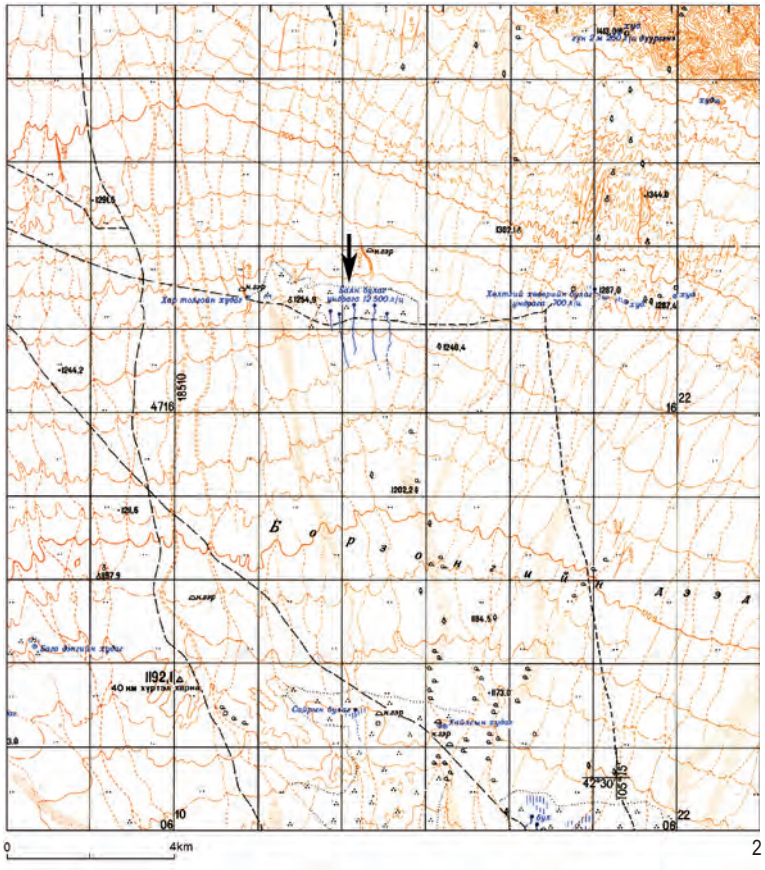


Fig. 1. 1 Map of Han fortifications in the Gobi desert and Yingshan region with the location of Baian Bulag; 2 topographical map, scale 1 : 100,000, of the Baian Bulag area.

human and animal bones have been gathered by other expeditions, by local inhabitants, and also by us from a large area of about 4 km² to the south of the bench. By digging test trenches we discovered that these objects usually lay in total disorder at a depth of up to 0.5 m under the

modern surface, and soil layers were secondly deposited there. The artifacts may seemingly have been deposited there because the cultural layer was washed down from the top of the bench, but such an enormous multitude of artifacts could not appear only for this reason[3]. As we discovered during our excavations, the cultural layers that have been preserved at the bench were maintained by aeolian deposits, and were "cleaved" only by some ravines. The most probable explanation of the numerous artifacts in a secondly deposited soil layer south of the bench is that 2,000 years ago the natural eminence over the outcrop of the water-bearing layer stretched much farther to the south, and only the northern part of the settlement, which was situated at its surface, has been preserved to our time. The southern part was eroded as the springs dried up and plants, which had formerly preserved the soil from dispersion, disappeared. Artifacts gradually "sank" into the present-day surface level, that is, 2 m down. As far as we know, climate changes have been so considerable over the last 2,000 years that most areas of the Ordos region and of the Ulanbuhe desert, situated southwest of the Ordos, which only in Han times retained suitable conditions for agriculture or cattle-breeding (Jing 1999, 113–129), have by now turned into desert. If the discharge of the water-bearing layer at that period was more than today, there should have been more springs and the area covered with vegetation should have been much larger, to the point of providing preservation of ancient soil layers much further south than it presently is.

The exploration of the locality, which we carried out during our survey in 2007 and before the beginning of excavations in 2009, revealed the following disposition (Fig. 2). At the bench right near the road to Nomgon sum center, three earthen walls rise. These are the remains of a rectangular construction, possibly a fortress, oriented north-south, with a deviation of about 10° counter-clockwise. The walls are mostly better preserved in the eastern parts, and the western part of the construction is badly eroded by water. The largest preserved height of the walls is 2 m; its thickness is about 8 m. The whole length of the northern wall has been preserved, and measures about 130 m in length. The western wall is about 24 m long and the eastern wall is up to 65 m long. They extend up to the very brink of the bench, and thus we suppose that the southern part of the construction has been eroded as a result of the drying-up of the springs. Outside of the walls, by the northeastern side of the construction, we traced a ditch up to 4 m wide and about 2 m deep. Inside the walls, at the southern side, there is a spring-head of one of the Baian Bulag springs, marked as Spring 1. To the east of it, at the center of the fortress, a plane lawn appears where the soil is very wet. It is most likely that in ancient times there were also spring-heads which flooded the entire central part of the construction. To the east of the eastern wall, along the ditch line, there is a narrow gully, from which Spring 2 originates. Within the walls, we found some fragments of pottery and arrowheads. Most arrowheads, about 30 pieces, were found in the northwestern corner of the construction on the surface, where we established the rectangular test trench (Fig. 2, PrH1); its long side was 5 m, oriented north-south, and the short side was 2 m.

We found a layer of Chinese tiles at the modern surface at a distance of 100 m eastwards from the eastern corner of the "fortress". After a layer of sand had been removed with a bulldozer, we established the excavation area ExA3 in order to investigate the architecture of the ancient building. The final square of the excavation covered an area of about 180 m^2; it was 25 m long from west to east and up to 12 m long from north to south (Fig. 2; 4).

3 According to informal sources, in fall 2008 robbers worked there with metal detectors and found up to 3,000 arrowheads of crossbow arrows which date from the Han period.

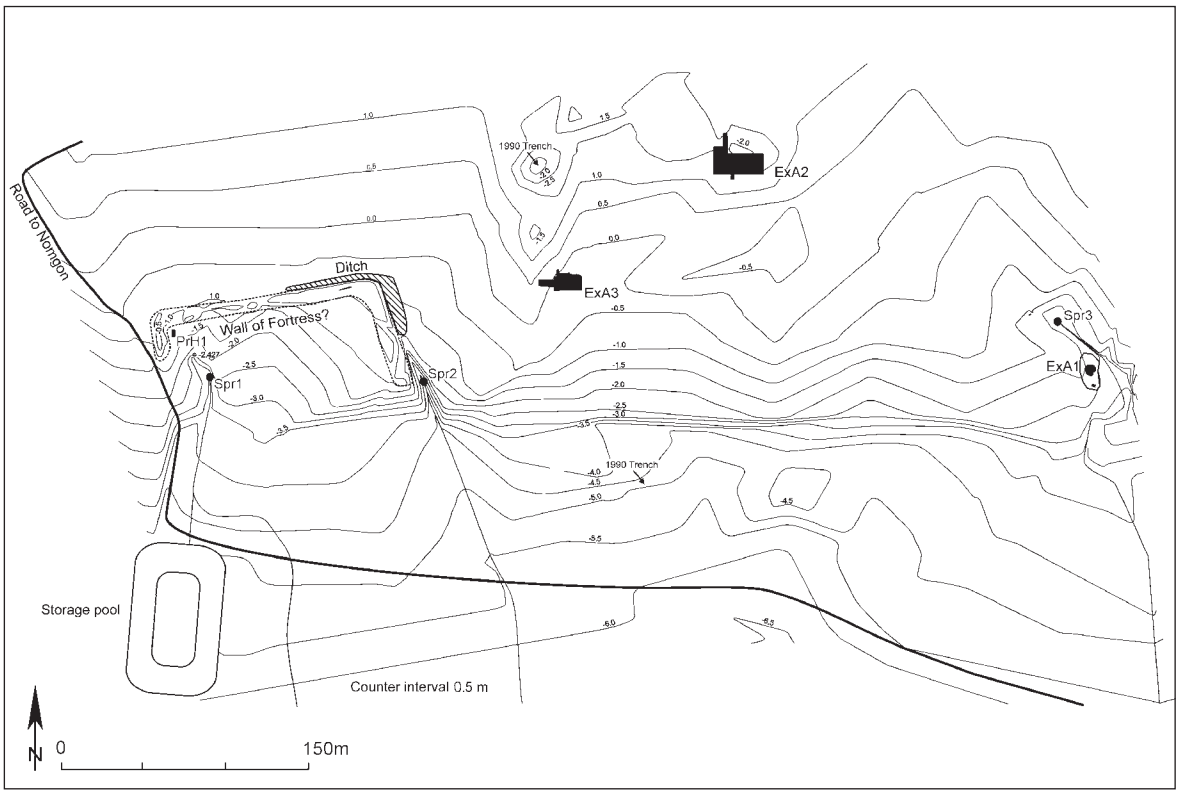


Fig. 2. Baian Bulag site plan. PrH prospection holes; ExA excavation areas; Spr spring.

200 m to the east-northeast of the northeastern corner of the "fortress" there was an eminence about 1.5 m high, which stretched 60–70 m along an east-west axis, and which was no less than 5 m wide. In 2007 we dug test trenches there and found out that the upper layers of this hillock were rich with artifacts from the Han period. In the central part of the eminence a construction of rammed earth was observed, a wall, as we discovered later. Here we made our excavation area 2 which eventually covered an area of 387 m² (Fig. 2; 5). It was oriented north-south, up to 24.3 m wide and 28 m long. Before we began to mark the different features, a layer of drifted sand and vegetation was removed with a bulldozer. A complete examination was carried out only in the western part of the excavation area within a square of 176 m². The study of the eastern part, however, was laid down at the time our field work ended and has thus been postponed.

At a distance of 400 m to the east from the eastern wall of the "fortress" a spring-head of Spring 3 was located. About 30 m below the spring, human bones that washed away from the western bank of the stream have been found by local inhabitants in the streambed. After clearing up the bank precipice, we decided to establish the excavation area 1 there. With the help of the bulldozer, we removed the upper sand layer of a square, which measured about 30 × 20 m. Clearing this up revealed the interred parts of no less than three human bodies (burial 2), and a burial of a man whose legs had been lowered into an artificial pit (burial 1), both in the ancient surface. In the course of further investigation this pit was opened. It was a rounded pit, its diameter was about 7 m, and at its bottom we found remains of no less than 30 persons, buried with clay in ancient times.

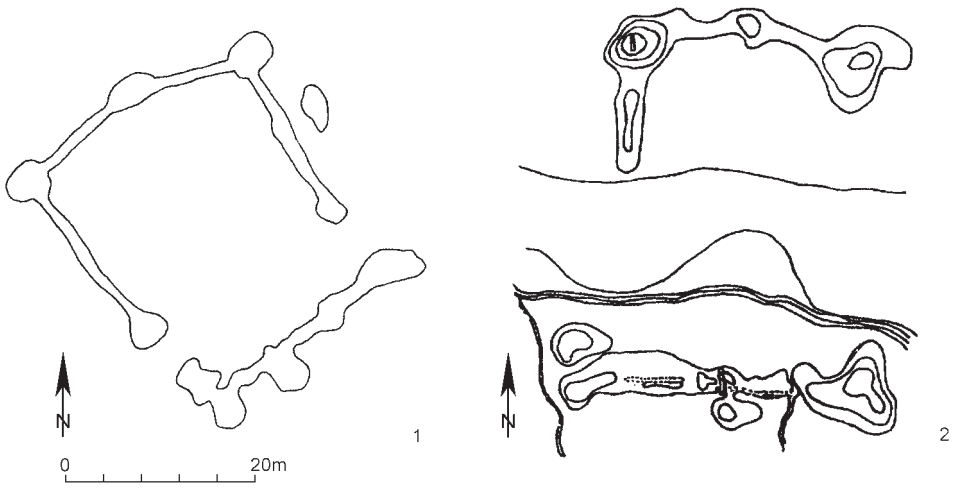


Fig. 3. Baian Bulag. Former plans of the site. 1 after Perlee (1961, 37 Fig. 10); 2 after Tseveendorzh et al. (1994, Fig. 1).

Background of the Investigation

The archaeological research of the Baian Bulag fortress, originally Baian Bulagiin tur', began in 1957 when Kh. Perlee undertook an archaeological survey of the territory of Nomgon sum. He included a report of this survey into his book devoted to ancient towns of Mongolia, which was published in 1961, and in the map of Mongolian ancient settlements (Perlee 1961; Maidar 1970). In papers from 1961 and 1962 (Perlee 1962, 27–35), a description and a sketched plan of soil ramparts of the "fortress" at the Baian Bulag locality was published (Fig. 3,1). Judging from this source, the shape of the construction was rectangular, and its sides were oriented north-south deviating 25° counter-clockwise. The eastern and western walls of the fortress were recorded as being about 130 "steps" long, and the northern wall as 170 "steps" long[4]. The corners of the construction were widened to 18 "steps" in diameter. One more supposed wall, situated about 40 "steps" to the south of the fortress, was shown in Perlee's plan. In any case, this circumstance remained unexplained, and, when describing the measurements of the eastern and western walls, the author did not take into account the distance from the southern wall[5]. According to Perlee, the ramparts of the fortress were 1–1.6 m high and up to 5.7 m thick.

The material gathered near the fortress included bronze arrowheads with iron stems and pottery, which Perlee dated to Xiongnu times. Based on these findings he supposed that this construction was a Xiongnu fortress. It should be mentioned that the size and shape of this fortress correspond in general to the layout of the soil ramparts of the fortification near Spring 1 at Baian Bulag.

4 We emphasize that precisely "steps", not "meters", were mentioned in the original text and illustration of Perlee's paper. Unfortunately, in later publications (Tseveendorzh et al. 1994, 77; Batsaikhan 2002, 47) "steps" were replaced by "meters", and the measures of the fortress, given by Perlee, were thus greatly enlarged: the northern wall appeared 180 m long, the western wall 110 m long and thickness of the walls reached 10–16 m.

5 This southern wall was possibly torn down in the 1980s, when a storage pool, which accumulated water of spring 1, was constructed.

In 1976, D. Navaan undertook a small excavation inside of the northwest portion of this "fortress". The results of this research are only known through those expounded upon in later works (Tseveendorzh et al. 1994, 77; Batsaikhan 2002, 47). They particularly mention that D. Navaan found "wuzhu" coins there, fragments of bronze "goods", most likely coins, and pottery, which he attributed to periods from Xiongnu times up to the 13th–14th centuries. In 1990, an expedition of the Institute of History of the Mongolian Academy of Science, headed by D. Tseveendorzh, P. Konovalov and Z. Batsaikhan, carried out the first large-scale excavation of this settlement. Judging from their plan published in 1994 (Fig. 3,2), one can observe that the scholars mistook a group of several eminences situated east of the settlement for the remains of the fortress described by Perlee[6]. Also two excavation areas were described in the paper – those trenches were 2 m wide and 10 m long. The first area, oriented north-south, was supposedly situated at the place of the former Navaan excavation, which was in the "northwest of the fortress". In reality, according to the same plan, the excavation area was situated at a natural eminence about 100 m to the northeast of the northeastern corner of the "fortress" and at a distance of 80–100 m to the west of our excavation area 2. In 2009, we did not manage to determine the location of that excavation area.

The second area of excavation was laid to the south of the bench, where we conducted excavations in 2009. At the location of this second area a cultural layer had been completely mixed and displaced. The remains of this excavation area were identified by our expedition and marked on the general plan of the settlement. The excavations of 1990 yielded 28 bronze arrowheads with iron stems, four "wuzhu" coins, a bronze mirror, a bronze stamp, some pieces of iron goods, pottery and a part of a bronze crossbow lock (Batsaikhan 2002, 47–51). Judging from the fact that only Chinese goods of the Han period have been found at Baian Bulag, Batsaikhan (2002, 51 p.) proposed that in this place had been located a garrison of Chinese soldiers in the service of the Xiongnu chanyu. He identified this exact settlement as that which had been built by the Chinese official Zhao Xin, who had served the Xiongnu within their territory.

In 2007, our international expedition carried out a short survey of the settlement territory within two days. During this investigation we found pieces of iron wheel bushings of vehicles and carts, fragments of iron spades, knives, about 30 bronze arrowheads with iron stems, a bronze belt hook, two "wuzhu" coins, a bronze hook for an umbrella, a bronze bushing, pieces of iron and bronze coins, a fragment of a bronze crossbow lock (Fig. 19), and a great amount ceramics, including gray pottery sherds with impressed textile patterns and fragments of tiles.

All the material can be reliably dated to the Western Han period and belongs to the Chinese culture of the Central Plains[7]. We did not find any artifacts within the area of the fortress that may be connected with Xiongnu material culture, and this fact became even clearer after our detailed excavations conducted in 2009. Thus it was first established in 2007 that there is no evidence for the proposition that the Baian Bulag settlement belonged to the jurisdiction of the Xiongnu empire. We instead suppose this place to be the location of an outpost of Chinese offensive operations – namely the Shouxiangcheng fortress, which had been built in 104 BC (Kovalev/Erdenebaatar 2008, 108–110).

6 At the top of one of these eminences our excavation area 2 was situated during the excavations in 2009.

7 The term "huaxia" is often used to refer collectively to the cultural traditions of the Central Plains, or the greater area of eastern China within the realms of the Yellow River.

Excavations conducted in 2009

Test Trench 1

The test trench was established in the northwestern corner of the "fortress" (Fig. 2, PrH1). An area of 5 × 2 m was opened and excavated to a pure loam subsoil of gray-brown color at a depth of 1 m. Above this appeared a cultural layer, which consisted of humous loam with charcoal, fragments of human and animal bones, and artifacts. In the central part of the area we traced a small pit in the subsoil about 50 cm in diameter and about 20 cm deep, and at its bottom lay pieces of a gray earthenware vessel bottom, two fragments of iron bushings of a wheelbarrow, half of an iron bushings of a wagon, and an iron hoe (Fig. 16,6). In the lower part of the layer, at a depth of 1.0–1.7 m, pottery sherds were found, as well as two iron tips for wooden spades (Fig. 16,1.2) and two iron picks (Fig. 16,5). It seems probable that these artifacts were discarded there during the building of the "fortress", because these are parts of tools designed for digging and carrying of soil. Since we have not revealed signs of prolonged habitation on the territory of the "fortress", we suppose that the walls had been built in order to protect the source of water of spring 1, and that the "fortress" also served as a provisional sanctuary in case of war.

Excavation Area 3

The main aim of excavation in this area was to document layers of tiles which had been used for constructing roofs. The tiles were covered everywhere by a loess layer about 20–40 cm thick, over which have formed hillocks with brushwood of *Caragana*. After having cleaned up and drawn the tiles and artifacts lying at the ancient surface level, we deepened the whole excavation area another 0.5–0.7 m. As a result, this revealed outlines of ancient trenches and pits along the sidelines. Thus the functions of ancient constructions and history of the building could be reconstructed (Fig. 4).

In the northeastern part of the excavation area, at the level of the ancient surface, a rectangular foundation pit had been dug in ancient times no less than 40 cm deep. It, also, was filled with gray loam subsoil. The foundation pit had been oriented east-west with a deviation of 10° clockwise. The length of the foundation pit was no less than 12 m, its eastern part was not investigated. The foundation pit was about 4 m wide. On its brinks, in sectors 48, 28, 43 and 16, some stones had been laid. Most likely, these stones served as piers for posts of a frame construction for the walls of the building. The wooden roof of the building had been covered with tiles. After the building had burned, layers of charcoal and tiles formed the outlines of the building. No signs of permanent presence of people were found within the construction; however, we should mention that among the findings both inside the building and around it were a bronze guard of an iron sword (Fig. 20,1), a bronze stamp with the poorly preserved inscription of the owner's name (Fig. 22,4) and three heavily corroded "wuzhu" coins.

To the west of the building described above, within sectors 33–35, 21, 22 no charcoal was found, but a lot of tiles, scattered fragments of the pottery cluster V4 (Fig. 4), which represent no less than 10 vessels (Fig. 16,3.4.8.9.12.14.15), and a large piece of an iron copper cauldron. At the same time, at the level of the ancient surface in sector 33 we found a stone, which lay in line with the stones that marked the outline of the northern wall of the building, observed in

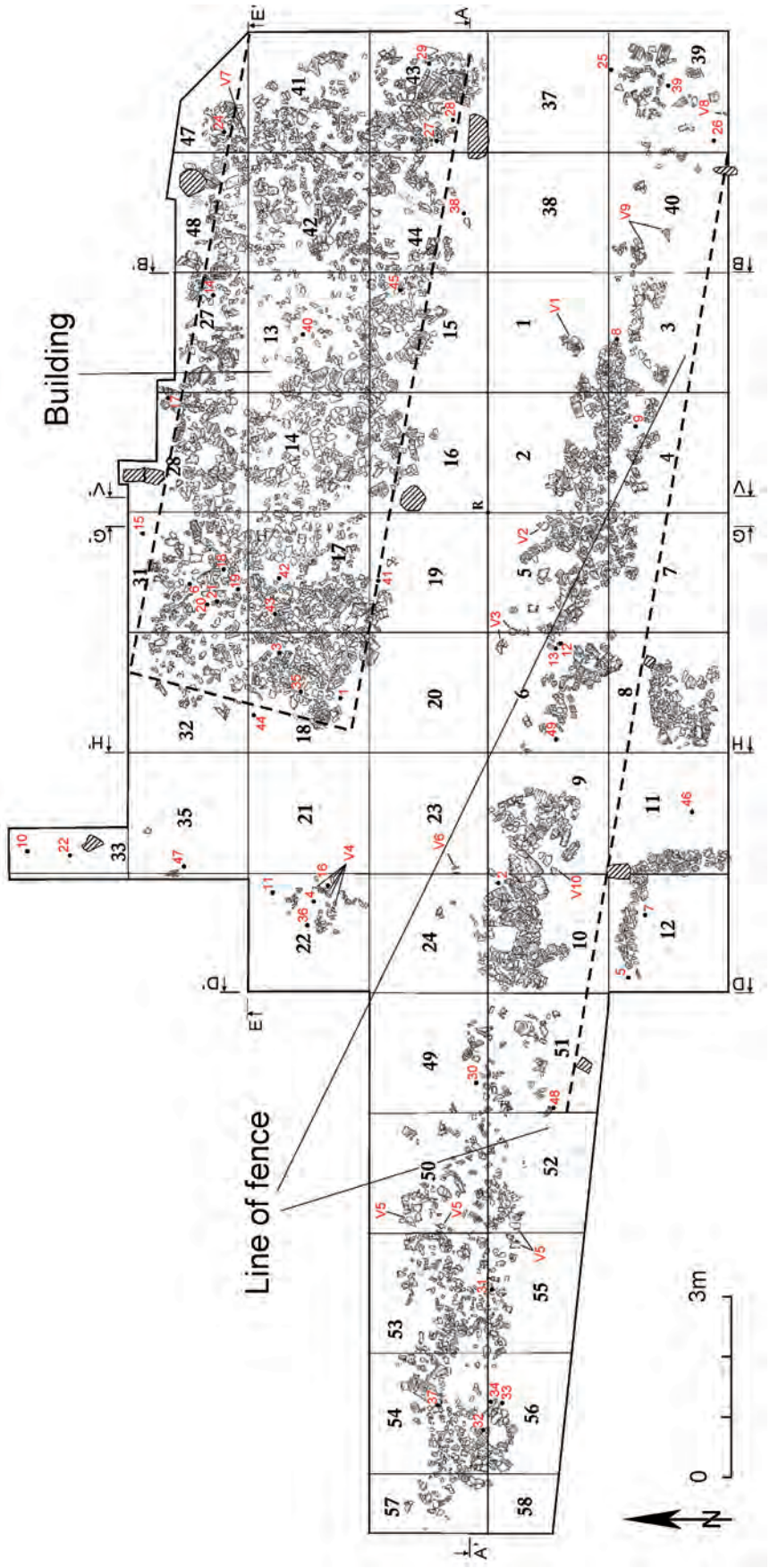


Fig. 4. Baian Bulag. Excavation area 3. V vessel cluster.

sectors 28 and 48. A partly destructed piece of sandstone was also found in sector 21, which was approximately aligned with the stones that marked the contour of the southern wall. If we do not consider this a coincidence, we can suppose that the building had an open, extended yard at its western side. This extension probably had walls covered with tiles, but no roof, since the tile layer occupied only the perimeter of the area.

At a distance of 4 m south of the described building, numerous scattered tile sherds were found in an area that stretched 25 m within the excavation area and was about 2 m wide (Fig. 4). This belt of tile fragments lay exactly parallel with the long axis of the described building. At the southern side of this tile belt, four stones were cleaned in sectors 40, 8, 11 and 51. They lay at the same level as the tiles, in one row parallel to the above mentioned belt. At the sections D–D', which were cut along the boundaries between the sectors 12-10-24 and 51-49 and H–H' along the sectors 8-6-20-18-32 and 11-9-23-21-35 respectively, some signs of seeping of green clay on the surface of gray loam were revealed, just several centimeters to the north of the above mentioned row of stones. Thus we can assume that these stones, tiles and clay are the remains of a frame construction of a wattle and daub fence, covered with tiles. The fence had been situated along the row of stones, but later it fell to the northern side. Special attention is drawn to fact that the area of scattered tiles is interrupted between sectors 6 and 9. Directly to the south of this interruption in sectors 11, 12 and 8, areas with scattered tile fragments were traced, which did not form a unit with the belt. The tile fragments partly covered stones in segments 8 and 11. There were no tiles between these separate areas in sector 11. And in sectors 11 and 12 the tiles form a clear arch shape. According to the analogies in ceramic model houses and towers from tombs of the Han period, we can suppose that there was an aperture in this part of the fence, which consisted of gates with an arched roof. Stones which were found in sectors 8 and 11 served as piers for these gates. The western end of the belt of scattered tiles was observed in sectors 57 and 58. Here the fence had probably ended, or turned to the north. At its eastern side, the tile belt enters the wall of the excavation area, and along this line some tiles can be traced on the modern surface for about 30 m to the east.

Among the tile fragments of the fence roof we found several accumulations of sherds of large earthenware vessels (Fig. 4, V1–3.5–6.8–10; Fig. 13,1.2.5–7.10.11.13; 14,1). The majority of these fragments clearly lay on the tiles or in one level with them, and, for certain, not under the tile layer. This suggests that these vessel sherds had been used for repairing the tile covering, probably because the reserve supply of tiles had been poor. The tiles themselves which had been used for covering the roof and the fence vary in ornament and in size. We have numbered at least five types of "lower" tiles and three types of "upper" tiles (Fig. 15). Since no evidence of earthenware production has been discovered within the settlement area, we propose that all the tiles had been brought from China. It is also most probable that the tiles had not been made especially for this settlement, but had been gathered after being used on some other buildings. It is an enormous effort to carry several tons of tiles for at least 300 km, and the presence of these tiles cannot be explained by any rationale. A building of frame-and-post construction would not effectively protect against an enemy attack, yet we found no signs of permanent living within the structure. We thereby deduce that the building investigated could have been erected for ritual or symbolic purposes. Most likely, it had been a temple. This conclusion is further verified by the discovery of one leg of a very large earthenware tripod "ding"-cauldron (Fig. 14,2) was found lying at the ancient surface south of the area of the scattered tiles that covered the fence. This style of vessel was one of the most important forms of ritual vessels in Chinese society and thus could very likely have served in ritual functions at this site.

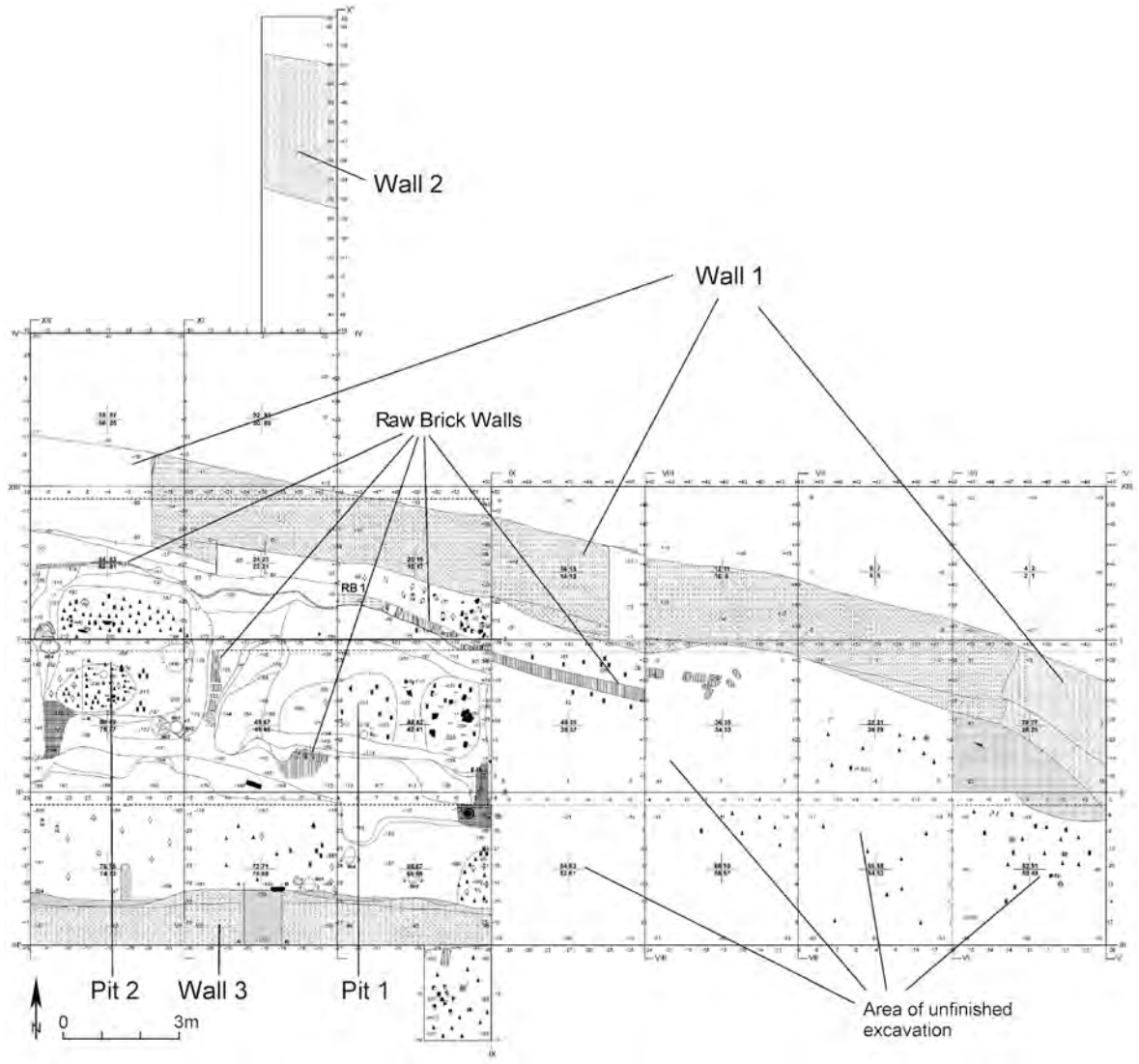


Fig. 5. Baian Bulag. Excavations area 2. RB raw brick.

Excavation Area 2

The excavation area was divided into square sectors, and the cultural layer was excavated subsequently in layers of 25–30 cm thickness down through its entire depth. Architectural constructions, if revealed, were cleaned up and depicted in detail (Fig. 5). We discovered three walls oriented east-west and made of clayey black-red subsoil tamped hard in the Chinese "hangtu" method of ramming soil[8]. These walls had been built within trenches about 0.7 m deep. Their modern height does not exceed 0.5 m above the ancient surface, but they had likely been much

8 This method of wall building has been well documented throughout China during the Bronze and Iron Ages, and was employed for all manners of buildings, fortification walls, and structural platforms. These "hangtu" formations are erected by piling earth between wooden retaining walls and then tamping them down hard until they are as solid as hard fired clays. This manner of construction can be recognized by the numerous layers of tamping between the imprints of walls of logs.

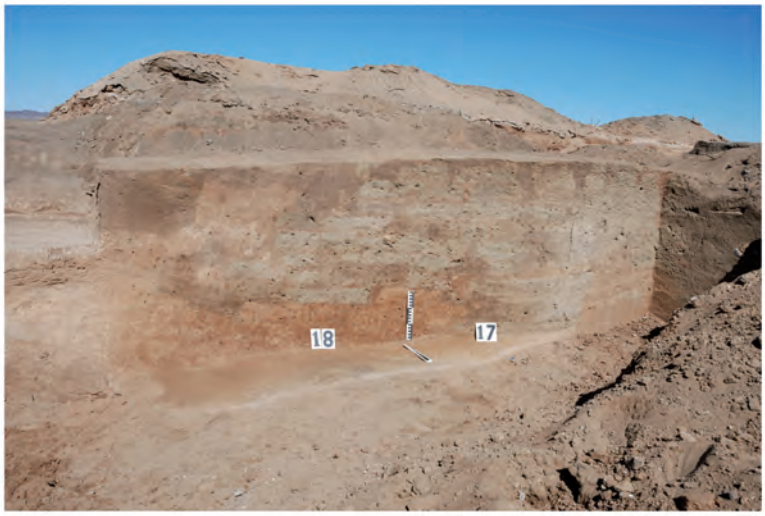
higher in ancient times. It happened that the preserved upper parts of the walls have almost turned to dust. Black-red dust of the same composition formed the upper layer 3, up to 1 m thick, which filled the area between walls 1 and 3, a square of no less than 100 m^2. It is most likely that this layer had been formed as a result of the erosion of the upper parts of walls 1 and 3. If we take into account the volume of the layer 3, we can suppose that walls 1 and 3 had risen at least 2 m above the ancient surface.

Wall 1, which was 2.0–2.3 m thick, stretched over the whole excavation area from its western to its eastern side, with a deviation of 15° clockwise. In the eastern part of the area the wall turned to the south. Wall 2 was 3 m thick; it was traced in extension 1 at a distance of 7 m to the north of wall 1. Wall 3 stretched directly east-west at a distance of about 8 m to the south of wall 1. According to our excavations within extension 2, the thickness of this wall was about 1.4–1.5 m. Unfortunately, we had to stop the excavations at the eastern part of the construction, so it remains unclear whether walls 1 and 3 joined each other, though the distance between them decreased continuously towards the east.

A parallel wall of raw brick masonry had been built 1 m to the south of wall 1. This wall was at least 1.2 m high and consisted of no less than nine brick layers (Fig. 6,1). The base of the wall had been deepened 0.5 m into the subsoil. The level of the ancient surface was preserved between this wall and wall 1. Here within a pass between the walls (Fig. 6,2) in an area of about 2 m^2 we found eight fragments of crossbow locks, which constitute the greatest concentration of these artifacts within the entire area of investigation.

A system of trenches and pits (Fig. 6,3) had formed between the base of the raw brick wall and wall 3, because soil had been dug there and removed irregularly in ancient times. A bulkhead had been left at a depth of about 0.8 m from the ancient surface in the middle of the area between walls 1 and 3. Two pits, the eastern pit 1 and the western pit 2, had been dug between this bulkhead and the raw brick wall (RB1), both were 2 m deep from the ancient surface. At a balk between these pits a base of another wall made of raw brick masonry was traced. This wall had been built parallel with the wall RB1. We also discovered part of a base of yet another wall, made of raw bricks, parallel to the wall RB1. It was situated at the longitudinal bulkhead at the brink of pit 1. To the east of pit 1 we observed a great amount of raw bricks of a tumbledown wall, which possibly had been situated at right angle to the wall RB1. Thus, in ancient times pit 1 had been surrounded with a brick wall on all four sides. Besides this, we found two small sloping ditches lined with green river clay, which were directed to pits and 2. These might had been flues or vent-pipes. Numerous fragments of iron hoes, spades, bushes, knives and hoes were gathered at the bottom of the pits. Three large earthenware vessels had been dug into the sloping walls of pit 2. A trench about 2 m wide and 1.4 m deep, measured from the level of the ancient surface, had been dug between the middle bulkhead and wall 3.

No signs of inhabitation, such as hearths or heating systems, were observed within the pits. The material from this excavation area consisted, besides of pottery, of numerous animal bones, among them a lot of dog bones, including two almost complete dog skeletons, crossbow locks (Fig. 18) and bronze arrowheads of crossbow arrows with iron stems (Fig. 17) and iron armor plates (Fig. 16,13.14). We also found iron tools, fragments of iron coins, bushings, etc. (cf. Fig. 16–18; 20; 22). The most important finding was an earthenware stamp (Fig. 22,1); these stamps had been used for sealing official documents. Unfortunately, we did not manage to read two of the four characters on the stamp as they were only partially preserved.



1

2

3

Fig. 6. Baian Bulag. Excavations area 2. 1 Brickwork wall; 2 gallery between wall 1 and brickwork wall; 3 line of pits.

A cultural layer up to 1 m thick had been deposited during the period in which the constructions had been used. This cultural layer 1, rich with artifacts, consisted of loess subsoil which had been possibly removed by the wind and accumulated in trenches and pits. At the surface of this cultural layer within pit 1 we found several groups of disarticulated bones, the bodies of

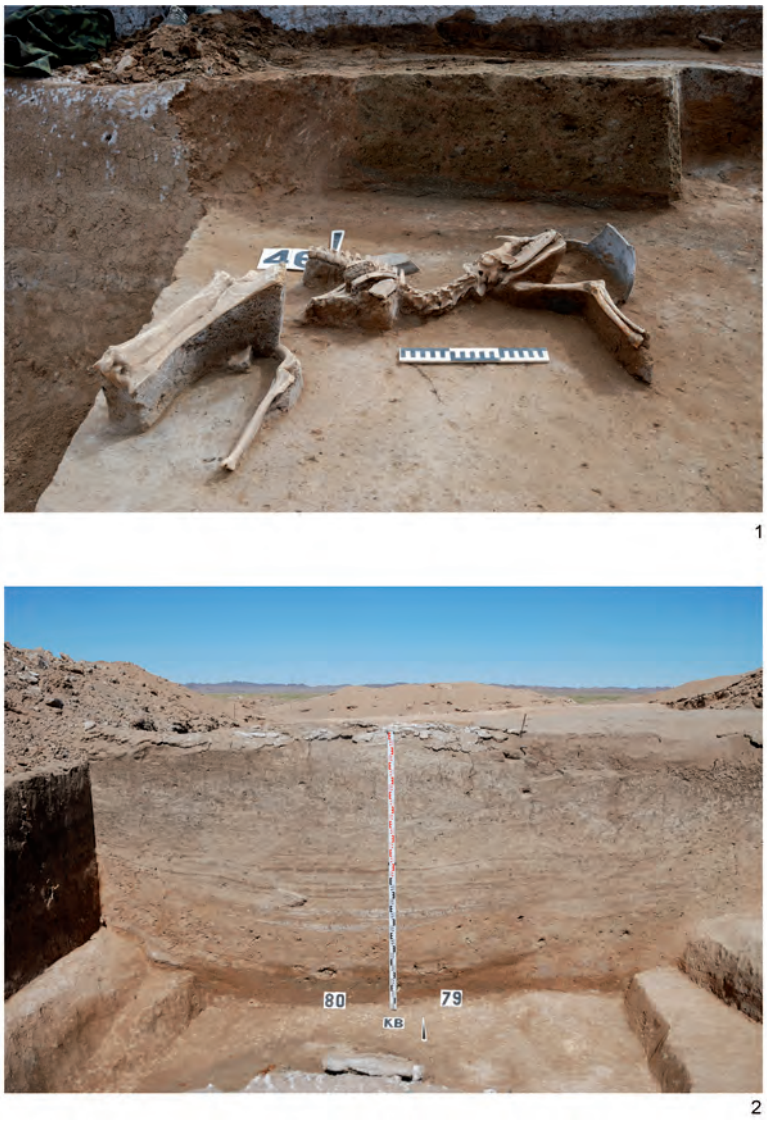


Fig. 7. Baian Bulag. Excavations area 2. 1 Skeleton of dog with severed corpse; 2 profile of cultural layers 1–3.

adult males[9]. Such a distribution of bones could only be a result of intentional dismemberment of a corpse, after which the parts could have been left on the ground surface where certain bones may have been removed by animals after decomposition of the flesh. At the same level we discovered a well preserved skeleton of a dog with its body severed across the pelvis (Fig. 7,1). We did not find any indications of an intentional covering of the human and dog bodies with soil. These findings are evidence that the building had been abandoned, but not destroyed, after the deaths of the dog and these people. Layer 1 was everywhere covered by layer 2, which was about 0.7 m thick and consisted of numerous alternating thin layers of clay and loess. This layer had been formed as a result of intrusion into the subsoil brought on by rain water inside the

9 In each case the skull, pelvis with femurs, pectoral vertebrae with ribs, left scapula and a clavicle, left ulna and left radius of individuals were found.

construction over many years. Layer 2 is itself covered by layer 3. Layer 3 consists of the dust, which accumulated while the upper parts of walls 1 and 3 had been eroded (Fig. 7,2).

Judging from comparable constructions in the Central Plains, such massive walls as those investigated at Baian Bulag may be attributed to storehouses of the Han period (Liu 2003, 521–522). Probably, the part of the rammed construction which we excavated had also been intended for storage purposes. In favor of this proposition were numerous findings of iron objects at the bottom of pits and trenches. However, a great amount of animal bones and pottery sherds are evidence that people had permanently stayed there or at least visited the building. It must rather have been a post, as there were no signs of hearths or heating systems. On the other side, broken crossbow locks which were found inside the "gallery" between wall 1 and the brick wall witness that the defenders actively fired upon the enemy from this place.

Excavation Area 1

As it was already mentioned, after removing the upper layer with a bulldozer, we firstly found a burial, burial 1, in the ancient surface. The deceased man had been laid straight on his back, with his legs oriented south-southwest. The skeleton lacked skull and right hand. The corpse's legs were buried deeper than the rest of the body and located into a soil pit, filled with gray loam which was later named "tomb 1". The pit had been dug in a variegated black-yellow subsoil loam.

After the upper layer of aeolian deposits was completely removed by a bulldozer, we began to excavate the filling of this tomb 1 (Fig. 8). It was revealed that the pit was of irregular round shape, at its northern and northeastern parts it was about 1.3 m deep. At these parts the pit had an almost horizontal bottom and vertical walls. The pit widened to the west and southwest, the bottom gradually rose in these directions and finally reached the supposed level of the ancient ground surface. The bottom of the pit slightly deepened to its center. At the bottom of the pit dismembered skeletons of adults were excavated, which were designated as 20 "skeletons" and 33 "body fragments". One of such fragments, namely a left hand, was excavated on the brink of the pit at its eastern side, at the same level as burial 1. Apparently, the deceased from burial 1 and this hand were intentionally buried near the pit at the same time as the burial of the skeletons in it. One of the deceased, skeleton 16, had been buried separately from the pile of bodies near the northern wall of the pit. This man had been laid stretched on his back, oriented approximately east-west, with his legs eastwards. The deceased was lacking head and neck. Under the right shoulder of this person we found a bronze openwork buckle with an iron prong (Fig. 21,4). We traced a stripe of red paint under the left scapula of the deceased. It should be pointed out that a similar silver buckle was fastened to a sheath of a fighting knife, which was found in the tomb of a ruler of the Zhongshan kingdom in Mancheng of Hebei province (Fig. 21,5.6) (Zhongguo/Hebei 1980, 105; 118; Figs. 71; 81,7). The well preserved sheath from Mancheng had been painted in red. So it is possible that the deceased had a shoulder-belt with a sheath attached to it. The special character of the burial indicated a high social status of the deceased; he had probably been an officer.

The other more or less complete bodies were piled in 4–5 layers in the central part of the pit, various poses of the deceased were observed, including knelt-down ones, like the skeletons S5 and S7 indicate (Fig. 9; 10). In the center of the grave, the lowest laying skeletons were under water, because at this point the bottom formed a funnel-shaped depression that penetrated an aquifer level at the green clay horizon. We did not find any burial goods in this pile of skeletons (Fig. 8).

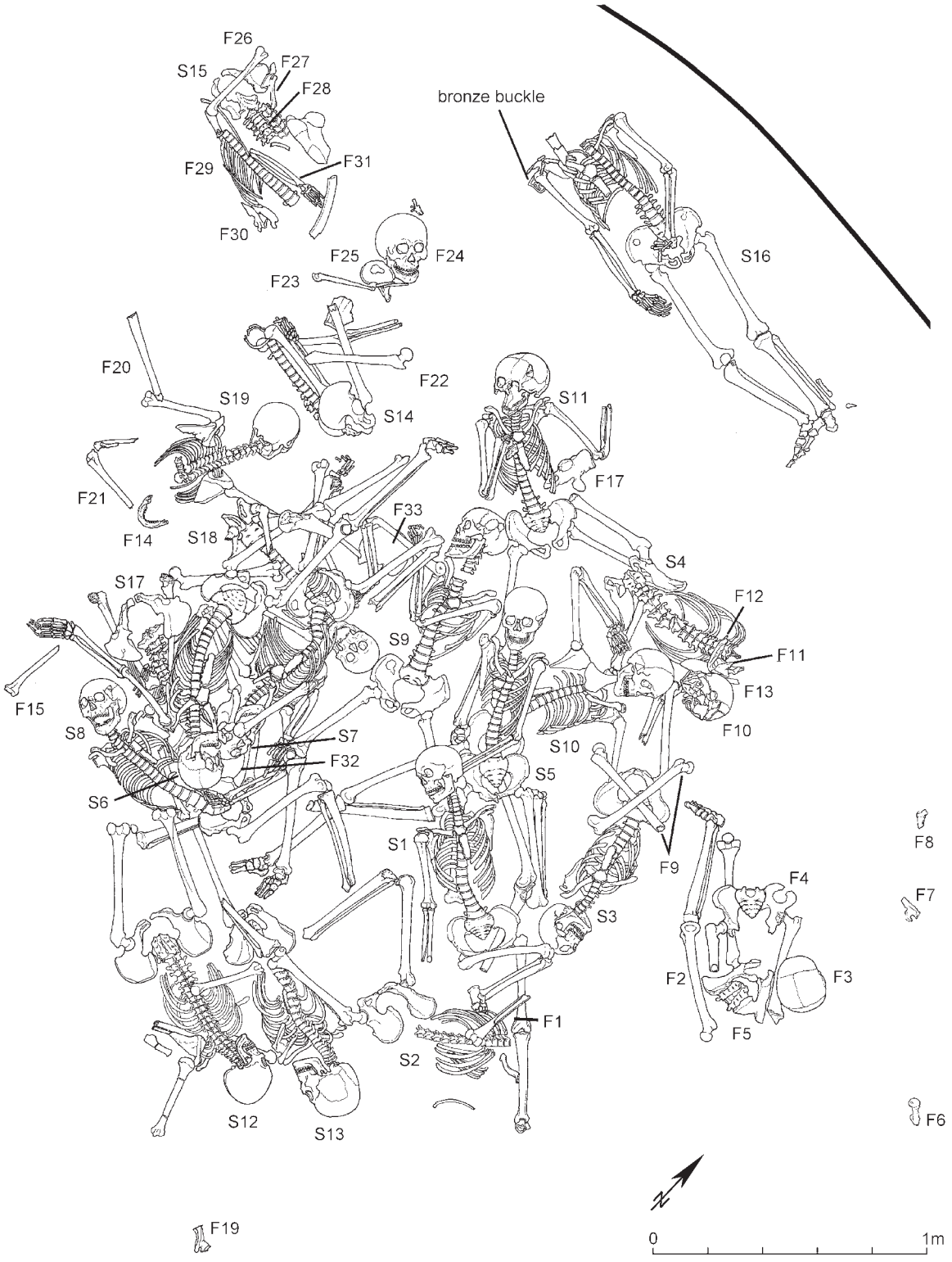


Fig. 8. Baian Bulag. Central part of tomb 1. S skeletons; F fragments of corpses.

Fig. 9. Baian Bulag. Tomb 1. Skeletons S6–S8, S17, and S18 in situ.

Fig. 10. Baian Bulag. Tomb 1. Skeletons S1, S5, S10, and S3 in situ.

Fig. 11. Baian Bulag. Tomb 1. 1 Skeleton S11 with dismembered part of upper jaw laid down on the chest; 2 skeletons S17, S18, S19 in situ; parts of femoral bones of skeleton S18 were taken away during the process of excavation.

Fig. 12. Baian Bulag. Tomb 1. View of fracture of spinal column and cut of corpse of skeleton S19.

Several groups of articulated yet cut human body portions[10] had been laid around the main pile. Some cut parts of individual bones were also deposited there[11]. According to the positions of the deceased and to the character of the soil which filled the pit, the bodies and body fragments had been covered with subsoil clay and loam immediately after burial. This filling yielded some parts of animal bones and fragments of green clay pottery. It seemed that these findings were not burial goods of the mass grave, but had been scattered within when the pit was filled. At the very bottom of the pit we discovered other artifacts which were more likely objects belonging to the interred people. These were an iron "ji"-halberd (Fig. 21,2), an iron cheek-piece with two openings (Fig. 21,3), an iron hook of which possible additional portions had not been preserved (Fig. 21,3), a fragment of an iron object curved in two planes, and two bronze three-edged arrowheads with iron stems.

In most cases, the incompleteness of skeletons or separation of body parts cannot be accounted for by decomposition and slowly falling to pieces before the burial. All skeletons and fragments showed indications of intentional dismemberment or cutting of bodies. For example fragment F2 is a right leg with preserved foot. If this leg had been separated due to decomposition, the foot bones would have been the first to fall off. Thus, the leg must have been intentionally cut off before the body had decomposed. Similar observations were made for other fragments: S14 with a right hand had preserved in anatomical order, while there was no left leg; F31, a hand had preserved together with a forearm or F34, a hand had preserved together with an arm.

Although the condition of the preserved bones was not good, signs of cutting with a sharp tool, perhaps a sword or dagger could be clearly seen on many of them[12]. Some examples: For skeleton 11 the left part of the face had been smashed, the severed part of the maxilla had been laid on the chest of the deceased, the right hand had been cleft at the metacarpus (Fig. 11,1). The spine of the individual S19 had been broken in the lumbar portion; judging from the signs of cleaving at the vertebrae and the lack of the lower portion of the body, the individual had been cut in half (Fig. 12).

Thus we can assert that the disarticulations of these human bodies were neither from slow decomposition nor from ritual dismemberments but rather are the results of brutal mass killings. Evidence for the severing of individuals while alive can be clearly seen in the position of skeleton S18 (Fig. 11,2). This skeleton lay on his back and his arms had been preserved in raised position in order to shield the face. The forearms had been cut, probably with a single slice; however, the muscles of the deceased had been so strongly cramped that they fixed the posture of arms

10 This is the case for the body fragments F2, F3, F4, F5, F10, S14, F24, F29, S15, F28, and F21.

11 This is the case for the body fragments F19, F1, F6, F7, F8, and F27.

12 S1: right hand and part of the forearm had been cut off; S2: right foot with the distal part of the shin; F4: right femur had been cut and lacked all distal parts of the leg; F6: a cut off proximal part of a femur; F7: a cut off fragment of a scapula; F8: a cut off distal part of a tibia; F9: a femur lacking the cut off distal part; S3: right leg had been cut off at the proximal end of the femur; F10: a skull with the atlas, maxilla, and nose had been cleft in the middle; S4: the lower part of the right arm had been cut off at the distal end of its forearm, a lower part of the left leg had been cut off at the epiphysis of the femur; S5: the left arm had been cut off at the distal end of the forearm; F15: cut off distal end of a humerus; S7: a left leg had been cut off at the distal end of the shin; S8: left arm had been cut off beginning at the proximal epiphysis of its humerus, left leg had been cleft at the hip joint under the back of a deceased; S10: left leg had been cut off at the distal part of the shin; S12: right arm had been cut off at the distal end of the humerus, the right shin had been pulled up from the knee-joint, the patella preserved in its place, and wrenched to the left; S13: right arm had been cut off at the distal end of the forearm; so had both legs been cut from the distal ends of the femurs; F20: femur with both epiphyses cut off; F21: left hand cut off from the proximal end of the humerus; F22: femur lacking the cut off distal end; S14: the left leg had been cut off beginning at the distal end of the femur, the left hand had been cut off beginning at the forearm; F30: a right scapula, partially cleft; S15: right leg had been cut off at the distal end of the femur; S18: both arms had been cleft at the distal ends of the forearms, so had both legs been cut at the proximal ends of the femurs.

after death. This could not have happened if the body had been cleft when the individual was already dead. Such posture of arms could have been preserved after a man's death only due to severe cold, and only if he had not been immediately buried with clay after being killed. It seems most probable that the people buried here had been killed in winter, not far from the fortress, and after the massacre their stiff bodies and severed parts had been gathered and buried at the site of the fort, thus preserving these postures. Two men, S5 and S7 (Fig. 9; 10), lay kneeling with their feet under the pelvis. It may indicate that they were on their knees when they had been killed, which means that the executed people had been captives.

Since the "ji"-halberd, the cheek-piece, and the hook, as well as the possible sheath with the bronze buckle, had been put into the grave as funerary goods, we can propose that companions of the deceased, and not any captors of the dead, had buried the fallen. The collection of iron objects, cheek-piece and halberd, imply the category of the dead as most likely being that of mounted troops. Chinese cavalry, particularly, were armed with long "ji"-halberds during the Han period.

The Excavated Artifacts

Ceramics

All the ceramics found within the vicinity of the walled settlement were examples of gray pottery. They usually had textile imprints, and many vessels had flutes beneath their mouths. We found fragments of numerous Chinese-style vessels, such as "pen"-basins, "fu"-cauldrons, "guan"-jars, "zeng"-steamers, "weng"-pots, and, as was mentioned before, one leg of a huge tripod "ding"-cauldron[13] (Fig. 13; 14).

No less than five types of "lower" and three types of "upper" tiles were revealed (Fig. 15). All tiles had textile imprints and horizontal grooves. Such tiles are characteristic of the architecture of the Han period (Liu 2003, Fig. 5–234).

Metal Artifacts

We found iron knife fragments, spades, picks, hoes, and chisels, as well as wheel bushings and pieces of iron "fu"-cauldrons (Fig. 16).

More than 300 bronze three-edged arrowheads with iron stems were excavated (Fig. 17), an iron "ji"-halberd (Fig. 21,1), an iron cheek-piece (Fig. 21,2), iron armor plates (Fig. 16,13.14), fragments of bronze crossbow locks (Fig. 18), the bronze hilt of an iron sword (Fig. 20,1), two bronze buckles with iron prongs (Fig. 20,2; 21,4), bronze belt hooks (Fig. 20,3.4), bronze pommels of long iron fighting knives (Fig. 20,5), bronze rings (Fig. 20,6.7), bronze and iron handle tips (Fig. 20,10–14), a bronze bell (Fig. 20,8), and fragments of bronze cauldrons (Fig. 20,9).

13 Several styles of cooking pots exist within Han Chinese vessel assemblages that functioned as cauldrons. The difference between the "fu"-cauldron and the ding-cauldron is that the latter served as one of the main vessels in ritual ceremonies.

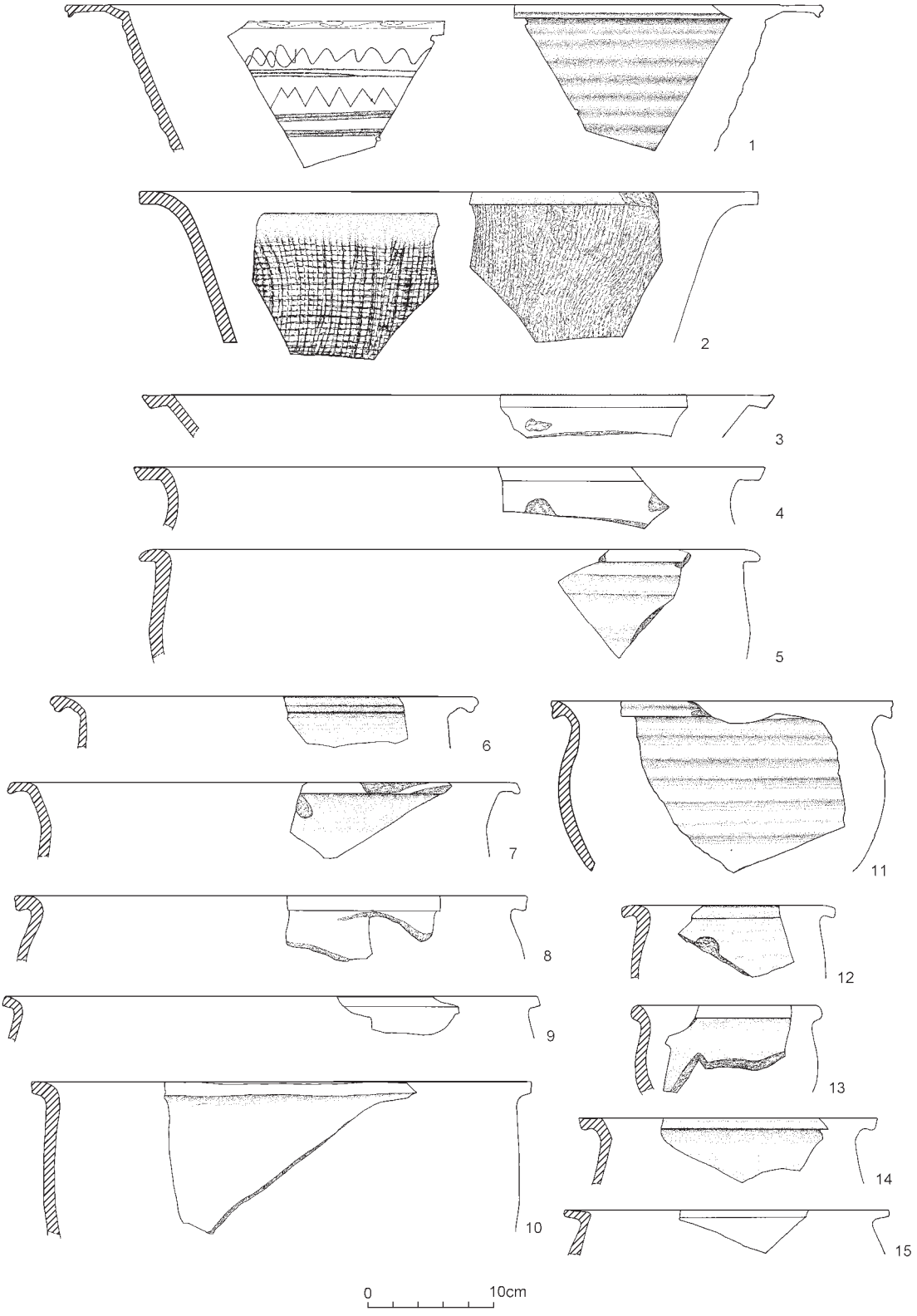


Fig. 13. Baian Bulag. Excavation area 3. Pottery from vessel clusters (V); 1 inv. no. VD10; 2 inv. no. VD5; 3, 4, 8, 9, 12, 14, 15 inv. no. VD4; 5 inv. no. VD7; 6 inv. no. VD8; 7 inv. no. VD6; 10 inv. no. VD9; 11 inv. no. VD2; 13 inv. no. VD1. For the location of the vessel clusters see Fig. 4.

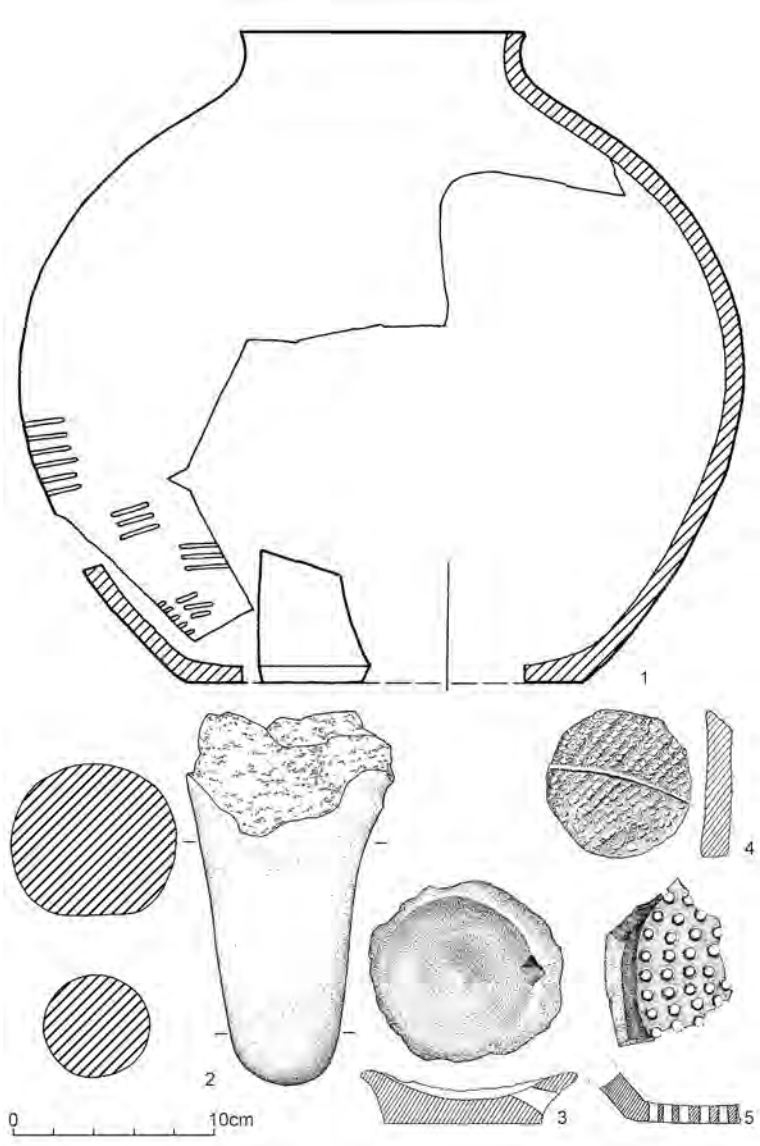


Fig. 14. Baian Bulag. Pottery from excavation area 2 and excavation area 3; 1 inv no. T3:VD1; 2 inv .no. T3:38; 3 inv. no. T2:422; 4 inv. no. T2:106; 5 inv. no. T2:243.

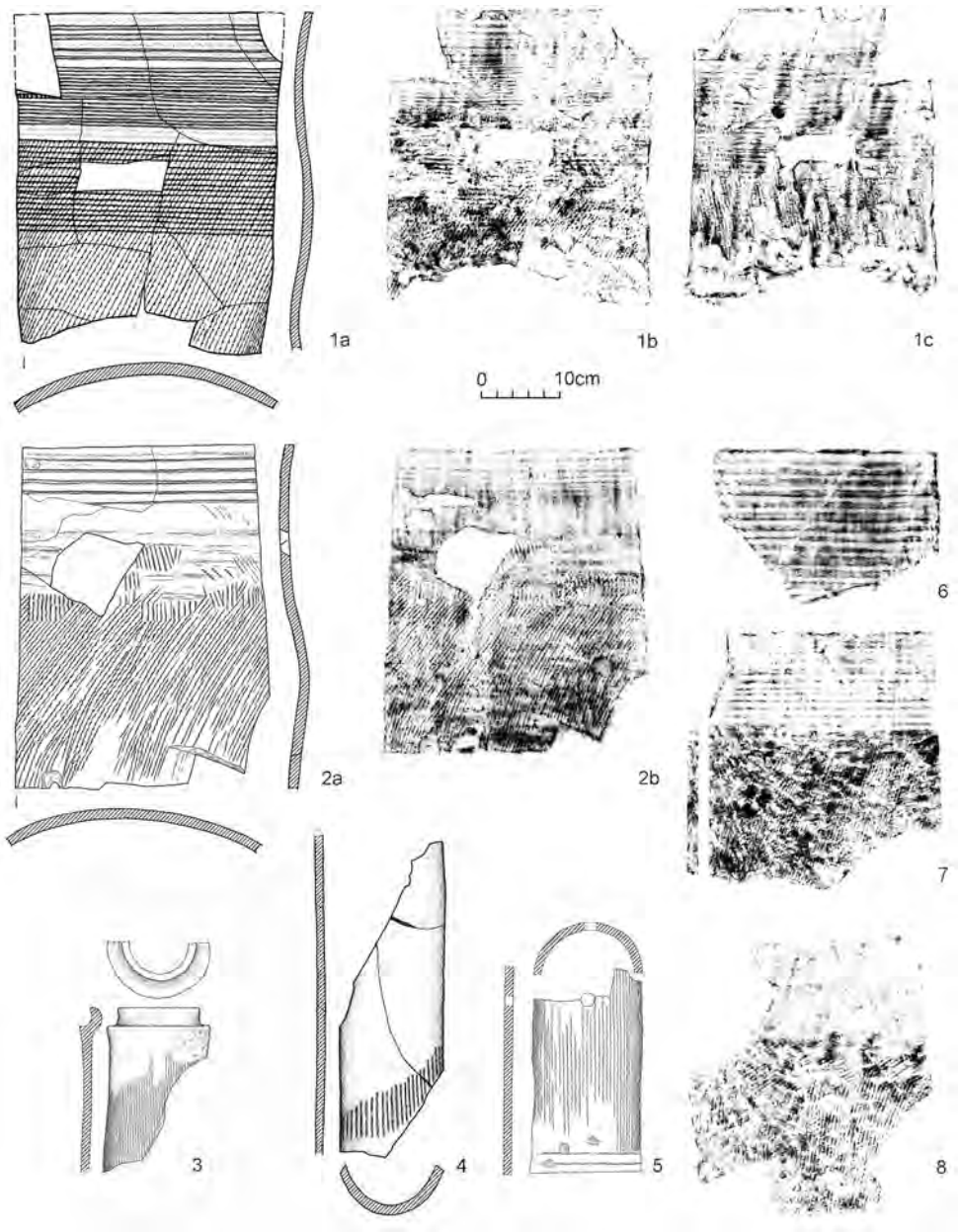


Fig. 15. Baian Bulag. Tiles and imprints from excavation area 3; 1 inv. no. w16; 2 inv. no. w5; 3 inv. no. w13; 4 inv. no. w9; 5 inv. no. w7; 6 inv. no. w2; 7 inv. no. w11; 8 inv. no. w3.

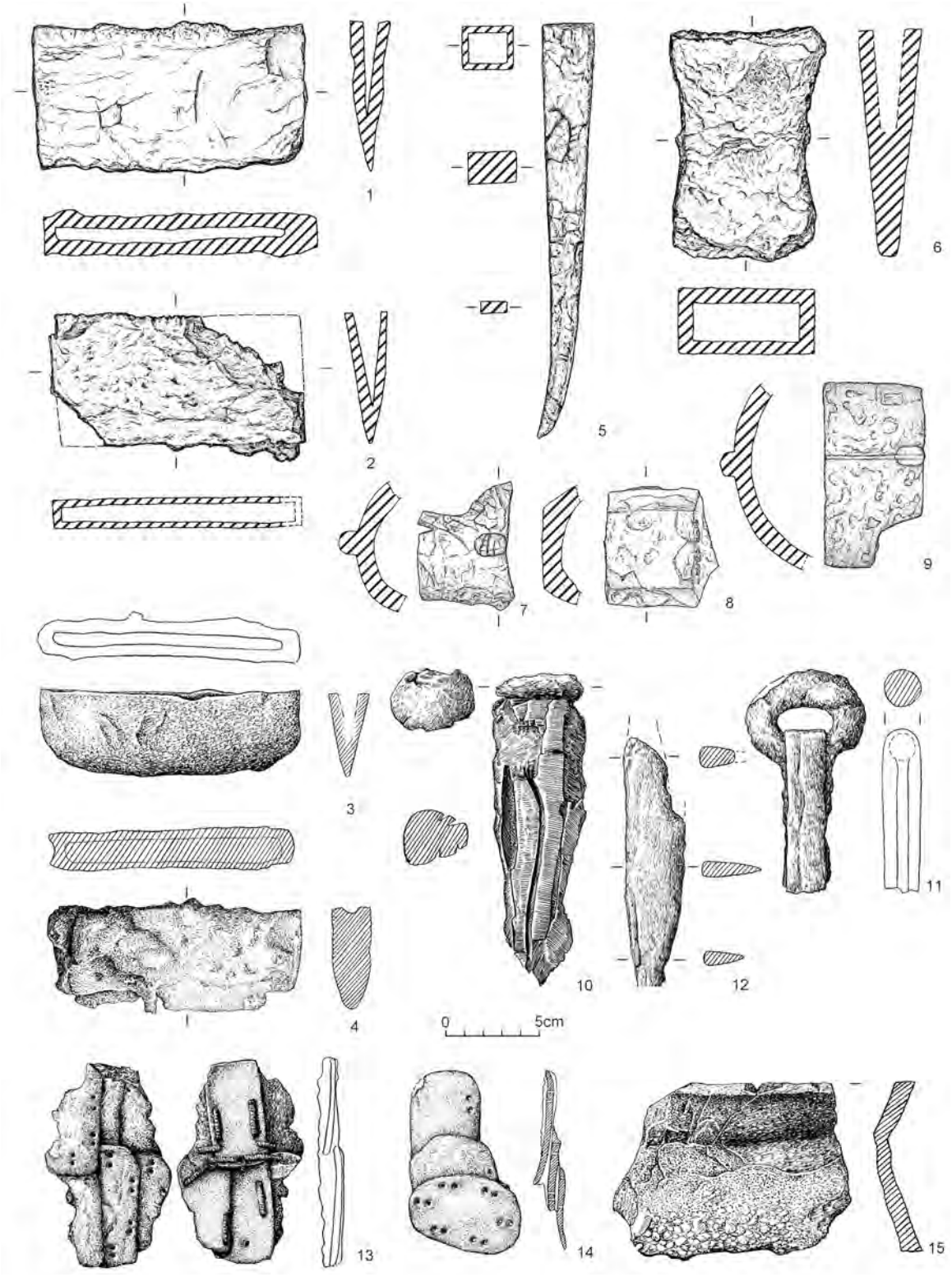


Fig 16. Baian Bulag. Iron artifacts. 1–4 Spades, inv. no. K1:, inv. no. K1:3, inv. no. T2:247, inv. no. T2:291; 5 pick, inv, no. K1:14; 6 hoe inv. no. K1:2; 7, 8 cart bushings inv. no. C:501, inv. no. C:502; 9 wagon bushing inv. no. C:503; 10 chisel inv. no. T2:205; 11, 12 parts of knives inv. nos. T2:371, T2:341; 13, 14 armor plates inv. nod. T2:84, T2:349; 15 fragment of cauldron inv. no. T2:539.

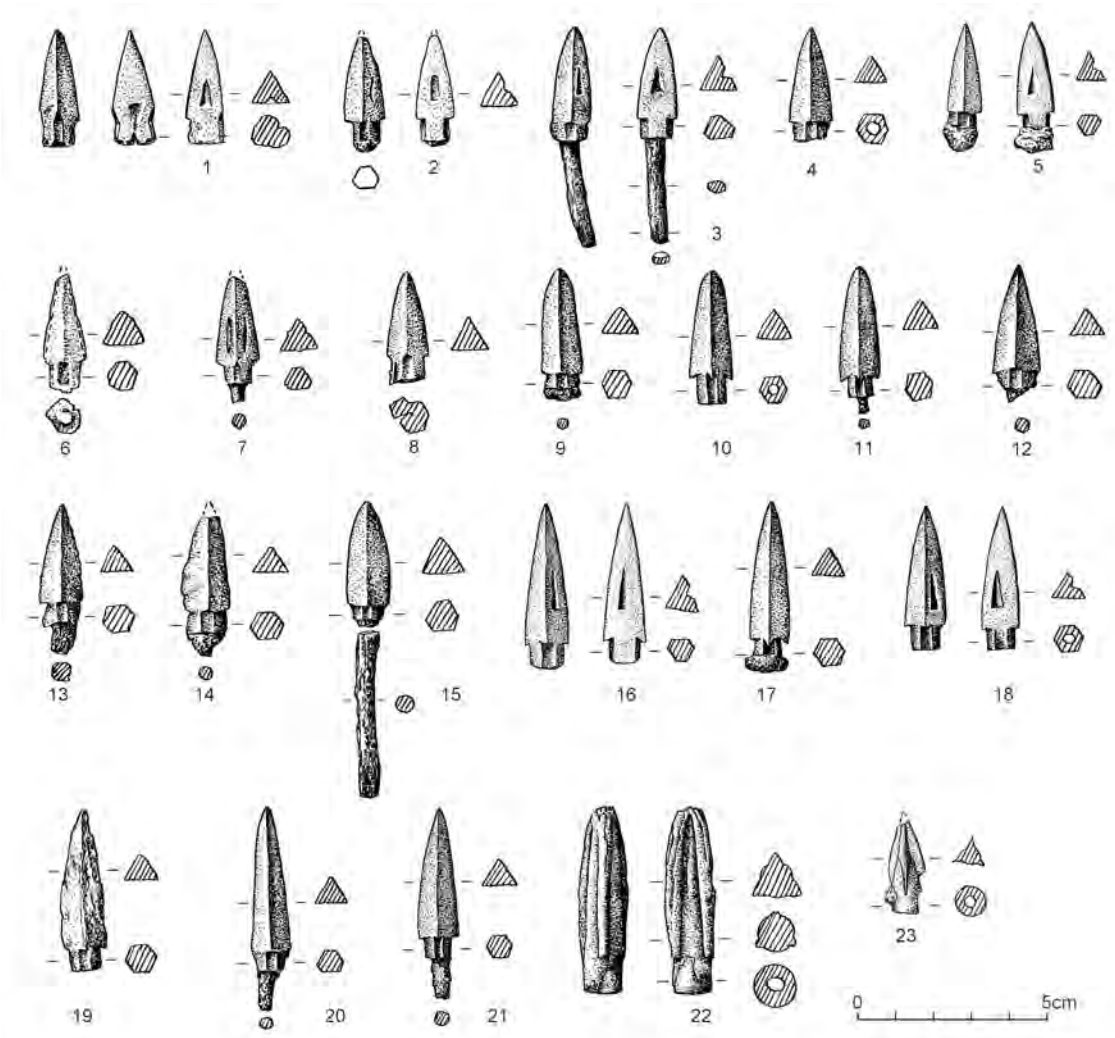


Fig. 17. Baian Bulag. Arrowheads from excavation area 2. 1–22 Bronze arrowheads with iron stem. 1 Inv. no. T2:286; 2 inv. no. T2:282; 3 inv. no. T2:353; 4 inv. no. T2:475; 5 inv. no. T2:90; 6 inv. no. T2:269; 7 inv. no. T2:293; 8 inv. no. T2:283; 9 inv. no. T2:476; 10 inv. no. T2:469; 11 inv. no. T2:470; 12 inv. no. T2:473; 13 inv. no. T2:474; 14 inv. no. T2:477; 15 inv. no. T2:285; 16 inv. no. T2:74; 17 inv. no. T2:471; 18 inv. no. T2:468; 19 inv. no. T2:472; 20 inv. no. T2:389; 21 inv. no. T2:467; 22 inv. no. T2:36. 23 bronze arowhead inv. no. T2:108.

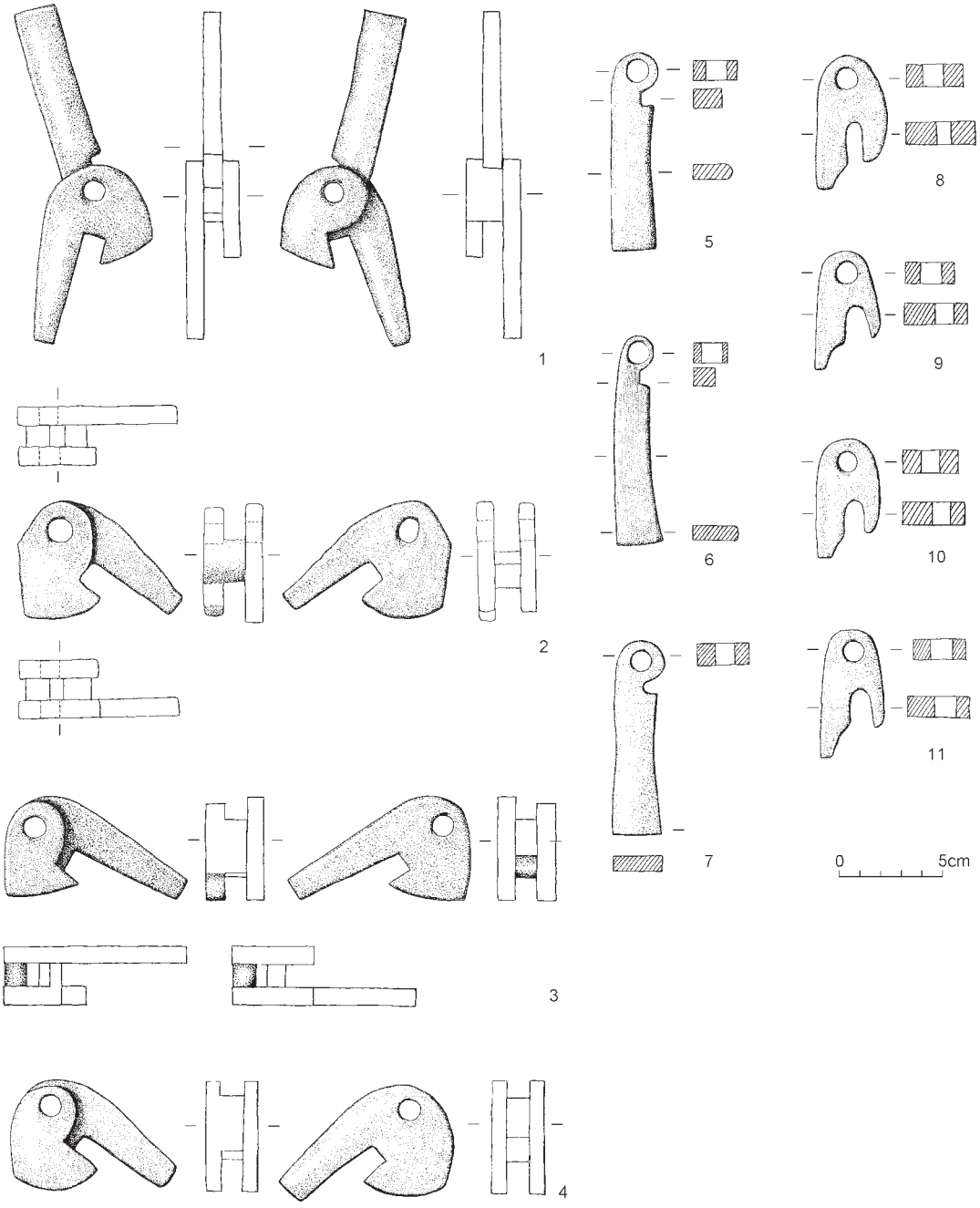


Fig. 18. Baian Bulag. Parts of crossbow locks from excavation area 2. 1 Inv. no. T2:411; 2 inv. no. T2:254; 3 inv. no. T2:395; 4 inv. no. T2:464; 5 inv. no. T2:352; 6 inv. no. T2:487; 7 inv. no. T2:47; 8 inv. no. T2:466; 9 inv. no. T2:465; 10 inv. no. T2:226; 11 inv. no. T2:148.

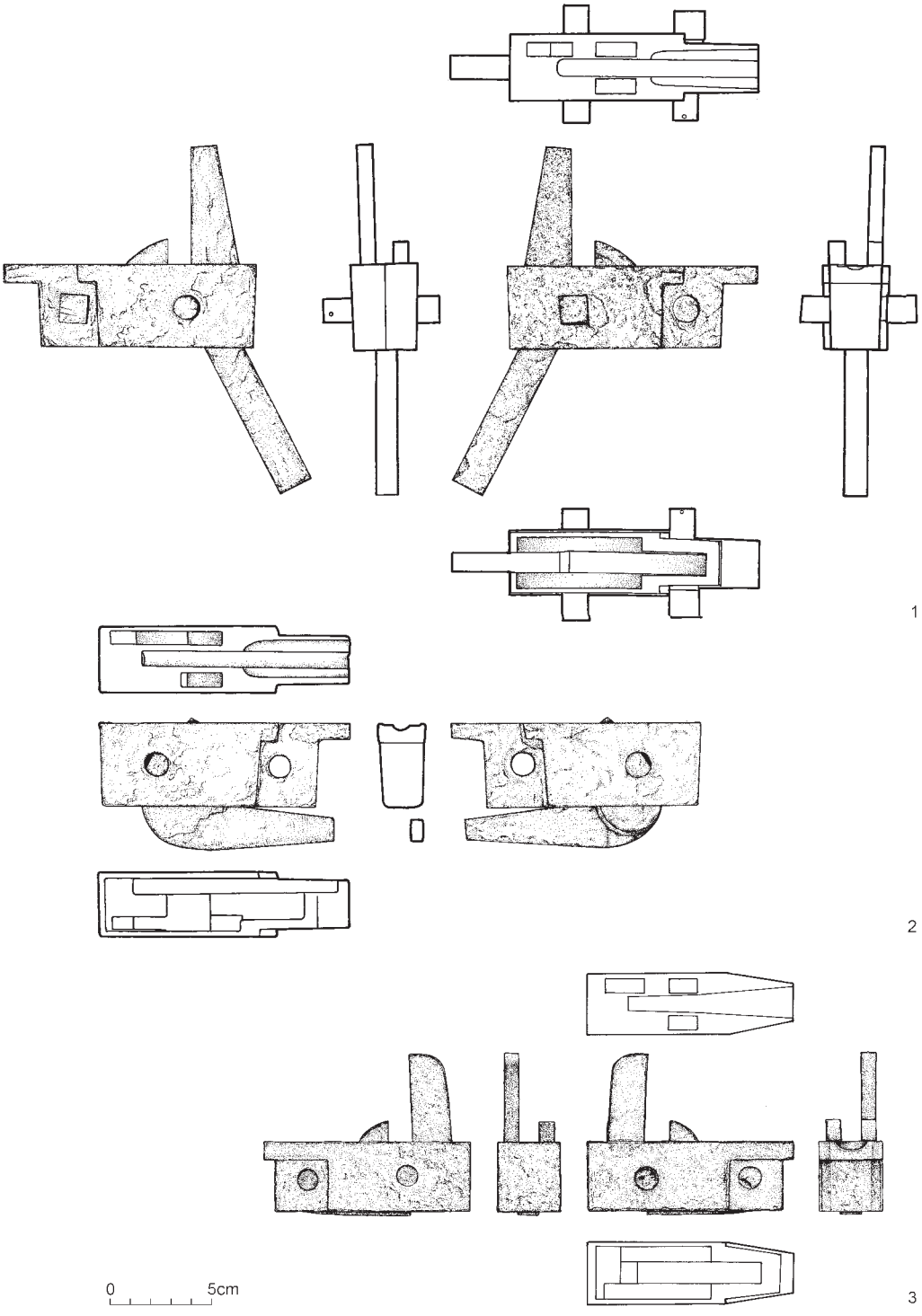


Fig. 19. Baian Bulag. Chance finds of crossbow locks. 1 Inv. no. C:99; 2 inv. no. C:138; 3 inv. no. C:144.

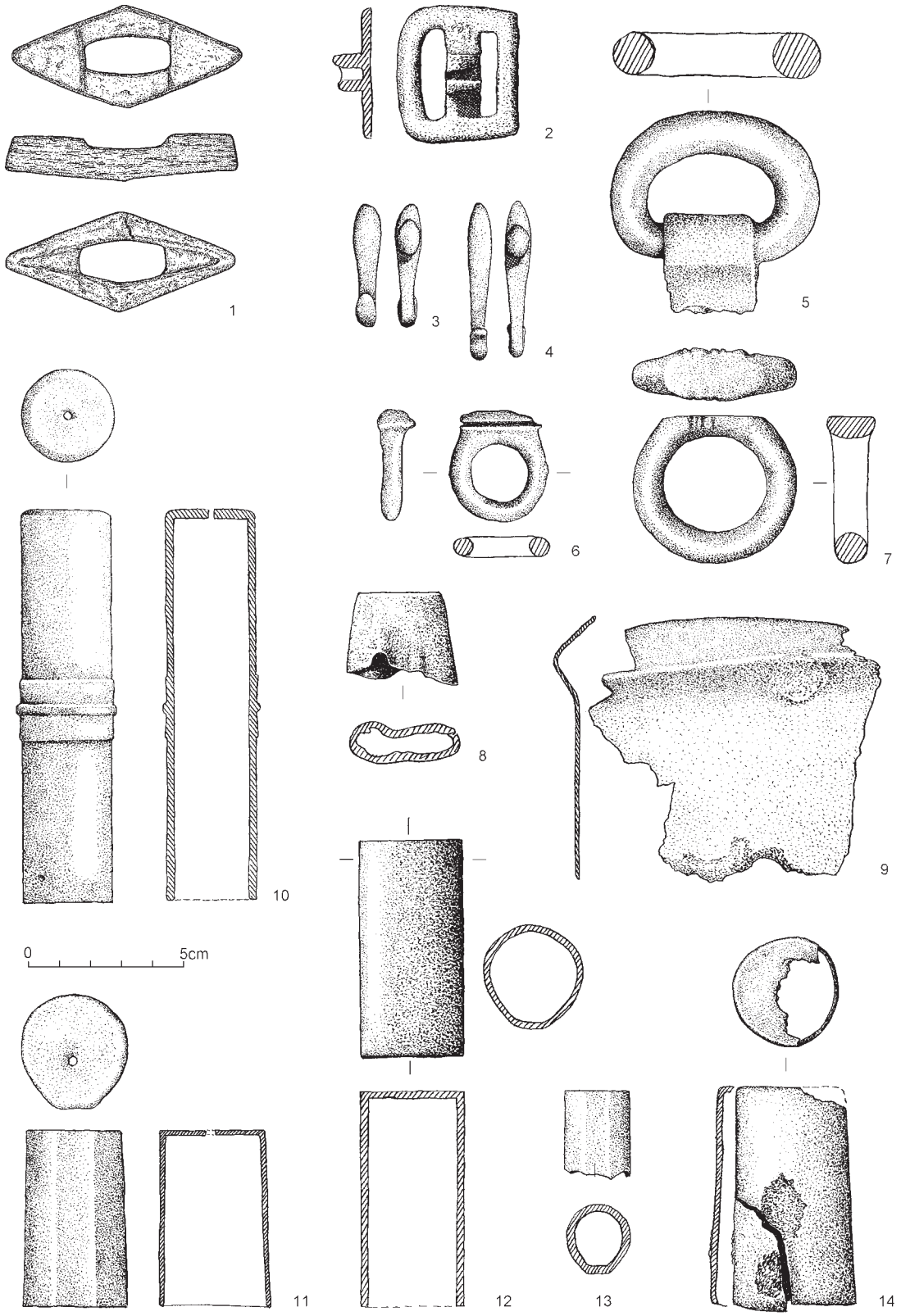


Fig. 20. Baian Bulag. Bronze artifacts. 1 Sword guard inv. no. T3:47; 2 belt buckle, probably with iron prong inv. no. C:32; 3, 4 belt hooks inv. nos. C:8, C:7; 5 ring-shaped attachment, at end of iron knife (?) inv. no. C:30; 6, 7 rings (inv. nos. C:3, C:29; 8 bell (?) inv. nos. T2:279; 9 fragment of cauldron inv. no. T2:502; 10–14 cylinder end pieces (handle-tips?) inv. nos. C:1, C:2, T2:486, C:38, T2:230.

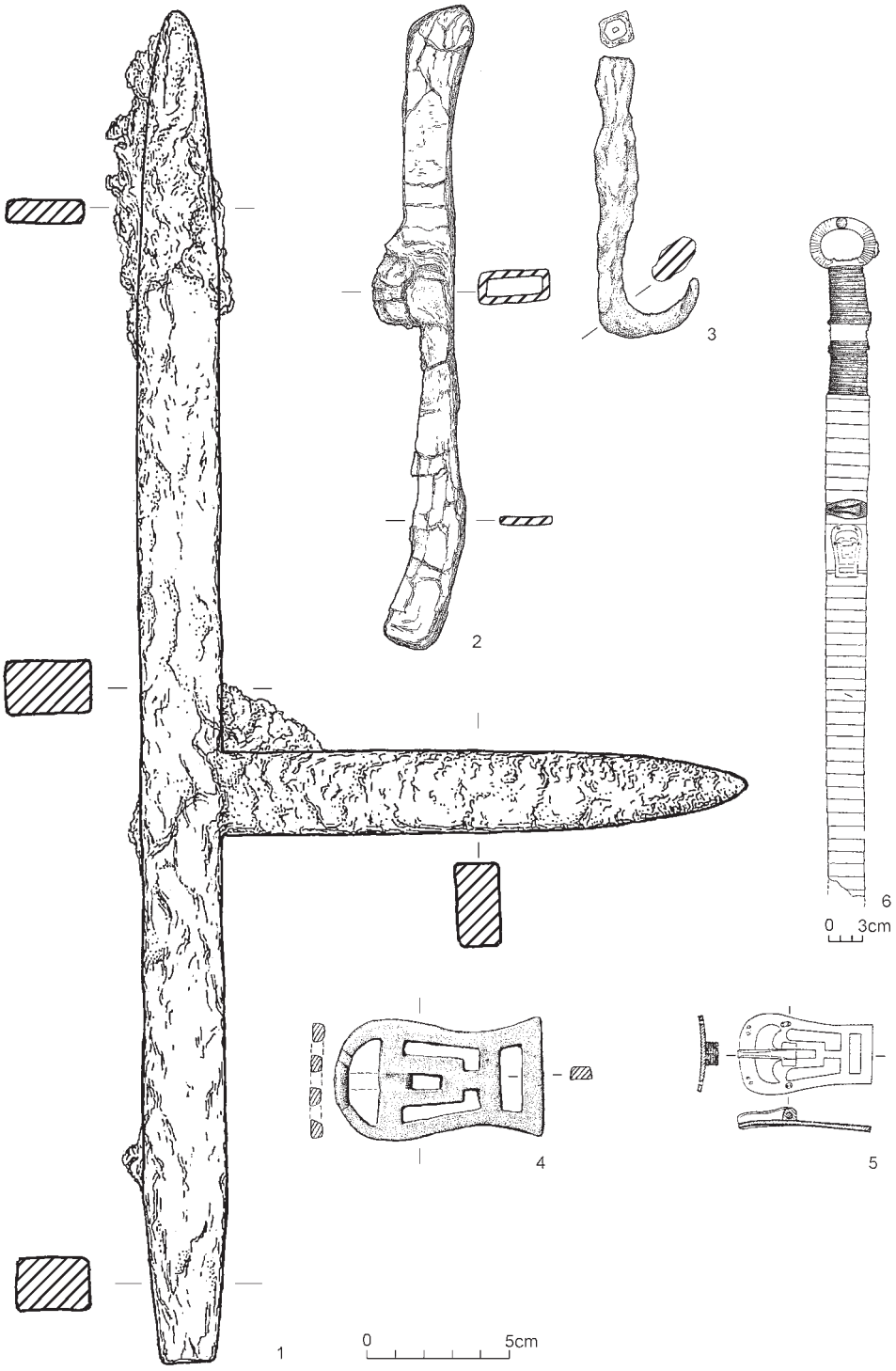


Fig. 21. 1–4 Baian Bulag. Tomb 1 burial goods. 1 Iron "ji"-halberd inv. no. M1:2; 2 iron cheek-piece inv. no. M1:3; 3 iron hook inv. no. M1:4; 4 bronze buckle with iron prong inv. no. M1:1. – 5, 6 Mancheng tomb 1. Han dynasty tomb of King Liu Sheng of Zhongshan. 5 silver buckle, 6 long knife with wooden sheath (after Zhongguo/Hebei 1980).

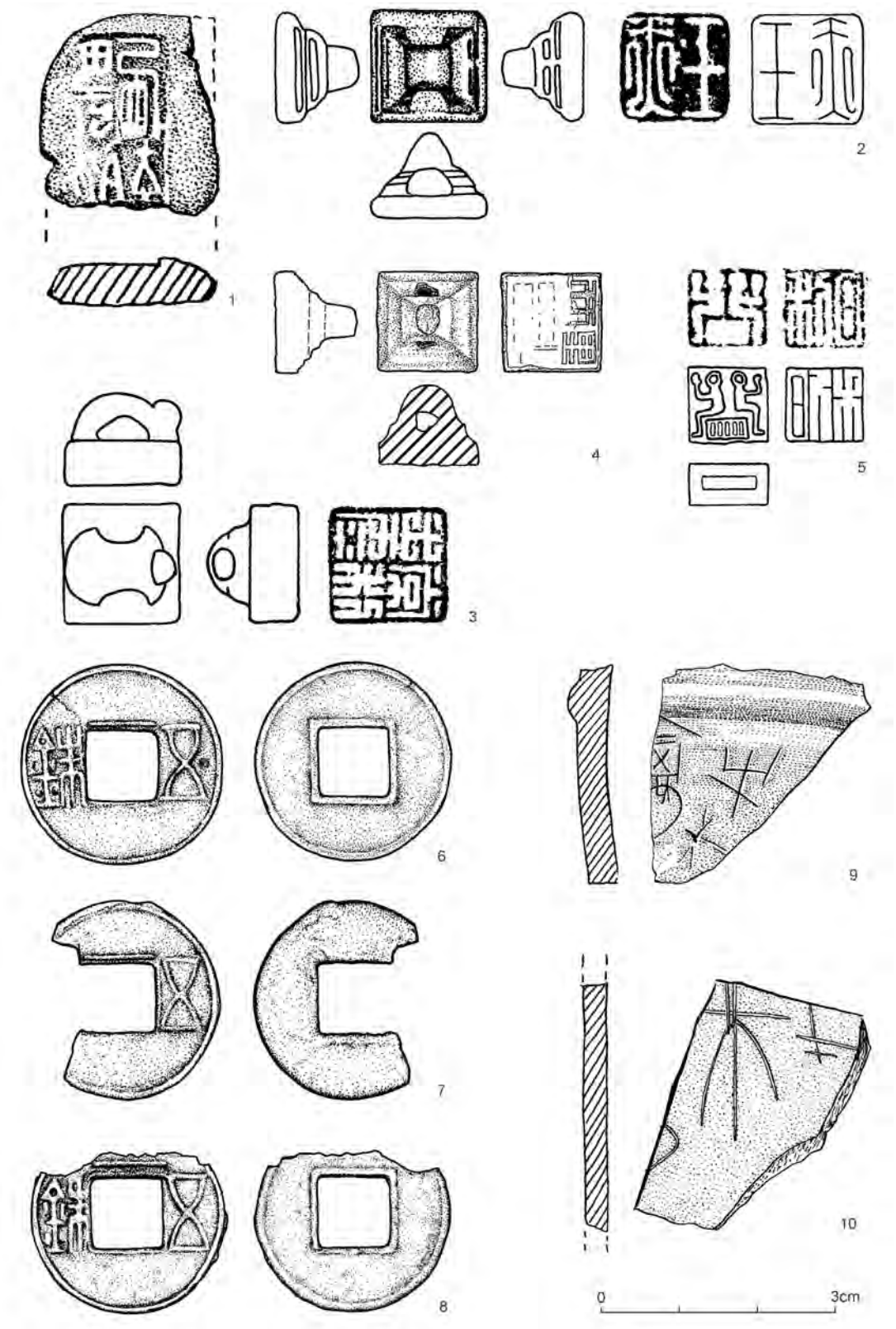


Fig. 22. Baian Bulag. Objects with inscriptions. 1 clay seal imprint inv. no. T2:520; 2–5 bronze seals inv. nos. C:1, C:142, T3:48, C:141; 6–8 bronze "wuzhu" coins inv. nos.T2:186, T2:246, T2:188; 9–10 ceramic fragments inv. nos. T2:518; T2:t144.

Artifacts with Inscriptions

We discovered four bronze "private stamps" (Fig. 22,2–5) and an earthenware stamp imprint for official documents in excavation area 2 (Fig. 22,1). Two of the four characters on the earthenware stamp imprint were severely worn, thus allowing us to decipher only two of the characters. The first character in the upper right corner is "xi"西, meaning "west". The second character, at the bottom right, is partially preserved, but, by our comparison to a similar Han stamp found in China (Sun 2006, 274), can possibly be read as "xuan"眩, though this is an unusual character for stamps of the Han time. Judging by analogous stamps, these characters could have been the designation of the position of the person who was sealing the document, and it was probably the beginning of a geographical name[14]. Of the geographical names that appear during the Western Han period, we know of only one that included this character "xuan". It is the name of the defense line known as Xuanlei sai, mentioned in the Geography chapter of the "Han shu". This line is situated west of the county fortress Zengshan and also west of the modern city of Ordos, in the Xihe district (Ban Gu 1962, 1618). Thus, "xi xuan" 西眩 could stand for "Western Xuan[lei]". The finding of this stamp at Baian Bulag supports our idea of identifying this site with Han Shouxiangcheng. Because in 71 BC the chief censor Tian Guangming had set out from Xihe district against the Xiongnu, probably to the west by the mentioned road, and reached Shouxiangcheng (see above).

In the same area we found two pieces of pottery with incised Chinese characters (Fig. 22,9–10). We also gathered 20 "wuzhu" coins within the excavated areas and during surface investigations of the surroundings (Fig. 22,6–8).

Dating of the Site

A series of six radiocarbon dates was obtained (Tab. 1).

Sample no.	Years BP	Calibrated 68.2% (1-sigma)	Calibrated 95.4% (2-sigma)
Le8786	2090 70 BP	210 BC (68.2%) 0 AD	360 BC (10.8%) 280 BC 260 BC (84.6%) 60 AD
Le8937	2150 50 BP	360 BC (23.1%) 290 BC 230 BC (2.4%) 220 BC 210 BC (42.7%) 100 BC	370 BC (95.4%) 50 BC
Le8938	2170 110 BP	370 BC (68.2%) 100 BC	500 BC (95.4%) 100 AD
Le8939	1900 70 BP	20 AD (68.2%) 220 AD	50 BC (94.0%) 260 AD 290 AD (1.4%) 320 AD
Le8940	1940 25 BP	20 AD (68.2%) 85 AD	0 AD (95.4%) 130 AD
Le8941	2000 40 BP	45 BC (58.4%) 30 AD 35 AD (9.8%) 55 AD	110 BC (95.4%) 90 AD

Tab. 1. Baian Bulag. Radiocarbon dates obtained the Laboratory of Radiocarbon analysis of the Institute of the History of Material Culture of the Russian Academy of Sciences, St. Petersburg. All samples are charcoal and taken from excavation area 2, except for Le8786, which was taken from excavation area 3.

14 Of a region, county, garrison, or other place in which an official or military commander of the Han would serve.

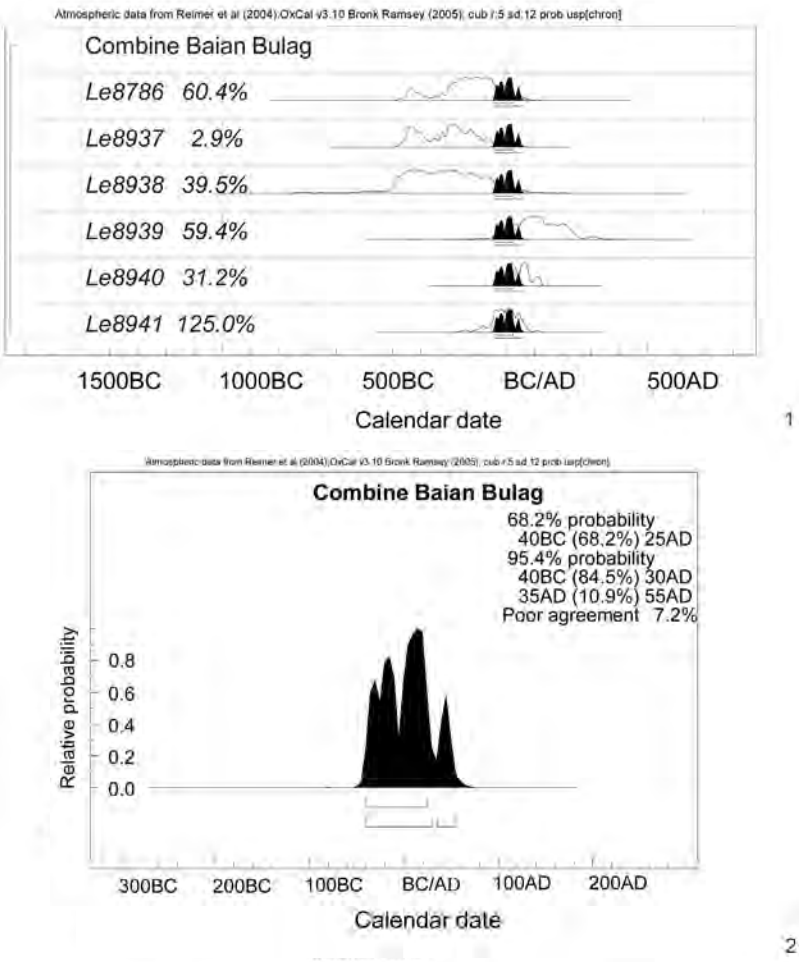


Fig. 23. Radiocarbon dates. 1 Multiplot of the combined radiocarbon dates; 2 single plot of the combined radiocarbon dates. Calibrated with OxCal 3.1.

A combined date, obtained by summing up the probabilities of the dates cited above, fits within a period from 40 BC until 30 AD with a probability of 84.5% (Fig. 23). This indicates that the settlement should have been functioning in the period of the later Western Han at least, though this particular date does not exclude that it could have been built in earlier times and have been left in a later period. Samples for dating were taken from different levels of excavation area 2, and may correspond with different stages of existence of the settlement. Thus for example the only sample analyzed from excavation area 3 (Le8786) produced a date which entirely corresponded to the Western Han period before the turn of the era; similar early dates indicating early to middle stages of the Western Han period were obtained from hearth remains found at the subsoil level within excavation area 2 (Le8937, Le8938). Samples from within the cultural layer of excavation area 2, Le8939, Le8940, Le8941 yielded later dates.

The nearest direct analogies to the material from Baian Bulag are found at the Han fortress of Chaolukulun, situated at a distance of 70 km. This site belonged to an "outer fortified line" network of the Western Han, which had been built in 102 BC. Fragments of similar vessels, mechanisms of crossbow locks, iron armor plates, arrowheads, daggers, iron spades, etc., were found there (Ge/Lu 1984a, 98 Fig. 3.; Ge/Lu 1984b, 102–103; Fig. 4; 5). Kovalev and Erdenebaatar (2008) have established that the western end of the genuine Guanglu line is located in

Chinese territory not far from the Mongolian border[15]. The Chaolukulun fortress[16], situated at the western extremity of this fortified line, must be the "Sulucheng" fortress, mentioned in the Geography chapter of the "Han shu" as the most western fortification in this defensive belt (Ban Gu 1962, 1620) (Fig. 1,1).

The ceramics from Baian Bulag bear a resemblance to examples from some settlements along the outer frontier of the Han Empire (Tieling 1996, 40–44, Pl. 7; 9; Jilin/Liaoning 1997, 139–142, Pl. 7; 8) as well direct analogies in the ceramics assemblages of settlements established in southwest Inner Mongolia during the Western Han[17]. The tiles observed at these Inner Mongolian settlements are also similar to those from Baian Bulag (Nei Menggu/Tuoketuo 2004, Fig. 44; Nei Menggu 1997, Fig. 8; 11), as are the knives, hoes, spades, plates, halberds, and arrowheads (Nei Menggu/Tuoketuo 2004, 197, Pl. 48,3.7; Nei Menggu 1997, 439–441, Pl. 12; 13; Nei Menggu 1984). Crossbow locks, stamps, arrowheads, iron knives, bronze rings, and bells like those found in Baian Bulag have also been excavated in frontier cemeteries of the late Western Han at Narin Tohoi, Bor Tolgoi, Sajin Tohoi, and Bulanggin Nur, as well as in the large tomb 51 at Zhaowan (Wei 1998, 36–37; 66; 101–103; 243–245; 262). Similar objects, such as crossbow locks are common in 1st century BC burials even as far south as present-day Guangzhou (Zhongguo et al. 1981, 145 Fig. 85,1.2).

The assemblage of iron artifacts unearthed at Baian Bulag, namely the "ji"-halberd, bronze-iron arrowheads, long daggers, hoes, spades, armor plates, the cheek-piece, wheel bushings, and iron cauldrons constitute a fairly complete list of typical Han Chinese iron artifacts and all belong to those types which were mainly usual for the Western Han period (Bai 2005, 163–191; 212–241; 243–244; 249–251). The collection of military equipment and soldiers' daily goods found at Baian Bulag corresponds with the set of goods from an armory of the Western Han period excavated in the Han imperial capital of Chang'an, which had been the capital of the Han Empire. Crossbow locks, iron "ji"-halberds, bronze and iron handle tips, bronze guards of swords, iron fighting knives, armor plates, a great amount of three-edged arrowheads with iron stems, a bronze caldron, bronze rings and tubes were found there as well (Zhongguo 2005, 80–117). The bronze belt hooks excavated at Baian Bulag also correlate to Western Han style belt hooks unearthed in China (Liu/Ji 2001, 496–497; Fig. 5). As it was mentioned above, the bronze buckle with iron prong excavated in grave 1 is directly analogous to the silver buckle of a sheath for an iron dagger, which was found in tomb 1 in Mancheng, Hebei province (Fig. 21,5.6). Archaeologists were able to identify this as the tomb of the famous Liu Sheng, the first ruler of the Zhongshan kingdom of the Han Empire, and as such it can be precisely dated to 113 BC (Zhongguo/Hebei 1980, 336–337).

One of the stamps excavated at Baian Bulag settlement (Fig. 22,5) is directly analogous to a stamp which bears the same inscription of "si yin", a "private stamp", and which comes from

15 Kovalev and Erdenebaatar (2008) state that the so-called "northern section of outer fortified line" is not a Han fortification as Chinese archaeologists suggested (Li 2001, 23–26), but the long wall of the Xixia dynasty (1038–1227 AD), and only the "southern section of outer fortified line" is the fortification built in 102 BC. 14C-dates obtained from fortifications of this "northern section" belong to the period from the 12th–14th century AD.

16 Its name is a transcription of the Mongolian words "chuluun kherem", which means "stone fortress".

17 In Huhehaote municipality the sites of Chenzuizi (Qingshuihe county), Heishuiquan (Tuoketuo county), Zhentaobuqi (Yulin); in Baotou municipality, the sites of Machi (Han Jiuyuan district town); and in Guyang county, the sites of Fengwan, Meilingshan, Chengliang, Xiachengwan situated in Guyang county (see Nei Menggu 2004, 109–112, Fig. 26–28; Nei Menggu/Tuoketuo 2004, 169–184, Fig. 29–38; Nei Menggu 1997, 435–438, Fig. 9–10; Baotou/Damao 2000, 85–88, Fig. 8–9; Li 1992, 421–422, Fig. 2).

the Western Han layer of the Xiaohuangdi settlement in Liaoning province (Jilin/Liaoning 1997, 149 Fig. 14,1; Tab. 8,2).

Many of the coins from the excavated areas were poorly preserved and thus their dating is difficult. However, excavation area 2 yielded three "wuzhu" coins which can be dated between the end of the 2nd and the end of the 1st centuries BC (Fig. 22,6–8)[18]. It is worth noting that no coin from the series produced during the Wang Mang interregnum (8–25 AD) has been found in the excavations or occasional surface findings. Thus the Baian Bulag site should be roughly dated to the first century BC, or, in specific historical terms, from the end of the reign of Han emperor Wudi (141–86 BC) through the reign of Han emperor Chengdi (33–7 BC).

The Baian Bulag Fortress as Shouxiangcheng of the Han Empire

The results of the excavations conducted in 2009 corroborate our proposed conclusion that the Baian Bulag "fortress" is in fact the Han frontier fortress of Shouxiangcheng. Aptly named the "City for receiving submissions", this fortress, as it is mentioned in the Chinese texts, was an important military base for launching campaigns and diplomatic center for receiving defective Xiongnu groups that would "submit" to the Han imperial court. According to chapter six of the "Han shu", this fortress had been built outside of the fortified line, under the order of emperor Wudi in 104 BC (Ban Gu 1962, 200). Chapter 110 of the "Shi ji" further reveals that Shouxiangcheng had been built in order to receive the Left Greater Duwei[19] of the Xiongnu, who had been plotting to turn traitor by submitting to the Han and killing the boy chanyu ruler of the Xiongnu. In the spring of 103 BC, Zhao Ponu led Han troops via Shouxiangcheng to unite them with this insurgent Xiongnu leader, but the plot was discovered and foiled by the boy chanyu and his armies, and subsequent attacks against the new Shouxiangcheng were mounted by the Xiongnu (Sima Qian 1959, 2915). After its initial creation, this site continued to play an active role in Han frontier history.

In 99 BC, the Han general Li Ling set out northwards from the fortress at Jiuyan lake, heading to the Gobi Altai, and received an order to proceed to Shouxiangcheng on his way back "to give a rest to the troops" (Ban Gu 1962, 2415). In 81 BC, Xiongnu had blocked the way of Han troops on the threshold of an offensive exactly in Shouxiangcheng (Ban Gu 1962, 3783). In 71 BC, troops under the leadership of chief censor Tian Guangming had passed via Shouxiangcheng where a Chinese garrison stayed (Ban Gu 1962, 3664). In 51 BC, the chanyu Huhanye, who had recognized the suzerainty of the Han, expressed his intention to protect the line of "outer fortifications" of the Han and, "in case of a danger", to take cover in the Han fortress of Shouxiangcheng (Ban Gu 1962, 3798).

The argument for Baian Bulag as the Han fortress Shouxiangcheng is strongly attested by the textual and archaeological data. No mention of the existence of this place is given after the Han period. Many scholars have identified it with Middle Shouxiangcheng, which had been built

18 These coins have a horizontal line above the opening. Coins with such a sign were issued between 118 BC and 5 AD (Zhongguo 1998, 326–330; 348–349; 353–358; 362–364; 373–377; 382–384).

19 The title of "duwei" refers to one of the high noble ranks in the Xiongnu imperial aristocracy.

during the Tang dynasty (618–907 AD), and the "Historical Atlas of China" has also adhered to this opinion (Tan 1996, 2; 17–18). However, in this atlas, Shouxiangcheng appears in the interior of the frontier lands of the Han Empire, on the inside of "the outer fortifications" and at the same time to the north from Beihe – the northern bend of the Yellow River – and the Yinshan mountains, that is north of Wuyuan and Shuofang. This does not correspond with the data on military operations of Han and Xiongnu in the first century BC. Bao Tong paid attention to this issue and correctly pointed out that Shouxiangcheng should have been situated northwest from the Jilu fortress and at the same time outside of "the Guanlu fortifications" (Bao 1992, 195–197). He based his conclusion upon the following facts. Chapter 110 in the "Shi ji" records that in 103 BC the troops of Zhao Ponu took to the field from Shuofang and advanced "northwestwards", and "on their way back" passed Shouxiangcheng (Sima Qian 1959, 2915). Thus Shouxiangcheng should be situated not to the north from Shuofang, but to the northwest. In 81 BC, the chanyu and his troops had taken up a defensive position against Han near Shouxiangcheng (Ban Gu 1962, 3783). This would have been impossible if Shouxiangcheng had been located within territory under Chinese control and thus within "the Guanlu outer fortifications". In 71 BC, the Chinese undertook a large-scale offensive against the Xiongnu. The plan of this operation revolved around troops under the leadership of the chief censor Tian Guangming which set out from Xihe district and reached Shouxiangcheng (Ban Gu 1962, 3664). Another army also took to the field at the same time from the Wuyuan district in the territory of Beihe, to the north of which the Middle Shouxiancheng of the Tang period was later built (Ban Gu 1962, 3786). Thus it appears that Tian Guangming had not crossed Beihe northwards, but had set out westwards from the Ordos. In the Geography chapter of the "Han shu" it is reported that there was a road from Sihe district to the fortified borderline which went to the west by the Zengshan county fortress, located west of the modern city of Ordos (Ban Gu 1962, 1618). This road led directly to the defense line named Xuanlei sai. If the inscription of "xi xuan - -" on the stamp excavated at Baian Bulag (see above) indeed signifies a western division of Xuan[lei], it supports the argument of Bao Tong. Thus the analysis of written sources of the Han period indicates that Shouxiangcheng was situated to the west or to the northwest of the upper bend of the Yellow River and on the outside of the "Guanlu fortifications". This corresponds with the location of the Baian Bulag site (Fig. 1,1).

As it is reported in "Han shu", in 71 BC the ill-fated military leader Tian Guanming had reached Shouxiangcheng and decided not to continue the march. Instead he "indulged in lust" with the widow of a garrison commander who had just passed away, "in the temple where the coffin with the dead husband still stood" (Ban Gu 1962, 3664). Thus, there should be a temple at the site of Shouxiangcheng. The constructions investigated in excavation area 3, covered with tiles that were carried from far away, was most probably built for religious purposes. It seems probable that the illicit sexual act had taken place exactly in this building.

Massive walls and fortified pits excavated within area 2 most likely correlate to a fortified armory of the Han garrison, and this completely corresponds with the historical evidence about the character of Shouxiangcheng in the wars with the Xiongnu. A lot of dog bones which were found here show considerable proportion of canine meat in the diet of Chinese soldiers and of the Chinese as a whole at that time (see Peng 1999).

Chinese soldiers, whose graves were discovered by our excavations, had evidently been the victims of brutal conflict with the Xiongnu. The terrible picture of executed captive warriors illustrates the ruthless nature of hostilities in the frontier that inspired horror among the Han populace.

ON THE WALLED SITE OF MANGASYN KHUREE IN GALBYN GOBI

Chunag Amartüvshin, Zham'ian-Ombo Gantulga, Dondog Garamzhav

In fall 2005, archaeologists followed a lead by the chief geologist D. Garamzhav of Ivanhoe Mines Mongolia Inc. and carried out a preliminary examination and documentation of a walled enclosure surrounded by a circular parapet. The walled site is located in the Galbyn Gobi northwest of the cave Gurvan Zeerdiin Agui in Khanbogd sum, Ömnögov' aimag, about 10 km from the Mongolian-Chinese border[1] (Fig. 1). No previous research exists for the site, but brief mention is given in the "Short History of Mongolian Weapons" by A. Damdinsüren (1990) to a place called Mangasyn Khuree, "monster circle". The author cites the existence of the site as information from the famous study of settlements in Mongolia by Kh. Perlee (1961), yet there is no information to be found on Mangasyn Khuree within Perlee's book. The fortified site of Baian Bulag is mentioned in Perlee's book, and it can be assumed that Damdinsüren obtained information on a complex called Mangasyn Khuree which he later confused with the ruins of Baian Bulag in the process of providing citations.

Layout of the Ruins

The ruins of the walled site are situated on an island of raised land between two arms of a previous river bed. The outer circular wall measures 595 m in diameter and is 2–5 m wide and about 50 cm high (Fig. 2). Today, there only remains a bow-shaped part of the parapet on the north side of the ruin, because the right arm of the river, flowing from northwest to southeast, had at some time flooded and destroyed the circular outer earth wall on the southwest side of the ruin.

About 200 m off the circular parapet toward the centre stands a square wall construction. The north and south side of the wall is each breached by an 18–19 m wide gate. The wall is 6–18 m wide and 1.62–1.7 m high. The northern wall is 130 m long, the western 140 m, the southern 130 m and the eastern 132 m. There are no traces of buildings to be found within the quadrangular construction. Nevertheless, there can be distinguished two short parallel walls going from the eastern wall to the west. Some stone structures with loose stones are located on the northwest

1 These works were carried out according to paragraph 17.10 of the "Mongolian Act on Protection of the Cultural Heritage": Soelyn öviig khamgaalakh tukhai khuul' (Ulaanbaatar 2008). Соёлын өвийг хамгаалах тухай хууль (Улаанбаатар 2008). The position of this site is N 42°33'45" and E 107°24'14".

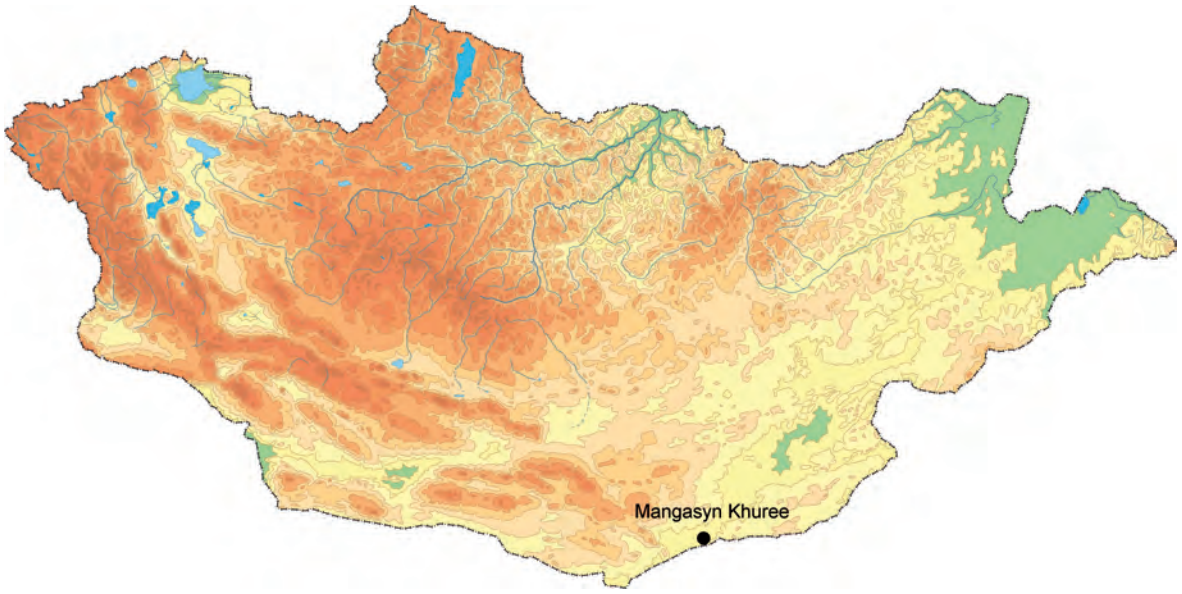


Fig. 1. Location of Mangasyn Khuree.

and south sides of the wall (Fig. 2,2). During the survey within the bow-shaped parapet and the walls, we found some items, such as a bronze arrowhead with iron shaft, a cast-iron axe, and ceramic sherds (Figs. 3–5).

Artifacts from the Ruins

The items found here can be subdivided into two groups: weaponry and household goods. The arrowhead with iron shaft and the axe are part of weaponry; the round stone object and ceramic sherds are part of household goods.

The bronze arrowhead with iron shaft is triangular with a very sharp point. The overall length is 3 cm, and the three sides are 1 cm wide at the lower end. The iron shaft is broken at the point of attachment; its diameter is 4 mm. The sharp edges of the three sides of the arrowhead are 2.3 cm long, the remaining parts were worked flatly (Fig. 3,1). Similar arrowheads were found in high quantities at the ruins of Baian Bulag, Ömnögov' aimag, and in the Borzongiin Gobi (Perlee 1961, 34–35; Batsaikhan et al. 1990, 4).

The iron axe was cast from a mold (Fig. 3,2). The opening of the shaft is broken, and the current length is 9.7 cm. Its width is 3.7 cm at the head and 1.7 cm at the point. The edge is greatly dulled, broken along the back, and partly creased, all which indicate high usage of this tool. More than ten similar iron axes were found in South Siberia at the ruins of the so-called palace near Abakan on the Yenisei (Kyzlasov 2001, 37–51 Fig. 14,1.4; 15,1–6; 17,1–3). This complex dates from the times of the Xiongnu, between the 2nd century BC and the 1st century AD.

The round object was made of a fine, brown sandstone. It is broken in the middle, and only one of the two halves remains (Fig. 4,1). The diameter measures 9.5 cm, and the thickness

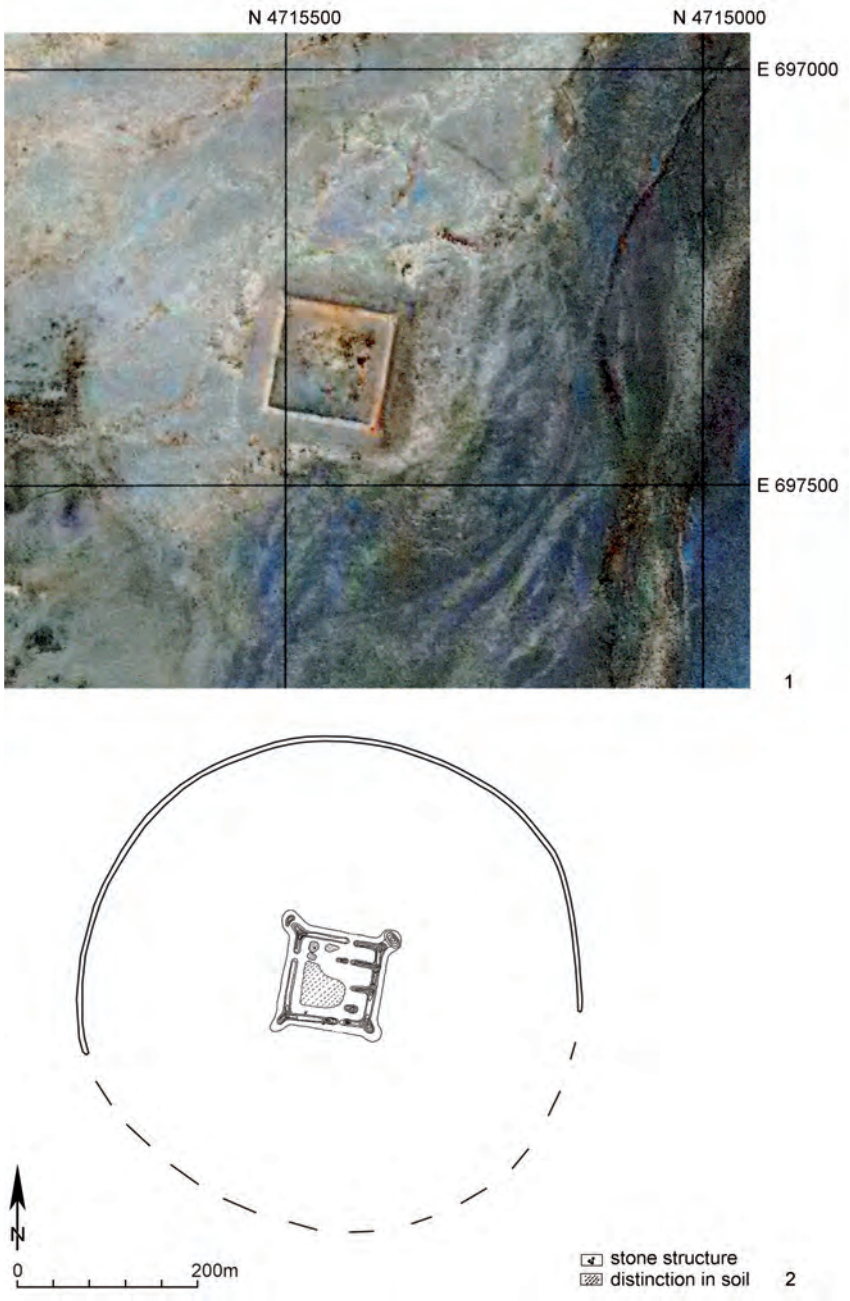


Fig. 2. Mangasyn Khuree. 1 Satellite image; 2 plan with suggested southern parapet.

1.6–1.8 cm. The top is straight, the fringes of the bottom are rounded. No comparable objects of utility are known, but it may have been a cover of some sort.

Many of the ceramic sherds are from vessels of fine gray-blue ware and made on a potter's wheel. Among them are rims of vessels with the edges bent outwards (Fig. 4,2–6). Most fragments of the ceramic vessels are decorated with stamps in the shape of swiveled wire/cords, and with parallel stripes (Fig. 5). Researchers discovered many fragments with identical patterns in excavations at the ruins of Baian Bulag in 1990 (Batsaikhan et al. 1990, 5).

Fig. 3. Mangasyn Khuree. 1 Bronze arrowhead with iron shaft, found north of the eastern dam of the wall; 2 cast iron axe, found between the wall and the circular enclosure.

Understanding Mangasyn Khuree

The preliminary findings and contexts of this site undoubtedly count it as one of many fortified settlements along the Gobi frontier region, and the assemblage of above mentioned finds indicates that people lived in the Mangasyn Khuree ruins. We may perhaps further understand the nature of the site and its function by exploring the possible meanings of its long-established local name[2]. The term "mangas" refers to female pumas, but it also denotes "manlike, evil carnivores," and may reflect local legends of monsters long ago "in the most northeastern promontory of Gurvan Zeerdiin Agui… [that] consumed human beings" – a threat so great that a curse-enhanced message was sent to Tibet and a great storm with its thunderous bolts were brought down to destroy the encroaching creatures (Tseveenzhav 1992, 13). "Mangas" also refers to the specific "wooden rabbit" year of the traditional Mongolian zodiac calendars (Damdinsüren 1995). If we accept the theory of Sükhbaatar (1980, 31–33) that the Xiongnu used a similar zodiac calendar, then we may begin to propose particular years in the past when this site may have been erected[3]. Although such specified dates, much less concepts of monsters, are

2 The "Extensive Glossary of the Mongol Language" was the main source for examining the root words of "mangas": Mongol khelnii delgerengui tailbar tol' (Ulaanbaatar 2008). Монгол хэлний дэлгэрэнгүй тайлбар толь (Улаанбаатар 2008) 1202 and "khuree": ibid., 2773.

3 During the period from the 3rd century BC to the 2nd century AD the year of the wooden rabbit occurred eight times: in the years 246, 186, 126, 66, 6 BC and in the years 55, 115, 175 AD.

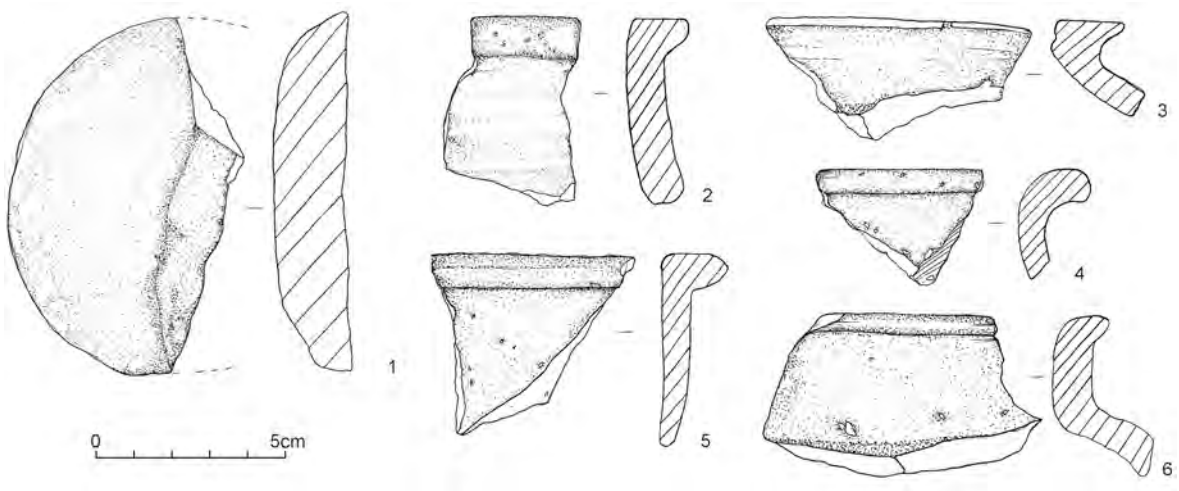


Fig. 4. Mangasyn Khuree, findings. 1 Circular stone object; 2–6 various ceramic rims.

improbable for historical considerations, we may still entertain the notion that a "monstrous" label was given to the site as a sobriquet which the locals of that time attributed to the Chinese soldiers or other encroaching foreigners. The word "khuree" often indicates a circular establishment, limit, or boundary, but associated meanings of military encampment, fortress, or army unit seem equally significant in this case. It therefore becomes clear that the term "khuree", applied by the locals, denotes the circular parapet around the square fortified complex, which had likely functioned as a military site.

The majority of the objects and structures found here may be equally correlated to a military establishment. Close analogies to the objects at Mangasyn Khuree are found among the ruins at Baian Bulag, Nomgon sum, Ömnögov' aimag. One of the first researchers of Mongolia, Kh. Perlee, emphasized historical documents that showed the Xiongnu traded with the Chinese and installed markets in the areas that bordered the Han Empire (Perlee 1961, 24–25). He also indicated that remains of a small wall were found on the northwest bank of an open gusher, at a place called Baian Bulag on the north fringe of the Borzongiin Gobi in the promontory of Khurkhiin Uul. He considered the patterned ceramic sherds, bronze arrowheads with iron shaft, and iron fragments found near the wall to all be objects from the Xiongnu period (Perlee 1961, 34–35). By comparison, we may then consider the ruins at Mangasyn Khuree to be of Xiongnu period.

Z. Batsaikhan has also studied the artifacts from Baian Bulag and compared its geographical position with forts mentioned in the historical sources. He has accordingly asserted that these ruins can be attributed to a construction in 123 BC of the Han warlord Zhao Xin, who descended from the Xiongnu (Batsaikhan 2002, 52). This conclusion is appropriate for the Baian Bulag ruins, and we propose that the Mangasyn Khuree ruins constitute a similar army fortification built at that particular time. The ruins of both Mangasyn Khuree and Baian Bulag are located in so-called northern Gobi, in the two great deserts of Borzongiin Gobi and Galbyn Gobi, respectively, and on the same 42nd northern latitude, 200 km away from each other. This is no coincidence, and it may be assumed that these comprise a series of army fortifications along the supposed "natural border" between the territories of the Xiongnu and those of the Han.

Fig. 5. Comparison of pottery sherds from Mangasyn Khuree and Baian Bulag.

NEW FINDS FROM THE XIONGNU PERIOD IN CENTRAL TUVA. PRELIMINARY COMMUNICATION

Pavel M. Leus

Introduction

Since 2007, a separate group of the Tuva Archaeological Expedition of the Institute of the History of Material Culture of the Russian Academy of Sciences has been engaged in studies of the Terezin cemetery, located at Chaa-Khol'skii kozhuun in the Republic of Tuva on the southern bank of the Saian-Shusheskoe reservoir (Fig. 1)[1]. Here, in a period of the greatest rise in the water level, beginning probably at the end of the 1980s, an active process of the destruction of the area along the shore has been underway (Fig. 2).

In the course of the work a section along the shore and the sand cliffs rising above it were studied, with the result that along some 1.5 km of the sandy beach were discovered crumbling and already completely destroyed burials, which had fallen from a height of 5–10 m onto the shore, and a collection of chance finds was made (Fig. 1,2). The burials of the cemetery apparently had been arranged in groups, separated by several hundred meters from one another. There were no structures over the graves or they were completely buried in sand; so more precise information about the layout of the cemetery could be obtained only after a geomagnetic study of the area.

To date twelve burials have been found in the cemetery, of which only three, graves 2, 9 and 12, are undisturbed or only partially disturbed. The remaining ones had fallen from the cliff onto the beach of the reservoir, apparently 5–15 years earlier. These burials consisted of an accumulation of stone slabs, which at some point had formed stone cists in which the burials were placed. In some cases the array of slabs occupied an area of up to 5 × 5 m, a fact which can be explained by the rather slow sliding of the slabs along the slope. As a result, they occupy a larger area than in the case of the sudden fall of all the slabs from the cliff. As a rule, human bones were not found among such concentrations of stone slabs. They had been carried off into the reservoir, been torn apart by animals or scattered by fishermen who frequent the area in summer and autumn. Nonetheless, some human bones can be found directly on the beach. Here one also encounters artifacts which had been in the graves.

1 The work is supported by the Society for the exploration of EURASIA (Switzerland) and I would like to express my deepest thanks to the president, Ch. Baumer (Hergiswil), for his constant support. Furthermore I would like to thank St. Belskii (St. Petersburg) for his help in the field and his work on the plan, as well as O. Shyyrap (Kyzyl) for the field-work, A. Mashesers-kaia (St. Petersburg) for the drawings, G. Höhn (Bonn) for her excellent work on the graphics and last but not least U. Brosseder (Bonn) for giving me the opportunity to publish this material in this volume. First preliminary information concerning the excavations were published in Leus 2008.

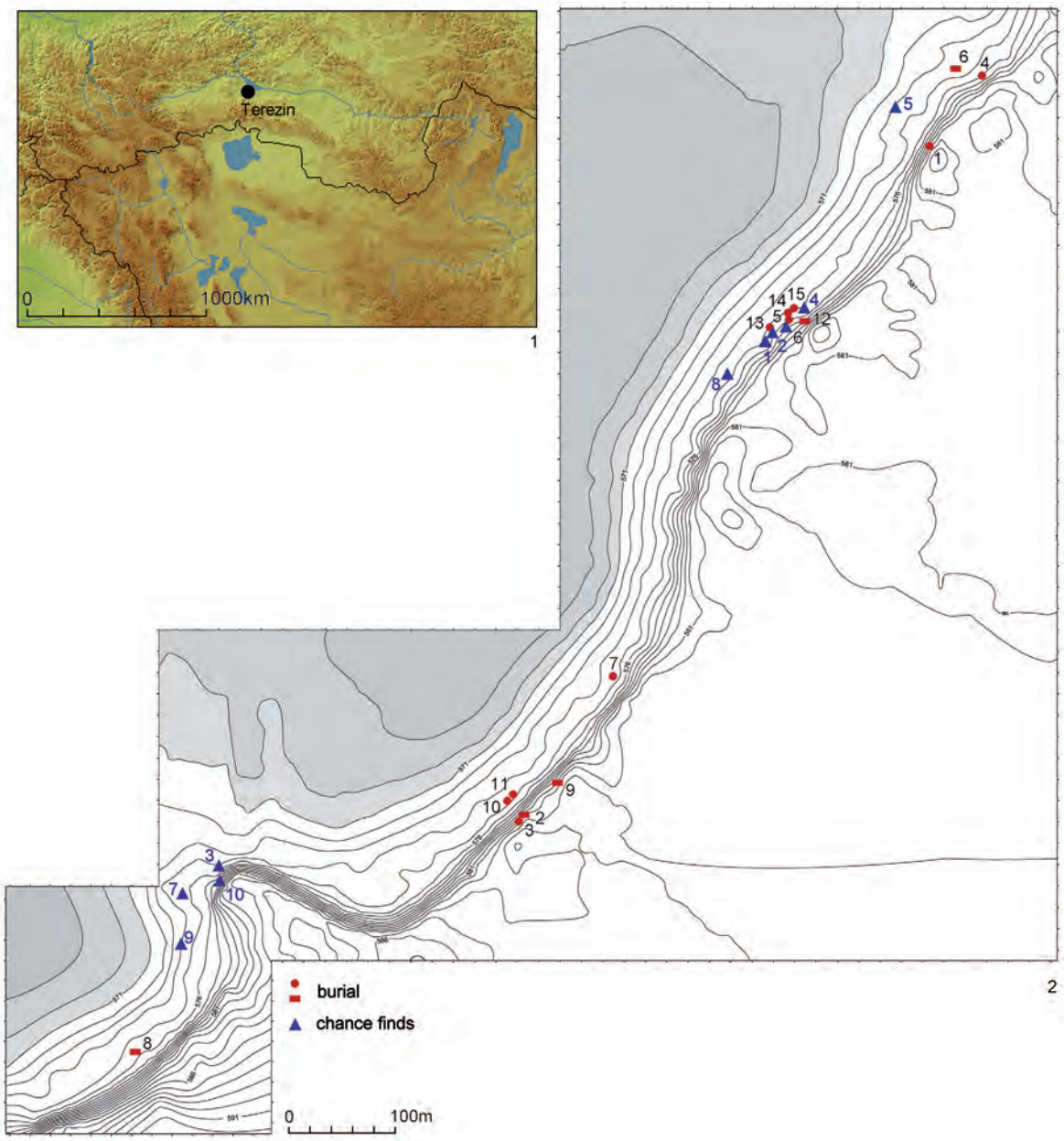


Fig. 1. 1 Location of the cemetery Terezin in Tuva at the Saian-Shusheskoe reservoir; 2 site map with find spots indicated. Numbers of the chance finds correspond with numbers on Fig. 20.

It is possible to find such concentrations of slabs on the beach only in the cases where they have not been covered by sand. Here one can use a metal detector, which did give some positive results. It made possible the location of a concentration of slabs, e.g. for grave 12, under which was a partial human skeleton and a large burial inventory. Sometimes human bones and metal objects were preserved among the slabs, squeezed between them. If the destroyed burial had no intra-burial structure, then it was practically impossible to find remains of it even after a single instance of the rise of the water level in the reservoir.

Fig. 2. Terezin. The situation along the shore of the Saian-Shusheskoe reservoir.

Burial Types and Artifacts

The burial practice in the Terezin cemetery was of two kinds.

Type 1 (Fig. 5,2.3; 14,3.4)[2]. Interment in a rectangular stone cist, whose walls and cover were of stone slabs. The bottom of the cist was sand. Possibly it had been covered by some kind of organic material which has not survived such as a mat or felt. Grave 2 was oriented to the NNE, grave 9 to the NE. The depth of the burial is not known precisely, since in all cases the top layer

2 On the basis of materials from the undisturbed graves 2 of a male and grave 9 of a female.

of sand already had disappeared, it had slid down the slope or been dispersed by the wind. However, judging from the level of the undisturbed contemporary surface alongside of the burial, the depth of the graves probably did not exceed 1–1.5 m.

The body was laid on the back, as in grave 9, or on the right side, as in grave 2, with the legs bent to the right (Fig. 5,3; 14,3.4). The burial inventory in each case included two ceramic vessels (Fig. 14,38.39), a narrow necked jar[3] and a wide mouthed jar, and in both cases the bones of a sheep were discovered. The burial inventory from the male burial 2 included bone plates of a composite bow of the "Hunnic" type (Fig. 5,4.5; 6,6.7) and a collection of various bone arrowheads (Fig. 6,8–14), including one with a split haft. At the waist of the interred were a horn buckle (Fig. 7,15) and traces of one or several completely corroded iron objects. Probably these were a knife and the belt plates. The inventory of the female burial 9 included three dozen various beads and five pendants (Fig. 14,5–37), two of bone, one bronze, one made of a bear claw and one striped polychrome bead. The shape of the bear claw pendant resembled a human foot. At the waist were found remains of a completely corroded iron object which could not be restored. Possibly it was a knife.

Type 2 (Fig. 4,1.2)[4]. The burial had no intra-grave structure. The body was laid out on its spine with the legs bent to the left and the head to the west. In the waist area of the interred were found an openwork bronze ring (Fig. 4,4) and an openwork bronze plaque depicting four snakes (Fig. 4,3). The objects had already been displaced from their original position. Unfortunately, this burial had been partly destroyed, many bones of the skeleton were missing, like the skull, hands etc., and, possibly as well some objects of the accompanying inventory. Nonetheless, below on the slope and on the adjacent beach nothing else was found.

Among the random finds of material on the shore of the reservoir, that is, objects not associated with one of the destroyed graves, one notes the following: a large mirror fragment of "white" lead-bronze (Fig. 20,5), which certainly is from the Han Dynasty period (2nd century BC – 2nd century AD) and is an import from China[5], a bronze spoon-shaped strap end (Fig. 20,3) and a trilobite iron arrowhead (Fig. 20,7).

Under the stone slabs of burial 5 a large bronze openwork plaque with cross-hatched ornament and the depiction of animal heads was found in 2008 (Fig. 11,2). A similar, but heavily corroded plaque was found in the vicinity in 2010 (Fig. 20,1). Also, about 3 m from the former find was a small bronze belt appliqué depicting two bulls en-face (Fig. 20,2). Among the slabs of burial 8 were a bronze three-winged socketed arrowhead (Fig. 13,4) and a unique bronze belt plaque decorated with six griffin heads (Fig. 13,3).

Among the slabs of burial 12 were parts of a human skeleton, including fragments of a jaw and teeth (Fig. 16,2.3)[6]. Here were preserved as well many parts of the belt array: a large bronze openwork plaque depicting the battle of two tigers and a dragon with a snake-like body (Fig. 17,1), five small six-petaled openwork appliqués (Fig. 17,6–10), another of them was found some 10 m from the pile of slabs (Fig. 20,6), and three bronze rings (Fig. 17,12–14). There was also a bronze mirror fragment typologically identical with the Chinese Han period mirror found on the shore, though clearly a copy of a fragment of such a mirror made in all likelihood by local craftsmen (Fig. 17,2)[7]. Moreover, there were three fragments of a hand-made ceramic jar (Fig. 17,3–5) and a bronze imitation of a cowry shell (Fig. 17,11).

3 Wheel-made and with the characteristic square stamp on the bottom.
4 Based on materials of the destroyed grave 1.
5 Established on the basis of analysis of the composition of the metal. See the article by Khavrin, this volume.
6 One of the teeth was removed for AMS radiocarbon dating.
7 See metallurgic analysis of this mirror fragment by Khavrin, this volume.

More artifacts were found in the excavation season of 2010 in which we recovered the remains of burials 13 to 15. Among the stone slabs of burial 13 we found a massive belt plaque with the depiction of two bulls (Fig. 18,2). Another one, but of smaller size (Fig. 19,3), was discovered among the stone slabs of burial 14 together with an openwork round ring (Fig. 19,4). In grave 15 we did not find anything and only documented the slabs of the stone cist. The burials 13 to 15 probably slid down about ten years ago. In the area of those last three burials another bronze openwork cauldron-shaped pendant was found (Fig. 20,4) but its connection with any of the graves is unknown.

Dating and Cultural Attribution

The cultural attribution and dating of the burials in the Terezin cemetery enable one to take a fresh look at the historical processes in Tuva at the beginning of the Hunno-Sarmatian period. Previously there had been no discoveries of Xiongnu openwork bronzes in Tuva, with the exception of an openwork bronze belt appliqué depicting the battle between a tiger and a griffin in a secondary burial of the Urbiun III cemetery located in the area flooded by the Saiano-Shushenskoe Hydroelectric Station (Savinov 1969). The burial was entirely contained in a stone cist, the interred lay with the head to the north and on the right side with legs bent to the right. In addition to the bronze appliqué, there were two ceramic vessels, bone plates for a bow of the "Hunnic" type and bone arrowheads, among them one with a split haft. Here as well were an iron knife and several iron buckles. The excavator dated this burial to the 2nd–1st centuries BC (Dluzhnevskaia/Savinov 2007, 67). Thus, judging from the burial inventory, this grave was practically identical to grave 2 in the Terezin cemetery.

This grave and analogous ones have been classified by A. Grach as belonging to a distinct Ulug-Khem culture (Grach 1980, 38) dating to the 1st century BC and chronologically succeeding the Saglyn culture of the Scythian era. The designation of these monuments as a distinct archaeological culture has been criticized (Dluzhnevskaia/Savinov 2007, 65).

Burial no.	Sample no.	Years BP	δ^{13}C-value
2	Ua-37039	2085±30	-16,3‰
9	Ua-38546	2066±30	-14,1‰
12	Ua-38547	2044±31	-13,8‰

Tab. 1. Radiocarbon dates for Terezin burials.

Absolute dates were obtained in 2009 for graves 2, 9 and 12 of the Terezin cemetery giving a *terminus post quem* for the 1st century BC (Tab. 1; Fig. 3)[8].

The burial inventory of the Terezin cemetery contains objects directly analogous to those in the classical Xiongnu burials of Transbaikalia and Mongolia and as well to the Ordos bronzes

8 The teeth of the interred were used for dating. These were the first absolute dates for this period in Tuva. AMS radiocarbon dating was carried out in the laboratory of Uppsala University in Sweden.

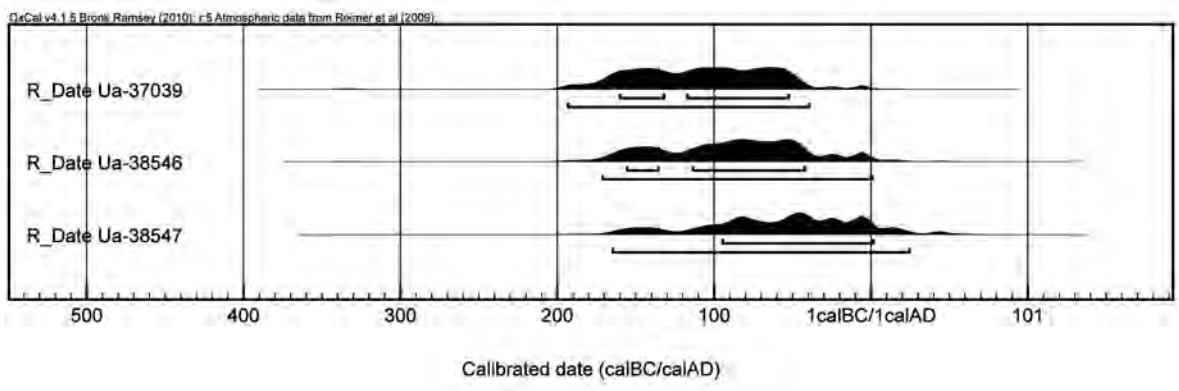


Fig. 3. Terezin. Multiplot of the radiocarbon dating achieved from teeth. Calibrated with OxCal 4.1.

in northern China. Some analogies can also be found in the monuments of the Minusinsk Basin and in the Altai. The characteristic bone bow plates, bone arrowheads with split haft, and trilobite socketed bronze arrowheads are widely distributed among the Xiongnu burials of Transbaikalia (Davydova 1996, Fig. 32; Miniaev 1998, Figs. 13–14).

Ceramic jar-shaped vessels with vertical burnishing and a square impression from the pottery wheel on the bottom are analogous to materials found, for example, in the Ivolga cemetery (Davydova 1996, Pl. 44). The triangular polychrome pendant has direct analogies, for example in a deposit in the village of Znamenka in Khakasiia (Vadetskaia 1999 Fig. 87). Such pendants are well known as well in the northern littoral of the Black Sea, where their chronological distribution extends from the 1st century BC through the 2nd century AD, but they are most common at the turn of the era (Alekseeva 1978, 43; Pl. 27; Lankton 2003, Fig. 6.0, No. 568).

Bronze openwork buckles and appliqués also were characteristic of Xiongnu artistic traditions. Large belt buckles depicting snakes are known from the Kosogol'skii hoard, from graves and also as chance finds in the Minusinsk Basin (Devlet 1980, Fig. 6; Pl. 13–14), and also in Xiongnu burials in Transbaikalia (Davydova/Miniaev 2008, Fig. 100). The same is true of the large openwork rings (Davydova/Miniaev 2008, Figs. 49; 70; 92).

Large belt buckles with crosshatched ornament and depicting the heads of animals are well attested in the Minusinsk Basin (Devlet 1980, Pl. 16–17).

Small openwork appliqués depicting two confronting bulls, or yaks, as yet have no direct analogies, although stylistically they may derive from the well-known large belt plaques depicting two facing bulls or yaks, which are also found in the Terezin cemetery, in burials 13 and 14 (Fig. 18,2; 19,3)[9]. Similarly, so far no direct analogies have been found for the small belt appliqués from grave 12 (Fig. 17,6–10). The belt buckle from grave 8 depicting the heads of griffins, typologically similar to several buckles from the Kosogol'skii hoard and from Transbaikalia, also so far has no stylistic analogy (Fig. 13,3).

There are several direct analogies to the belt plaque depicting the battle of two tigers and a dragon (Fig. 17,1). Apart from accidental finds, there are only four known instances where such buckles have been found in situ in graves and these are executed in different materials[10]. In bronze: two buckles in the female tomb 100 of the Ivolga cemetery (Davydova 1996, 51–52;

9 For comparable belt plaques in the Minusinsk basin see Devlet 1980, Fig. 6.

10 See also Brosseder, this volume. M. Erdy has devoted an article to these buckles, although he does not take into account all the known finds (Erdy 2003–2004).

Pl. 30); two buckles in tomb 5 at the Bulak cemetery in eastern Transbaikalia (Kirillov et al. 2000, Fig. 63); one buckle in burial 4 on Osinskii Island, in the Bratsk reservoir (Smotrova 1982, 106). A fragment of such a buckle from the Adrianov collection is in the State Hermitage Museum in St. Petersburg (Devlet 1980, Pl. 11). Its exact place of discovery is unknown, but probably it is from Southern Siberia or Mongolia. There are also two bronze buckles in the USA, one in the Arthur Sackler collection (Bunker 1997a, 274–275 No. 242)[11] and one in the Tony Anninos collection (Bunker et al. 2002, No. 105). The provenance of these buckles is also unknown, though possibly it is Mongolia. In gold: two massive cast, not openwork, gold buckles with incrustation of turquoise, coral and amber were found during the excavation of barrow 1, grave 2, of the Sidorovka cemetery in the Irtysh river region around Omsk (Matiushchenko/Tataurova 1997, 48; 72–73, Fig. 27; Bunker et al. 2002, Fig. 45). An openwork plaque made of dark gray-green jade is in the collection of Sir Joseph Hotung in Great Britain (Rawson 1995, 311–312, No. 23,1; Bunker et al. 2002,134, No. 106). Its precise provenance is unknown, but a similar type of jade is found only in Northern Mongolia, west of the Khangai mountains (Linduff 1997, 88).

Mirrors of the Han Dynasty period are widespread in Inner Asia. A direct analogy to the mirror found in the Terezin cemetery comes from the Gornyi Altai, and is, according to analysis of the metal, a local copy of a Chinese import (Tishkin 2006, 113–114 Fig. 1,3). A mirror fragment from Terezin is Chinese work, and the fragment of an analogous mirror from grave 12 is its local copy (see Khavrin, this volume). The appearance of mirrors of this type is limited to the period of the 2nd to the end of the 1st centuries BC (Masumoto 1993, 251).

It is abundantly evident that the material culture of the population which was interred in the Terezin cemetery is almost entirely identical to the culture of the Xiongnu, including such elements as artistic bronze, weapons, and ceramics. At the same time, the burial practice differs from that of the Xiongnu and from the practice of the preceding culture of the Scythian period, although it preserves certain features of the latter.

Monuments of the Xiongnu themselves in Tuva are known (Mandel'shtam/Stambul'nik 1992), although full reports remain unpublished. At the Bai-Dag 2 cemetery, also in Central Tuva, were excavated large stone ramped mounds with deep burial pits (see Nikolaev 2003). The interments were in richly decorated coffins placed in wooden chambers. The burials themselves had been looted, but the preserved objects of the burial inventory and the funerary ritual make it possible to consider that this monument is to date the only obvious evidence of the presence of the Xiongnu in Tuva.

Interesting results were obtained earlier in the excavations of the Aimyrlyg XXXI cemetery, also located in Central Tuva. Here about 200 graves were excavated, the majority of them unlooted. Here too were encountered the kinds of burial rituals known from the Terezin cemetery. At the same time, a series of finds made it possible not long ago to convincingly attribute this cemetery or at least some part of its burials if not to the Xianbei, then to tribes influenced by them (Khudiakov et al. 1999). Unfortunately the materials from the Aimyrlyg XXXI cemetery remain virtually unpublished, and their precise date is unknown. Only some insignificant general information and individual finds have been published (Stambul'nik 1983; Mandel'shtam/Stambul'nik 1992)[12].

11 Formerly in the C. T. Loo collection in Paris. E. Bogdanov (2006, 69) described this buckle erroneously as two different buckles from two different collections. But the collection of C. T. Loo later became part of the collection of A. M. Sackler (Bunker 1997a, 1; 274), and there is in fact only one buckle.

12 An in-depth analysis of the human remains for all periods of interments at Aimyrlyg was conducted by E. M. Murphy (2003).

CONCLUSION

Who were the people buried in the Terezin cemetery? It is premature to answer that question. Possibly this represents a not yet completely formed local post-Scythian culture which had already completely assimilated Xiongnu material culture but retained elements of the burial rituals of Scythian times. Or this was a population group of those who were culturally close to the Xiongnu and who came to Tuva with them? A precise answer to this question may be possible with further excavation of the Terezin cemetery and the multidisciplinary analysis of the materials obtained there. The anthropological aspect of the question is important: did the people buried there belong to an autochthonous population of the Scythian period, were they a completely new group, or was their composition mixed?

The further excavations of the Terezin cemetery, carried out using contemporary methods will probably provide an answer to a series of questions surrounding this set of problems in Tuva.

[translated from Russian by Daniel C. Waugh]

BRIEF CATALOGUE OF THE BURIALS

Burial 1: On the border of the steep slope, partly destroyed and without any burial construction (Fig. 4,1.2). Only part of the skeleton was found: bones of the legs and pelvis, spine and some ribs. The buried person was placed with the head oriented toward Southwest, on the left side with bent legs. At the belt we found a massive open-work belt plaque with a snake ornament (Fig. 4,3) and an openwork ring (Fig. 4,4).

Burial 2 (Fig. 5–7): On the border of the steep slope. Stone cist, with one side and some cover stones that had fallen down the steep gradient (Fig. 5,1–3). The burial construction was a rectangular stone cist with stone slabs covering the cist. The buried person was placed with his head toward Northeast, on his right side with bent legs. On the back side of the deceased two complete vessels, a narrow-necked jar (Fig. 7,17) and a pot (Fig. 7,18), were placed, one behind his spine, one near the ankles. In the pot sheep bones were found. In front of the deceased the bow strengtheners of a composite bow ("hunnic" type) were found (Fig. 5,4.5; 6,6.7). Toward the legs seven bone arrowheads of various types were recovered (Fig. 6,8–14). At the waist a belt clasp made of horn (Fig. 7,15) and completely corroded iron fragments, probably remains of the belt, were found. The corrosion was so bad that they could not be taken for restoration in order to identify the pieces correctly.

Burial 3 (Fig. 8): Close to Burial 2; a stone cist with the remains of a child, fallen down the slope and completely destroyed. Among the stones were fragmented bones of a child.

Burial 4 (Fig. 9): Remains of a stone cist on the "beach" – it probably slid down the slope not more than five years ago. Under the remaining stone slabs we found the femur of a child. No other findings.

Burial 5: Remains of a stone cist made from huge stone slabs on the beach (Fig. 11,1). It probably slid down the slope not more than ten years ago. Among the stone slabs a bronze openwork belt plaque with geometric "step" ornament was found (Fig. 11,2) and a bronze appliqué, depicting bulls "en face" (Fig. 11,3). Three meters of the stone accumulation we found another one, which probably belong to the belt (Fig. 20,2).

Burial 6: Remains of a stone cist on the beach (Fig. 12). Probably slid down the slope not more than 10–15 years ago. Under the stone slabs we found single leg bones of a child. No other findings.

Burial 7: Remains of a stone cist on the beach (Fig. 10,1). Probably slid down the slope not more than ten years ago.

Burial 8: Remains of a stone cist on the beach (Fig. 13,1.2). Probably slid down the slope not more than ten years ago. Under the stone slabs we found a massive openwork belt plaque with depictions of griffin heads (Fig. 13,3) and a bronze three-winged arrowhead (Fig. 13,4). No other findings.

Burial 9: Undisturbed burial in a stone cist (Fig. 14), about 1.5m from the edge of the slope, found with the help of a metal detector. The deceased, a woman, lay on her back with bent legs and her head oriented toward NE. The stone cist was constructed from massive stone slabs and was covered with two rows of slabs. At the neck and the chest 28 beads and five pendants were found (Fig. 14,5–37), among them a polychrome one and one from a claw (bear?). Left of the head a pot was deposited (Fig. 14,39), in which sheep bones were found and to the right of the head a narrow-necked jar was deposited (Fig. 14,38). In the area of the belt completely corroded iron fragments were found, which we could not take to restoration, possibly it was a knife (?).

Burial 10: Remains of a stone cist on the beach (Fig. 15), which had fallen down not more than five years ago. No findings.

Burial 11: Remains of a stone cist on the beach, which had fallen down not more than five years ago. No findings.

Burial 12: Remains of a stone cist made of massive stone slabs (Fig. 16), which had slid down the slope not more than five years ago. Soon after the slabs were covered by sand and under them a burial inventory and some bones of the human skeleton, the upper mandibula with teeth were preserved. From the burial inventory we found three pottery sherds (Fig. 17,3–5), a fragment of a bronze mirror (Fig. 17,2), a big openwork bronze belt plaque with the depiction of a dragon fighting with two tigers (?) (Fig, 17,1), three little bronze rings (Fig. 17,12–14), six small bronze openwork plaques with geometric design (Fig. 17,6–10) and a cowry shell imitation in bronze (Fig. 17,11).

Burial 13: Remains of a stone cist of massive stone slabs, which had slid down the slope not more than ten years ago (Fig. 18,1). Among the slabs we found an openwork bronze belt plaque with the depiction of two bulls/yaks (Fig. 18,2). No other findings.

Burial 14: Remains of a stone cist of massive stone slabs (Fig. 19,1.2), which had slid down the slope not more than 10 years ago. In between the slabs we found a rectangular bronze openwork belt plaque depicting two bulls/yaks (Fig. 19,3) and an openwork bronze ring (Fig. 19,4) as well as the fragment of the bottom of a pot. No other findings.

Burial 15: Remains of a stone cists on the beach, which had fallen down not more than 10 years ago. No findings.

Chance finds: Along the beach we found several artifacts from destroyed burials, which could not in all cases be attributed to any of the burials. Three of the findings have to be attributed to later periods.

Artifacts from the Xiongnu period
A heavily corroded bronze openwork belt plaque, identical to the one from burial 5 (Fig. 20,1).
A little bronze openwork plaque with two bulls/yaks en face, was found in the vicinity of burial 5 and probably belongs to burial 5 (Fig. 20,2).
A bronze spoon-like pendant (end strap) (Fig. 20,3).
A bronze openwork pendant in the shape of a "cauldron" (Fig. 20,4).
Fragment of a Chinese mirror made of 'white' bronze (Fig. 20,5).
A bronze openwork plaque with geometric design; found in the vicinity of burial 12 and belongs probably to this burial (Fig. 20,6).
Iron, three-winged arrowhead (Fig. 20,7).

Artifacts from other periods
Chinese post-Han "wuzhu" coin (perhaps minted in mid-sixth century AD); perhaps connected with trade during the earlier period of the Old Turks (Fig. 20,8).
Gold foil with vegetal ornament, probably Old Turkic period or, possibly also Mongolian period, 13th to 14th century AD (Fig. 20,9).
Bronze plaque, possibly 13th to 14th century AD (Fig. 20,10).

[translated from Russian by Ursula Brosseder]

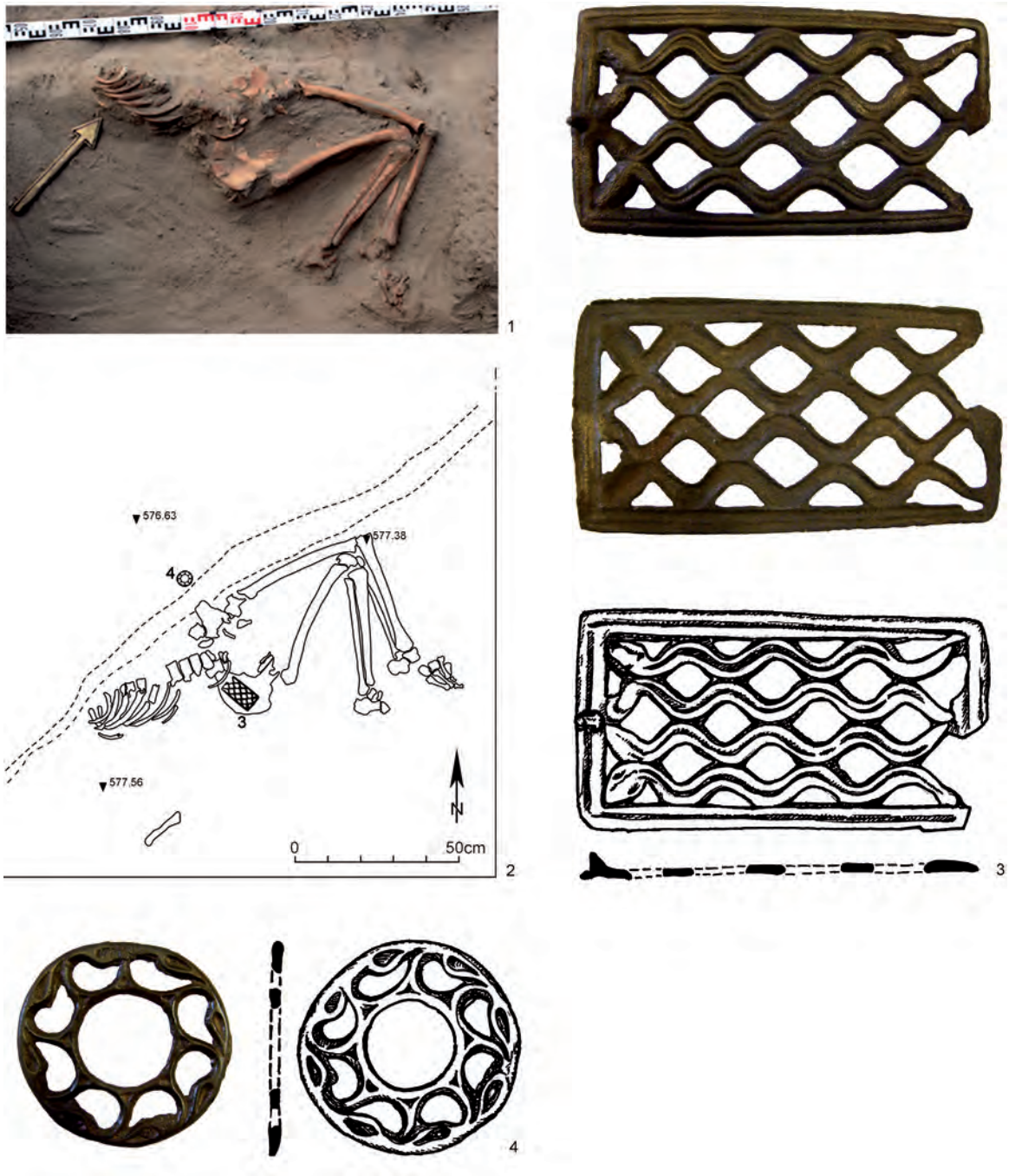


Fig. 4. Terezin. Burial 1. 1–2 Situation of the skeleton; 3–4 elements of the belt. 3–4 scale 1 : 2.

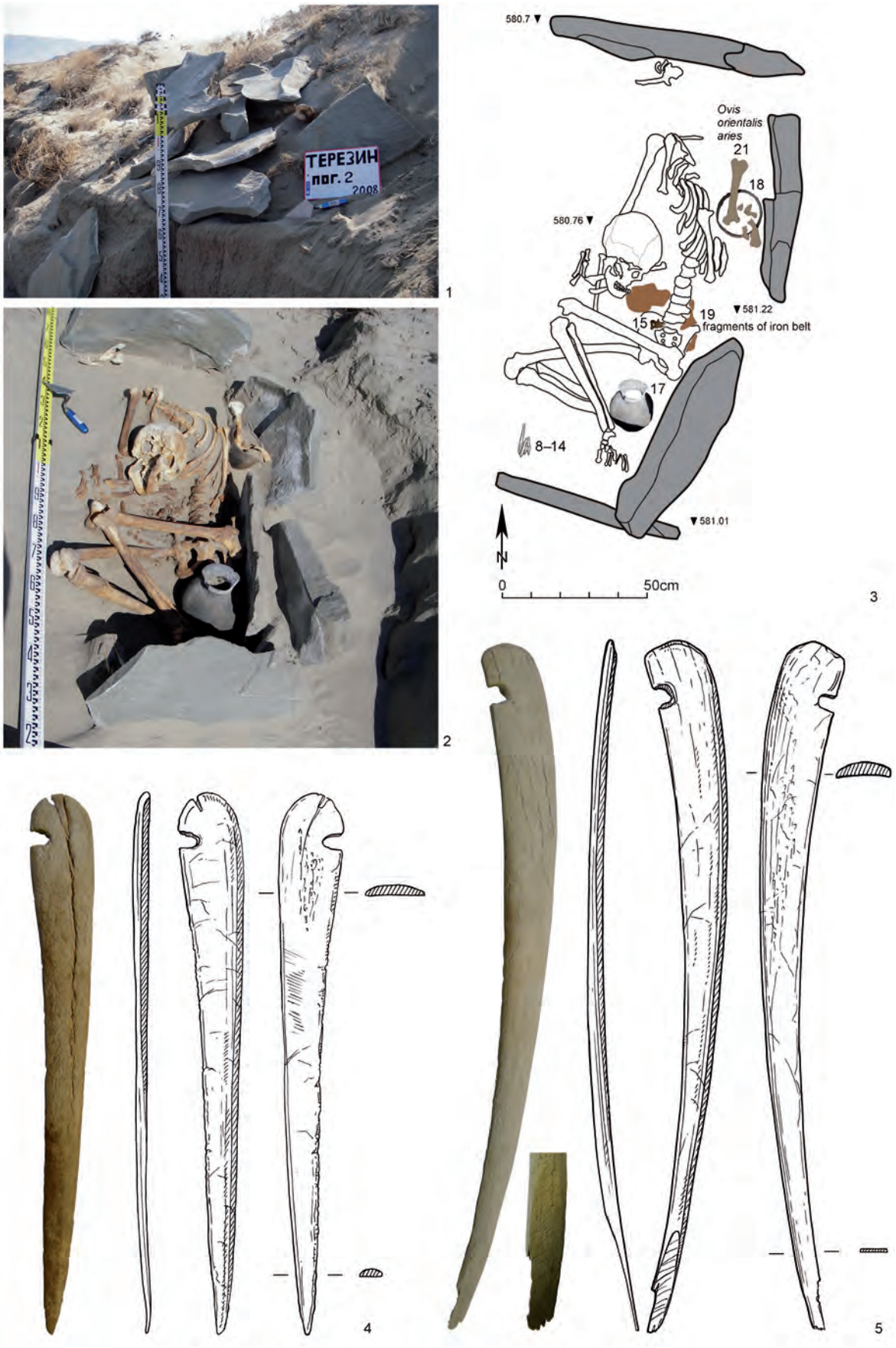


Fig. 5. Terezin. Burial 2. 1 Situation at the border of the slope; 2–3 photos and plan of the burial; 4–5 bow strenghtener. 4–5 scale 1 : 2.

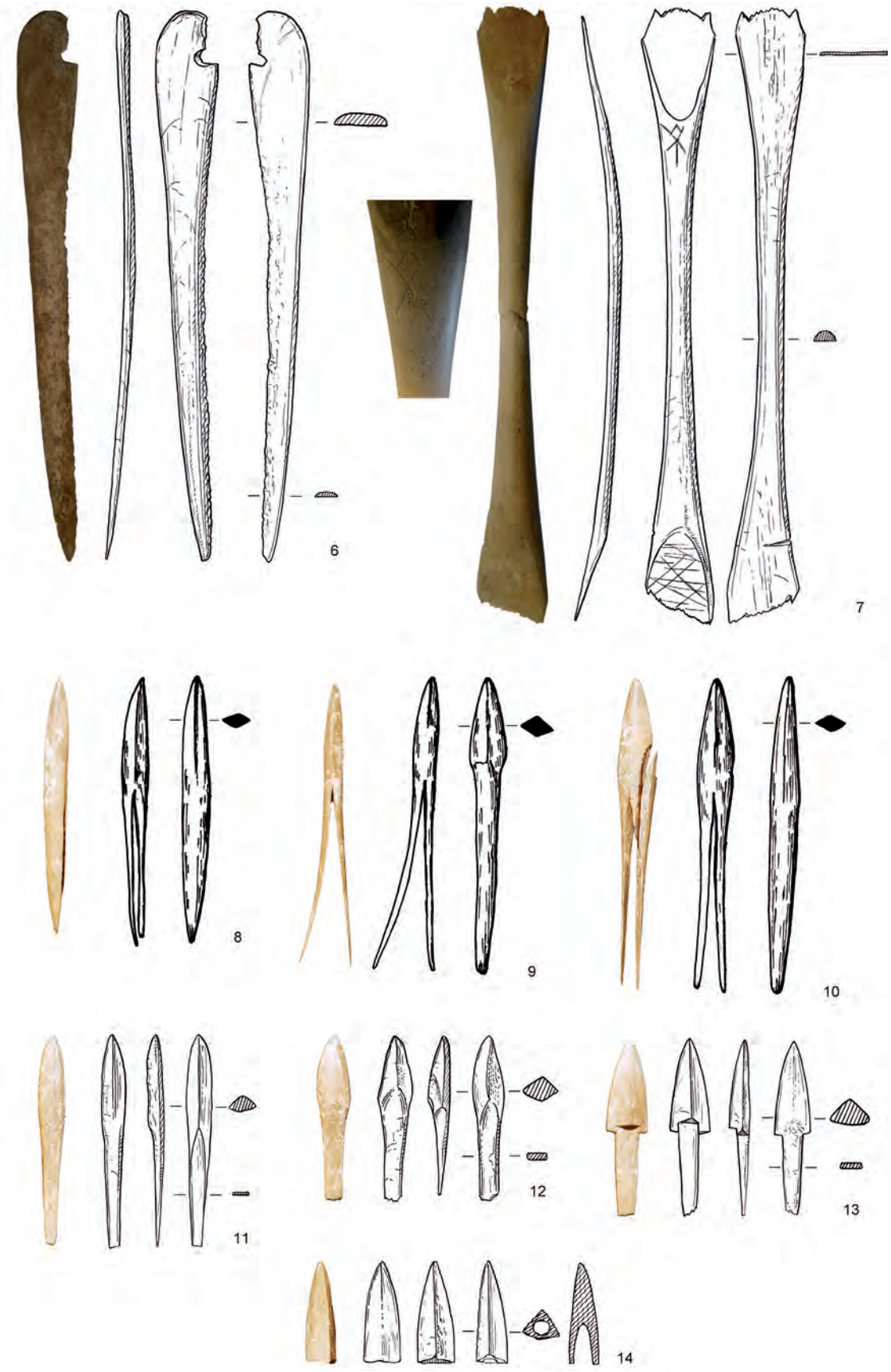


Fig. 6. Terezin. Burial 2. 6–7 Bow strenthener; 8–14 bone arrowheads. Scale 1 : 2.

Fig. 7. Terezin. Burial 2. 15 Horn buckle; 16 “pipe” object, strap end (?); 17–18 pottery. 15–16 scale 1 : 2; 17–18 not to scale.

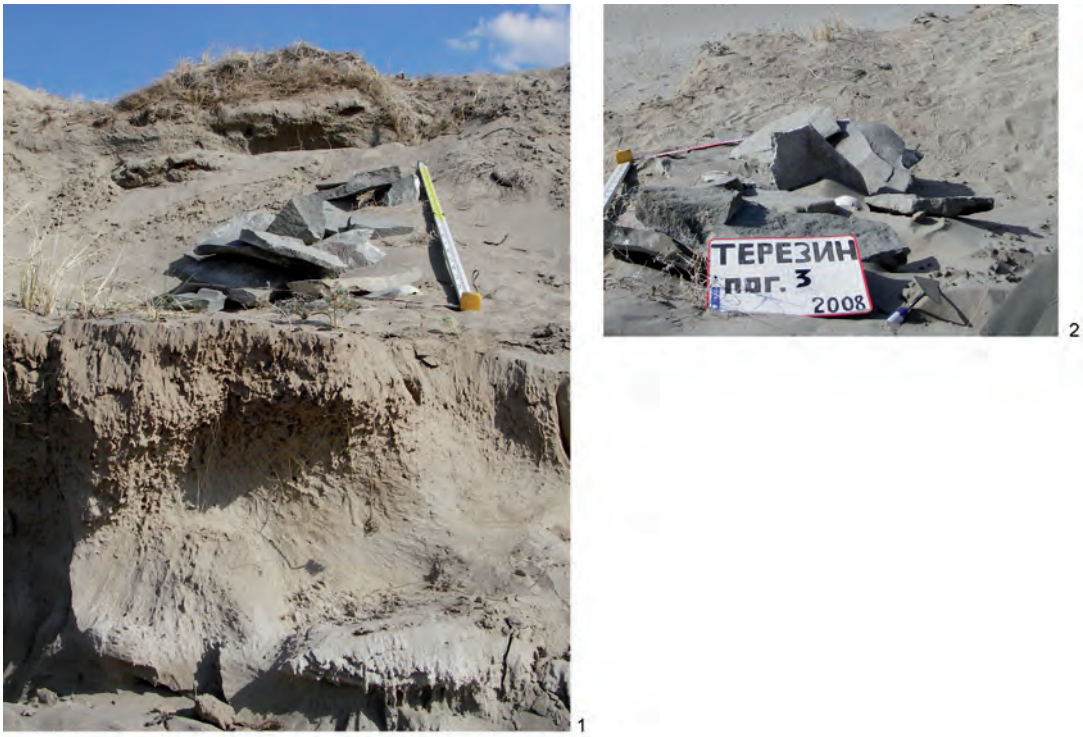


Fig. 8. Terezin. Burial 3. Situation at the shore.

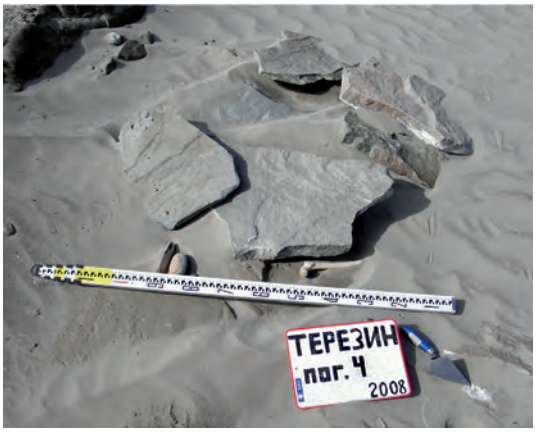


Fig. 9. Terezin. Burial 4. Remains of the stone cist on the shore.

Fig. 10. Terezin. Burial 7. Remains of the stone cist on the shore.

Fig. 11. Terezin. Burial 5. 1 Situation on the shore; 2–3 belt elements. 2–3 scale 1 : 2.

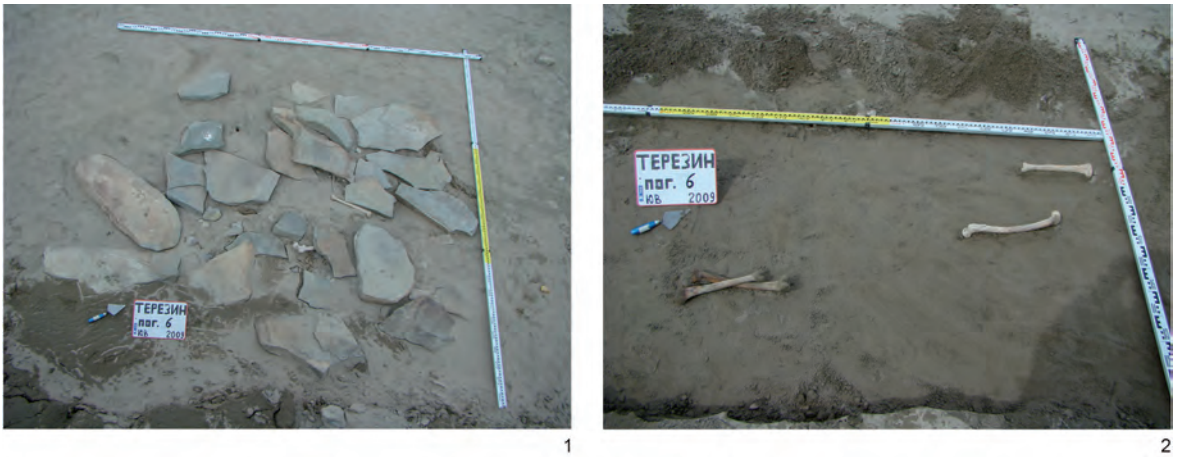


Fig. 12. Terezin. Burial 6. Remains of the stone cist on the shore.

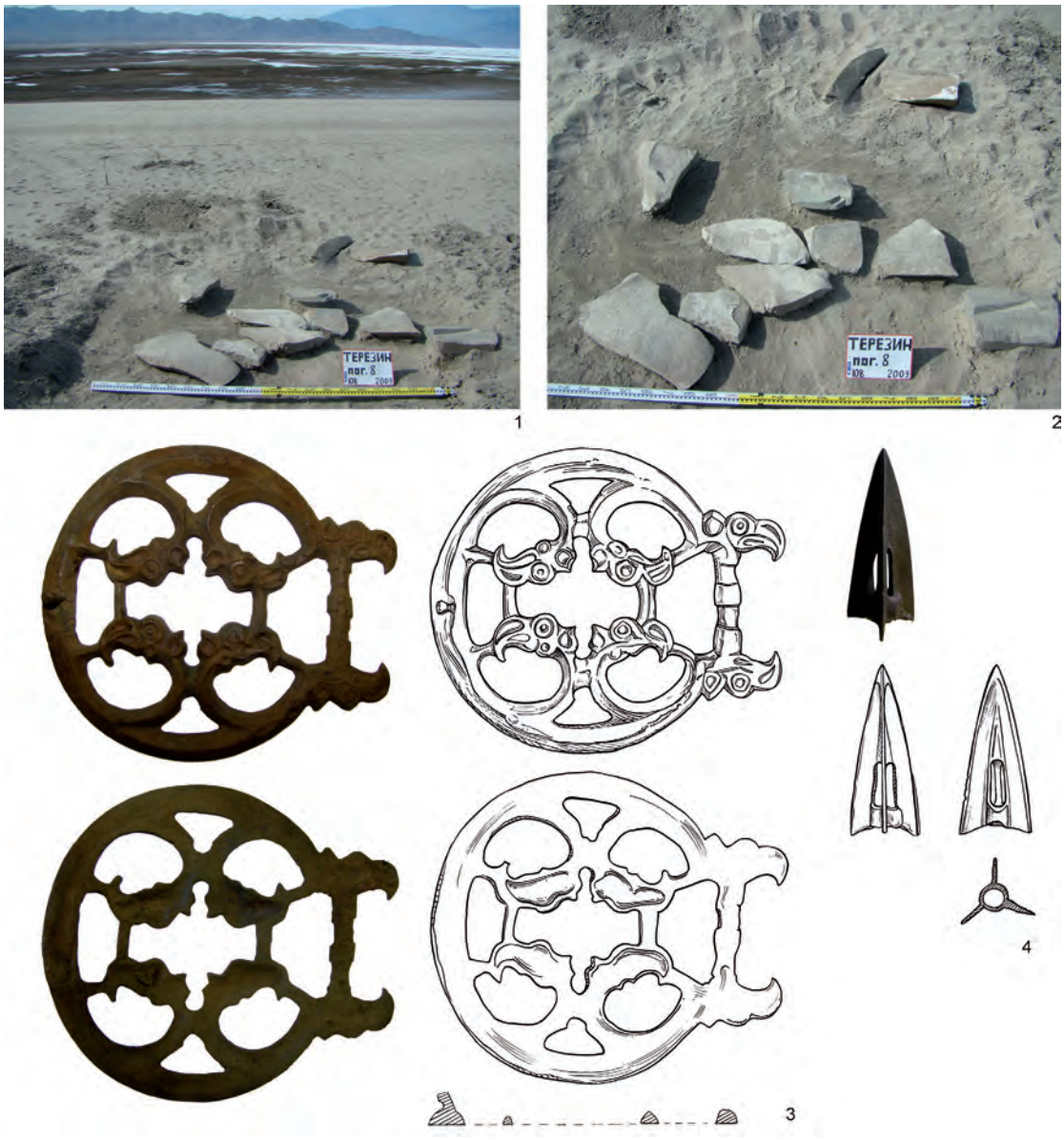


Fig. 13. Terezin. Burial 8. 1–2 Remains of the stone cist on the beach; 3 openwork plaque with griffin heads; 4 bronze arrowhead. 3–4 scale 1 : 2.

Fig. 14. Terezin. Burial 9. 1–2 Situation at the border of the shore; 3–4 photo and plan of the burial; 5–37 pendants and beads; 38–39 pottery. 5–37 scale 1 : 1; 38–39 not to scale.

Fig. 15. Terezin. Burial 10. Remains of the stone cist on the beach.

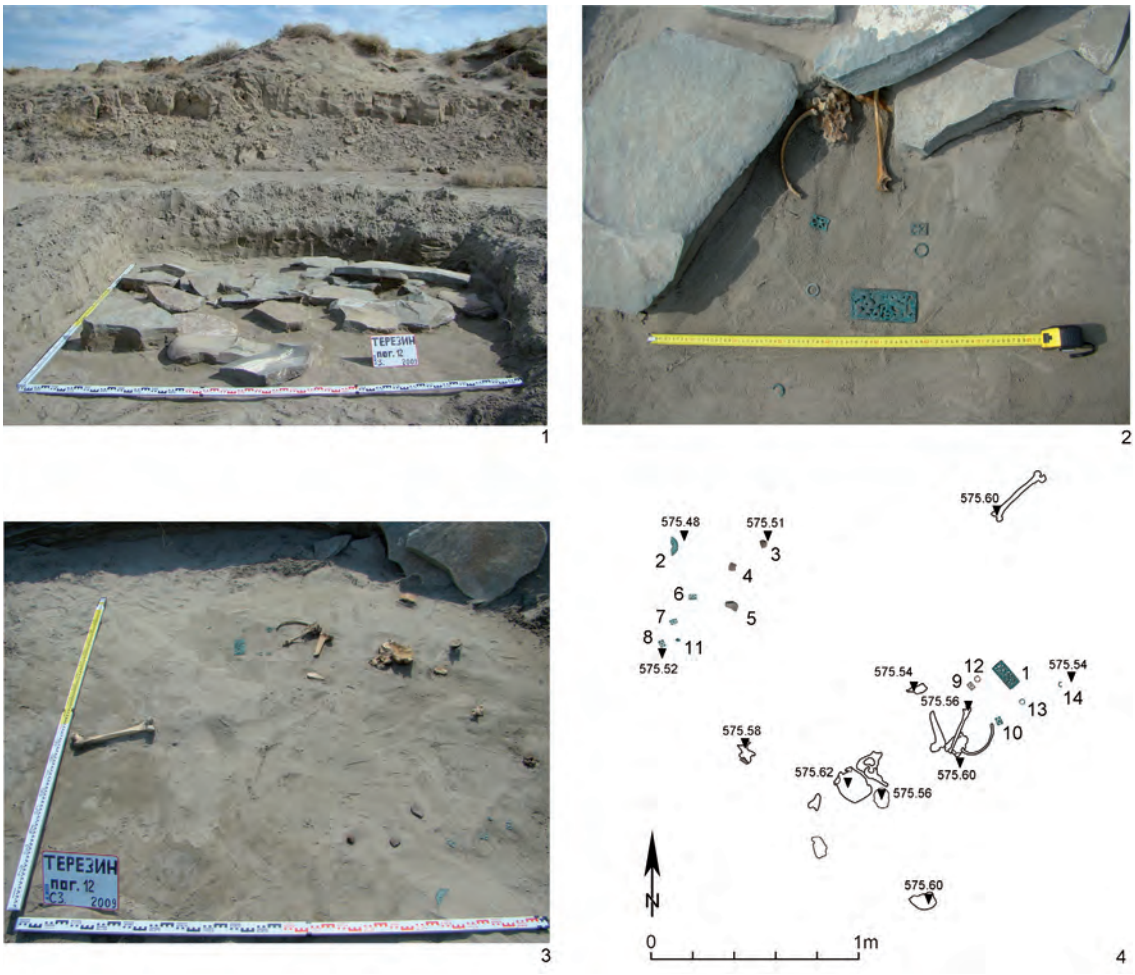


Fig. 16. Terezin. Burial 12. 1 Situation of the stone cist on the beach; 2–4 distribution of the findings.

Fig. 17. Terezin. Burial 12. 1 Belt plaque; 2 cast bronze mirror; 3–5 pottery sherds; 6–10 openwork appliqués; 11 Bronze imitation of a cowry shell; 12–14 bronze rings. Scale 1 : 2.

Fig. 18. Terezin. Burial. 13. 1 Remains of the stone cist on the beach; 2 bronze openwork plaque. 2 scale 1 : 2.

Fig. 19. Terezin. Burial 14. 1 Remains of the stone cist on the beach; 2 distribution of the artifacts; 3 bronze openwork plaque; 4 bronze openwork ring. 3–4 scale 1 : 2.

Fig. 20. Terezin. Chance finds found along the shore of the reservoir (for their location see Fig. 1,2). 1–7 Findings which can be attributed to the Xiongnu period; 8–10 findings from later periods. Scale 1 : 2.

METAL OF THE XIONGNU PERIOD FROM THE TEREZIN CEMETERY, TUVA

Sergei V. Khavrin

The study of the spectrographic composition of the metal objects from the Xiongnu period in the Saiano-Altai carried out by S. Miniaev established that there was no single center of their production. Each region had its own centers (Miniaev 1980; 1983a; 1983b) within networks of regional and interregional exchange, and this paper shows that Tuva as well had its own metallurgy production centers which it used for manufacture of foreign styled items as well. However, so far only isolated examples from the Xiongnu period within the territory of Tuva have been analyzed (Miniaev 1980; Khavrin 2003). Hence the bronze objects from the Terezin Cemetery, Chaa-Khol'skii kozhuun, Republic of Tuva significantly supplement the existing database (see Leus, this volume).

The study of the composition of the alloy of the metal objects from the Terezin cemetery was carried out in the Division of Scientific-Technical Expertise of the State Hermitage Museum on an ArtTAX spectrometer by x-ray-flourescence analysis of the surface.

The results of the analysis (Tab. 1) show that the basic kind of alloy is arsenious bronze. Only two objects were alloyed with tin; a mirror fragment, found as a chance find out of context, and a pendant from grave 9. The mirror fragment is an import from Han China, as is evident both from the composition of lead-tin bronze and the quality of the casting.

The remaining objects do not contain tin or contain it in insignificant amounts of less than 1%. But there was no need to use tin in the alloying. Its role in the metal of the objects studied was taken by arsenic. The amount of arsenic in many objects is as much as 10–15%, and sometimes, as in the appliqué and mirror from grave 12, even more than 15%. The technical characteristics of such an alloy are only slightly inferior to those of tin-bronze (Ravich/Ryndina 1984). The mix of ores in the alloy of the Terezin objects includes antimony, nickel, silver, lead and bismuth. Such an array of ingredients makes it possible to connect the origin of the metal with Khovu-Aksy in Tandinskii region of Tuva. The best indicator among these components is the high content of nickel. Bronzes with high nickel content (0.1–1%) and a similar composition are known from the Scythian period on the territory of Tuva. Certain objects from the Xiongnu period with the same composition were found in the Minusinsk Basin.

Objects made of arsenious bronze are attractive in appearance. Up to 12% arsenic gives the object a golden gray color. If arsenic amounts to 18% or higher the color of the object becomes silvery gray (Ravich/Ryndina 1984). This is interesting since the fragment of a Chinese style mirror found in grave 12 appears to have been produced locally, as is shown by the composition of its alloy. Microscopic analysis showed that the piece was cast only as a fragment of a mirror, not cast as a whole mirror and then broken. The casting was also of good quality. The percentage of arsenic in it was 16–17%, plus another 2–3% antimony, which gave the object a silvery gray color. That is, the local metallurgists copied not only the form but also attempted to obtain the

Object	Grave	Cu	As	Sn	Pb	Sb	Ag	Other
Mirror (Fig. 20,5)	Chance find	Base	<0.3	25–30	4–6	trace	trace	Ni, Co, Ag
Spoon-shaped pendant (Fig. 20,3)		Base	2–4	–	–	1–2	trace	Bi
Appliqué (Fig. 20,6), belongs probably to grave 12		Base	10–15	–	–	1–3	–	Ni<0.5, Bi<1
Openwork Ring (Fig. 4,4)	1	Base	10–14	–	1–3	>1	trace	Ni<0.6, Ag
Openwork Plaque (Fig. 4,3)		Base	5–8	–	1–3	<0.4	trace	Ni<0.7, Ag
Openwork Plaque (Fig. 10,2)	5	Base	5–8	<0.3	1–2	1–2	trace	
Buckle with two Bulls (Fig. 10,3)		Base	10–13	–	2–3	3–5	–	Ni
Buckle with Griffins (Fig. 13,3)	8	Base	2–3	–	<0.7	4–6	trace	Ni<0.5
Arrowhead (Fig. 13,4)		Base	1–3	–	–	2–4	<0.4	Bi=1–2%
Pendant (Fig. 14,6)	9	Base	2–3	10–14	–	trace	<0.8	
Mirror Fragment (Fig. 17,2)	12	Base	16–17	–	trace	2–3	trace	Ni<0.4, Co
Closed Ring (Fig. 17,12)		Base	10–14	trace	?	<0.5	trace	Ni<0.8, Co, Bi
Ring (Fig. 17,13)		Base	10–14	trace	trace	<0.5	trace	Ni<0.8, Bi
Ring Fragment (Fig. 17,14)		Base	2–4	trace	trace	~1	trace	Ni<0.5, Bi
Appliqué (Fig. 17,6)		Base	10–14	?	?	1–2	trace	Ni<0.4, Co, Bi
Appliqué (Fig. 17,7)		Base	4–7	–	–	1–2	–	Ni<0.8
Appliqué (Fig. 17,8)		Base	18–22	–	–	1–2	–	Ni<1, Co, Bi
Appliqué (Fig. 17,9)		Base	18–24	–	–	1–2	–	Ni<0.5, Co, Bi
Appliqué (Fig. 17,10)		Base	18–24	trace	–	1–2	–	Ni<0.4, Co, Bi
A Model of a Cowry (Fig. 17,11)		Base	9–12	–	trace	<0.6	trace	Ni<0.5, Co
Openwork Plaque (Fig. 17,1)		Base	7–10	–	<0.5	2–3	–	Ni<1

Tab 1. Results of x-ray flourescence analysis of metal objects from the Terezin cemetery (for the objects see Figs. in Leus, this volume).

color which corresponded to that of the Chinese mirrors. It is interesting that a similar case of the casting of a Chinese mirror of high arsenious bronze, of the same type as the mirror from Terezin, was noted earlier on the territory of Gornyi Altai in the materials of the Ialoman-II cemetery from the Xiongnu period[1]. This analogy is strengthened by the substantial coincidence of the chemical composition of the metal of two monuments in neighboring regions.

The sharing of materials by the Terezin and Ialoman-II cemeteries is also demonstrated by the gilded glass beads in their inventories. The effect of a "golden" glass in them is achieved by the combination of transparent yellow-brown glass and a silver backing (Tishkin et al. 2007).

[translated from Russian by Daniel C. Waugh]

1 See Tishkin/Khavrin 2004; 2006, and also Tishkin, this volume.

CHARACTERISTIC BURIALS OF THE XIONGNU PERIOD AT IALOMAN-II IN THE ALTAI

Alexei A. Tishkin

The Xiongnu period cemetery of Ialoman-II is situated in the Ongudai area in the Republic of Altai, the Russian Federation (Fig. 1), at the fourth floodplain terrace of the left bank of the river Katun near the mouth of the river Big Ialoman (Fig. 2)[1]. The beginning of the excavation was associated with the detection of two disturbed graves at the edge of the ravine of a large mortuary complex consisting of monuments from different times (Fig. 3)[2]. Three circular gold buckles were found in kurgan 53 (Tishkin/Gorbunov 2002, Fig. 2, 3–5), which are stored in the National Museum of the Altai Republic A. V. Anokhin in Gorno-Altaisk, together with a ceramic vessel. Major excavations of the Xiongnu period tumuli at the cemetery were made in 2003. A considerable number of the tumuli were completely excavated in order to better clarify the whole area for an inter-kurgan study as well as to detect materials and features which are otherwise difficult to find or detect from surface observations. Moreover, the area for excavations was chosen so that the part of the cemetery which was endangered was included (Fig. 4). Excavations were continued in subsequent years as well, with the major portion of the investigations focusing on materials for the Xiongnu period[3]. The archaeological materials from these excavations have henceforth been studied and introduced to the scientific community[4]. Furthermore, samples from the excavated graves have been used to obtain a series of radiocarbon dates (Tishkin 2007a, 264–268; 270–275). Since a significant portion of the burial items studied is directly similar to those from burials attributed to the Xiongnu (Tishkin/Gorbunov 2005), for this present paper, we chose the most relevant materials of women and men accompanied by two cenotaphs.

1 The work was financed by FZP within the framework of the "Russian Scientific and Science-Pedagogical Initiative" for the project "Complex Historical Research in Western and Southern Siberia from Ancient to Modern Times" (2009-1.1-301-072-016). It has been researched since 2001, over several seasons, by the Ialoman Archaeological Expedition of the Altai State University, Barnaul, Russia, under the leadership of the present author. I would like to thank A. L. Kungurov for preparing all drawings for this article.

2 A monograph on the "Altai during the Xiongnu Period" is presently being prepared, in addition to a series of articles on individual artifact studies, that will address problems of chronology and other issues related to the excavations of the tumuli in this region.

3 Tishkin/Gorbunov 2003; 2006; Tishkin 2007b. Archeological findings since 2003 from Ialoman-II are now stored in the Museum of Archaeology and Ethnography of Altai State University (collection No. 181)

4 Tishkin/Gorbunov 2003; 2005; 2006; Tishkin/Khavrin 2004; Tishkin 2005a; 2005b; 2007a; 2007b; Tishkin/Gorbunova 2005; Gorbunov/Tishkin 2006; Tishkin et al. 2007; Tishkin et al. 2008; Bachura 2008; Tishkin/Luzgin 2009, and others.

Fig. 1. Location of Ialoman-II on an orographic map of the Russian Altai.

KURGAN 51

Kurgan 51 (Fig. 3; 4) is situated in an "endangered" zone near the ravine and stands out slightly, due to the size of its surface stones in comparison to the less visible burials of the western group. The stone mound was filled with earth and covered in grass, and had a diameter of 4.5 m and a present height of 0.25 m. Around the perimeter of the mound were larger stones which did not appear to be part of a well-shaped circular layout (Fig. 4). In the central part of the monument there was a small mound formed of the soil from an excavated pit. The spot of the burial was oriented northwest-southeast and was distinct from the ancient surface. The burial pit measured 2.5 m long, 1.65 m wide, and 0.85 m deep below the surface on which the burial mound was built. A solid stone

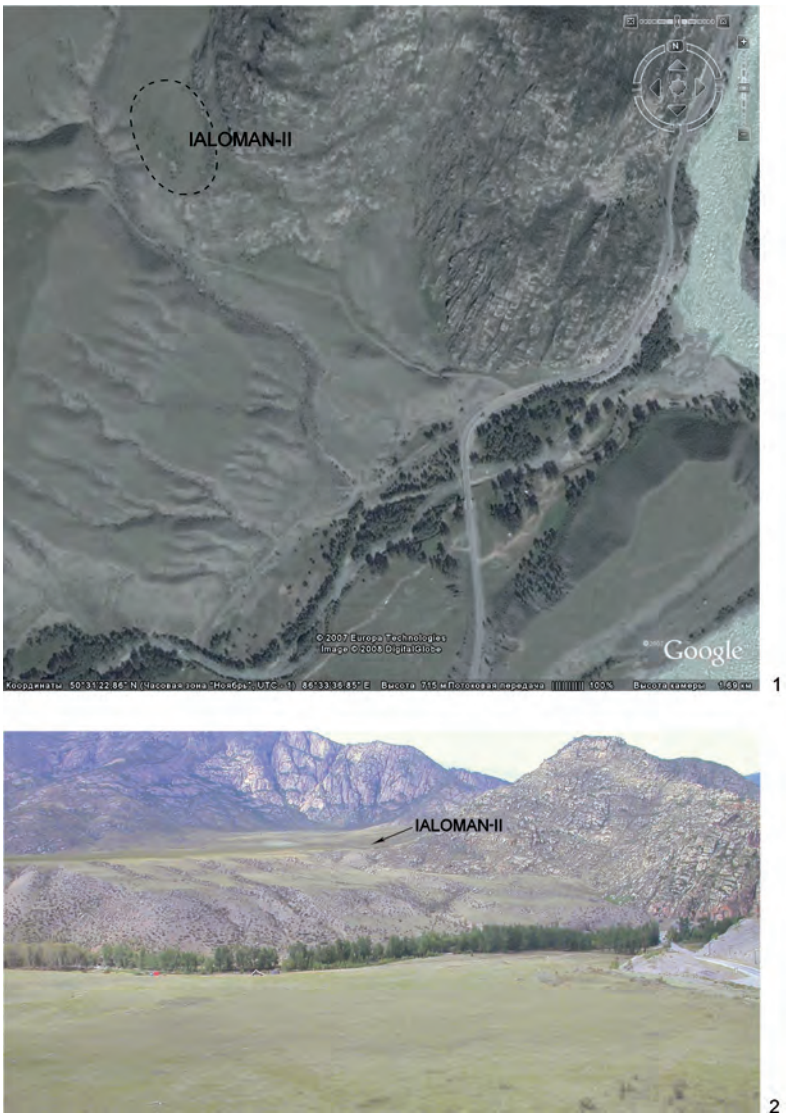


Fig. 2. Ialoman-II, Russian Altai. 1 Satellite image of the site at the river Big Ialoman; 2 location of the site on the high terrace.

fill had been laid in several layers within the grave, along with a complete horse and a stone cist with an adult female interred inside (Fig. 5,1; 6,1.2). The accompanying horse was situated above the covering of the stone burial chamber and was positioned along the northeastern wall of the pit. The horse was lying on its left side with the legs outstretched (Fig. 5,1), and along with it were found an iron snaffle bit with cheek-pieces (Fig. 5,2–4), bronze rein guides of the bridle (Fig. 5,5–8), and some organic remains, probably of a saddle, near the hind quarters of the horse.

At the bottom of the burial pit in the stone cist (Fig. 6; 7) was buried a woman 20–25 years old[5], who was placed on her right side with her legs slightly bent and head oriented southeast.

5 The age was determined by D. V. Pozdniakov, researcher at the Institute of Archaeology and Ethnography of the Siberian Branch of the Russian Academy of Sciences in Novosibirsk.

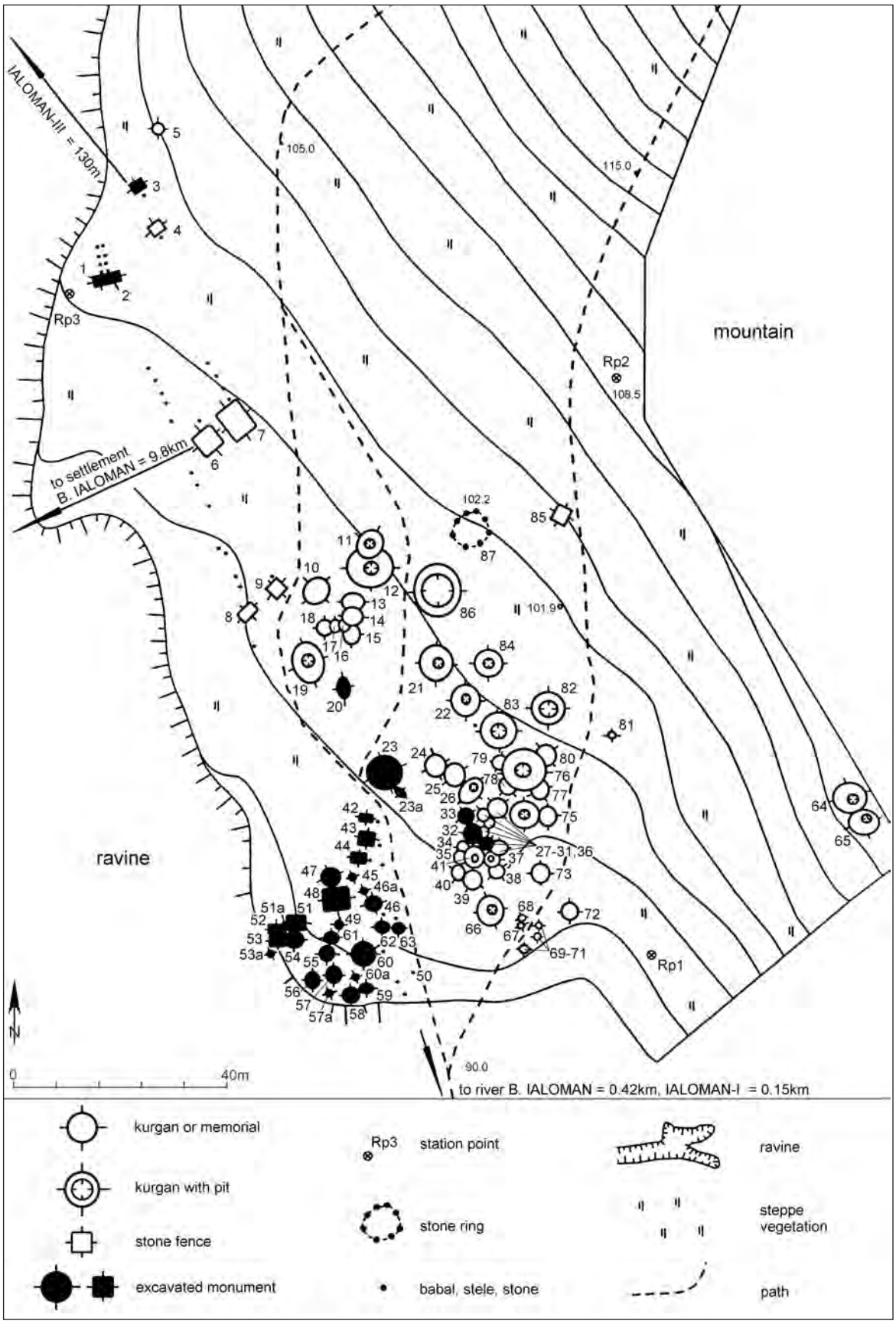


Fig. 3. Ialoman-II. Map of the site.

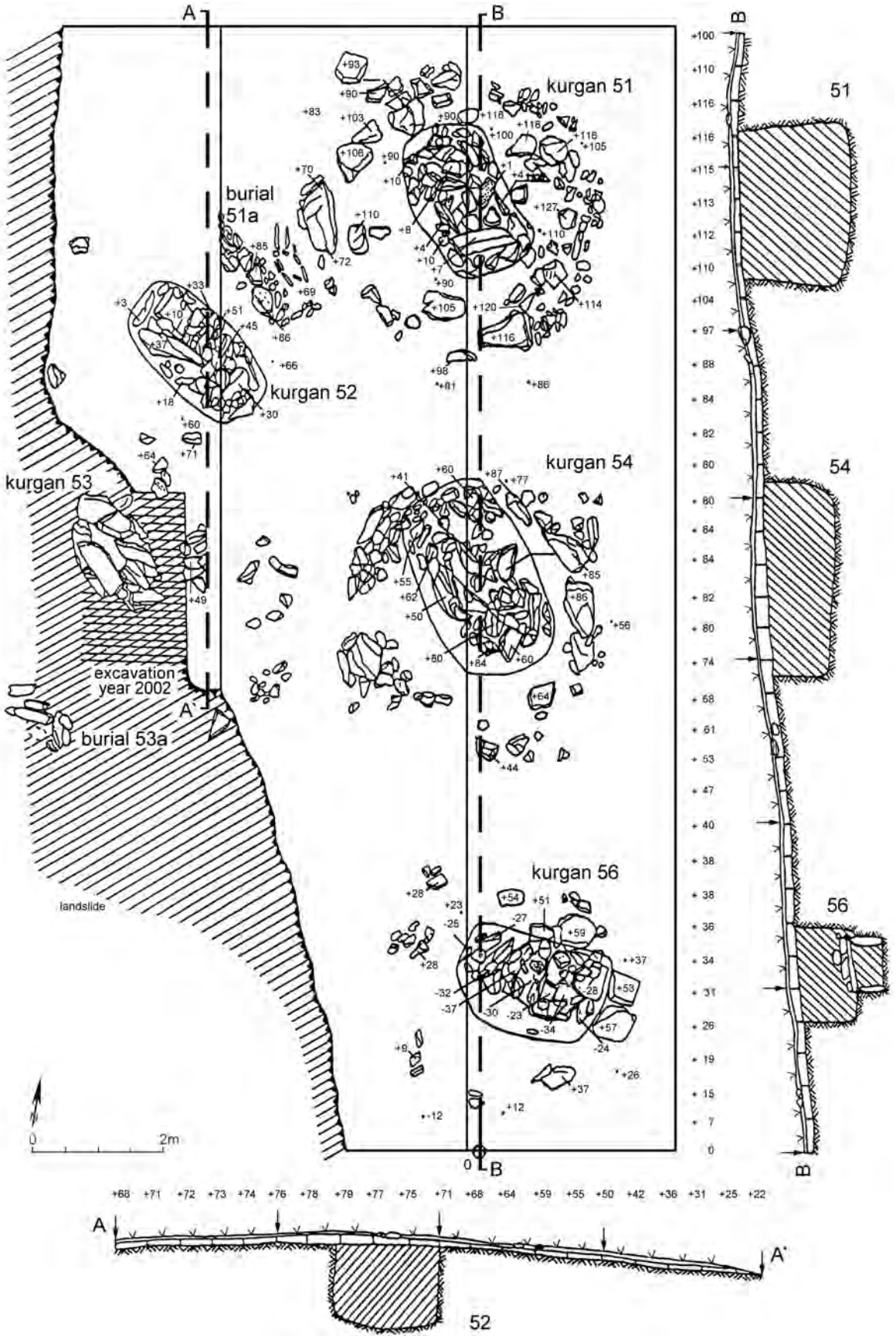


Fig. 4. Ialoman-II. Detail of the site plan of the kurgans 51–56.

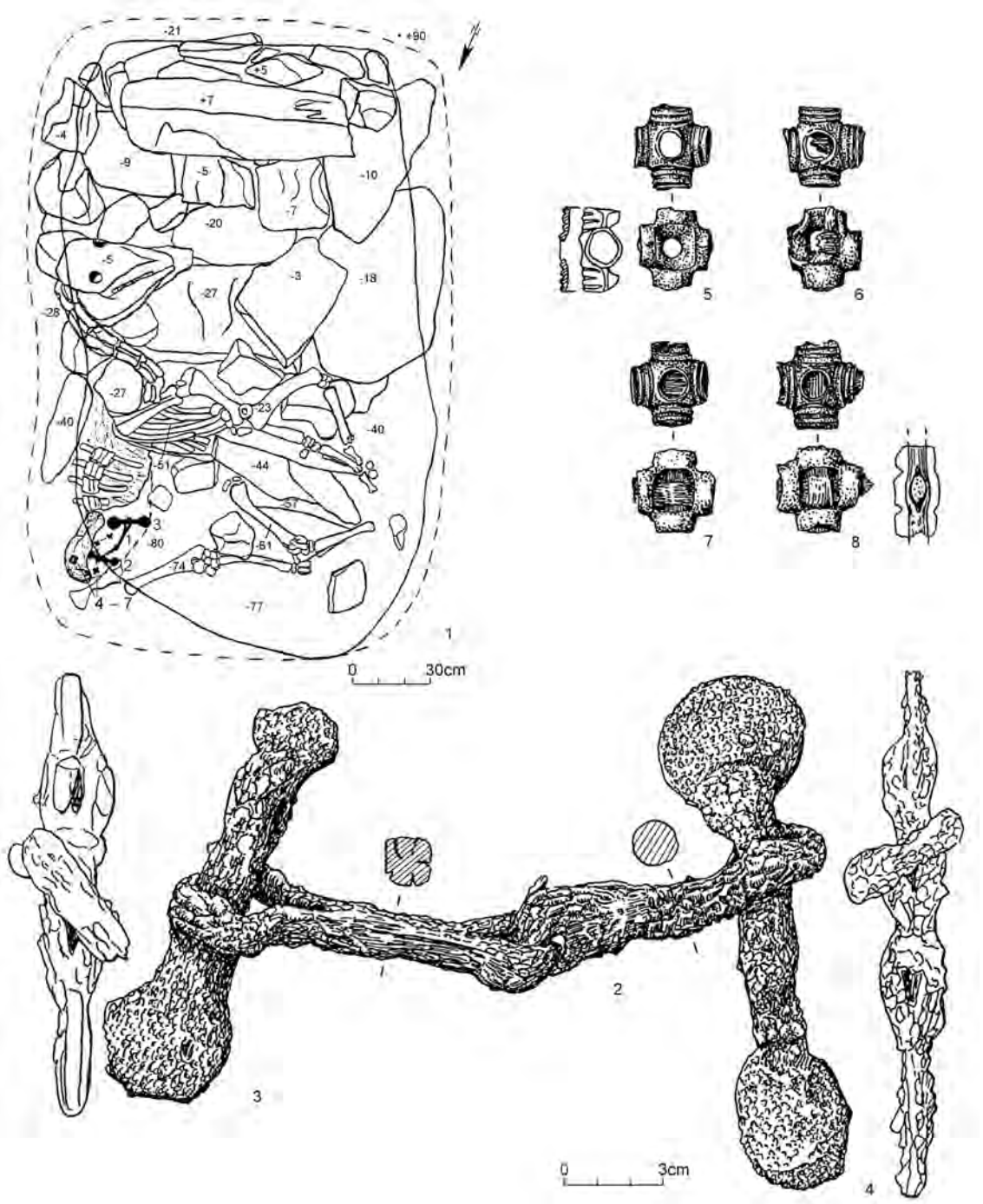


Fig. 5. Ialoman-II. Kurgan 51. 1 Plan of the burial with a horse deposited on top of the stone cover of the burial chamber; 2–4 iron horse bit with cheek-pieces; 5–8 bronze rein guides.

The rectangular burial chamber measured 1.8 m long, 1.0 m wide, and approximately 0.5 m tall. It was constructed of massive stone slabs and overlaid with smaller stones in several tight-fitted layers, which left the interior of the chamber mostly free of soil and thereby aided in the preservation of organic materials. To the right of the woman was a large platter with the remains of some meat (Fig. 9,5), a wooden bowl (Fig. 9,4), a large copper round-belly cauldron (Fig. 9,7),

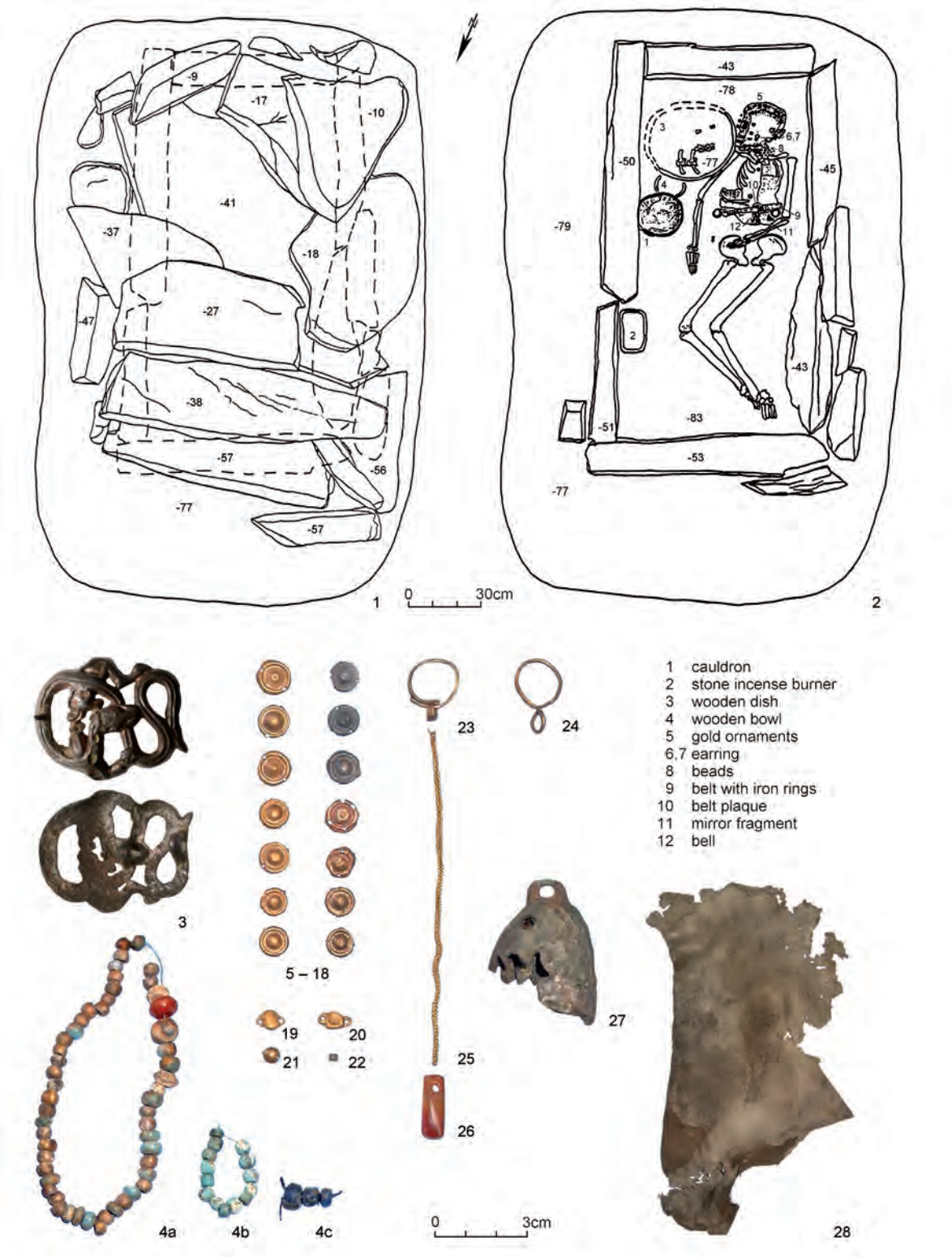


Fig. 6. Ialoman-II. Kurgan 51. 1 Cover of the stone cist; 2 plan of the burial; 3 openwork bronze belt plaque; 4 stone and glass beads; 5–21 gold ornaments; 22 stone (pyrite); 23–26 gold earrings with chain and stone pendant; 27 bronze bell; 28 remains of the bonnet.

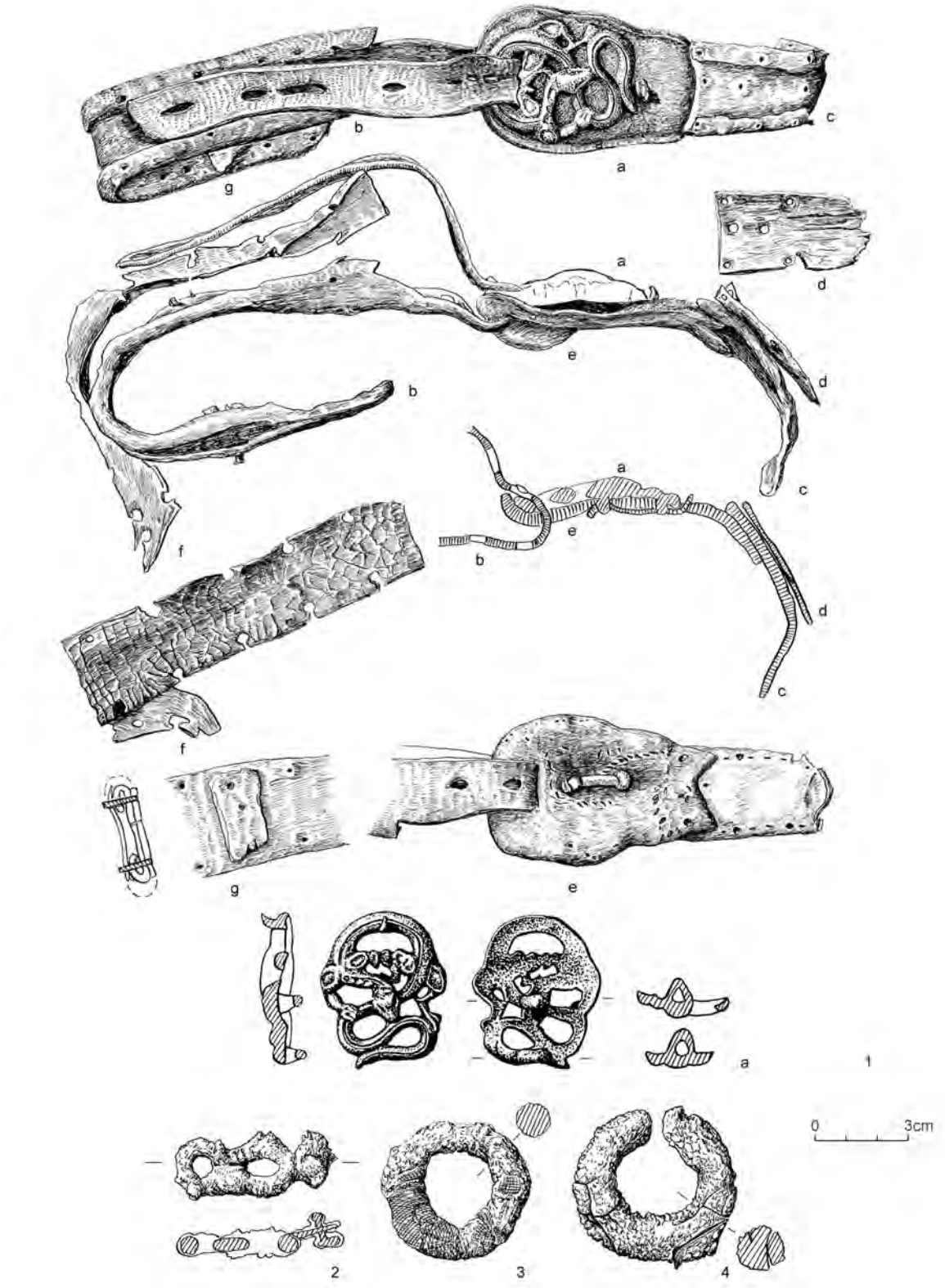


Fig. 7. Ialoman-II. Kurgan 51. 1 Elements of the belt; 2 iron clip; 3–4 iron rings.

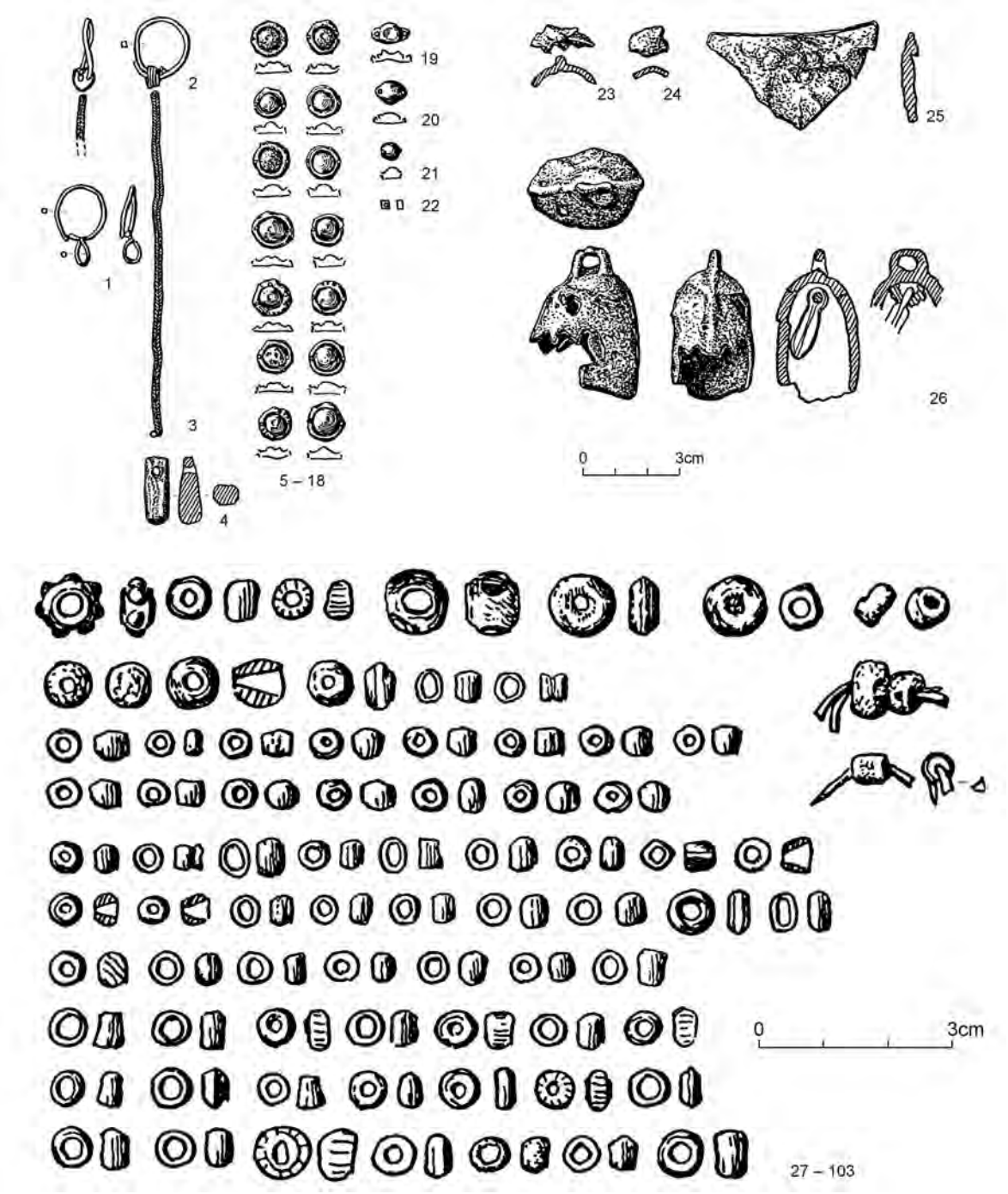


Fig. 8. Ialoman-II. Kurgan 51. 1–4 Gold earrings with chain and stone pendant; 5–21 gold ornaments; 22 stone (pyrite); 23–24 bronze objects; 25 fragment of a bronze mirror; 26 bronze bell; 27–103 stone and glass beads.

a stone censer (Fig. 9,6), and some fragments of a wood object discovered nearby (Fig. 9,3). On the woman's skull was a partially-preserved cloth headdress decorated with gold ornaments (Fig. 6,5–18; 8,5–18), and gold earrings were found *in situ* (Fig. 6,23.24; 8,1.2), one of which had a stone pendant fastened to a long elegant chain (Fig. 6,.25.26; 8,3). In the area of the neck there was an accumulation of beads (Fig. 6,4; 8,27–103) and ornaments (Fig. 6,5–18; 8,5–18) similar to

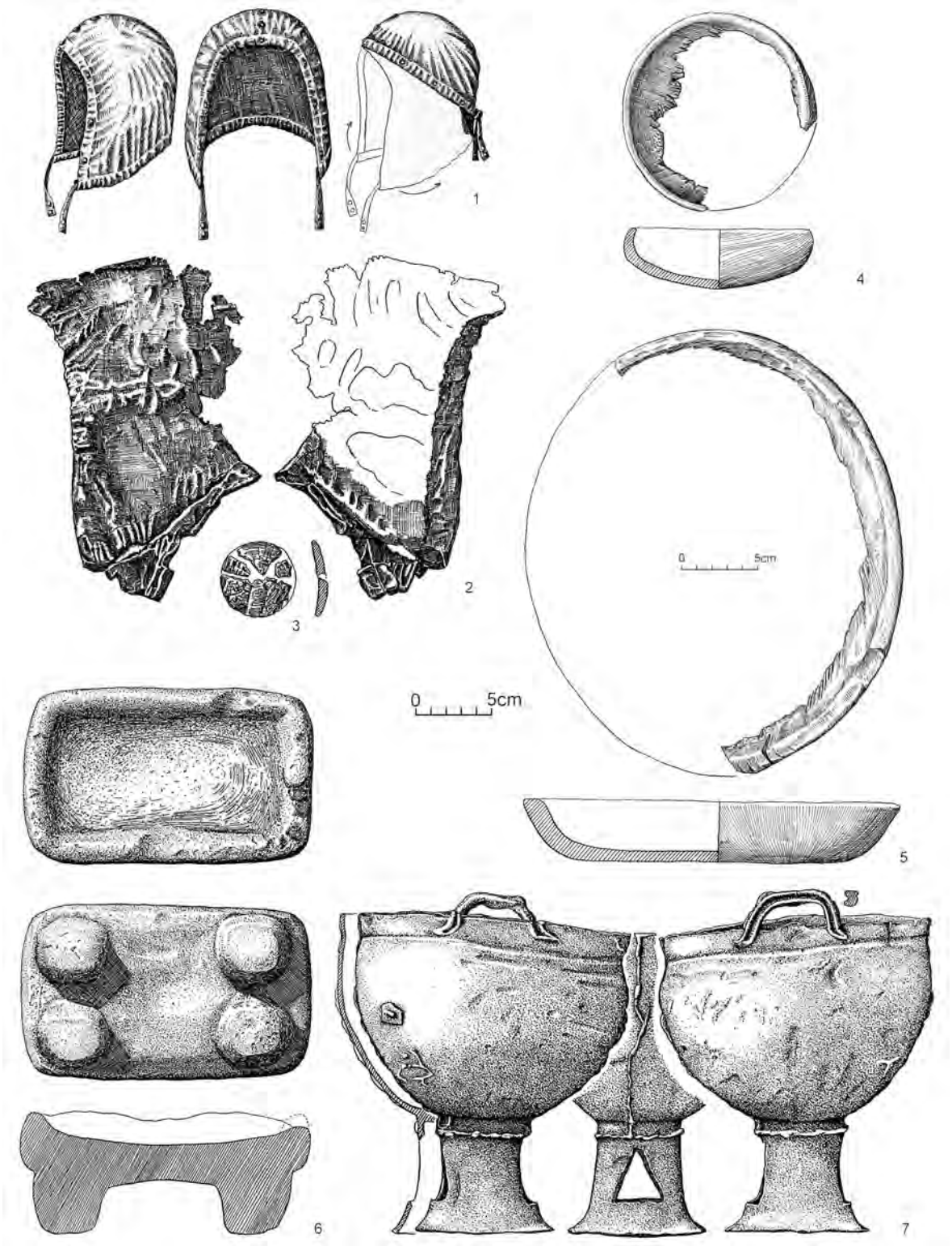


Fig. 9. Ialoman-II. Kurgan 51. 1–2 Reconstruction of headdress with textile remains; 3 wooden object; 4–5 wooden bowl and dish; 6 stone incense burner; 7 copper cauldron.

those *in situ* on the headdress were found elsewhere on the body. Scattered from the skull to the pelvic bones were found threads and fragments of clothing, and the remnants of clothing laid in several layers, especially over the shoulders, suggests the existence of inner and outer garments.

A leather belt, measuring 1.1 m long and 0.36 m wide, was found over her waist during fine cleaning of the burial. It was quite well preserved because of a number of bronze objects laid over it (Fig. 7); however, the lower part of it was badly disintegrated. Nevertheless, this part of the woman's garments can be almost completely reconstructed. The belt was made of several specially cut strips fastened together, and its outer side was lacquered or covered with paint (?). One strip was fasted to the edges of a basic leather belt and had small holes through which bronze pins were attached, resembling a kind of ornamentation. The belt was then fastened with an openwork bronze buckle in the form of an entwined lizard biting its tail (Fig. 6,3; 7,1a) – bright ornaments against a dark leather belt – and fixed in place with a small strip. Under the buckle were well-preserved remnants of a brown lining which was sewn to the leather belt and resembled an undercoat. The side of the belt opposite the buckle had eight holes and had been specially cut to a width of 1.6 cm in order to pull through the buckle and into a slit in the undercoat (Fig. 7,1b). Judging by the dimensions of the fastened belt, the girth of the woman with her clothing was about 80 cm, most likely indicating the woman had been buried dressed in upper garments draped over her shoulders, perhaps a fur coat or other warming garment similar to a "khalat". To the left and to the right of the woman's waist there were iron rings and a clip found (Fig. 7,2–4), most probably from an additional belt or some other wrapping.

Near the openwork buckle was a copper bell (Fig. 6,27; 8,26), a fragment of a bronze mirror (Fig. 8,25), and an accumulation of stone and glass beads (Fig. 6,4; 8,27–103). These metal objects were possibly from an embroidered purse hung from the belt. Unfortunately, no evidence remains of the waist clothing and footwear, so it is impossible to say anything concrete about them.

The inner part of the headdress was preserved almost completely. It was similar to a hood or a bonnet and had straps fixing the cap to the head (i.e. tied under the chin)[6]. The cloth cap was decorated with ten gold ornaments (Fig. 6,5–14; 8,5–14), and perhaps the hood ties had been decorated as well. The presence of the lower head garment presupposes the existence of an upper one, the form of which could include a hood, fur or felt hats, shawls, scarves, a "bashlyk" or other head coverings (Tishkin 2005a).

Kurgans 42–44

The next complex comprising kurgans 42–44 (Fig. 10) stood out on the surface and had a number of features demonstrating the "elite" nature of the primary male burial. After removing the sod and cleaning the burial surface features, three gravestone constructions found (Fig. 10). The line of features, kurgans 44, 43 and 42, was oriented along a south-southwest to north-northeast axis with the middle feature 43 being the largest kurgan in the cemetery[7].

6 The reconstruction was made by A. L. Kungurova. Another variant of wearing such clothes which is widespread among nomadic peoples has the hood straps tied up at the back of the head.

7 The geographical coordinates of its centre are N 50°31.524'/E 086°33.350' at NN 805 m altitude.

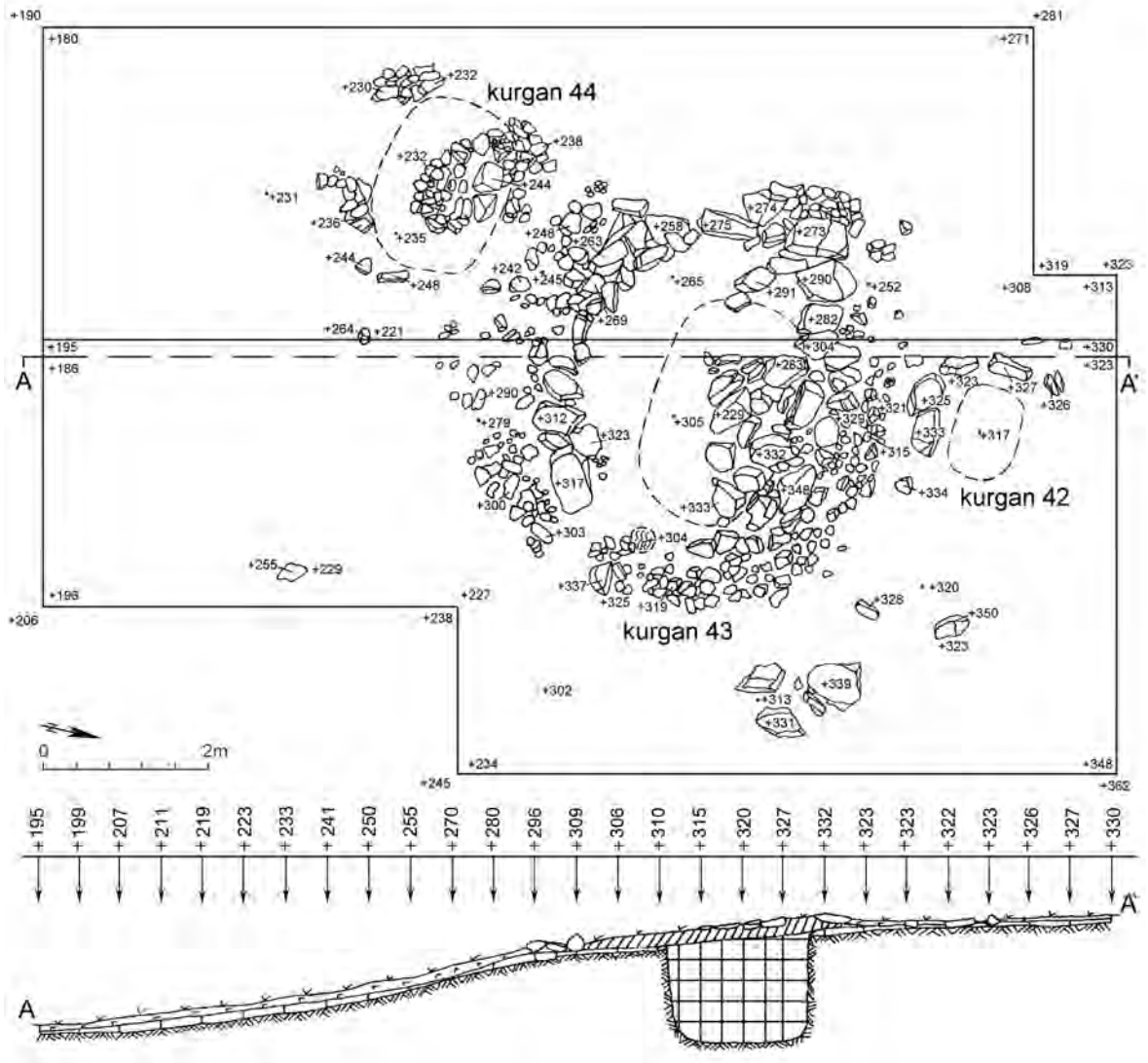


Fig. 10. Ialoman-II. Detail of the site plan of the kurgans 42–54.

Kurgan 42 stood out against the ancient ground surface due to the large stones that remained of the original circular layout (Fig. 10), though the exact dimensions of this circle can only be determined approximately by considering the placement of the grave. The diameter can be defined more exactly along the southeast to northwest axis as 2.1 m with a height of about 0.1 m. To the east of this small kurgan was a vertical stone standing 0.27 m above the surface. The pit over which the stone was standing had a diameter of 0.5 m and depth of 0.23 m, and the vertical stone was situated in it. The complete stone measured 0.5 m long, 0.21 m wide, and 0.13 m thick. All the vertical standing stones near kurgans 42–44 were similar in size and appearance, and, based on previous excavations, these standing stones marked male burials.

The spot of the grave pit of kurgan 42, 1.12 × 0.83 m, stood out as a light filling within darker ancient soil. The closest stone of the circular layout was 0.13 m to the southwest. At 0.2 m below the surface, there were stones covering a rectangular stone cist made of tile-shaped stones, which stood 0.35 m high in the bottom of the pit and measured 0.65 × 0.5 m (Fig. 11). The cist was ori-

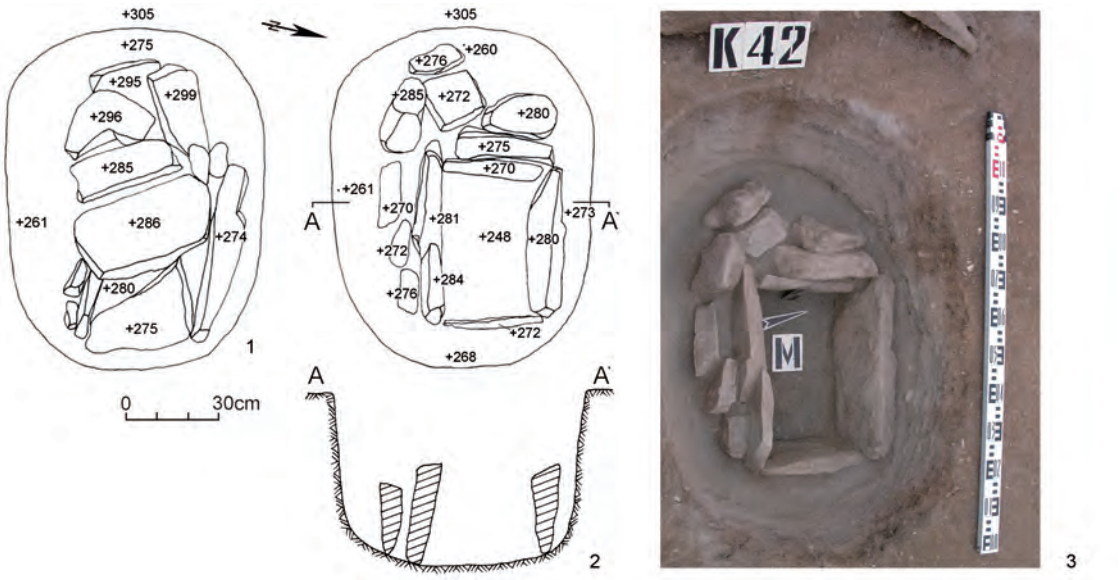


Fig. 11. Ialoman-II. Kurgan 42, cenotaph. 1 Stone cover of the cist; 2–3 stone cist without findings.

ented west-southwest to east-northeast. The end walls of the cist had only one stone, and the southern and south-western sides were reinforced with several stones. The interior space of the cist measured 0.45 × 0.3 m, but nothing was found within. Only in some places were there traces of decomposed organic matter.

Kurgan 43 was easily visible at the present surface level, due to its size, clear stone construction, and standing stone set vertically to the southeast (Fig. 10). The stone rose 0.52 m above the ancient surface, and 0.2 m northwest of it was found a spot of burnt earth about 0.3 m in diameter along with other traces of fire on the ancient surface. The pit in which the vertical stone stood was 0.46 m in diameter and 0.24 m deep. The oval mound of the kurgan, marked by a distinct oval ring of stones (about 5 × 4 m), was made mainly of soil overlaid with one or two layers of stone, measured 5.7 × 5.3 m and rose about 0.5 m high. Some of the missing stones from the original grave marking may have been taken to construct some later burials in the cemetery. The spot of the burial pit of kurgan 43 measured 2.72 × 1.73 m, but the spot was not in the center of the ring of stones (Fig. 10). This suggests that the ring was constructed after the burial pit and earthen mound were made, when the exact edges of the pit were not visible.

The burial pit was almost rectangular with rounded edges and was oriented along a southeast to northwest axis. Below a fill of earth and stones, 0.82 m beneath the surface, were found lid stones in the southwestern part of the grave pit and a stallion skeleton in the northwestern half, placed only partially on the stones of the burial chamber (Fig. 12,1)[8]. The animal lay on its right side, with its legs slightly bent at the knees and its head oriented south-east. Near the skull were found an iron horse bit and cheek-pieces (Fig. 12,2.5.8), and in the area of the neck and back was a dark-brown organic dust with some remnants of hair-coated skin. These organic remains may have been part of a saddle. Slightly to the southeast and below this were two strips of gold foil (Fig. 12,6.7). There were also some remnants of greenish organic dust in the area of the

8 The stallion was about 4 years old, medium-sized, medium-legged; the determination was made by P. A. Kosintsev from the Institute of Plant and Animal Ecology, UB, Russian Academy of Sciences.

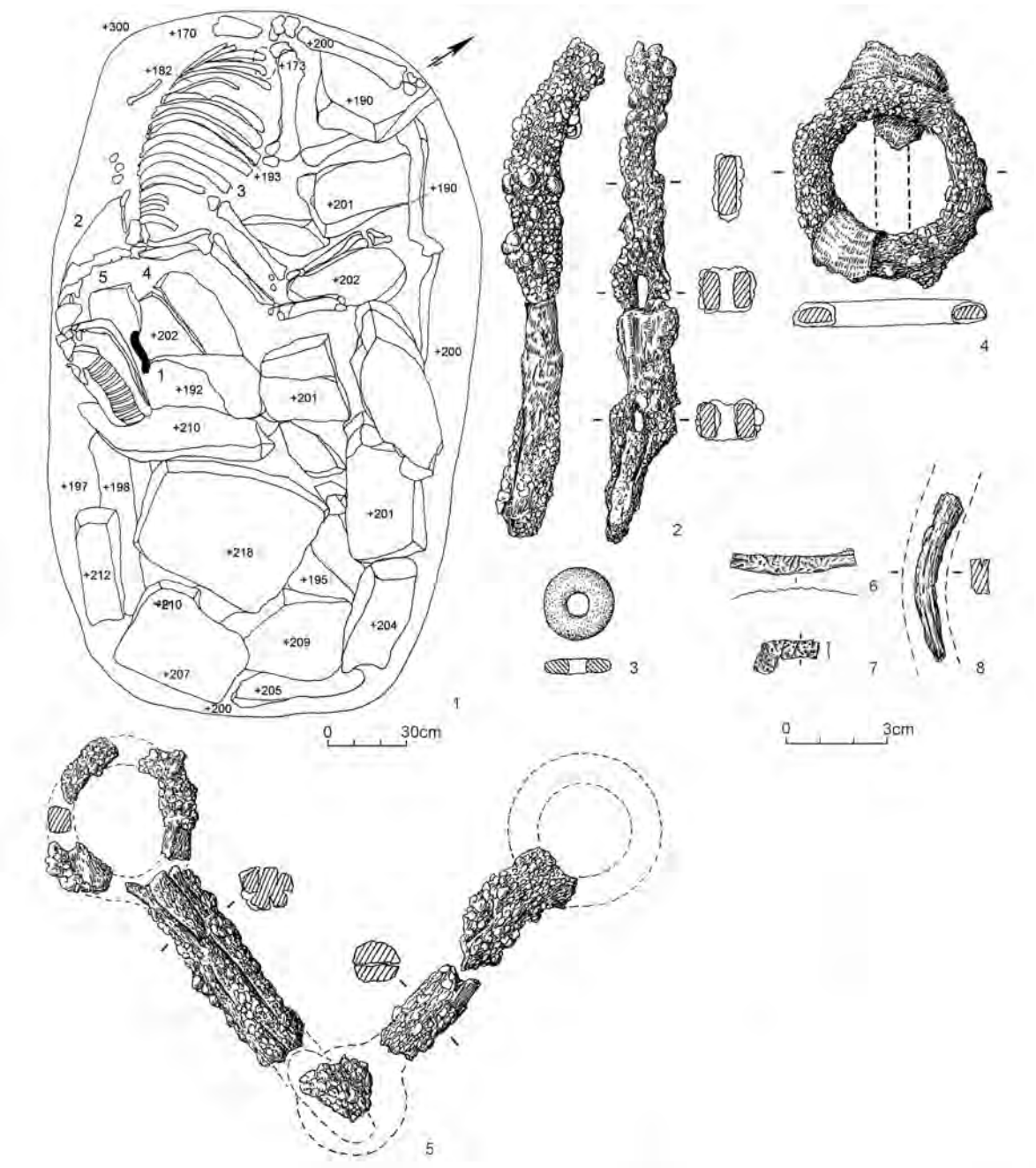


Fig. 12. Ialoman-II. Kurgan 43. 1 Plan of the burial with a horse deposited on top of the stone cover of the burial chamber. 2; 4; 5; 8 iron objects; 3 stone; 7 fragments of gold foil.

abdomen along with an iron buckle (Fig. 12,4). Paleobotanical analysis of one of the samples detected a seed of motherwort *Leonurus sp.* and a seed of water starweed *Eleocharis sp.*[9]. Between the stones beneath the horse skeleton was a stone disk (Fig. 12,3).

9 The determination was done by O. M. Korona, Institute of Plant and Animal Ecology, UB RAS.

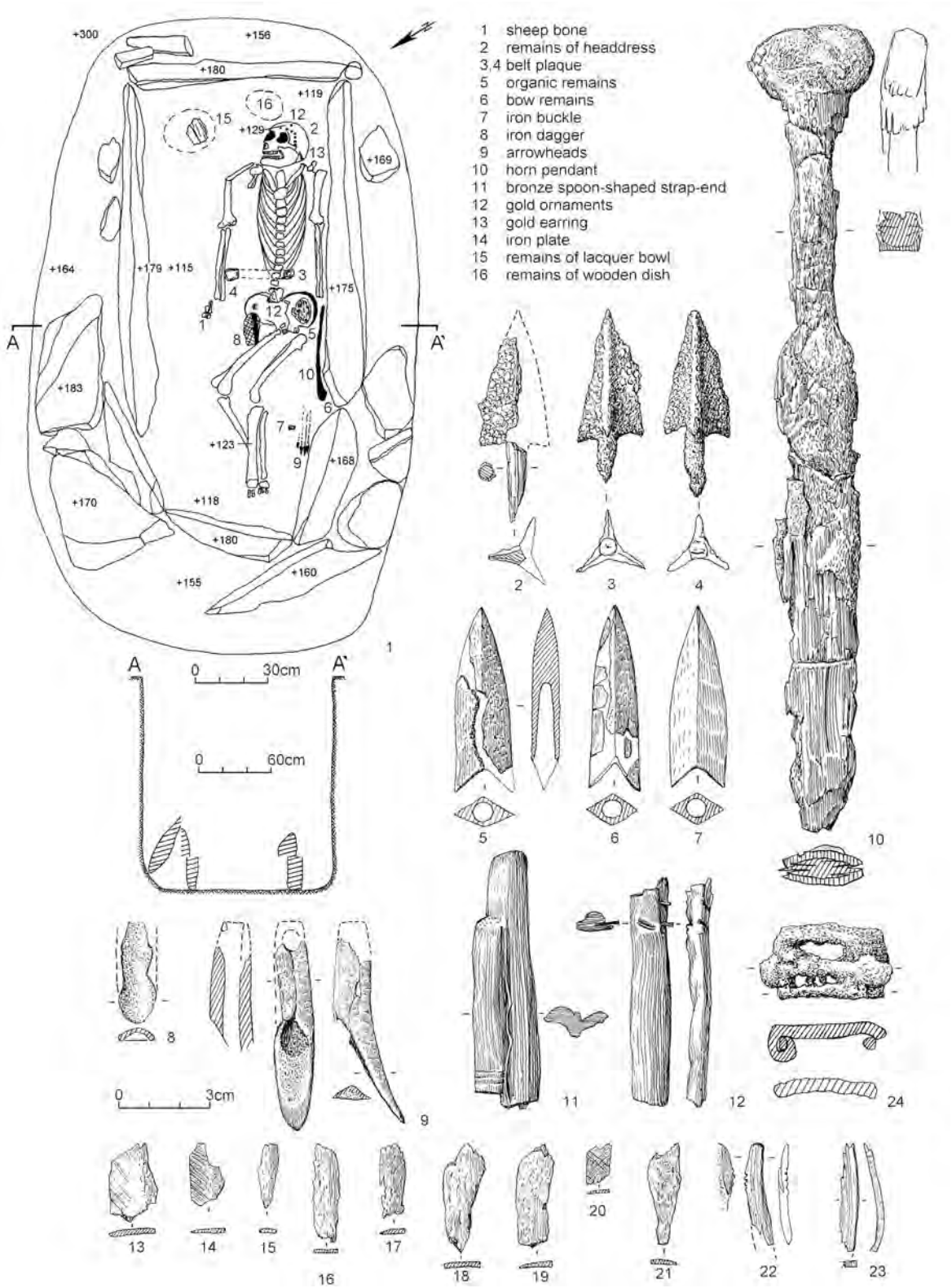


Fig. 13. Ialoman-II. Kurgan 43. 1 Plan and profile of the burial pit; 2–4 iron arrowheads; 5–7 bone arrowheads; 8 bronze strap-end; 9 horn strap-end; 10 iron dagger; 11–23 bow strengthener, bone; 24 iron buckle.

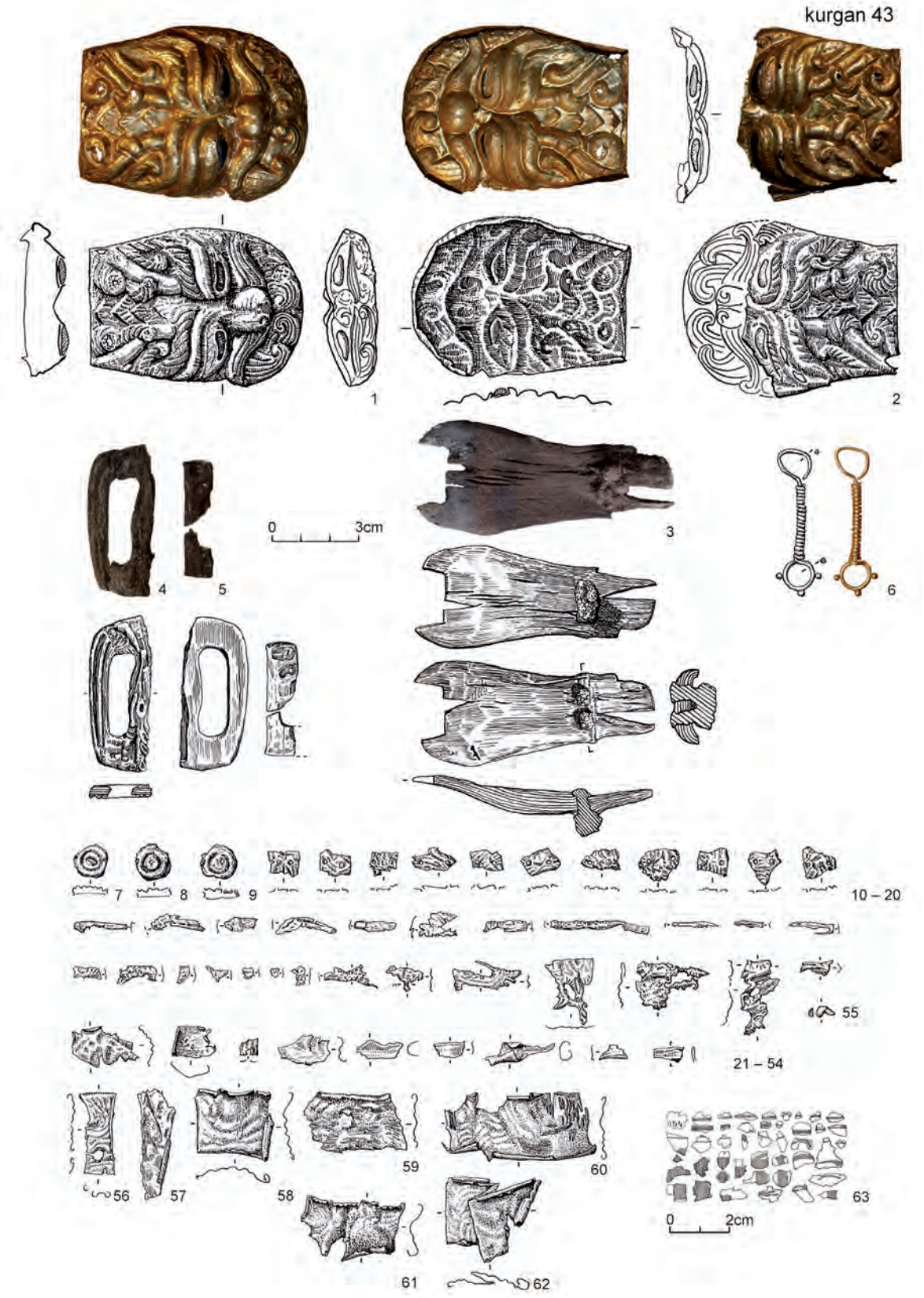


Fig. 14. Ialoman-II. Kurgan 43. 1–2 Gold foil cover of belt buckle with stone incrustation; 3 wooden plaque with iron pin; 4–5 wooden plaque; 6 gold earring; 7–9 gold ornaments; 10–54 gold foil fragments; 55 stone; 56–62 lacquer fragments; 63 lacquer fragments of bowl.

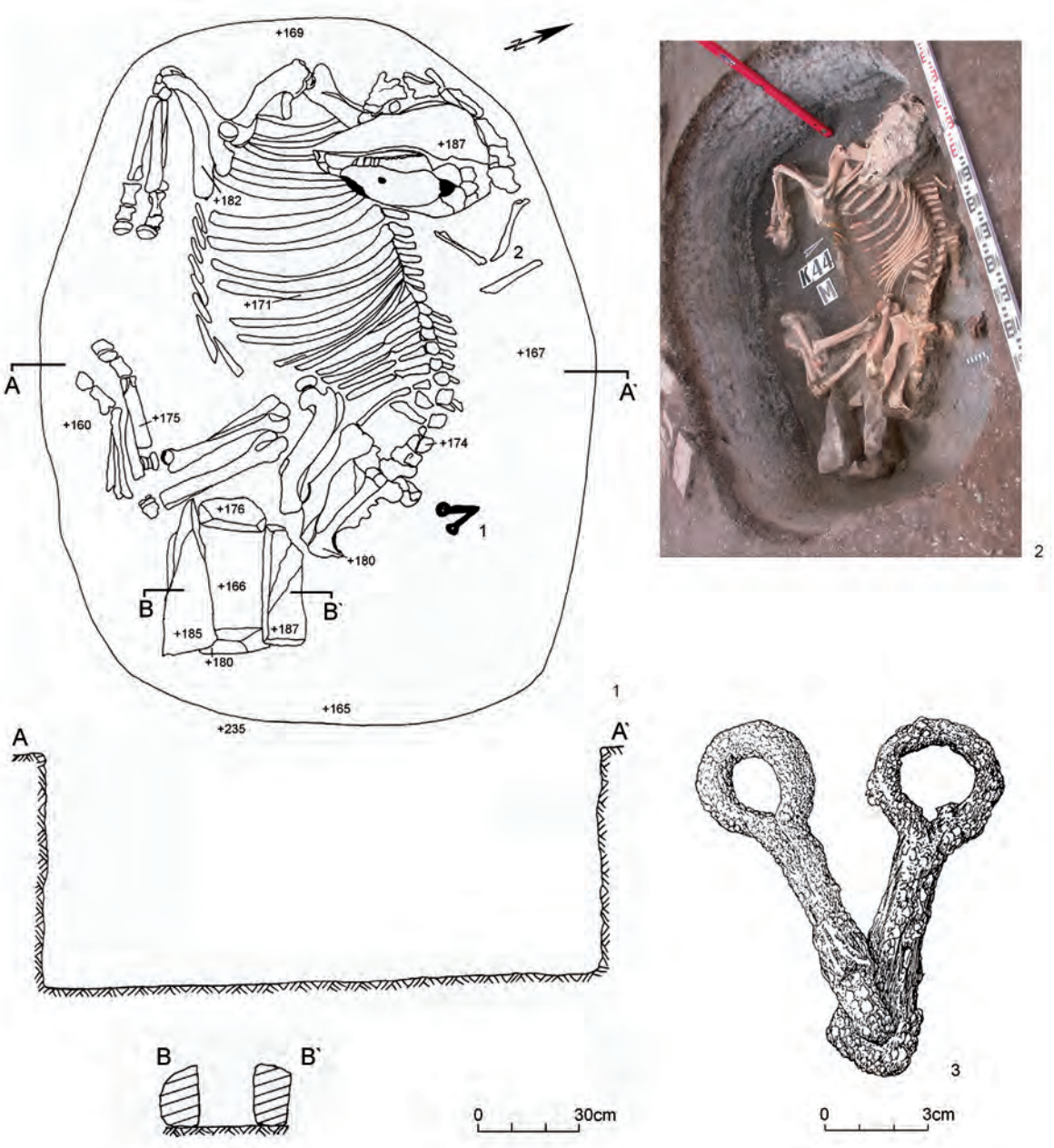


Fig. 15. Ialoman-II. Kurgan 44. 1–2 Plan of horse burial; 3 iron bridle.

The rectangular stone cist beneath the horse skeleton was made of large slabs, some of which were reinforced with additional stones, and placed on the bottom of the grave pit a meter and a half below the surface. The cist measured 2.1 × 1.05 m and stood 0.6–0.65 m high (Fig. 13,1). The interior of the cist measured 1.9 × 0.76 and contained the undisturbed skeleton of a male aged 30–40 years[10]. He was laid on his right side with his legs slightly bent, the right leg bent more than the left one, his arms stretched alongside his body, and his head oriented southeast. Near the bones of the right hand were some small cattle tail bones.

10 Determinations were made by S. S. Tur, Head of the Anthropology at Altai State University.

Small gold foil ornaments for decorating a headdress, indicated by the tiny holes for sewing, were found on the skull (Fig. 14,7–20). Three round pieces were placed in one line, and the rest of the small rectangular and shapeless items (11 pieces) were probably sewed along the edge of the headdress. Organic dust, perhaps form the headdress, was found around and on the skull. A gold wire earring with three beadlets soldered to it was found in the area of the left ear (Fig. 14,6). Remains of a leather belt were found over the waist, where numerous pieces of lacquer, up to 2.5 cm wide, were strewn. The underside of the lacquer fragments were blackened while the outer sides were reddish-maroon in color, and some traces of holes were detected on the lacquer pieces. Small scraps of gold foil and little stones were also found in some places along with the lacquer fragments (Fig. 14,21–62). The main components of the belt consisted of a gold buckle plate made in the image of a horned "dragon" beast with mustache and stone inlays for eyes (Fig. 14,2) overtop a wooden base of a buckle, fastened to the belt with an iron pin, cut with the same dimensions of the gold buckle piece (Fig. 14,3). A second intact and identical gold belt piece was found between the bones of the right arm and the ribs. This gold buckle sheet lay face down and was better preserved, still with the black stones inlaid for the eyes (Fig. 14,1). Not far away from it were fragments of another wooden buckle base, sized 5 × 2.1 × 0.5 cm (Fig. 14,5.6). This one was without a tongue but with a characteristic protuberance for retaining the belt. Thin pieces of gold foil also remained near the belt and on it as well as some fragments of the wooden details of the belt. The dusty remains of clothing scraps were found beneath and next to the skeleton. Among these remains were layers of some thin fabric (perhaps, silk) as well as thick felt and other organic materials. Near the femur of the right leg was a true iron dagger in a poorly preserved sheath (Fig. 13,10). On the pelvis were organic remnants, either from the belt or other belt hangings, among which were found some fragments of gold foil.

To the left of the body were the remains of a compound bow. We managed to remove only a part of the fragmented bone plates (Fig. 13,11–23), but observed notches on some of the pieces, perhaps for attaching to the wood of the bow. We also took the wood of the ancient bow for wood analysis[11]. To the left of the deceased man, between the leg bones and the wall of the cist, was a quiver, though only organic scraps and an iron rectangular buckle (3.5 × 2. 5 × 0.6 cm; Fig. 13,24) remained of it. These remains were found along with some fragments of three bone (horn?) arrowheads and four iron arrowheads which lay near the bottom of the quiver (Fig. 13,2–7). The bone arrowheads were about 6.5 cm long, socketed, and had protruding barb edges at the bottom. Two of the iron arrowheads were greatly corroded but retained their shape (Fig. 13,3–4) while the other two had become shapeless oxides. The shafts of the arrows had mostly decayed, leaving only scant remnant of the tree wood, which was taken for wood analysis. In pelvic area was found a fragment of spoon-like pendant (Fig. 13,8) and an almost complete pendant made of horn was found near the bow (Fig. 13,9).

Large fragments of a previously intact small lacquered Chinese cup, indicated by red designs on black background, were found above the skull in the eastern corner of the cist, though this lacquer vessel fell to pieces during excavation and the removal of fragments. Another wooden item, which was completely destroyed but had been either a dish or bowl, was also found above the skull, indicated as an oval spot in Fig. 13,1. Samples taken from the wood objects discovered in the burial, from the small lacquered cup, the ancient bow, the arrow shaft, and wooden belt

11 All selected samples of wood were sent to the Laboratory of scientific and technical expertise of the State Hermitage, St. Petersburg, and were studied by M. I. Kolosova.

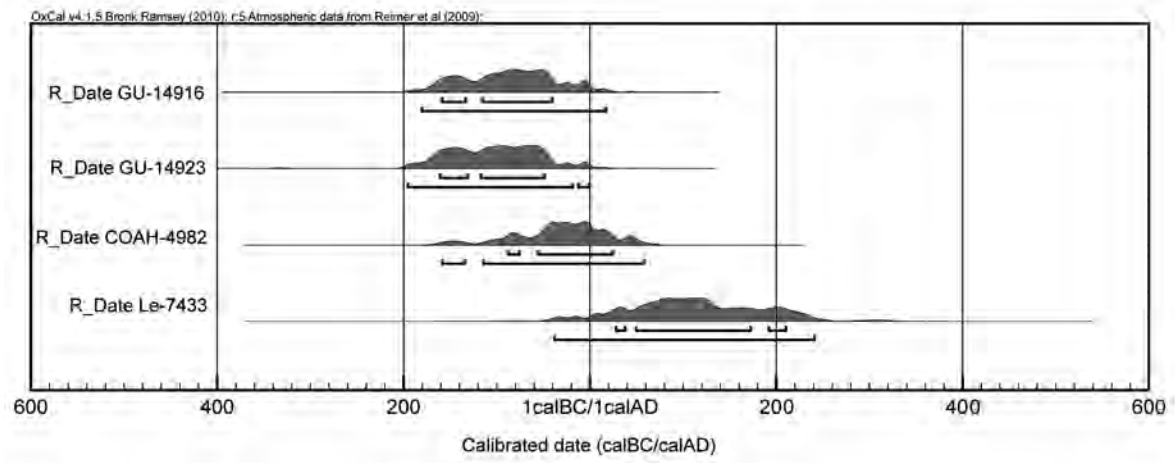


Fig. 16. Multiplot of four radiocarbon dates for kurgan 51 from Ialoman-II. GU-14915 fragment of felt (2065±35 years); GU-14923 fragment of wooden bowl (2080±35 years); COAH-4982 horse bone (2025±35 years); Le-7433 bone (1900±60 years). Calibrated with OxCal 4.1.

elements, were sent for analysis. The results of the investigation together with other definitions are planned to be placed in a separate article as a part of a special program (Tishkin 2009).

To the immediate south-southwest of kurgan 43 were the indistinct stone remains of kurgan 44, detectable mostly by the standing stones and pile of rocks about 0.1m above the surface that measured 2.6 × 2.1 m (Fig. 10). To the east-southeast of this kurgan was a vertical stone that stood 0.43 m above the surface and was placed into an oval shaped pit 0.5 × 0.4 m and 0.24 m deep. The stone was 0.5 m long, 0.23 m wide, and 0.11 m thick. A second standing stone, in a slanted position, was found 2.75 m to the east of the first one. The pit in which this stone was standing was 0.37 m wide and 0.18 m deep, which then narrowed to 0.12 m wide and went another 0.09 m deep. The stone was 0.48 m long, 0.22 m wide, and 0.12 m thick. This second further stone may have been associated with kurgan 44, but, along with those stones standing near kurgans 43 and 44, it was located more or less within a north-south line.

The burial pit beneath the stones was 2.15 × 1.68 m, oriented along a west-southwest to east-northeast axis, and stood out as a lighter color. A burned spot was found where there appears to have been a fire near the ancient surface, and some charcoal dust and clumps also appeared in the grave fill. These were taken for radiocarbon analysis. About 0.5 m below the surface was found the skull and entire skeleton of a medium-sized stallion aged 15–20 years. The animal, which took up the majority of the pit, lay in the grave pit on its right side, with legs slightly bent and head turned toward its body, and was oriented east-west (Fig. 15,1). Next to the skull of the horse were some sheep bones, next to the pelvis was an iron bit (Fig. 15,3), and in the area of the abdomen were some traces of decayed green organic material. These organic samples were taken for coprolite analysis. To the southeast corner of the pit, near the bones of the horse's hind legs, was a small cist with four stones and no lid measuring 0.48 × 0.42 m and 0.14 m tall (Fig. 15,1). The small cist was oriented southeast to northwest, and nothing but organic traces were found within the 0.3 × 0.2 m interior space. Such "cenotaph" burials as this have been unearthed during earlier excavations at the site. Features 42 and 44 possibly symbolized accompanying attendants of the deceased warrior in kurgan 43. Such a tradition existed in China during the Han era.

The tumuli represented by kurgans 42–44 and 51 of Ialoman-II relate to the Bulan-Koba culture of the Altai and can definitely be correlated to the Ust-Edigan stage, a period contemporaneous with the Xiongnu of 2nd century BC to 1st century AD (Tishkin/Gorbunov 2006). For kurgan 51 we have obtained four radiocarbon dates from various materials ranging from the end of the 2nd century BC to the 1st century AD (Fig. 16).

There are a great number of findings among the artifacts at this site that are analogous to materials found within the regions more strictly attributed to the Xiongnu[12].

[translated by Iulia Gavrilova]

12 For comparison see Amartüvshin/Khatanbaatar 2008; Davydova 1995; 1996; Devlet 1980; Duurlig Nars 2009; Erööl-Erdene/Gantulga 2008; Khudiakov 1998; Khudiakov et al 1990; Kovychev 2006; Konovalov 1976; Konovalov/Tsybiktarov 1988; Mamadakov 1987; Mandel'shtam/Stambul'nik 1992; Matrenin 2005; Miniaev/Sakhavorvskaia 2007b; Miniaev 2009; Mogil'nikov 1992; 1997; Sarianidi 1989; Semenov 2003; Sorokin 1977; Surazakov 1989; Teterin 1995; Tishkin 2007b.

PERMUTATIONS OF PERIPHERIES IN THE XIONGNU EMPIRE

Bryan K. Miller

Introduction

While scholars have used varied concepts of empire to construct models of imperial expansion applicable to the Xiongnu entity (Barfield 1981; 2001a; Honeychurch/Amartüvshin 2006a), there has been a general lack of structured investigations of the degrees of political integration in the peripheries of the polity. Political strategies of integration among the Xiongnu changed significantly during the course of the empire (see Miller 2009). In the early period (3rd to 1st centuries BC), interregional connectivity was reinforced through prestige goods systems that emphasized steppe style personal ornamentation, but great interregional variety existed in burial practices, implying a lack of cohesive social traditions throughout the empire. In the later period (1st century BC to 1st century AD), mortuary practices become extremely standardized between regions, yet hierarchical differentiations within burial traditions become more pronounced and an entirely new category of elite burials (i.e. square tombs) appears. In addition, prestige goods systems begin to emphasize foreign objects and styles alongside the typical steppe assemblages of vessels and personal ornamentation. The shift between these two periods may be summarized as progressing from (1) globalization processes with interregional connectivity evident in trade networks and elite prestige systems to (2) socialization processes with interregional integration through the incorporation of local communities into social networks and formalized interregional practices. Some researchers have argued that increased "global" connectivity is the necessary foundation for interregional integration and the "socialized" cohesion of distinct groups (Gosline 2006). However, these processes are neither binary opposites, nor are they necessarily contiguous developments. We may consider them as parallel processes that can address different manners of integrating separate regions of a single polity. In order to investigate the varying permutations of peripheries in the Xiongnu empire this paper will consider evidence in four outlying areas for connectivity of local elites to imperial networks through participation in macro-regional prestige systems, and for incorporation of local elites into imperial networks through the adoption of standardized ritual practices in mortuary arenas.

Concepts of peripheries have often been couched within core-periphery constructs (e.g. Chase-Dunn/Hall 1997) and thus been subject to unidirectional models of cultural change built around passive peripheries and their integration into the spheres of dominant cores (Lightfoot/Martinez 1995). Yet some studies of hinterland areas have reconsidered peripheries as dynamic zones of interaction in which hybrid forms of cultures appear, rather than imbalanced frontiers of expansion or borders between distinct, mutually-exclusive entities (Rodseth/Parker 2005). Peripheries of empires are not merely extensions or reproductions of imperial cores; they are "controlled but dynamic" extensions of the polity (Smith 2005, 216). While they may exhibit

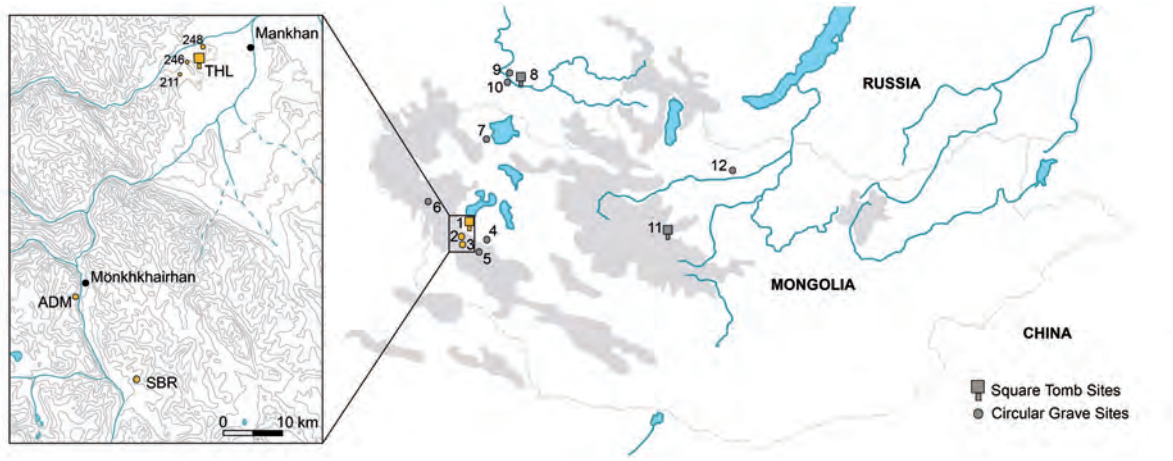


Fig. 1. Map of sites in the western peripheries. 1 Takhiltyn Khotgor (THL); 2 Aduuchyn Am; 3 Shombuuzyn Belchir (SBR); 4 Baishin Üzüür and Doloot; 5 Möst; 6 Delgüün; 7 Ulaangom; 8 Bai-Dag II; 9 Terezin; 10 Aimyrlyg XXXI; 11 Gol Mod 2 (GM2); 12 Burkhan Tolgoi (BRH).

connectivity to other regions of the empire through competitive expressions of imperial authority, these material expressions may also occur alongside mixed elements of indigenous traditions and imperial customs.

This fluctuating and diverse character of peripheries in empires can therefore make imperial polities difficult to define archaeologically (Alcock et al. 2001; Alconini 2005; Parker 2003). Delineations of imperial domains must recognize potential "empty spaces" of political control within their realms (Upham 1992), islands of political extensions far beyond established territories (Parker 2003), and radically different forms of peripheral regions that define the extents of their realms. The reach of political control often differs drastically from the limits of political influence for an empire (Doyle 1986), yet the true extent of "effective sovereignty" is almost impossible to determine from material remains. Therefore, an archaeological investigation of the thresholds of an empire must be limited to the peripheries in which it exerts some degree of materially measurable integration.

Outlying areas of empires often contain nodes of political control, which are identifiable by investments in ritual arenas that demonstrate a connection to imperial networks. Some analyses of peripheral areas attempt to identify "dis-embedded centers" of empires, which reiterate core imperial material culture, while asserting that local communities and their constituents exhibit no evidence of integration (Alconini 2008). However, other scholars argue for more inclusive manners of imperial integration in peripheries, with evidence for "globalizing" processes that reach beyond the uppermost social echelon and incorporate not only the imperial elites in such hinterland areas but also local communities (Pitts 2008). While the participation of peripheral local communities in imperial political economies connects them to broader social networks of the empire, it is in fact the adoption of the social rituals and cultural practices of the imperial elite by local leaders that formally incorporates them and their constituent communities into the imperial political system.

This paper therefore examines the degrees of integration of four peripheral regions of the Xiongnu empire – east, south, northwest, and southwest – through a structured comparison of several archaeological variables with patterns of material culture in the core areas of the Xiongnu empire: (1) compositions of mortuary sites, (2) burial forms and furnishings, and (3) burial

goods, both prestige and daily-use items. In order to test patterns of and evidence for integration in the peripheries, recent excavation and survey data from several sites in a region in the southern Altai, the Tsenkher river valley, is used as a case study for the southwestern periphery of the Xiongnu empire (Fig. 1). This is compared to data from two type-sites and their surroundings in the core areas of central Mongolia – Burkhan Tolgoi cemetery in Egiin Gol valley (Törbat et al. 2003; Wright et al. 2009) and Gol Mod 2 cemetery in Khanui valley (Allard et al. 2002; Miller et al. 2006). This detailed study of the southwestern periphery, based on a substantial data set, allows for qualitative and quantitative analyses of site size/composition and burial size/structure, and is augmented by test excavations that provide data on burial furnishings, burial goods, and interment practices. This information is then used to examine general observations of imperial integration in the western periphery and compare it to cemeteries and burials in the core regions of the Xiongnu empire, i.e., central and eastern Mongolia and Transbaikalia.

Peripheries of the Xiongnu Empire

Archaeological investigations of frontier dynamics in the Xiongnu empire have long been shaped by discussions of the Chinese historical records, which concentrate on the Chinese frontier along the Great Wall. To some extent, these texts also mention nomadic groups which were located between the northeastern frontier of the Han empire and the southeastern frontier of the Xiongnu empire. Historical narratives provide some insight into the conquests and spheres of influence of the Xiongnu steppe empire, both in areas bordering the Han empire and in the Western Regions of the so-called Silk Roads. Chinese narratives of frontier history are by nature biased and vague, making it difficult to ultilize them as a source to delineate the extents of Xiongnu control or identify regions directly integrated into the empire. Therefore, these historical texts need to be empirically tested using material remains recovered from archaeological excavations, to address the degrees of social and economic interaction and the formal degrees of political integration.

The Eastern Periphery

The area of present-day northeastern Inner Mongolia was the home to several nomadic groups that interacted with the Xiongnu and Han empires. These groups were considered collectively as the "northern barbarians in the east", or the Eastern Hu (Dong Hu), in early Han texts, and were later recognized as the distinct groups of Xianbei and Wuhuan[1]. The styles and forms of some ceramic vessels, metal cauldrons, and even burial furnishings bear great resemblance to

1 Although Chinese historical narratives about the establishment of the Xiongnu empire speak of the Eastern Hu leaders being destroyed and their constituents being incorporated into the Xiongnu ranks (Sima Qian 1959, 2889), archaeological remains of the first century BC to first century AD in northeastern Inner Mongolia have been attributed by Chinese archaeologists to the Xianbei rather than the Xiongnu. A synthesis of these "early Xianbei" sites in modern-day Inner Mongolia is given in the edited volume by Wei (2004). The main cemeteries include Zhalainuo'er (Chen/Bai 1994; Nei Menggu 1994), Labudalin (Nei Menggu et al. 1994), Qika (Hulun 1997), and Yihewula (Wei 2004, 216–219), all of which are in the vicinity of Lake Hulun near the eastern border of modern Mongolia.

those in the Mongolian steppes. However, the manufacture of wood items, weaponry, and other ceramic and birch-bark vessels, as well as the structures of burials, all indicate the perpetuation of local burial customs and craftwork traditions for the eastern peripheries of the steppes. Despite historical accounts of early Xiongnu conquests of the regions of the Eastern Hu, the archaeological record of this eastern periphery shows evidence only for interaction with the Mongolian steppes and participation in interregional economic networks and not for the integration of local leaders into social networks of the empire.

The Southern Periphery

Chinese historical narratives speak of powerful nomadic peoples in the areas of northern China during the middle first millennium BC[2]. Archaeological evidence corroborates the presence of pastoral groups and nomadic elites in the centuries leading up to the emergence of empires throughout frontier zone of the Great Wall (Di Cosmo 2002). Archaeological reports and studies of the past few decades have repeatedly equated these remains to early Xiongnu peoples (Miniaev 1985; Tian/Guo 1986). However, recent research has begun to challenge broad attributions of the name Xiongnu to all the sites in the northern zone, and instead proposes an assortment of pastoral groups evidenced by distinct material cultural assemblages different from both the Chinese central plains to the south and the Mongolian steppes to the north (Wu'en 2007; 2008). The groups represented by such famous sites as Taohongbala, Xigoupan, and Aluchaideng, are nomadic groups indigenous to the Great Wall zone – cultures of a pre-Xiongnu-polity rather than proto-Xiongnu-culture phase of the southern periphery of the steppes[3].

The southern periphery can be discussed in several phases discerned from the highly variable archaeological record. This periphery fluctuates, as during the early period of the Xiongnu empire there is evidence of related sites and material remains. However, this rapidly gives way to an overabundance of remains related to the Han Chinese for most of the later period of the Xiongnu empire. Only in the final period of the Xiongnu empire do materials which may attributed to non-Chinese nomadic groups reappear in significant numbers within this southern periphery. While these phases of archaeological material seem to demonstrate an oscillating pattern of domination from steppe to Chinese and back to steppe connections, this area, like the eastern periphery, yields no evidence during the later periods of the Xiongnu empire for the local adoption of the core assemblage of Xiongnu prestige goods nor the collection of Xiongnu social and ritual practices as seen in the Mongolian steppes.

Phase I: The earliest archaeological evidence in the southern periphery for groups attributable to the Xiongnu phenomenon can be found only at a handful of sites dating to the 2nd to 1st centuries BC: Budonggou, Daodunzi, Keshengzhunag (see Pan, this volume). The pottery forms and styles, as well as prestige goods assemblages at these sites are exact copies of contemporaneous materials from northern Xiongnu sites in Transbaikalia (Davydova 1996; Miniaev 1998) and Tuva

2 See Pan (this volume) for detailed descriptions of the Xiongnu related remains along China's northern frontier.

3 These sites, which were excavated in the 1970s and 80s, were given the label of "Xiongnu" at the time of initial publication, mostly because they were deemed to be clearly non-Chinese and therefore must be Xiongnu. They have, for the most part, carried that attribution into subsequent archaeological, historical, and art historical research ever since (e.g. Di Cosmo 1999a; Psarras 1995) with little to no challenge to this labeling (cf. Wu'en 2007; Pan, this volume). See initial excavation reports of these sites in Tian 1976; Tian/Guo 1980a; 1980b; 1986; Yikezhaomeng/Nei Menggu 1980a; 1980b.

(Mandel'shtam/Stambul'nik 1992; Leus, this volume). However, burial traditions appear to be locally distinct and quite different between these disparate areas. These communities were thus very clearly connected to long-distance economic networks of the steppes and participated in similar elite expressions of steppe identity, which evidence of interaction with the Xiongnu (Shelach 2009). However, the persistence of indigenous burial customs indicates a lack of the adoption of equivalent social practices and integration into social networks of the Mongolian steppes.

Phase II: During the late 1st century BC to early 1st century AD, when an even larger assortment of Xiongnu cemeteries and walled sites suddenly appeared in the Mongolian steppes, the southern periphery of the steppes exhibited a complete lack of sites attributable to the Xiongnu. While significant changes were occurring within strategies of power politics among the Xiongnu elite and more monuments were being constructed in other regions, the southern periphery seems to have not been incorporated with these developments. Instead, a plethora of Han Chinese burials (Wei 1998) and walled sites (Nei Menggu/Tuoketuo 2004) appeared in this region, as well as fortresses far beyond the upper bend of the Yellow River and deep into the Gobi (see Amartüvshin et al. and Kovalev et al., this volume). This phase of the southern periphery may be equated to historical narratives of Han expansion and intensified military campaigns that penetrated the Xiongnu territories beyond the Great Wall.

Phase III: By the mid to late 1st century AD, during the final stages of the Xionngu empire, non-Chinese materials reappeared at the sites of Dabaodong and Xigoupan, demonstrating the presence of pastoral elites. Yet, these may very likely have been leaders of nomadic groups that were "settled" within the Han frontier system of attached states (Pan, this volume). Ceramics in these burials bear a striking resemblance to Xiongnu ceramics further north, and some tomb wall decorations and personal ornaments exhibit steppe traditions and themes. Nevertheless, the majority of prestige goods, burial furnishings, and grave structures exhibit Han Chinese traditions. Whether or not the individuals in these graves were "sinicized" nomads remains to be seen; however, while they may have interacted with the Xiongnu, they were clearly not integrated within the social or economic networks of the Xiongnu empire.

The Northwestern Periphery

Brief mention in the Chinese narratives of campaigns "northward" by the Xiongnu, provides a list of several groups across the northern periphery[4]. While this information is often used to discuss culture groups along the northern frontier, the lack of detailed textual evidence combined with incomplete archaeological data makes it difficult to characterize the extent of Xiongnu presence in these areas. Several Xiongnu period sites in present-day Tuva, however, provide some evidence for Xiongnu presence in the northwest, possibly more than the remains seen in the eastern and southern peripheries.

Large stone mounds with log chambers in the northern Altai areas, collectively labeled Pazyryk burials according to the name of their type-site (see Rudenko 1970), demonstrate the

4 Sima Qian 1959, 2893; The groups listed are Hunyu, Qushi, Dingling, Gekun, and Xin'er. No serious attempts have been made to identify these historically named groups with specific archaeological cultures of the late Iron Age in South Siberia or elsewhere, though the locations of these groups are so vague that any attempt to do so would be futile, not to mention limiting to our understanding of the areas north of present-day Mongolia.

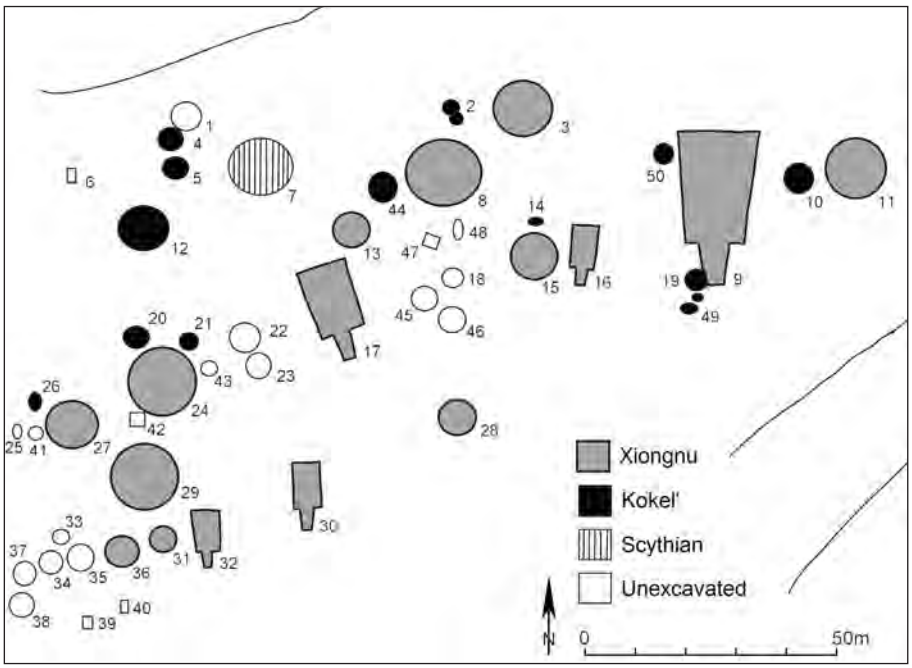


Fig. 2. Bai-Dag II cemetery (after Nikolaev 2003).

presence of powerful nomadic elites to the northwest of the Mongolian steppes during the centuries immediately preceding the formation of the Xiongnu empire[5]. Although we should be wary of matching vaguely located far-distant groups mentioned in the Chinese records, such as the Dingling and Kangju, to specific archaeological cultures northwest of the Xiongnu, large assemblies of monumental tombs in these regions attest to powerful nomadic groups throughout the late 1st millennium BC. A handful of sites in Tuva and the northern Altai area exemplify the incursion of Xiongnu prestige goods systems, and eventually mortuary features, into these areas of pre-existing powerful nomadic elites.

Early Xiongnu period burials at Terezin (Leus, this volume) contain openwork bronze rectangular plaques and rings which are exact copies of belt ornaments found in Transbaikalia at Ivolga (Davydova 1996) and Dyrestui (Miniaev 1998) as well as at sites in northern China, such as Daodunzi (Ningxia et al. 1988). These items, along with strings of cowry shells, link the individuals buried at Terezin to a particular and consistent prestige assemblage of belt ornamentation that spread during the early Xiongnu period from northern China to southern Siberia, and westward to the Altai. However, while the belt assemblages at Terezin appear identical to other regions associated with the Xiongnu phenomenon, the ceramic jars and pots are only somewhat similar, and the burial traditions are radically different. The small stone cists with flexed burials at Terezin stand in stark contrast to the long wood plank coffins with stretched interments at Ivolga and Dyrestui and to the numerous catacomb burials at Daodunzi. The northwestern periphery during the early Xiongnu period thus appears similar to other areas of

5 See also, Kubarev/Shul'ga 2007; Törbat et al. 2005b; 2007; 2008; Tseveendorzh et al. 2007d.

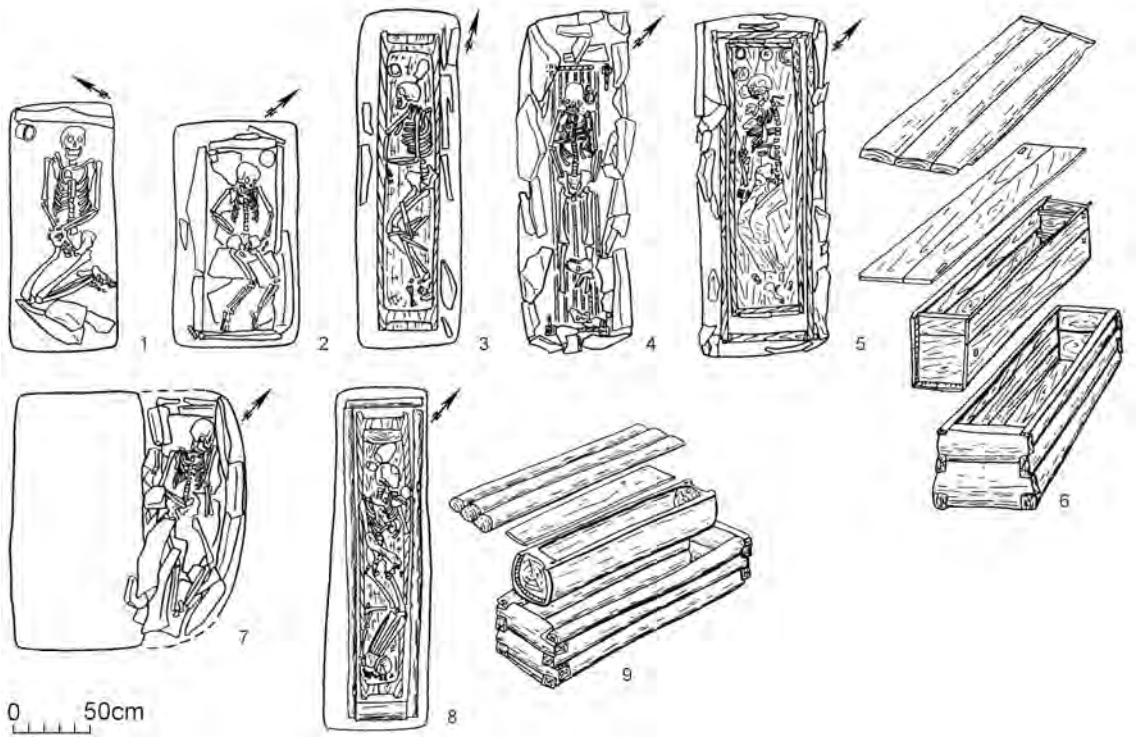


Fig. 3. Aimyrlyg XXXI graves (after Stambul'nik 1983).

the empire in its links to long-distance trade networks and "globalizing" processes of connectivity in the empire.

Two sites of the late Xiongnu period in the same area – Aimyrlyg XXXI (Stambul'nik 1983) and Bai-Dag II (Nikolaev 2003) – demonstrate the adoption of Xiongnu burial customs seen in the Mongolian steppes during the late Xiongnu period along with a continuation of indigenous traditions, resulting in cemeteries whose layouts and interments are a combination of local and non-local cultures. Bai-Dag II cemetery contains five square ramped Xiongnu tombs and ten circular Xiongnu graves, but these are found alongside graves of a local Kokel' culture and graves of the so-called 'Scythian' culture (Fig. 2). Brief descriptions and drawings of the burials at nearby Aimyrlyg XXXI show a presence of wood plank coffins oriented north with stretched bodies, typical of Xiongnu interments in the Mongolian steppes (Fig. 3). Other graves at the same cemetery, however, include stone cists with flexed bodies, like those at the earlier Terezin cemetery, as well as flexed interments within wood plank and log cut coffins. The occurrence of different burial types within the single cemeteries of Bai-Dag II and Aimyrlyg XXXI suggests that Xiongnu graves in the northwest were often placed within pre-existing cemeteries or alongside contemporaneous interments of different cultural traditions[6]. The presence of burials with mixed customs at Aimyrlyg XXXI, on the other hand, demonstrates the adoption of Xiongnu burial structures with the preservation of local ritual customs. While the northwestern periphery

6 This pattern is also demonstrated by the presence of two Xiongnu burials found at the Ulaangom cemetery near Uvs Lake, which is occupied mostly by dozens of log chamber tombs of the late Bronze Age Chand'man culture (Novgorodova et al. 1982).

of the Xiongnu empire would appear to be a dynamic and fluid zone in which differing cultures overlapped, interacted, and even mixed, we must nonetheless recognize the presence of wholly Xiongnu style circular graves and square tombs, features which do not appear in the eastern or southern peripheries during the late Xiongnu period. This implies a stronger Xiongnu presence and higher degree of incorporation into imperial social traditions and networks in the northwest. The last of the four regions – the southwestern periphery – yields the strongest archaeological evidence for integration into the Xiongnu empire.

CASE STUDY OF THE SOUTHERN ALTAI: THE XIONGNU PRESENCE IN THE SOUTHWESTERN PERIPHERY

Surveys and excavations in the southern reaches of the Mongolian Altai in present-day Khovd aimag reveal evidence of a significant Xiongnu presence during the later centuries of the empire.[7] This stands in stark contrast to the adjacent northern Altai, in present-day Baian-Ölgii aimag , where an abundance of early Iron Age Pazyryk sites immediately preceding the Xiongnu empire (n=85) are followed by a very minimal presence of Xiongnu sites (n=4) (Törbat et al. 2009). Despite greater evidence for Xiongnu imperial expansion into the southern Altai, this southwestern periphery shows slight variations from the Mongolian steppes and should not be considered a pure equivalent of other Xiongnu sites or seen as exhibiting imperial "dis-embedded centers" (Alconini 2008). Evidence at mortuary sites reveals that the Xiongnu presence in the southern Altai was indeed "embedded" in the local communities and local leaders were in turn "embedded" in macro-regional social and economic networks of the Xiongnu empire. The following case study utilizes data from type-sites in the core areas, as well as overall material patterns of Xiongnu sites in the Mongolian steppes, to conduct comparative analyses of site patterning, burial forms, and burial goods in the southern Altai in order to discern the extent to which the communities of the southwestern periphery were integrated into the Xiongnu empire.

Circular Grave Sites of the Xiongnu

A synthesis of all documented Xiongnu circular grave sites shows that most cemeteries contain less than 100 graves (n=55, $\bar{x}$=75.16), and the majority contain between 10–50 graves (Miller 2009). However, this collective data stems from previous archaeological investigations, which emphasized the discovery and documentation of large cemeteries and large burials. This mean size of circular grave sites most likely does not include smaller subsidiary sites and thus overestimates the mean size of Xiongnu sites. Intensive surveys in the Egiin Gol valley of central

7 Initial surveys and mapping of cemeteries in Darvi, Mankhan, and Mönkhkhairkhan sums of Khovd aimag were conducted in 2006 by B. K. Miller and D. Erdenebaatar as part of an American Center for Mongolian Studies Field Research Grant. Excavations at Takhiltyn Khotgor and Shombuuzyn Belchir cemeteries were conducted in 2007, 2008, and 2010 as part of the Mongol-American Khovd Archaeology Project (National Museum of Mongolia and University of Pennsylvania Museum of Archaeology and Anthropology).

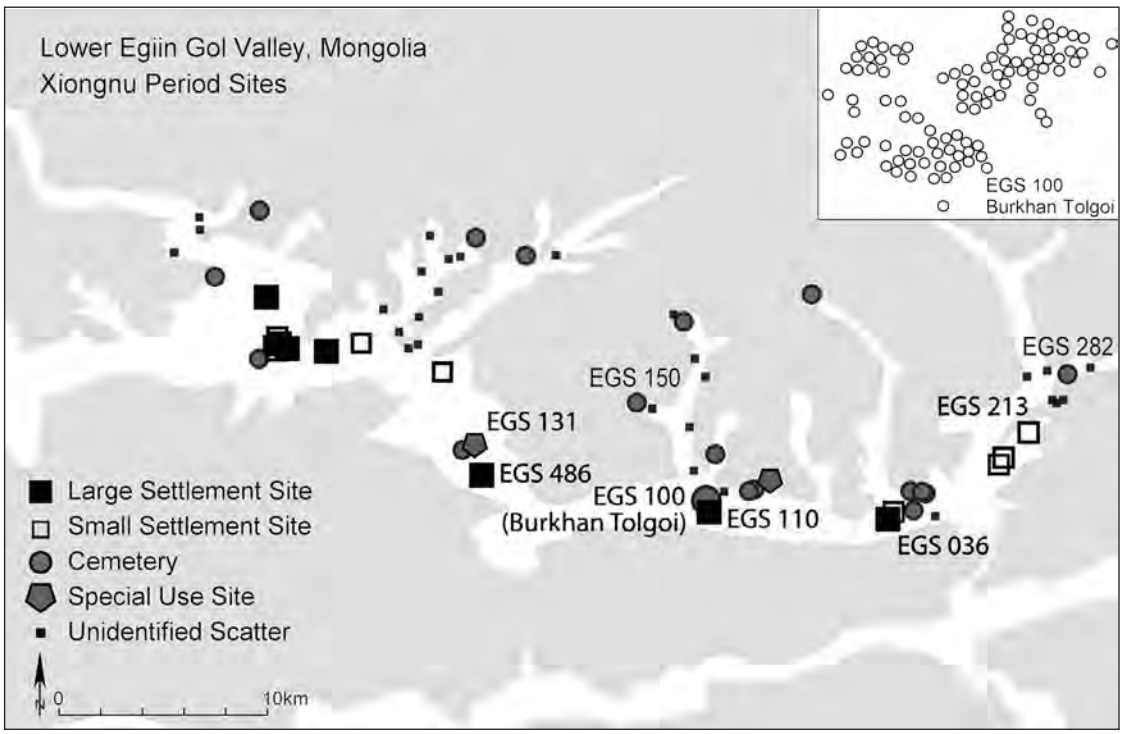


Fig. 4. Burkhan Tolgoi cemetery and Egiin Gol valley sites (after Törbat et al. 2003; Wright et al. 2009).

Mongolia documented all related Xiongnu sites (Fig. 4), not just conspicuous cemeteries, and revealed a distribution of extremely small burial sites and one large cemetery in the area of a large valley and its tributaries (Wright et al. 2009). The large cemetery, Burkhan Tolgoi (EGS 100), has 97 burials, while the smaller sites have between one to six burials, half of which are sites with a singular circular grave. The Burkhan Tolgoi cemetery far outweighs the others, and the next largest sites after this central burial ground are sites with six graves (EGS 150) and five graves (EGS 282), each of which were located in small side valleys approximately 10 km apart. Xiongnu sites are most often, but not always, placed separate from the main river courses and preceding Bronze Age monumental sites, and there is a clear differentiation at Egiin Gol between the placement of Bronze Age and subsequent Xiongnu features (Wright et al. 2009). Thus, this valley exhibits a general pattern of a few cemetery areas numerous kilometers apart functioning as micro-regional nodes, with one large burial ground far outweighing the others. It would appear, then, that the mean size of all documented circular grave sites is representative not of all such potential sites but of the central burial grounds. More focused surveys in the vicinities of these larger cemeteries are therefore needed in order to fully contextualize these micro-regions.

A small-scale survey of approximately 40 km^2 in the vicinity of the large cemetery at Takhiltyn Khotgor (THL) discovered three small Xiongnu burial grounds of circular graves, each approximately 5 km apart and containing less than 30 burials (Williams 2008) (Fig. 1): THL 211 (n=14), THL 246 (n=7), THL 248 (n=26). In the high mountain passes of Mönkhkhairkhan sum, the sites of Aduuchyn Am (ADM) and Shombuuzyn Belchir (SBR) are located approximately 15 km apart in independent open areas separated by narrow passes and contain 27 and 33 burials, respectively. Nevertheless, no other definitive Xiongnu burial sites were found in their immediate

vicinity[8]. Xiongnu cemeteries documented in the core areas are located in places separate from monuments of earlier periods, and quite often placed inside valleys away from the main river courses or in areas otherwise not in view of the main pathways (see also Johannesson, this volume). The Xiongnu cemeteries in Mankhan sum are located on the surrounding slopes within several kilometers of Takhiltyn Khotgor cemetery, which is also set in a small area away from the main river courses, while Bronze Age stone mounds are found all around the hillsides as well as along both river ways north and south of the Takhilt area and especially clustered around the confluences of the two rivers adjacent to the modern town of Mankhan (Williams 2008). Shombuuzyn Belchir cemetery is located in an enclosed mountain niche up from the Tsenkher river way, while numerous Bronze Age monuments are scattered along either side of the river and in the open area east of the river. Aduuchyn Am cemetery, on the other hand, is located next to a steep slope at the edge of the open area where the modern town of Mönkhkhairkhan resides, beside one of the Bronze Age burial grounds in the vicinity of the town. Therefore, despite differentiations in site size and distance between sites, burial site distribution during the Xiongnu period in the Tsenkher region seems to be similar to the distribution patterns of Egiin Gol and other places in the core.

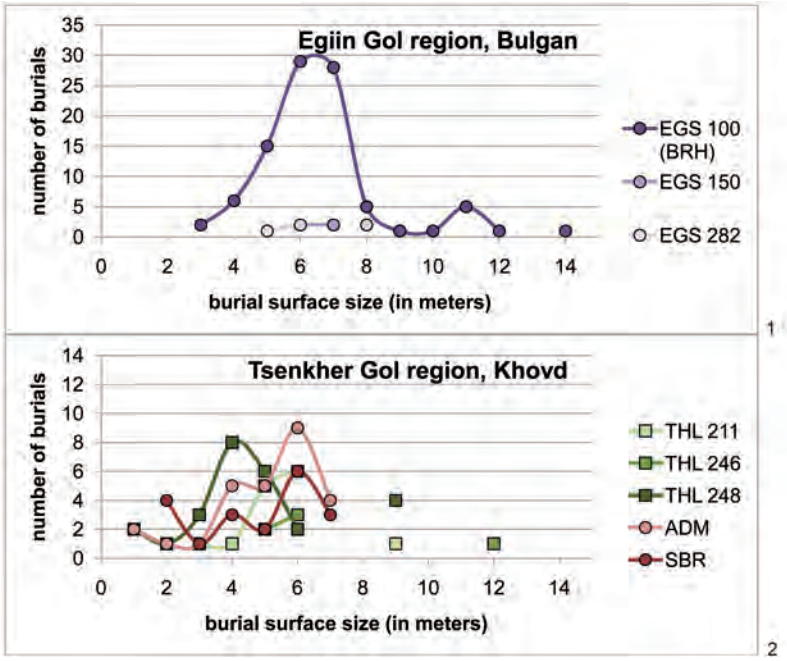


Fig. 5. Comparative distributions of burial sizes for standard circular grave sites in Egiin Gol, Bulgan aimag and Tsenkher Gol, Khovd aimag.

8 Several burial sites, of one to three round stone burials each, were found in the mountain recesses nearby or within a few kilometers of Shombuuzyn Belchir cemetery. While the general shape and size of these burials correlates to Xiongnu circular graves, individual graves of this type can also be confused with later Türkic graves (6th to 8th centuries AD), which are marked by round collections of stones approximately the same breadth in diameter. Round stone demarcations of burials, especially when disturbed, cannot be used as a definitive determinant of periodization. Only through excavation of such individual graves, or perhaps contextualization of them within larger burial sites, can the cultural association of such features be unequivocally established. We must therefore allow for a category of "indeterminate" round burials in survey data, especially for lone grave findings (see Törbat et al. 2009, 173 pp.).

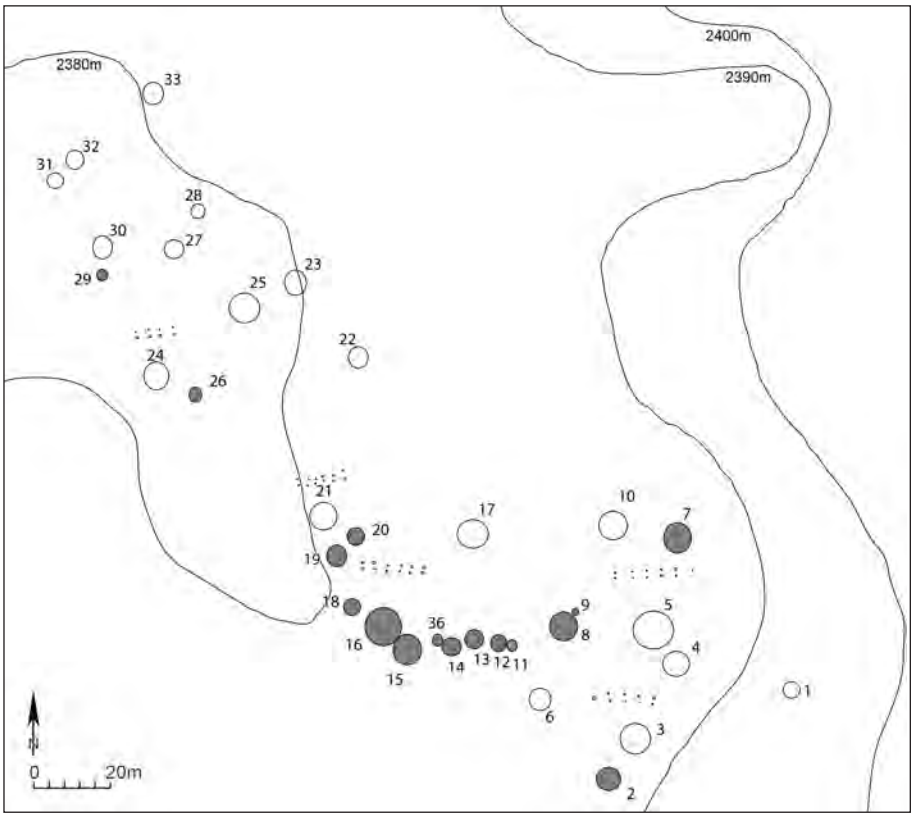


Fig. 6. Shombuuzyn Belchir cemetery, denoting excavated burials (Miller et al. 2011).

The rings of stones which mark the surfaces of circular graves vary in size throughout the regions of the Xiongnu empire (n=713, $\bar{x}$=5.73m, σ=2.66m). Within this mean size, two nodes of grave sizes are evident with the majority of them measuring 4–7 m in diameter, and a second node of graves measuring 10–12 m in diameter. Burial surface sizes measured during intensive surveys in Egiin Gol valley (Wright et al. 2009) are roughly equivalent to this distribution; therefore, this larger synthesis of data appears fairly representative of the entire spectrum of circular graves.

When compared with overall size averages, or with size distributions at Egiin Gol, the sizes of circular graves in the Tsenkher region are slightly smaller and have fewer graves equivalent to the second node of 10–12 m burials (Fig. 5). Only the circular grave sites adjacent to the square tomb site of Takhiltyn Khotgor appear to have larger circular graves, even though these burial grounds are smaller than the cemeteries at ADM and SBR. A comparison of the size of circular graves to the size of the sites within which they are found shows no significant correlation (r^2=0.041). The presence of larger circular graves only in or around the main cemetery at Takhiltyn Khotgor may therefore be a function of the square tomb site and its associated area.

Excavations of 15 burials at the site of Shombuuzyn Belchir (SBR) may be used to test the nature of local burial traditions at these Xiongnu sites and compare them with material patterns in the core areas (Miller et al. 2011). These sample excavations included graves of all different sizes from several locations within the cemetery (Fig. 6). The structures of the burials and the forms and styles of the interments within appear to be identical to those in the core areas (Fig. 7). First, all Xiongnu graves

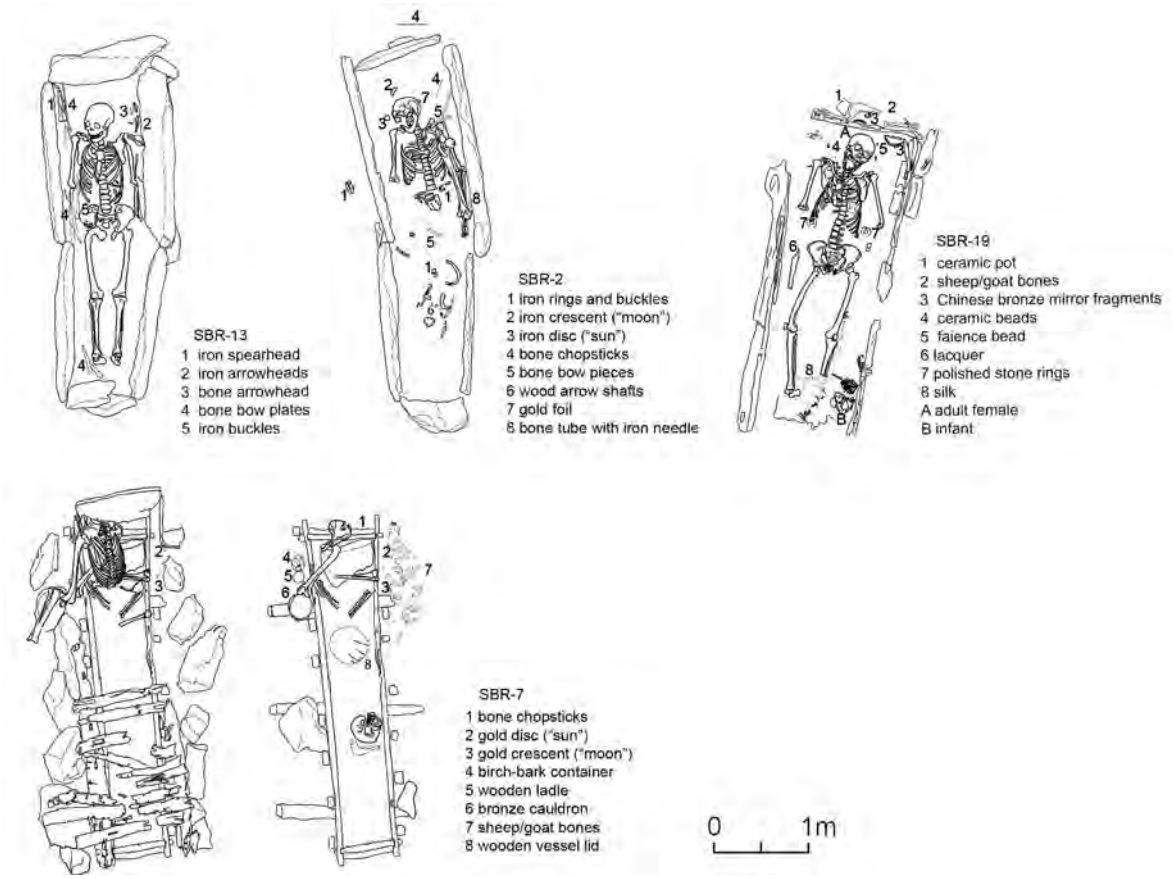


Fig. 7. Shombuuzyn Belchir. Burials 13, 2, 19, 7 (after Miller et al. 2011).

located in core areas for which body treatment could be determined exhibit the practice of stretched interment, and all interred individuals at SBR were found in stretched positions. Second, the majority of Xiongnu graves in core areas are oriented north (86% N/NW/NE, 14% E/SE), and all but one burial; No. 14 at SBR was oriented north. Third, the overwhelming majority of burials in Mongolian core areas, as well as at the fully excavated cemetery of Burkhan Tolgoi, contain wooden coffins. At SBR, smaller graves contained stone cists (n=8), while larger graves contained wooden coffins (n=7). Despite the predominance of desert foliage, extremely sparse grass covered pasture lands, and a general lack of tree coverage, many Xiongnu burials in the southern Altai still appear to adhere to the dominant custom in the Xiongnu core, where forests are more abundant or closer, of interring the deceased in wooden coffins. Well-preserved wood furnishings at the site demonstrate that some coffins (burials 7, 8, 15, and 16) were built with the same wood plank construction techniques seen at many core Xiongnu sites with good preservation, such as Dyrestui (Miniaev 1998). In addition, others utilized small wood strips and/or twigs that were fitted or lashed together (burials 14, 19, 20) to construct coffins in imitation of standard Xiongnu wood plank coffins. Fourth, in seeming imitation of the lattice and quatrefoil decorative practice in more elaborate and larger Xiongnu burials, three of the wood plank coffins bore numerous iron quatrefoil ornaments (burials 8, 16) or were painted with lattice patterns (burial 15) (Fig. 8). Finally, two of the graves contained sun-and-moon ornament pairs, in gold (burial 7) and in iron (burial 2), of the kind that have been seen in numerous other Xiongnu graves (e.g. Törbat et al. 2003) (Fig. 9,2.3).

Fig. 8. Shombuuzyn Belchir. Coffin decoration. 1 Painted coffin, burial 15; 2 iron quatrefoil, burial 16 (1–2 after Miller et al. 2009a).

Fig. 9. Sun and moon ornaments: 1 Takhiltyn Khotgor, tomb 64, gold (after Miller et al. 2009b); 2 Shombuuzyn Belchir, burial 7, gold; 3 Shombuuzyn Belchir, burial 2, iron (Miller et al. 2011).

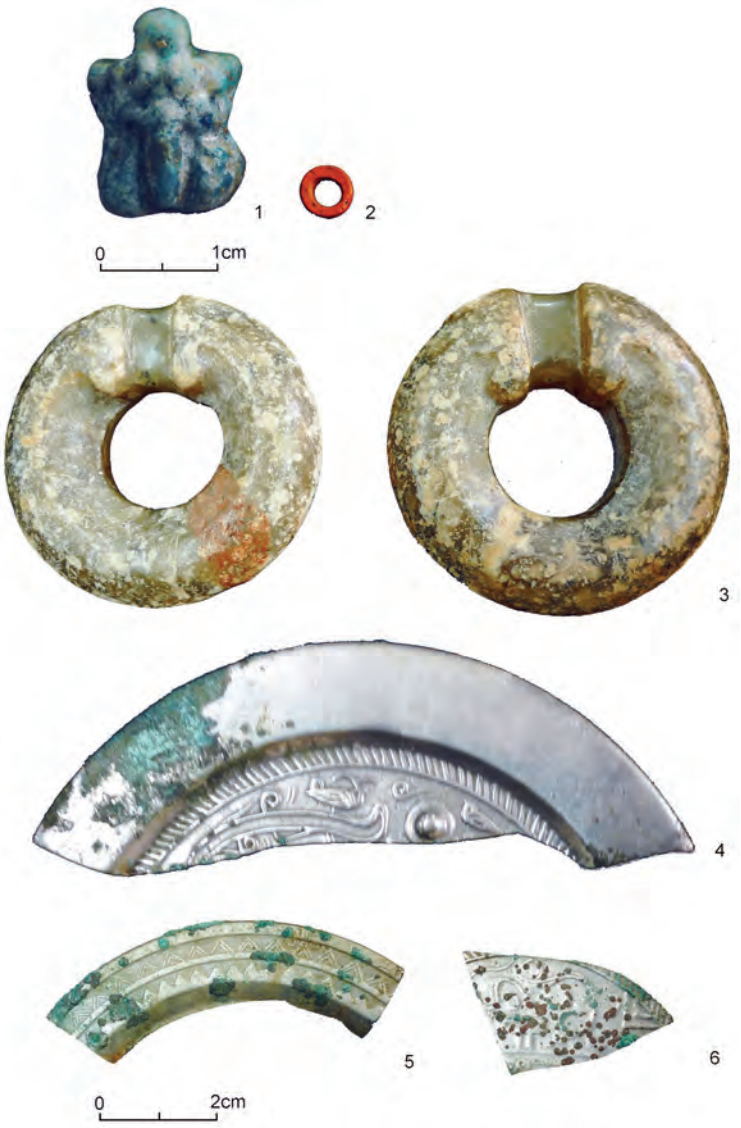


Fig. 10. Shombuuzyn Belchir, burial 19, burial goods. 1 Egyptian faience bead; 2 ceramic bead; 3 polished stone rings; 4 chinese bronze mirror fragment, "siru" style; 5, 6 chinese bronze mirror fragments, "guiju" (TLV) style. 1–6 (after Miller et al. 2011).

Burial goods in the graves at SBR also attest to a uniformity with core Xiongnu cultural traditions. Ceramics found in several graves (burials 7, 19, 20, 29) are all wide-mouthed pots with single wave-line decoration around the neck. A bronze cauldron found in burial 7 is of the same shape and simple decorative lines design on smaller cauldrons found in Xiongnu graves elsewhere. The placement of these vessels is identical to the placement of cookpots and cauldrons in typical Xiongnu graves, set around the exterior of the northern end of the coffin or cist. In this same area, just to the north of the coffin, deposits of heads, cervical vertebrae, and lower limb bones of sheep and goats were recovered in burials 7, 13, 15, 16, 19, and 36. The placement of these animal offerings and the selection of bones from the animals are the same as animal offerings in Xiongnu graves elsewhere (Crubézy et al. 1996; Martin, this volume). Similar sets of

at least 17 sheep/goats were placed in a niche beside the coffin in burial 8. The different placement may have been a result of the sheer number of animals sacrificed, but the selection of animal parts remained the same as in other burials.

Six of the larger graves with wooden coffins were looted, yet the remaining prestige items show not only an adherence to late Xiongnu period traditions of personal items but also evidence for participation in the Xiongnu political economy. Iron belt ornaments with gold foil, stone belt rings, and an assortment of amber, glass and ceramic beads are typical personal adornments for the deceased in both SBR and core Xiongnu graves. Fragments of lacquered items, especially tiny pieces from a painted Chinese cup in burial 15, fragments of Chinese bronze mirrors, and an Egyptian faience bead all show clear connections to long-distance trade networks in which the Xiongnu participated (Fig. 10).

In sum, site patterns, burial forms, and burial accoutrements of circular graves in the southern Altai seem equivalent to circular graves in the core regions, even though the average grave size is smaller. In the western periphery, there is a clear adherence to the burial customs and cultural expressions of the Xiongnu in the core area of the Mongolian steppes. In addition, burial goods in many of the graves demonstrate the participation of local communities in long-distance trade networks of the Xiongnu political economy. Overall, the archaeological remains associated with circular graves and their burial grounds in the southwestern periphery demonstrate an almost exact correlation with the core regions of the Xiongnu empire.

Square Tomb Sites of the Xiongnu

In contrast to the circular grave sites in the southwestern periphery, the square tomb cemetery of Takhiltyn Khotgor shows measurable differences in site composition from square tomb sites in the core (Miller et al. 2009b) (Fig. 11). Square tomb cemeteries of the Xiongnu contain both circular graves and square tombs, but are dominated, in burial number and burial size, by the square-mounded ramped tombs and their associated features. Survey data from the Gol Mod 2 cemetery (GM2) (Allard et al. 2002) is used here as an example of a typical square tomb cemetery in the Xiongnu core (Figs. 12; 13). Although the sizes of square tombs at GM2 are slightly larger than at other square tomb cemeteries, the site layout and composition is equivalent.

Square tombs at GM2 range between 5–15 m or 20–25 m, though a dozen measured greater than 25 m in size. Square tomb complexes – i.e. square tombs with satellite graves – clearly dominate the cemetery, accounting for 86% of the burials, and the satellite burials of these complexes account for almost half of the total burials at the site. Excavations of satellite burials at GM2 (Miller et al. 2006; Erdenebaatar et al., this volume) show them to all be burials which follow the tradition of circular graves. All satellite burials flanking the eastern side of tomb 1 were marked by rings of stones and contained wooden coffins oriented north. Although all the burials were looted, the animal offerings and burials goods are equitable to ceramics, personal ornaments, and foreign imports seen in Xiongnu circular graves elsewhere. The independent circular graves at GM2, however, are the minority of interments at the site and are on average much smaller than the square tombs. These patterns situate square tomb complexes at the conceptual core of these burial grounds and create a clear hierarchy of interments within the cemetery. Those interred within square tombs are placed in a category clearly separate and elevated from the smaller and lesser independent circular graves, and those interred within the satellite burials constitute a significant component of Xiongnu society that is inexorably tied to the individuals in the square tombs.

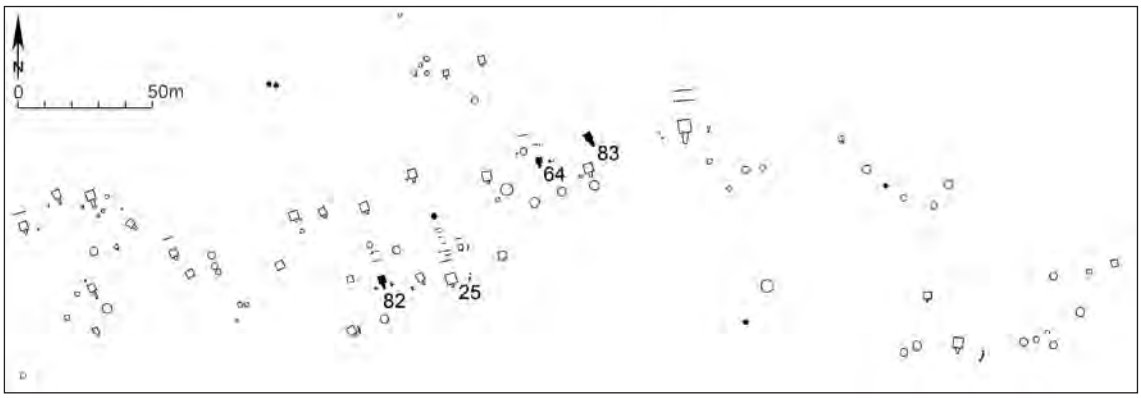


Fig. 11. Takhiltyn Khotgor cemetery with investigated tomb complexes numbered (after Miller et al. 2009b).

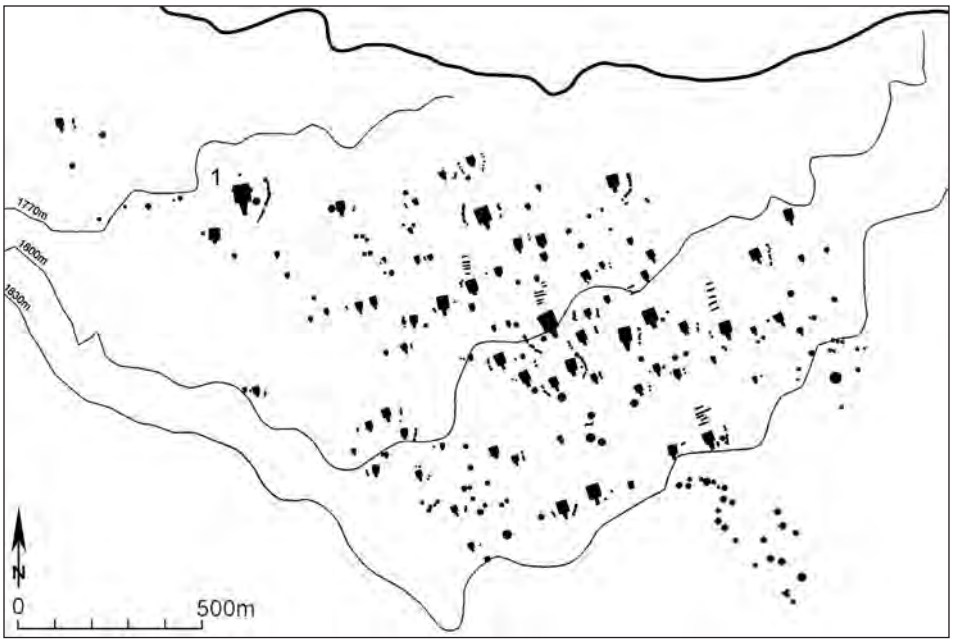


Fig. 12. Gol Mod 2 cemetery with tomb complex 1 indicated (after Allard et al. 2002).

Site patterns in the peripheral square tomb cemetery of Takhiltyn Khotgor (THL) are noticeably different from Gol Mod 2 (Figs. 11; 14). Square tombs at THL, which only range in size between 5–15 m, are significantly smaller than square tombs in the core Xiongnu areas. Also in contrast to square tomb cemeteries of the core areas, THL square tombs are on average about the same size as the independent circular graves at the site. In addition, circular graves account for 43% of the burials at THL, many more than evident in core areas. The average size of independent circular graves and satellite burials at THL are only slightly smaller than those at GM2. This may be a pattern reflective of the general differences between circular graves in the core and in the southwestern periphery, one of only minimal significance. The key difference between THL and GM2 cemeteries is the character and role of square tomb complexes within the respective sites (Tab. 1).

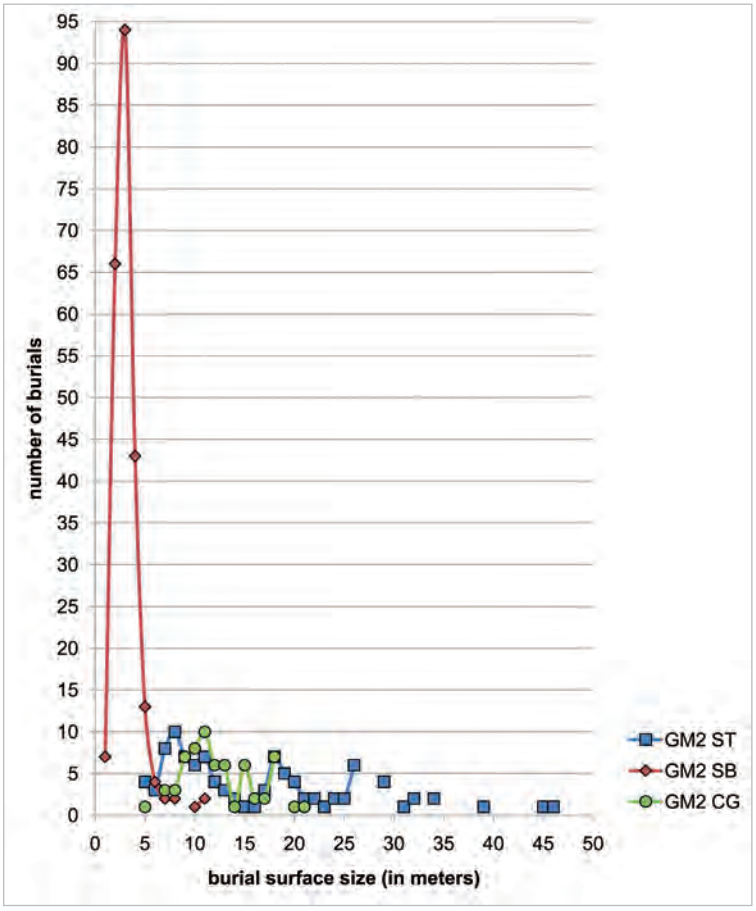


Fig. 13. Gol Mod 2 (GM2). Burial size versus number: ST (square tombs), SB (satellite burials), CG (independent circular graves).

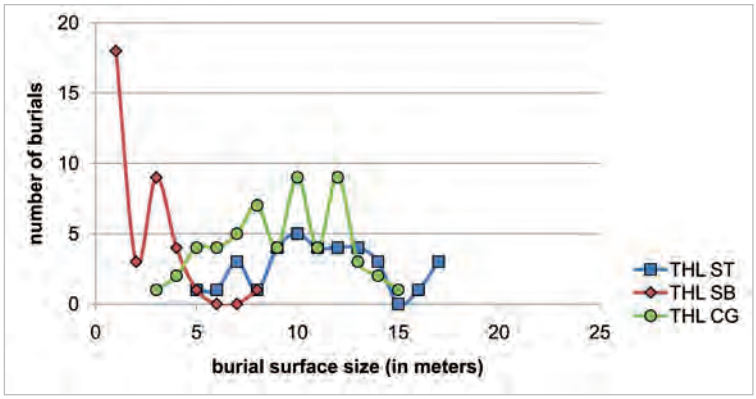


Fig. 14. Takhiltyn Khotgor (THL). Burial size versus number at cemetery and nearby burial sites: ST (square tombs), SB (satellite burials), CG (independent circular graves).

Three square tombs have been excavated at Takhiltyn Khotgor, all of which show structures, furnishings, and burial goods equivalent to square tombs in the core areas (Navaan 1999; Miller et al. 2009b). Each of them has a "square" mound of earth surrounded by stone walls, an addi-

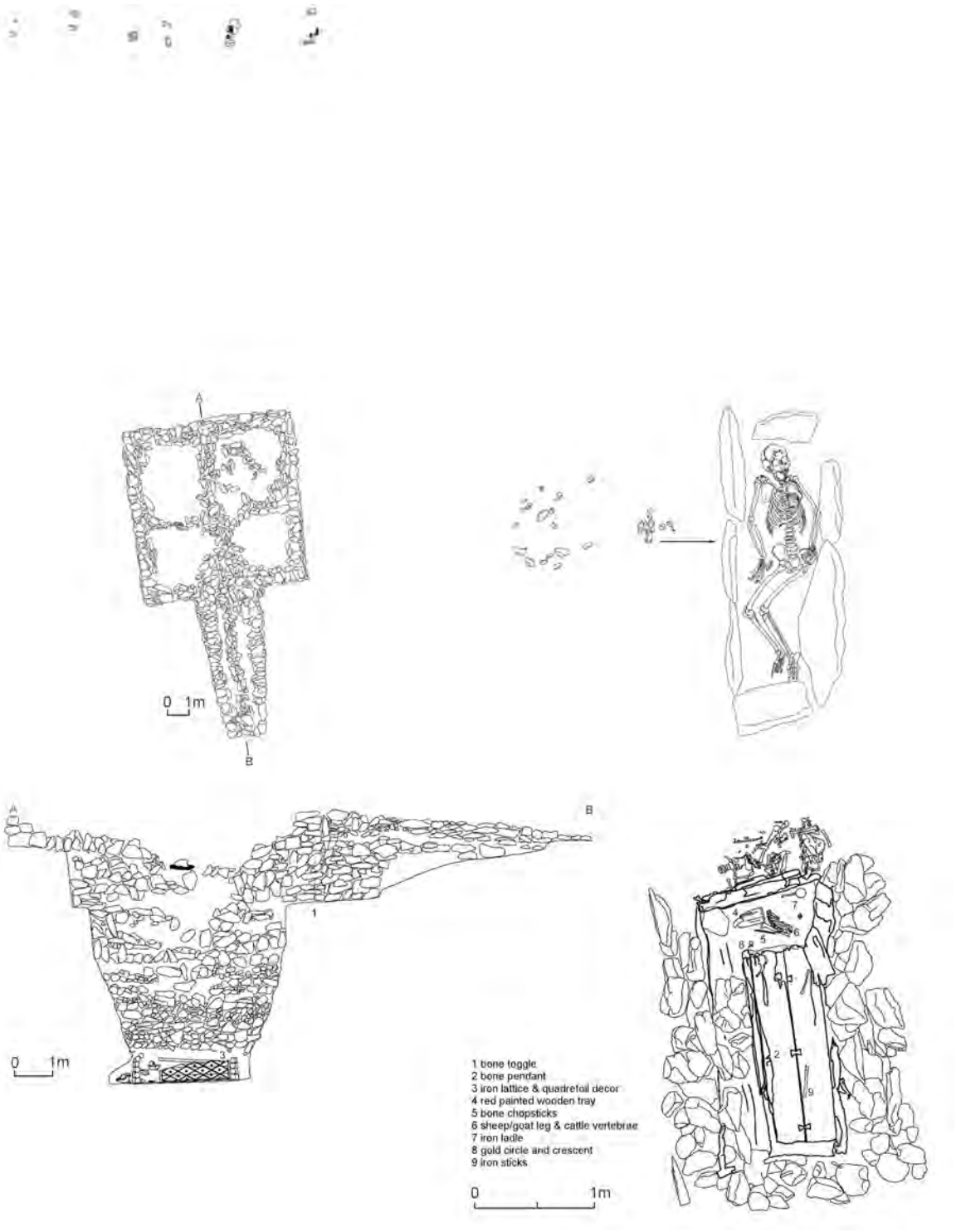


Fig. 15. Takhiltyn Khotgor tomb 64 complex: main tomb and satellite burial 2 (after Miller et al. 2009b).

tional stone-walled "ramp", or entryway, extending from the southern wall, and a wooden chamber with a lattice-and-quatrefoil ornamented coffin at the bottom of a deep pit (Fig. 15). The chambers have animal offerings of skulls and lower limbs just to the north of the coffins,

	Total	Mean size			Number (and percentage)			Number of SB per ST*	ST size v. number of SB per ST
		ST	SB	CG	ST	SB	CG		
THL	133	11.50	2.41	9.52	36 (27%)	40 (30%)	57 (43%)	1.09 (2.18)	r^2=0.0966
GM2	262	17.80	3.70	10.50	98 (37%)	128 (49%)	36 (14%)	1.87 (4.85)	r^2=0.3943

Tab. 1. Statistics for square tombs, satellite burials, and independent circular graves at Takhiltyn Khotgor (THL) and Gol Mod 2 (GM2) (sizes in meters); ST (square tombs), SB (satellite burials), CG (independent circular graves).
* These calculations included those tombs which did not have any satellite burials. The average number of satellite burials only among those square tombs which do have these features is given in the parentheses, though significant outliers exist in the case of Gol Mod 2.

and typical Xiongnu ceramic jars and pots as well as beads and gilded iron belt ornaments are found along with bronze vessels, such as a basin and a spouted pot, and wooden and bronze fittings of Chinese chariots. To the north of the coffin in tomb 64 was found a sun-and-moon pair made of gold foil (Fig. 9,1). Several of the square tombs at THL have parallel lines of stones to the north of the northern tomb wall, just as some of the tombs at GM2. Despite these equivalencies, square tomb complexes do not dominate the cemetery of Takhiltyn Khotgor. Their interments do not constitute the overwhelming majority of burials, and their central mounds are not categorically larger than the independent circular graves. In addition, they include the only interments found in the southern Altai that exhibit practices somewhat different from Xiongnu burials in the core areas. Out of seven excavated satellite burials at THL, five were shallow pits with no burial furnishings and two contained simple stone cists – the two satellite burials flanking tomb 64 (Fig. 15). The individuals in both the stone cists, as well as one of the unfurnished burials (THL-25-1), were interred with their legs flexed. Reports from the earliest excavations at THL also mention several small stone cist burials with legs found in flexed positions (Volkov/Dorzhsüren 1963). These satellite burials at THL constitute some of the smallest and simplest interments of the Xiongnu period found in the southern Altai, and the only ones in this area which seem to have preserved local burial customs of the Altai region.

In sum, the square tomb site of Takhiltyn Khotgor appears measurably different from equivalent cemeteries in the core areas of the Xiongnu in terms of site layout. It is interesting to note that the major difference is not in the usually lesser interments of circular graves, at the site of Takhiltyn Khotgor or even in the other cemeteries in the southern Altai, but in the square tombs complexes. While the square tombs are built in approximately the same fashion and contain the same burial furnishings and burial goods as tombs of similar size in the core Xiongnu areas, indicating integration of regional imperial elites into the practices of interregional social networks, these tombs do not dominate the cemetery layout as they do in core areas. Furthermore, they include satellite graves with interment customs of a more local flavor, hinting at peripheral differentiations from the imperial core.

Conclusions

Political strategies of integration in empires may be classified within the general concepts of "globalization" and "socialization" (Gosline 2006), and these can occur as either contiguous or parallel processes. Through the investigation of items of prestige goods systems as well as burial

structures, burial furnishings, and interment rites, we may address the different forms and degrees of integration of peripheral areas seen in (1) connectivity through economic networks (i.e. globalization) and (2) cohesion through social networks (i.e. socialization). Investigations of peripheral areas should, however, not consider them "passive" recipients of core culture but rather emphasize the dynamic nature of hinterlands and frontiers (Lightfoot/Martinez 1995). For this reason, the above study considers differing forms and degrees of integration in hinterland areas around the Mongolian steppes of the Xiongnu empire and addresses not only the variable nature of peripheries but their often oscillating character.

The eastern periphery exhibits evidence for connectivity with the Mongolian steppes in similar foreign items of interregional trade networks and adoptions of some styles of burial furnishings. Nevertheless, most burial customs and vessel traditions in eastern periphery cemeteries show discrepancies with those of the core, thus demonstrating a lack of "socialized" integration even in the late Xiongnu period. The southern periphery, also called the Great Wall region of the Han Chinese empire, exhibits evidence for "globalizing" trends of connectivity during the early Xiongnu period. However, this does not lead to processes of socialization and integration of the southern periphery. This is most likely due to the increased, and apparently successful, incursion of Han Chinese into the region. But even when Han presence appears to drastically wane in the archaeological record of the late 1st century AD and after, there is still no evidence for integration into the social networks and cultural practices of the Mongolian steppes. Only the ceramics traditions in this region appear to tie the individuals in southern periphery burials to economic networks further north.

Evidence for globalization and connectivity through elite trade networks exists during the early Xiongnu period as well in the northwestern periphery, yet this appears to be followed by some degree of social integration in the late Xiongnu period. This integration is manifested in core Xiongnu style burials placed in mixed cemeteries, and even burials of mixed traditions in seemingly Xiongnu burial grounds. Such evidence only indicates a conglomerate nature of integration that is more characteristic of fluid frontiers (Rodseth/Parker 2005) than incorporated peripheries. The strongest evidence for incorporation of a hinterland area occurs in the southwestern periphery of the Xiongnu empire. Standard circular graves and square tombs, practically identical to those in the core, appear in wholly Xiongnu sites that are distributed within the landscape in similar fashion to regions in the Mongolian steppes. Some non-Xiongnu practices appear in a handful of burials, but these are in the smallest graves and are incorporated into elite square tombs complexes. These may represent local groups not completely integrated into the imperial social networks, but certainly incorporated into local social spheres of the imperial elite. Differences in the proportions of square tombs in this area may imply a difference in the strength of imperial elites in this area, but this does not relate to the degree of integration of hinterland communities into the Xiongnu empire. In general, the burials in this region adopt the full assemblages of burial customs and possess a wide array of foreign trade items from as far as China and Egypt. The southwestern periphery therefore appears to have been incorporated into the empire through both globalizing and socializing strategies of integration.

REFERENCES

Afghanistan 2008

Afghanistan: hidden treasures from the National Museum, Kabul (Washington D.C. 2008).

Agbe-Davies/Bauer 2010

A. S. Agbe-Davies/A. A. Bauer, Rethinking Trade as Social Activity: An Introduction. In: A. A. Bauer/A. S. Agbe-Davies (eds.), Social Archaeologies of Trade and Exchange (Walnut Creek 2010) 13–29.

Akishev 1976

A. K. Akishev, Novye khudozhestvennye bronzovye izdeliia sakskogo vremeni. In: Proshloe Kazakhstana po arkheologicheskim istochnikam (Alma-Ata 1976) 183–195. А. К. Акишев, Новые художественные бронзовые изделия сакского времени. In: Прошлое Казахстана по археологическим источникам (Алма-Ата 1976) 183–195.

Akishev 1978

A. K. Akishev, Kurgan Issyk. Iskusstvo sakov Kazakhstana (Moskva 1978). А. К. Акишев, Курган Иссык. Искусство саков Казахстана (Москва 1978).

Alcock et al. 2001

S. E. Alcock/T. N. D'Altroy/K. D. Morrison/C. M. Sinopoli (eds.), Empires: Perspectives from Archaeology and History. Conference "Imperial designs: Comparative Dynamics of Early Empires", held in Mijas, Spain, in the autumn of 1997 (Cambridge, New York 2001).

Alconini 2005

S. Alconini, The Dynamics of Military and Cultural Frontiers on the Southeastern Edge of the Inka Empire. In: B. J. Parker /L. Rodseth (eds.), Untaming the Frontier in Anthropology, Archaeology and History (Tuscon 2005) 115–146.

Alconini 2008

S. Alconini, Dis-embedded centers and architecture of power in the fringes of the Inka empire: New perspectives on territorial and hegemonic strategies of domination. Journal of Anthropological Archaeology 27, 2008, 63–81.

Alekseev/Gochman 1983

V. P. Alekseev/I. I. Gochman, Physical anthropology of Soviet Asia. Rassengeschichte der Menschheit 9 (München 1983).

Alekseev/Pershits 1999

V. P. Alekseev/A. I. Pershits, Istoriia pervobytnogo obshchestvo (Moskva 1999). В. П. Алексеев/А. И. Першиц, История первобытного общество (Москва 1999).

Alekseeva 1978

E. M. Alekseeva, Antichnye busy Severnogo Prichernomor'ia. Arkheologiia SSSR. Svod arkheologicheskikh istochnikov G1–12 (Moskva 1978). Е. М. Алексеева, Античные бусы Северного Причерноморья. Археология СССР. Свод археологических источников Г1–12 (Москва 1978).

Alesina/Spolaore 2003

A. Alesina/E. Spolaore, The size of nations (Cambridge 2003).

Allard/Erdenebaatar 2005

F. Allard/D. Erdenebaatar, Khirigsuurs, Ritual, and Nomadic Pastoralism in the Bronze Age of Mongolia. Antiquity 79, 2005, 547–563.

Allard et al. 2002

F. Allard/D. Erdenebaatar /N. Batbold/B. Miller, A Xiongnu cemetery found in Mongolia. Antiquity 76, 2002, 637–638.

Allsen 1996

Th. T. Allsen, Spiritual geography and political legitimacy in the eastern steppe. In: H. J. M. Claessen/J. G. Oosten (eds.), Ideology and the formation of early states. Studies in Human Society 11 (Leiden, New York, Köln 1996) 116–135.

AMARTÜVSHIN 2003
Ch. Amartüvshin, Egiin Gol' dakh' dörvölzhin bulshny sudalgaany zarim asuudal. In: S. Idshinnorov (ed.), Mongol-Solongosyn Erdem Shinzhilgeenii Ankhdugaar Simpozium (Seoul 2003) 83–94. Ч. Амартүвшин, Эгийн голь дахь дөрвөлжин булшны судалгааны зарим асуудал. In: С. Идшинноров (ed.), Монгол-Солонгосын Эрдэм Шинжилгээний Анхдугаар Симпозиум (Seoul 2003) 83–94.

AMARTÜVSHIN/HONEYCHURCH 2010
Ch. Amartüvshin/W. Honeychurch, Dundgov' aimagt khiisen arkheologiin sudalgaa: Baga Gazryn Chuluu (Ulaanbaatar 2010). Дундговь аймагт хийсэн археологийн судалгаа: Бага Газрын Чулуу [= Survey and bioarchaeology in the middle gobi: the Baga Gazaryn Chuluu project]. Studia Archaeologica 27 (Улаанбаатар 2010).

AMARTÜVSHIN/KHATANBAATAR 2008
Ch. Amartüvshin/P. Khatanbaatar, Khüren khondyn khünnü bulshny sudalgaa. Arkheologiin sudlal 26, 2008, 190–212. Ч. Амартүвшин/П. Хатанбаатар, Хүрэн хондын хүннү булшны судалгаа. Археологийн судлал 26, 2008, 190–212.

AMARTÜVSHIN/ZHARGALAN 2008
Ch. Amartüvshin/B. Zhargalan, Baga Gazryn Chuluund khiisen khürel zevsgiin türüü üeiin bulshny sudalgaa. Arkheologiin sudlal 26, 2008, 77–91. Ч. Амартүвшин/Б. Жаргалан, Бага газрын чулуунд хийсэн хүрэл зэвсгийн түрүү үеийн булшны судалгаа. Археологийн судлал 26, 2008, 77–91.

AMBROSE 1993
S. H. Ambrose, Isotopic Analysis of Paleodiets: Methodological and Interpretive Considerations. In: M. K. Sandford (ed.), Investigations of Ancient Human Tissue. Chemical Analyses in Anthropology (Langhorne 1993) 59–130.

ANCIENT BRONZES 2007
Ancient Bronzes from China, Ordos and the Steppes. Ben Janssens Oriental Art, Rupert Wace Ancient Art (London 2007).

ANDERSSON 1932
J. Andersson, Hunting Magic in the Animal Style. Bulletin of the Far Eastern Antiquities Museum 4, 1932, 221–321.

ANDERSSON 1933
J. Andersson, Selected Ordos Bronzes. Bulletin of the Far Eastern Antiquities Museum 5, 1933, 143–154.

ANDRÉ 2002
G. André, Une tombes princière Xiongnu à Gol Mod, Mongolie (campagne de fouilles 2000–2001). Arts Asiatiques 57, 2002, 192–205.

ANDRÉ 2007
G. André, Les Xiongnu et leurs predecesseurs dans la region de Gol Mod, province de l'Arkhangaï. In: Desroches/André 2007, 30–34.

ANDRÉ 2009
G. André, Art et archéologie aux premiers temps de la civilisation mongole. In: Trésors du Bouddhisme au pays de Gengis khan (Milan 2009) 29–43.

ANDRÉ/ERÖÖL-ERDENE 2004
G. Andre/Ch. Erööl-Erdene, Negen khürel shiidemnii tukhai. Arkheologiin sudlal 22, 2004, 110–117. Г. Андре/Ч. Ерөөл-Эрдэнэ, Нэгэн хүрэл шийдэмний тухай. Археологийн судлал 22, 2004, 110–117.

ANDRÉ/HOLOTOVÁ-SZINEK 2009
G. André (An Wei 安維)/J. Holotová-Szinek (Xi Zhifang 奚芷芳), Menggu Xiongnu guizu mudi chubu yanjiu 蒙古貴族墓地初步研究. Kaogu xuebao 2009, 1, 69–88.

ANKE 1998
B. Anke, Studien zur reiternomadischen Kultur des 4. bis 5. Jahrhunderts. Beiträge zur Ur- und Frühgeschichte Mitteleuropa 8 (Weissbach 1998).

ANTHONY/BROWN 2000
D. W. Anthony/D. R. Brown, Eneolithic horse exploitation in the Eurasian steppes: diet, ritual and riding. Antiquity 74, 2000, 75–86.

ANTHONY ET AL. 1992
D. W. Anthony/D. Telegin/D. R. Brown, Les premiers cavaliers. Pour la Science 172, 1992, 36–41.

APAKIDZE 1958
A. M. Apakidze, Mtskheta. Itogi arkheologicheskikh issledovanii 1 (Tbilisi 1958). А. М. Апакидзе, Мцхета. Итоги археологических исследований 1 (Тбилиси 1958).

ARBOGAST ET AL. 2002
R.-M. Arbogast/B. Clavel/S. Lepetz/P. Méniel/

J.-H. Yvinec, Archéologie du cheval. Des origines à la période moderne en France (Paris 2002).

Arbuckle 2006
B. S. Arbuckle, The evolution of sheep and goat pastoralism and social complexity in central Anatolia. PhD Dissertation, Harvard University 2006.

Art 2005
Art chinois. Musée Cernuschi acquisitions 1993–2004 (Paris 2005).

Artamonov 1949
M. I. Artamonov, Raskopki kurganov na r. Manyche v 1937 g. Sovetskaia Arkheologiia 11, 1949, 305–336. М. И. Артамонов, Раскопки курганов на р. Маныче в 1937 г. Советская Археология 11, 1949, 305–336.

Artamonov 1973
M. I. Artamonov, Sokrovishcha Sakov. Amu-Darynskii klad, Altaiskie kurgany, Minusinskie bronzy, Sibirskoe zoloto (Moskva 1973). М. И. Артамонов, Сокровища Саков. Аму-Дарынский клад, Алтайские курганы, Минусинские Бронзы, Сибирское золото (Москва 1973).

Aruz et al. 2000
J. Aruz/A. Farkas/A. Alekseev/E. Korolkova (eds.), The Golden Deer of Eurasia. Scythian and Sarmatian Treasures from the Russian Steppes (New York 2000).

L'Asie 2000
L'Asie des steppes d'Alexandre le Grand à Gengis Khan (Paris 2000).

Askarov et al. 1992
A. Askarov/V. Volkov/N. Ser-Odjav, Pastoral and nomadic tribes at the beginning of the first millennium BC. In: A. H. Dani/V. M. Masson (eds.), History of civilizations of Central Asia (Paris 1992) 459–472.

Atwood 2004
Ch. P. Atwood, Encyclopedia of Mongolia and the Mongol Empire (New York 2004).

Atwood 2006
Ch. P. Atwood, Titles, appanages, marriages, and officials: A comparison of political forms in the Zünghar and thirteenth-century Mongol empires. In: D. Sneath (ed.), Imperial Statecraft. Political forms and techniques of governance in Inner Asia, sixth-twentieth centuries. Studies on East Asia 26 (Bellingham 2006) 207–242.

Bachura 2008
O. P. Bachura, Rezul'taty opredeleniia vozrasta i sezona zaboia loshadei po registriruiushchim strukturam iz pamiatnikov pozdnei drevnosti Altaia. In: A. A. Tishkin (otv. red.), Drevnie i srednevekovye kochevniki Tsentral'noi Azii. Sbornik nauchnykh trudov (Barnaul 2008) 120–122. О. П. Бачура, Результаты определения возраста и сезона забоя лошадей по регистрирующим структурам из памятников поздней древности Алтая. In: А. А. Тишкин (отв. ред.), Древние и средневековые кочевники Центральной Азии. Сборник научных трудов (Барнаул 2008) 120–122.

Bacon 1958
E. Bacon, Obok. A Study of Social Structure of Eurasia (New York 1958).

Bai 2005
Bai Yunxiang 白雲翔, Xian Qin Liang Han tie qi de kaoguxue yanjiu 先秦兩漢鐵器的考古學研究 (Beijing 2005).

Baiarsaikhan/Egiimaa 2008
Zh. Baiarsaikhan/Ts. Egiimaa, Takhiltyn khotgoryn 64-r bulshny maltlaga sudalgaany ür dün. In: Xiongnu 2008, 186–201. Ж. Баярсайхан/Ц. Эгиймаа, Тахилтын хотгорын 64-р булшны малтлага судалгааны үр дүн. In: Xiongnu 2008, 186–201.

Bailiff 2007
I. K. Bailiff, Methodological developments in the luminescence dating of brick from English late/medieval and post/medieval buildings. Archaeometry 49, 4, 2007, 827–851.

Balasse/Ambrose 2005
M. Balasse/S. Ambrose, Distinguishing sheep and goats using dental morphology and stable carbon isotopes in C_4 grassland environments. Journal of Archaeological Science 32, 2005, 691–702.

Balasse/Tresset 2002
M. Balasse/A. Tresset, Early Weaning of Neolithic Domestic Cattle (Bercy, France) revealed by Intra-tooth Variation in Nitrogen Isotope Ratios. Journal of Archaeological Science 29, 2002, 853–859.

BALASSE ET AL. 2001
M. Balasse/A. Bocherens/A. Mariottie/S. H. Ambrose, Detection of Dietary Changes by Intratooth Carbon and Nitrogen Isotopic Analysis: An Experimental Study of Dentine Collagen of Cattle (*Bos taurus*). Journal of Archaeological Science 28, 2001, 235–245.

Bálint 1993
C. Bálint, Probleme der archäologischen Forschung zur awarischen Landnahme. In: Ausgewählte Probleme europäischer Landnahmen des Früh- und Hochmittelalters 1 (Sigmaringen 1993) 195–273.

BAN GU 1962
Ban Gu 班固, Hanshu 漢書, 12 Vols. (Beijing 1962).

BANG/BAYLY 2003
P. F. Bang/C. Bayly, Introduction: comparing pre-modern empires. Medieval History Journal 6, 2003, 169–187.

BANG/SCHEIDEL 2011
P. F. Bang/W. Scheidel (eds.), The Oxford handbook of the ancient state: Near East and Mediterranean (New York 2011).

BANG ET AL. FORTHCOMING
P. F. Bang/C. Bayly/W. Scheidel (eds.), The Oxford world history of empire (New York forthcoming).

BAO 1992
Bao Tong 鮑桐, Shouxiangcheng he Mangyigu kao 受降城和滿夷谷考. In: Zhongguo lishi dili luncong 中國歷史地理論叢 1 (1992), 191–200.

BAOTOU/DAMAO 2000
Baotou shi wenwu guanlichu 包頭市文物管理処/Damao qi wenwu guanlisuo 大茂旗文物管理所, Baotou jing nei de Zhanguo Qin Han changcheng yu gu cheng 包頭境内的戰國秦漢長城與古城. Nei Menggu wenwu kaogu 2000, 1, 74–91.

BARFIELD 1981
T. J. Barfield, The Hsiung-nu Confederacy: Organization and Foreign Policy. Journal of Asian Studies 41, 1981, 45–61.

BARFIELD 1989
T. J. Barfield, The Perilous Frontier: Nomadic Empires and China (Cambridge, Oxford 1989).

BARFIELD 1992
T. J. Barfield, The Perilous Frontier: Nomadic Empires and China (221 BC to AD 1757) (Cambridge 1992).

BARFIELD 1993
T. J. Barfield, The Nomadic Alternative (Englewood Cliffs, NJ 1993).

BARFIELD 2001a
T. J. Barfield, The Shadow Empires: Imperial State Formation along the Chinese-Nomad frontier. In: S. E. Alcock/T. N. D'Altroy/K. D. Morrison/C. M. Sinopoli (eds.), Empires: Perspectives from Archaeology and History. Conference "Imperial designs: Comparative Dynamics of Early Empires", held in Mijas, Spain, in the autumn of 1997 (Cambridge, New York 2001) 10–41.

BARFIELD 2001b
T. J. Barfield, Steppe Empires, China and the Silk Route: Nomads as a Force in International Trade and Politics. In: A. M. Khazanov/A. Wink (eds.) Nomads in the Sedentary World. Routledge Curzon-IIAS Asian studies series (Richmond 2001) 234–249.

BAR-YOSEF/KHAZANOV 1992
O. Bar-Yosef/A. Khazanov, Introduction. In: O. Bar-Yosef/A. Khazanov (eds.), Pastoralism in the Levant: Archaeological Materials in Anthropological Perspectives. Monographs in World Archaeology 10 (Madison 1992) 1–10.

BATNASAN 1978
G. Batnasan, BNMAU dakh' negdelchdiin azh akhuigaa khötlökh arga azhillagaa (Ulaanbaatar 1978). Г. Батнасан, БНМАУ дахь нэгдэлчдийн аж ахуйгаа хөтлөх арга ажиллагаа (Улаанбаатар 1978).

BATSAIKHAN 2002
Z. Batsaikhan, Khünnü. Arkheologi, ugsaatan züi, tüükh (Ulaanbaatar 2002). З. Батсайхан, Хүннү. Археологи, угсаатан зүй, түүх (Улаанбаатар 2002).

BATSAIKHAN 2006
Z. Batsaikhan, Foreign tribes in the Xiongnu confederation. The Silk Road 4, 1, 2006, 45–47.

BATSAIKHAN/BAATARBILEG 2002
Z. Batsaikhan/E. Baatarbileg, Arkhangai aimgiin Ögiinüür sumyn nutagt shineer oldson gurvan kherem. Arkheologi, Antropologi Ugsaatny

Sudlal 13, 2002, 36–38. З. Батсайхан/Э. Баатарбилэг, Архангай аймгийн Өгийнүүр сумын нутагт шинээр олдсон гурван хэрэм. Археологи, Антропологи Угсаатны Судлал 13, 2002, 36–38.

Batsaikhan et al. 1990
Z. Batsaikhan/D. Tseveendorzh/P. B. Konovalov, Ömnögov' aimagt maltalt khiisen tukhai tailan. Unpublished Report, Institute of History, Ulaanbaatar 1990. З. Батсайхан/Д. Цэвээндорж/П. Б. Коновалов, Өмнөговь аймагт малталт хийсэн тухай тайлан, Улаанбаатар 1990.

Bazargur 2002
D. Bazargur, Territorial Organization of Mongolian Pastoral Livestock Husbandry in the Transition to a Market Economy. Focus on Geography 47, 1, 2002, 20–25.

Bazargur 2005
D. Bazargur, Belcheeriin mal azh akhuin gazarzui (Ulaanbaatar 2005). Д. Базаргур, Бэлчээрийн мал аж ахуйн газарзуй (Улаанбаатар 2005)

Beckwith 2009
Ch. I. Beckwith, Empires of the Silk Road: A History of Central Asia from the Bronze Age to the Present (Princeton 2009).

Beifang 1995
Zhongguo qintongqi quanji bianji weiyuanhuibian 中國青銅器全集編輯委員會編. Beifang minzu 北方民族. Zhongguo qingtonqi quanji 中國青銅器全集, Vol. 15 (Beijing 1995).

Bemmann/Munkhbayar 2010
J. Bemmann/L. Munkhbayar, Im Zentrum der Steppenreiche. Archäologie in Deutschland 2010, 3, 14–18.

Bemmann et al. 2009
J. Bemmann/H. Parzinger/E. Pohl/D. Tseveendorzh (eds.), Current Archaeological Research in Mongolia. Papers from the First International Conference on "Archaeological Research in Mongolia" held in Ulaanbaatar, August 19th – 23rd, 2007. Bonn Contributions to Asian Archaeology 4 (Bonn 2009).

Bemmann et al. 2010
J. Bemmann/S. Linzen/L. Munkhbayar/M. Oczipka, An interdisciplinary expedition surveying the Middle Orkhon Valley, Mongolia – preliminary results. In: Drevnie kul'tury Mongolii i Baikal'skoi Sibiri. Materialy mezhdunarodnoi nauchnoi konferentsii (Ulan-Ude, 20–24 sentiabria 2010 g.) (Ulan-Ude 2010) 351–355. In: Древние культуры Монголии и Байкальской Сибири. Материалы международной научной конференции 20–24 сентября 2010 г.) (Улан-Удэ 2010) 351–355.

Bemmann et al. 2011
J. Bemmann/B. Ahrens/C. Grützner/R. Klinger/N. Klitzsch/F. Lehmann/S. Linzen/L. Munkhbayar/G. Nomguunsuren/M. Oczipka/H. Piezonka/B. Schütt/S. Solongo, Geoarchaeology in the Steppe. First results of the multidisciplinary Mongolian-German survey project in the Orkhon valley, Central Mongolia. Arkheologiin sudlal 30, 2011, 69–97. Археологийн судлал 30, 2011, 69–97.

Bennett/Kaestle 2006
C. C. Bennett/F. Kaestle, Reanalysis of Eurasian population history: ancient DNA evidence of population affinities. Human Biology 78, 4, 2006, 413–440.

Bennett/Stam 1996
D. S. Bennett/A. C. Stam III, The Duration of Interstate Wars, 1816–1985. American Political Science Review 90, 2, 1996, 239–257.

Bergquist et al. 1975
S. Bergquist/J. Lopez/L. Braun/J. Burchard/D. Kellerman/J. Plier/C. Ross/V. Sherman, New Webster's dictionary of the English language (Chicago 1975).

Berguet 1964
Herodote, L'Enquête. Texte présenté, traduit et annoté par Berguet P. Bibliothèque de la Pléiade 176, Historiens grecs 1 (Paris 1964).

Bernshtam 1951
A. N. Bernshtam, Ocherk istorii gunnov (Leningrad 1951). А. Н. Бернштам, Очерк истории гуннов (Ленинград 1951).

Berry/Berry 1967
R. J. Berry/A. C. Berry, Epigenetic variation in the human cranium. Journal of Anatomy 101, 1967, 361–379.

Bespalyi 1992
E. I. Bespalyi, Kurgan sarmatskogo vremeni u g. Azova. Sovetskaia Arkheologiia 1992, 1, 175–191. Е. И. Беспалый, Курган сарматского вре-

мени у г. Азова. Советская Археология 1992, 1, 175–191.

BICHURIN 1950a
N. Ia. Bichurin, Sobranie svedenii o narodakh obitavshikh v Srednei Azii v drevnie vremena, Vol. 1 (Moskva, Leningrad 1950). Н. Я. Бичурин, Собрание сведений о народах, обитавших в Средней Азии в древние времена, Vol. 1 (Москва, Ленинград 1950).

BICHURIN 1950b
N. Ia. Bichurin, Sobranie svedenii o narodakh obitavshikh v Srednei Azii v drevnie vremena, Vol. 2 (Moskva, Leningrad 1950). Н. Я. Бичурин, Собрание сведений о народах, обитавших в Средней Азии в древние времена, Vol. 2 (Москва, Ленинград 1950).

BIELENSTEIN 1986
H. Bielenstein, Wang Mang, the restoration of the Han dynasty, and later Han. In: D. Twitchett/M. Loewe (eds.), The Cambridge history of China, Vol. 1. The Ch'in and Han empires, 221 B.C.–A.D. 220 (Cambridge 1986) 223–290.

BIENEN/VAN DE WALLE 1989
H. Bienen/N. van de Walle, Time and power in Africa. American Political Science Review 83, 1, 1989, 19–34.

BILEGT 1997
L. Bilegt, Tiurki i Mongoly. Arkheologiin sudlal 18, 1997, 153–176. Л. Билэгт, Тюрки и Монголы. Археологийн судлал 18, 1997, 153–176.

BILIMOVICH 1962
Z. Bilimovich, Bronzovaia priazhka iz Nimfeia. Soobshcheniia Gosudarstvennogo Ermitazha 23, 1962, 43–45. З. Билимович, Бронзовая пряжка из Нимфея. Сообщения Государственного Эрмитажа 23, 1962, 43–45.

BIRAN 2005
M. Biran, The Empire of the Qara Khitan in Eurasian history. Between China and the Islamic world (Cambridge 2005).

BLANTON/FARGHER 2008
R. Blanton/L. Fargher, Collective action in the formation of pre-modern states. Fundamental issues in archaeology (New York 2008).

BOGDANOV 2006
E. S. Bogdanov, Obraz khishchnika v plasticheskom iskusstve kochevykh narodov Tsentral'noi Azii (skifo-sibirskaia khudozhestvennaia traditsiia) (Novosibirsk 2006). Е. С. Богданов, Образ хищника в пластическом искусстве кочевых народов Центральной Азии (скифо-сибирская художественная традиция) (Новосибирск 2006).

BOKOVENKO 2006
N. Bokovenko, The Emergence of the Tagar Culture. Antiquity 80, 2006, 860–879.

BOKOVENKO/ZASETSKAIA 1993
N. A. Bokovenko/I. P. Zasetskaia, Proizkhozhdenie kotlov "gunnskogo tipa" vostochnoi Evropy v svete problemy khunno-gunnskikh sviazei. Peterburgskii Arkheologicheskii Vestnik 3, 1993, 73–88. Н. А. Боковенко/И. П. Засецкая, Происхождение котлов "гуннского типа" восточной Европы в свете проблемы хунно-гуннских связей. Петербургский Археологический Вестник 3, 1993, 73–88.

BOURDIEU 1977
P. Bourdieu, Outline of a Theory of Practice. Cambridge studies in social anthropology 16 (Cambridge, New York 1977).

BOYLE 1972
J. A. Boyle, The seasonal residences of the great khan Ögedei. Central Asiatic Journal 16, 1972, 125–131.

BRANDT/GUTSCHOW 2003
A. Brandt/N. Gutschow, Erdene Zuu. Zur Baugeschichte der Klosteranlage auf dem Gebiet von Karakorum, Mongolei. Beiträge zur Allgemeinen und Vergleichenden Archäologie 23, 2003, 21–48.

BRENTJES 1989
B. Brentjes, Incised Bones and a Ceremonial Belt: Finds from Kurgan-Tepe and Tillia Tepe. Bulletin of the Asia Institute 3, 1989, 39–44.

BRIANT 2002
P. Briant, From Cyrus to Alexander. A history of the Persian Empire (Winona Lake 2002).

BRIDGES 1991
P. Bridges, Degenerative Joint Disease in Hunter-Gatherers and Agriculturalists from the Southeastern United States. American Journal of Physical Anthropology 85, 4, 1991, 379–391.

BROSSEDER 2007a
U. Brosseder, Fremde Frauen in Ivolga? In:

M. Blečić/M. Črešnar/B. Hänsel/A. Hellmuth/E. Kaiser/C. Metzner-Nebelsick (eds.), Scripta Praehistorica in Honorem Biba Teržan. Situla 44 (Ljubljana 2007) 883–893.

Brosseder 2007b
U. Brosseder, Les Xiongnu et leurs relations internationales. In: Desroches/André 2007, 82–84.

Brosseder 2009
U. Brosseder, Xiongnu Terrace Tombs and their Interpretation as Elite Burials. In: Bemmann et al. 2009, 247–280.

Brosseder et al. 2011
U. Brosseder/Ch. Yeruul-Erdene with D. Tseveendorj, Ch. Amartuvshin, Ts. Turbat, Ts. Amgalantugs and a contribution by M. L. Machicek, 12 AMS-radiocarbon dates from Xiongnu period sites in Mongolia and the problem of chronology. Arkheologiin sudlal 31, 2011, in print. Археологийн судлал 31, 2011, in print.

Brothwell 1981
D. R. Brothwell, Digging up bones. 3rd ed. (Ithaca 1981).

Brun 2001
P. Brun, Le cheval, symbole de pouvoirs dans l'Europe préhistorique. Catalogue d'exposition du 31 mars au 12 novembre 2001, Musée de préhistoire d'Ile-de-France (Nemours 2001).

Brunaux 2000
J.-L. Brunaux, Les religions gauloises (Ve–Ier siècles av. J.-C.): nouvelles approches sur les rituels celtiques de la Gaule indépendante (Paris 2000).

Bügd 1955
Bügd Nairamdakh Mongol Ard Ulsyn Tüükh (Ulaanbaatar 1955). Бүгд Найрамдах Монгол Ард Улсын Түүх (Улаанбаатар 1955).

Bünchin 1978
B. Bünchin, Unalga edelgeenii malyn ashiglalt, tonog kheregsel (Ulaanbaatar 1978). Б. Бүнчин, Уналга эдэлгээний малын ашиглалт, тоног хэрэгсэл (Улаанбаатар 1978).

Bunker 1989
E. Bunker, Dangerous Scholarship. On citing unexcavated Artifacts from Inner Mongolia and North China. Orientations, 6, 1989, 52–59.

Buiukliev 1986
Kh. Buiukliev, Trakiichkiiat mogilen nekropol pri Chatalka, Starozagorski okr'ag (Sofiia 1986). Х. Буюклиев, Тракийчкият могилен некропол при Чаталка, Старозагорски окръг (София 1986).

Bulling 1960
A. Bulling, The decoration of mirrors of the Han Period, a chronology. Artibus Asiae, Suppl. 20 (Ascona 1960).

Bunker 1994
E. C. Bunker, The Metallurgy of Personal Adornment. In: J. M. White/E. C. Bunker/ C. Pfeifen, Adornment for Eternity. Status and Rank in Chinese Ornament (Denver 1994) 31–54.

Bunker 1997a
E. Bunker with T. S. Kawami/K. M. Linduff/Wu En, Ancient Bronzes of the Eastern Eurasian Steppes from the Arthur M. Sackler Collections (New York 1997).

Bunker 1997b
E. Bunker, Gold Wire in Ancient China. Orientations 28, 3, 1997, 94–95.

Bunker et al. 1970
E. Bunker/B. Chatwin/A. Farkas, „Animal style" Art from East to West (New York 1970).

Bunker et al. 2002
E. Bunker/J. C. Y. Watt/Zhixin Sun/J. Ph. O'Neill (eds.), Nomadic art of the Eastern Eurasian steppes. The Eugene V. Thaw and other New York collections (New York 2002).

Burbank/Cooper 2010
J. Burbank/F. Cooper, Empires in world history: power and the politics of difference (Princeton 2010).

Cangzhou 1998
Cangzhou shi wenwu guanlichu 滄州市文物管理處, Hebei Nanpi Luzhuangzi Han mu 河北南皮蘆庄子漢墓. Wenwu chunqiu 1998, 1, 1–4.

Carneiro 1970
R. Carneiro, A theory of the origin of the state. Science 169, 1970, 733–738.

Carneiro 1981
R. Carneiro, The chiefdom as precursor of the state. In: G. Jones/R. Kautz (eds.), The Transition to Statehood in the New World. New directions in archaeology (Cambridge 1981) 37–79.

CARNEIRO 2000
R. Carneiro, Process vs Stages: A False Dichotomy in Tracing the Rise of the State. In: N. N. Kradin/A. V. Korotayev et al. (eds.), Alternatives of Social Evolution (Vladivostok 2000) 52–58.

CHANG 1986
K.-C. Chang, The Archaeology of Ancient China 4th ed. (New Haven 1986).

CHANG 1989
K.-C. Chang, Kwang-Chih, Ancient China and its Anthropological Significance. In: C. C. Lamberg-Karlovsky, Archaeological thought in America (Cambridge 1989) 155–166.

CHANG ET AL. 2002
C. Chang/P. A. Tourtellotte/K. M. Baipakov/F. P. Grigoriev, The Evolution of Steppe Communities from the Bronze Age through Medieval Periods in Southeastern Kazakhstan (Zhetysu): The Kazakh-American Talgar Project 1994–2001 (Sweet Briar 2002).

CHANG ET AL. 2003
C. Chang/N. Benecke/F. P. Grigoriev/A. Rosen/P. A. Tourtellotte, Iron Age society and chronology in South-east Kazakhstan. Antiquity 77, 2003, 298–312.

CHASE/DOUGLAS 1997
W. T. Chase/J. G. Douglas, Technical Studies and Metal Compositional Analyses of Bronzes of the Eastern Eurasian Steppes from the Arthur M. Sackler Collections. In: Bunker 1997a, 306–318.

CHASE-DUNN/HALL 1997
C. Chase-Dunn/T. D. Hall, Rise and demise. Comparing world-systems (Boulder 1997).

CHEN 1989
Ching-lung Chen, Chinese symbolism among the Huns. In: K. Sagaster (ed.), Religious and lay symbolism in the Altaic world and other papers. Asiatische Forschung 105 (Wiesbaden 1989) 62–70.

CHEN 2007
Chen Xujing 陳序經, Xiongnu shigao 匈奴史稿 (Beijing 2007).

CHEN 2009
Chen Shan 陈山, Lamadong mudi sanyan wenhua jumin rengu yanjiu 喇嘛洞墓地三燕文化居民人骨研究. PhD dissertation Jilin University 博士论文 吉林大学 (Changchun 2009).

CHEN/BAI 1994
Chen Fengshan 陳鳳山/Bai Jingsong 白勁松, Nei Menggu Zhalainuo'er Xianbei mu 内蒙古扎賚諾爾鮮卑墓. Nei Menggu wenwu kaogu 1994, 2, 27–30.

CHEN ET AL. 1987
Chen Gongrou 陳公柔 et al., Qinghai Datong Ma Liang mu chutu Hanjian de zhengli yu yanjiu 青海大通馬良墓出土漢簡的整理與研究. Kaoguxue jikan 5 (1987), 293–315, pls. 30–37.

CHENG/HAN 2002
Cheng Linquan 程林泉/Han Guohe 韓國河, Chang'an Han jing 長安漢鏡 (Xi'an 2002).

CHEN JIANMING 2008
Chen Jianming 陈健明 (ed.), Noble tombs at Mawangdui. Art and life of the Changsha kingdom: Third century BCE to first century CE. Mawangdui Han mu. Gu Changsha guo de yi shu yu sheng huo 马王堆汉墓. 长沙国的艺术与生活 (Changsha 2008).

CHILDE 1956
V. G. Childe, Piecing Together the Past: The Interpretation of Archaeological Data (London 1956).

CHINA 2004
China. Dawn of a Golden Age. Cat. Metropolitan Museum (New York 2004).

CHISTYAKOVA 2009
A. N. Chistyakova, Chinese Inscription on the Lacquer cup from Noin Ula Mound 20 (Mongolia). Archaeology, Ethnology and Anthropology of Eurasia 2009, 3, 59–68.

CHŌSEN 1934
Chōsen Koseki Kenkyū-kai 朝鮮古蹟研究會, Rakurō sai kyō tsuka 樂浪彩篋冢. Koseki chōsa hōkoku 古蹟調查報告 Vol. 1 (Seoul 1934).

CHRISTIAN 1998
D. Christian, A History of Russia, Central Asia and Mongolia, Vol. 1. Inner Eurasia from prehistory to the Mongol Empire (Oxford 1998).

CHU 1984
Chu Shibin 初師賓, Juyan fenghuo kaoshu 居延烽火考朮. In: Gansu sheng wenwu gongzuodui 甘肅省文物工作隊 et al. (ed.), Hanjian yanjiu wenji 漢簡研究文集 (Lanzhou 1984).

Chua 2007
A. Chua, Day of empire: how hyperpowers rise to global dominance – and why they fall (New York 2007).

Cioffi-Revilla 1984
C. Cioffi-Revilla, The political reliability of Italian governments: An exponential survival model. American Political Science Review 78, 2, 1984, 318–337.

Cioffi-Revilla 1998
C. Cioffi-Revilla, Politics and Uncertainty. Theory, models and applications (Cambridge, New York 1998).

Cioffi-Revilla 2002
C. Cioffi-Revilla, Invariance and universality in social agent-based simulations. Proceedings of the National Academy of Science of the United States of America 99, Supp. 3. 2002, 7314–7316.

Cioffi-Revilla forthcoming
C. Cioffi-Revilla, Power Laws of Conflict: Scaling in Warfare and Terrorism. In: C. Cioffi-Revilla (ed.), Power Laws and Non-Equilibrium Dynamics in the Social Sciences (forthcoming).

Cioffi-Revilla/Lai 2001
C. Cioffi-Revilla/D. Lai, Replication data for Chinese Warfare and Politics in the Ancient East Asian International System, ca. 2700 B.C. to 722 B.C. Murray Research Archive, Harvard-MIT Data Center http://www.hmdc.harvard.edu/ (2001).

Cioffi-Revilla/Landman 1999
C. Cioffi-Revilla/T. Landman, Evolution of Maya polities in the ancient Mesoamerican system. International Studies Quarterly 43, 4, 1999, 559–598.

Cioffi-Revilla et al. 2007
C. Cioffi-Revilla/S. Luke/D. C. Parker/J. D. Rogers/W. W. Fitzhugh/W. Honeychurch/B. Frohlich/P. DePriest/Ch. Amartuvshin, Agent-based Modeling Simulation of Social Adaptation and Long-Term Change in Inner Asia. In: T. Terano/D. Sallach (eds.), Advancing Social Simulation: The First World Congress in Social Simulation (Tokyo, New York, Heidelberg) 189–200.

Cioffi-Revilla et al. 2008
C. Cioffi-Revilla/W. Honeychurch/M. Latek/M. Tsvetovat, The MASON Hierarchies Model of Political Hierarchies and Warfare. Working Paper. Mason-Smithsonian Joint NSF/HSD Project on Inner Asia (2008).

Cioffi-Revilla et al. 2010
C. Cioffi-Revilla/J. D. Rogers/M. Latek, The MASON HouseholdWorld Model of Pastoral Nomad Societies. In: K. Takadama/C. Cioffi-Revilla/G. Deffaunt (eds.), Simulating Interacting Agents and Social Phenomena: The Second World Congress in Social Simulation (Berlin, Tokyo 2010) 193–204.

Claessen/Skalník 1978a
H. J. M. Claessen/P. Skalník (eds.), The Early State. New Babylon: studies in the Social Sciences 32 (The Hague 1978).

Claessen/Skalník 1978b
H. J. M. Claessen/P. Skalník, The early state: theories and hypotheses. In: H. J. M. Claessen/P. Skalník (eds.), The Early State. New Babylon: studies in the Social Sciences 32 (The Hague 1978) 3–30.

Cociş 2004
S. Cociş, Fibulele din Dacia Romană. The Brooches from Roman Dacia. Bibl. Ephemeris Napocensis 2 (Cluj-Napoca 2004).

Cohen 1978
R. Cohen, State origins: a reappraisal. In: Claessen/Skalník (eds.), The Early State. New Babylon: studies in the Social Sciences 32 (The Hague 1978) 31–75.

Courant 1912
M. Courant, L'Asie Centrale aux XVIIe et XVIIIe siecles: Empire Kalmouk ou Empire Mantchou? Annales de l'Universite de Lyon. Nouvelle serie 2, 26 (Lyon/Paris 1912).

Crabtree 1996
J. Crabtree, Production and Consumption in an Early Complex Society: Animal Use in Middle Saxon East Anglia. World Archaeology 28, 1, 1996, 58–75.

de Crespigny 1984
R. de Crespigny, Northern Frontier. The policies and strategy of the Later Han Empire. Faculty of Asian Studies monographs N.S. 4 (Canberra 1984).

Cribb 1991
R. Cribb, Nomads in Archaeology. New Studies in Archaeology (Cambridge 1991).

CRUBÉZY ET AL. 1996
E. Crubézy/H. Martin/P.-H. Giscard/Z. Batsaikhan/S. Erdenebaatar/B. Maureille/J.-P. Verdier, Pratiques funéraires et sacrifices d'animaux. De la représentativité au symbole. A propos d'une sépulture protohistorique de Mongolie vallée d'Egiin Gol (région péri-Baïkal). Paléorient 22, 1996, 89–108.

CULTURE AND ART 1991
Culture and Art of Ancient Uzbekistan. Exhibition catalogue, Vol. 1 (Moscow 1991).

CURTIS 1977
J. E. Curtis, Some Georgian Belt-Clasps. In: Ph. Denwood (ed.), Arts of the Eurasian Steppelands. A Colloque held 27–29 June 1977. Colloquies on Art & Archaeology in Asia 7 (London 1977) 88–120.

CURTIS 2001
V. S. Curtis, Parthian Belts and Belt Plaques. Iranica Antiqua 36, 2001, 299–327.

DAMDINSÜREN 1990
A. Damdinsüren, Mongolyn zevsgiin tovch tüükh (Ulaanbaatar 1990). А. Дамдинсүрэн, Монголын зэвсгийн товч түүх (Улаанбаатар 1990).

DAMDINSÜREN 1995
Ts. Damdinsüren, Miangan zhiliin khar'tsuulsan khüsnegt (Ulaanbaatar 1995). Ц. Дамдинсүрэн, Мянган жилийн харьцуулсан хүснэгт (Улаанбаатар 1995).

DANDAMAEV 1989
M. A. Dandamaev, Political History of the Achaemenid Empire (New York 1989).

DANILOV 1998
S. V. Danilov, Raskopki zdaniia na khunnskom gorodishche Baian Under v Dzhidinskom raione Respubliki Buriatiia. In: N. N. Kradin (otv. red.), Arkheologiia i etnologiia Dal'nego Vostoka i Tsentral'noi Azii (Vladivostok 1998) 111–114. С. В. Данилов, Раскопки здания на хуннском городище Баян Ундэр в Джидинском районе Республики Бурятия. In: Н. Н. Крадин (отв. ред.), Археология и этнология Дальнего Востока и Центральной Азии (Владивосток 1998) 111–114.

DANILOV 2004
S. V. Danilov, Goroda v kochevykh obshchestvakh Tsentral'noi Azii (Ulan-Ude 2004). С. В. Данилов, Города в кочевых обществах Центральной Азии (Улан-Удэ 2004).

DANILOV 2005
S. V. Danilov, Nazemnye zdaniia khunnov. Vestnik NGU 4, vyp. 5, Novosibirsk 2005, 65–70. С. В. Данилов, Наземные здания хуннов. Вестник НГУ 4, вып. 5, Новосибирск 2005, 65–70.

DANILOV 2009
S. V. Danilov, Preliminary Results of the Investigations on a Xiongnu Settlement in Mongolia. In: Bemmann et al. 2009, 241–246.

DANILOV/ZHAVORONKOVA 1995
S. V. Danilov/T. V. Zhavoronkova, Gorodishche Baian Under – novyi pamiatnik khunnu v Zabaikal'e. In: P. B. Konovalov (otv. red.), Kul'tury i pamiatniki bronzovogo i rannego zheleznogo vekov Zabaikal'ia i Mongolii (Ulan-Ude 1995) 26–36. С. В. Данилов/Т. В. Жаворонкова, Городище Баян Ундэр – новый памятник хунну в Забайкалье. In: П. Б. Коновалов (отв. ред.), Культуры и памятники бронзового и раннего железного веков Забайкалья и Монголии (Улан-Удэ 1995) 26–36.

DANILOV ET AL. 1998
S. V. Danilov/I. V. Filippova/A. A. Amogolonov, Kitaiskie zerkala iz pamiatnikov Khunnu. In: N. N. Kradin (otv. red.), Arkheologiia i etnologiia Dal'nego Vostoka i Tsentral'noi Azii (Vladivostok 1998) 115–121. С. В. Данилов/И. В. Филиппова/А. А. Амоголонов, Китайские зеркала из памятников Хунну. In: Н. Н. Крадин (отв. ред.), Археология и этнология Дальнего Востока и Центральной Азии (Владивосток 1998) 115–121.

DAVYDOVA 1968
A. V. Davydova, The Ivolga Gorodishche. A monument of the Hsiung-nu culture in the Trans-Baikal Region. Acta Archaeologica Academiae Scientiarium Hungaricae 20, 1968, 209–245.

DAVYDOVA 1971
A. V. Davydova, K voprosu o khunnskikh khudozhestvennykh bronzakh. Sovetskaia arkheologiia 1971, 1, 93–105. А. В. Давыдова, К вопросу о хуннских художественных бронзах. Советская археология 1971, 1, 93–105.

Davydova 1975
A. V. Davydova, Ob obshchestvennom stroe khunnu. In: A. N. Mandel'shtam (otv. red.), Pervobytnaia arkheologiia Sibiri (Leningrad 1975) 141–145. А. В. Давыдова, Об общественном строе хунну. In: А. Н. Мандельштам (отв. ред.), Первобытная археология Сибири (Ленинград 1975) 141–145.

Davydova 1980
A. V. Davydova, Novye dannye o poselenii khunnu v Durenakh. Arkheologicheskie otkrytiia 1979 goda (1980) 200. А. В. Давыдова, Новые данные о поселении хунну в Дуренах. Археологические открытия 1979 года (1980) 200.

Davydova 1985
A. V. Davydova, Ivolginskii kompleks (gorodishche i mogil'nik) – pamiatnik khunnu v Zabaikal'e (Leningrad 1985). А. В. Давыдова, Иволгинский комплекс (городище и могильник) – памятник хунну в Забайкалье (Ленинград 1985).

Davydova 1995
A. V. Davydova, Ivolginskii arkheologicheskii kompleks I. Ivolginskoe gorodishche. Arkheologicheskie pamiatniki Siunnu 1 (Sankt-Peterburg 1995). А. В. Давыдова, Иволгинский археологический комплекс I. Иволгинское городище. Археологические памятники Сюнну 1 (Санкт-Петербург 1995).

Davydova 1996
A. V. Davydova, Ivolginskii arkheologicheskii kompleks II. Ivolginskii mogil'nik. Arkheologicheskie pamiatniki Siunnu 2 (Sankt-Peterburg 1996). А. В. Давыдова, Иволгинский археологический комплекс II. Иволгинский могильник. Археологические памятники Сюнну 2 (Санкт-Петербург 1996).

Davydova/Miniaev 2003
A. V. Davydova/S. S. Miniaev, Kompleks arkheologicheskikh pamiatnikov u sela Dureny. Arkheologicheskie pamiatniki Siunnu 5 (Sankt-Peterburg 2003). А. В. Давыдова/С. С. Миняев, Комплекс археологических памятников у села Дурены. Археологические памятники Сюнну 5 (Санкт-Петербург 2003).

Davydova/Miniaev 2008
A. V. Davydova/S. S. Miniaev, The Xiongnu Decorative Bronzes. New Discoveries in Russia. The Archaeological sites of the Xiongnu 6 (St. Petersburg 2008). А. В. Давыдова/С. С. Миняев, Художественная бронза Сюнну. Археологические памятники Сюнну 6 (Санкт-Петербург 2008).

Dawson 1955
Ch. Dawson, The Mongol Mission: Narratives and Letters of the Franciscan missionaries in Mongolia and China in the thirteenth and fourteenth centuries (London, New York 1955).

Debaine-Francfort 1995
C. Debaine-Francfort, Du neolithique a l'age du bronze en Chine du nord-ouest: La culture de Qijia et ses connexions. Mémoires de la Mission Archéologique Française en Asie Centrale 6 (Paris 1995).

De Niro/Epstein 1978
M. J. De Niro/S. Epstein, Influence of diet on the distribution of carbon isotopes on animals. Geochimica et Cosmochimica Acta 42, 1978, 495–506.

Denby 2006
P. M. Denby, Application of OSL to the separation of the luminescence components from a mixed quartz/feldspar sample. Radiation measurements 41, 2006, 774–779.

Desroches/André 2007
J-P. Desroches/G. André (eds.), Mongolie, les Xiongnu de l'Arkhangaï. Монгол улс: Архангай дахь хүннүгийн судалгаа (Oulan-Bator 2007).

Devlet 1980
M. A. Devlet, Sibirskie poiasnye azhurnye plastiny II v. do n.e. – I v. n.e. Arkheologiia SSSR. Svod arkheologicheskikh istochnikov D 4-7 (Moskva 1980). М. А. Дэвлет, Сибирские поясные ажурные пластины II в. до н.э. – I в. н.э. Археология СССР. Свод археологических источников Д 4-7 (Москва 1980).

Di Cosmo 1994
N. Di Cosmo, Ancient Inner Asian nomads: Their economic basis and its significance in Chinese history. The Journal of Asian Studies 53, 1994, 1092–1126.

Di Cosmo 1999a
N. Di Cosmo, The Northern Frontier in Pre-Imperial China. In: M. Loewe/E. L. Shaughnessy

(eds.), The Cambridge history of ancient China (Cambridge 1999) 885–966.

DI COSMO 1999b
N. Di Cosmo, State Formation and Periodization in Inner Asian History. Journal of World History 10, 1, 1999, 1–40.

DI COSMO 2002
N. Di Cosmo, Ancient China and its enemies. The rise of nomadic power in East Asian history (Cambridge 2002).

DI COSMO 2009
N. Di Cosmo, Han Frontiers: Toward an Integrated View. Journal of the American Oriental Society 129, 2, 2009, 199–214.

DI COSMO 2010
N. Di Cosmo, Black Sea Emporia and the Mongol Empire: A Reassessment of the Pax Mongolia. Journal of Economic and Social History of the Orient 53, 2010, 83–108.

DI COSMO ET AL. 2009
N. Di Cosmo/A. J. Frank/P. B. Golden (eds.), The Cambridge History of Inner Asia: The Chinggisid Age (Cambridge, New York 2009).

DIAMOND 1999
J. Diamond, Guns, germs, and steel: the fates of human societies (New York 1999).

DLUZHNEVSKAIA/SAVINOV 2007
G. V. Dluzhnevskaia/G. V. Savinov, Pamiatniki drevnosti na dne Tuvinskogo moria (Sankt-Peterburg 2007). Г. В. Длужневская/Д. Г. Савинов, Памятники древности на дне тувинского моря (Санкт-Петербург 2007).

DODD 2005
L. S. Dodd, Territory, Legacy, and Wealth in Iron Age Anatolia. In: B. J. Parker/L. Rodseth (eds.), Untaming the Frontier in Antropology, Archaeology and History (Tuscon 2005) 238–260.

DORZHSÜREN 1961
Ts. Dorzhsüren, Umard Khünnü (Ertnii sudlalyn shinzhilgee). Studia Archeologica Tomus 1, Fasciculus 5 (Ulaanbaatar 1961). Ц. Доржсүрэн, Умард Хүннү (Эртний судлалын шинжилгээ). Studia Archeologica Tomus 1, Fasciculus 5 (Уланбаатар 1961).

DORZHSÜREN 1962
Ts. Dorzhsuren, Raskopki mogil khunnu v gorakh Noin-Ula, na reke Khuni-gol (1954–1957 gg.). In: S. V. Kiselev (otv. red.), Mongol'skii arkheologicheskii sbornik (Moskva 1962) 36–44. Ц. Доржсурэн, Раскопки могил хунну в горах Ноин-Ула, на реке Хуни-гол (1954–1957 гг.). In: С. В. Киселев (отв. ред.), Монгольский археологический сборник (Москва 1962) 36–44.

DORZHSÜREN 2003
Ts. Dorzhsüren, Arkheologiin sudalgaa. Erdem shinzhilgeenii büteeliin emkhtgel (Ulaanbaatar 2003). Д. Доржсүрэн, Археологийн судалгаа. Эрдэм шинжилгээний бүтээлийн эмхтгэл (Улаанбаатар 2003).

DOYLE 1986
M. Doyle, Empires. Cornell studies in comparative history (Ithaca 1986).

DRENNAN/URIBE 1987
R. D. Drennan/C. Uribe (eds.), Chiefdoms in the Americas (Lanham 1987).

DRENNAN ET AL. 2003
R. D. Drennan/C. E. Peterson/G. G. Indrisano/T. Mingyu/G. Shelach/Z. Yanping/K. M. Linduff/G. Zhizhong/M. A. R. Lacayo, Approaches to Regional Demographic Reconstruction. In: Nei Menggu dongbu (Chifeng) quyu kaoguo diaocha jieduanxing baogao 内蒙古東部 (赤峰) 區域考古調查階段性報告 Regional Archaeology in Eastern Inner Mongolia: A Methodological Exploration. Chifeng Zhong Mei lianhe kaogu yanjiu xiangmu 赤峰中美聯合考古研究項目 Chifeng International Collaborative Archaeology Research Project (Beijing 2003) 152–165.

DROMPP 1999
M. R. Drompp, Breaking the Orkhon Tradition: Kirghiz Adherence to the Yenisei Region after A. D. 840. Journal of the American Oriental Society 119, 1999, 390–403.

DROMPP 2005
M. R. Drompp, Imperial State Formation in Inner Asia: the Early Turkic Empires (6th to 9th Centuries). Acta Orientalia Academiae Scientiarum Hungaricae 58, 1, 2005, 101–111.

DSCHINGIS KHAN 2005
Dschingis Khan und seine Erben. Das Weltreich der Mongolen. Ausstellungskatalog der Kunst- und

Ausstellungshalle der Bundesrepublik Deutschland, Bonn (Bonn 2005).

Dubs 1955
H. Dubs (tr.), The History of the Former Han Dynasty by Pan Ku, Vol. 3 (Baltimore 1955).

Dunhuang 1991
Gansu sheng wenwu kaogu yanjiusuo 甘肅省文物考古研究所 (ed.), Dunhuang Hanjian 敦煌漢簡, 2 Vols. (Beijing 1991).

Duurlig Nars 2009
Duurlig narsny khünnü bulsh. Дуурлиг нарсны хүннү булш. Xiongnu Tombs of Duurlig Nars. Exhibition Catalogue National Museum of Korea (Seoul 2009).

Dvornichenko/Feodor-Davydov 1989
V. V. Dvornichenko/G. A. Feodor-Davydov, Raskopki kurganov v zone stroitel'stva Kalmytsko Astrakhanskoi i Nikol'skoi risovykh orositel'nykh sistem. In: K. A. Smirnov (red.), Sokrovishcha Sarmatskikh Vozhdei i drevnie goroda Povolzh'ia (Moskva 1989) 14–132. В. В. Дворниченко /Г. А. Феодор-Давыдов, Раскопки курганов в зоне строительства Калмыцко-Астраханской и Никольской рисовых оросительных систем. In: К. А. Смирнов (ред.), Сокровища Сарматских Вождей и древние города Поволжья (Москва 1989) 14–132.

Dvornichenko/Feodor-Davydov 1993
V. V. Dvornichenko/G. A. Feodor-Davydov, Sarmatskoe pogrebenie skeptukha I v. n.e. u s. Kosika Astrakhanskoi oblasti. Vestnik drevnei istorii 206, 3, 1993, 141–179. В. В. Дворниченко/ Г. А. Феодор-Давыдов, Сарматское погребение скептуха I в. н.э. у с. Косика Астраханской области. Вестник древней истории 206, 3, 1993, 141–179.

Earle 1987
T. Earle, Chiefdoms in archaeological and ethnohistorical perspective. Annual Review of Anthropology 16, 1987, 279–308.

Earle 1991
T. Earle (ed.), Chiefdoms: Power, Economy, and Ideology. School of American Research Advanced Seminar Studies (Cambridge 1991).

Earle 1997
T. Earle, How Chiefs Come to Power: The Political Economy in Prehistory (Stanford 1997).

E'erduosi 2006
E'erduosi qingtongqi 鄂爾多斯青銅器 (Beijing 2006).

Egami 1948
Egami Namio 江上 波夫, Yūrashia kodai hoppō bunka. Kyōdo bunka ronkō ユウラシア古代北方文化. 匈奴文化輪考 (Kyoto 1948).

Egami 1963
Namio Egami 江上波夫, The economic activities of the Xiongnu. Proceeding of 25th International Congress of Oriental Studies 5 (Moscow 1963) 353–354.

Eggers 1951
H.-J. Eggers, Der Römische Import im Freien Germanien. Atlas zur Urgeschichte 1 (Hamburg 1951).

Eich/Eich 2005
A. Eich/P. Eich, War and state-building in Roman Republican times. Scripta Classica Israelica 24, 2005, 1–33.

Eisenstadt 1993
S. N. Eisenstadt, The political systems of empires (exp. ed. New Brunswick 1993).

Emberling 1997
G. Emberling, Ethnicity in complex societies: Archaeological perspectives. Journal of Archaeological Research 5, 4, 1997, 295–344.

Enoki et al. 1992
K. Enoki/G. A. Koshelenko/Z. Haidary, The Yüeh-chih and their migrations. In: J. Harmatta (ed.), History of civilizations of Central Asia, Vol. II. The development of sedentary and nomadic civilizations: 700 B.C. to A.D. 250 (Paris 1992) 171–189.

Erdélyi 1979
I. Erdélyi, Előzetes jelentés az 1974. Évi Mongol-Magyar régészeti expedíció munkálatairól. Archaeologiai Értesítő 106, 1979, 112–126.

Erdélyi 1994
I. Erdélyi, The Settlements of the Xiongnu. In: B. Genito (ed.), The Archaeology of the Steppes. Methods and Strategies. Papers from the International Symposium held in Naples 9–12 November 1992. Istituto universitario orientale, Dipartimento di studi asiatici Series minor 44 (Napoli 1994) 553–563.

ERDÉLYI 2000
I. Erdélyi, Archaeological Expeditions in Mongolia (Budapest 2000).

ERDÉLYI 2001
I. Erdélyi, Ausgrabung einer Siedlung der asiatischen Hunnen. Acta Archaeologica Academiae Scientiarum Hungaricae 52, 2001, 145–153.

ERDÉLYI ET AL. 1967
I. Erdélyi/T. Dorjsüren/D. Navan, Results of the Mongolian-Hungarian Archaeological Expeditions 1961–1964 (A comprehensive report). Acta Archaeologica Hungarica 19, 1967, 335–370.

ERDENEBAATAR 2002
D. Erdenebaatar, Mongol nutgiin dörvölzhiin bulsh, khirgisüüriin soel (Ulaanbaatar 2002). Д. Эрдэнэбаатар, Монгол нутгийн дөрвөлжийн булш, хиргисүүрийн соел (Улаанбаатаар 2002).

ERDENEBAATAR/ERÖÖL-ERDENE 2003
D. Erdenebaatar/Ch. Erööl-Erdene, Khünnü tsergiin khuiag. Khar süld, 3, 2003, 22–28. Д. Эрдэнэбаатар/Ч. Ерөөл-Эрдэнэ, Хүннү цергийн хуяг. Хар сүлд 3, 2003, 22–28.

ERDENEBAATAR/MILLER 2006
D. Erdenebaatar/B. Miller, Gol mod-2 Excavation report (9–15 June 2006). Unpublished Field report Ulaanbaatar University 2006.

ERDENEBAATAR/MÖNKHSAIKHAN 1999
D. Erdenebaatar/G. Mönkhsaikhan, Ertnii metallyn büttsiin khar'tsuulsan sudalgaa. Arkheologiin sudlal 19, 1999, 53–63. Д. Эрдэнэбаатар/Г. Мөнхсайхан, Эртний металлын бүтцийн харьцуулсан судалгаа. Археологийн судлал 19, 1999, 53–63.

ERDENEBAATAR ET AL. 1999
D. Erdenebaatar/Ts. Törbat/U. Erdenebat, Khünnügiin üeiin shine oldvoruud. Archeologiin sudlal 19, 1999, 64–73. Д. Эрдэнэбаатар/Ц. Төрбат/У. Эрдэнэбат, Хүннүгийн үеийн шинэ олдворууд. Археологийн судлал 19, 1999, 64–73.

ERDENEBAATAR ET AL. 2002a
D. Erdenebaatar/Ch. Erööl-Erdene/N. Batbold/A. Frantsis/B. Miller, Umard Khünnügiin iazuurtny bulshny sudalgaa. Tüükhiin sudlal 33, 2002, 20–28. Д. Эрдэнэбаатар/Ч. Ерөөл-Эрдэнэ/Н. Батболд/А. Франсис/Б. Миллер, Умард Хүннүгийн язгууртны булшны судалгаа. Түүхийн судлал 33, 2002, 20–28.

ERDENEBAATAR ET AL. 2002b
D. Erdenebaaatar/F. Allard/N. Batbold/B. Miller, Khünnügiin bulshnaas oldson tamgatai shagai. Tüükhiin sudlal 33, 2002, 176–189. Д. Эрдэнэбаатар/Ф. Аллард/ Н. Батболд/Б. Миллер, Хүннүгийн булшнаас олдсон тамгатай шагай. Түүхийн судлал, 33, 2002, 176–189.

ERDENEBAATAR ET AL. 2008–2009
D. Erdenebaatar/T. Iderkhangai/E. Mizhiddorzh/B. Galbadrakh, Ulaanbaataryn Ikh surguuliin Niigmiin ukhaany fakul'tetiin Arkheologi, Tüükhiin angiin oiutnuudyn kheeriin taniltsakh ba üildverleliin dadlagyn 2008 ony tailan. Д. Эрдэнэбаатар/ Т. Идэрхангай/Э. Мижиддорж/Б. Галбадрах, Улаанбаатарын Их сургуулийн Нийгмийн ухааны факультетийн Археологи, Түүхийн ангийн оюутнуудын хээрийн танилцах ба үйлдвэрлэлийн дадлагын 2008 оны тайлан. Unpublished report Ulaanbaatar University 2008–2009.

ERDENEBAATAR ET AL. 2010
D. Erdenebaatar/T. Iderkhangai/E. Mizhiddorzh/B. Galbadrakh/S. Orgilbaiar, Ulaanbaataryn Ikh surguuliin Niigmiin ukhaany fakul'tetiin Arkheologi, Tüükhiin angiin oiutnuudyn kheeriin taniltsakh ba üildverleliin dadlagyn 2008 ony tailan. Д. Эрдэнэбаатар/Т. Идэрхангай/Э. Мижиддорж/Б. Галбадрах/С. Оргилбаяр, Улаанбаатарын Их сургуулийн Нийгмийн ухааны факультетийн Археологи, Түүхийн ангийн оюутнуудын хээрийн танилцах ба үйлдвэрлэлийн дадлагын 2008 оны тайлан. Unpublished reports Ulaanbaatar University 2010.

ÉRDY 1995
M. Érdy, Hun and Xiongnu Type Cauldron Finds throughout Eurasia. Eurasian Studies Yearbook 1995, 5–94.

ÉRDY 2003–2004
M. Erdy, Art objects from the Sidorovka Kurgan cemetery and the analysis of its ethnic affiliation. Siberian Association of Prehistoric Art Researchers Bulletin 6–7, 2003–2004, 48–52.

EREGZEN 2007
G. Eregzen, Mongolyn Khünnü bulshiig khelbereer angilakh n'. Arkheologiin sudlal 24, 2007, 226–243. Г. Эрэгзэн, Монголын Хүннү булшийг хэлбэрээр ангилах нь. Археологийн судлал 24, 2007, 226–243.

Eregzen 2008
G. Eregzen, Khünnü ba Nannany bulsh. In: Xiongnu 2008, 66–87. Г. Эрэгзэн, Хүннү ба Нанханы булш. In: Xiongnu 2008, 66–87.

Eregzen 2009
G. Eregzen 에렉젠, Monggol Hunnu mudom engu 몽골 흉노 무덤 연구. PhD Dissertation, Seoul National University (Seoul 2009).

Eregzen 2010
G. Eregzen, Khünnügiin iazguurtny bulshny bütets dekh gadny soelyn nöölög todruulakh n'. Arkheologiin sudlal 29, 2010, 274–294. Г. Эрэгзэн, Хүннүгийн язгууртны булшны бүтэц дэх гадны соёлын нөөлөг тодруулах нь. Археологийн судлал 29, 2010, 274–294.

Eregzen et al. 2008
G. Eregzen/N. Batbold/D. Bazargür/P. Aldarmönkh/Zhan Onzhon/Khuanbo Chanso, Duurlig narsny Khünnü bulshny sudalgaa. In: Xiongnu 2008, 155–168. Г. Эрэгзэн/Н. Батболд/Д. Базаргүр/П. Алдармөнх/Жан Өнжон/Хуанбо Чансо, Дуурлиг нарсны Хүннү булшны судалгаа. In: Xiongnu 2008, 155–168.

Erööl-Erdene 2004
Ch. Erööl-Erdene, Gol modny khünnü bulshny sudalgaany zarim ür dün. Arkheologiin sudlal 22, 2004, 76–109. Ч. Ерөөл-Эрдэнэ, Гол модны хүннү булшны судалгааны зарим үр дүн. Археологийн судлал 22, 2004, 76–109.

Erööl-Erdene 2007a
Ch. Erööl-Erdene, Gol Modny 20-r bulshnaas oldson "belget göröös"-iin dürst khöömöl möngön zemseg. Arkheologiin sudlaal 24, 2007, 244–257. Ч. Ерөөл-Эрдэнэ, Гол модны 20-р булшнаас олдсон "Бэлгэт гөрөөс"-ийн дүрст хөөмөл мөнгөн зэмсэг. Археологийн судлал 24, 2007, 244–257.

Erööl-Erdene 2007b
Ch. Erööl-Erdene, Khünnü bulshnaas oldson khölögt togloom (Gol modny khünnü bulshny kherlegdekhüüneer). Arkheologiin sudlal 24, 2007, 280–287. Ч. Ерөөл-Эрдэнэ, Хүннү булшнаас олдсон хөлөгт тоглоом (Гол модны хүннү булшны хэрэглэгдэхүүнээр). Археологийн судлал 24, 2007, 280–287.

Erööl-Erdene 2010
Ch. Erööl-Erdene, Khünnügiin iazguurtny orshuulgyn dursgalyn sudalgaa. Gol Modny orshuulgyn dursgalt gazryn kherlegdekhüüneer. Ч. Ерөөл-Эрдэнэ, Хүннүгийн язгууртны оршуулгын дурсгалын судалгаа. Гол Модны оршуулгын дурсгалт газрын хэрэглэгдэхүүнээр. PhD Dissertation Ulaanbaatar University 2010.

Erööl-Erdene/Gantulga 2008
Ch. Erööl-Erdene/Zh. Gantulga, Umard Khünnügiin iazguurtny negen bulshny sudalgaa. Arkheologiin sudlal 26, 2008, 149–189. Ч. Ерөөл-Эрдэнэ/Ж. Гантулга, Умард Хүннүгийн язгууртны нэгэн булшны судалгаа. Археологийн судлал 26, 2008, 149–189.

Evans-Pritchard 1970
E. E. Evans-Pritchard, Nuer Religion (Oxford 1970).

Evsiukov 1988
V. V. Evsiukov, Mifologiia kitaiskogo neolita: po materialam rospisei na keramike kul'tury Ianshao. Istoriia u kul'tura Vostoka Azii (Novosibirsk 1988). В. В. Евсюков, Мифология китайского неолита: по материалам росписей на керамике культуры Яншао. История и культура Востока Азии (Новосибирск 1988).

Evtiukhova 1947
L. A. Evtiukhova, Razvaliny dvortsa v «zemle Khiagias». Kratkie soobshcheniia o dokladakh i polevykh issledovaniiakh instituta istorii material'noi kul'tury 21 (Moskva, Leningrad 1947) 79–85. Л. А. Евтюхова, Развалины дворца в «земле Хягяс». Краткие сообщения о докладах и полевых исследованиях института истории материальной культуры 21 (Москва, Ленинград 1947) 79–85.

Evtiukhova/Levasheva 1946
L. A. Evtiukhova/V. P. Levasheva, Raskopki kitaiskogo doma bliz Abakana (Khakassiia AO). Kratkie soobshcheniia o dokladakh i polevykh issledovaniiakh instituta istorii material'noi kul'tury 12 (Moskva, Leningrad 1946). Л. А. Евтюхова/В. П. Левашева, Раскопки китайского дома близ Абакана (Хакассия АО). Краткие сообщения о докладах и полевых исследованиях института истории материальной культуры 12 (Москва, Ленинград 1946) 72–84.

FACCIA/WILLIAMS 2008
K. J. Faccia/R. C. Williams, Schmorl's nodes: clinical significance and implications for the bioarchaeological record. International Journal of Osteoarchaeology 18, 1, 2008, 28–44.

FALL ET AL. 1998
P. L. Fall/L. Lines/S. E. Falconer, Seeds of civilization: Bronze Age Rural Economy in the Southern Levant. Annals of the Association of American Geographers 88, 1998, 107–125.

FAN YE 1965
Fan Ye 范曄, Hou Han shu 後漢書 (Beijing 1965).

FARDON 1987
R. Fardon, "African Ethnogenesis": Limits to the Comparability of Ethnic Phenomena. In: L. Holy (ed.), Comparative Anthropology. Papers of the Symposium on Comparative Method in Social Anthropology, held at the University of St. Andrews, December 15–18, 1983 (Oxford, New York 1987) 168–188.

FENG 2001
Z.-D. Feng, Gobi Dynamics in the Northern Mongolian Plateau during the Past 20,000+yr: Preliminary Results. Quaternary International 76/77, 2001, 77–83.

FERENCZY 1967
L. Ferenczy, Chinese Mirror Finds from Mongolia. Acta Archaeologica Academiae Scientiarum Hungaricae 19, 1967, 371–376.

FERGUSON 2004
N. Ferguson, Colossus: the price of America's empire (New York 2004).

FILIPPOVA 2000
I. V. Filippova, Kitaiskie zerkala iz pamiatnikov Khunnu. Arkheologiia, etnografiia I antropologiia Evrazii 2000, 3, 100–108. И. В. Филиппова, Китайские зеркала из памятников хунну. Археология, этнография и антропология Евразии 2000, 3, 100–108.

FINDLEY 2005
C. V. Findley, The Turks in World History (New York 2005).

FINER 1997
S. E. Finer, The history of government from the earliest times, I. Ancient monarchies and empires (Oxford 1997).

FITZHUGH 2009
W. Fitzhugh, The Mongolian Deer stone-Khirigsuur complex: Dating and organization of a late Bronze Age Menagerie. In: Bemmann et al. 2009, 183–199.

FITZHUGH/BAYARSAIKHAN 2008
W. Fitzhugh/J. Bayarsaikhan (eds.), American-Mongolian Deer Stone Project: Field Report 2007 (Ulaanbaatar, Washington 2008).

FLETCHER 1986
J. Fletcher, The Mongols: ecological and social perspectives. Harvard Journal of Asiatic Studies 46, 1986, 1, 11–50.

FOGEL ET AL. 1989
M. L. Fogel/N. Tuross/D. W. Owsley, Nitrogen isotope traces of human lactation in modern and archaeological populations. Annual Report of the Director, Geophysical Laboratory, Carnegie Institution of Washington 1988–1989, 111–117.

FOLLMANN-SCHULZ 1988
A.-B. Follmann-Schulz, Die römischen Gläser aus Bonn. Beihefte Bonner Jahrbücher 46 (Köln 1988).

FOWLER/FOWLER 1986
F. G. Fowler/H. W. Fowler, The Oxford Handy Dictionary (London 1986).

FRACHETTI 2004
M. D. Frachetti, Bronze Age Pastoral Landscapes of Eurasia and the Nature of Social Interaction in the Mountain Steppe Zone of Eastern Kazakhstan, Unpublished PhD Dissertation, University of Pennsylvania 2004.

FRACHETTI 2008a
M. D. Frachetti, Variability and Dynamic Landscapes of Mobile Pastoralism in Ethnography and Prehistory. In: H. Barnard/W. Wendrich (ed.), The Archaeology of Mobility. Nomads in the Old and in the New World Cotsen Advanced Seminar Series 4 (Los Angeles 2008) 366–396.

FRACHETTI 2008b
M. D. Frachetti, Pastoralist Landscapes and Social Interaction in Bronze Age Eurasia (Berkeley 2008).

FRACHETTI/BENECKE 2009
M. Frachetti/N. Benecke, From sheep to (some)

horses: 4500 years of herd structure at the pastoralist settlement of Begash (south-eastern Kazakhstan). Antiquity 83, 2009, 1023–1037.

Franke 1990
H. Franke, The forest peoples of Manchuria: Kitans and Jurchens. In: D. Sinor (ed.), The Cambridge history of early Inner Asia (Cambridge 1990) 400–423.

Frohlich et al. 2008
B. Frohlich/T. Amgalantugs/J. Littleton/D. Hunt/J. Hinton/E. Batchatar/M. Dickson/Th. Frohlich/K. Goler, Bronze Age Burial Mounds (Khirigsuurs) in the Hovsgol Aimag, Mongolia: A Reconstruction of Biological and Social Histories. Arkheologiin sudlal 26, 2008, 92–114. Археологийн судлал 26, 2008, 92–114.

Frohlich et al. 2009
B. Frohlich/Ts. Amgalantögs/J. Littleton/D. Hunt/J. Hinton/K. Goler, Bronze Age burial mounds in Khövsgöl aimag, Mongolia. In: Bemmann et al. 2009, 99–115.

Fu et al. 2007
Y. Fu/H. Zhao/Y. Cui/Q. Zhang/X. Xu/H. Zhou/H. Zhu, Molecular genetic analysis of Wanggu remains, Inner Mongolia, China. American Journal of Physical Anthropology 132, 2, 2007, 285–291.

Gabasio et al. 1986
M. Gabasio/J. Evin/G. B. Arnal/P. Andrieux, Origins of carbon in potsherds. Radiocarbon 28, 2A, 1986, 711–718.

Gabuev 2005
T. A. Gabuev, Alanskii vsadnik. Sokrovishcha kniazei I–XII vekov (Moskva 2005). Т. А. Габуев, Аланский всадник. Сокровища князей I–XII веков (Москва 2005).

Ganbaatar 2008
Ia. Ganbaatar, Khünnügiin tüükh soel (Ulaanbaatar 2008). Я. Ганбаатар, Хүннүгийн түүх соёл (Улаанбаатар 2008).

Garam 1992
É. Garam, Die münzdatierten Gräber der Awarenzeit. In: F. Daim (ed.), Awarenforschungen I. Archaeologia Austriaca Monographien, Vol. 1 (Wien 1992) 135–250.

Ge 1991
Ge Shanlin 蓋山林, Yinshan wanggu 陰山汪古 (Huhehaote 1991).

Ge/Lu 1984a
Ge Shanlin 蓋山林/Lu Sixian 陸思賢, Nei Menggu jiang nei Zhanguo Qin Han changcheng yizhi 內蒙古將內戰國秦漢長城遺址. In: Nei Menggu wenwu ziliao xuji 內蒙古文物資料續集 (Huhehaote 1984) 90–100.

Ge/Lu 1984b
Ge Shanlin 蓋山林/Lu Sixian 陸思賢, Huge qi Chaolukulun Han dai shi cheng ji qi fujin de changcheng 湖格旗朝魯庫倫漢代市城及其附近的長城. In: Nei Menggu wenwu ziliao xuji 內蒙古文物資料續集 (Huhehaote 1984) 101–107.

Gerettete Schätze 2010
Gerettete Schätze. Afghanistan – Die Sammlung des Nationalmuseums in Kabul. Exhibition catalogue Kunst- und Ausstellungshalle der Bundesrepublik Deutschland, Bonn 11. Juni bis 3. Oktober 2010 (Bonn 2010).

Gheyle et al. 2004
W. Gheyle/R. Trommelmans/J. Bourgeois/R. Goossens/I. Bourgeois/A. De Wulf/T. Willems, Evaluating CORONA: A case study in the Altai Republic (South Siberia). Antiquity 78, 2004, 391–403.

Ghirshman 1979
R. Ghirshman, La ceinture en Iran. Iranica Antiqua 14, 1979, 167–196.

Giessauf 2006
J. Gießauf, Barbaren – Monster – Gottesgeißeln. Steppennomaden im europäischen Spiegel der Spätantike und des Mittelalters (Graz 2006).

Giddens 1979
A. Giddens, Central Problems in Social Theory: Action, Structure and Contradiction in Social Analysis (Berkeley 1979).

Gilbert 1975
F. Gilbert (ed.), The historical essays of Otto Hintze (New York 1975).

Gillespie 2001
S. Gillespie, Personhood, Agency, and Mortuary Ritual: A Case Study from the Ancient Maya. Journal of Anthropological Archaeology 20, 2001, 73–112.

GILLETT 2002
A. Gillett, On barbarian identity: critical approaches to ethnicity in the early Middle Ages. Studies in the early Middle Ages 4 (Turnhout 2002).

GLEDITSCH/WARD 1999
K. S. Gleditsch/D. Ward, Interstate system membership: A revised list of the independent states since 1816. International Interactions 25, 1999, 393–413.

GMELIN 1751–1752
J.-G. Gmelin, Reise durch Sibirien, von dem Jahre 1733 bis 1743 (Göttingen 1751–1752).

GODLEY 1920
A. D. Godley (transl.), The Histories by Herodotus. Loeb classical library (Cambridge 1920).

GOL MOD 2002
Gol mod. Nouvelles découvertes en Mongolie, 2000–2001. Connaissance des arts 177 (Paris 2002).

GOLD AND GRASS 2007
C. Chang (ed.), Of Gold and Grass. Nomads of Kazakhstan (o. O. 2007).

GOLD UND JADE 2007
Gold und Jade. Sensationsfunde aus chinesischen Herrschergräbern. Ausstellungskat. Kunsthalle Leoben (Leoben 2007).

GOLDEN 1982
P. B. Golden, Imperial ideology and the sources of political unity amongst the pre-Činggisid nomads of Western Eurasia. Archivum Eurasiae Medii Aevi 1982, 2, 37–76.

GOLDEN 1992
P. B. Golden, An introduction to the history of the Turkic peoples: ethnogenesis and state formation in medieval and early modern Eurasia and the Middle East. Turcologica 9 (Wiesbaden 1992).

Golden 2001
P. B. Golden, Ethnicity and State Formation in Pre-Činggisid Turkic Eurasia. Central Eurasian studies lectures 1 (Bloomington 2001).

GOLDSTONE/HALDON 2009
J. A. Goldstone/J. F. Haldon, Ancient states, empires, and exploitation. In: I. Morris/W. Scheidel, The Dynamics of Ancient Empires: State Power from Assyria to Byzantium (New York 2009) 3–29.

GOMEZ DE SOTO/ROULIÈRE-LAMBERT 1984
J. Gomez de Soto/M. J. Roulière-Lambert, Le tumulus du Bonethève à Pressignac (Charente). Une tombe de cavalier du Ier Age du Fer. Aquitania 2, 1984, 261–268.

GONGOR 1978
D. Gongor, Khalkh tovchoon. Khalkh Mongolchuudyn niigem-ediin zasgiin baiguulal (Ulaanbaatar 1978). Д. Гонгор, Халх товчоон. Халх Монголчуудын нийгем-эдийн засгийн байгуулал (Уланбаатар 1978).

GOOSSENS ET AL. 2006
R. Goossens/A. De Wulf/J. Bourgeois/W. Gheyle/T. Willems, Satellite Imagery and Archaeology: the Example of CORONA in the Altaï Mountains. Journal of Archaeological Science 33, 6, 2006, 745–755.

GORBUNOV/TISHKIN 2006
V. V. Gorbunov/A. A. Tishkin, Kompleks vooruzheniia kochevnikov Gornogo Altaia khunnuskoi epokhi. Arkheologiia, Etnografiia i Antropologiia Evrazii 2006, 4, 79–85. В. В. Горбунов/А. А. Тишкин, Комплекс вооружения кочевников Горного Алтая хуннуской эпохи. Археология, этнография и антропология Евразии 2006, 4, 79–85.

GORIUNOVA 1983
O. I. Goriunova, Kompleks bronzovogo veka mnogosloinogo poseleniia Tyshkine III (k voprosu o pozdnei bronze na Baikale). In: P. B. Konovalov (otv. red.), Po sledam drevnikh kul'tur Zabaikalia (Novosibirsk 1983) 70–75. О. И. Горюнова, Комплекс бронзового многослоиного поселения Тышкине III (к вопросу о поздней бронзе на Байкале). In: П. Б. Коновалов (отв. ред.), По следам древних культур Забайкаля (Новосибирск 1983) 70–75.

GOSLINE 2006
S. L. Gosline, Organic Globalization and Socialization of Civilization. In: Ø. S. LaBianca/S. A. Scham (eds.), Connectivity in Antiquity. Globalization as a Long-term Historical Process (London 2006), 93–112.

GOWLAND 2006
R. Gowland, Ageing the Past: Examining Age Identity from Funerary Evidence. In: R. Gow-

land/C. Knüsel (eds.), Social Archaeology of Funerary Remains (Oxford 2006) 143–154.

Grach 1980
A. D. Grach, Drevnie kochevniki v tsentre Azii (Moskva 1980). А. Д. Грач, Древние кочевники в центре Азии (Москва 1980).

Graham 1986
A. C. Graham, Yin-yang and the nature of correlative thinking (Singapore 1986).

Grandin 1988
B. E. Grandin, Wealth and pastoral dairy production: A case study from Maasailand. Human Ecology 16, 1, 1988, 1–21.

Green/Perlman 1985
S. W. Green/S. M. Perlman (eds.), The Archaeology of Frontiers and Boundaries (Orlando 1985).

Green/Suchey 1976
R. F. Green/J. M. Suchey, The use of inverse sine transformations in the analysis of non-metric cranial data. American Journal of Physical Anthropology 45, 1, 1976, 61–68.

Grinin et al. 2004
L. E. Grinin/R. L. Carneiro/D. M. Bondarenko/N. N. Kradin/A. V. Korotayev (eds.), The early state, its alternatives and analogues (Volgograd 2004).

de Groot 1921
Die Hunnen der vorchristlichen Zeit. Chinesische Urkunden zur Geschichte Asiens I. Übersetzt und erläutert von Jan Jakob Maria de Groot (Berlin, Leipzig 1921).

Grousset 1970
R. Grousset, The Empires of the Steppes: A History of Central Asia (New Brunswick 1970).

Gu 2007
Gu Yucai 顧玉才, Nei Menggu Helinge'er xian Tuchengzi yizhi Zhanguo shiqi rengu yanjiu 内蒙古和林格尔县土城子遗址战国时期人骨研究 (Changchun 2007).

Guchin zurgaatyn 1961
Guchin zurgaatyn tailbar tol' 9-r devter (Ulaanbaatar 1961). Гучин зургаатын тайлбар толь 9-р дэвтэр (Улаанбаатар 1961).

Guguev/Treister 1995
V. K. Guguev/M. Iu. Treister, Khanskie zerkala i podrazhaniia im na territorii iuga Vosotochnoi Evropy. Rossiiskaia Arkheologiia 1995, 3, 143–156. В. К. Гугуев/М. Ю. Трейстер, Ханские зеркала и подражания им на территории юга Восточной Европы. Российская Археология 1995, 3, 143–156.

Guguev et al. 1991
V. Guguev/I. Ravich/M. Treister, Han Mirrors and their replicas in the territory of South of Eastern Europe. Bulletin of the Metals Museum 16, July, 1991, 32–50.

Guizhou sheng bowuguan
Guizhou sheng bowuguan 貴州省博物館, Xi Han heiqi zhu hui leifeng wen erbei 西汉黑漆朱绘雷凤纹耳杯 [internet source] http://baike.baidu.com/view/1365980.html

Gumilev 1960
L. N. Gumilev, Khunnu: Sredinnaia Aziia v drevnie vremena (Moskva 1960). Л. Н. Гумилев, Хунну: Срединная Азия в древние времена (Москва 1960).

Gumilev 1993
L. N. Gumilev, Drevnie Tiurki (Moskva 1993). Л. Н. Гумилев, Древние Тюрки (Москва 1993).

Gurvan Gol 1994
A report on the joint investigation under the Mongolian and Japanese Gurvan Gol Historic Relic Probe Project, 1991–1993 (Ulaanbaatar 1994).

Gushchina/Zasetskaia 1989
I. I. Gushchina/I. P. Zasetskaia, Pogrebeniia zubovsko-vozdvizhenskogo tipa iz raskopok N. I. Veselovskogo v Prikuban'e (I v. do n. e. – nachalo II v. n. e.). In: Arkheologicheskie issledovaniia na iuge Vostochnoi Evropy. Trudy Gosudarstvennogo Istoricheskogo Muzeia 70 (Moskva 1989) 71–141. И. И. Гущина/И. П. Засецкая, Погребения зубовско-воздвиженского типа из раскопок Н. И. Веселовского в Прикубанье (I в. до н. э. – начало II в. н. э.). In: Археологические исследования на юге Восточной Европы. Труды Государственного Исторического Музея 70 (Москва 1989) 71–141.

Gushchina/Zasetskaia 1994
I. I. Gushchina/I. P. Zasetskaia, Zolotoe kladbishche rimskoi epokhi v Prikuban'e (Sankt-Peterburg 1994). И. И. Гущина/И. П. Засецкая, Золотое кладбище римской эпохи в Прикубанье (Санкт-Петербург 1994).

GUYUAN 2004
Guyuan bowuguan 固原博物館, Ningxia Guyuan cheng Han mu 寧夏固原西漢墓. Kaogu xuebao 2004, 2, 183–208.

HAAS 1982
J. Haas, The Evolution of the Prehistoric State (New York 1982).

HÄRKE 1997
H. Härke, The Nature of Burial Data. In: C. Jensen/K. Højlund Nielsen (eds.), Burial and Society. The Chronological and Social Analysis of Archaeological Burial Data (Aarhus 1997) 19–27.

HAEUSSLER/TURNER 1992
A. M. Haeussler/C. G. Turner II, The dentition of Soviet Central Asians and the quest for New World ancestors. Journal of Human Ecology, Special Issue, 2, 1992, 273–297.

HAEVERNICK 1967
Th. Haevernick, Die Verbreitung der „zarten Rippenschalen". Jahrbuch des Römisch-Germanischen Zentralmuseum Mainz 14, 1967, 153–166.

HALCROW/TAYLES 2008
S. E. Halcrow/N. Tayles, The Bioarchaeological Investigation of Childhood and Social Age: Problem and Prospects. Journal of Archaeological Method and Theory 15, 2008, 190–215.

HALD 1980
M. Hald, Ancient Danish Textiles from Bogs and Burials. A comparative study of costume and Iron Age textiles. Publications of the National Museum, Archaeological-historical series 21 (Copenhagen 1980).

HALDON 1993
J. Haldon, The state and the tributary mode of production (London 1993).

HALL/MINIAEV 2002
M. Hall/S. Minyaev, Chemical analyses of Xiongnu pottery: a preliminary study of exchange and trade on the Inner Asian steppes. Journal of Archaeological Science 29, 2, 2002, 135–144.

HALL ET AL. 1999
M. Hall/Z. Batsaikhan/W. Honeychurch, Radiocarbon Dates from Northern Mongolia. Radiocarbon 41, 1999, 103–110.

HANDLER 1988
R. Handler, Nationalism and the Politics of Culture in Quebec (Madison 1988).

HANKS 2010
B. K. Hanks, Archaeology of the Eurasian steppes and Mongolia. Annual Review of Anthropology 39, 2010, 469–486.

HARDT/NEGRI 2001
M. Hardt/A. Negri, Empire (Cambridge 2001).

HARMATTA 1994
J. Harmatta, Conclusion. In: J. Harmatta/B. N. Puri/G. F. Etemadi (eds.), History of civilizations of Central Asia, Vol. 2. The development of sedentary and nomadic civilizations: 700 B.C. to A.D. 250 (Paris 1994) 485–492.

HAUSER 1993
St. Hauser, Eine arsakidenzeitliche Nekropole in Ktesiphon. Baghdader Mitteilungen 24, 1993, 324–420.

HAWKES 1959
D. Hawkes (transl.), Ch'u tz'u. The Songs of the South. An Ancient Chinese Anthology (Oxford 1959).

HAWKEY 1998
D. E. Hawkey, Out of Asia: Dental evidence for affinities and microevolution of early populations from India/Sri Lanka (Tempe 1998).

HAYASHI 1984
T. Hayashi, Agriculture and Settlements in the Xiongnu. Bulletin of the Ancient Orient Museum 6, 1984, 51–92.

HAYASHI 2004
T. Haeshi, The role of sedentary people in the nomadic states: From the Xiongnu empire to the Uigur Qaghanate. In: M. Kh. Abuseitova (otv. red.), Urbanizatsiia i Nomadizm v Tsentral'noi Azii: Istoriia i Problemy. Materialy Mezhdunarodnoi konferentsii (Almaty 2004) 117–134. In: М. Х. Абусеитова (отв. ред.), Урбанизациа и Номадизм в Центральной Азии: История и Проблемы. Материалы Международной конференции (Алматы 2004) 117–134.

HEDLUND 1979
H. Hedlund, Contradictions in the peripheralization of pastoral society: the Maasai. Revue of African Political Economy 6, 15 & 16, 1979, 15–34.

Heissig 1984
W. Heissig, Ethnische Gruppenbildung in Zentralasien im Lichte mündlicher und schriftlicher Überlieferung. In: Studien zur Ethnogenese. Abhandlungen der Rheinisch-Westfälischen Akademie der Wissenschaften, Geisteswissenschaften 72 (Opladen 1984) 29–55.

Henan 1984
Henan Xinyang diqu wenguanhui 河南信陽地區文管會/Guangshan xian wenguanhui 光山縣文管會, Chunqiu zaoqi Huangjun Meng funu mu fajue baogao 春秋早期黃君孟夫婦墓. Kaogu 1984, 4, 302–332.

Herrmann 1935
A. Herrmann, Die Gobi im Zeitalter der Hunnenherrschaft. Geografiska Annaler 17, 1935, 130–144.

Hides 1996
S. Hides, The Genealogy of Material Culture and Cultural Identity. In: P. Graves-Brown/S. Jones/C. Gamble (eds.), Cultural Identity and Archaeology: The Construction of European Communities. Theoretical Archaeology Group (TAG) Series (London, New York 1996) 25–47.

Hillson 1986
S. Hillson, Teeth. Cambridge Manuals in Archaeology (Cambridge 1986).

Hillson 1996
S. Hillson, Dental anthropology (Cambridge 1996).

Hirth 1900
F. Hirth, Sinologische Beiträge zur Geschichte der Türk-Völker. Die Ahnentafel Attila's nach Johannes von Thurócz. Izvestiia Imperatorskoi Akademii Nauk. Известия Императорской Академии Наук 13, 2, 1900, 221–261.

Hite 2008
E. Hite, Preliminary faunal report for the 2008 excavations at Baga Gazaryn Chuluu, north Gobi, Mongolia. Unpublished field report 2008.

Hite forthcoming
E. Hite, Final faunal report for the 2003–2008 excavations at Baga Gazaryn Chuluu, Mongolia. Unpublished field report, forthcoming.

Holden et al. 1991
S. J. Holden/D. L. Coppock/M. Assefa, Pastoral dairy marketing and household wealth interactions and their implications for calves and humans in Ethiopia. Human Ecology 19, 1991, 35–59.

Holotová-Szinek 2005
J. Holotová-Szinek, Les relations entre l'empire des Han et les Xiongnu: vestiges archéologiques et textes historiques. Études chinoises 24, 2005, 221–231.

Holotová-Szinek 2007
J. Holotová-Szinek, Les Xiongnu de l'Arkhangaï, économie et politique in Mongolia. In: J.-P. Desroches/G. André (eds.), Mongolie, les Xiongnu de l'Arkhangaï. Монгол улс: Архангай дахь Хүннүгийн судалгаа (Oulan-Bator 2007) 40–43.

Holotová-Szinek 2008
J. Holotová-Szinek, Système économique et politique des Xiongnu de Mongolie. Découvertes archéologiques et sources textuelles. PhD Dissertation, University Paris-Sorbonne 2008.

Holotová-Szinek/André 2003
J. Holotová-Szinek/G. André, Xiongnu, Peuples des Steppes. In: Mongolie 2003, 63–87.

Honeychurch 2004
W. Honeychurch, Inner Asian Warriors and Khans: A Regional Spatial Analysis of Nomadic Political Organization and Integration. Unpublished PhD Dissertation, University of Michigan 2004.

Honeychurch in press
W. Honeychurch, Thinking political Communities: The State and Social Stratification among Ancient Nomads of Mongolia. In: P. Durrenberger (ed.), The Anthropological Study of Class and Consciousness. University of Colorado Press, Boulder (in press).

Honeychurch/Amartüvshin 2003
W. Honeychurch/Ch. Amartuvshin, An examination of Khunnu period settlement in the Egiin Gol valley, Mongolia. Arkheologiin sudlal 21, 2003, 59–65. Археологийн судлал 21, 2003, 59–65.

Honeychurch/Amartüvshin 2006a
W. Honeychurch/C. Amartuvshin, States on Horseback: The Rise of Inner Asian Confederations and Empires. In: M. T. Stark (ed.), Archaeology of Asia. Blackwell studies in global archaeology 7 (Malden 2006) 255–278.

HONEYCHURCH/AMARTÜVSHIN 2006b
W. Honeychurch/Ch. Amartuvshin, Survey and Settlement in Northern Mongolia. The Structure of Intra-Regional Nomadic organization. In: D. L. Peterson/L. M. Popova/A. T. Smith (eds.), Beyond the Steppe and the Sown. Proceedings of the 2002 University of Chicago Conference on Euro-Asian Archaeology. Colloquia Pontica 13 (Leiden 2006) 183–201.

HONEYCHURCH/AMARTÜVSHIN 2006c
U. Khanicherch/Ch. Amartüvshin, Ertnii nüüdelchdiin töriin baiguulamzhind khiisen arkheologiin sudalgaa (Egiin golyn sav nutgiin zhinsheen deer) (Ulaanbaatar 2006). У. Ханичёрч/Ч. Амартүвшин, Эртний нүүдэлчдийн төрийн байгууламжинд хийсэн археологийн судалгаа (Эгийн голын сав нутгийн жишээн дээр) (Улаанбаатар 2006).

HONEYCHURCH/AMARTÜVSHIN 2007
W. Honeychurch/Ch. Amartuvshin, Hinterlands, urban centers, and mobile setting: The "New" old world archaeology from the Eurasian Steppe. Asian Perspectives 46, 2007, 36–64.

HONEYCHURCH/AMARTÜVSHIN 2011
W. Honeychurch/Ch. Amartuvshin, Timescapes from the Past – An Archaeogeography of Mongolia. In P. Sabloff/F. Hiebert (eds.), Mapping Mongolia (Philadelphia 2011) in print.

HONEYCHURCH/WRIGHT 2008
W. Honeychurch/J. Wright, Asia, Central and North, Steppes, Deserts, and Forests, In: D. M. Pearsall (ed.), Encyclopedia of Archaeology (New York 2008) 57–532.

HONEYCHURCH ET AL. 2007a
W. Honeychurch/A. Nelson/Ch. Amartuvshin, Death and social process among the ancient Xiongnu of Mongolia. In: Ch'o-wŏnŭi taejeguk hyungno: 2000 nyon jon mudomi balgul 초원의 대체국 흉노: 2000년전 무덤의 발굴. Han-mong kongdong haksuljosa 10chunyŏn kukjehaksulsimp'ojium 한-몽 공동학술조사 10주년 기념 국제학술심포지엄 [= Xiongnu, The First Empire of the Steppes. Research of its Tombs. International Symposium in celebration of the 10th anniversary of MON-SOL Project] (Seoul 2007) 120–153.

HONEYCHURCH ET AL. 2007b
W. Honeychurch/J. Wright/Ch. Amartuvshin, A nested approach to survey in the Egiin Gol Valley, Mongolia. Journal of Field Archaeology 32, 2007, 369–383.

HONEYCHURCH ET AL. 2009
W. Honeychurch/J. Wright/Ch. Amartuvshin, Re-Writing Monumental Landscapes as Inner Asian Political Process. In: B. Hanks/K. Linduff (eds.), Social Complexity in Prehistoric Eurasia. Monuments, Metals and Mobility (Cambridge 2009) 330–357.

HONG 2006
Hong Shi 洪石, Zhanguo Qin Han qiqi yanjiu 戰國秦漢漆器研究 (Beijing 2006).

HORIUCHI ET AL. 2000
K. Horiuchi/K. Minoura/K. Hoshino/T. Oda/T. Nakamura/T. Kawai, Paleoenvironmental History of Lake Baikal during the last 23000 years. Palaeogeography, Palaeoclimatology, Palaeoecology 157, 2000, 95–108.

HOULE 2009
J.-L. Houle, 'Socially integrative facilities' and the emergence of societal complexity on the Mongolian steppe. In: B. Hanks/K. Linduff (eds.), Social Complexity in Prehistoric Eurasia. Monuments, Metals, and Mobility (Cambridge 2009) 358–377.

HOULE 2010
J.-L. Houle, Emergent Complexity on the Mongolian Steppe: Mobility, Territoriality and the Development of Early Nomadic Polities. Unpublished PhD Dissertation, University of Pittsburgh 2010.

HOULE/ERDENEBAATAR 2009
J.-L. Houle/D. Erdenebaatar, Investigating Mobility, Territoriality, and Complexity in the Late Bronze Age: An Initial Perspective from Monuments and Settlements. In: Bemmann et al. 2009, 117–134.

HOWE 2002
S. Howe, Empire: a very short introduction. Very short introductions 76 (Oxford 2002).

HU 1992
Hu Pingsheng 胡平生, Xiongnu Rizhuwang gui Han xinziliao 匈奴日逐王歸漢新資料. Wenwu 1992, 4, 62.

Hu/Zhang 2001
Hu Pingsheng 胡平生/Zhang Defang 張德芳, Dunhuang Xuanquan Hanjian shicui 敦煌懸泉漢簡釋粹 (Shanghai 2001).

Huang 2000
Huang Xiaofen 黃曉芬, Caoyuan diguo de fanrong – cong Menggu Hanguo dao Da Yuan yitong 草原帝國的繁榮 – 從蒙古汗國到大元一統. In: X. Chen 陈/Q. Wang 王 (eds.), Caoyuan guibao: Nei Menggu wenwu kaogu jingpin 草原瑰寶: 内蒙古文物考古精品 (Shanghai 2000) 55–58. [English summary p. 59–60].

Huang 2003
Huang Xiaofen 黃曉芬, Han mu de kaoguxue yanjiu 漢墓的考古學研究 (Changsha 2003).

Huang 2006
Huang Xiaofen 黃曉芬, Han de mudom gua gi jesa gioun 한대의 무덤과 그 제사의 기원 (Seoul 2006).

Huang 2008
Khuan Siaofen, Khangiin bulsh ba Khünnügiin soel. In: Xiongnu 2008, 236–251. Хуан Сяофен, Хангийн булш ба Хүннүгийн соёл. In: Xiongnu 2008, 236–251.

Hubei 1976
Hubei sheng bowuguan湖北省博物館, Guanghua Wuzuofen Xi Han mu光化五座墳西漢墓. Kaogu xuebao 1976, 2, 149–170.

Hüttel 2004
H.-G. Hüttel, Im Palast des Ewigen Friedens – Die mongolisch-deutschen Ausgrabungen im Palastbezirk von Karakorum (Mongolei). In: Expedition in vergessene Welten. 25 Jahre archäologische Forschungen in Amerika, Afrika und Asien. AVA-Forschungen 10 (Aachen 2004) 179–208.

Hüttel 2005
H.-G. Hüttel, Karakorum – Eine historische Skizze. In: Dschingis Khan und seine Erben. Das Weltreich der Mongolen (München 2005) 133–137.

Hüttel/Erdenebat 2009
H.-G. Hüttel/U. Erdenebat, Karabalgasun und Karakorum – Zwei spätnomadische Stadtsiedlungen im Orchon-Tal. Ausgrabungen und Forschungen des Deutschen Archäologischen Instituts und der Mongolischen Akademie der Wissenschaften 2000–2009 (Ulaanbaatar 2009).

Hulsewé 1979
A. F. P. Hulsewé, China in Central Asia. The Early Stage: 125 B.C. – A.D. 23. An Annotated Translation of the Chapters 61 and 96 of the History of the Former Han Dynasty. Sinica Leidensia 14 (Leiden 1979).

Hulsewé 1997
A. F. P. Hulsewé, Qin and Han legal manuscripts. In: E. Shaughnessy (ed.), New sources of early Chinese history: an introduction to the reading of inscriptions and manuscipts. Early China special monograph series 3 (Berkeley 1997) 193–221.

Hulun 1997
Hulun Bei'ermeng wenwu guanlizhan 呼倫貝爾盟文物管理站, Xinba'erhu zuoqi Yihewula Xianbei mu 新巴爾虎左旗伊和烏拉鮮卑墓. Nei Menggu wenwu kaogu wenji 1997, 2, 453–456.

Hunan 2001
Hunan sheng wenwu kaogu yanjiusuo 湖南省文物考古研究所/Yongzhou shi Zhishan qu wenwu guanlisuo 永州市芝山區文物管理所, Hunan Yongzhou shi Yaozi ling erhao Xi Han mu 湖南永州市鷂子嶺二號西漢墓. Kaogu 2001, 4, 45–62.

Huns 2005
Les Huns. Хунну (Bruxelles 2005).

Hurlet 2008
F. Hurlet (ed.), Les empires: Antiquité et Moyen âge: analyse comparée (Rennes 2008).

Iablonskii et al. 1994
L. T. Iablonskii/T. N. Trunaeva/Dzh. Vedder/Dzh. Devis-Kimboll/V. L. Egorov, Raskopki kurgannykh mogil'nikov Pokrovka 1 i Pokrovka 2 v 1993 godu. In: Kurgany levoberezhnogo Ileka 2 (Moskva 1994) 4–60; 80–178. Л. Т. Яблонский/Т. Н. Трунаева/Дж. Веддер/Дж. Дэвис-Кимболл/В. Л. Егоров, Раскопки курганных могильников Покровка 1 и Покровка 2 в 1993 году. In: Курганы левобережного Илека 2 (Москва 1994), 4–60; 80–178.

Iaremchuk 2005
O. A. Iaremchuk, Mogil'nik Zorgol-I. Pamiatnik

khunnu-sian'iiskoi epokhi Stepnoi Daurii. O. A. Яремчук, Могильник Зоргол-I. Памятник хуннусяньбийской эпохи Степной Даурии. Unpublished PhD Dissertation Zabaikal'skii Gosudarstvennyi Pedagogicheskii Universitet im. N. G. Chernyshevskogo Chita 2005.

IATSENKO 2001
S. A. Iatsenko, Znaki-tamgi iranoiazychnykh narodov drevnosti i rannego srednevekov'ia (Moskva 2001). С. А. Яценко, Знаки-тамги ираноязычных народов древности и раннего средневековья (Москва 2001).

ILYASOV/RUSANOV 1997/98
J. Y. Ilyasov /D. V. Rusanov, A study on the bone plates from Orlat. Silk Road Art and Archaeology 5, 1997/98, 107–159.

INDRISANO 2006
G. G. Indrisano, Subsistence, Environmental Fluctuation and Social Change: A Case Study in South Central Inner Mongolia. Unpublished PhD Dissertation, University of Pittsburgh 2006.

INFORMATION MONGOLIA 1990
Information Mongolia: The Comprehensive Reference Source of the People's Republic of Mongolia (MPR) (Oxford, New York 1990).

INSOLL 2007
T. Insoll, Configuring Identities in Archaeology. In: T. Insoll (ed.), The Archaeology of Identities. A Reader (London, New York 2007) 1–18.

IRISH 2006
J. D. Irish, Who were the Egyptians? Dental affinities among Neolithic through postdynastic peoples. American Journal of Physical Anthropology 129, 2006, 529–543.

IRONS 1979
W. Irons, Political Stratification among Pastoral Nomads. In: Pastoral Production and Society. Proceedings of the International Meeting on Nomadic Pastoralism, Paris 1–3 Déc. 1976 (Cambridge 1979) 361–374.

ISHJAMTS 1992
N. Ishjamts, Nomads in eastern Central Asia. In: J. Harmatta (ed.), History of civilizations of Central Asia, Vol. II. The development of sedentary and nomadic civilizations: 700 B.C. to A.D. 250 (Paris 1992) 151–169.

ISHJAMTS 1994
N. Ishjamts, Nomads in eastern Central Asia. In: J. Harmatta/B. N. Puri/G. F. Etemadi (eds.), History of civilizations of Central Asia, Vol. 2. The Development of Sedentary and Nomadic Civilizations: 700 B.C. to A.D. 250 (Paris 1994) 151–169.

ISHZHAMTS 1956
N. Ishzhamts, Khünnügiin udam ugsaa niigmiin baiguulal. ShUA-iin erdem shinzhilgeenii büteel 1 (Ulaanbaatar 1956). Н. Ишжамц, Хүннүгийн удам угсаа нийгмийн байгуулал. ШУА-ийн эрдэм шинжилгээний бүтээл 1 (Улаанбаатар 1956).

IVANOV/VASIL'EV 1995
I. V. Ivanov/I. B. Vasil'ev, Chelovek, priroda i pochvy Ryn-peskov Volgo-Ural'skogo mezhdurech'ia v golotsene: k 30-mu mezhdunarodnomu kongressu, Pekin, Kitai 1996 g. (Moskva 1995). И. В. Иванов/И. Б. Васильев, Человек, природа и почвы Рын-песков Волго-Уральского междуречья в голоцене: к 30-му международному конгрессу, Пекин, Китай 1996 г. (Москва 1995).

JACOBSON-TEPFER ET AL. 2010
E. Jacobson-Tepfer/J. E. Meacham/G. Tepfer, Archaeology and Landscape in the Mongolian Altai: an Atlas (Redlands 2010).

JAGCHID/SYMONS 1989
S. Jagchid/V. J. Symons, Peace, War, and Trade along the Great Wall. Nomadic-Chinese interaction through two millenia (Bloomington 1989).

JETTMAR 1967
K. Jettmar, Art of the Steppes: the Eurasian animal style (London 1967).

JIANG 1991
Jiang Tianwei 江天蔚, Liang Han yu Xiongnu guanxi xi 兩漢與匈奴關係系 (Xi'an 1991).

JIANGSU 2007
Jiangsu Siyang Sanzhuang lianhe kaogu dui 江蘇泗陽三莊聯合考古隊, Jiangsu Siyang Chendun Han mu 江蘇泗陽陳墩漢墓. Wenwu 2007, 7, 39–60.

JIANGXI 1965
Jiangxi sheng wenwu guanli weiyuanhui 江西省文物管理委員會, Jiangxi Nanchang Laofushan

Xi Han muguo mu 江西南昌老福山西漢木槨墓. Kaogu 1965, 6, 268–272, 300.

Jiayibian 1980
Zhongguo shehui kexueyuan Kaogu yanjiusuo 中國社會科學院考古研究所 (ed.), Juyan Hanjian. Jiayibian (Beijing 1980).

Jilin 1987
Jilinsheng wenwu kaogu yanjiusuo 吉林省文物考古研究所, Yushu Laoheshen 榆树老河深 (Beijing 1987).

Jilin/Liaoning 1997
Jilin daxue kaoguxue xi 吉林大學考古係/Liaoning sheng wenwu kaogu yanjiuso遼寧省文物考古研究所, Liaoning Jinxi shi Taijitun Xiaohuangdi Qin Han gucheng zhi shijue jianbao 遼寧錦西市郃集屯小皇帝秦漢古城之識掘簡報. Kaoguxue jikan 11, 1997, 130–153.

Jing 1999
Jing Ai 景愛, Shamo kaogu tonglun 沙漠考古通论 (Bejing 1999).

Jisl 1997
L. Jisl, The Orkhon Türks and Problems of the Archaeology of the Second Eastern Türk Kaghanate (published post mortem in cooperation of Věra Jislová and Jiří Šíma). Annals of the Náprstek Museum 18 (Praha 1997) 1–112.

Johnson/Earle 1987
A. W. Johnson/T. Earle, The Evolution of Human Societies. From foraging group to agrarian state (Stanford 1987).

Jones 1996
S. Jones, Discourses of Identity in the Interpretation of the Past. In: P. Graves-Brown/S. Jones/C. Gamble (eds.), Cultural Identity and Archaeology: The Construction of European Communities (London 1996) 62–80.

Jones 1997
S. Jones, The Archaeology of Ethnicity: Constructing Identities in the Past and Present (London 1997).

Junker 2001
L. L. Junker, The Evolution of Ritual Feasting Systems in Prehispanic Philippine Chiefdoms. In: M. Dietler/B. Hayden (eds.), Feasts: Archaeological and Ethnographic Perspectives on Food, Politics, and Power. Smithsonian Series in Archaeological Inquiry (Washington 2001) 267–310.

Juyan 1994
Gansu sheng wenwu kaogu yanjiusuo 甘肅省文物考古研究所 et al. (ed.), Juyan Xinjian. Jiaqu houguan 居延新簡 – 甲渠候官, 2 Vols. (Beijing 1994).

Karabanov et al. 2000
E. B. Karabanov/A. A. Prokopenko/D. F. Williams/G. K. Khursevich, A New Record of Holocene Climate Change from the Bottom Sediments of Lake Baikal. Palaeogeography, Palaeoclimatology, Palaeoecology 156, 2000, 211–224.

Kautsky 1982
J. H. Kautsky, The politics of aristocratic empires (Chapel Hill 1982).

Kelly 2009
C. Kelly, The end of empire: Attila the Hun and the fall of Rome (New York 2009).

Kennedy 1989
K. A. R. Kennedy, Skeletal Markers of Occupational Stress. In: M. Y. İşcan/K. A. R. Kennedy (eds.), Reconstruction of Life from the Skeleton (New York 1989) 129–160.

Kerefov 1988
B. M. Kerefov, Pamiatniki sarmatskogo vremeni Kabardino-Balkarii (Nal'chik 1988). Б. М. Керефов, Памятники сарматского времени Кабардино-Балкарии (Нальчик 1988).

Kessler 1993
A. T. Kessler, Empires beyond the great wall: The heritage of Genghis Khan (Los Angeles 1993).

Keyser et al. 2008
C. Keyser/S. Romac/C. Bouakaze/S. Amory/B. Ludes, Tracing back ancient south Siberian population history using mitochondrial and Y-chromosome SNPs. Forensic Science International: Genetics Supplement Series 1 (2008) 343–345.

Keyser et al. 2009
C. Keyser/C. Bouakaze/E. Crubézy/V. G. Nikolaev/D. Montagnon, Ancient DNA provides new insights into the history of south Siberian Kurgan people. Human Genetics 126, 2009, 395–410.

KEYSER-TRACQUI ET AL. 2003
C. Keyser-Tracqui/E. Crubézy/B. Ludes, Nuclear and mitochondrial DNA analysis of a 2,000-year-old necropolis in the Egyin Gol valley of Mongolia. American Journal of Human Genetics 73, 2, 2003, 247–260.

KEYSER-TRAQUI ET AL. 2006
C. Keyser-Traqui/E. Crubézy/H. Pamzsav/T. Varga/B. Ludes, Population origins in Mongolia: Genetic structure analysis of ancient and modern DNA. American Journal of Physical Anthropology 131, 2, 2006, 272–281.

KEYSER-TRACQUI ET AL. 2008
C. Keyser/S. Romac/C. Bouakaze/S. Amory/B. Ludes, Tracing back ancient south Siberian population history using mitochondrial and Y-chromosome SNPs. Forensic Science International: Genetics Supplement Series 1, 1, 2008, 343–345.

KHALKH 1987
BNMAU-yn ugsaatny züi, Vol. 1. Khalkhyn ugsaatny züi (Ulaanbaatar 1987). БНМАУ-ын угсаатны зүй, Vol. 1. Халхын угсаатны зүй (Улаанбаатар 1987).

KHARINSKII 2003
A. V. Kharinskii, Mogil'nik Tsagan-Khushun-II na zapadnom poberezh'e Baikala. In: Arkheologiia i sotsiokul'turnaia antropologiia Dal'nego Vostoka i sopredel'nykh territorii. Materialy XI sesii arkheologov i antropologov Dal'nego Vostoka. Tret'ia mezhdunarodnaia nauchnaia konferentsiia Rossiia i Kitai na Dal'novostochnykh rubezhakh (Blagoveshchensk 2003) 248–254. А. В. Харинский, Могильник Цаган-Хушун-II на западном побережье Байкала. In: Археология и социокультурная антропология Дальнего Востока и сопредельных территорий. Материалы XI сесии археологов и антропологов Дальнего Востока. Третья международная научная конференция Россия и Китай на Дальновосточных рубежах (Благовещенск 2003) 248–254.

KHATANBAATAR 2007
D. Khatanbaatar, Tamiryn Ulann khoshuun dakh' Khünnügiin üed kholbogdokh büleg orshuulga. Д. Хатанбаатар, Тамирын Улаан хошуун дахь Хүннүгийн үед холбогдох бүлэг оршуулга. Mongolian Journal of Anthropology, Archaeology and Ethnology 3, 1, 2007, 156–168.

KHAVRIN 2003
S. V. Khavrin, Metall nekotorykh pamiatnikov Tuvy v kontekste metallurgii Saiano-Altaia skifskogo vremeni. In: V. A. Semenov, Suglug-Khem i Khaiyrykan. Mogil'niki skifskogo vremeni v Tsentral'no-Tuvinskoi kotlovine (Sankt-Peterburg 2003) 211–213. С. В. Хаврин, Металл некоторых памятников Тувы в контексте металлургии Саяно-Алтая скифского времени. In: В. А. Семенов, Суглуг-Хем и Хайырыкан. Могильники скифского времени в Центрально-Тувинской котловине (Санкт-Петербург 2003) 211–213.

KHAZANOV 1975
A. M. Khazanov, Sotsial'naia istoriia skifov. Osnovnye problemy razvitiia drevnikh kochevnikov evraziiskikh stepei. А. М. Хазанов, Социальная история скифов. Основные проблемы развития древних кочевников евразийских степей (Москва 1975).

KHAZANOV 1978
A. M. Khazanov, Characteristic Features of Nomadic Communities in the Eurasian Steppes. In: W. Weissleder (ed.), The Nomadic Alternative: Modes and Models of Interaction in the African-Asian Deserts and Steppes. World Anthropology (The Hague 1978) 119–126.

KHAZANOV 1984
A. M. Khazanov, Nomads and the Outside World. Cambridge Studies in Social Anthropology 44 (Cambridge 1984).

KHODUKIN 1926
Ia. N. Khodukin, Pervye raskopki v gorakh Noin-Ula. Biulletin Vsesoiuzn. Nauch. Assots. Vostokovedov Irkut. Filial 1926, 1–13. Я. Н. Ходукин, Первые раскопки в горах Ноин-Ула. Бюл. Всесоюзн. науч. Ассоц. Востоковедов Иркут. филиал 1926, 1–13.

KHUDIAKOV 1996
Yu. S. Khudiakov, Problems of the Genesis of Culture of the Hunnic Period in the Altai Mountains. Ancient Civilizations from Scythia to Siberia 3, 2/3, 1996, 329–346.

KHUDIAKOV 1998
Iu. S. Khudiakov, Raskopki mogil'nika Ust'-Edi-

gan v 1990 godu. In: Voprosy arkheologii Severnoi i Tsentral'noi Azii (Kemerovo 1998) 160–206. Ю. С. Худяков, Раскопки могильника Усть-Эдиган в 1990 году. In: Вопросы археологии Северной и Центральной Азии (Кемерово 1998) 160–206.

Khudiakov et al. 1990
Iu. S. Khudiakov/S. G. Skobelev/M. V. Moroz, Arkheologicheskie issledovaniia v dolinakh rek Oroktoi i Edigan v 1998 godu. In: V. I. Molodin (red.), Arkheologicheskie issledovaniia na Katuni (Novosibirsk 1990) 95–150. Ю. С. Худяков/С. Г. Скобелев/М. В. Мороз, Археологические исследования в долинах рек Ороктой и Эдиган в 1988 году. In: В. И. Молодин (red.), Археологические исследования на Катуни (Новосибирск 1990) 95–150.

Khudiakov et al. 1999
Iu. S. Khudiakov/S. V. Alkin/Jui Su Khua, Sian'bi i Juzhnaia Sibir'. Drevnosti Altaia 4, 1999, 174–179. Ю. С. Худяков/С. В. Алкин/Юй Су Хуа, Сяньби и Южная Сибирь. Древности Алтая 4, 1999, 174–179.

Khurtsbileg 2003
Khurtsbileg, Mongolchuudyn orshuulgyn soel (Khökhkhot 2003). Хурцбилэг, Монголчуудын оршуулгын соёл (Хөххот 2003).

Kim et al. 2010
K. Kim/Ch. H. Brenner/V. H. Mair/K.-H. Lee/J.-H. Kim/E. Gelegdorj/N. Batbold/Y.-Ch. Song/H.-W. Yun/E.-J. Chang/G. Lkhagvasuren/M. Bazarragchaa/A.-J. Park/I. Lim/Y.-P. Hong/W. Kim/S.-I. Chung/D.-J. Kim/Y.-H. Chung/S.-S. Kim/W.-B. Lee/K.-Y. Kim, A Western Eurasian Male is found in 2000-Year-Old Elite Xiongnu Cemetery in Northeast Mongolia. American Journal of Physical Anthropology 142, 3, 2010, 429–440.

King et al. 1990
G. King/J. E. Alt/N. E. Burn/M. Laver, A unified model of cabinet dissolution in parliamentary democracies. American Journal of Political Science 34, 3, 1990, 846–871.

Kirillov et al. 2000
I. I. Kirillov/E. V. Kovychev/O. I. Kirillov, Darasunskii kompleks arkheologicheskikh pamiatnikov. Vostochnoe Zabaikal'e (Novosibirsk 2000). И. И. Кириллов/Е. В. Ковычев/О. И. Кириллов, Дарасунский комплекс археологиеских памятников. Восточное Забайкалье (Новосибирск 2000).

Kiselev et al. 1965
S. V. Kiselev/L. A. Evtiukhova/L. R. Kyzlasov/N. Ia. Merpert/V. P. Levashova, Drevnie mongol'skie goroda (Moskva 1965). С. В. Киселев/ Л. А. Евтюхова/Л. Р. Кызласов/Н. Я. Мерперт/ В. П. Левашова, Древние монгольские города (Москва 1965).

Klepikov/Skripkin 2002
V. M. Klepikov/A. S. Skripkin, Khronologiia rannesarmatskikh pamiatnikov Nizhnego Povolzh'ia. Nizhnevolzhskii Arkheologicheskii Vestnik 5, 2002, 47–81. В. М. Клепиков/А. С. Скрипкин, Хронология раннесарматких памятников Нижнего Поволжья. Нижневолжскии Археологический Вестник 5, 2002, 47–81.

Kljaštornyj/Sultanov 2006
S. G. Kljaštornyj/T. I. Sultanov, Staaten und Völker in den Steppen Eurasiens. Altertum und Mittelalter. Studia Eurasia 11 (Berlin 2006).

Knüsel 2000
C. Knüsel, Bone Adaptation and its Relationship to Physical Activity in the Past. In: M. Cox/S. Mays (eds.), Human Osteology in Archaeology and Forensic Science (London 2000).

Kokuritsu Hakubutsukan 2005
Chūgoku hoppōkei seidōki, Tōkyō kokuritsu hakubutsukan shozō 中国北方系青銅器. 東京国立博物館所蔵 (Tokyo 2005).

Komroff 2001
The Travels of Marco Polo. Edited and revised from William Marsden's translation, by Manuel Komroff (New York 2001).

Kong 1993
Kong Fangang 孔繁剛, Shandong Yishui yipi Handai tongqi 湖北沂水一批漢代銅器. Dongnan wenhua 1993, 3, 52–53.

Konovalov 1976
P. B. Konovalov, Khunnu v Zabaikal'e (pogrebal'nye pamiatniki) (Ulan-Ude 1976). П. Б. Коновалов, Хунну в Забайкалье (погребальные памятники) (Улан-Удэ 1976).

Konovalov 2008a
P. B. Konovalov, Usypal'nitsa khunnskogo kniazia v Sudzhi (Il'movaia Pad', Zabaikal'e) (Ulan-Ude 2008). П. Б. Коновалов, Усыпальница хуннского князя в Суджи (Ильмовая Падь, Забайкалье) (Улан-Удэ 2008).

KONOVALOV 2008b
P. B. Konovalov, The Burial Vault of a Xiongnu Prince at Sudzha (Il'movaia pad', Transbaikalia). Bonn Contributions to Asian Archaeology 3 (Bonn 2008).

KONOVALOV/BROSSEDER 2008
The Dating of Barrow No. 54 and its Significance. In: Konovalov 2008b, 53–54.

KONOVALOV/TSYBIKTAROV 1988
P. B. Konovalov/A. D. Tsybiktarov, Nekotorye materialy iz novykh khunnskikh pamiatnikov Zabaikal'ia i Mongolii. In: P. B. Konovalov/L. G. Ivashina/A. V. Tivanenko (red.), Pamiatniki epokhi paleometalla v Zabaikal'e (Ulan-Ude 1988) 95–107. П. Б. Коновалов/А. Д. Цыбиктаров, Некоторые материалы из новых хуннских памятников Забайкалья и Монголии. In: П. Б. Коновалов/Л. Г. Ивашина/А. В. Тиваненко (ред.), Памятники эпохи палеометалла в Забайкалье (Улан-Удэ 1988) 95–107.

KOROL'KOVA 1999
E. F. Korol'kova, Obrazy verbliudov i puti ikh razvitiia v isskustve rannikh kochevnikov evrazii. Arkheologicheskii sbornik 34, 1999, 68–96. Е. Ф. Королькова, Образы верблюдов и пути их развития в исскустве ранних кочевников Евразии. Археологический сборник 34, 1999, 68–96.

KOROTAEV/CHUBAROV 1991
A. V. Korotaev/V. V. Chubarov (red.), Arkhaicheskoe obshchestvo: Uzlovye problemy sotsiologii razvitiia. Sbornik nauchnykh trudov (Moskva 1991). А. В. Коротаев/В. В. Чубаров (ред.), Архаическое общество: Узловые проблемы социологии развития. Сборник научных трудов (Москва 1991).

KORYAKOVA/HANKS 2006
L. N. Koryakova/B. K. Hanks, Horse Husbandry Practices among Iron Age Trans-Ural Societies. In: S. L. Olsen/S. Grant/A. M. Choyke/L. Bartosiewicz (eds.), Horses and Humans: the Evolution of Human-Equine Relationships. British Archaeological Reports International Series 1560 (Oxford 2006) 275–287.

KOSIANENKO 1987
V. M. Kosianenko, Bronzovye fibuly iz nekropolia Kobiakova gorodishcha. Sovetskaia Arkheologiia 1987, 2, 45–62. В. М. Косяненко, Бронзовые фибулы из некрополя Кобякова городища. Советская Археология 1987, 2, 45–62.

KOSSINNA 1936
G. Kossinna, Ursprung und Verbreitung der Germanen in vor- und frühgeschichtlicher Zeit. Mannus-Bibliothek 6 (Leipzig 1936).

KOST 2010
C. Kost, Studien zur Bildpraxis im nordchinesischen Steppenraum vom 5. Jahrhundert v. Chr. bis zur Zeitenwende. Unpublished PhD Dissertation Ludwig-Maximilians-Universität, Munich 2010.

KOULKOVA 2005
M. A. Koulkova, Applications of Geochemistry to Paleoenvironmental Reconstruction in Southern Siberia. In: E. M. Scott/A. Y. Alekseev/G. Zaitseva (eds.), Impact of the Environment on Human Migration in Eurasia NATO Science Series IV. Earth and Environmental Sciences 42, 2005, 255–274.

KOVALEV/ERDENEBAATAR 2008
A. A. Kovalev (Kewalifu 科瓦利夫)/D. Erdenebaatar (E'erdeniebate'er 額爾德涅巴特爾), Mengggu guo Nan Gebi sheng Xi Xia changcheng yu Han Shouxiangcheng youguan wenti de zai tantao 蒙古國南戈壁省西夏長城與漢受降城有關問題的再探討. Nei Menggu wenwu kaogu 2008, 2, 101–110.

KOVALEV/ERDENEBAATAR 2009
A. A. Kovalev/D. Erdenebaatar, Discovery of New Cultures of the Bronze Age in Mongolia According to the Data Obtained by the International Central Asian Archaeological Expedition. In: Bemmann et al. 2009, 149–170.

KOVYCHEV 2006
E. V. Kovychev, Nekotorye voprosy etnicheskoi i kul'turnoi istorii Vostochnogo Zabaikal'ia v kontse I tys. do n.e. – I tys. n.e. Izvestiia laboratorii drevnikh tekhnologii 4, 2006, 242–258. Е. В. Ковычев, Некоторые вопросы этнической и культурной истории Восточного Забайкалья в конце I тыс. до н.э. – I тыс. н.э. Известия лаборатории древних технологий 4, 2006, 242–258.

KOZHEVNIKOV ET AL. 2001
N. O. Kozhevnikov/A. V. Kharinsky/O. K. Kozhevnikov, An accidental geophysical discovery

of an Iron Age archaeological site on the western shore of Lake Baikal. Journal of Applied Geophysics 47, 2001, 107–122.

Krader 1963
L. Krader, Social organization of the Mongol-Turkic pastoral nomads. Uralic and Altaic series 20 (The Hague 1963).

Kradin 1992
N. N. Kradin, Kochevye obshchestva (problemy formatsionnoi kharakteristiki) (Vladivostok 1992). Н. Н. Крадин, Кочевые общества (проблемы формационной характеристики) (Владивосток 1992).

Kradin 1996
N. N. Kradin, Imperiia Khunnu (Vladivostok 1996). Н. Н. Крадин, Империя Хунну (Владивосток 1996).

Kradin 2000
N. N. Kradin, Nomadic Empires in Evolutionary Perspective. In: N. N. Kradin/A. V. Korotayev/D. Bondarenko/V. de Munck/P. K. Wason (eds.), Alternatives of Social Evolution (Vladivostok 2000) 274–288.

Kradin 2002a
N. N. Kradin, Imperiia Khunnu (Москва 2002). Н. Н. Крадин, Империя Хунну. 2nd and revised ed. (Moskva 2002).

Kradin 2002b
N. N. Kradin, Nomadism, Evolution, and World-Systems: Pastoral Societies in Theories of Historical Development. Journal of World-System Research 8, 2002, 368–388.

Kradin 2003
N. N. Kradin, Nomadic Empires: Origins, Rise, Decline. In: N. N. Kradin/D. M. Bondarenko/Th. J. Barfield (eds.), Nomadic Pathways in Social Evolution. The civilization dimension series 5 (Moscow 2003) 73–87.

Kradin 2005a
N. N. Kradin, Social and Economic Structure of the Xiongnu of the Trans-Baikal Region. Archaeology, Ethnology & Anthropology of Eurasia, 2005, 1, 79–86.

Kradin 2005b
N. N. Kradin, From tribal confederation to empire: the evolution of the Rouran society. Acta Orientalia Academiae Scientiarum Hungaricae 58, 2005, 149–161.

Kradin 2008
N. N. Kradin, Early State Theory and the Evolution of Pastoral Nomads. Social Evolution & History 7, 2008, 1, 107–130.

Kradin/Ivliev 2008
N. N. Kradin/A. L. Ivliev, Deported nation: the fate of the Bohai people of Mongolia. Antiquity 82, 2008, 438–445.

Kradin/Skrynnikova 2006a
N. N. Kradin/T. D. Skrynnikova, Imperiia Chingis-khana (Moskva 2006). Н. Н. Крадин/Т. Д. Скрынникова, Империя Чингис-хана (Москва 2006).

Kradin/Srynnikova 2006b
N. Kradin/T. Srynnikova, Why do we call Chinggis Khan's polity "an empire"? Ab Imperio 2006, 1, 89–118.

Kradin et al. 2000
N. N. Kradin/A. V. Korotayev/D. M. Bondarenko/V. de Munck/P. K. Wason (eds.), Alternatives of Social Evolution (Vladivostok 2000).

Kradin et al. 2004
N. N. Kradin/S. V. Danilov/P. B. Konovalov, Sotsial'naia struktura khunnu Zabaikal'ia (Vladivostok 2004). Н. Н. Крадин/С. В. Данилов/П. Б. Коновалов, Социальная структура хунну Забайкалья (Владивосток 2004).

Kravtsova 1994
M. E. Kravtsova, Poeziia Drevnego Kitaia. Opyt kul'turologicheskogo analiza. Antologiia khudozhestvennykh perevodov (Sankt-Peterburg 1994). М. Е. Кравцова, Поэзия древнего Китая. Опыт культурологического анализа. Антология художественных переводов (Санкт-Петербург 1994).

Kriukov et al. 1983
M. V. Kriukov/L. S. Perelomov/M. V Sofronov/N. N. Cheboksarov, Drevnie kitaitsy v epokhu tsentralizovannykh imperii (Moskva 1983). М. В. Крюков/Л. С. Переломов/М. В. Софронов/Н. Н. Чебоксаров, Древние китайцы в эпоху централизованных империй (Москва 1983).

Krol' 2005
Ju. L. Krol', Otnosheniia imperii i siunnu glazami Ban' Gu. In: M. N. Bogoliubova (ob. red.), Dal'nii Vostok. Problemy geografii i vneshnei politiki v

"Istorii Khan" Ban' Gu. Issledovaniia i perevody. Strany i narody Vostoka 32, kn. 4 (Moskva 2005) 126–361. Ю. Л. Кроль, Отношения империи и сюнну глазами Бань Гу. In: М. Н. Боголюбова (об. ред.), Дальний Восток. Проблемы географии и внешней политики в "Истории Хань" Бань Гу. Исследования и переводы. Страны и народы Востока 32 книга 4 (Москва 2005) 126–361.

KUBAREV 1987
V. I. Kubarev, Kurgany Ulandryka (Novosibirsk 1987). В. И. Кубарев, Курганы Уландрыка (Новосибирск 1987).

KUBAREV/SHUL'GA 2007
V. D. Kubarev/P. I. Shul'ga, Pazyrykskaia kul'tura (kurgany Chui i Ursula) (Barnaul 2007). В. Д. Кубарев/П. И. Шульга, Пазырыкская культура (курганы Чуи и Урсула) (Барнаул 2007).

KUNOW 1998
J. Kunow (Hrsg.), 100 Jahre Fibelformen nach Oscar Almgren. Internationale Arbeitstagung 25.–28. Mai 1997. Forschungen zur Archäologie im Land Brandenburg 5 (Wünsdorf 1998).

KÜRSAT-AHLERS 1994
E. Kürsat-Ahlers, Zur frühen Staatenbildung von Steppenvölkern: Über die Sozio- und Psychogenese der eurasischen Nomadenreiche am Beispiel der Hsiung-nu und Göktürken mit einen Exkurs über die Skythen. Sozialwissenschaftliche Schriften 28 (Berlin 1994).

KUZ'MIN 1988
N. Iu. Kuz'min, Tesinskii mogil'nik u derevni Kaly. In: Pamiatniki arkheologii v zonakh melioratsii iuzhnoi Sibiri. Po materialam raskopok 1980–1984 gg. (Leningrad 1988) 55–82. Н. Ю. Кузьмин, Тесинский могильник у деревни Калы. In: Памятники археологии в зонах мелиорации южной Сибири. По материалам раскопок 1980–1984 гг. (Ленинград 1988) 55–82.

KYCHANOV 1993
E. I. Kychanov, Keshikteny Chingis-khana (o meste gvardin v gosudarstvakh kochevnikov). In: Mongolica: K 750-letiiu "Sokrovennogo skazaniia" (Moskva 1993) 148—156. Е. И. Кычанов, Кешиктены Чингис-хана (о месте гвардин в государствах кочевников). In: Mongolica: К 750-летию "Сокровенного сказания" (Москва 1993) 148—156.

KYCHANOV 1997
E. I. Kychanov, Kochevye gosudarstva ot gunnov do man'chzhurov (Moskva 1997). Е. И. Кычанов, Кочевые государства от гуннов до маньчжуров (Москва 1997).

KYZLASOV 1992
L. R. Kyzlasov, Northern nomads. In: B. A. Litvinsky (ed.), History of civilizations of Central Asia (Paris 1992) 315–326.

KYZLASOV 2001
L. R. Kyzlasov, Gunnskii dvorets na Enisee. Problema rannei gosudarstvennosti Iuzhnoi Sibiri (Moskva 2001). Л. Р. Кызласов, Гуннский дворец на Енисее. Проблема ранней государственности Южной Сибири (Москва 2001).

KYZLASOV 2006
L. R. Kyzlasov, Gorodskaia tsivilizatsiia Sredinnoi i Severnoi Azii: istoricheskie i arkheologicheskie issledovaniia (Moskva 2006). Л. Р. Кызласов, Городская цивилизация Срединной и Северной Азии: исторические и археологические исследования (Москва 2006).

LAI 2006
G. Lai, The Date of the TLV Mirrors from the Xiongnu Tombs. The Silk Road 4, 1, 2006, 36–44.

LAL 2004
D. Lal, In praise of empires: globalization and order (New York 2004).

LANDMANN 2008
T. Landman, Issues and Methods in Comparative Politics: An Introduction. 3rd ed. (London, New York 2008).

LANKTON 2003
J. W. Lankton, A Bead Timeline, Vol. I: Prehistory to 1200 CE (Washington 2003).

LAO 1957
Lao Gan 勞榦, Juyan Hanjian. Tuban zhi bu 居延漢簡 – 圖版之部 (Taibei 1957).

LATTIMORE 1940
O. Lattimore, Inner Asian Frontiers of China. Research series 21 (London 1940). Reprint 1992.

LATTIMORE 1962
O. Lattimore, Studies in Frontier History. Collected Papers, 1928–1958 (Paris 1962).

Lattimore 1979
O. Lattimore, Herdsmen, Farmers, and Urban Culture. In: Pastoral Production and Society. Proceedings of the International Meeting on Nomadic Pastoralism, Paris 1–3 Déc. 1976 (Cambridge 1979) 479–490.

Leach 1965
E. R. Leach, Political Systems of Highland Burma. A study of Kachin social structure (Boston 1965).

Lee 2002
Y. K. Lee, Building the Chronology of Early Chinese History. Asian Perspectives 41, 1, 2002, 15–42.

Lee 2007
C. Lee, The biological affinities of the Neolithic through modern period populations from China and Mongolia: The cranial and dental nonmetric trait evidence. PhD Dissertation, Arizona State University 2007.

Leus 2008
P. M. Leus, Terezin – novyi pamiatnik gunno-sarmatskogo vremeni v Tsentral'noi Tuve (predvaritel'noe soobshchenie). In: A. P. Derevianko/N. A. Makarov (red.), Trudy II (XVIII) Vserossiiskogo Arkheologicheskogo S'ezda v Suzdale 2008 g., Vol. 1 (Moskva 2008) 42–44. П. М. Леус, Терезин – новый памятник гунно-сарматского времени в Центральной Туве (предварительное сообщение) In: А. П. Деревянко/Н. А. Макаров (ред.), Труды II (XVIII) Всероссийского Археологического Съезда в Суздале 2008 г., Vol. 1 (Москва 2008) 42–44.

Levine 1999
M. A. Levine, The Origins of Horse Husbandry on the Eurasian Steppe. In: M. Levine/Y. Rassamakin/A. Kislenko/N. Tatarintseva (eds.), Late Prehistoric Exploitation of the Eurasian Steppe. McDonald Institute Monographs (Cambridge 1999) 5–58.

Lewis 1990
M. E. Lewis, Sanctioned Violence in Early China. SUNY series in Chinese philosophy and culture (Albany 1990).

Lewis 2007
M. Lewis, The early Chinese empires: Qin and Han. History of Imperial China (Cambridge 2007).

Liakhov/Mordvintseva 2000
S. V. Liakhov/V. I. Mordvintseva, Rannesarmaskoe pogrebenie u poselka Piterka Saratovskoi oblasti. Rossiiskaia Arkheologiia 2000, 3, 102–109. С. В. Ляхов/В. И. Мордвинцева, Раннесарматское погребение у поселка Питерка Саратовской области. Российская Археология 2000, 3, 102–109.

Liaoning 1999
Liaoning sheng wenwu kaogu yanjiusuo 辽宁省文物考古研究所, Beipiaoshi Lamadong sanyan mudi 北票市喇嘛洞三燕墓地. Zhongguo kaoguxue nianjian 中国考古学年鉴 (Beijing 1999).

Lieven 2000
D. Lieven, Empire: the Russian Empire and its rivals (New Haven 2000).

Lightfoot/Martinez 1995
K. G. Lightfoot/A. Martinez, Frontiers and Boundaries in Archaeological Perspective. Annual Review of Anthropology 24, 1995, 471–492.

Limberis/Marchenko 2003
N. Iu. Limberis/I. I. Marchenko, Stekliannye sosudy pozdneellinisticheskogo i rimskogo vremeni iz Prikuban'ia. Materialy i issledovaniia po arkheologii Kubani 3 (Krasnodar 2003) 106–183. Н. Ю. Лимберис/И. И. Марченко, Стеклянные сосуды позднеэллинистического и римского времени из Прикубанья. Материалы и исследования по археологии Кубани 3 (Краснодар 2003) 106–183.

Lin 1985
Lin Gan 林幹, Xiongnu tongshi 匈奴通史 (Beijing 1985).

Lin 1993
Lin Yun 林沄, Guanyu Zhongguo de dui Xiongnu zuyuan de kaoguxue yanjiu 关于中国的对匈奴族源的考古学研究. Nei Menggu wenwu kaogu 1993, 2, 127–141.

Linduff 1997
K. M. Linduff, An archaeological overview. In: E. Bunker, Ancient Bronzes of the Eastern Eurasian Steppes from the Arthur M. Sackler Collections (New York 1997) 18–75.

Linduff 2008
K. M. Linduff, The Gender of Luxury and Power among the Xiongnu. In: K. Linduff/K. S. Rubin-

son (eds.), Are All Warriors Male? Gender roles on the ancient Eurasian Steppe (Lanham 2008) 175–212.

LINDUFF 2009
K. M. Linduff, Production of signature artifacts for the nomad market in the state of Qin during the late Warring States period in China (4th–3rd century BCE). In: J. Mei/Th. Rehren (eds.), Metallurgy and Civilisation. Eurasia and Beyond. Proceedings of the 6th International Conference on the Beginnings of the use of Metals and alloys (BUMA VI) (London 2009) 90–96.

LINDUFF/RUBINSON 2010
K. M. Linduff/K. S. Rubinson, Exchange of Metallurgical Technology, Objects and People in Eurasia in the late 1st millennium BCE–early 1st millennium CE. In: Drevnie kul'tury Evrazii. Materialy mezhdunarodnoi nauchnoi konferentsii, posviashchennoi 100-letiiu so dnia rozhdeniia A. N. Bernsthama (Sankt-Peterburg 2010) 172–182. Древние культуры Евразии. Материалы международной научной конференции, посвящённой 100-летию со дня рождения А. Н. Бернштама (Санкт-Петербург 2010) 172–182.

LI 1992
Li Xingsheng 李興盛, Nei Menggu Zhuozi xian Sandaoying gucheng diaocha 内蒙古卓資縣三道營古城調查. Kaogu 1992, 5, 418–430.

LI 2001
Li Yiyou 李逸友, Zhongguo beifang changcheng kaoyi 中國北方長城考述. Nei Menggu wenwu kaogu 2001, 1, 1–51.

LITVINSKII 1973
B. A. Litvinskii, Ukrasheniia iz mogil'nikov zapadnoi Fergany. Mogil'niki zapadnoi Fergany III (Moskva 1973). Б. А. Литвинский, Украшения из могильников западной Ферганы. Могильники западной Ферганы III (Москва 1973).

LIU 1996
L. Liu, Settlement Patterns, Chiefdom Variability, and the Development of Early States in North China. Journal of Anthropological Archaeology 15, 3, 1996, 237–288.

LIU 2004
L. Liu, The Chinese Neolithic: Trajectories to Early States (Cambridge, NewYork 2004).

LIU 2002
Liu Xuetang 劉學堂, Xinjiang Yilihe Liuyu kaogu xinfaxian 新疆伊犁河流域考古新發現. Xiyu yanjiu 西域研究 2002, 1, 109–110.

LIU 2003
Liu Xujie 劉敘傑, Zhongguo gudai jianzhu shi 中國古代建築史 (Beijing 2003).

LIU/BAI 2010
Liu Qingzhu 劉慶柱/Bai Yunxiang 白雲翔 (eds.), Zhongguo kaoguxue. Qin Han juan 中國考古學. 秦漢卷 (Beijing 2010).

LIU/JI 2001
Liu Chaoying 劉超英/Ji Yankun 冀艷坤, Hebei sheng wenwu yanjiu suo zhengji de gudai qingtong daigou河北省文物研究所徵集的青銅代溝. In: Hebei sheng kaogu wenji 河北省考古文集/Hebei sheng kaogu wenwu yanjiusuo bian 河北省考古文物研究所編 (Beijing 2001) 490–512.

LIU/LI 2002
Liu Xuetang 刘学堂/Li Suyuan 李溯源, Xinjiang yilihe liuyu kaogu xinfaxian 新疆伊犁河流域考古新发现. Xiyu yanjiu 西域研究 2002, 1, 109–110.

LIVSHITS 2003
V. A. Livshits, Three silver bowls from the Isakovka burial-ground No. 1 with Khwarezmian and Parthian inscriptions. Ancient Civilizations from Scythia to Siberia 9, 1–2, 2003, 147–172.

LOBODA ET AL. 2002
I. I. Loboda/A. E. Puzdrovskij/J. P. Zajcev, Prunkbestattungen des 1. Jh. n. Chr. in der Nekropole Ust' Al'ma auf der Krim. Eurasia Antiqua 8, 2002, 295–346.

LOEWE 1964
M. Loewe, Some Military Despatches of the Han Period. T'oung Pao 51, 1964, 335–354.

LOEWE 1967
M. Loewe, Records of Han Administration, 2 Vols. (Cambridge 1967).

LOEWE 2000
M. Loewe, A biographical dictionary of the Qin, Former Han & Xin periods (221 BC–AD 24). Handbuch der Orientalistik, Abteilung 4. China Band 16 (Leiden, Boston 2000).

L'OR 1995
Entre Asie et Europe. L'or des Sarmates. Noma-

des des Steppes dans l'Antiquité. Exhibition catalogue Abbaye de Daoulas (Daoulas 1995).

L'or 2001
L'or des Amazones. Peuples nomades entre Asie et Europe VIe siècle av. J.-C. – IVe siècle apr. J.-C. (Paris 2001).

Lorentz 2008
K. Lorentz, From Bodies to Bones and Back: theory and human bioarchaeology. In: H. Schutkowski (ed.), Between Biology and Culture. Cambridge Studies in Biological and Evolutionary Anthropology 56 (Cambridge 2008) 273– 303.

Lu/Shan 2007
Lu Yan 盧巖/Shan Yueying 單月英, Xihan muzang chutu de dongwuwen yaoshipai 西漢墓葬出土的動物動物紋腰飾牌. Kaogu yu wenwu 2007, 4, 45–55.

Lucy 2005
S. Lucy, The archaeology of age. In: M. Diaz-Andreu/S. Lucy/S. Babic/D. N. Edwards (eds.), The Archaeology of Identity: approaches to gender, age, status, ethnicity and religion (London 2005).

Lund Hansen 1988
U. Lund Hansen, Römischer Import im Norden. Warenaustausch zwischen dem Römischen Reich und dem freien Germanien während der Kaiserzeit unter besonderer Berücksichtigung Nordeuropas. Nordiske Fortidsminder B 10 (København 1987).

Luneva 2001
V. Luneva, Iuvelirnye izdeliia iz Kampyrtepa. Materialy Tokharistanskoi Ekspeditsii 2 (Tashkent 2001) 113–125. В. Лунева, Ювелирные изделия из Кампыртепа. Материалы Тохаристанской Экспедиции 2 (Ташкент 2001) 113–125.

Luoyang 1959
Luoyang qu kaogu fajue dui 洛陽區考古發掘隊, Luoyang shaogou Han mu 洛陽燒溝漢墓 (Beijing 1959).

Ma 1962
Ma Changshou 馬長壽, Bei di yu Xiongnu 北狄與匈奴 (Beijing 1962).

Ma 1998
Ma Jinhong 馬今洪. Han jing 漢鏡 (Shanghai 1998).

Ma 2005
Ma Liqing 馬利清, Yuan Xiongnu, Xiongnu. lishi yu wenhua de kaoguxue tansuo 原匈奴、匈奴. 歷史與文化的考古學探索 (Huhehaote 2005).

Ma/Sun 1992
Y. Ma/Y. Sun, The Western Regions under the Hsiung-nu and the Han. In: J. Harmatta (ed.), History of civilizations of Central Asia, Vol. II. The development of sedentary and nomadic civilizations: 700 B.C. to A.D. 250 (Paris 1992) 227–246.

Machicek 2011
M. L. Machicek, Reconstructing Diet and Health in Early Nomadic Pastoralist Communities of Inner Asia. PhD Dissertation, University of Sheffield 2011.

Maenchen-Helfen 1973
O. Maenchen-Helfen, The World of the Huns. Studies in their history and culture (Berkeley 1973).

Magail 2003
J. Magail, Entre la steppe et le ciel. In: Mongolie 2003, 183–208.

Magail 2005
J. Magail, Les "Pierres à cerfs" des vallées Hunuy et Tamir en Mongolie. Bulletin du Muée d'Anthropologie Préhistorique de Monaco 45, 2005, 41–56.

Maidar 1971
D. Maidar, Arkhitektura i gradostroitel'stvo Mongolii. Ocherki po istorii [=Mongolyn arkhitektur ba khot Baiguulalt] (Moskva 1971). Д. Майдар, Архитектура и градостроительство Монголии. Очерки по истории. Монголын архитектур ба хот Байгуулалт (Москва 1971).

Maier 2006
C. S. Maier, Among empires: American ascendancy and its predecessors (Cambridge 2006).

Maiskii 1921
I. M. Maiskii, Sovremennaia Mongoliia. Otchet Mongol'skoi ekspeditsii, snariazhennoi irkutskoi kontoroi Vserossiiskago tsentral'nogo soiuza potrebitel'nykh obshchestv "Tsentro-soiuz" (Irkutsk 1921). И. М. Майский, Современная Монголия. Отчет Монгольской экспедиции снаряженной иркутской конторой Всероссийского центрального союза потребительных обществ "Центро-союз" (Иркутск 1921).

MAKAREWICZ 2010
Ch. Makarevich, Khünnü naryn malyn övölzhöö Baga Gazryn chuluuny malyn iasand khiisen zooarkheologi ba izotopyn sudalgaa. In: Amartüvshin/Honeychurch 2010, 436–449. Ш. Макаревич, Хүннү нарын малын өвөлжөө Бага Газрын чулууны малын яасанд хийсэн зооархеологи ба изотопын судалгаа. In: Amartüvshin/Honeychurch 2010, 436–449.

MAKAREWIZ/TUROSS 2006
C. Makarewicz/N. Tuross, Foddering by Mongolian pastoralists is recorded in the stable carbon ($\delta^{13}C$) and nitrogen ($\delta^{15}N$) isotopes of caprine dentinal collagen. Journal of Archaeological Science 33, 2006, 862–870.

MAKSIMENKO/BEZUGLOV 1987
V. E. Maksimenko/S. I. Bezuglov, Pozdensarmatskie pogrebeniia v kurganakh na reke Bystroi. Sovetskaia Arkheologiia 1997, 1, 183–191. В. Е. Максименко/С. И. Безуглов, Позднесарматские погребения в курганах на реке Быстрой. Советская Археология 1987, 1, 183–191.

MAKSIMOVA ET AL. 1968
A. G. Maksimova/M. S. Mershchiev/B. I. Vainberg/L. M. Levina, Drevnosti Chardary. Arkheologicheskie issledovaniia v zone Chardarinskogo vodokhranilishcha (Alma-Ata 1968). А. Г. Максимова/М. С. Мерщиев/Б. И. Вайнберг/Л. М. Левина, Древности Чардары. Археологические исследования в зоне Чардаринского водохранилища (Алма-Ата 1968).

MALASHEV 2000
V. Iu. Malashev, Periodizatsiia remennikh garnitur pozdnesarmatskogo vremeni. In: Sarmaty i ikh Sosedi na Donu. Materialy i issledovaniia po arkheologii Dona 1 (Rostov-na-Donu 2000) 194–232. В. Ю. Малашев, Периодизация ременних гарнитур позднесарматского времени. In: Сарматы и их Соседи на Дону. Материалы и исследования по археологии Дона 1 (Ростов-на-Дону 2000) 194–232.

MALAU-ADULI ET AL. 2003
B. S. Malau-Aduli/L. O. Eduvie/C. A. M. Lakpini/A. E. O. Malau-Aduli, Variations in liveweight gains, milk yield and composition of Red Sokoto goats fed crop residue-based supplements in the subhumid zone of Nigeria. Livestock Production. Science 83, 2003, 63–71.

MAMADAKOV 1987
Iu. T. Mamadakov, O pamiatnikakh pervoi poloviny I tys. n.e. v Gornom Altae. In: Iu. F. Kiriushin/V. I. Matiushchenko/L. A. Chindina (red.), Arkheologicheskie issledovaniia na Altae (Barnaul 1987) 197–203. Ю. Т. Мамадаков, О памятниках первой половины I тыс. н.э. в Горном Алтае. In: Ю. Ф. Кирюшин/В. И. Матющенко/Л. А. Чиндина (ред.), Археологические исследования на Алтае (Барнаул 1987) 197–203.

MAMONTOV 2002
V. I. Mamontov, Sarmatskie pogrebeniia iz kurgannogo mogil'nika Pisarevka II. Nizhnevolzhskii arkheologicheskii vestnik 5, 2002, 251–259. В. И. Мамонтов, Сарматские погребения из курганного могильника Писаревка II. Нижневолжский археологический вестник 5, 2002, 251–259.

MANDEL'SHTAM 1966
A. M. Mandel'shtam, Kochevniki na puti v Indiiu. Trudy Tadzhikskoi Arkheologicheskoi ekspeditsii Instituta Arkheologii AN SSSR i Instituta Istorii im. Donisha AN Tadzhikskoi SSR. Materialy i Issledovaniia po Arkheologii SSSR 136 (Moskva, Leningrad 1966). А. М. Мандельштам, Кочевники на пути в Индию. Труды Таджикской Археологической экспедиции Института Археологии АН СССР и Института Истории им. Дониша АН Таджикской ССР. Материалы и Исследования по Археологии СССР 136 (Москва, Ленинград 1966).

MANDEL'SHTAM 1975
A. M. Mandel'shtam, Pamiatniki kochevnikov kushanskogo vremeni v Severnoi Baktrii. Trudy Tadzhikskoi Arkheologicheskoi ekspeditsii Instituta Arkheologii AN SSSR i Instituta Istorii im. A. Donisha AN Tadzhikskoi SSR 7 (Leningrad 1975). А. М. Мандельштам, Памятники кочевников кушанского времени в Северной Бактрии. Труды Таджикской археологической экспедиции института археологии АН СССР и Института Истории им. А. Дониша АН Таджикской ССР 7 (Ленинград 1975).

MANDEL'SHTAM/STAMBUL'NIK 1992
A. M. Mandel'shtam/E. U. Stambul'nik, Gunno-

sarmatskii period na territorii Tuvy. In: Stepnaia polosa 1992, 196–205. А. М. Мандельштам/Э. У. Стамбульник, Гунно-сарматский период на территории Тувы. In: Stepnaia polosa 1992, 196–205.

Mania 1963
D. Mania, Archäologische Studien in der zentralen Mongolei. Wissenschaftliche Zeitschrift der Martin-Luther Universität Halle-Wittenberg 12. Gesellschaft- und Sprachwissenschaftliche Reihe 7/8, 1963, 847–888.

Mann 1986
M. Mann, The sources of social power, I: a history of power from the beginning to A.D. 1760 (Cambridge 1986).

Mann 2003
M. Mann, Incoherent empire (London 2003).

Mantsevich 1982
A. P. Mantsevich, Finds on the Zaporozhe Barrow: New Light on the Siberian Collection of Peter the Great. American Journal of Archaeology 86, 1982, 469–474.

Maoqinggou 1992
Th. Höllmann/G. Kossack, Maoqinggou. Ein eisenzeitliches Gräberfeld in der Ordos-Region (Innere Mongolei). Materialien zu Allgemeinen und Vergleichende Archäologie 50 (Mainz 1992).

Marchenko 1996
I. I. Marchenko, Siraki Kubani. Po Materialam kurgannykh pogrebenii Nizhnei Kubani (Krasnodar 1996). И. И. Марченко, Сираки Кубани. По материалам курганных погребений Нижней Кубани (Краснодар 1996).

Margulan 1966
A. Kh. Margulan, Drevniaia kul'tura Tsentral'nogo Kazakhstana (Alma-Ata 1966). А. Х. Маргулан, Древняя культура Центрального Казахстана (Алма-Ата 1966).

Markov 1976
G. E. Markov, Kochevniki Azii: struktura khoziaistva i obshchestvennoi organizatsii (Moskva 1976). Г. Е. Марков, Кочевники Азии: структура хозяйства и общественной организации (Москва 1976).

Markov 2002
S. Markov, Astragaly v pogrebal'noi obriadnosti epokhi bronzy Iuzhnogo Zaural'ia. Vestnik obshchestva otkrytykh issledovanii drevnosti 1, 2002, 39–48. С. Марков, Астрагалы в погребальной обрядности эпохи бронзы Южного Зауралья. Вестник общества открытых исследований древности 1, 2002, 39–48.

Martinova 1988
G. S. Martinova, Beginning of the Hunnic Epoch in South Siberia. Arctic Anthropology 25, 2, 1988, 61–83.

Marx 1977
E. Marx, The Tribe as a Unit of Subsistence: Nomadic Pastoralism in the Middle East. American Anthropologist 79, 1977, 343–363.

Masanov 1995
N. E. Masanov, Kochevaia tsivilizatsiia kazakhov: osnovy zhiznedeiatelnosti nomadnogo obshchestva (Moskva, Almaty 1995). Н. Э. Масанов, Кочевая цивилизация казахов: основы жизнедятельности номадного общества (Москва, Алматы 1995).

Masumoto 1993
T. Masumoto, O bronzovykh zerkalakh, sluchaino obnaruzhennykh na Altae. In: Okhrana i izuchenie kul'turnogo naslediia Altaia. Tezisy nauchno-prakticheskoi konferentsii, Vol. 2 (Barnaul 1993) 248–251. Т. Масумото, О бронзовых зеркалах, случайно обнаруженных на Алтае. In: Охрана и изучение культурного наследия Алтая. Тезисы научно-практической конференции, Vol. 2 (Барнаул 1993) 248–251.

Mathiesen 1992
H. E. Mathiesen, Sculpture in the Parthian Empire. A Study in Chronology (Aarhus 1992).

Matiushchenko/Tataurova 1997
V. I. Matiushchenko/L. V. Tataurova, Mogil'nik Sidorovka v Omskom Priirtysh'e (Novosibirsk 1997). В. И. Матющенко/Л. В. Татаурова, Могильник Сидоровка в Омском Прииртышье (Новосибирск 1997).

Matrenin 2005
S. S. Matrenin, Sposoby zakhoroneniia naseleniia Gornogo Altaia II v. do n.e. – V v. n.e. In: Izuchenie istoriko-kul'turnogo naslediia narodov Iuzhnoi Sibiri (Gorno-Altaisk 2005) 35–51. С. С. Матренин, Способы захоронения населения Горного Алтая II в. до н.э. – В в. н.э. In: Изучение

историко-культурного наследия народов Южной Сибири (Горно-Алтайск 2005) 35–51.

McIntosh 1999
S. K. McIntosh (ed.), Beyond chiefdoms: Pathways to complexity in Africa. New directions in archaeology (Cambridge 1999).

Medvedev 2003
A. P. Medvedev, The development of hierarchical structures in the bronze and early Iron Age societies of the South of Eastern Europe. In: T. Barfield/D. M. Bondarenko/N. N. Kradin (eds.), Nomadic Pathways in Social Evolution. The civilization dimension series 5 (Moscow 2003) 100–113.

Mekhovskii 1936
M. Mekhovskii, Traktat o dvukh Sarmatiiakh (Moskva 1936). М. Меховский, Трактат о двух Сарматиях (Москва 1936).

Méniel et al. 2005
P. Méniel/R.-M. Arbogast/S. Lepetz, Les animaux dans les pratiques funéraires et religieuses. In: M.-P. Horard Herbin/J.-D. Vigne (eds.), Animaux, environnements et sociétés (Paris 2005) 131–150.

Meskell 1994
L. M. Meskell, Dying young: the experience of death at Deir el Medina. Archaeological Review from Cambridge 13, 2, 1994, 35–45.

Miller 1993
D. H. Miller, Ethnogenesis and Religious Revitalization beyond the Roman Frontier: the Case of Frankish Origins. Journal of World History 4, 1993, 277–285.

Miller 2009
B. K. Miller, Power Politics in the Xiongnu Empire. Unpublished PhD Dissertation, University of Pennsylvania 2009.

Miller et al. 2006
B. Miller/F. Allard/D. Erdenebaatar/C. Lee, A Xiongnu tomb complex: Excavations at Gol Mod 2 Cemetery, Mongolia (2002–2005). Mongolian Journal of Anthropology, Archaeology and Ethnology 2, 2, 2006, 1–21.

Miller et al. 2008
B. K. Miller/J. Bayarsaikhan/Ts. Egiimaa/C. Lee, Xiongnu Elite Tomb Complexes in the Mongolian Altai. Results of the Mongol-American Hovd Archaeology Project, 2007. The Silk Road 5, 2, 2008, 27–36.

Miller et al. 2009a
B. K. Miller/J. Bayarsaikhan/Ts. Egiimaa/P. B. Konovalov/J. Logan/M. Machicek, Xiongnu Constituents of the High Mountains: Results of the Mongol-American Khovd Archaeology Project, 2008. The Silk Road 7, 2009, 8–20.

Miller et al. 2009b
B. K. Miller/J. Baiarsaikhan/Ts. Egiimaa/P. B. Konovalov/J. Logan, Elite Xiongnu Burials at the Periphery: Tomb Complexes at Takhiltyn Khotgor, Mongolian Altai. In: Bemmann et al. 2009, 301–314.

Miller et al. 2011
B. K. Miller/Zh. Baiarsaikhan/Ts. Egiima/ E. Johannesson/C. Neily/M. Machicek/J. Logan/P. B. Konovalov, Shumbuuziin-Belchir: Altain nuruuny orchim dakh' Khünnü gürnii zakh khiazgaaryn negen büleg khümüüsiin tukhai. Nüüdelchdiin öv sudlal 11, 2011, in print. Б. К. Миллэр/ Ж. Баярсайхан/Ц. Эгийма/Э. Жоханнэссон/ К. Нэйли/М. Махичэк/Ж. Логан/П. Б. Коновалов, Шумбуузийн Бэлчир: Алтайн нурууны орчим дахь Хүннү гүрний зах хязгаарын нэгэн бүлэг хүмүүсийн тухай. Нүүдэлчдийн өв судлал 11, 2011, in print.

Milner-Gulland et al. 2006
E. J. Milner-Gulland/C. Kerven/R. Behnke/I. A. Wright/A. Smailov, A multi-agent system model of pastoralist behaviour in Kazakhstan. Ecological Complexity 3, 2006, 23–36.

Minagawa/Wada 1984
M. Minagawa/E. Wada, Stepwise enrichment of ^{15}N along food chains: Further evidence and the relation between $\delta^{15}N$ and animal age. Geochimica et Cosmochima Acta 48, 1984, 1135–1140.

Miniaev 1980
S. S. Miniaev, Proizvodstvo i rasprostranenie poiasnykh plastin s zoomorfnymi izobrazheniiami (po dannym spektral'nogo analiza). In: M. A. Devlet, Sibirskie poiasnye azhurnye plastiny II v. do n.e. – I v. n.e. Arkheologiia SSSR. Svod arkheologicheskikh istochnikov D 4-7 (Moskva 1980) 29–34. С. С. Миняев, Производство и распространение поясных пластин с зооморфными изображениями (по данным спектрального ана-

лиза) In: М. А. Дэвлет, Сибирские поясные ажурные пластины II в. до н.э. – I в. н.э. Археология СССР. Свод археологических источников Д 4-7 (Москва 1980) 29–34.

Miniaev 1983a
S. S. Miniaev, Spektroanaliticheskie issledovaniia bronzovykh izdelii siunnu. In: R. S. Vasil'evskii (otv. red.), Ispol'zovanie metodov estestvennykh i tochnykh nauk pri izuchenii drevnei istorii Zapadnoi Sibiri. Tezisy dokladov i soobshchenii k nauchnoi konferentsii (6–8 aprelia 1983 g.) (Barnaul 1983) 33–35. С. С. Миняев, Спектроаналитические исследования бронзовых изделий сюнну. In: Р. С. Васильевский (отв. ред.), Использование методов естественных и точных наук при изучении древней истории Западной Сибири. Тезисы докладов и сообщений к научной конференции (6–8 апреля 1983 г.) (Барнаул 1983) 33–35.

Miniaev 1983b
S. S. Miniaev, Proizvodstvo bronzovykh izdelii u siunnu. In: Iu. F. Kiriushin (otv. red.), Drevnie gorniaki i metallurgi Sibiri. Mezhvuzovskii sbornik nauchnykh statei (Barnaul 1983) 47–84. С. С. Миняев Производство бронзовых изделий у сюнну. In: Ю. Ф. Кирюшин (отв. ред.), Древние горняки и металлурги Сибири. Межвузовский сборник научных статей (Барнаул 1983) 47–84.

Miniaev 1985
S. Minyaev, On the origin of the Xiongnu. UNESCO bulletin of international association for the study of the culture of Central Asia (Moscow) 9, 1985, 69–78.

Miniaev 1988
S. S. Miniaev, Dureny II – Mnogosloinoe poselenie v Zapadnom Zabaikal'e. Sovetskaia Arkheologiia 1988, 2, 228–233. С. С. Миняев, Дурены II – Многослоиное поселение в Западном Забайкалье. Советская Археологиия 1988, 2, 228–233.

Miniaev 1995
S. S. Miniaev, Noveishie nakhodki khudozhestvennoi bronzy i problema formirovaniia "geometricheskogo stilia" v isskustve Siunnu. Arkheologicheskie Vesti 4, 1995, 123–136. С. С. Миняев, Новейшие находки художественной бронзы и проблема формирования "геометрического стиля" в исскустве Сюнну. Археологические Вести 4, 1995, 123–136.

Miniaev 1998
S. S. Miniaev, Dyrestuiskii mogil'nik. Arkheologicheskie pamiatniki Siunnu 3 (Sankt-Peterburg 1998). С. С. Миняев, Дырестуйский могильник. Археологические памятники Сюнну 3 (Санкт-Петербург 1998).

Miniaev 2000
S. S. Minyaev, The origins of the "Geometric Style" in Hsiung nu Art. In: J. Davis-Kimball/E. M. Murphy/L. Koryakova/L. T. Yablonsky (eds.), Kurgans, Ritual Sites, and Settlements. Eurasian Bronze and Iron Age. British Archaeological Repors International Series 890 (Oxford 2000) 293–303.

Miniaev 2009
S. S. Miniaev, Elitnyi kompleks siunnuskikh zakhoronenii v padi Tsaram (Zabaikal'e). Arkheologiia, ethnografiia i antropologiia Evrazii 2009, 2, 49–58. С. С. Миняев, Элитный комплекс сюннуских захоронений в пади Царам (Забайкалье). Археология, этнография и антропология Евразии 2009, 2, 49–58.

Miniaev/Elikhina 2009
S. S. Miniaev/J. Elikhina, On the Chronology of the Noyon uul Barrows. The Silk Road 7, 21–35.

Miniaev/Sakharovskaia 2002
S. S. Miniaev/L. M. Sakharovskaia, Soprovoditel'nye zakhoroneniia "tsarskogo" kompleksa No. 7 v Mogil'nike Tsaram. Arkheologicheskie Vesti 9, 2002, 86–118. С. С. Миняев/Л. М. Сахаровская, Сопроводительные захоронения «царского» комплекса No. 7 в Могильнике Царам. Археологические Вести 9, 2002, 86–118.

Miniaev/Sakharovskaia 2006
S. S. Miniaev/L. M. Sakharovskaia, Investigation of a Xiongnu Royal Tomb Complex in the Tsaraam Valley. The Silk Road 4, 1, 2006, 47–51.

Miniaev/Sakharovskaia 2007a
S. S. Miniaev/L. M. Sakharovskaia, Investigation of a Xiongnu Royal Tomb Complex in the Tsaraam Valley, Part 2: The Inventory of Barrow No. 7 and the Chronology of the Site. The Silk Road 5, 1, 2007, 44–56.

MINIAEV/SAKHAROVSKAIA 2007b
S. S. Miniaev/L. M. Sakharovskaia, Elitnyi kompleks zakhoronenii Siunnu v Padi Tsaram. Rossiiskaia Arkheologiia 2007, 1, 159–166. С. С. Миняев/Л. М. Сахаровская, Элитный комплекс захоронений сюнну в пади Царам. Российская Археология 2007, 1, 159–166.

MISSION 2001
Mission archéologique française en Mongolie, Pratiques funéraires des Xiongnu. Travaux de la Mission archéologique française en Mongolie réalisés durant les campagnes de 1998 et 1999 dans la nécropole xiongnu d'Egiin Gol. Unpublished Report Paris 2001.

MISSION 2001–2007
Mission archéologique française en Mongolie 2007: Mission archéologique française en Mongolie, Rapports d'activité années 2001–2007. Unpublished Field Reports Paris 2001–2007.

MOGIL'NIKOV 1992
V. A. Mogil'nikov, Khunnu Zabaikal'ia. In: Stepnaia polosa 1992, 254–273. В. А. Могильников, Хунну Забайкалья. In: Stepnaia polosa 1992, 254–273.

MOGIL'NIKOV 1997
V. A. Mogil'nikov, Naselenie Verkhnego Priob'ia v seredine – vtoroi polovine I tysiacheletiia do n.e. (Moskva 1997). В. А. Могильников, Население Верхнего Приобья в середине – второй половине I тысячелетия до н.э. (Москва 1997).

MOLODIN/EFROMOVA 1998
V. I. Molodin/N. S. Evremova, Kollektsiia astragalov sviatilishcha Kucherla-1. Problemy arkheologii, etnografii, antropologii Sibiri i sopredel'nykh territorii 4. Materialy VI Godovoi itogovoi sessii Instituta arkheologii i etnografii SO RAN (Novosibirsk 1998) 300–309. В. И. Молоди/Н. С. Ефремова, Коллекция астрагалов святилища Кучерла-1. Проблемы археологии, этнографии, антропологии Сибири и сопредельных территорий 4. Материалы VI Годовой итоговой сессии Института археологии и этнографии СО РАН (Новосибирск 1998) 300–309.

MONGGOL 2009
Monggol, ch'owŏn e p'in kodae munhwa 몽골, 초원 에 핀 고대문화. Mongolyn ertnii soel. Монголын эртний соёл. The ancient culture of Mongolia. Catalogue of the exhibition at Busan Museum March 5 – May 17, 2009 (Busan 2009).

MONGOL 2003
Mongol Ulsyn tüükh (Ulaanbaatar 2003). Монгол Улсын түүх (Улаанбаатар 2003).

MONGOLIE 2003
Mongolie: Le premier empire des steppes (Arles 2003).

MONGOL NUTAG 1999
Mongol nutag dakh' tüükh soelyn dursgal (sedevchilsen lavlakh) (Ulaanbaatar 1999). Монгол нутаг дахь түүх соелын дурсгал (сэдэвчилсэн лавлах) (Улаанбаатар 1999).

MON-SOL 2001
Monggol Morin T'olgoi hyungno mudŏm 몽골 모린톨고이흉노무덤. Han-Mong kongdong haksul chosa pogo, che 2-chaek. [Mon-Sol project 1999, Mon-Sol project 2000. Research report on Korean-Mongolian joint expedition in Mongolia 2] (Seoul 2001).

MON-SOL 2003
Monggol Hodŭgin T'olgoi Hyungno mudŏm 몽골호드긴톨고이흉노무덤. Han-Mong kongdong haksul chosa pogo 3 [Hunnu Tombs at Hudgiin Tolgoi in Mongolia. Research Report on Korean-Mongolian Joint Expedition in Mongolia 3] (Seoul 2003).

MON-SOL 2004
Kungnip Chungang Pangmulgwan Monggol haksul chosa sŏngkwa 2002–2004. 국립 중앙 박물관 몽골 학술 조사 성과 2002–2004. Han-Mong kongdong haksul chosa pogo 4 [Research report on Korean-Mongolian joint expedition in Mongolia 4] (Seoul 2004).

MONSON/SCHEIDEL FORTHCOMING
A. Monson/W. Scheidel (eds.), Fiscal regimes and the political economy of premodern states.

MOOREY 1967
P. R. S. Moorey, Some Ancient Metal Belts: Their antecedents and Relatives. Iran 5, 1967, 83–98.

MOOREY ET AL. 1981
P. R. S. Moorey/E. Bunker/E. Porada/G. Markoe, Ancient Bronzes Ceramics and Seals. The Nasli M. Heeramaneck Collection of Ancient Near Eastern, Central Asiatic, and European Art (Los Angeles 1981).

Mordvintseva 1999
V. I. Mordvintseva, Nabor falarov iz kurgana 28 mogil'nika Zhutovo Volgogradskoi oblasti. Nizhnevolzhskii Arkheologicheskii Vestnik 2, 1999, 42–51. В. И. Мордвинцева, Набор фаларов из кургана 28 могильника Жутово Волгоградской области. Нижневолжский археологический вестник 2, 1999, 42–51.

Mordvintseva 2000
V. I. Mordvintseva, Nabor serebrianoi posudy iz sarmatskogo mogil'nika Zhutovo. Rossiiskaia Arkheologiia 2000, 1, 144–153. В. И. Мордвинцева, Набор серебряной посуды из сарматского могильника Жутово. Российская Археология 2000, 1, 144–153.

Mordvintseva 2003
V. I. Mordvintseva, Polikhromnyi zverinyi stil' (Simferopol' 2003). В. И. Мордвинцева, Полихромный звериный стиль (Симферополь 2003).

Mordvintseva/Myskov 2005
V. I. Mordvintseva/E. P. Myskov, Pogrebenie s ostatkami kitaiskoi lakovoi shkatulki iz mogil'nika Oktiabr'skii-V. Nizhnevolzhskii Arkheologicheskii Vestnik 7, 2005, 314–318. В. И. Мордвинцева/Е. П. Мысков, Погребение с остатками китайской лаковой шкатулки из могильника Октябрьский-V. Нижневолжский археологический Вестник 7, 2005, 314–318.

Mordvintseva/Shinkar' 1999
V. I. Mordvintseva/O. A. Shinkar', Sarmatskie paradnye mechi iz fondov Volgogradskogo oblastnogo kraevedcheskogo muzeia. Nizhnevolzhskii arkheologicheskii Vestnik 2, 1999, 138–149. В. И. Мордвинцева/О. А. Шинкарь, Сарматские парадные мечи из фондов Волгоградского областного краеведческого музея. Нижневолжский археологический вестник 2, 1999, 138–149.

Moriyasu/Ochir 1999
T. Moriyasu/A. Ochir, Mongoru koku genzon iseki hibun chōsa kenkyū hōkoku 蒙古国現存遺跡碑文調査研究報告. Provisional Report of Researches on Historical Sites and Inscriptions in Mongolia from 1996 to 1998 (Tokyo 1999).

Morris/Scheidel 2009
I. Morris/W. Scheidel, The Dynamics of Ancient Empires: State Power from Assyria to Byzantium (New York 2009).

Moshkova 1960
M. G. Moshkova, Rannesarmatskie bronzovye priashki. In: Drevnosti Nizhnego Povolzh'ia 2. Materialy i Issledovaniia po Arkheologii SSSR 78 (Moskva 1960). М. Г. Мошкова, Раннесарматские бронзовые пряжки. In: Древности Нижнего Поволжья 2. Материалы и Исследования по Археологии СССР 78 (Москва 1960).

Moshkova 1963
M. G. Moshkova, Pamiatniki prokhorovskoi kul'tury. Arkheologiia SSSR. Svod Arkheologicheskikh Istochnikov D 1-10 (Moskva 1963). М. Г. Мошкова, Памятники прохоровской культуры. Археология СССР. Свод Археологических Источников Д 1-10 (Москва 1963).

Motyl 2001
A. J. Motyl, Imperial ends: the decay, collapse, and revival of empires (New York 2001).

Müller 1997
M. Müller, Die römischen Bronzegefäße von Haltern. Ausgrabungen und Funde in Westfalen-Lippe 9a, 1997, 5–40.

Münkler 2007
H. Münkler, Empires: the logic of world domination from ancient Rome to the United States (Cambridge 2007).

Murphy 2003
E. M. Murphy, Iron Age Archaeology and Trauma from Aymyrlyg, South Siberia. BAR International Series 1152 (Oxford 2003).

Murphy 2007
C. Murphy, Are we Rome? The fall of an empire and the fate of America (Boston 2007).

Musche 1988
B. Musche, Vorderasiatischer Schmuck zur Zeit der Arsakiden und der Sassaniden. Handbuch der Orientalistik 7,1: Der alte Vordere Orient 2 B 5 (Leiden, New York, u. a. 1988).

Musée Cernuschi 2005
Musée Cernuschi. Art chinois. Musée Cernuschi acquisitions 1993–2004 (Paris 2005).

Nagata 1989
Nagata Hidemasa 永田英正, Kyoen Kankan no kenkyū 居延漢簡の研究 (Kyōto 1989).

NANGNANG 2001
T'ŭkpyŏlchŏn Nangnang = The ancient culture of Nangnang 특별전 낙랑. Catalog of an exhibition held at Kungnip Chungang Pangmulgwan, July 17–Sept. 2; and at Kungnip Kimhae Pangmulgwan, Sept. 25–Nov. 4, 2001 (Seoul 2001).

NAVAAN 1999
D. Navaan, Khünnügiin öv soel (Ulaanbaatar 1999). Д. Наваан, Хүннүгийн өв соёл (Улаанбаатар 1999).

NAVAAN 2002
D. Navaan, Arkheologiin 100 vaar sav (Ulaanbaatar 2002). Д. Наваан, Археологийн 100 ваар сав (Улаанбаатар 2002).

NEI MENGGU 1982
Nei Menggu zizhiqu wenwu gongzuo dui 内蒙古自治區文物工作隊, Liangcheng Yinniugou mudi qingli jianbao 凉城飲牛溝墓地清理簡報. Nei Menggu wenwu kaogu 1982, 3, 26–32.

NEI MENGGU 1984
Nei Menggu wenwu gongzuo dui 内蒙古文物工作隊, Huhehaote Ershijiazi gu cheng chutu de Xi Han tejian 呼和浩特二十甲子古城出土的西漢特檢. In: Nei Menggu wenwu ziliao wenji 内蒙古文物考古文集 (Huhehaote 1984) 113–124.

NEI MENGGU 1986
Nei Menggu wenwu gongzuodui 内蒙古文物工作隊, Maoqinggou mudi 毛慶溝墓地. In: Tian Guangjin田廣金/Guosuxin 郭素新 (eds.), E'erduosi Qingtongqi 鄂爾多斯青銅器 (Beijing 1986) 227–315.

NEI MENGGU 1989
Nei Menggu wenwu kaogu yanjiu suo 内蒙古文物考古研究所, Liangcheng xian Guoxian yaozi Mudi 涼城縣崞縣窯子墓. Kaogu xuebao 1989, 1, 57–81.

NEI MENGGU 1994
Nei Menggu wenwu kaogu yanjiusuo 内蒙古文物考古研究所, Zhalainuo'er gumu qun 1986 nian qingli fajue baogao 扎賚諾爾古墓1986年清理發掘報告. Nei Menggu wenwu kaogu wenji 1994, 1, 369–383.

NEI MENGGU 1997
Nei Menggu wenwu kaogu yanjiusuo 内蒙古文物考古研究所, Huhehaote shi Yulin Zhentaobuqi gucheng fajue jianbao 呼和浩特榆林鎮陶卜齊古城發掘簡報. In: Nei Menggu zizhiqu wenwu kaogu yanjiusuo bian 内蒙古自治區文物考古研究所編, Nei Menggu wenwu kaogu wenji 内蒙古文物考古文集 Vol. 2 (Beijing 1997) 431–443.

NEI MENGGU 2004
Nei Menggu zizhiqu wenwu kaogu yanjiusuo 内蒙古自治區文物考古研究所, Qingshuihe xian Chengzuizi yizhi fajue baogao 清水河縣城嘴子遺址發掘報告. In: Neimenggu zizhiqu wenwu kaogu yanjiusuo bian 内蒙古自治區文物考古研究所編, Neimenggu wenwu kaogu wenji 内蒙古文物考古文集 Vol. 3 (Beijing 2004) 81–128.

NEI MENGGU 2006
Nei Menggu wenwu kaogu yanjiusuo 内蒙古文物考古研究, Nei Menggu helinge'er xian Tuchengzi gucheng fajue baogao 内蒙古和林格爾縣土城子古城發掘報告. Nei Menggu wenwu kaogu 2006, 1, 9–16.

NEI MENGGU/JILIN 2001
Nei Menggu wenwu kaogu yanjiusuo 内蒙古文物考古研究所/Jilin Daxue kaogu xi 吉林大學考古係, Yuanshangdu chengzhi dongnan Zhenzishan xiqu muzang fajue jianbao 元上都城址東南砧子山西區墓葬發掘簡報. Wenwu 2001, 9, 37–51.

NEI MENGGU/QINGSHUIHE 2001
Nei Menggu wenwu kaogu yanjiusuo 内蒙古文物考古研究所/Qingshuihe xian wenwu guanlisuo 清水河縣文物管理所, Qingshuihe xian Xicha yizhi fajue jianbao 清水河縣西岔遺址發掘簡報. In: Nei Menggu zizhiqu wenwu kaogu yanjiusuo 内蒙古自治區文物考古研究所 (ed.), Wanjiazhai Shuili Shuniu Gongcheng kaogu baogao ji 萬傢寨水利樞紐工程考古報告集 (Huhehaote 2001) 60–78.

NEI MENGGU/TUOKETUO 2004
Nei Menggu zizhiqu wenwu kaogu yanjiusuo 内蒙古自治區文物考古研究所/Tuoketuo xian bowuguan 托克托縣博物館, Tuoketuo xian Heishuiquan yizhi fajue baogao 托克托縣黑水泉遺址發掘報告. In: Neimenggu zizhiqu wenwu kaogu yanjiusuo bian 内蒙古自治區文物考古研究所編, Neimenggu wenwu kaogu wenji 内蒙古文物考古文集 Vol. 3 (Beijing 2004) 153–217.

NEI MENGGU ET AL. 1994
Nei Menggu wenwu kaogu yanjiusuo 内蒙古文

物考古研究所/Hulunbei'ermeng wenwu guanli zhan 呼倫貝爾盟文物管理站/E'erguna youqi wenwu guanlisuo 額爾古納右旗文物管理所, E'erguna youqi Labudalin Xianbei muqun fajue jianbao 額爾古納右旗拉布達林鮮卑墓群發掘簡報. Nei Menggu wenwu kaogu wenji 1994, 1, 384–396.

Nei Menggu et al. 2001
Nei Menggu wenwu kaogu yanjiusuo 内蒙古文物考古研究所/Riben jingdu Zhongguo kaoguxue yanjiusuo 日本京都中國考古學研究所/Daihai diqu kaochadui 岱海地區考察隊, Yinniugou mudi 1997 nian fajue baogao 飲牛溝墓地1997年發掘報告. Daihai kaogu 2001, 2, 278–327.

Nelson 2006
A. Nelson, BGC 2006 report on human remains. Unpublished field report, Institute of Archaeology, Ulaanbaatar 2006.

Nelson et al. 2009a
A. Nelson/Ch. Amartuvshin/W. Honeychurch, A Gobi mortuary site through time: bioarchaeology at Baga Mongol, Baga Gazaryn Chuluu. In: Bemmann et al. 2009, 565–578.

Nelson et al. 2009b
A. Nelson/M. Machicek/J. Beach, BGC 2006 report on human remains. Unpublished field report, Institute of Archaeology, Ulaanbaatar 2009.

Nikolaev 2003
N. N. Nikolaev, Planigrafiia mogil'nika Bai-Dag II. In: Stepi Evrazii v Drevnosti i Srednevekov'e. Materialy mezhdunarodnoi konferentsii, posviashchennoi 100-letiiu so dnia rozhdeniia Mikhaila Petrovicha Griaznova, Vol. 2 (Sankt-Peterburg 2003) 260–263. Н. Н. Николаев, Планиграфия могильника Бай-Даг II. In: Степи Евразии в древности и средневековье. Материалы международной научной конференции, посвященной 100-летию со дня рождения Михаила Петровича Грязнова, Vol. 2 (Санкт-Петербург 2003).

Nikolaev 2010
N. N. Nikolaev, Mogil'nik khunnu v padi Orgoiton (predvaritel'noe soobshchenie). In: Drevnie kul'tury Evrazii. Materialy mezhdunarodnoi nauchnoi konferentsii, posviashchennoi 100-letiiu so dnia rozhdeniia A. N. Bernsthama (Sankt-Peterburg 2010) 186–192. Н. Н. Николаев, Могильник хунну в пади Оргойтон. In: Древние культуры Евразии. Материалы международной научной конференции, посвящённой 100-летию со дня рождения А. Н. Бернштама (Санкт-Петербург 2010) 186–192.

Ningxia/Tongxin 1988
Ningxia wenwu kaogu yanjiusuo寧夏文物考古研究所/Tongxin xian wenwu guanlisuo 同心縣文物管理所, Ningxia Tongxin xian Lijiataozi Xiongnu mu qingli jianbao 寧夏同心縣李家套子匈奴墓清理簡報. Kaogu yu wenwu 1988, 3, 17–20.

Ningxia et al. 1988
Ningxia wenwu kaogu yanjiusuo 寧夏文物考古研究所/Zhongguo shehui kexueyuan kaogusuo Ningxia kaoguzu 中國社會科學院考古所寧夏考古組/Tongxin xian wenwu guanlisuo 同心縣文物管理所, Ningxia Tongxin Daodunzi Xiongnu mudi 寧夏同心倒墩子匈奴墓地. Kaogu xuebao 1988, 3, 333–356.

Niven et al. 2004
L. Niven/P. Egeland/L. C. Todd, An inter-site comparison of enamel hypoplasia in bison: implications for paleoecology and modeling late plains archaic subsistence. Journal of Archaeological Science 31, 2004, 1783–1794.

Novgorodova et al. 1982
E. A. Novgorodova/V. V. Volkov/S. N. Korenevskij/M. M. Mamonova, Ulangom: Ein skythenzeitliches Gräberfeld in der Mongolei. Asiatische Forschungen 76 (Wiesbaden 1982).

Novikova 2000
O. G. Novikova, Istoriia Vostochnykh lakov. Obzor literatury. In: Vostochnoaziatskie laki. Metodika restavratsii, issledovaniia (Moskva 2000) 11–18. О. Г. Новикова, История Восточных лаков. Обзор литературы. In: Восточноазиатские лаки. Методика реставрации, исследования (Москва 2000) 11–18.

Noy-Meir/Seligman 1970
I. Noy-Meir/N. G. Seligman, Management of Semi-Arid Ecosystems in Israel. In: B. H. Walker (ed.), Management of Semi-Arid Ecosystems. Developments in agricultural and managed-forest ecology 7 (Amsterdam, New York 1970) 113–160.

NUBER 1972
H. U. Nuber, Kanne und Griffschale. Ihr Gebrauch im täglichen Leben und die Beigabe in Gräbern der römischen Kaiserzeit. Berichte der Römisch-Germanischen Kommission 53, 1972, 1–232.

ŌBA 1992
Ōba Osamu 大庭脩, Kankan kenkyū 漢簡研究 (Kyōto 1992).

OBEL'CHENKO 1968
O. V. Obel'chenko, Liavandakskaia priazhka (ikstorii rannikh Kushan). Obshchestvennye nauki v Uzbekistane 8, 1968, 53–56. О. В. Обельченко, Лявандакская пряжка (к истории ранних Кушан). Общественные науки в Узбекистане 8, 1968, 53–56.

OBEL'CHENKO 1978
O. V. Obel'chenko, Shakhrivaironskaia priazhka. In: O. V. Obel'chenko/Dzhan Mamed Ovezov/T. Khozhaniazov, Istoriia i arkheologiia Srednei Azii (Ashkhabad 1978) 68–81. О. В. Обельченко, Шахривайронская пряжка. In: О. В. Обельченко/Джан Мамед Овезов/Т. Хожанязов, История и археология Средней Азии (Ашхабад 1978) 68–81.

OBEL'CHENKO 1992
O. V. Obel'chenko, Kul'tura antichnogo Sogda. Po arkheologicheskim dannym VII v. do n.e. – VII v. n.e. (Moskva 1992). О. В. Обельченко, Культура античного Согда. По археологическим данным VII в. до н.э. – VII в. н.э. (Москва 1992).

ODBAATAR 2008
Ts. Odbaatar, Khulkhiin amny khünnü bulsh. Tükhiin sudlal 9, 2008, 21–30. Ц. Одбаатар, Хулхийн амны хүннү булш. Acta Historica Mongolici 9, 2008, 21–30.

ODBAATAR ET AL. 2008
Ts. Odbaatar/Zh. Baiarsaikhan/Ts. Aiuush/K. Li, Nariiny Amny Khünnü bulsh. Nüüdelchdiin öv sudlal 8, 2008, 104–111. Ц. Одбаатар/Ж. Баярсайхан/Ц. Аюуш/К. Ли, Нарийны Амны Хүннү булш. Нүүдэлчдийн өв судлал 8, 2008, 104–111.

OLSSON/HIBBS 2005
O. Olsson/D. Hibbs, Biogeography and long-run economic development. European Economic History Review 49, 2005, 909–938.

OTCHET 2007
Otchet ob issledovaniiakh v gorakh Noin-Ula 2006–2007 (pad' Sutszukte) v 2006 g. Отчет об исследованиях в горах Ноин-Ула 2006–2007 (падь Суцзуктэ) в 2006 г., Новосибирск 2006–2007. Unpublished Field Report, Novosibirsk 2007.

OTCHIR-GORIAEVA 2002
M. Otchir-Goriaeva, Das sarmatische Grab von Jaškul', Kalmykien. Eurasia Antiqua 8, 2002, 353–387.

OTGONBAATAR 2009
B. Otgonbaatar, Mongolchuudyn orshuulgyn zan üil (XX zuun) (Ulaanbaatar 2009). Б. Отгонбаатар, Монголчуудын оршуулгын зан үйл (XX зуун) (Улаанбаатар 2009).

OXUS 1989
Oxus. 2000 Jahre Kunst am Oxus-Fluss in Mittelasien. Neue Funde aus der Sowjetrepublik Tadschikistan (Zürich 1989).

PAN 2004
Pan Ling 潘玲, Xigoupan Handai mudi sihao mu de niandai ji wenhua tezheng zai tantao 西沟畔汉代墓地四号墓的年代及文化特征再探讨. Huaxia kaogu 2004, 2, 68–74.

PAN 2007
Pan Ling 潘玲, Yiwoerjia chengzhi he mudi ji xiangguan xiongnu kaogu wenti yanjiu 伊沃爾加城址和墓考古問題研究 (Beijing 2007).

PARK ET AL. 2010
J.-S. Park/E. Gelegdorj/Y.-E. Chimiddorj, Technological traditions inferred from iron artefacts of the Xiongnu Empire in Mongolia. Journal of Archaeological Science 37, 11, 2010, 2689–2697.

PARK ET AL. 2011
J.-S. Park/W. Honeychurch/A. Chunag, Ancient Bronze technology and nomadic communities of the Middle Gobi Desert, Mongolia. Journal of Archaeological Science 38, 4, 2011, 805–817.

PARKER 2003
B. J. Parker, Archaeological Manifestations of Empire: Assyria's Imprint on Southeastern Anatolia. American Journal of Archaeology 107, 4, 2003, 525–557.

Parkinson/Galaty 2009
W. A. Parkinson/M. L. Galaty, Introduction. Interaction and Ancient Societies. In: W. A. Parkinson/M. L. Galaty (eds.), Archaic State Interaction. The Eastern Mediterranean in the Bronze Age (Santa Fe 2009), 3–28.

Parzinger 2006
H. Parzinger, Die frühen Völker Eurasiens vom Neolithikum bis zum Mittelalter (München 2006).

Parzinger et al. 2009
H. Parzinger/V. I. Molodin/D. Tseveendorzh, New Discoveries in Mongolian Altai: The Warrior Grave of the Pazyryk Culture in Olon-Güüriin-Gol 10. In: Bemmann et al. 2009, 203–220.

Payne 1973
S. Payne, Kill-off patterns in sheep and goats: The mandibles from Aşvan Kale. Anatolian Studies 23, 1973, 281–303.

Peck 2000
J. A. Peck, Mongolian Lake Systems Record Past Climate Change. Maritimes 42, 3, 2000, 21–24.

Peck et al. 2002
J. A. Peck/P. Khosbayar/S. J. Fowell/R. B. Pearce/S. Ariunbileg/B. C. S. Hansen/N. Soninkhishig, Mid to Late Holocene Climate Change in North Central Mongolia as Recorded in Sediments of Lake Telmen. Palaeogeography, Palaeoclimatology, Palaeoecology 183, 2002, 135–153.

Peng 1999
Peng Wei 彭衛, Qin Han shiqi de yinshi – roulei shiwu 秦漢時期的飲食 – 肉類食物. In: Zhongguo yinshi shi 中國飲食史, Vol. 2 (Beijing 1999), 429–447.

Perlee 1957
Kh. Perlee, K istorii drevnikh gorodov i poselenii Mongolii. Sovetskaia Arkheologiia 1957, 3, 43–53. Х. Пэрлээ, К истории древних городов и поселений Монголии. Советская археология 1957, 3, 43–53.

Perlee 1961
Kh. Perlee, Mongol ard ulsyn ert, dundad üenin khot suuriny tovchoon (Ulaanbaatar 1961). Х. Пэрлээ, Монгол ард улсын эрт, дундад үенйн хот суурины товчоон (Улаанбатаар 1961).

Perlee 1962
Kh. Perlee, Ömnögov', Övörkhangai aimguudyn gov' talyn nutgaar ertnii sudlalyn khaiguul khiisen n'. Arkheologiin sudlal 2, 1963, 27–35. Х. Пэрлээ, Өмнөговь, Өвөрхангай аймгуудын говь талын нутгаар эртний судлалын хайгуул хийсэн нь. Археологийн судлал 2, 1963, 27–35.

Perlee/Maidar 1970
Kh. Perlee/D. Maidar, 1970 BNMAU-yn nutag devsger deer baigaa balgas, tuuriin büdüüvchilsen zurgiin todoikhoilolt. In: D. Maidar, Mongolyn khot togsony gurvan zurag (Ulaanbaatar 1970) 19–52. Х. Пэрлээ/Д. Майдар, 1970 БНМАУ-ын нутаг дэвсгэр дээр байгаа балгас, туурийн бүдүүвчилсэн зургийн тодойхойлолт. In: Д. Майдар, Монголын хот, тогсоны гурван зураг (Улаанбаатар 1970) 19–52.

Petrovszky 1993
R. Petrovszky, Studien zu römischen Bronzegefäßen mit Meisterstempeln. Kölner Stud. Archäologie der Römischen Provinzen 1 (Buch am Erlbach 1993).

Pharmakowsky 1914
B. Pharmakowsky, Archäologische Funde im Jahre 1913. Russland. Archäologischer Anzeiger 1914, 206–291.

Pierres à cerfs 2011
Les pierres à cerfs de la vallée du Haut Tamir. Khoid Tamiryn golyn sav nutag dakh' Bugan khöshöö (Ulaanbaatar 2011). Хойд Тамирын голын сав нутаг дахь Буган хөшөө (Улаанбаатаар 2011).

Pirazzoli-t'Serstevens 2007
M. Pirazzoli-t'Serstevens, A Chinese Inscription from a Xiongnu Elite Barrow in the Tsaraam Cemetery. The Silk Road 5, 1, 2007, 56–58.

Pitts 2008
M. Pitts, Globalizing the local in Roman Britain: An anthropological approach to social change. Journal of Anthropological Archaeology 27, 4, 2008, 439–506.

Pletneva 1982
S. A. Pletneva, Kochevniki Srednevekov'ia. Poiski istoricheskikh zakonomernostei (Moskva 1982). С. А. Плетнёва, Кочевники средневековья. Поиски исторических закономерностей (Москва 1982).

POGGI 1990
G. Poggi, The state: its nature, development and prospects (Stanford 1990).

POHL 1998
W. Pohl, Telling the Difference: Signs of Ethnic Identity. In: Pohl/Reimitz 1998, 17–69.

POHL 1999
W. Pohl, Social Language, Identities and the Control of Discourse. In: E. Chrysos/I. Wood (eds.), East and West. Modes of Communication. Proceedings of the First Plenary Conference in Merida. The Transformation of the Roman World 5 (Leiden, Boston, Köln 1999) 127–141.

POHL 2002
W. Pohl, Die Awaren. Ein Steppenvolk in Mitteleuropa 567–822 n. Chr. 2nd. ed. (München 2002).

POHL/REIMITZ 1998
W. Pohl/H. Reimitz (eds.), Strategis of Distinction. The Construction of Ethnic communities, 300–800. The Transformation of the roman World 2 (Leiden, Boston, Köln 1998).

POLOS'MAK 1994
N. V. Polos'mak, "Steregushchie zoloto grify" (ak-alakhinskie kurgany) (Novosibirsk 1994). Н. В. Полосьмак, "Стерегущие золото грифы" (ак-алахинские курганы) (Новосибирск 1994).

POLOS'MAK 2001
N. V. Polos'mak, Vsadniki Ukoka (Novosibirsk 2001). Н. В. Полосьмак, Всадники Укока (Новосибирск 2001).

POLOS'MAK/BARKOVA 2005
N. V. Polos'mak/L. L. Barkova, Kostium i tekstil' pazyryktsev Altaia (IV – III vv. do n.e.) (Novosibirsk 2005). Н. В. Полосьмак/Л. Л. Баркова, Костюм и текстиль пазырыкцев Алтая (IV – III вв. До н.э.) (Новосибирск 2005).

POLOS'MAK ET AL. 2008a
N. V. Polos'mak/E. S. Bogdanov/D. Tseveendorzh/N. Erdene-Ochir, The burial construction of Noin Ula mound 20, Mongolia. Archaeology, Ethnology and Anthropology of Eurasia 2008, 2, 77–87.

POLOS'MAK ET AL. 2008b
N. V. Polos'mak/E. S. Bogdanov/D. Tseveendorzh/N. Erdene-Ochir, Izuchenie pogrebal'nogo sooruzheniia kurgana 20 v Noin-ule (Mongoliia). Arkheologiia, Etnografiia i Antropologiia Evrazii 2008, 2, 77–87. Н. В. Полосьмак/Е. С. Богданов/Д. Цэвээндорж/Н. Эрдэнэ-Очир, Изучение погребального сооружения кургана 20 в Ноин-уле (Монголия). Археология, этнография и антропология Евразии 2008, 2, 77–87.

POLOS'MAK ET AL. 2008c
N. V. Polosmak/E. S. Bogdanov/D. Tseveendorzh/N. Erdene-Ochir, The Han Chariot from Noin Ula mound 20 (Mongolia). Archaeology, Ethnology and Anthropology of Eurasia 2008, 4, 63–69.

PORTER 1994
B. D. Porter, War and the rise of the state: the military foundations of modern politics (New York 1994).

PORTER 2006
B. Porter, Empire and superempire: Britain, America and the world (New Haven 2006).

POST 1995
A. Post, Parthische Gürtelschnallen aus dem Iran. Boreas 18, 1995, 247–254.

POUSAZ/RAMSEYER 2005
N. Pousaz/D. Ramseyer, Mission archéologique helvético-mongole à Boroo Gol, Mongolie: campagne de fouilles 2005. Swiss-Liechtenstein Foundation for Archaeological Research Abroad 2005, 231–249.

POUSAZ/RAMSEYER 2006
N. Pousaz/D. Ramseyer, Mission archéologique helvético-mongole à Boroo Gol, Mongolie: campagne de fouilles 2006. Annual report Swiss-Liechtenstein Foundation for Archaeological Research Abroad 2006, 175–188.

POUSAZ ET AL. 2007
N. Pousaz/D. Ramseyer/Ts. Turbat, Mission archéologique helvético-mongole à Boroo Gol, Mongolie: campagne de fouilles 2007. Swiss-Liechtenstein Foundation for Archaeological Research Abroad 2007, 219–232.

POUSAZ ET AL. FORTHCOMING
N. Pousaz/D. Ramseyer/Ts. Turbat (eds.), L'habitat Xiongnu de Boroo Gol. Mission archéologique suisso-mongole dans la province de

Selenge, Mongolie. Terra Archaeologica 7, SLSA forthcoming.

Prawdin 1953
M. Prawdin, The Mongol Empire: Its Rise and Legacy. 3rd ed. (London 1953).

Pritsak 1954
O. Pritsak, Die 24 Ta-ch'en: Studie zur Geschichte des Verwaltungsaufbaus der Xiongnu Reiche. Oriens Extremus 1, 2, 1954, 178–202.

Propp 1976
V. Ia. Propp, Fol'klor i deistvitel'nost' (Moskva 1976). В. Я. Пропп, Фольклор и действительность (Москва 1976).

Prouse 2005
T. Prouse, Mongol-American Egiin Gol-Selenge Valley Survey Report: Phytolith Analysis of Sediments. Unpublished MA dissertation, Institute of Archaeology, University College London 2005.

Przheval'skii 1875
N. M. Przheval'skii, Mongoliia i strana tangutov, Vol. 1 (Sankt-Peterburg 1875). Н. М. Пржевальский, Монголия и страна тангутов, Vol. 1 (Санкт-Петербург 1875).

Psarras 1995
S.-K. Psarras, Xiongnu culture: Identification and dating. Central Asiatic Journal 39, 1, 1995, 102–136.

Psarras 2003
S.-K. Psarras, Han and Xiongnu. A reexamination of cultural and political relations. Monumenta Serica 51, 2003, 55–236.

Psarras 2004
S.-K. Psarras, Han and Xiongnu. A reexamination of cultural and political relations (II). Monumenta Serica 52, 2004, 37–93.

Pshenitsyna 1992
M. N. Pshenitsyna, Tesinskii Etap. In: Stepnaia polosa 1992, 224–235. М. Н. Пшеницына, Тесинский Этап. In: Stepnaia polosa 1992, 224–235.

Pulleyblank 1962
E. G. Pulleyblank, The Consonantal System of Old Chinese. Asia Major 9, 1962, 58–144, 206–265.

Pulleyblank 2000
E. G. Pulleyblank, The Hsiung-nu. In: H. R. Roemer (ed.), History of the Turkic Peoples in the Pre-Islamic Period. Histoire des Peuples Turcs à l'Époque Pré-Islamique. Philologiae Historiae Turcicae Fundamenta 1 (= Philologiae Turcicae Fundamenta 3) (Berlin 2000) 52–75.

Purcell/Spurr 2006
D. E. Purcell/K. C. Spurr, Archaeological Investigations of Xiongnu Sites in the Tamir River Valley: Results of the 2005 Joint American-Mongolian Expedition to Tamiryn Ulaan Khoshuu, Ogii nuur, Arkhangai aimag, Mongolia. The Silk Road, 4, 1, 2006, 20–31.

Puzdrovskii 2007
A. E. Puzdrovskii, Krymskaia Skifiia II v. do n.e. – III v. n.e. Pogrebal'nye pamiatniki (Simferopol' 2007). А. Е. Пуздровский, Крымская Скифия II в. до н.э. – III в. н.э. Погребальные памятники (Симферополь 2007).

Puzdrovskij/Zajcev 2004
E. Puzdrovskij/Ju. P. Zajcev, Prunkbestattungen des 1. Jhs. n. Chr. in der Nekropole Ust'-Al'ma, Krim. Eurasia Antiqua 10, 2004, 220–267.

Quast 1999
D. Quast, Das „Pektorale" von Wolfsheim, Kr. Mainz-Bingen. Germania 77, 1999, 705–718.

Quast 2009
D. Quast, Communication, Migration, Mobility and Trade. Explanatory Models for Exchange Processes from the Roman Iron Age to the Viking Age. In: D. Quast (ed.), Foreigners in Early Medieval Europe: Thirteen International Studies on Early Medieval Mobility. Monographien RGZM 78 (Mainz 2009) 1–26.

Qinghai 2007
Qinghaisheng wengu kaogu yanjiusuo 青海省文物考古研究, Qinghaisheng Xiningshi Taojiazhai Han mu 2002 nian fajue jianbao 青海省西寧市陶家寨漢墓 2002 年發掘簡報. Dongya kaogu Bjuan (Beijing 2007).

Qurčabilig 2003
Qurčabilig, Mongγolčud-un oršiγulγa-yin soyol. Öbür Mongγol-un soyol-un keblel-ün qoriya (Hohehaote 2003).

Radcliffe-Brown 1965
D. R. Radcliffe-Brown, Structure and Function

in Primitive Society. Essays and Addresses (New York 1965).

RADLOFF 1892–1899
W. Radloff (ed.), Atlas der Alterthümer der Mongolei. Arbeiten der Orchon-Expedition (St. Petersburg 1892–1899). В. В. Радлов, Атлас древностей Монголии. Труды Орхонской экспедиции (Санкт-Петербург 1892–1899).

RADLOV 1989
V. V. Radlov, Iz Sibiri. Stranitsy dnevnika (Moskva 1989). В. В. Радлов, Из Сибири. Страницы дневника (Москва 1989).

RAMSEYER ET AL. 2009
D. Ramseyer/N. Pousaz/Ts. Törbat, The Xiongnu Settlement of Boroo Gol, Selenge Aimag, Mongolia. In: Bemmann et al. 2009, 231–240.

RAVICH/RYNCHINA 1984
I. G. Ravich/N. V. Ryndina, Izuchenie svoistv i mikrostruktury splavov med' – mysh'iak v sviazi s ikh ispol'zovaniem v drevnosti. Khudozhestvennoe nasledie 9, 1984, 114–124. И. Г. Равич/Н. В. Рындина, Изучение свойств и микроструктуры сплавов медь – мышьяк в связи с их использованием в древности. Художественное наследие 9, 1984, 114–124.

RAWSON 1995
J. Rawson, Chinese Jade from the Neolithic to the Qing (London 1995).

REDMOND 1998
E. Redmond (ed.), Chiefdoms and chieftaincy in the Americas (Gainesville 1998).

REISCHAUER/FAIRBANK 1960
E. O. Reischauer/J. K. Fairbank, History of East Asian Civilization, Vol. 1. East Asia, the great tradition (Boston).

REISINGER 2010
M. Reisinger, New Evidence about Composite Bows and Their Arrows in Inner Asia. The Silk Road 8, 2010, 42–62.

REITZ/WING 1999
E. J. Reitz/E. S. Wing, Zooarchaeology. Cambridge manuals in archaeology (Cambridge 1999).

RENAT 1881
J. G. Renat, Carte de la Dzoungarie: dressée par le suédois Renat pendant sa captivité chez les kalmouks de 1716–1733 (St. Petersbourg 1881).

REYNOLDS 2006
S. Reynolds, Empires: a problem of comparative history. Historical Research 79, 2006, 151–165.

RICAUT ET AL. 2004
F. X. Ricaut/C. Keyser-Tracqui/J. Bourgeois/E. Crubézy/B. Ludes, Genetic Analysis of a Scytho-Siberian Skeleton and Its Implications for Ancient Central Asian Migrations. Human Biology 76, 1, 2004, 109–125.

RIFTIN 1980
B. L. Riftin, Purpurnaia iashma: kitaiskaia povestvovatel'naia proza I–VI vekov (Moskva 1980). Б. Л. Рифтин, Пурпурная яшма: китайская повествовательная проза I–VI веков (Москва 1980).

ROBERTS/MANCHESTER 2005
C. Roberts/K. Manchester, The Archaeology of Disease. 3rd ed. (Ithaka 2005).

RODSETH/PARKER 2005
L. Rodseth/B. J. Parker, Introduction: Theoretical Considerations in the Study of Frontiers. In: B. J. Parker/L. Rodseth (eds.), Untaming the Frontier in Antropology, Archaeology and History (Tuscon 2005) 3–21.

ROGERS 2000
J. Rogers, The Palaeopathology of Joint Disease. In: M. Cox/S. Mays (eds.), Human Osteology in Archaeology and Forensic Science (London 2000) 163–182.

ROGERS 2007
D. Rogers, The Contingencies of State Formation in Eastern Inner Asia. Asian Perspectives 46, 2007, 249–274.

ROGERS 2010
J. D. Rogers, Ancient Cities of the Steppe. In: W. W. Fitzhugh/M. Rossabi/W. Honeychurch (eds.), Genghis Khan and the Mongol Empire (Houston 2009) 127–131.

ROGERS 2011
J. D. Rogers, Inner Asian States and Empires: Theories and Synthesis. Manuscript on file, Department of Anthropology, National Museum of Natural History, Smithsonian, Washington, DC.

ROGERS/CIOFFI-REVILLA 2009
J. D. Rogers/C. Cioffi-Revilla, Expanding Em-

pires and a Theory of Change. In: Bemmann et al. 2009, 445–459.

Rogers et al. 2005
J. D. Rogers/U. Erdenebat/M. Gallon, Urban Centres and the Emergence of Empires in Eastern Inner Asia. Antiquity 79, 2005, 801–818.

Rook/Thomas 1983
J. G. Rook/C. Thomas, Nutritional Physiology of Farm Animals (London 1983).

Rosenfield 1967
J. M. Rosenfield, The Dynastic Art of the Kushans (Berkeley 1967).

von Rosthorn 1923
A. von Rosthorn, Die Hochburg von Zentralasien. Asia Major Introductory Volume (= Hirth Anniversary Volume) 1923, 286–297.

Rostovtsev 1973
M. Rostovtzeff, The Animal Style in South Russia and China (New York 1973).

Rostovtsev 1993
M. I. Rostovtsev, Sredinnaia Aziia, Rossiia, Kitai i zverinyi Stil'. In: SKIFIKA. Peterburgskii arkheologicheskii vestnik 5, 1993, 57–75. М. И. Ростовцев, Срединная Азия, Россия, Китай и звериный Стиль. In: СКИФИКА. Петербургский археологический вестник 5, 1993, 57–75.

Roth/Erdenebat 2002
H. Roth/U. Erdenebat (eds.), Qara Qorum-City (Mongolia) I: Preliminary report of the excavations 2000/2001. Bonn Contributions to Asian Archaeology 1 (Bonn 2002).

Roux 1963
J.-P. Roux, La mort chez les peuples altaïques anciens et médiévaux d'après les documents écrits (Paris 1963).

Rowlands 1994
M. Rowlands, The Politics of Identity in Archaeology. In: G.C. Bond/A. Gilliam (eds.), Social Construction of the Past: Representation as Power. One World Archaeology 24 (London 1994) 129–143.

Rudenko 1953
S. I. Rudenko, Kul'tura naseleniia gornogo Altaia v skifoskoe vremia (Moskva, Leningrad 1953). С. И. Руденко, Культура населения горного Алтая в скифское время (Москва, Ленинград 1953).

Rudenko 1962
S. I. Rudenko, Kul'tura khunnov i Noinulinskie kurgany (Moskva, Leningrad 1962). С. И. Руденко. Культура хуннов и Ноинулинские курганы (Москва, Ленинград 1962).

Rudenko 1966
S. I. Rudenko, Die Sibirische Sammlung Peters I. 2nd German ed. (Moskau, Leningrad 1966).

Rudenko 1969
S. I. Rudenko, Die Kultur der Hsiung-nu und die Hügelgräber von Noin Ula. Antiquitas 3, Vol. 7 (Bonn 1969).

Rudenko 1970
S. I. Rudenko, Frozen tombs of Siberia: the Pazyryk burials of Iron-Age horsemen (London 1970).

Runde 1999
RGA XIII (1999) 175–177 s. v. Gürtel. Volkskundliches (I. Runde).

Sadler et al. 2010
K. Sadler/C. Kerven/M. Calo/M. Manske/A. Catley 2010, The fat and the lean: a review of production and use of milk by pastoralists. Pastoralism 1, 2010, 291–324.

Sagaster 1999
K. Sagaster, Die mongolische Hauptstadt Karakorum. Beiträge zur Allgemeinen und Vergleichenden Archäologie 19, 1999, 113–128.

Salzman 2000
P. C. Salzman, Black Tents of Baluchistan (Washington D.C. 2000).

Samolin 1957/58
W. Samolin, Hsiung-nu, Hun, Turk. Central Asiatic Journal 3, 1957/1958, 143–150.

Sanderson 1999
S. K. Sanderson, Social transformations: a general theory of historical development (Lanham 1999).

Sandford 1983
S. Sandford, Management of Pastoral Development in the Third World. A Wiley series on public administration in developing countries (Chichester and others 1983).

Sanz et al. 2008
I. D. Sanz/D. Fiore/S. May, Archaeologies of Art: Time, Place, and Identity in Rock Art, Portable

Art, and Body Art. In: I. D. Sanz/D. Fiore/S. May (eds.), Archaeologies of Art: Time, Place, and Identity. One World Archaeology 55 (Walnut Creek 2008) 15–29.

SARIANIDI 1985
V. Sarianidi, Bactrian Gold. From the Excavations of the Tillya-Tepe Necropolis in Northern Afghanistan (Leningrad 1985).

SARIANIDI 1989
V. I. Sarianidi, Khram i nekropol' Tillia-Tepe (Moskva 1989). В. И. Сарианиди, Храм и некрополь Тилля-Тепе (Москва 1989).

SASSON 1998
A. Sasson, The Pastoral Component in the Economy of Hill Country Sites during the Intermediate Bronze and Iron Ages: Archaeo-Ethnographic Case Studies. Tel Aviv 25, 1, 1998 3–51.

SAVINOV 1969
D. G. Savinov, Progebenie s bronzovoi bliakhoi v Tsentral'noi Tuve. In: Pamiatniki rannego zheleznogo veka. Kratkie soobshcheniia o dokladakh i polevykh islledovaniiakh instituta arkheologii 119 (Moskva 1969) 104–108. Д. Г. Савинов, Погребение с бронзовой бляхой в Центральной Туве. In: Памятники раннего железного века. Краткие сообщения о докладах и полевых исследованиях института археологии 119 (Москва 1969) 104–108.

SCHEIDEL 2009a
W. Scheidel, From the "Great Convergence" to the "First Great Divergence": Roman and Qin-Han state formation and its aftermath. W. Scheidel (ed.), Rome and China: Comparative Perspectives on Ancient World Empires. Oxford Studies in Early Empires (New York 2009) 11–23.

SCHEIDEL 2009b
W. Scheidel (ed.), Rome and China: Comparative Perspectives on Ancient World Empires. Oxford Studies in Early Empires (New York 2009).

SCHEIDEL 2011
W. Scheidel, Studying the State. In: P. F. Bang/W. Scheidel (eds.), The Oxford handbook of the ancient state: Near East and Mediterranean (New York 2011).

SCHEIDEL IN PRESS
W. Scheidel, Fiscal regimes and the "First Great Divergence" between eastern and western Eurasia. In: P. F. Bang/C.A. Bayly (eds.), Tributary empires in global history (Basingstoke in press).

SCHILTZ 1994
V. Schiltz, Les Scythes et les Nomades des steppes: VIIIe siècle avant J.-C. – Ier siècle après J.-C. (Paris 1994).

SCHOPPHOFF 2009
C. Schopphoff, Der Gürtel. Funktion und Symbolik eines Kleidungsstückes in Antike und Mittelalter. Pictura et poesis 27 (Köln, Weimar, Wien 2009).

SCHUTKOWSKI 2008
H. Schutkowski, Thoughts for Food: evidence and meaning of past dietary habits. In: H. Schutkowski (ed.), Between Biology and Culture. Cambridge Studies in Biological and Evolutionary Anthropology 56 (Cambridge 2008) 141–164.

SCOTT/TURNER 1997
G. R. Scott/ C. G. Turner II. The anthropology of modern human teeth: Dental morphology and its variation in recent human populations. Cambridge Studies in Biological Anthropology 20 (Cambridge 1997).

SEMENOV 2003
V. A. Semenov, Suglug-Khem i Khaiyrakan – Mogil'niki skifskogo vremeni v Tsentral'no-Tuvinskoi kotlovine. Trudy Rossiiskaia Akademiia nauk Institut Istorii Material'noi Kul'tury 9 (Sankt-Peterburg 2003). В. А. Семенов, Суглуг-Хем и Хайыракан – могильники скифского времени в Центрально-Тувинской котловине. Труды Российская Академия наук Институт истории материальной культуры 9 (Санкт-Петербург 2003).

SERGATSKOV 1995
I. V. Sergatskov, Novye dannye k khronologii rannesarmatskoi kul'tury. Sovetskaia Arkheologiia 1995, 1, 148–158. И. В. Сергацков, Новые данные к хронологии раннесарматской культуры. Советская Археология 1995, 1, 148–158.

SERGATSKOV 2000
I. V. Sergatskov, Sarmatskie kurgany na Ilovle (Volgograd 2000). И. В. Сергацков, Сарматские курганы на Иловле (Волгоград 2000).

SERGATSKOV/SHINKAR' 2003
I. V. Sergatskov/O. A. Shinkar', Rannesar-

matskie pogrebeniia s servernoi orientirovkoi v basseine Ilovli. Nizhnevolzhskii arkheologicheskii vestnik 6, 2003, 165–178. И. В. Сергацков/О. А. Шинкарь, Раннесарматские погребения с северной ориентировкой в бассейне Иловли. Нижневолжский археологический вестник 6, 2003, 165–178.

Ser-Odzhav 1963
N. Ser-Odzhav, Mongol-Ungaryn khamtasan ekspeditsiin shinzhilgeenii azhlin tukhai (1961 ony kheeriin shinzhilgeenii kheregdegkhüün). Arkheologiin sudlal 2, 3, 1963, 31–38. Н. Сэр-Оджав, Монгол-Унгарын хамтарсан экспедицийн шинжилгээний ажлйн тухай (1961 оны хээрийн шинжилгээний хэрэгдэгхүүн). Археологиин судлал 2, 3, 1963, 31–38.

Ser-Odzhav 1970
N. Ser-Odzhav, Ertnii Türegüüd (VI–VIII zuun). Studia Archeologica 5 (Ulaanbaatar 1970). Н. Сэр-Оджав, Эртний Түрэгүүд (VI–VIII зуун). Studia Archaeologica 5 (Улаанбаатар 1970).

Ser-Odzhav 1987
N. Ser-Odzhav, Baianligiin khadny zurag (Ulaanbaatar 1987). Н. Сэр-Оджав, Баянлигийн хадны зураг (Улаанбаатар 1987).

Service 1975
E. R. Service, Origins of the State and Civilization. The process of cultural evolution (New York 1975).

Shaanxi/Yulin 2001
Shaanxi sheng kaogu yanjiusuo 陕西省考古研究所/Yulin shi wenwu guanli weiyuanhui bangongshi 榆林市文物管理委員會辦公室, Shenmu Dabaodang – Handai chengzhi yu muzang kaogu baogao 神木大保黨 – 漢代城址與墓葬考古報告 (Beijing 2001).

Shakhmatov 1964
V. F. Shakhmatov, Kazakhskaia pastbishchno-kochevaia obshchina: voprosy obrazovaniia evoliutsii i razlozheniia (Alma-Ata 1964). В. Ф. Шахматов, Казахская пастбищно-кочевая община: вопросы образования эволюции и разложения (Алма-Ата 1664).

Shan 2009
Shan Yueying 單月英, Xiongnu muzang yanjiu 匈奴墓葬研究. Kaogu xuebao 2009, 1, 35–68.

Sharphouse 1971
J. H. Sharphouse, Leather Technician's Handbook (London 1971).

Shaughnessy 1999
E. L. Shaughnessy, Western Zhou History. In: M. Loewe/E. L. Shaughnessy (eds.), The Cambridge History of Ancient China. From the Origins of Civilization to 221 BC (Cambridge 1999), 292–351.

Shelach 2009
G. Shelach, Prehistoric societies on the northern frontiers of China: archaeological perspectives on identity formation and economic change during the first millennium BCE. Approaches to anthropological archaeology (London 2009).

Shelov 1961
D. B. Shelov, Nekropol' Tanaisa (raskopki 1955–1958). Materialy i issledovaniia po arkheologii SSSR 98 (Moskva 1961). Д. Б. Шелов, Некрополь Танаиса (раскопки 1955–1958). Материалы и исследования по археологии СССР 98 (Москва 1961).

Shen 2003
C. Shen, Compromises and Conflicts: Production and Commerce in the Royal Cities of Eastern Zhou, China. In: M. L. Smith (ed.), The Social Construction of Ancient Cities (Washington 2003) 269–289.

Shilov 1974
V. P. Shilov, Bronzovaia patera iz Astrakhanskoi oblasti. Sovetskaia Arkheologiia 1974, 1, 226–231. В. П. Шилов, Бронзовая патера из Астраханской области. Советская Археология 1974, 1, 226–231.

Shilov 1975
V. P. Shilov, Ocherki po istorii drevnikh plemen Nizhnego Povolzh'ia (Leningrad 1975). В. П. Шилов, Очерки по истории древних племен Нижнего Поволжья (Легнинград 1975).

Shilov 1983
V. P. Shilov, Zaporozhskii kurgan. K voprosu o pogrebeniiakh aorskoi znati. Sovetskaia Arkheologiia 1983, 1, 178–192. В. П. Шилов, Запорожский курган. К вопросу о погребениях аорской знати. Советская Археология 1983, 1, 178–192.

Shinekhüü 1977
M. Shinekhüü, Orkhon-Enisein bichig mongolyn malyn tamgatai kholbogdokh n'. Studia

Etnologia 5, 1977, 60–72. М. Шинэхүү, Орхон-Енисейн бичиг монголын малын тамгатай холбогдох нь. Studia Etnologia 5, 1977, 60–72.

SHIN 2000

Shin Yun min 辛勇旻, Han de mugguagmyu engu 漢代 木槨墓 硏究 (Seoul 2000).

SHIRAISHI 2002

N. Shiraishi, Mongoru teikokushi no kōkogakuteki kenkyū (The archaeological researches on the history of the Mongol empire) (Tokyo 2002).

SHIRAISHI 2004

Noriyuki Shiraishi, Seasonal migrations of the mongol emperors and the peri-urban area of Kharakhorum. International Journal of Asian Studies 1, 1, 2004, 105–119.

SHIRATORI 1902

K. Shiratori, Sinologische Beiträge zur Geschichte der Türk-Völker II. Über die Sprache der Hiungnu und der Tunghu-Stämme. Известия Императорской академии наук [=Bulletin de l'Académie Impériale de Sciences de St.-Pétersbourg] 17, 2, 1902, 1–33.

SIMA QIAN 1959

Sima Qian 司馬遷, Shiji 史記, 10 Vols. (Beijing 1959).

SIMONENKO 2001

A. Simonenko, Chinese and East Asian Element in Sarmatian Culture of the North Pontic Region. Silk Road Art and Archaeology 7, 2001, 53–72.

SIMONENKO 2003

A. V. Simonenko, Kitaiskie i tsentral'noaziatskie elementy v sarmatskoi kul'ture Severnogo Prichemomor'ia. Nizhnevolzhskii Arkheologicheskii vestnik 6, 2003, 45–65. А. В. Симоненко, Китайские и центральноазиатские элементы в сарматской культуре Северного Причерноморья. Нижневолжский археологический вестник 6, 2003, 45–65.

SIMONENKO/LOBAI 1991

A. V. Simonenko/B. I. Lobai, Sarmaty Severo-Zapadnogo Prichernomor'ia v I. v.n.e. Pogrebeniia znati u s. Porogi (Kiev 1991). А. В. Симоненко/Б. И. Лобай, Сарматы Северо-Западного Причерноморья в I в.н.э. Погребения знати у с. Пороги (Киев 1991).

SIMUKOV 1933

A. D. Simukov, Khotony. Sovremennaia Mongoliia 3, 1933, 19–32. А. Д. Симуков, Хотоны. Современная Монголия 33, 1033, 19–32.

SIMUKOV 1934

A. D. Simukov, Mongol'skie kochevki. Sovremennaia Mongoliia 4, 1934, 40–46. А. Д. Симуков, Монгольские кочевки. Современная Монголия 4, 1934, 40–46.

SIMUKOV 1935

A. D. Simukov, Materialy po kochevomu puti naseleniia MNR, I. Kochevniki i khotony Gurvansaikhanskogo raiona iuzhnogobiiskogo aimaka MNR. Sovremennaia Mongoliia 6, 1935, 89–104. А. Д. Симуков, Материалы по кочевому пути населения МНР, I. Кочевники и хотоны Гурвансайханского района южногобийского аймака МНР. Современная Монголия 6, 1935, 89–104.

SINOR 1981

D. Sinor, The Inner Asian Warriors. Journal of the American Oriental Society 101, 2, 1981, 133–144.

SINOR 1990a

D. Sinor, The Cambridge History of Early Inner Asia (Cambridge, New York, Melbourne 1990).

SINOR 1990b

D. Sinor, The Establishment and dissolution of the Türk empire. In: D. Sinor, The Cambridge History of Early Inner Asia (Cambridge, New York, Melbourne 1990) 285–316.

SJØVOLD 1973

T. Sjøvold, The occurrence of minor non-metrical variants in the skeleton and their quantitative treatment of population comparisons. Homo 24, 1973, 204–233.

SJØVOLD 1977

T. Sjøvold, Non-metrical divergence between skeletal populations. Ossa 4, 1977, 1–133.

SKALNIK 2004

P. Skalnik, Chiefdom: a universal political formation? Focaal. European Journal of Anthropology 43, 2004, 76–98.

SKRIPKIN 2003

A. S. Skripkin, Östliche und westliche Neuerungen in der materiellen Kultur der Sarmaten der europäischen Steppen in den ersten Jahrhunderten

n. Chr. In: C. von Carnap-Bornheim (ed.), Kontakt – Kooperation – Konflikt. Germanen und Sarmaten zwischen dem 1. und dem 4. Jahrhundert nach Christus. Schriften des Archäologischen Landesmususeums 1 (Neumünster 2003) 9–18.

Skripkin 2006
A. S. Skripkin, K probleme sootnosheniia rannei srednesarmatskoi kul'tur. In: Rannesarmatskaia i srednesarmatskaia kul'tury. Problemy sootnosheniia (Volgograd 2006) 5–36. А. С. Скрипкин, К проблеме соотношения ранне- и среднесарматской культур. In: Раннесарматская и среднесарматская культуры. Проблемы соотношения (Волгоград 2006) 5–36.

Skrynnikova 1997
T. D. Skrynnikova, Kharizma i vlast' v epokhu Chingis-khana (Moskva 1997). Т. Д. Скрынникова, Харизма и власть в эпоху Чингис-хана (Москва 1997).

Skrynnikova 2000
T. D. Skrynnikova, Mongolian nomadic society of the empire period. In: N. N. Kradin/A. V. Korotayev et al. (eds.), Alternatives of Social Evolution (Vladivostok 2000) 294–301.

Smirnov 1975
K. F. Smirnov, Sarmaty na Ileke (Moskva 1975). К. Ф. Смирнов, Сарматы на Илеке (Москва 1975).

Smirnov 1976
K. F. Smirnov, Savromato-sarmatskii Zverinyi stil'. In: Skifo-sibirskii sverinyi stil' v iskusstve narodov Evrazii (Moskva 1976) 74–89. К. Ф. Смирнов, Савромато-сарматский звериный стиль. In: Скифо-сибирский звериный стиль в искусстве народов Евразии (Москва 1976) 74–89.

Smith 1987
M. Smith, Household Possessions and Wealth in Agrarian States: Implications for Archaeology. Journal of Anthropological Archaeology 6, 1987, 297–335.

Smith 2003
A. T. Smith, The Political Landscape: Constellations of Authority in Early Complex Polities (Berkeley 2003).

Smith 2005
S. T. Smith, To the Supports of Heaven: Political and Ideological Conceptions of Frontiers in Ancient Egypt. In: B. J. Parker /L. Rodseth (eds.), Untaming the Frontier in Antropology, Archaeology and History (Tuscon 2005) 207–237.

Smotrova 1982
V. I. Smotrova, Nakhodki bronzovykh azhurnykh plastin v Pribaikal'e. In: Problemy arkheologii i etnografii Sibiri. Tezisy dokladov k regional'noi konferentsii, 7.–9. aprelia 1982 g. (Irkutsk 1982) 106–107. В. И. Смотрова, Находки бронзовых ажурных пластин в Прибайкалье In: Проблемы археологии и этнографии Сибири. Тезисы докладов региональной конференции, 7.–9. апреля 1982 г. (Иркутск 1982) 106–107.

Smotrova 1991
V. I. Smotrova, Pogrebenie s azhurnymi plastinami na ostrove Osinskom (Bratskoe vodokhranilishche). In: G. I. Medvedev (red.), Paleoetnologicheskie issledovaniia na iuge Srednei Sibiri. Sbornik nauchnykh trudov (Irkutsk 1991) 136–143. В. И. Смотрова, Погребение с ажурными пластинами на острове Осинском (Братское водохранилище). In: Г. И. Медведев (ред.), Палеоэтнологические исследования на юге Средней Сибири. Сборник научных трудов (Иркутск 1991) 136–143.

Sneath 2007
D. Sneath, The headless state: aristocratic orders, kinship society, and misrepresentations of nomadic Inner Asia (New York 2007).

So 1997
J. F. So, The Ornamented Belt in China. Orientations 28, 3, 1997, 70–78.

So/Bunker 1995
J. So/E. Bunker, Traiders and Raiders on China's Northern Frontier (Seattle, London 1995).

Sofaer 2006
J. R. Sofaer, The Body as Material Culture, a theoretical Osteoarchaeology. Topics in contemporary archaeology (Cambridge 2006).

Solongo 2009
S. Solongo, Luminescence dating of fired bricks from ancient Mongolian cities. In: Bemmann et al. 2009, 593–596.

Solongo et al. 2005
S. Solongo/G. A. Wagner/D. Baiar/T. Galbaatar, The chronology of brick manufacturing at the

Karakorum, Mongolia. Arkheologiin Sudlal 23, 2005, 190–195.

SONO/FUKAI 1968

T. Sono/Sh. Fukai, Dailaman III. The excavations at Hassan Mahale and Ghalekuti 1964. The Tokyo University Iraq-Iran Archaeological Expedition Report 8 (Tokyo 1968).

SONGINO 1991

B. Songino, Malyn tonog kheregsel. Mongolyn belcheeriin mal mallagaany ulamzhlal (Ulaanbaatar 1991). Б. Сонгино, Малын тоног хэрэгсэл. Монголын бэлчээрийн мал маллагааны уламжлал (Улаанбаатар 1991).

SOROKIN 1977

S. S. Sorokin, Pogrebeniia epokhi velikogo pereseleniia narodov v raione Pazyryka. Arkheologicheskii Sbornik Gosudarstvennogo Ermitazha 18, 1977, 57–67. С. С. Сорокин, Погребения эпохи великого переселения народов в районе Пазырыка. Археологический Сборник Государственного Эрмитажа 18, 1977, 57–67.

SOSNOVSKII 1934

G. P. Sosnovskii, Nizhne-Ivolginskoe gorodishche. Problemy istorii dokapitalisticheskikh obshchestv 7–8, 1934, 150–156. Г. П. Сосновский, Нижне-Иволгинское городище. Проблемы истории докапиталистических обществ 7–8, 1934, 150–156.

SPANGENBERG ET AL. 2010

J. Spangenberg/M. Ferrer/P. Tschudin/M. Volken/A. Hafner, Microstructural, chemical and isotopic evidence for the origin of late Neolithic leather recovered from an ice field in the Swiss Alps. Journal of Archaeological Science 37, 8, 2010, 1851–1865.

SPENNEMANN/COLLEY 1990

D. H. R. Spennemann/S. M. Colley, Fire in the Pit: The Effects of Burning on Faunal Remains. Archaeozoologia 3, 1990, 51–64.

STAMBUL'NIK 1983

E. U. Stambul'nik, Novye pamiatniki gunno-sarmatskogo vremeni v Tuve (nekotorye itogi rabot). In: V. M. Masson (otv. red.), Drevnie kul'tury evraziiskikh stepei. Po materialam arkheologicheskikh rabot na novostroikakh (Leningrad 1983). Э. У. Стамбульник, Новые памятники гунно-сарматского времени в Туве (некоторые итоги работ) In: В. М. Массон (отв. ред.), Древние культуры евразийских степей. По материалам археологических работ на новостройках (Ленинград 1983) 34–41.

STEIN 1987

G. J. Stein, Regional economic integration in early state societies: Third millennium B.C. Pastoral production at Gritille, Southeast Turkey. Paléorient 13, 1987, 101–111.

STEIN 1998

G. Stein, Heterogeneity, Power, and Political Economy: Some Current Research Issues in the Archaeology of Old World Complex Societies. Journal of Archaeological Research 6, 1, 1998, 1–44.

STEIN/ROTHMAN 1994

G. Stein/M. Rothman (eds.), Chiefdoms and Early States in the Near East: The organizational Dynamics of Complexity. Monographs in world archaeology 18 (Madison 1994).

STEPNAIA POLOSA 1992

M. G. Moshkova (otv. red.), Stepnaia polosa Aziatskoi chasti SSSR v skifo-sarmatskoe vremia (Moskva 1992). М. Г. Мошкова (отв. ред.), Степная полоса Азиатской части СССР в скифо-сарматское время (Москва 1992).

STEPPENGOLD 2003

E. Wamers/D. Stutzinger (Hrsg.), Steppengold. Grabschätze der Skythen und Sarmaten am unteren Don. Ausstellung Arch. Mus. Frankfurt (Frankfurt am Main 2003).

STEUER 1992

H. Steuer, „Objektwanderung" als Quelle der Kommunikation. Die Möglichkeiten der Archäologie. In: Kommunikation und Alltag in Spätmittelalter und früher Neuzeit. Internationaler Kongress, Krems an der Donau, 9. bis 12. Oktober 1990. Sitzungsbericht Österreichische Akademie der Wissenschaften, Philosophisch-Historische Klasse 596. Veröffentlichungen des Instituts für Realienkunde des Mittelalters und der Frühen Neuzeit 15 (Wien 1992) 401–440.

STIRLAND 1991

A. J. Stirland, Diagnosis of occupationally related

paleopathology: Can it be done? In: D. J. Ortner/A. C. Aufderheide (eds.), Human Paleopathology: current syntheses and future options (Washington, London 1991) 40–47.

Stirland 1998
A. J. Stirland, Musculoskeletal Evidence for Activity: Problems of Evaluation. International Journal of Osteoarchaeology 8, 5, 1998, 354–362.

Strano et al. 2007
S. E. Strano/M. F. Rosenmeier/F. Allard/S. Nergui, Lake Sediment Records of Late Holocene Climate Change in the Khanuy Valley, Arkhangai Aimag, North-Central Mongolia: Implications for Local Bronze and Iron Age Cultural Histories. Poster Presentation. American Geophysical Union Fall Meeting, San Francisco 2007.

Su 1980
Su Bai 宿白, Dongbei Neimenggu diqu de xianbei yiji 东北内蒙古地区的鲜卑遗迹. Chinese Studies in Archaeology 1980, 2, 3–43.

Sükhbaatar 1971
G. Sükhbaatar, Sian'bi naryn ugsaa garal, soel, azh akhui, niigmiin baiguulal (nen ertnees m.e. IV zuun) (Ulaanbaatar 1971). Г. Сүхбаатар, Сяньби нарын угсаа гарал, соёл, аж ахуй, нийгмийн байгуулал (нэн эртнээс м.э. IV зуун) (Улаанбаатар 1971).

Sükhbaatar 1980
G. Sükhbaatar, Mongolchuudyn ertnii övög. Khünnü naryn azh akhui, niiigmiin baiguulal, soel, ugsaa garal (m.e.ö. IV – m.e. II zuun) (Ulaanbaatar 1980). Г. Сүхбаатар, Монголчуудын эртний өвөг. Хүннү нарын аж ахуй, ниийгмийн байгуулал, соёл, угсаа гарал (м.э.ө. IV – м.э. II зуун) (Улаанбаатар 1980).

Sun 2006
Sun Baowen 孫寶文, Han yin zidian 漢印字典 (Changchun 2006).

Sun 1994
Sun Ji 孫機, Xian Qin, Han, Jin yaodai yong jinyin daikou 先秦漢晉腰帶用金銀帶扣. Wenwu 1994, 1, 50–64.

Sun 2001
Sun Ji 孫機, Zhongguo gu yufu luncong 中国古舆服论丛 (Beijing 2001).

Sun 1960
Sun Shoudao 孫守道, "Xiongnu Xichagou wenhua" gumuqun de faxian "匈奴西岔溝文化" 古墓群的發現. Wenwu 1960, 8–9, 25–35.

Suo et al. 2005
Suo Xiufen 索秀芬 et al., Nei Menggu Linxixian Shuiquan yizhi fajue jianbao 内蒙古林西縣水泉遺址發掘簡報. Kaogu 2005, 11, 19–29.

Surazakov 1989
A. S. Surazakov, Gornyi Altai i ego severnye predgor'ia v epokhu rannego zheleza. Problemy khronologii i kul'turnogo razgranicheniia (Gorno-Altaisk 1989). А. С. Суразаков, Горный Алтай и его северные предгорья в эпоху раннего железа. Проблемы хронологии и культурного разграничения (Горно-Алтайск 1989).

Taagepera 1997
R. Taagepera, Expansion and Contraction Patterns of Large Polities: Context for Russia. International Studies Quarterly 41, 1997, 475–504.

Tairov 2004
A. D. Tairov, Rannesakskie boevye poiasa. Rossiiskaia Arkheologiia 2004, 1, 140–145. А. Д. Тайров, Раннесакские боевые пояса. Российская археология 2004, 1, 140–145.

Takahama 2002
Takahama Shu 高濱秀, Yūrajiya sōban chitai no hikinzoku seitai kazaita ユーラシア草原地帯の非金属製帯飾板. Kanazawa Daigaku Kōko Kiyō 26, 2002, 50–63.

Takahama 2005
S. Takahama, Preliminary Report on Archaeological Investigations in Mongolia. Newsletter on Steppe Archaeology 15, 2005, 63–91.

Takahama 2009
Takahama Shu 高濱秀, Ouya caoyuan de jinshu paishi 歐亞草原的金屬牌飾. In: E'erduosi qingtongqi guoji xueshu yantao huilun wenji 鄂爾多斯青銅器國際學術研 會論文集 (Beijing 2009) 430–434.

Ta/Liang 1986
Ta La 塔拉/Liang Jingming 梁京明, Hulusitai qingtong qi muzang 呼魯斯太青銅器墓葬. In: Tian G./Guo S. (eds.), E'erduosi shi qingtong qi 鄂爾多斯式青銅器 (Beijng 1986) 223–226.

TAL'KO-GRYNTSEVICH 1999
Iu. D. Tal'ko-Gryntsevich, Materialy k paleoetnologii Zabaikal'ia. Arkheologicheskie pamiatniki Siunnu 4 (Sankt-Peterburg 1999). Ю. Д. Талько-Грынцевич, Материалы к палеоэтнологии Забайкалья. Археологические памятники Сюнну 4 (Санкт-Петербург 1999).

TAN 1996
Tan Qixiang 譚其驤, Zhongguo lishi dili ji 中國歷史地理集, Vol. 2: Qin, Xi Han, Dong Han shiqi 秦西漢東漢時期, 6th ed. (Beijing 1996).

TASKIN 1968
V. S. Taskin, Materialy po istorii siunnu (po kitaiskim istochnikam). Vvedenie, perevod i kommentarii V. S. Taskina, Vol. 1 (Moskva 1968). В. С. Таскин, Материалы по истории сюнну (по китайским источникам). Введение, перевод и комментарии В. С. Таскина, Vol. 1 (Москва 1968).

TASKIN 1973
V. S. Taskin, Materialy po istorii siunnu (po kitaiskim istochnikam). Vvedenie, perevod i kommentarii V. S. Taskina, Vol. 2 (Moskva 1973). В. С. Таскин, Материалы по истории сюнну (по китайским источникам). Введение, перевод и комментарии В. С. Таскина, Vol. 2 (Москва 1973).

TASKIN 1984
V. S. Taskin, Materialy po istorii drevnikh kochevykh narodov gruppy dunkhu (Moskva 1984). В. С. Таскин, Материалы по истории древних кочевых народов группы дунху (Москва 1984).

TASKIN 1989
V. S. Taskin, Materialy po istorii drevnikh kochevykh narodov v Kitae III–V vv. Vol. 1. Siunnu (Moskva 1989). В. С. Таскин, Материалы по истории древних кочевых народов в китае III–V вв. Vol. 1. Сюнну (Москва 1989).

TESORI 2005
I Tesori della steppa di Astrakhan. Katalog Palazzo Venezia, Rom 17 marzo – 29 maggio 2005 (Milano 2005).

TETERIN 1995
Iu. V. Teterin, Poiasnye nabory gunno-sarmatskoi epokhi Gornogo Altaia. In: Iu. F. Kiriushin/A. B. Shamshin (red.), Problemy okhrany, izucheniia i ispol'zovaniia kul'turnogo naslediia Altaia. Tezisy nauchno-prakticheskoi konferentsii (Barnaul 1995) 131–135. Ю. В. Тетерин, Поясные наборы гунно-сарматской эпохи Горного Алтая. In: Ю. Ф. Кирюши/А. Б. Шамшин (ред.), Проблемы охраны, изучения и использования культурного наследия Алтая. Тезисы научно-практической конференции (Барнаул 1995) 131–135.

THÉRY-PARISOT 2002
I. Théry-Parisot, Fuel Management (Bone and Wood) During the Lower Aurignacian in the Pataud Rock Shelter (Lower Palaeolithic, Les Eyzies de Tayac, Dordogne, France). Contribution of Experimentation. Journal of Archaeological Science 29, 2002, 1415–1421.

THIERRY 2003
F. Thierry, Die Geschichte des chinesischen Geldes von den Ursprüngen bis zum Beginn des 20. Jahrhunderts. In: W. Seipel (Hrsg.), Geld aus China. Ausstellungskat. Wien (Wien 2003) 25–89.

TIAN 1976
Tian Guangjin 田廣金, Taohongbala de Xiongnu mu 桃紅巴拉的匈奴墓. Kaogu xuebao 1976, 1, 131–144.

TIAN/GUO 1980a
Tian Guangjin 田廣金/Guo Suxin 郭素新, Nei Menggu Aluchaideng faxian de Xiongnu mu 內蒙古阿魯柴登發現的匈奴墓. Kaogu 1980, 4, 333–338.

TIAN/GUO 1980b
Tian Guangjin 田廣金/Guo Suxin 郭素新, Xigoupan Xiongnu mu zhi wenti 西溝畔匈奴墓之問題. Wenwu 1980, 7, 13–17.

TIAN/GUO 1986
Tian Guangjin 田廣金/Guo Suxin 郭素新, E'erduosi qingtong qi 鄂爾多斯青銅器 (Beijing 1986).

TIELI 1996
Tieling shi wenwu guanli bangongshi 鉄嶺市文物管理辦公室, Liaoning Tieling shi Qiutai yizhi shijue jianbao 遼寧鉄嶺市球檯遺址試掘簡報. Kaogu 1996, 2, 36–51.

TILLY 1985
C. Tilly, War making and state making as organized crime. In P. B. Evans/D. Rueschemeyer/T. Skocpol (eds.), Bringing the state back in (Cambridge 1985) 169–191.

Tilly 1992
C. Tilly, Coercion, capital, and European states, A.D. 990–1992 (Cambridge Mass. 1992).

Tishkin 2005a
A. A. Tishkin, Vozmozhnosti rekonstruktsii zhenskoi odezhdy khunnuskogo vremeni po arkheologicheskim materialam iz Gornogo Altaia. In: A. A. Tishkin, Snariazhenie kochevnikov Evrazii (Barnaul 2005) 195–201. А. А. Тишкин, Возможности реконструкции женской одежды хуннуского времени по археологическим материалам из Горного Алтая. In: А. А. Тишкин, Снаряжение кочевников Евразии (Барнаул 2005) 195–201.

Tishkin 2005b
A. A. Tishkin, Keramicheskie sosudy iz kurganov khunnuskogo vremeni mogil'nika Ialoman-II. In: Iu. F. Kiriushin/A. A. Tishkin (red.), Zapadnaia i Iuzhnaia Sibir' v drevnosti. Sbornik nauchnykh trudov, posviashchennyi 60-letiiu so dnia rozhdeniia Iuriia Fedorovicha Kiriushina (Barnaul 2005) 129–135. А. А. Тишкин, Керамические сосуды из курганов хуннуского времени могильника Яломан-II. In: Ю. Ф. Кирюшин/А. А. Тишкин (ред.), Западная и Южная Сибирь в древности. Сборник научных трудов, посвященный 60-летию со дня рождения Юрия Федоровича Кирюшина (Барнаул 2005) 129–135.

Tishkin 2006
A. A. Tishkin, Kitaiskie zerkala iz pamiatnikov rannikh kochevnikov Altaia. Rossiia i ATR 2006, 4, 111–115. А. А. Тишкин, Китайские зеркала из памятников ранних кочевников Алтая. Россия и АТР 2006, 4, 111–115.

Tishkin 2007a
A. A. Tishkin, Sozdanie periodizatsionnykh i kul'turno-khronologicheskikh skhem: istoricheskii opyt i sovremennaia kontseptsiia izucheniia drevnikh i srednevekovykh narodov Altaia (Barnaul 2007). А. А. Тишкин, Создание периодизационных и культурно-хронологических схем: исторический опыт и современная концепция изучения древних и средневековых народов Алтая (Барнаул 2007).

Tishkin 2007b
A. A. Tishkin, Obzor issledovanii v Zapadnoi Mongolii i na Altae. Problemy arkheologii, etnografii, antropologii Sibiri i sopredel'nykh territorii 13, 2007, 382–387. А. А. Тишкин, Обзор исследований в Западной Монголии и на Алтае. Проблемы археологии, этнографии, антропологии Сибири и сопредельных территорий 13, 2007, 382–387.

Tishkin 2009
A. A. Tishkin, Programma ksilotomicheskikh issledovanii arkheologicheskikh nakhodok iz derevnikh pamiatnikov Altaia. In: Rol' estestvenno-nauchnykh metodov v arkheologicheskikh issledovaniiakh (Barnaul 2009) 330–332. А. А. Тишкин, Программа ксилотомических исследований археологических находок из древних памятников Алтая. In: Роль естественно-научных методов в археологических исследованиях (Барнаул 2009) 330–332.

Tishkin/Gorbunov 2002
A. A. Tishkin/V. V. Gorbunov, Issledovaniia pamiatnikov rannego zheleznogo veka i srednevekov'ia v Lesostepnom i Gornom Altae. Problemy arkheologii, etnografii, antropologii Sibiri i sopredel'nykh territorii 8, 2002, 456–461. А. А. Тишкин/В. В. Горбунов, Исследования памятников раннего железного века и средневековья в Лесостепном и Горном Алтае. Проблемы археологии, этнографии, антропологии Сибири и сопредельных территорий 8, 2002, 456–461.

Tishkin/Gorbunov 2003
A. A. Tishkin/V. V. Gorbunov, Issledovaniia pogrebal'no-pominal'nykh pamiatnikov kochevnikov v Tsentral'nom Altae. Problemy arkheologii, etnografii, antropologii Sibiri i sopredel'nykh territorii 9, 2003, 488–493. А. А. Тишкин/В. В. Горбунов, Исследования погребально-поминальных памятников кочевников в Центральном Алтае. Проблемы археологии, этнографии, антропологии Сибири и сопредельных территорий 9, 2003, 488–493.

Tishkin/Gorbunov 2005
A. A. Tishkin/V. V. Gorbunov, Predmetnyi kompleks iz pamiatnika Ialoman-II na Altae kak otrazhenie vlianiia material'noi kul'tury khunnu. In: A. V. Kharinskii (otv. red.), Sotsiogenez v Severnoi Azii, Vol. 1 (Irkutsk 2005) 327–333. А. А. Тишкин/В. В. Горбунов, Предметный комплекс

из памятника Яломан-II на Алтае как отражение влияния материальной культуры хунну. In: A. B. Харинский (отв. ред.), Социогенез в Северной Азии, Vol. 1 (Иркутск 2005) 327–333.

TISHKIN/GORBUNOV 2006

A. A. Tishkin/V. V. Gorbunov, Gornyi Altai v khunnskoe vremia: kul'turno-khronologicheskii analiz arkheologicheskikh materialov. Rossiiskaia arkheologiia 2006, 3, 31–40. A. A. Тишкин/В. В. Горбунов, Горный Алтай в хуннуское время: культурно-хронологический анализ археологических материалов. Российская археология 2006, 3, 31–40.

TISHKIN/GORBUNOVA 2006

A. A. Tishkin/T. G. Gorbunova, Rekonstruktsiia uzdechnykh naborov bulan-kobinskoi kul'tury (po materialam pamiatnika Ialoman-II). In: Snariazhenie kochevnikov Evrazii. Sbornik nauchnykh trudov (Barnaul 2005) 118–122. A. A. Тишкин/Т. Г. Горбунова, Реконструкция уздечных наборов булан-кобинской культуры (по материалам памятника Яломан-II). In: Снаряжение кочевников Евразии. Сборник научных трудов (Барнаул 2005) 118–122.

TISHKIN/KHAVRIN 2004

A. A.Tishkin/S. V. Khavrin, Predvaritel'nye rezul'taty spektral'nogo analiza izdelii iz pamiatnika gunno-sarmatskogo vremeni Ialoman-II (gornyi Altai). In: Iu. F. Kiriushin/A. A. Tishkin (otv. red.), Kompleksnye issledovaniia drevnikh i traditsionnykh obshchestv Evrazii (Barnaul 2004) 300–306. A. A. Тишкин/С. В. Хаврин, Предварительные результаты спектрального анализа изделий из памятника гунно-сарматского времени Яломан-II (горный Алатй). In: Ю. Ф. Кирюшин/А. А. Тишкин (отв. ред.), Комплексные исследования древних и традиционных обществ Евразии (Барнаул 2004) 300–306.

TISHKIN/KHAVRIN 2006

A. A. Tiskhin/S. V. Khavrin, Ispol'zovanie rentgeno-fliuorestsentnogo analiza v arkheologicheskikh issledovaniiakh. Teoriia i praktika arkheologicheskikh issledovanii 2, 2006, 74–85. A. A. Тишкин/С. В. Хаврин, Использование рентгенофлюоресцентного анализа в археологических исследованиях. Теория и практика археологических исследований 2, 2006, 74–85.

TISHKIN/LUZGIN 2009

A. A. Tishkin/B. N. Luzgin, Izuchenie nakhodok bus iz pamiatnika khunnskogo vremeni Ialoman-II. In: Geografiia – teoriia i praktika: sovremennye problemy i perspektivy (Barnaul 2009) 243–247. A. A. Тишкин/Б. Н. Лузгин, Изучение находок бус из памятника хуннуского времени Яломан-II. In: География – теория и практика: современные проблемы и перспективы (Барнаул 2009) 243–247.

TISHKIN ET AL. 2004

A. A. Tishkin/V. V. Gorbunov/S. S. Matrenin, Ialomanskii arkheologicheskii mikroraion v Gornom Altae. In: S. S. Tikhonov (otv. red.), Arkheologicheskie mikroraiony Severnoi Evrazii. Materialy nauchnoi konferentsii (Omsk 2004) 93–97. A. A. Тишкин/В. В. Горбунов/С. С. Матренин, Яломанский археологический микрорайон в Горном Алтае. In: С. С. Тихонов (отв. ред.), Археологические микрорайоны Северной Евразии. Материалы научной конференции (Омск 2004) 93–97.

TISHKIN ET AL. 2007

A. A. Tishkin/S. V. Khavrin/Ia. V. Frenkel', Busy khunnskogo vremeni (po materialam raskopok pamiatnika Ialoman-2 v Gornom Altae). In: V. V. Nevinskii/A. A. Tishkin (otv. red.), Altae-Saianskaia gornaia strana i istoriia osvoeniia ee kochevnikami. Sbornik nauchnykh trudov (Barnaul 2007) 212–215. A. A . Тишкин/С. В. Хаврин/Я. В. Френкель, Бусы хуннуского времени (по материалам раскопок памятника Яломан-2 в Горном Алтае). In: В. В. Невинский/А. А. Тишкин (отв. ред.), Алтае-Саянская горная страна и история освоения ее кочевниками. Сборник научных трудов (Барнаул 2007) 212–215.

TISHKIN ET AL. 2008

A. A. Tishkin/S. V. Khavrin/O. G. Novikova, Kompleksnoe izuchenie nakhodok laka iz pamiatnikov Ialoman-II i Shibe (Gornyi Altai). In: A. A. Tishkin (otv. red.), Drevnie i srednevekovye kochevniki Tsentral'noi Azii. Sbornik nauchnykh trudov (Barnaul 2008) 196–200. A. A Тишкин/С. В. Хаврин/ О. Г. Новикова, Комплексное

изучение находок лака из памятников Яломан-II и Шибе (Горный Алтай). In: А. А. Тишкин (отв. ред.), Древние и средневековые кочевники Центральной Азии. Сборник научных трудов (Барнаул 2008) 196–200.

Tkachev 1987
V. Tkachev, Nomadic capitals in Central Asia. Information Bulletin Moscow 1987, 114–118.

Törbat 2003a
Ts. Törbat, Keramika khunnskogo mogil'nika Burkhan-Tolgoi. Erdem shinzhilgeenii bichig. Arkheologi, antropologi, ugsaatan sudlal 19, 2003, 82–100. Ц. Төрбат, Керамика хуннского могильника Бурхан-Толгой. Эрдэм шинжилгээний бичиг. Археологи, антропологи, угсаатан судлал 19, 2003, 82–100.

Törbat 2003b
Ts. Törbat, Tamiryn Ulaan khoshuuny bulsh ba Khünnügiin ugsaatny büreldekhüünii asuudald. Tükhiin setgüül 4, 2003, 6–17. Ц. Төрбат, Тамирын Улаан хошууны булш ба Хүннүгийн угсаатны бүрэлдэхүүний асуудалд. Түүхийн сэтгүүл 4, 2003, 6–17.

Törbat 2004
Ts. Törbat, Khünnügiin zhiriin irgediin bulsh (Ulaanbaatar 2004). Ц. Төрбат, Хүннүгийн жирийн иргэдийн булш (Улаанбаатар 2004).

Törbat 2006
Ts. Turbat, The Origin of Xiongnu Archaeological Culture based on Funerary Rites. Mongolian Journal of anthropology, Archaeology and Ethnology 2, 2, 2006, 22–36.

Törbat et al. 2003
Ts. Törbat/Ch. Amartüvshin/U. Erdenebat, Egiin Golyn sav nutag dakh' arkheologiin dursgaluud (Khürliin üees Mongolyn üe) (Ulaanbaatar 2003). Ц. Төрбат/Ч. Амартүвшин/У. Эрдэнэбат, Эгийн Голын сав нутаг дахь археологийн дурсгалууд (Хүрлийн үеэс Монголын үе) (Улаанбаатар 2003).

Törbat et al. 2005a
Ts. Törbat/T. Batbaiar/N. Pusa, Khünnügiin üeiin Borogiin suuringiin seramologiin sudalgaa. Tüükhiin setgüül 6, 2005, 5–23. Ц. Төрбат/Т. Батбаяр/Н. Пуса, Хүннүгийн үеийн Борогийн суурингийн серамологийн судалгаа. Түүхийн сэтгүүл 6, 2005, 5–23.

Törbat et al. 2005b
Ts. Törbat/P. Kh. Giscard/D. Batsukh, Mongol Altaid Pazyrykiin bulshiig ankh udaa maltan sudalsan tukhai. Arheologiin sudlal 23, 2005, 32–53. Ц. Төрбат/П. Х. Жискар/Д. Батсүх, Монгол Алтайд пазырыкийн булшийг анх удаа малтан судалсан тухай. Археологийн судлал 23, 2005, 32–53.

Törbat et al. 2007
Ts. Törbat/D. Batsükh/T. Batbaiar/N. Baiarkhüü/X. Jordana/P- Kh. Giscard, Baga Türgenii gol-VI Pazyrykiin üeiin tsogtsolboryn arkheologi, paleoantropologiin sudalgaa (Ur'bchilsan ür dün). Arkheologiin sudlal 24, 2007, 188–215. Ц. Төрбат/Д. Батсүх/Т. Батбаяр/Н. Баярхүү/Х. Жордана/П.-Х. Жискар, Бага түргэний гол-VI Пазырыкийн үеийн цогцолборын археологи, палеоантропологийн судалгаа (Урьдчилсан үр дүн). Археологийн судлал 24, 2007, 188–215.

Törbat et al. 2008
Ts. Törbat/P.-H. Giscard/D. Batshükh/T. Batbaiar/Kh. Jordana, Tsagaan Asgyn Pazyrykiin üeiin bulshny sudalgaany ur'dchilsan ür dün. Arkheologiin sudlal 26, 115-135. Ц. Төрбат/П.-Х. Жискар/Д. Батсүх/Т. Батбаяр/Х. Жордана, Цагаан асгын Пазырыкийн үеийн булшны судалгааны урьдчилсан үр дүн. Археологийн судлал 26, 2008, 115–135.

Törbat et al. 2009
Ts. Törbat/D. Baiar/D. Tseveendorzh/Ts. Battulga/N. Baiarkhüü/T. Iderkhangai, P.-H. Giscard, Mongol Altain Arkheologiin Dursgaluud-I: Baian-Ölgii aimag (Ulaanbaatar 2009). Ц. Төрбат/Д. Баяр/Д. Цэвээндорж/Н. Баярхүү/Т. Идэрхангай/П. Х. Жискар, Монгол Алтайн Археологийн Дурсгалууд-I Баян-Өлгий Аймаг (Улаанбаатар 2009).

Törbat et al. 2011
Ts. Törbat/Zh. Baiarsaikhan/D. Batsükh/N. Baiarkhüü, Zhargalantyn amny bugan khöshööd (Ulaanbaatar 2011). Ц. Төрбат/Ж. Баярсайхан/Д. Батсүх/Н. Баярхүү, Жаргалантын амны буган хөшөөд [= Deer stones of the Jargalantyn Am] (Ulaanabaatar 2011).

Tomka 2008
P. Tomka, Zwischen Hsiung-nu und Hunnen aus archäologischer Sicht. In: Hunnen zwischen

Asien und Europa. Aktuelle Forschungen zur Archäologie und Kultur der Hunnen. Beiträge zur Ur- und Frühgeschichte Mitteleuropas 50 (Langenweissbach 2008) 91–100.

TOLYBEKOV 1959
S. E. Tolybekov, Obshchestvenno-ekonomicheskii stroi kasakhov v XII–XIX vv. (Alma-Ata 1959). С. Е. Толыбеков, Общественно-экономический строй казахов в XVII–XIX вв. (Алма-Ата 1959).

TREASURES 1998
Treasures uf the Eurasian Steppes. Animal Art from 800 BC to 200 AD. Exhibition Catalogue Ariadne Galleries, March 25–April 30, 1998 (New York 1998).

TREISTER 2003
M. Treister, Further thoughts about Parthian and related belt and belt plaques. Iranica Antiqua 38, 2003, 247–257.

TREISTER 2005
M. Treister, On a vessel with figures friezes from a private collection, on burials in Kosika and once more on the "Ampsalakos School". Ancient Civilizations from Scythia to Siberia 11, 2005, 200–255.

TREVER 1932
K. C. Trever, Excavations in Northern Mongolia 1924–1925 (Leningrad 1932).

TRIGGER 2003
B. Trigger, Understanding Early Civilizations: A Comparatice Study (Cambridge 2003).

TRIGGER 2006
B. Trigger, The History of Archaeological Thought (Cambridge 2006).

TROUSDALE 1975
W. Trousdale, The Long Sword and Scabbard Slide in Asia. Smithsonian Contributions to Anthropology 17 (Washington D.C. 1975).

TRUDNOVSKAIA 1979
S. A. Trudnovskaia, Rannie pogrebeniia iugo-zapadnoi kurgannoi gruppy mogil'nika Tuz-Gyr. In: M. A. Itina (red.), Kochevniki na granitsakh Khorezma. Trudy khorezmskoi arkheologo-etnogradicheskoi ekspeditsii 11 (Moskva 1979) 101–110. С. А. Трудновская, Ранние погребения юго-западной курганной группы могильника Туз-Гыр. In: М. А. Итина (ред.), Кочевники на границах Хорезма. Труды хорезмской археолого-этнографической экспедиции 11 (Москва 1979) 101–110.

TSEVEENDORZH 1981
D. Tseveendorzh, Töv Aziin am'tny zagvart urlag. Shinzhlekh ukhaany am'dral 5 (Ulaanbaatar 1981). Д. Цэвээндорж, Төв Азийн амьтны загварт урлаг. Шинжлэх ухааны амьдрал 5 (Улаанбаатар 1981).

TSEVEENDORZH 1985
D. Tseveendorzh, Novye dannye po arkheologii khunnu (po materialam raskopok 1972–1977 gg.). In: R. S. Vasil'evskii (red.), Drevnie kul'tury Mongolii (Novosibirsk 1985) 51–87. Д. Цэвээндорж, Новые данные по археологии хунну (по материалам раскопок 1972–1977 гг.). In: Р. С. Васильевский (ред.), Древние культуры Монголии (Новосибирск 1985) 51–87.

TSEVEENDORZH 1988
D. Tseveendorzh, 1988 ony Khünnügiin dursgal sudlakh Mongol-Ungar-Zövlöltiin khamtarsan shinzhilgeenii tailan, Ulaanbaatar 1988. Д. Цэвээндорж, 1988 оны Хүннүгийн дурсгал судлах Монгол-Унгар-Зөвлөлтийн хамтарсан шинжилгээний тайлан. Unpublished field report, Institute of Archaeology, Ulaanbaatar 1988.

TSEVEENDORZH 1989
D. Tseveendorzh, New Data on the Archaeology of the Hsiung-nu. In: The Ancient Cultures of Mongolia (Bloomington 1989) 51–87.

TSEVEENDORZH 1992
D. Tseveendorzh, Mongolian's Archaeological, Historical and cultural Relics – "Nomads route" – International Scientific Expedition, Mongolia (Ulaanbaatar 1992).

TSEVEENDORZH 1999
D. Tseveendorzh, Mongolyn ertnii urlagiin tüükh (Ulaanbaatar 1999). Д. Цэвээндорж, Монголын эртний урлагийн түүх (Улаанбаатар 1999).

TSEVEENDORZH 2000
D. Tseveendorzh, Baga Gazryn Chuluu, Tarvagatai, Khuushiin Khotol, Baruun Khairkhany Khünnü bulsh. Arkheologiin sudlal 20, 2000, 35–60. Д. Цэвээндорж, Бага Газрын чулуу, тарвагатай, хүүшийн хөтөл, баруун хайрханы хүннү булш. Археологийн судлал 20, 2000, 35–60.

Tseveendorzh 2003
D. Tseveendorzh, Mongolyn Arkheologiin Sudalga II (Erdem shinzhilgeenii ögüülel, iltgeliin emkhetgel 1983–1992 (Ulaanbaatar 2003). Д. Цэвээндорж, Монголын Археологийн Судалга II (Эрдэм шинжилгээний өгүүлэл, илтгэлийн эмхэтгэл 1983–1992 (Улаанбаатар 2003).

Tseveendorzh 2007
D. Tseveendorzh, Chandmanii soel. Mongolyn arkheologiin tovch tol' (Ulaanbaatar 2007). Д. Цэвээндорж, Чандманий соёл. Монголын археологийн товч толь (Улаанбаатар 2007).

Tseveendorzh/Batsaikhan 1994
D. Tseveendorzh/Z. Batsaikhan, Khünnügiin shavar vaar. Arkheologiin sudlal 14, 1994, 76–107. Д. Цэвээндорж/З. Батсайхан, Хүннүгийн шавар ваар. Археологийн судлал 14, 1994, 76–107.

Tseveendorzh/Erdeli 1990
D. Tseveendorzh/I. Erdeli, Khudgiin tolgoi, Solbi uul, Naimaa tolgoin khünnü bulsh. Tükhiin sudlal 24, 1990, 105–129. Д. Цэвээндорж/И. Эрдели, Худгийн толгой, Солби уул, Наймаа толгойн хүннү булш. Түүхийн судлал 24, 1990, 105–129.

Tseveendorzh/Garamzhav 1999
D. Tseveendozh/T. Garamdzhav, Mongol orond ert tsagt zes olborlozh bolovsruulzh baisan tukhai asuudald. Arkheologiin sudlal 19, 1999, 17–25. Д. Цэвээндорж/Т. Гарамжав, Монгол оронд эрт цагт зэс олборлож боловсруулж байсан тухай асуудалд. Археологийн судлал 19, 1999, 17–25.

Tseveendorzh/Tserendagva 1999
D. Tseveendorzh/Ia. Tserendagva, Tüükhiin khüreelengiin Arkheologiin laboratorid khadgalagdazh büi khürel toliud. Arkheologiin sudlal 19, 1999, 36–52. Д. Цэвээндорж/Я. Цэрэндагва, Түүхийн хүрээлэнгийн Археологийн лабораторид хадгалагдаж буй хүрэл толиуд. Археологийн судлал 19, 1999, 36–52.

Tseveendorzh et al. 1994
D. Tseveendorzh/Z. Batsaikhan/Ts. Törbat, Khünnügiin khot suuriny asuudald. Shinzhlekh ukhaany akademiin medee 3–4, 1994,77–85. Д. Цэвээндорж/З. Батсайхан/Ц. Төрбат, Хүннүгийн хот суурины асуудалд. Шинжлэх ухааны академийн мэдээ 3–4, 1994, 77–85.

Tseveendorzh et al. 2007a
D. Tseveendorzh/N. V. Polos'mak/N. Batbold/N. Erdene-Ochir/M. Tsengel, Noen uulyn Khünnügiin iazguurtny 20-r bulshny sudalgaa. Arkheologiin sudlal 24, 2007, 288–304. Д. Цэвээндорж/Н. В. Полосьмак/Н. Батболд/Н. Эрдэнэ-Очир/М. Цэнгэл, Ноён уулын Хүннүгийн язгууртны 20-р булшны судалгаа. Археологийн судлал 24, 2007, 288–304.

Tseveendorzh et al. 2007b
D. Tseveendorzh/N. Batbold/N. Erdene-Ochir/M. Tsengel/P. Aldarmönkh, Mongol-Orosyn khamtarsan "Mongol nutag dakh' Noen uulyn bulshny arkheologiin sudalgaa" tösliin 2006 ony kheeriin shinzhilgeenii angiin tailan Ulaanbaatar AKHGBSKH. Д. Цэвээндорж/Н. Батболд/Н. Эрдэнэ-Очир/М. Цэнгэл/П. Алдармөнх, Монгол-Оросын хамтарсан "Монгол нутаг дахь Ноён уулын булшны археологийн судалгаа" төслийн 2006 оны хээрийн шинжилгээний ангийн тайлан Улаанбаатар АХГБСХ. Unpublished field report, Institute of Archaeology, MAS, Ulaanbaatar.

Tseveendorzh et al. 2007c
D. Tseveendorzh/N. Batbold/N. Erdene-Ochir/M. Tsengel, Khünnü nar Ertnii Romyn ezent gürentei khariltsaatai baisan. Erdem 4, 2007, 9–10. Д. Цэвээндорж/Н. Батболд/Н. Эрдэнэ-Очир/М. Цэнгэл, Хүннү нар Эртний Ромын эзэнт гүрэнтэй харилцаатай байсан. Эрдэм 4, 2007, 9–10.

Tseveendorzh et al. 2007d
D. Tseveendorzh/V. I. Molodin/H. Parzinger/M. Baiarsaikhan/G. Lkhündev, Mongol Altain mönkh tsevdgiin bulshny sudalgaa (Ur'dchilsan ür dünees). Arkheologiin sudlal 24, 2007, 167–187. Д. Цэвээндорж/В. И. Молодин/Г. Парцингер/М. Баярсайхан/Г. Лхүндэв, Монгол Алтайн мөнх цэвдгийн булшны судалгаа (Урьдчилсан үр дүнгээс). Археологийн судлал 24, 2007, 167–187.

Tseveendorzh et al. 2008
D. Tseveendorzh/N. Batbold/N. Erdene-Ochir/M. Tsengel/N. V. Polos'mak, Noen Uulyn khünnügiin iazguurtny bulshny sudalgaa. In: Xiongnu 2008, 305–324. Д. Цэвээндорж/Н. Батболд/Н. Эрдэнэ-Очир/М. Цэнгэл/Н. В. Полосьмак, Ноен Уулын хүннүгийн язгууртны булшны судалгаа. In: Xiongnu 2008, 305–324.

TSEVEENDORZH ET AL. 2010
D. Tseveendorzh/N. Erdene-Ochir/N. V. Polos'mak/E. S. Bogdanov, Noen Uulyn khünnügiin iazguurtniay bulshny 2006, 2009 ony arkheologiin maltlaga sudalgaany ür düngees. Arkheologiin sudlal 29, 2010, 255–273. Д. Цэвээндорж/Н. Эрдэнэ-Очир/Н. В. Полосьмак/Е. С. Богданов, Ноен Уулын хүннүгийн язгууртняы булшны 2006, 2009 оны археологийн малтлага судалгааны үр дүнгээс. Археологийн судлал 29, 2010, 255–273.

TSEVEENZHAV 1992
D. Tseveenzhav, Ömnögov' aimgiin Khanbogd sumyn tüükhen toim (Ulaanbaatar 1992). Д. Цэвээнжав, Өмнөговь аймгийн Ханбогд сумын түүхэн тойм (Улаанбаатар 1992).

TSYBIKTAROV 1998
A. D. Tsybiktarov, Kul'tura plitochnykh mogil Mongolii i Zabaikal'ia (Ulan-Ude 1998). А. Д. Цыбиктаров, Культура плиточных могил Монголии и Забайкалья (Улан-Удэ 1998).

TSYBIKTAROV 2003
A. D. Tsybiktarov, Eastern Central Asia at the Dawn of the Bronze Age: Issues in Ethno Cultural History of Mongolia and the Southern trans-Baikal Region in the Late Third–early Second Millennium BC. Archaeology Ethnology and Anthropology of Eurasia 2003, 3, 107–123.

TUMEN 2004
D. Tumen, Linguistic, cultural, and morphological characteristics of Mongolian populations. In: T. Irimoto/T. Yamada (eds.), Circumpolar Ethnicity and Identity. Senri Ethnological Studies 66 (Osaka 2004) 309–324.

TUMEN ET AL. 2006
D. Tumen/D. Navaan/M. Erdene, Archaeology of the Mongolian period: A brief introduction. The Silk Road 4, 2006, 51–55.

TURCHIN 2003
P. Turchin, Historical dynamics. Why states rise and fall (Princeton 2003).

TURCHIN 2009
P. Turchin, A theory for formation of large empires. Journal of Global History 4, 2009, 191–217.

TURKON 2004
P. Turkon, Food and status in the prehispanic Malpaso Valley, Zacatecas, Mexico. Journal of Anthropological Archaeology 23, 2004, 225–251.

TURNER II 1987
C. G. Turner II, Late Pleistocene and Holocene population history of East Asia based on dental variation. American Journal of Physical Anthropology 73, 1987, 305–321.

TURNER II 1990
C. G. Turner II, The major features of Sundadonty and Sinodonty, including suggestions about East Asia microevolution, population history, and late Pleistocene relationships with Australian aboriginals. American Journal of Physical Anthropology 82, 3, 1990, 295–317.

TWITCHETT/TIETZE 1994
D. Twitchett/K. Tietze, Liao. In: H. Franke/D. Twitchett (eds.), The Cambridge history of China, Vol. 6. Alien regimes and border states, 907–1368 (Cambridge 1994) 43–153.

U EN' ET AL. 1990
U En'/Chzhun Kan'/Li Izin'tszen, Mogil'nik Siunnu v derevne Daodun'tszy uesda Tunsin' v Ninsia. In: V. E. Larichev (red.), Kitai v epokhu drevnosti (Novosibirsk 1990) 88–101. У Энь/Чжун Кань/Ли Йзиньцзэн, Могильник Сюнну в деревне Даодуньцзы уезда Тунсинь в Нинся. In: В. Е. Ларичев (ред.), Китай в эпоху древности (Новосибирск 1990) 88–101.

ULLINGER ET AL. 2005
J. M. Ullinger/S. G. Sheridan/D. E. Hawkey/C. G. Turner II/R. Cooley, Bioarchaeological analysis of cultural transition in the southern Levant using dental nonmetric traits. American Journal of Physical Anthropology 128, 2005, 466–476.

UMEHARA 1960
Umehara Sueji 梅原未治, Mōko Noin-Ula hakken no imotsu 蒙古イヂ・ウラ發見の遺物 (Tokyo 1960).

L'UOMO D'ORO 1998
G. Arbore Popescu/Ch. Silvi Anotonini/K. Baipakov (eds.), L'Uomo d'Oro. La cultura delle steppe del Kazhakstan dall'età del bronzo alle grande migrazioni (Milano 1998).

UPHAM 1992
S. Upham, Interaction and Isolation: The Empty

Spaces in Panregional Political and Economic Systems. In: E. M. Schortman, P. A. Urban (Eds.), Resources, Power, and Interregional Interaction (New York 1992), 139–152.

Vadetskaia 1992
E. B. Vadetskaia, Tashtykskaia kul'tura. In: Stepnaia polosa 1992, 236–246. Э. Б. Вадецкая, Таштыкская культура. In: Stepnaia polosa 1992, 236–246.

Vadetskaia 1999
E. B. Vadetskaia. Tashtykskaia epokha v drevnei istorii Sibiri (Sankt-Peterburg 1999). Э. Б. Вадецкая, Таштыксая эпоха в древней истории Сибири (Санкт-Петербург 1999).

Vainshtein 1980
S. Vainshtein, Nomads of South Siberia: the Pastoral Economies of Tuva. Cambridge Studies in Social Anthropology 25 (Cambridge 1980).

de la Vaissière 2005
E. de la Vaissière, Huns et Xiongnu. Central Asiatic Journal 49, 2005, 3–26.

Van Creveld 1999
M. Van Creveld, The rise and decline of the state (Cambridge 1999).

Van Geel et al. 2004
B. van Geel/N. A. Bokovenko/N. D. Burova/K. V. Chugunov/V. A. Dergachev/V. G. Dirksen/M. Koulkova/A. Nagler/H. Parzinger/J. van der Plicht /S. S. Vasiliev/G. I. Zaitseva, Climate change and the expansion of the Scythian culture after 850 BC: a hypothesis. Journal of Archaeological Science 31, 2004, 1735–1742.

Vasjutin 2003
S. A. Vasjutin, Typology of pre-states and statehood systems of nomads. In: N. N. Kradin/D. M. Bondarenko/Th. J. Barfield (eds.), Nomadic Pathways in Social Evolution. The civilization dimension series 5 (Moscow 2003) 50–62.

Vigne/Helmer 2007
J.-D. Vigne/D. Helmer, Was milk a 'secondary product' in the Old World Neolithisation process? Its role in the domestication of cattle, sheep, and goats. Anthropozoologica 42, 2007, 9–40.

Vishnevskaia 1992
O. A. Vishnevskaia, Tsentral'nyi Kazakhstan. In: Stepnaia polosa 1992, 130–139. О. А. Вишневская, Центральный Казахстан. In: Stepnaia polosa 1992, 130–139.

Vladimirtsov 1934
B. Ia. Vladimirtsov, Obshchestennyi stroi mongolov. Mongol'skii kochevoi feodalizm (Leningrad 1934). Б. Я. Владимирцов, Общестенный строй монголов. Монгольский кочевой феодализм (Ленинград 1934).

Volkov 1967
V. V. Volkov, Bronzovyi i rannii zheleznyi veka Severnoi Mongolii (Ulan-Bator 1967). В. В. Волков, Бронзовый и ранний железный века Северной Монголии (Улан-Батор 1967).

Volkov 1995
V. Volkov, Early Nomads of Mongolia. In: J. D. Davis-Kimball/V. A. Bashilov/L. T. Yablonsky (eds.), Nomads of the Eurasian Steppes in the Early Iron Age (Berkeley 1995) 319–332.

Volkov 1981
V. V. Volkov, Olennye kamni Mongolii (Ulan-Bator 1981). В. В. Волков, Оленные камни Монголии (Улан-Батор 1981).

Volkov/Dorzhsüren 1963
V. V. Volkov/Ts. Dorzhsüren, Khovd aimgiin Mankhan sumyn nutagt ertnii sudalyn maltlagaa khaiguul khiisen tukhai. Arkheologiin sudlal 2, 5, 1963, 51–68. В. В. Волков/Ц. Доржсүрен, Ховд аймгийн Манхан сумын нутагт эртний судалын малтлагаа хайгуул хийсэн тухай. Археологийн судлал 2, 5, 1963, 51–68.

Vovin 2000
A. Vovin, Did the Xiong-nu speak a Yeniseian language? Central Asiatic Journal, 44, 1, 2000, 87–104.

Wagner 1996
D. Wagner, Iron and Steel in Ancient China. Handbuch der Orientalistik 4, 9. 2nd impr. with corr. (Leiden, New York, Köln 1996).

Wagner/Butz 2007
M. Wagner/H. Butz, Nomadenkunst. Ordosbronzen der Ostasiatischen Kunstsammlung. Archäologie in Eurasien 23 (Mainz 2007).

Wahome et al. 1994
R. G. Wahome/A. B. Carles/H. J. Schwartz, An

analysis of the variation of the lactation curves of small East African ruminants. Small Ruminant Research 15, 1994, 1–7.

WALDRON 1990
A. Waldron, The Great Wall of China: From History to Myth (Cambridge 1990).

WALDRON 1994
T. Waldron, Counting the dead: The epidemiology of skeletal populations (Chichester 1994).

WAN 2004
Wan Xin 萬欣, Liaoning Beipiao Lamadong mudi 1998 nian fajue baogao 遼寧北票喇嘛洞墓地 1998 年發覺報告. Kaogu xuebao 2004, 2, 209–242.

WANG 2004
Wang Bailing 王柏靈, Xiongnu shihua 匈奴史話 (Xi'an 2004).

WANG 1986
Wang Binghua 王炳華, Xinjiang dongbu faxian de jipi tongqi 新疆東部發現的幾批銅器. Kaogu 1986, 10, 887–890.

WANG 2008
Wang Guihai 汪桂海, Hanjian suo jian Xiongnu dui biansai de koulüe 漢簡所見匈奴對邊塞的寇掠. Jianbo 3, 2008, 299–306.

WANG 2009
Wang Hui 王輝, Zhangjiachuan Majiayuan mudi xiangguan wenti chutan 張家川馬家塬墓地相關問題初探. Wenwu 2009, 10, 70–77.

WANG 2003
Wang Xueli 王學理, Han Jingdi yu Yangling 漢景帝與陽陵 (Xi'an 2003).

WANG 1983
Wang Weimao 汪維懋, Xiongnu Longcheng kaoban 匈奴龍城考辦. Lishi yanjiu 2, 1983, 142–144.

WANG 1992
Wang Dan 王丹, Jilin daxue cang Beifang qingtongqi 吉林大學藏北方青銅器. Beifang wenwu 1992, 3, 16–23.

WANG 1993
Wang Haiwen 王海文, Gugong bowuyuan cang E'erduosi qingtongqi 故宮博物院藏鄂爾多斯青銅器. Gugong bowuyuan yuankan 1993, 1, 16–24.

WANG/WANG 2009
S. Wang/Z. Wang, Primary Analysis on the Charcoals Unearthed from a Bronze Age Site in the Khanuy River Valley, Central Mongolia. Unpublished Report, Institute of Archaeology, Chinese academy of Social Sciences, Beijing 2009.

WAPNISH/HESSE 1988
P. Wapnish/B. Hesse, Urbanization and the Organization of Animal Production at Tell Jemmeh in the Middle Bronze Age Levant. Journal of Near Eastern Studies 47, 2, 1988, 81–94.

WAPNISH/HESSE 1991
P. Wapnish/B. Hesse, Faunal Remains from Tel Dan: Perspectives on Animal Production at Village, Urban, and Ritual Center. Archaeozoologia 4, 2, 1991, 9–86.

WATSON 1961a
B. Watson (transl.), Records of the Grand Historian of China from Shih Chi of Ssu-ma Ch'en. Records of civilization 65, Vol. 1 (New York 1961).

WATSON 1961b
B. Watson (transl.), Records of the Grand Historian of China from Shih Chi of Ssu-ma Ch'en. Records of civilization 65, Vol. 2 (New York 1961).

WAUGH 2006
C. D. Waugh, The challenges of preserving evidence of Chinese lacquer-ware in Xiongnu graves. The Silk Road 4, 1, 2006, 32–36.

WAUGH 2010
D. C. Waugh, Nomads and Settlement: New Perspectives in the Archaeology of Mongolia. The Silk Road 8, 2010, 97–124.

WEBER 1980
M. Weber, Wirtschaft und Gesellschaft. Grundriss der verstehenden Soziologie. 5th ed. (Tübingen 1980).

WEI 1998
Wei Jian 魏堅, Neimenggu zhongnan bu Han dai muzang 內蒙古中南部漢代墓葬 (Beijing 1998).

WEI 2004
Wei Jian 魏堅 (ed.), Nei Menggu diqu Xianbei muzang de faxian yu yanjiu 內蒙古地區鮮卑墓葬的發現與研究 (Beijing 2004).

WEI 2005
Wei Jian 魏堅 (ed.), Ejina Hanjian 額濟納漢簡 (Guilin 2005).

Weiers 2005
M. Weiers, Steppe und Steppenreiche bis Činggis Khan. In: Dschingis Khan und seine Erben. Das Weltreich der Mongolen (München 2005) 36–38.
Wenwu 1997
Wenwu tuxiang yanjiushi 文物圖象研究室 (Academia Sinica), Jianbo jinshi ziliaoku 簡帛金石資料庫. http://saturn.ihp.sinica.edu.tw/~wenwu/search.htm (as of September 29, 1997, last accessed: March 14, 2011).
Werner 1956
J. Werner, Beiträge zur Archäologie des Attila-Reiches. Bayer. Akad. Wiss. Phil.-Hist. Klasse Abhandl. N. F. 38 A (München 1956).
Werner 1974
J. Werner, Nomadische Gürtel bei Persern, Byzantinern und Langobarden. In: La Civiltà die Longobardi in Europa. Atti del convegno internationale Roma i Friuli 1971. Accad. Naz. dei Lincei 189, 1974 (Roma 1974) 109–139.
Wieczorek/Lind 2007
A. Wieczorek/Ch. Lind, Ursprünge der Seidenstrasse. Sensationelle Neufunde aus Xinjiang, China (Stuttgart 2007).
Wilkinson 2000
E. Wilkinson, Chinese history: A manual. Havard-Yeching Institute monograph series 52 (Cambridge 2000).
Wilkinson 2000
D. Wilkinson, Civilizations, World Systems, and Hegemonies. In: R. A. Denemark/J. Friedman/B. K. Gills/G. Modelski (eds.), World System History: The Social Science of Long-Term Change (London, New York 2000) 54–84.
Williams 2008
J. Williams, The Tahilt Region: A Preliminary Archaeological Survey of the Tahilt Surroundings to Contextualize the Tahilt Cemeteries. The Silk Road 5, 2, 2008, 42–47.
Wood 2005
E. M. Wood, Empire of Capital (London, New York 2005).
Wright 1942
Q. Wright, A Study of War (Chicago 1942).
Wright 1997
D. Wright, The Hsiungnu-Hun Equation revisited. Eurasian Studies Yearbook 69, 1997, 77–112.
Wright 2006
J. Wright, The Adoption of Pastoralism Northeast Asia, monumental transformation in the Egiin Gol Valley, Mongolia. Unpublished PhD Dissertation, Harvard University 2006.
Wright 2007
J. Wright, Organization Principles of Khirigsuur Monuments in the Lower Egiin Gol Valley, Mongolia. Journal of Anthropological Archaeology 26, 2007, 350–365.
Wright/Amartüvshin 2009
J. Wright/Ch. Amartüvshin, "Unseen by eye, unheard by ear": Archaeology of the Early Türks at Baga Gazaryn Chuluu, Mongolia. In: Bemmann et al. 2009, 349–363.
Wright et al. 2007
J. Wright/W. Honeychurch/Ch. Amartuvshin, Initial findings of the Baga Gazaryn Chuluu archaeological survey (2003–2006). Antiquity 81, 2007.
Wright et al. 2009
J. Wright/W. Honeychurch/C. Amartuvshin, The Xiongnu Settlements of Egiin Gol, Mongolia. Antiquity 83, 2009, 372–387.
Wu 2005
Wu Xiaoping 吳小平, Han dai qingtong rongqi de kaoguxue yanjiu 漢代青銅容器的考古學研究 (Changsha 2005).
Wu 2007a
Wu Xiaoping 吳小平, Handai tonghu de leixingxue yanjiu 漢代銅壺的類型學研究. Kaogu xuebao 2007, 1, 29–60.
Wu 2007b
Wu Xiaoping 吳小平, Cong mingwen kan liang Han tongqimin de shengchan jingying fangshi jiqi bianhua 從銘文看兩漢銅器皿的生產經營方式及其變化. Gugong bowuyuan yuankan 2007, 4, 100–107.
Wu 2006
Wu Yeung-chan 오영찬, Nangnang gun engu 낙랑군 연구 (Seoul 2006).
Wu'en 1990
Wu'en yuesitu 烏恩岳斯圖, Lun Xiongnu kaogu yanjiu zhong de jige wenti 論匈奴考古的幾個問

題. Kaogu xuebao 1990, 4, 409–437.

WU'EN 2007
Wu'en yuesitu 烏恩岳斯圖, Beifang caoyuan kaoguxue wenhua yanjiu – qingtong shidai zhi zaoqi tieqi shidai 北方草原考古學文化研究 – 青銅時代至早期鐵器時代 (Beijing 2007).

WU'EN 2008
Wu'en yuesitu 烏恩岳斯圖, Beifang caoyuan kaoguxue wenhua bijiao – qingtong shidai zhi zaoqi Xiongnu shiqi 北方草原考古學文化比較研究 – 青銅時代至早期匈奴時期 (Kexue 2008).

XI'AN 1963
Xi'an shi wenwu guanli weiyuanhui 西安市文物管理委員會, Xi'an Sanqiaozhen Gaoyaocun chutu de Xi Han tongqi qun 西安三橋鎮高窰村出土的西漢銅器群. Kaogu 1963, 2, 62–70.

XIE ET AL. 1987
Xie Guihua 謝桂華/Li Junming 李均明/Zhu Guozhao 朱國炤, Juyan Hanjian shiwen hejiao 居延漢簡釋文合校, 2 Vols. (Beijing 1987).

XIONGNU 2008
Ch'o-wŏnŭi taejeguk hyungno 초원의 대체국 흉노. Han-mong kongdong haksuljosa 10chunyŏn kukjehaksulsimp'ojium 한-몽 공동학술조사 10주년 기념 국제학술심포지엄. [Xiongnu, The First Empire of the Steppes. International Symposium in celebration of the 10th anniversary of MON-SOL Project] (Seoul 2008).

XIONGNU TOMBS 2008
Xiongnu Tombs in Mongolia 몽골 흉노 무덤 자료집성 (Seoul 2008).

YABLONSKY 1995
L. T. Yablonsky, Written Sources and the History of Archaeological Studies of the Saka in Central Asia. In: J. Davis-Kimball/V. A. Bashilov/L. T. Yablonsky (eds.), Nomads of the Eurasian Steppes in the Early Iron Age (Berkeley 1995), 193–197.

YAMADA 1982
N. Yamada, Formation of the Hsiung-nu nomadic state. Acta Orientalia Hungaricae 36, 1982, 575–582.

YANG 2004
Yang Jianhua 楊建華, Chunqiu zhanguo shiqi zhongguo beifang wenhuadai de xingcheng 春秋戰國時期中國北方文化帶的形成 (Beijing 2004).

YANGZHOU 1991
Yangzhou bowuguan 揚州博物館/ Hanjiang xian tushuguan 邗江縣圖書館, Jiangsu Hanjiang xian Yangshou xiang Baonudun Xin Mang mu 江蘇邗江縣楊壽鄉寶女墩新莽墓. Wenwu 1991, 10, 39–61.

YAN/LI 1992
Yan Shizhong 延世忠/Li Huairen 李懷仁, Ningxia Xiji faxian yizuo qintong shidai muzang 寧夏西吉發現一座青銅時代墓葬. Kaogu 1992, 6, 573–575.

YIKEZHAOMENG/NEI MENGGU 1980a
Yikezhaomeng wenwu gongzuozhan 伊克昭盟文物工作站 and Nei Menggu wenwu gongzuodui 內蒙古文物工作隊, Xigoupan Xiongnu mu 西溝畔匈奴墓. Wenwu 1980, 7, 1–10.

YIKEZHAOMENG/NEI MENGGU 1980b
Yikezhaomeng wenwu gongzuo zhan 伊克昭盟文物工作站/ Nei Menggu wenwu gongzuo dui 內蒙古文物工作队, Xigoupan Han dai Xiongnu mudi diaocha ji 西沟畔汉代匈奴墓地调查记. Nei Menggu wenwu kaogu inaugural issue, 1980, 1, 15–27.

YIKEZHAOMENG/NEI MENGGU 1980c
Yikezhaomeng wenwu gongzuozhan 伊克昭盟文物工作站/ Nei Menggu wenwu gongzuodui 內蒙古文物工作隊, Budonggou Xiongnu mu qingli jianbao 補洞溝匈奴墓清里簡報. Nei Menggu wenwu kaogu inaugural issue 1980, 1, 27–33.

YU/DAI 1985
Yu Ping 予平/Dai Ge 戴戈, Shaanxisheng bowuguan shoucang de Xiongnu tongpaishi 陝西省博物館收藏的匈奴銅飾牌. Wenbo 1985, 5, 32–42.

YÜ 1967
Yü Ying-shih, Trade and Expansion in Han China (Berkeley 1967).

YÜ 1986
Yü Ying-shih, Han foreign relations. In: D. Twitchett/M. Loewe (eds.), The Cambridge history of China I: the Ch'in and Han empires, 221 B.C. – A.D. 220 (Cambridge 1986) 377–462.

YÜ 1990
Yü Ying-shih, The Hsiung-nu. In: D. Sinor (ed.),

The Cambridge history of early Inner Asia (Cambridge 1990) 118–150.

Yun 2003

Iun Khen-von, Morin tolgoin Khünnü bulshny sudalgaa. In: S. Idshinnorov (ed.), Mongol-Solongosyn Erdem Shinzilgeenii Ankhdugaar Simpozium (Seoul 2003) 121–137. Юн Хён-вон, Морин толгойн хүннү булшны судалгаа. In: С. Идшинноров (ed.), Монгол-Солонгосын Эрдэм Шинжилгээний Анхдугаар Симпозиум (Seoul 2003) 121–137.

Zaoqi Qin-Han/Zhangjiachuan 2009

Zaoqi Qin-Han wenhua lianhe dui 早期秦漢文化聯合隊/Zhangjiachuan huizu zizhi xian bowuguan 張家川回族自治縣博物館, Zhangjiachuan Majiayuan Zhanguo mudi 2007–2008 nian fajiue jianbao 張家川馬家塬戰國墓地 2007–2008 年發掘簡報. Wenwu 2009, 10, 25–51.

Zasetskaia 1975

I. P. Zasetskaia, Zolotye ukrasheniia gunnskoi epokhi: Po materialam osoboi kladovoi Gos. Ermitazha (Leningrad 1975). И. П. Засецкая, Золотое украшения гуннской эпохи: По материалам особой кладовой Гос. Эрмитажа. (Ленинград 1975).

Zasetskaia 1979

I. P. Zasetskaia, Savromatskie i sarmatskie pogrebeniia Nikol'skogo mogil'nika v nizhnem Povolzh'e. Trudy Gosudarstvennogo Ermitazha 20, 1979, 87–113. И. П. Засецкая, Савроматские и Сарматские погребения Никольского могильника в нижне Поволжье. Труды Государственного Эрмитажа 20, 1979, 87–113.

Zasetskaia 1982

I. P. Zasetskaia, Pogrebenie u sela Kyzyl-Adyr Orenburgskoi oblasti (k voprosu o gunno-khunnskikh sviazakh). In: A. M. Mikliaev (red.), Drevnie pamiatniki kul'tury na territorii SSSR. Sbornik nauchnykh trudov (Leningrad 1982) 54–77. И. П. Засецкая, Погребение у села Кызыл-Адыр Оренбургской области (к вопросу о гунно-хуннских связях). In: А. М. Микляев (ред.), Древние памятники культуры на территории СССР. Сборник научных трудов (Ленинград 1982) 54–77.

Zasetskaia 1983

I. P. Zasetskaia, Klassifikatsiia nakonechnikov strel gunnskoi epokhi (konets IV–V vv. do n.e.). In: A. S. Skripkin (red.), Istoriia i kul'tura sarmatov (Saratov 1983) 70–84. И. П. Засецкая, Классификация наконечников стрел гуннской эпохи (конец IV–V вв. до н. э.). In: А. С. Скрипкин (ред.), История и культура сарматов (Саратов 1983) 70–84.

Zasetskaia/Bokovenko 1994

I. P. Zaseckaja/N. A. Bokovenko The origin of Hunnish cauldrons in East-Europe. In: B. Genito (ed.), The archaeology of the steppes. Methods and strategies. Papers from the International Symposium in Naples 9–12 November 1992 (Napoli 1994) 701–724.

Zasetskaia/Marchenko 1995

I. P. Zasetskaia/I. I. Marchenko, Klassifikatsiia stekliannykh kanfarov pozdneellinisticheskogo i rannerimskogo vremeni. Arkheologicheskii sbornik, Gosudarstvennyi Ermitazh 32, 1995, 90–104. И. П. Засецкая/И. И. Марченко, Классификация стеклянных канфаров позднеэллинистического и раннеримского времени. Археологический сборник, Государственный Эрмитаж 32, 1995, 90–104.

Zavitukhina 1998

M. P. Zavitukhina, Zolotaia plastina iz Zabaikal'ia v Sibirskoi Kollektsii Petra I. In: A. D. Grach/D. G. Savinov (red.), Drevnie kul'tury Tsentral'noi Azii i Sankt-Peterburg. Materialy Vserossiiskoi nauchnoi konferentsii posviashchennoi 70-letiiu so dnia rozhdeniia Aleksandra Danilovicha Gracha: dekabr' 1998 goda (Sankt-Peterburg 1998) 143–148. М. П. Завитухина, Золотая пластина из Забайкалья в Сибирской Коллекции Петра I. In: А. Д. Грач/Д. Г. Савинов (ред.), Древние культуры Центральной Азии и Санкт-Петербург. Материалы всероссийскои научной конференции посвященной 70-летию со дня рождения Александра Данилова Грача: декабрь 1998 года (Санкт-Петербург 1998) 143–148.

Zeder 2001

M. Zeder, A Metrical Analysis of a Collection of Modern Goats (*Capra hircus aegagrus* and *C. h. hircus*) from Iran and Iraq: Implications for the Study of Domestication. Journal of Archaeological Science 28, 2001, 61–79.

ZHANG 2008
Zhang Jinglei 张敬雷, Qinghai sheng Xiningshi taojiazhai hanjin shiqi mudi rengu yanjiu 青海省西寧市陶家寨漢晉時期墓地人骨研究 (Changchun 2008).

Zhang 2009
Zhang Linhu 張林虎, Xinjiang Yili Jilintai Kuqu muzang rengu yanjiu 新疆伊犁吉林臺台庫區墓葬人骨研究, PhD Dissertation, Jilin University (Changchun 2009).

ZHAO MO 1998
M. Prüch (Hrsg.), Schätze für den König von Zhao Mo. Das Grab von Nan Yue. Exhibition Catalogue Schirn Kunsthalle Frankfurt 5. Dez. 1998–22. Jan. 1999 (Heidelberg 1998).

ZHONGGUO 1962
Zhongguo kexueyuan kaogu yanjiusuo 中國科學院考古研究所, Kesheng zhuang di 140 hao mu 客省庄第 140 號墓. In: Fengxi fajue baogao 澧西發掘報告 (Beijing 1962), 138–140.

ZHONGGUO QIANBI 1998
Zhongguo qianbi da cidian bianzuan weiyuanhui bian 中國錢幣大辭典編纂委員會編, Zhongguo qianbi da cidian 中國錢幣大辭典 (Beijing 1998).

ZHONGGUO 2005
Zhongguo shehui kexueyuan kaogu yanjiusuo 中國社會科學院考古研究所, Han Chang'an cheng wuku 漢長安城武庫 (Beijing 2005).

ZHONGGUO/HEBEI 1980
Zhongguo shehui kexueyuan kaogu yanjiuso 中國社會科學院考古研究所/Hebei sheng wenwu guanlisuo 河北省文物管理所, Mancheng Han mu fajue baogao 滿城漢墓發掘報告 (Beijing 1980).

ZHONGGUO et al. 1981
Zhongguo shehui kexueyuan kaogu yanjiusuo 中國社會科學院考古研究所/Guangzhou shi wenwu guanli weiyuanhui 廣州市文物管理委員會/Guangzhou sheng bowuguan 廣州省博物館, Guangzhou Han mu 廣州漢墓 (Beijing 1981).

ZHONGGUO ET AL. 2002
Zhongguo shehui kexueyuan kaogu yanjiusuo 中國社會科學院考古研究所/Nei Menggu zizhiqu wenwu kaogu yanjiusuo 内蒙古自治區文物考古研究所/Jilin daxue bianjiang kaogu yanjiu zhongxin 吉林大學邊疆考古研究中心/Chifeng kaogudui 赤峰考古隊, Banzhijianhe zhongyou xian Qin shiqi yizhi 半支箭河中游先秦時期遺址 (Beijing 2002).

ZHONGYANG 1958
Zhongyang minzu xueyuan yanjiubu 中央民族學院研究部, Lidai gezu zhuanji huibian 歷代各族傳記會編 Vol. 1 (Beijing 1958).

ZHU 1995
Zhu Fenghan 朱鳳瀚, Gudai Zhongguo qingtongqi 古代中國青銅器 (Tianjin 1995).

ZHU/LI 1983
Zhu Jieyuan 朱捷元/Li Yuzheng 李域錚, Xi'an dongjiao Sandiancun Xi Han mu 西安東郊三殿村西漢墓. Kaogu yu wenwu 1983, 2, 22–25.

ZIELONKA 2006
J. Zielonka, Europe as empire. The nature of the enlarged European Union (Oxford 2006).

GLOSSARY

Note that in parentheses other spellings or the equivalent or meaning are named.

Abaoji	阿保機
Anding	安定
Ban Gu	班固
baoyun (precious clouds)	寶雲
beifang diqu (northern zone)	北方地區
Beihe (north of the river)	北河
Boyang (Baiyang)	白羊
Chang'an	長安
chanyu (shanyu, Xiongnu ruler or "khan")	單 於
Chaolukulun (stone fort)	朝鲁庫倫
Chaona (Zhaona)	朝那
Chaoxian	朝鮮
chen (servant, official)	臣
Cheng (Chengdi)	成(成帝)
Chengli gutu (Son of Heaven, in Xiongnu language)	賽犁孤塗
chou (silk)	紬
Chu	楚
Chuci	楚辭
Dai	代
Dailin	蹛林
daquanwushi (coin)	大泉五十
dazhong (great multitudes)	大眾
Di	狄
ding (cauldron)	鼎
Dingling	丁零
Dong Hu (Donghu, Eastern Hu)	東胡
Dunhuang	敦煌
Eastern Hu	(see Dong Hu)
erbei (ear cup)	耳杯
fu (cauldron)	釜
Fushi	膚施
Gekun	鬲昆
Gengshi(di)	更始(帝)
guan (jar)	罐
Guanghan	廣漢
Guanglu	光祿
Guangzhou	廣州
gudu hou	骨都侯
guiju (compass and square, TLV)	規矩
Gushi (see also Jushi)	姑師
Guyuan	固原
Han (dynasty)	漢(代)
heqin (joined kinship, peace treaty)	和親
hezong (alliance)	合縱
Hu (barbarian, northern barbarian)	胡
huang (stone ornament)	璜
Huhanye	呼韓邪 (呼韓耶)
Huimo	穢貉
Hunye	浑邪
Hunyu	渾庾
Huo Qubing	霍去病
Huyan	呼衍
ji (halberd)	戟
ji (horseman)	騎
jin (gold)	金
Jingdi	景帝
Jiuquan	酒泉
Jiyu	稽粥
jun (commandery)	郡
Junchen	軍臣
juqu	且渠
Jushi (see also Gushi)	車師
Juyan	居延
Kangju	康居
kaogong (workshop)	考工
Lan	蘭
Laoheshen	老河深
Laoshang	老上
Lelang	樂浪
Li Ling	李陵

lianghang (slanted writing surface) 兩行
Lin Hu 林胡
Liu Bang 劉邦
Liu Xuan 劉玄
Long (city) 龍(城)
Loufan 樓煩
lu (enemy) 虜
Luandi 攣鞮
Meng Tian 蒙恬
mingguang 明光
Modun (Maodun, Mode) 冒頓
nu (slave) 奴
Ordos (E'erduosi) 鄂爾多斯
pen (basin) 盆
Qiang 羌
qilin (mythical beast) 麒麟
Qin 秦
Qin Shihuangdi (Shihuangdi, the First Emperor of Qin) 秦始皇第
qingbai 清白
Qiuci 龜茲
Qiulin 丘林
Qushi 屈射
riguang 日光
Rizhu wang 曰逐王
Rong 戎
ruiyun (auspicious clouds) 瑞雲
sai (frontier garrison, strategic defense) 塞
Sanshui 三水
Shang 上
Shanggu 上谷
Shanglinyuan 上林苑
(Yujiulü) Shelun (郁久閭)社崙
Shiji (Records of the Historian) 史記
Shouxiangcheng (City for Receiving Submissions) 受降城
Shu 屬
shuguo (attached state) 屬國
Shun 順
Shuofang 朔方
si yin (private stamp) 私印
Sihe 四河
Sima Qian 司馬遷
siru (four nipples) 四乳
siru qinshou (four nipples with birds and beasts) 四乳禽獸
South of the River (the Ordos) 河南
Sulucheng 宿虜城
Tanshihuai 檀石槐
Tian Guangming 田廣明
Tian zi (Son of Heaven) 天子
Tianshui 天水
ting (station) 亭
Tuman (Touman) 頭曼
Tuoba (tribe of the Xianbei) 拓跋
wadang (disk-shaped roof tile ends) 瓦當
wang (king) 王
Wang Bian 王便
Wang Mang 王莽
Wang Sui 王遂
wanqi 萬騎
Wei 魏
wen (pot, urn) 瓮
Wu 吳
Wudi (Militant Emperor) 武帝
Wuhuan 烏桓
Wuling 武靈
Wulongwusi 烏龍吾斯
Wusun 烏孫
Wuwei 武威
Wuyuan 五原
wuzhu (coin) 五銖
Wuzhuliu 烏珠留
Xaio Jing 孝景
xi (stone ornament) 觿
Xianbei 鮮卑
Xiang Yu 項羽
Xianyun 獫狁
Xiao Wen 孝文
Xiaohuangdi 小皇帝
Xihe (West of the River) 西河
Xin'er 薪迩
Xiongnu 匈奴
Xuandi (Informed Emperor) 宣帝
Xuanlei sai 眩雷塞
Xubu 須卜
Xunyu 荀彧
Yan 燕
Yelü Chucai 耶律楚材
YiDi (collective term, barbarian people) 夷狄
Yinshan 陰山

Yuezhi (Rouzhi)	月氏
Yunzhong	雲中
Yuwen Xianbei	宇文鮮卑
zeng (steamer)	甑
Zengshan	增山
Zhang Qian	張騫
Zhanguo (Warring States)	戰國
Zhanguo ce (Strategies of the Warring States)	戰國策
Zhao	趙
Zhao Ponu	趙破奴
Zhao Xin	趙信
Zhaodi (Illustrious Emperor)	昭帝
zhaoming	昭明
Zhizhi	致支
Zhongshan	中山
Zhongyuan (Central Plains)	中原
Zhunge'er Qi	准格爾旗

INDEX OF AUTHORS

Jai Alterman, M.A.
Smithsonian Institution
National Museum of Natural History
Dept. of Anthropology, NHB 112
P.O. Box 37012
Washington, DC 20013-7012, USA
E-Mail: altermanj@si.edu

Dr. Chunag Amartüvshin
Mongolian Academy of Sciences
Institute of Archaeology
Jukov Street 77
Ulaanbaatar-51, Mongolia
E-Mail: achunag@yahoo.com

Prof. Dr. Zagd Batsaikhan
National University of Mongolia
Department of Anthropology and Archaeology
University Street 1
Ulaanbaatar 210646, Mongolia

Prof. Dr. Dr. h.c. Jan Bemmann
Rheinische Friedrich-Wilhelms-Universität
Pre- and Early Historical Archaeology
Regina-Pacis-Weg 7
53113 Bonn, Germany
E-Mail: Jan.Bemmann@uni-bonn.de

Dr. Evgenii S. Bogdanov
Russian Acadamy of Sciences, Siberian Branch
Institute of Archaeology and Ethnography
Prospekt Akademika Lavrent'eva 17
630090 Novosibirsk, Russia
E-Mail: bogdanov@archaeology.nsc.ru

Lee G. Broderick, M.Sc.
Bournemouth University
Centre for Archaeology
School of Applied Sciences
Talbot Campus, Fern Barrow
Poole, Dorset, BH12 5BB, United Kingdom
E-Mail: lbroderick@bournemouth.ac.uk

Dr. Ursula Brosseder
Rheinische Friedrich-Wilhelms-Universität
Pre- and Early Historical Archaeology
Regina-Pacis-Weg 7
53113 Bonn, Germany
E-Mail: Ursula.Brosseder@uni-bonn.de

Dr. Agniia N. Chistiakova
Russian Acadamy of Sciences, Siberian Branch
Institute of International Relations and Regional Studies
Vatutina 17/1
630078 Novosibirsk, Russia
E-mail: feng@yandex.ru

Dr. Chang Eun-jeong
National Museum of Korea
Dep. of Registration
6-ga Yongsan-dong
Yongsan-gu Seoul, South Korea
E-Mail: anarchicat@hotmail.com

Prof. Dr. Claudio Cioffi-Revilla
George Mason University
Krasnow Institute for Advanced Study
Computational Science, Center for Social Complexity
Research-1 Bldg MS 6B2, 4400 University Drive
Fairfax, VA 22030, USA
E-Mail: ccioffi@gmu.edu

Prof. Dr. Sergei V. Danilov
Russian Academy of Sciences
Institute of Mongolian, Buddhist Studies and Tibetology
Ul. Sakhianovoi 6
670042 Ulan-Ude, Republic of Buriatiia
Russian Federation
E-Mail: imbt@burinfo.ru

Prof. Dr. Nicola Di Cosmo
Institute for Advanced Study
Fuld Hall 308
Einstein Drive
Princeton, NJ 08540, USA
E-Mail: ndc@ias.edu

Prof. Dr. Diimaazhav Erdenebaatar
Faculty of Social Science
Ulaanbaatar University
5-r Khoroo, Bayanzurkh Duureg
Ulaanbaatar-51, P.O. Box-167, Mongolia
E-Mail: ediimaajav@yahoo.com

Dr. Gelegdorzh Eregzen
Mongolian Academy of Sciences
Institute of Archaeology
Jukov Street 77
Ulaanbaatar-51, Mongolia
E-Mail: eregzen@yahoo.com

Dr. Chimmiddozh Erööl-Erdene
Mongolian Academy of Sciences
Institute of Archaeology
Jukov Street 77
Ulaanbaatar-51, Mongolia
E-Mail: cheruulerd@yahoo.com

Baatar Galbadrakh, M.A.
Faculty of Social Science
Ulaanbaatar University
5-r Khoroo, Bayanzurkh Duureg
Ulaanbaatar-51, P.O. Box-167, Mongolia

Zham'ian-Ombo Gantulga, M.A.
Mongolian Academy of Sciences
Institute of Archaeology
Jukov Street 77
Ulaanbaatar-51, Mongolia
E-Mail: ganuudg@yahoo.com

Dr. Dondog Garamzhav
"Monnis Tower" 5, 6, 11 & 12th floor
1st khoroo, Sukhbaatar District, Chinggis Avenue-15
Ulaanbaatar-14240, Mongolia

Ass. Prof. Dr. Enno Giele
The University of Arizona
Department of East Asian Studies
1512 First Street
Learning Services Building, Room 122
Tucson, AZ 85721-0105, USA
E-Mail: giele@email.arizona.edu

Ivan Iu. Grebennikov, M.A.
Altaiskii Gosudarstvennyi Universitet
Kafedra Arkheologii, Etnografii i Muzeologii
Prospekt Lenina 61
656049 Barnaul, Russia

Dr. Juliana Holotová-Szinek
Hôsei University
Institute for Okinawan Studies
2-17-1 Chiyoda-ku, Fujimi
102-8160 Tôkyô, Japan
E-Mail: szinek_juliana@yahoo.fr

Ass. Prof. Dr. William Honeychurch
Yale University
Department of Anthropology
10 Sachem St.
New Haven, CT 06520-8277, USA
E-Mail: William.honeychurch@yale.edu

Ass. Prof. Dr. Jean-Luc Houle
Department of Folk Studies and Anthropology
Western Kentucky University
1906 College Heights Blvd. #61029
Bowling Green, KY 42101-1029, U.S.A.
E-Mail: jean-luc.houle@wku.edu

Tömör-Ochir Iderkhangai, M.A.
Faculty of Social Science
Ulaanbaatar University
5-r Khoroo, Bayanzurkh Duureg
Ulaanbaatar-51, P.O. Box-167, Mongolia

Dr. Grigorii L. Ivanov
Irkutsk Museum of Regional Studies
Nauchno-fondovyi otdel
Ul. K. Marksa 13 a/ia 230
664003 Irkutsk, Russia
E-Mail: ivanov85@mail.ru

Dr. Erik G. Johannesson
The University of North Carolina, Chapel Hill
Department of Anthropology
301 Alumni Building
Chapel Hill, NC 27599-3115, USA
E-Mail: erikjoh@email.unc.edu

Dr. Sergei V. Khavrin
State Hermitage
Dept. of Scientific and technical Examination
Dvortsovaia Nab. 34
190000 Sankt Petersburg, Russia
E-Mail: sergekhavrin@yandex.ru7

Dr. Alexei A. Kovalev
Legislative Assembly of St. Petersburg
190000 Isaakievskaya Place
6 St. Petersburg, Russia
E-Mail: chemurchek@mail.ru

Prof. Dr. Nikolai N. Kradin
Russian Academy of Sciences, Far East Branch
Institute of History, Archaeology and
Ethnology of the Peoples of the Far East
Pushkinskaia St. 89
Vladivostok, 690950, Russia
E-Mail: kradin@mail.ru

Liudmilla P. Kundo
Russian Acadamy of Sciences, Siberian Branch
Institute of Archaeology and Ethnography
Prospekt Akademika Lavrent'eva 17
630090 Novosibirsk, Russia

Dr. Christine Lee
Jilin University
Research Center for Frontier Archaeology
Qianjin Dajie No. 2699
Changchun, Jilin 130012, China
E-Mail: christinelee70@gmail.com

Pavel Leus, M.A.
Nansenstr. 3
12047 Berlin, Germany
E-Mail: leuss@web.de

Dr. Michelle L. Machicek
Museum Conservation Institute/National
Museum of Natural History
Smithsonian Institution
Museum Support Center
4210 Silver Hill Road
Suitland, MD 20746, U.S.A.
E-Mail: prp07mlm@sheffield.ac.uk

Prof. Dr. Cheryl Makarewicz
Christian-Albrechts-Universität Kiel
Institut für Ur- und Frühgeschichte
Johanna-Mestorf-Str. 2–6
24118 Kiel, Germany
E-Mail: cmakarew@gmail.com

Dr. Hélène Martin
INRAP et TRACES/UTAH UMR
5608 du CNRS
MSH de Toulouse
13 rue du négoce, ZA des Champs Pinsons
31650 Saint-Orens-de-Gameville, France
E-Mail: helene.martin@inrap.fr

Dr. Sergei S. Matrenin
Altaiskii Gosudarstvennyi Universitet
Kafedra Arkheologii, Etnografii i Muzeologii
Prospekt Lenina 61
656049 Barnaul, Russia
E-Mail: matrenins@mail.ru

Dr. Bryan K. Miller
University of Pennsylvania
Museum of Archaeology and Anthropology
3260 South Street
Philadelphia, PA 19104, USA
E-Mail: millerbryank@gmail.com

Enkhbaiar Minzhiddorzh, M.A.
Faculty of Social Science
Ulaanbaatar University
5-r Khoroo, Bayanzurkh Duureg
Ulaanbaatar-51, P.O. Box-167, Mongolia

Dr. Albert Russell Nelson
University of Michigan
Museum of Anthropology
Ann Arbor, Michigan 48109-1079, USA
E-Mail: arnelson@umich.edu

Samdanzhamts Orgilbaiar, M.A.
Faculty of Social Science
Ulaanbaatar University
5-r Khoroo, Bayanzurkh Duureg
Ulaanbaatar-51, P.O. Box-167, Mongolia

Prof. Dr. Pan Ling
Jilin University
Research Center for Frontier Archaeology
Qianjin Dajie No. 2699
Changchun, Jilin 130012, China
E-Mail: panling8600@yahoo.com.cn

Prof. Dr. Natal'ia V. Polos'mak
Russian Acadamy of Sciences, Siberian Branch
Institute of Archaeology and Ethnography
Prospekt Akademika Lavrent'eva 17
630090 Novosibirsk, Russia
E-Mail: natalia.polosmak@gmail.com

Prof. Dr. Denis Ramseyer
Université de Neuchâtel
Laténium, Parc et Musée d'archéologie de Neuchâtel
Institut de Préhistoire de l'Université de Neuchâtel
Espace Paul Vouga
2068 Hauterive, NE, Switzerland
E-Mail: Denis.Ramseyer@ne.ch

Dr. J. Daniel Rogers
Smithsonian Institution
National Museum of Natural History
Dept. of Anthropology, NHB 112
P.O. Box 37012
Washington, DC 20013-7012, USA
E-Mail: rogersd@si.edu

Prof. Dr. Walter Scheidel
Department of Classics
Stanford University
Stanford, CA 94305-2145, USA
E-Mail: scheidel@stanford.edu

Dr. Saran Solongo
Institute of Physics and Technology
Mongolian Academy of Sciences
Enkhtaivan Ave. 54b
Ulaanbaatar-51, Mongolia
E-Mail: saransolongo@yahoo.com

Prof. Dr. Alexei A. Tishkin
Altaiskii Gosudarstvennyi Universitet
Kafedra Arkheologii, Etnografii i Muzeologii (Kabinet 211)
Prospekt Lenina 61
656049 Barnaul, Russia
E-Mail: tishkin@hist.asu.ru

Ass. Prof. Dr. Tsagaan Törbat
Mongolian Academy of Sciences
Institute of Archaeology
Jukov Street 77
Ulaanbaatar 51, Mongolia
E-Mail: ts_turbat@yahoo.com

Natal'ia V. Tsydenova, M.A.
Russian Academy of Sciences
Institute of Mongolian, Buddhist Studies and Tibetology
Ul. Sakhianovoi 6
670042 Ulan-Ude, Republic of Buriatiia
Russian Federation
E-Mail: tsydenova@mail.ru

Marquita Volken
Rue du Rotillon 10
1003 Lausanne, Switzerland
E-Mail: Gentle.craft@vtxnet.ch

Prof. Dr. Daniel C. Waugh
University of Washington, Seattle
Department of History
Box 353560
Washington 98195, USA
E-Mail: dwaugh@u.washington.edu

Dr. Steven P. Wilcox
George Mason University
Krasnow Institute for Advanced Study
Computational Science, Center for Social Complexity
Research-1 Bldg MS 6B2, 4400 University Drive
Fairfax, VA 22030, USA
E-Mail: swilcox2@gmu.edu

Dr. Joshua Wright
Stanford University,
Postdoctoral Fellow in the Humanities
IHUM Program
Sweet Hall, 2nd Floor
590 Escondido Mall
Stanford, CA 94305-3068, U.S.A.
E-Mail: jwright3@stanford.edu

Prof. Dr. Yang Jianhua
Jilin University
Research Center for Frontier Archaeology
Qianjin Dajie No. 2699
Changchun, Jilin 130012, China
E-Mail: jhyangar@yahoo.com.cn

Dr. Yun Hyeung-won
Daegu, National Museum of Korea
200 Hwanggum-ro, Suseong-gu
Daegu Metropolitan City, South Korea
E-Mail: yundorj1@yahoo.co.kr

Dr. Zhang Linhu
Jilin University
Research Center for Frontier Archaeology
2699 Qianjin St.
Changchun, Jilin 130012, China
E-Mail: tigerforest@163.com

BONN CONTRIBUTIONS TO ASIAN ARCHAEOLOGY

Edited by Jan Bemmann

1. H. Roth/U. Erdenebat/E. Nagel/E. Pohl (eds.),
Qara Qorum City (Mongolei) 1.
Bonn Contributions to Asian Archaeology, Volume 1 (Bonn 2002).
Out of print – ISBN 3-936490-01-5

2. J. Bemmann/U. Erdenebat/E. Pohl (eds.),
Mongolian-German Karakorum-Expedition, Volume 1.
Excavations in the Craftsmen-Quarter at the Main Road.
Forschungen zur Archäologie Außereuropäischer Kulturen 8 =
Bonn Contributions to Asian Archaeology, Volume 2 (Wiesbaden 2009).
€ 98,00 – ISBN 978-3-89500-697-5

3. P. B. Konovalov,
The Burial Vault of a Xiongnu Prince at Sudzha (Il'movaia pad', Transbaikalia).
Bonn Contributions to Asian Archaeology, Volume 3 (Bonn 2008).
€ 13,90 – ISBN 3-936490-29-5

4. J. Bemmann/H. Parzinger/E. Pohl/D. Tseveendorzh (eds.),
Current Archaeological Research in Mongolia. Papers from the First International Conference on "Archaeological Research in Mongolia", held in Ulaanbaatar, August 19th–23rd, 2007.
Bonn Contributions to Asian Archaeology, Volume 4 (Bonn 2009).
€ 74,00 – ISBN 978-3-936490-31-2

5. Ursula Brosseder/Bryan K. Miller (eds.),
Xiongnu Archaeology. Multidisciplinary Perspectives of the First Steppe Empire in Inner Asia.
Bonn Contributions to Asian Archaeology, Volume 5 (Bonn 2011).
€ 80,00 – ISBN 978-3-936490-14-7

Orders and information: sekretariat.vfgarch@uni-bonn.de (1, 3–5), info@reichert-verlag.de (2)