Kurgans, Ritual Sites, and Settlements
Eurasian Bronze and Iron Age
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Edited by
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BAR International Series ____
2000
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This richly illustrated volume, which will add immensely to the small, yet growing corpus, of Eurasian Archaeology published in the English language. Comprised of thirty articles, the authors have focused on the Bronze Age beginning in the third millennium BC to ca., continuing to include the first millennium BC Early Iron Age, with a terminus of ca. AD 500. The geographic range extends from the far western great Hungarian plains, north to Fennoscandia and its relationship with Siberia, south to include northern Afghanistan and the Kalmik steppes, and east to the Altai Mountains in western Mongolia. The volume has been divided into four parts: Part I, Eurasian Archaeological Theory; Part II, Archaeological Excavations; Part III, Interpretations of Eurasian Archaeology in the Bronze Age; and Part IV, Interpretations of Eurasian Archaeology in the Early Iron Age.

Although the majority of the articles resulted from papers presented at the European Archaeological Association sessions on Eurasian archaeology in 1998 (Göteborg, Sweden) and 1999 (Bournemouth, England), organized by Ludmila Koryakova and Leonid Yablonsky, other appropriate articles have been included, some of which were presented at the Eurasian session, Society for American Archaeology 2000 meetings (Philadelphia, U.S.A.), organized by Sandra Olsen. The arguments presented in these papers embrace a wide stroke of topics: art and “Animal Style;” Cultural Horizons; symbiotic relationships between forest-steppe and steppe folks as well as sedentary and nomadic tribes; their anthropomorphic sculptures, petroglyphs, and trepanations realized for cultic, religious, and mortuary beliefs; but weaponry, warriors, and chariots contrast with sumptuary votive offerings, with similar iconographic motifs from diverse regions, mundane textiles, and the practical and luxury of metallurgical riches. The authors are as diverse in their origins as their works are in content, penning their research from England, Germany, Italy, Ireland, Russia, Sweden, and the United States.

Eurasian Archaeological Theory” (Part I) begins with two articles that discuss longstanding terminology relating to the Early Nomads: “Scytho-Siberian,” the Scythian World,” and the “Scythian-Triad” and, further, the need to establish regional classifications so that historical and scientific approaches can be achieved. As a partial answer to these problems, the second paper proposes Cultural Horizons (after the Pre-Columbian model) in order to rationally discuss the degree of similarity and differences between regional Early Nomads. As an adjunct methodology for extracting specific cultural continuities (or lack thereof), the third article reviews the significances of architecture and mortuary offerings in identifying nomadic social power and ideology. The last paper in this section analytically explores the relationship between archaeological theory and mortuary interpretations using excavated materials from the southern Ural region.

Archaeological Excavations (Part II), presents six recent expeditions, emphasizing the Early Iron Age and adding significantly to Eurasian data. The first article treats artifacts from an ancient sanctuary, dated to the last half of the first millennium BC and located in the Ustyurt Plateau between the Aral and Caspian seas. There, the architecture relates to the Zoroastrian dakhma; the popularization of a mythic hero is emphasized by anthropomorphic sculptures that represent “warriors;” and tamgas (brands) indicate the presence of Sarmatians nomads. In the second report, several years’ excavations in the steppes between the Don and Volga (with hundreds of artifacts illustrated) are summarized. Although some kurgans show the presence of Bronze Age peoples, the majority of the burials were Sarmatian with Early, Middle, and Late Sarmatian periods represented, and new interpretations on the elusive Middle Sarmatian period are presented. Between the 7th century BC and the 3rd century AD, nomads and semi-nomadic herders, now known as the Sargat Culture, occupied the forest, forest-steppe, and steppes east of the Ural Mountains. Excavations in this region revealed the symbiotic interaction of the diverse populations, particularly during the Early Iron Age, that created a distinctive architecture and practiced their specific mortuary, economic, and the stylistic traditions. The following article, also using materials from the excavations of the Sargat kurgans, provides a paleoenvironmental and paleoethnographical sketch of the Sargat Culture through the identification of numerous wood samples used in constructions.

Further to the east in southern Kazakhstan, ongoing field surveys conducted between 1997-1999 in the Talgar alluvial fan, and in the upland valleys of the Turgai and Asi rivers in the Tien Shan Mountains, disclosed 120 burial complexes and six settlement sites dating to both the Bronze Age and the Early Iron Age. The Talgar site appears to have had camps during the first millennium BC to the middle of the second millennium BC, while the uplands were utilized from the Bronze Age to present times. The final article in Part II is the excavation report of an isolated stone mound at the top of the Beiram Pass in the Altai Mountains, western Mongolia. More than 4,000 artifacts, deposited from ca. 5th century BC to present times, reveal an anthology of cultic convictions practiced by diverse nomadic populations, including the Manchu whose artifacts demonstrated strong lowland China ties.

The first article in Interpretations of Eurasian Archaeology in the Bronze Age (Part III), studies textiles constructed from plant
and animal fibers and types of looms used during the third-second millennia BC in the Kalmyk steppes west of the Caspian Sea. The next article discusses theories of horse domestication in relation to the possible modification of Eurasian Bronze Age dating based upon European, Anatolian, and Mycenaean chronologies. The final three articles turn to the Sintashta-Petrovka Culture east of the Ural Mountains for their inspirations. The first discusses burial practices in this region in relation to the Indo-Iranian customs recounted in the Rig Veda and the Avesta. In the next, theories advanced concerning the function of Sintashta-Petrovka Culture chariots, designed either for combat, ritual racing, or burials ceremonies are reviewed and textual evidence is brought to fore in the discussion. The final article investigates metallurgical technology used in Sintashta settlements, comparing it with similar technologies in diverse Eurasian regions to determine the origins of the Sintashta people.

Interpretations of Eurasian Archaeology in the Iron Age (Part IV), is comprised of fifteen articles. The first, employing both historical and archaeological sources, discusses nomadic migrations toward central and southern Europe during the early centuries AD. The next article considers the question of Thraco-Cimmerian migrations or assimilations on the great Hungarian plains. In northern Fennoscandia, archaeological finds indicate long distance contacts between this region and Siberia, which influenced the development of a reindeer domestication economy; thus not only did new settlement patterns come to fore, but nomadic contacts may have shaped some Saami mythological themes.

Returning to the southern Ural steppes, the next article compares Sauromatian and Sarmatian funerary rituals and their most diagnostic artifacts in the mortuary inventories, concluding that the two regions did not entertain a singular culture during the Early Iron Age. Decorative style and ornamental traditions based upon a formal typology is the methodology employed in the next article that studies ceramics from Transural excavations. The Sargat Culture, east of the Ural Mountains, is the centerpiece of the subsequent article in which the cenotaph is introduced as an additional burial category, contrasting with the looted grave.

Northern Afghanistan is the locale of the next article, which explores Tillya Tepe sumptuary mortuary offerings and their iconographic motifs to define statuses of the deceased. The Sargary Culture, the focus of the subsequent article, occupied the interfluvia of the upper Ural and the lower Tobol rivers, and is used as an example of a population regrouping resulting from changing climatic conditions leading to aridization. In the following article, cultural traditions revealed in the Gordion tumuli in Phrygia, and the Bashadar and Pazyryk kurgans in the Altai Mountains are compared, leading to conclusion that Cimmerian traditions were responsible for new burial rituals in the eastern region.

“Animal Style” art of the Early Nomads is considered, in the next article, as a derivative of shamanic art—or an “art of survival” and, moreover, as an expression of the warrior nobility was paralleled by Bactrian Bronze Age and Luristan art. Trepanations, embalming, mummification, and body processing in the ancient Mongolian, Tuvinian, Kazakhstan, southern Siberian societies are focused upon from diverse points of view in the next two articles. Moving to Hsiung nu geometric artwork examined in the next article, the author reveals evolutionary sequences that transformed the “Scytho-Siberian” Animal Style to one that appropriately conformed to new parameters demanded by the unique Hsiung nu ethnic, cultural, and possibly linguistic traditions.

Disclosed by archaeological materials, the development in three chronological stages of horseriding harnesses is discussed in the subsequent article, and illustrated by petroglyphic images and the ritual finds from the Arzhan and Pazyryk excavations. The final article in this vast corpus discusses sacred space—as revealed by petroglyphs at Terekty Aulie in central Kazakhstan—in which different societies encounter different experiences, and the images carved on stone were symbols of spirits’ power and invisible realms.

Upon reading this corpus of material, one is left with little doubt that each prehistoric Eurasian population, sedentary or nomadic, had a many-faceted culture that requires many more investigative studies. The articles also illustrate the enthusiasm in which archaeologists are internationally collaborating and contributing to the scrutiny of Eurasian archaeology.

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Berkeley, California
August 2000
Part I

Eurasian Archaeological Theory
"Scythian Triad" and "Scythian World"

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Abstract
Using mythologized archaeological terms such as “Nomadic Civilization” only destroys the historicism of archaeology and attaches superficial formality to the discipline. A strict, extremely cautious, and specially developed approach for the comparison of the archaeological data and written sources, however, could make archaeology more scientific and, hence, more historical. To escape from a network of ancient and modern myths it is necessary to create specific regional and special archaeological reconstructions on the basis of general taxonomic achievement. We need to think about the generalization of regional classifications and devise ways to bridge the different multidisciplinary historical and scientific approaches. In reality we have only two bridges that can be used to connect archaeology with the adjacent historical discipline; these occur on a chronological level and a geographical locus.

Key Words
Scythian World, Scythian and Sarmatian archaeology, cultural continuum and cultural horizon, “ethnic culture” and “culture of the ethnos”

Introduction
The richest kurgans that were excavated in the Northern Black Sea region during the 19th century were powerful catalysts for the development of Russian archaeology. Gorodtsov (1905, 1907), who investigated these kurgans, associated them with the historical Sarmatians, and initiated a new archaeological objective especially devoted to the ethnic history of the Sarmatians. Following Rostovtsev’s (1918b) brilliant research, this study has become not only a traditional, but also a classical element of Russian archaeology. Before World War II, Rau (1927) and Grakov (1947) formulated the basic theoretical generalization of the Scythian-Sarmatian period materials. These two scholars were not only the founders of the Russian school which studied Eurasian steppe nomads, but they also set the trends for future scientific research in the field. They defined the parameters for the research and supplied the inspiration to use archaeological material, not only for the development of typological classifications and chronologies, but also for ethnographic, ethno-genetic, ethno-social, and ethno-political reconstruction. The written sources of the ancient authors seemed to provide boundless opportunities that appeared to the researchers to be a solid foundation on which to base such reconstructions. The historiography of Scythian and Sarmatian archaeology has been of enormous interest to the discipline for both Russian and foreign scholars. Archaeologists in conjunction with classical historians, physical anthropologists, historical linguists, and art-historians have all taken part in this research. At the same time, however, the study has had its Achilles’ heel.

Early archaeological research on the steppe cultures
The first major and extremely magnificent finds of the Late Bronze and Early Iron Age were made in the European steppes. A precise picture was drawn when these artifacts were compared with the data derived from written sources, since the sites located in the Northern Black Sea steppes corresponded so well with Scythian history. Finds obtained from synchronous kurgan excavations in the Volga-Don River region also corresponded to the Sauromatians of Herodotus, and kurgans dated to a later period were associated with the historical Sarmatians. With regard to the Sarmatian World, therefore, the discussion was basically directed upon the absence or presence of direct ethno-genetic connections between the bearers of the principal cultures of the four early nomadic groups: the Sauromatians, the Early Sarmatians, the Middle Sarmatians and the Late Sarmatians. Despite the appearance of a huge quantity of new archaeological data, this discussion has not diminished in importance at the end of the 20th century, and debate will continue into the next century. Moshkova (1989, 1991) has recently published historiographical sketches on Sarmatian archaeology that contain detailed information pertaining to the scientific theories and unsolved problems of Scythian and Sarmatian archaeology.

The origins of the “Scythians”
No one doubted the independent and autoethnic genesis of the Scythians who inhabited the Black Sea steppes, and the Scythian Culture was considered to be the ethno-political center for the early Eurasian nomads. Paleoanthropological data published by Debets (1948: 158) did not contradict this theory. Excavations of Scythian kurgans in the North Black Sea region have shown that male burials primarily contained three types of artifacts: weapons, horse harnesses, and items decorated in the so-called “Animal Style.” This complex of goods has been termed the “Scythian Triad” and it was considered to be symbolic of the ethnic Scyths. When discussing Scythian material culture during the 1950s, Grakov and Melukova (1954: 92–93) introduced the concept of the “Scythian Triad” into the discipline, and proposed that it should be considered to be a conditional symbol of an archaeological site left by the real Scythians.

Upon discovery of the Altaic burials in the 1930s and 1940s, such phrases as the “Altai culture and population of the Scythian period” appeared (Rudenko 1953, 1960). Following this ex-
ample, a direct transfer of the ethnonym “Scythian” occurred with reference to both the diverse typological and chronological aspects of the sites (Rudenko and Rudenko 1949; Tolstov 1961, 1963). At present, as was the case in the past, ethnically oriented clichés such as “Scythians” and “Scythoid Culture” are still frequently—and absolutely incorrectly—incorporated into archaeological publications, including popular editions (e.g. Alekhn 1989; Kozhin 1989; Kurockhin 1990, 1993). At the end of the 20th century researchers, in fact, continued the tradition of the ancient authors who used the ethnonym “Scythians” to denote the heterogeneous and multicultural conglomerate of steppe nomads as well as the stock- and cattle-breeders. The misuse of this ethnonym in archaeology has been a disservice to the science. It has created, moreover, a psychological basis for the theory that there was the existence of “unity” within the early nomadic cultures who inhabited the steppelands from the Danube to Mongolia.

In specific literature, the idea of unity was emphasized through a combination of terms and creation of phrases such as the “Scythian-Siberian World,” “Scythian-Siberian Animal Style,” “Historical Unity of the Scythian-Siberian World” and “Scythian-Siberian Historical-Cultural Unity” (Martynov and Alexeev 1986; Mogilnikov 1989). When it became necessary to prove unity, Herodotus’ text was drawn upon since he commented that the Scyths had come from Asia; current myth-makers have even added “from the depths of Central Asia.” If it had been possible to prove this version presented by “the Father of History,” as Herodotus has been called, researchers studying European early Scythian sites would have resolved some of their own regional problems. Specifically, the explosive development of the Scythian Culture in the Black Sea region would have been explained. An unsolved problem was the typological, chronological, and genetic parity of the pre-Scythian period and Scythian period (for a review of the data refer to Terenozhkin 1965; Leskov 1984; Klochkov and Murzin 1987). This problem, which required careful and labor-consuming archaeological research at a regional level, would have been easily resolved by recognizing that the Scythian population had appeared in the Black Sea area as a complete and complex formation. Similarly, the issue of the origin of the Sarmatian Culture in the Volga River-Ural region would have been resolved— as is currently happening today (Zhelezchikov 1987: 12).

Terenozhkin and the scholars that belonged to his school, particularly Murzin (1986), supported the hypothesis that Central Asia was the origin of the Scythian Culture. This hypothesis required the correlation of chronological data. Archaeological sites from the western steppes that contained Scythian artifacts, such as Endzha, Belogradets, and Visokaya Mogila (High Grave) (Popov, 1932; Bidziyly and Yakovenko, 1974; Polin, 1987), had been dated to the 7th and possibly even to the end of the 8th century BC. Simple logic, therefore, demanded that “Scythian” sites situated deep in Asia should be dated much earlier.

At the beginning of the 1970s, Gryaznov (1980) excavated the Arzhan Kurgan in Tuva and discovered grave goods that were very similar to those of the Scythians. An epic began in which, for the greater part of the next three decades, experts were preoccupied with this excavation. Gryaznov believed that the kurgan had been constructed at the beginning of the 8th or, even as early as, the 9th century BC. The traditional chronology established for early Saka antiquities (7th–5th centuries BC) was evaluated and redefined by Kazakh archaeologists (Aakishev and Aiskev 1978). Martinov (1996) has also joined them in the redating process, while Zhelezchikov (1987) and Ismagilov (1988) have maintained a close position regarding the origin of the western steppe Scyths. At present a number of Russian archaeologists, however, believe that the Arzhan antiquities should be dated to the end of the 7th or even the 6th century BC (Chlenova 1997).

Further events accrued like an avalanche. In order to recognize the Asian origin of the Scyths as recorded in Herodotus it was necessary to find archaeological sites in the steppes that belonged to the Cimmerians, the precursors of the Scythians. The discussion has intensified concerning the connection between concrete archaeological cultures and disparate archaeological sites belonging to the Cimmerians who were mentioned in written sources. Many scholars believe in the existence of a specific Cimmerian ethnos. Only pre-Scythian sites, and sites located in the Black Sea area, have been identified with the Cimmerians (Terenozhkin 1976; Alexeev et al 1993). European archaeologists had divided opinions concerning the identification of the Cimmerians with the diverse pre-Scythian antiquities. Discussion again surged concerning the chronological and typological connections between the cultures, and their place within other Late Bronze Age cultural formations. The discussion is far from over, and currently these experts have come full circle.

Problems of terminology

As it continued to be developed, the results of the Central Asian hypothesis surely would have surprised the theory’s founders. From using etymologically inaccurate terms such as “Historical Unity of the Scythian-Siberian World” and “Scythian-Siberian Cultural-Historical Unity” the innovators, who were experts in the field of eastern steppe archaeology, began to use even more capricious word-combinations such as “Civilization of the Early Eurasian Nomads.” The works of Martinov have made the most stalwart attempt to substantiate this concept. A special conference devoted to general issues of Scythian archaeology was held in 1992 at the Institute of Archaeology in Moscow, and the conference papers were published (KSIA 1993). The main conclusions of the conference were related to issues of the “Scythian World.” Members of the Scythian-Sarmatian Department of the Institute of Archaeology: A. I. Melukova, M. G. Moshkova, V. S. Olikhovsky, V. G. Petrenko, V. E. Maslov, N. L. Chlenova, and L. T. Yablohny have been involved in field research and theoretical development. They have evolved independent typological classifications and chronological scales that have been developed on the basis of specific regional materials. These researchers have also questioned the chronological basis used for the hypothesis that the Scythians originated in Central Asia. They have postulated that
the earliest formation for both the Scythian and Saka Cultures could not have taken place before the end of the 8th century BC (Yablonsky 1998).

The scholars mentioned above who have worked to formulate special terms that can be used to denote the different early Eurasian nomadic cultures have been extremely unsuccessful, even from a logical point of view. In particular, the term “Scythian-Siberian World” is illogical because it connects etymologically discrete terms; the first refers to ethnicity while the second to geography. It has been suggested that the term “Scythian-Siberian World” should be replaced with “Scythian World.” This phrase is hardly scientific because it continues the ethnic terminology “Scythian” thereby labeling populations who could not possibly have belonged to the genuine Scythians since their genesis was unrelated to that of the population of the Black Sea region.

Raevsky (1993) has postulated the concept of the “cultural continuum.” Following his point of view, the complete name of the archaeological cultures that formed this “continuum” must be termed the “Eurasian Cultural Continuum of the Scythian Epoch.” It is possible to agree with the semantics of this term for it excludes both dangerous aberrations and ethnic contradictions. The term, however, has not become established in archaeological literature because of its length and complexity. In a review of Latin American archaeological materials, Bashilov (1993) has suggested the incorporation of the concept of “cultural horizons” in connection with the “Scythian World.” Similar material cultures and spiritual phenomena could cover various territories yet this terminology does not incorporate the connotation of “unity.”

The simplistic definition of “Scythian Triad” has become an ethnic symbol and, moreover, completely contradicts scientific fact; it also deliberately brings non-Scythian Cultures and elements into the Scythian Circle. “Triad” is, further, an ultra-ethnic category since it represents a sub-cultural prestigious sign belonging to peoples of different cultural and genetic origin (Yablonsky 1990, 1992, 1996). In order to explain the phenomenon of the “explosive” occurrence and rapid dissemination of material culture throughout the Eurasian steppes it is necessary to consider the basic models of cultural innovations. We know from ethnographic data that in the early stages of the development of a hierarchical society essential distinctions occur between members of the lower and higher social strata, particularly concerning rituals, values, and lifestyles. Gradually, social statuses became either completely detached from each other or poorly informed about the other. Under such conditions, material cultural artifacts that initially have a national origin began to lose their original utilitarian function, and over time develop a prestigious and symbolic nature.

As noted above, separate social layers of cultures can occur within the united ethnos. The ethnological terminology for this phenomenon is “culture of sub-socium.” Cultural innovations can occur in either of two ways; through invention or borrowing. The mechanism of borrowing, either utilitarian or symbolic, was strictly dependent upon the function of transmitting the object. An object, itself, can carry ethnic attributes. Dissemination of items with utilitarian function is usually connected with marriage-family interrelations but, nevertheless, we believe that the majority of transmitted goods originated in the settlements. Any ritual phenomena, including the artifacts used in funeral rites, had symbolic significance and are usually found in burials. The innovation mechanism of prestigious-sign property has a special character. After arriving at the prestigious elite strata of the ethnos, the object is borrowed from one sub-socium culture to another thereby creating a chain reaction. At the beginning, only elite ethnic strata were involved in inter-ethnic contacts. It is important to mention that military leaders were the social group most frequently involved in this type of exchange. Data indicates that cultural innovations were spread neither in a straight line nor only “in a horizontal space” since they periodically moved “vertically” inside the system of ethnic social stratification. Their spread in the “horizontal” direction was extra-ethnic.

I believe that the “Scythian Triad” itself appears as a vivid example of prestigious sign attributes of the material and spiritual culture systems. It consisted of separate, but spiritually significant elements. When each of these elements are taken separately they would have only had a utilitarian role, but when they are united in the “Triad,” they acquired symbolic and religious prestige, in addition to having magical functions. Borrowing religio-magical attributes was facilitated when the universal character of some mythological concepts permitted perceiving “another” as semantically identical to “our.” When borrowing the technological system, however, many objective circumstances were required, such as an appropriate ecological climate that also includes a suitable social and psychological atmosphere. Even under appropriate conditions, the level of development as well as a similar economic-cultural orientation must be in place for specific cultural elements to be assimilated. It is not casually proven, therefore, that typological and technological analyses of each element composing the “Scythian Triad” in the different regions of the steppes, demonstrate traditional specificity in the execution of the singular elements of the Triad. This is true whether it be types of armament or the stylistic elements of the Animal Style. What is required is an evaluation of regional features, such as animal style images, types of arrowheads, and horse harness fasteners as well as the technologies involved in their manufacture.

The concept of “cultural horizon,” that replaces the less appropriate connotation of “community” and “unity,” works well also when we consider the archaeological materials concerned with the issues of the formation of the Sauromatian Culture.

Conclusions
Each steppe region reveals cultural and anthropological specificity within the general historical-stadium phenomena. The transition to the concept of “cultural horizons” or “continuum” also forces us to search for new methodological approaches when working with archaeological materials. In this context we should consider two themes; the first concerns the problem
of a parity between “ethnic culture” and “culture of the ethnos,” concepts that are not equal. The second theme is related to the problem of cultural horizon borders that may have coincidence, or lack of coincidence, in time and space. In the first place, the terminology “continuum” and “horizon” assume a continuous geographic distribution of certain cultural attributes. These attributes more often reflect the culture of the ethnos as opposed to the ethnic culture.

Ethnologists consider the term “culture of ethnos” to represent the entire complex of cultural property belonging to a given ethnos, an understanding that is independent of whether or not various elements of culture have ethnic coloring, or are ethnically neutral. In principle, the material culture of different ethnoses can include more or less similar artifacts due to their specialized functions. This would be true, for example, of artifacts that belonged to cultures with the same type of economy. The term “ethnic culture” is defined as the totality only of those elements and structures of the ethnos culture that actually have ethnic specificity, and that perform an ethnic partition in opposition to “we” and “they” (Kozlov 1979). Any ethnos, and phenomena that the ethnos includes, can be presented as a solidified constant that supports the flow of synchronous and diachronic information that ultimately ensures the cultural adaptation mechanisms for each community. More often the specific attributes of an ethnic culture are the result of the synchronous flow of information that creates the optimum conditions for innovation. The attributes of the ethnic culture are supported by the diachronic movement of information and create the traditional community base. The synchronous information flow provides the variants of inter-ethnic dialogue, while the diachronic flow provides communication within generations that are the limits of a given ethnos, i.e., those traditions that stabilize an ethnos over time (Arutynov 1989). Secondly, strictly outlined borders of the distribution of cultural signs are naturally absent. The breadth of the horizontal review always depends upon the taxonomic level that we use in our classification. The simplified understanding of the models used in the historical processes are reflected in the idea of “historical unity.” To connect unconnected phenomena results in the development of artificial and far-fetched theories that, nevertheless, require significant effort to prove they do not exist.

In my opinion the main tasks of Scythian and Sarmatian archaeology are as follows:

- To develop special archaeological terminology, that is free from mechanical and often meaningless ethnic-terminological borrowings, i.e., “historical unity” and “historical-cultural community,” and replace them with a system of concepts that have archaeological and geographical semantics, i.e., “cultural horizon,” “cultural continuum,” “cultural region,” and “cultural district,” etc.
- To refuse to use ancient textual sources to prove archaeological concepts. It will be a psychologically difficult step to make these changes, but only by doing so might we defend Scythology and Sarmatology from methodological self-destruction. It is impossible to state this more appropriately than Ivanchik (1996), an expert in the study of ancient texts, who wrote that it was premature to represent the identity of the Cimmerians with any archaeological culture before they are identified in the written sources. Essentially the term “Cimmerian Culture” as found in the archaeological literature, is more a conditional designation of the pre-Scythian Culture of the Northern Black Sea region. This term is the result of the uncritical adherence to the writings of Herodotus. The reliability of this story, however, is not at all obvious. Archaeological literature has no value in a historical study as, for example, in the matter of the Cimmerian problem. The research of historical texts should precede ethnic identification of archaeological sites and cultures. Otherwise the “Cimmerian Culture” has only a conditional character and its true connection with historical reality remains unclear.

- Using mythologized archaeological terms such as “Nomadic Civilization,” only destroys the historicism of archaeology and attaches superficial formality to the discipline. A strict, extremely cautious, and specially developed approach for the comparison of the archaeological data and written sources, however, could make archaeology more scientific and, hence, more historical.

- To escape from a network of ancient and modern myths it is necessary to create specific regional and special archaeological reconstructions on the basis of general taxonomic achievement. We have to develop strict, taxonomically verified, scientific classifications since there is no place for single-level taxons such as the “Andronovo Culture,” the “Alakul Culture,” the “Andronovo Community,” the “Sarmatic Culture,” the “Prohorovo Culture,” and the “Sauromatian-Sarmatic Historical Community.”

We need to think about the generalization of regional classifications and devise ways to bridge the different multidisciplinary historical and scientific approaches. In reality we have only two bridges that can be used to connect archaeology with the adjacent historical discipline; these occur on a chronological level and a geographical locus.

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Some Current Problems Concerning the History of Early Iron Age Eurasian Steppe Nomadic Societies

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Abstract
Ceramics, objects of everyday use, mortuary practices, and other indicators of ethnic and cultural similarity were significantly different within the societies that composed the so-called Scytho-Siberian World. These artifacts should be considered as cultural markers. The degree of affinity is discrete between the cultures composing the Scytho-Siberian World. A Cultural Horizon must be interpreted, not as Unity but rather as an "Eurasian cultural continuity of the Scythian epoch." Neighboring cultures are more similar within, yet they retain originality. This paper will demonstrated that the global historical process has general regularities that can be revealed in the human communities that existed in different times and space.

Key words
Scythians culture and its origin, Saka, Scytho-Siberian World, "horizon makers"

Introduction
Environmentally, the Eurasian steppe zone is a relatively monotonous, woodless landscape. The ecological characteristics unite such distant regions as the territory of modern Hungary in the west, and the plains of Mongolia far to the east. In the north the steppes are defined by tracts of the Eastern European forests and the Siberian taiga, while in the southwest the Black Sea coast and the Caucasus provide the boundaries of the steppe. Further east, the Caspian and Aral Seas, and the sands of the great Central Asian deserts as well as the Pamir and Sayan mountain ranges provide the more southeastern border.

During the period before the Scythian and Saka tribes appeared in the historical arena, Bronze Age populations of diverse genetic origins inhabited the vast steppe expanse. These peoples followed mixed farming-pastoral economies and were engaged in hunting, gathering, and river fishing. Domestic animals were bred and in some places plant cultivation was practiced using primitive irrigation systems, but neither animal breeding nor agriculture was the principal economy. The similarities observed among the material cultures of these populations were mostly due to generally comparable ecological conditions, levels of economic development, and the absence of serious geographic obstacles that could impede direct interaction between neighboring groups.

The "Scytho-Siberian World"
During the second millennium BC, the steppes of Eurasia were inhabited by two kindred populations that are today represented by two major archaeological cultures: the Timber-Grave Culture (Srubnaya) and the Andronovo Culture. The zone of their initial contacts seems to have been the Volga-Ural region and the semi-desert areas south of the Aral Sea. The formative process of the Indo-Iranian language is considered to have taken place in this contact zone.

During the Bronze Age, the tools, implements of labor, and decorative objects were made of stone, bone, wood, and bronze. In the latter half of the second millennium BC the steppe population moved first within their traditional ecological zone, and then far beyond their original boundaries. Certain elements of the material culture characteristic of the steppe area appeared in various regions which extended from the Caucasus Mountains to the southern areas of Uzbekistan, Tajikistan, and Turkmenistan. A number of archaeologists and physical anthropologists support migration theories which envisage the occurrence of a long distance southward movement of people from the Eurasian steppes to Central Asia, northern India and the Iranian plateau during the late second millennium BC (Mandelshtam 1966, 1967; Potemkina 1987; Pyankova 1974, 1987; Yablonsky, 1996).

Paleogeographic studies provide material which suggests that increasing aridity, particularly in the eastern regions of the steppes, was among the causes of these population movements (Zdanovich and Shriber 1988). Large population groups pushed outwards in search of more verdant pastures for their cattle. The earliest finds of horse harness elements belonging to this period indicate that, at least by the Late Bronze Age, steppe dwellers could ride horses and were able to traverse considerable distances.

A life of ceaseless movement gradually conditioned a portion of the population to become specialized in nomadic livestock breeding. This process was asynchronous over the vast steppe area, and in some regions, especially where riverine conditions did not undergo significant changes, the previous traditional complex form of economy survived. By the 8th - 7th centuries BC, however, specialized stockbreeders had determined the main direction of the rapid ethnogenetic, political, and general historical developments of the steppe populations. Certain unions of stockbreeders became unusually active, the nomads became acquainted with the Eurasian steppes, and iron implements began to be used. Even at its initial stage, the Early Iron Age was marked by a sharp rise in the social development of stockbreeding communities that ultimately created a defined...
social strata. A notable increase of material production and the evolution of a spiritual culture accompanied this phenomenon. Rapid perfection of the horse harness design and techniques of arms production were also noted, and armament types became more diverse. Nomadic ideologies were reflected in various artifacts decorated in the traditional so-called “Scytho-Siberian Animal Style.” An essentially undeviating burial tradition emerged in which deceased warriors were accompanied by a characteristic set of grave goods, including armaments and harness accouterments.

In Russian literature this complex of artifacts, being constant in time and space, has been termed the “Scythian Triad” (Grakov and Melukova 1954). The term “Scythian” was used because the first artifacts of this type were recovered from graves that probably belonged to the historical Scyths as described by Herodotus.

Excavation of Scythian graves in the steppes north of the Black Sea began during the 18th century AD, and an extremely rich variety of cultural artifacts, including numerous bronze and gold pieces with the most splendid artistic ornamentation, were found within kurgans (burial mounds). The results of the excavations provided a powerful impetus for the development of archaeology in Russia, and soon Scythology became a specialized branch of Russian archaeology.

Antiquities dated to the Scythian period, which originated from the eastern Transural steppes, first became known in Europe as a result of the edict issued by Tzar Peter the Great in the 18th century. In contrast, large scale scientific excavations of Early Iron Age monuments in southern Siberia and Central Asia only began in the 1920s and 1930s. Archaeological expeditions in various eastern steppe regions revealed the so-called “Asiatic Scythia” that certainly was not a remote and backward periphery of the “Scythian World.” The Asiatic Scythians, or the “Saka,” of the ancient Achaemenid Persian texts, were the creators of a powerful and original material and spiritual culture. As a result, a hypothesis was formulated which suggested that the European Scyths had arrived in the Black Sea steppes from the heart of Central Asia (Terenozhkin 1971).

This hypothesis was further supported by the three groups of facts: Herodotus reported that the Scyths had come to reside in the Black Sea area from the heart of Asia, and it was established archaeologically that some harness elements (typical Scythian-type materials) were earlier in date in the Asiatic burials than in their European counterparts. In addition, the Bronze Age European steppe population did not have the zoomorphic depictions of the type that were later defined as the typical diagnostic Scythian Animal Style ornamentation. In the eastern steppes, from the Yenisei River basin south into the Mongolian plains, some elements of the Animal Style are dated to the Late Bronze Age. These pieces are special animal depictions carved on stone stele which today are referred to as the oleniye kamni.

The theory of an eastern origin of the Scyths (indigenous theory) has both supporters and opponents. Opponents believe that Scyths were culturally indigenous to the Black Sea steppes, and genetically linked to the local Late Bronze Age populations (Grakov 1977), and paleoanthropological data does not contradict this assertion (Debets 1948; Alexeev 1980). With regard to elements of the Animal Style, adherents of the indigenous theory are of the opinion that the Scyths borrowed the principal motifs during their military campaigns to Near Eastern countries. Upon their return home they then proceeded to modify the motifs so that they conformed to their own specific ideological beliefs.

A third theory that favors a polycentric origin of the early steppe nomadic culture was formulated relatively late. This theory postulated an independent development of local variants of nomadic culture (Gryaznov 1978). Transformations, responsible for the development of the variants, occurred because contacts were relatively stable between neighboring groups of nomads, and the principal Animal Style themes were developed both independently as well as within the spheres of various influential centers. It was therefore possible for the cultural elements to be significantly different within diverse steppe regions (Rayevsky 1993).

A number of artifacts dated to the 10th - 8th and 8th - 7th centuries BC excavated from the North Black Sea region inspired the conclusion that during these two periods powerful nomadic impulses coming from the east of the Volga River strongly influenced Eastern European steppe cultures (Murzin 1990). If this point of view is correct, it explains the marked typological similarity between some Early Iron Age material cultural elements belonging to the populations of both the eastern and western steppe zones. The interpenetration of such artistic elements was possible only because the steppe stockbreeders had inherited kindred cultural and historical traditions from the previous Bronze Age populations. In addition, these later groups lived in comparable ecological circumstances largely responsible for their economic and military-political activities. Moreover, they had reached a similar level of socioeconomic development.

Current archaeological studies indicate that during the first millennium BC the Eurasian steppes and the adjacent forest-steppes hosted populations who have left archaeological materials similar to those of the original Scytho-Siberian World. The “Scythian Triad”, consisting of weapons, harnesses, and objects decorated in a specific animal style, is characteristic for all of these cultures. In addition, bronze cauldrons and oleniye kamni are occasionally included among the unifying elements.

The question of unity between the cultures of the “Scytho-Siberian World”

The existence of the archaeological phenomenon known as the “Scytho-Siberian World” has been interpreted by some researchers as an indication of “unity” between all steppe populations in Eurasia. A number of scholars have even gone so far as to suggest the existence of a “nomadic civilization” that included state formations which corresponded to the cultural groups (e.g. Martinov 1996).

The similarity of certain cultural traits within a vast territory is not unique in the world of archaeology. During the
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1940s the first methodological interpretation was made of Central Andean archaeological materials, and five cultural horizons which covered the Peruvian coastal highlands and part of the Bolivian Altiplano were identified (Willey 1948). The wide distribution of certain artistic styles or similar methods of pottery decoration were included among the indicators for the different horizons. Unifying elements of each Andean horizon were referred to as “horizon makers.” Applying the methodology used for the Andean cultures to those of the Eurasian steppes, it is clear that the concept of cultural horizons is applicable to the phenomenon of the Scytho-Siberian World. The Scythian Triad in addition to a number of other artifacts may be considered to be “horizon makers.”

The concept of Scytho-Siberian unity continues to remain very popular and has a wide distribution which leads us to look for a methodological system suitable for its analysis. Two levels of investigation must be differentiated: the archaeological phenomenon and its historical interpretation.

Returning to Central Andean archaeology further studies revealed that it was necessary to modify the original cultural horizons. Two horizons, based on the similarity of ceramic decorative methods, were soon rejected and they only remained significant as chronological indicators. Three other horizons nearly met the same fate. Detailed investigation of the archaeological materials revealed an inner heterogeneity but, at the same time, it demonstrated that they were again only significant as chronological markers. At present, only three horizons—Early, Middle and Late—exist in the periodization of Central Andean prehistory as specific epochs in cultural-historical development (Rowe 1960).

An analogy to this process may be seen in the study of the Scythian Triad. Results of archaeological investigations have indicated that components within all regions of the Scytho-Siberia World are not equal. Their similarities are only very general and they demonstrate noticeable spatial differentiation that is completely dependent upon the cultures included in their world. Selected horizon makers must be analyzed within their individual time frame because each shows a great variability over time and space. Using pottery as a criterion, or any other object not included among the horizon makers, it is apparent that every culture within the Scytho-Siberian World has its own specific appearance. As discussed above, this individuality does not permit us to consider the Scytho-Siberian material culture as unified. A cultural horizon, previously considered to be unified, has a tendency to become disarticulated when its diverse development over time and space becomes more clearly understood.

The historical interpretation of cultural horizons is more complicated. During the early steps of accumulating knowledge, horizons can be explained in rather straightforward terms which relate, for example, to migrations, conquests, and the existence of empires.

As archaeological information is accumulated the situation changes, as can be clearly seen in the case of the Central Andes. It is now apparent that the Late Horizon is coupled with the Inca Empire. By analogy with the Late Horizon, the Middle Horizon was previously considered to be an indication of the existence of the Wari or Tiahuanaco Empire over a vast cultural-historic area. The highland Tiahuanaco and Wari Cultures were related, but they each had different historic destinies; the former was restricted to the northern Bolivian Altiplano yet its influence was also clearly seen in northern Chile and northwestern Argentina. The Wari, in contrast, spread its limits very far beyond its original realm of the Andean valleys and an authentic ancient empire may well have been established in all of these regions. The strong Wari influence on Peruvian coastal cultures probably came about because these people were intent upon spreading religious beliefs, as opposed to the imperialism of the mountain populations. Dividing the Middle Horizon in time and space, therefore, has demanded a special interpretation for each particular region and stage.

The Early Horizon, previously considered to be the result of strong Chavin religious and cultural influences, also disintegrated over time and now needs to be completely reconsidered within the context of previous cultural evolutions.

**Conclusions**

This study has revealed that the historical interpretation of a cultural horizon must be undertaken within the context of a concrete and detailed analysis of the archaeological content of that horizon. In addition, it is evident that a summary approach usually leads to superficial and erroneous interpretations. The former approach must be followed when attempting to determine the extent of unity among steppe cultures. The only concrete and detailed approach prevailing in current research focuses on the early history of the Scythians while, in contrast, this methodological approach is less characteristic for the archaeology of the Asian Scytho-Siberian World. At the present time, a complex and specific cultural development and composition is being revealed for the Sauromatian and Sarmatian tribes. In the vast territory of Kazakhstan, Siberia and Central Asia, the period of primary accumulation of archaeological materials is still continuing. It is apparent that the disparity of our knowledge about these sizable areas precludes any interpretation of unity throughout the Eurasian steppes.

To date, the Scythian Triad has been the principle unifying element among the steppe cultures. Other artifacts, however, clearly had prestigious significance and were particularly associated with the upper levels of nomadic society (Yablobsky 1996). In addition, these artifacts were distributed well beyond ethnic boundaries. They cannot, therefore, be considered to be suitable for use as “an index of resemblance” in determination of cultural unity. In contrast, ceramics, objects of everyday use, mortuary practices, and other indicators of ethnic and cultural similarity have been shown to be significantly different among the societies that comprise the so-called Scytho-Siberian World. Such objects should, therefore, be considered to be cultural markers.
migrations in small groups would probably have also contributed to the development of these cultural similarities.

The degree of affinity is discrete between the cultures which comprise the Scytho-Siberian World. A cultural horizon must be interpreted, however, not as "unity" but rather as "Eurasian cultural continuity of Scythian epoch" (Raevsky 1993). Neighboring cultures are more similar within, but they still retain their originality. The particulars discussed above show that global historical processes with general conformities can be revealed in social communities and, in addition, that they existed in discrete time and space.

Endnote
1. This is only one of several hypotheses about the place and time of the Indo-Iranian language origin (ed. note)

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Some Notes About the Material Culture of Eurasian Nomads

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Abstract
Nomadic societies are traditionally regarded as asymmetrically represented by their material culture (objects). Meanwhile, some of the artifact categories are highly meaningful. The basic characteristics of nomads as revealed by ethnography do not always find a correlation in archaeology. Dealing mostly with material objects, archaeology claims to identify the relationships that exist between artifacts, social interchange and power, and cultural identities and ideology. These are of great importance for the investigation of nomadic cultures.

Keywords
material culture, archaeological interpretations, early nomads, kurgan reconstruction

A few words about culture in general
The material culture of a society constitutes a substantial part of the culture and it is organically connected with the other substructures of a given society, including the “non-material” ones. At the same time, “material culture is both the product of human purpose and yet it is material following the laws of the non-human world” (Hodder 1992: 11).

It is sometimes difficult for us to understand a contemporary culture that pertains to a different cultural system. This difficulty increases immeasurably when one must assess a culture that is distant in time by several centuries or millennia. Voluntarily or not, we approach this distant culture using our own criteria and psychology. These embody a great number of concepts of “culture” that reflects the perception of “things,” which, it would seem, are familiar to everyone. Attempting to speak the language of a different culture, we discover, with surprise, that very often we can neither understand this culture nor ourselves. These circumstanes are further demonstrated by two opposing viewpoints that attempt to assess the ability of archaeology to obtain information from a fossilized culture. The adherents of the first point of view believe the potential is very limited because archaeology mainly deals with “dead” things, and extrapolating information from ethnographic material to interpret archaeological information is inadmissible and senseless because of the differences in time between the past and present. The followers of the second point of view are conversely sure that the cognitive potential of archaeology is infinite. Obviously, both perceptions are extreme and the truth lies somewhere in between.

Material culture and culture
In the study of material culture one uses several methodological approaches, beginning with the general definition and understanding of a “culture,” as well as a theoretical orientation, i.e., cultural-historical, processual, post-processual, and others. For instance, one “cultural” or processual approach provided by ethnology or cultural anthropology offers some variations of the so-called “systemic” theory of culture, on the basis of which the concept of “human activity” (in the Russian version) and “behavior” (the Western) has been put forward. Many Russian archaeologists were educated on the definition suggested by Markaryan (1972) who wrote that human activity is socially oriented, and culture is a way of its realization. It includes also the results of such an activity. Arutynov (1989) has distinguished four spheres of culture: Production of material values, means of subsistence (habitat, food, and clothing), social and normative subculture (law, ritual, and religion), and humanitarian sub-culture (knowledge, art, and experience, etc.). These spheres constitute the totality of cultural structure. A semiotic approach suggested by Russian scholars during the 1970s defined a culture as a “non-inherited memory of the collective” (Lotman and Uspensky 1971: 146).

As Golovnev (1995: 21) has suggested, human activity is realized in two basic spheres: Natural (environment) and social. Economic activity is connected with “human-nature” relationships, yet “human-society” relationships are realized in the
social sphere. Ecological and material subcultures serve as a means of economic activity; social activity is attached to normative and spiritual subcultures. For traditional (archaic) cultures, it is difficult to separate their material and spiritual components. Material objects personified people in their life; therefore, frequently people were buried with their personal belongings. During prehistory, the initial spiritual content of any material object was high, but the material content was very low. Later, because of greater technological specialization, the producer of an object and the consumer were further separated. Before craft specialization was established, the material sphere was closely connected with the ecological sphere (Golovnev 1995: 24-26).

One may say that archaeologists deal with material objects in everyday practice, either through their classification, the development of detailed typologies, or attempting to scientifically interpret these assemblages. Archaeologists must apply various scientific methods for an objective interpretation of material culture. Questions concerning the relationship between living cultures are intricately related to archaeological expression and understanding. These are, in fact, the main questions revolving around archaeological interpretations and they divide archaeologists into various groups who ask different questions. What should archaeologists do? Deal only with material objects and their preparation for future historical interpretation (Klein 1978), should we be anthropologists? (Binford 1962), or should we interpret the material culture multivocally and contextually? (Shanks and Hodder 1995).

**Material culture and archaeology**

It is true that many explanations of artifacts are still subjective. “The artifacts studied by archaeologists tell us about the history but not in the language of historians” (Hodder 1992: 11). If the basis of the equation between a material culture complex and social grouping is ambiguous then much of the archaeological interpretation must remain subjective, even at this fundamental level of operation (Shanks and Hodder 1995). The basic principles of this approach relies on the symbolic meaning of any artifact. In particular, this appears to be quite realistic when we speak about the Eurasian nomadic Animal Style of art. Some of its categories are highly meaningful; therefore, the Animal Style is justly considered to be a semiotic system that existed within nomadic societies (Rayevsky 1985).

Dealing primarily with material objects, an archaeologist claims to identify the chronological context of artifacts, and to determine between the artifacts the social relationships and power, cultural identities, and ideology. All of these are of great importance for the investigation of nomadic cultures because of their distinguishing characteristics.

**Some controversies with the definition of nomadism**

In our efforts to construct a profile of the nomadic material culture we cannot expect quick and easy results. In fact, herding as a special kind of activity requires virtually no tools (Cribb 1991). Attempts to identify nomadic cultures by using a certain material complex have rarely been successful. The same can be said about the evolution of nomadism. Ethnography indicates that pure nomadism is extremely rare. According to some Russian scholars, the specifics that indicate a nomadic mode of life are as follows: A portable house, a good saddle with stirrups, light equipment, and extensive animal breeding with annual herding. The basic pattern of nomadism provided by ethnographic examples, however, does not always find a correlation with archaeology. Besides, nomadic societies, represented by their material objects are traditionally considered to be asymmetrical. This situation has produced a number of common controversies.

The first controversy is produced by the different definitions of nomadism and pastoralism as well as the different interpretations of an archaeological complex. In the first place, it concerns an interpretation of some cultures of the Eurasian Bronze Age in terms of nomadism. What are the commonly accepted archaeological markers of Eurasian pastoral nomadism? These include a kurgan burial ground; the relative absence of permanent settlements and houses or the presence of camp sites; the absence or a very limited scale of farming; wheeled transport; and the bones of animals who were capable of traveling long distances and grazing all year round, and artifacts which would have been used for exploitation of these animals. Another problem is that frequently the sedentary population could use many components of the so-called “nomadic” material complex, and vice versa (Cribb 1991). During the Iron Age the complex of “nomadic” weapons and horse harnesses was widespread over a vast portion of Eurasia, for example, including the forest-steppe and even the forest zones. The only artifacts that can be used to separate the cultures attached to the different landscapes are pottery and settlements. Some of the latter are located in marginal zones that could have served as communication points, and could also have comprised a concentration of various populations, including those that were nomadic.

**Investigating nomadic material culture**

Nomad material culture may be ethnographically defined as having three main characteristics: (1) Site furniture (fixtures or portable objects), (2) durable or perishable objects and, (3) valuables or expendables (Cribb 1991). The widespread use of clay pottery is highly characteristic for early Eurasian nomads; almost every grave held some quantity of handmade earthenware. It should be noted that those vessels made on a potter’s wheel were usually imported from the region of a statehood. As recent research shows, nomad’s vessels could contain ordinary foods, such as milk, meat broth, and kasha (cereal or grain) (Koryakova and Daure 1997). The bronze cauldrons usually associated with unique burials contained animal bones that originally consisted of meat which was placed in the burial. The abundance of pottery in the burial, an item that could easily be broken and was especially vulnerable during migrations, provokes a fair question about its place within nomadic material culture. Indeed, we cannot answer this question fully because we do not know the complete content of the material culture, and because a substantial part of this complex was made
from organic materials that are generally not preserved. Fortunately, we are able to make inferences from the ideal examples provided by the frozen tombs of the Altai nomads. It is known that these people produced many utensils made of wood (dishes, mugs, bowls), birch bark (boxes), and leather (some types of jar) (Rudenko 1960; Kubarev 1987; Polosmak 1994). An interesting question that has not been discussed relates to the method by which Eurasian nomads organized the manufacture of pottery and its preservation from breakage during transmigration. They could have manufactured it either in the summer camp or at the winter house, although the technology and organization of production would have been different in each locale. As our experiments have demonstrated, it is not difficult to make pottery in summer even when there is a paucity of wood (Koryakova and Fedorov 1993). It takes approximately 1.5 hours to make a pot and an additional 3–10 minutes to decorate it. According to ethnographic analogies and experimental archaeology, dried and pressed dung, abundantly available, is more than sufficient fuel to fire ceramics, and it would have been necessary to use wood only very minimally. Dried and pressed dung fires up very quickly and maintains its temperature for a long time. Firing occurs without flames with temperature reaching approximately 900–950 degrees for a duration of 2–3 hours (Koryakova and Fedorov 1993: 92-93).

It should also be noted that quite frequently nomads used pottery produced by sedentary populations; for instance the Sarmatians of the Don and Volga areas are known to have obtained some of their pottery in this manner. During the 8th–7th centuries BC, the nomads in this region only had temporary camps in the open steppes although they also had stable settlements in the forest-steppe. Very often the latter were defended by fortifications (Medvedev 1999), and many times the forest served as a place of refuge.1

Frequently, and especially in Western publications the assumption is made that the Andronovo and Srubnaya (Timber-Grave) Cultures were nomadic. On the contrary, the material culture complexes of these societies produces evidence of a more complicated economic structure than that which existed in the Eurasian steppes. During the second half of the second millennium BC, the economy, as seen in the archaeological materials of the populations, was not culturally homogeneous, although it appeared to have been quite similar over this huge geographical region.

As we have seen, nomadic material culture is characterized by some specifics that are recognizable as ethnographic models. In terms of economic and cultural types, Russian ethnographers have put forward the concept that certain varieties or degrees of nomadism existed—vagrant, semi-settled, semi-nomadic, and nomadic, etc. All of these types of nomadism were known historically, yet if we look at them from the point of view of their material culture, we will not notice any great differences between them. This illustrates the principal archaeological problem - the necessity to recognize the variety of nomadic types found in the archaeological assemblages.

If we have the remains of large settlements which consists of dozens of large houses, as is the case for the Andronovo Culture, how may we speak about the nomadic character of this culture? In my opinion this is impossible, and it is valid only to speak of nomadic pastoral tendencies and not about a nomadic mode of life that was more characteristic for the steppe inhabitants during the Iron Age. The question is, to what extent can we evaluate certain key distinctions in production, mobility, and settlement in prehistoric pastoral and agro-pastoral cultures. It has been suggested in the literature that the search for a fully nomadic society should be abandoned in favor of an approach that will recognize nomadic tendencies that were manifested in varying degrees throughout a wide range of societies. It is true that nomadic pastoralism consists of pastoralism and nomadism. The greater the degree of pastoralism, the stronger the tendency toward nomadism (Cribb 1991).

The pastoral nomads of the Eurasian steppe, known in the literature as the “Ancient Nomads,” had a kurgan funeral ritual that has been described many times in numerous publications. Yet, we still do not have any definitive explanation of the ritual’s role in nomadic societies, or the processes and circumstances of the mortuary construction. Only a few pieces of research have been devoted to these problems. The huge kurgans of the Scythians, the Sarmatians, and other ancient nomads which contain the remains of large wooden (sometimes stone) funerary chambers are well known. Obviously, the erection of such constructions required a large labor investment, and the use of a great deal of wood, an item usually not easily accessible in the treeless steppes. Previously, we have treated such structures as evidence of social stratification. Some of famous Scythian funeral complexes appear to have been reused repeatedly and could be considered to be the permanent houses of nomadic people. As has been observed in the Pazyryk Culture, some logs from permanent living quarters were reused in the construction of the funerary chamber. An upper covering placed above the funeral room in Kurgan 1 of the Ak-Alakha Cemetery, for example, comprised the logs from a demolished polygonal house (Polosmak 1994: 13). This finding may suggest that the nomads had quite solid winter houses in the locales where the weather was particularly severe. As Polosmak writes, the Ukok Plateau was treeless, but the Pazyryk people used a large amount of wood in their funerary constructions. They could have transported it from the nearest forest during winter by pulling it across the ice, as has been undertaken during recent times. Dendrochronological analysis has shown that all of the logs used for funerary chambers were felled during the winter (Polosmak 1994: 14). These are all arguments to indicate that the most sophisticated funerary constructions could have been built in advance, but that this would only have been possible in more or less stable ecological and political conditions.

As is well known, the kurgan was not only a functional mortuary construction, it was also a complex architectural structure which reflected the specific artistic or cosmological ideas that existed within a given society. It is for this reason that it is possible to note the typological variety of inner kurgan constructions within the vast steppe and forest-steppe zone.
Kurgans, Ritual Sites, and Settlements: Eurasian Bronze and Iron Age

Some Notes about the Material Culture of Eurasian Nomads

(Gryaznov 1961). Many archaeologists focusing on the Eurasian kurgans of the Iron Age have pointed out that large kurgans usually occupied the highest point in the landscape, and are visibly connected to other large kurgans forming a chain that can stretch for 5–10 kilometers. Smaller kurgans are also included within these complexes. This system of kurgan locations could have played a role as marking points in nomadic communication systems. Single kurgan burials generally located in watersheds, and situated in the open steppes at a more or less significant distance from a river, appear only at the beginning of the Iron Age. They differed from the kurgans of the Bronze Age that are usually located in groups along a river terrace (Zdanovich et al 1984: 41).

Some research on the reconstruction of kurgan structures had been undertaken by several groups of archaeologists, particularly in northern Kazakhstan (Zdanovich et al 1984) and in the southern Urals (Tairov and Botalov 1988). In the first case detailed paleosol analyses permitted scholars to conclude that large kurgans, such as Kara-Oba and Obaly in northern Kazakhstan, were built from rectangular blocks of topsoil which formed bricks. The authors reconstructed the construction sequence for a kurgan in the following manner:

"Initially, a place suitable for burial was chosen. It should be situated near a pasture, not far from a water source, and certainly on the elevated and forestless steppe ground. The place for the burial mound was outlined by a shallow, wide ditch, the soil from which was placed on the inner side. Then ceremonies—the traces of which could be noted by the changed character of paleosol and the remains of organic materials such as grass or brushwood—were performed. After that a grave pit was dug. The large amount of soil taken from the pit was distributed around it, and a smaller amount was spread further out within the defined area. A circular moat with a smaller diameter than that of the ditch was constructed from humus loamy soil. The burial was completed and part of the soil was returned to the pit. The ground surface within the pit was covered with brushwood and filled with soil. The top level of the construction was covered with the topsoil blocks. And finally this construction was plastered with clay extracted from the ditch" (Zdanovich et al 1984: 43-44). The average volume of soil removed from the surface of the interior of the concentric area was approximately 2100 sq m. According to the calculations of the authors, the labor necessary for only the construction of the mound required 200–400 individuals for 10 days, or 70–140 individuals for one month. If we add the work necessary to complete the funerary chamber (woodcutting, transportation, etc.), digging the ditch, and the other operations, it is apparent that the erection of such a large kurgan would have been very laborious. The kurgan Kara Oba was in the form of a truncated stepped cone, with a height of 4 m (Fig. 1) (Zdanovich et al 1984: 46-47). Mathematical calculations applied to the Varna Kurgan, located in the southern Urals, and the results of its experimental reconstruction indicated that this three-tiered round construction had a height of 5.7 m and an upper diameter of 1.6 m (Fig. 2) (Tairov and Botalov 1988: 112-113). These two examples allow us to imagine what a grandiose impression these constructions would have made.

Kurgans are also considered to have marked the territorial boundaries of clan or family lands (Polosmak 1994: 14). Until recent times, the Kazaks and Kyrgyz buried their deceased only near winter pastures (Rudenko 1952: 9-10). According to Dyakonova’s data, the Tuvinians buried their deceased in the areas of traditional transmigration. Therefore, members of a clan could be buried in different cemeteries (those of winter or summer) within the clan territory (Dyakonova 1980). If we admit that such a system would have existed in prehistoric and proto-historic times—and this appears to be quite credible—then we should ask if we could identify discrete cemeteries that belonged to a specific clan group? Archaeologically we would consider these to be separate units within one or another archaeological culture, while the problem is to identify them with a specific social group not only culturally but also as a component of the social landscape.

Ethnographers and archaeologists consider horse harness accouterments to be a prime marker of the nomadic mode of life—a horse bit in a grave and special horse burials are widely known throughout the nomadic territory from the Iron Age to the Medieval period. In the Sargat Culture, for example, one out of every two graves yielded the remains of a horse harness (Koryakova 1988). The horse harness is one of the typical chronological indicators of a nomadic culture. In contrast, during the Bronze Age the frequency of any object associated with horse transport was quite limited. Wagons and chariots, and bone cheek pieces were, however, characteristic for some Eurasian steppe cultures of the Middle Bronze Age. Yet the question is, are we correct to interpret the finds of wheeled transport as evidence of a nomadic mode of life, and consequently as evidence of economic migration?

Conclusion

This paper has been aimed toward a comparative view of a number of issues pertaining to nomadism, and a discussion of some particular aspects of these problems. Despite the long tradition of studying the material culture of Eurasian nomads, and the apparent simplicity of this topic, it cannot be considered to be well developed. It is very important to rethink our theoretical approaches to the study of nomadic material culture, approaches which have not developed since the 1960s and 1970s in Russia, and are also not well understood by western archaeologists. The paper has touched only a few of the issues and it is hoped that other problematic areas will be discussed within the framework of further "nomadic sessions" at the annual meetings of the European Association of Archaeologists.

Acknowledgments

This work was partly supported by grant PICS-RFFI 98-06-22011 (from The Russian Foundation for Basic Research).

Endnotes

1. This was also verified during my conversation with the Bashkir people of the southern Urals.

2. During the course of the excavation of the Skaty burial ground we came to the same conclusion (Koryakova and Dair).
References


Medvedev, A. P. 1999. Ranni zheleznyi vek lesostepnogo Podonya. Moscow: Nauka ("Early Iron Age of the forest-steppe of Don area")


Fig. 1. Kara-Oba kurgan, northern Kazakhstan. Reconstruction of the surface construction. (After Zdanovich, et al., 1984, plate 4.)

Fig. 2. Varna (South Urals). A variant of the reconstruction. (After Tairsov and Botalov 1988, plate 7.)
Abstract
This paper seeks to explore the analytical meeting point between archaeological theory, mortuary interpretation and a series of Early Iron Age nomadic burials from the Southern Ural region of Russia. The ensuing discussion addresses the complexity associated with interpretative frameworks, which attempt to frame societal organisation through the analyses of the variability associated with burial structure patterns and grave goods inclusion. Significant socio-cultural elements such as age, sex/gender categorisation and hierarchical rank and status relationships are discussed within the context of the material remains from a group of Sauro-Sarmatian nomadic burials at Pokrovka, Chernaya and Kardailova.

Key Words
nomadic burials, mortuary variability, sex/gender categorisation, liminality, contextual archaeology

Introduction
The Iron Age nomadic groups of the Eurasian steppe have received an increased amount of Western literary attention in recent years. Scholarly investigations have focused upon the demographic movements and societal organisation of these past mobile pastoral peoples and resultant models have been developed to account for the historical significance of nomadic populations within the prehistory of the vast Eurasian Steppe region.

However, in consideration of the demographics and societal concepts of the first millennium BC and the transition into the Iron Age period much of the archaeological evidence to support varying theoretical propositions has been obtained from mortuary contexts, typically associated with the tumulus (kurgan) form of burial. This situation should quite reasonably draw heavy scrutiny, especially in lieu of recent analytical trends, which have progressively sought to raise the conceptual awareness associated with the complexity of burial interpretations and the theoretical frameworks surrounding such attempts. Therefore, this paper shall address these issues in the context of a discussion pertaining to recent approaches concerning the analyses of mortuary materials from Iron Age nomadic burials located in the southern Ural region of Russia (Fig. 1).

The purpose of the current paper will be to illuminate several important theoretical issues and questions which may be generated by an examination of these materials as they relate to a mobile pastoral mode of subsistence and the socio-cultural dynamics associated with the nomadic form of societal organisation. The paper will conclude with an extension of the relevancy of these issues by way of a brief discussion of funerary materials recovered from a group of Iron Age Sauro-Sarmatian nomadic burials excavated at the Kardailova and Chernaya sites located in the southern Ural Mountain region of Russia.

Previous approaches to mortuary variability
Material remains discovered through mortuary excavations have been the primary resource used by both Eastern and Western scholars in various attempts to reconstruct the societal characteristics of prehistoric nomadic groups. Significant issues relating to these inferences revolve around the problematic nature of burial variability and include important theoretical constructs such as the social rank, status and role of past societal members. The tools used in establishing these analytical constructs typically focus on burial types, grave good inclusion/non-inclusion (including quality and quantity of grave good assemblages), investment of materials and labour by the living in funerary structures, evidence of ritual, etc.

It has been argued that societal characterisations based upon the premise of this analytical framework are useful in developing a general understanding of the dynamics of a past culture, however, they do not accurately represent or acknowledge the complexity with which burial ritual and subsequent variability are composed. Therefore, it will be emphasised through the following discussion that a greater awareness of these components be interwoven within the framework of theoretical models which seek to approach an understanding of the complexity surrounding the variability of mortuary remains.

Kurgan burials and socio-cultural classifications
A recent article by Koryakova (1996) initiated reference to past analyses and broad scale characterisations of the mortuary sites located within the Ural mountain Region of Russia, which chronologically fall within the first millennium BC and the Eurasian Iron Age period. The categorisation of these burial sites are based upon a classificatory approach posited by Grach (1980), which relates to earlier socio-cultural organisation arguments put forth by Khazanov (1975). Within this scheme, one can find burials classified into four basic groups: (i) Royal Burials, (ii) Elite Burials, (iii) Ordinary Population Burials, and (iv) Dependent Population Burials (Koryakova 1996: 266-67).
This hierarchical arrangement posits a general model for societal stratification, again obtained through the interpretation of the variability associated with the material elements of the mortuary sites. Koryakova notes, “the social interpretation of burial sites is defined by several features. These include sizes of constructions above the burials, spatial organisation inside burials, composition, richness, and variety of grave goods, animal and human sacrifices” (Koryakova 1996: 249).

Within this theoretical scheme, one can see that the analytical reasoning employed by previous scholars is predicated upon the interpretation of burial material patterning. Societal organisation, and inferences concerning vertical relationships, are clearly developed from the characterisation of not only the size and complexity of the burial structure but also tied to an analysis of included grave goods. Arguably, theoretical approaches such as these presuppose a nearly direct correlation between the grave materials present and the respective deceased’s rank and status within the previous life. In other words, these attempts explicitly seek to frame vertical societal relationships believed to be present within past societies.

The problematic nature of approaches such as these correlates with the lack of awareness for such issues as: (i) the inherent and highly significant role of the living societal members and their respective choices within burial ritual practices, (ii) complex issues relating to sex/gender and age categories and their relationship to burial patterning, and (iii) the importance of the process of ritual with respect to the maintenance and perpetuation of culture and society.

**Burial patterning and social status**

A recent article by Davis-Kimball (1998) has rightly drawn attention to the need for a more unbiased attempt at the interpretation of burial ritual and grave good analysis. Specifically, Davis-Kimball has argued for an increased awareness for the role of status relating to women within the Early Iron Age nomadic groups. As she has stated, “archaeologists of the 19th and 20th centuries amplified the long-standing convictions that the Early Iron Age tribes were warring, strong patriarchal societies. Over the decades they continued to interpret kurgan burials from this point of view. In this world, women seem hardly to have existed” (Davis-Kimball 1998: 142).

As a response based upon this criticism, Davis-Kimball has developed a methodology for societal reconstruction of Sauro-Sarmatian nomadic groups based upon archaeological excavations undertaken between 1992 and 1995 by a collaborative American-Russian project at Pokrovka, Russia (Figs. 1 and 2). Davis-Kimball’s approach is formulated through an interpretation of associative grave good articles recovered from within kurgan burials. Based upon this material evidence she has postulated a categorised list of statuses for both female and male members of the Sauro-Sarmatian nomadic societies. The rationale employed for the development of statuses was achieved through the selective analysis of specific grave good items, with pottery, faunal materials, and iron knives being completely excluded (this will be further discussed at a later point) due to their high frequency within the burials (Davis-Kimball 1998: 142).

To briefly summarise this approach, the general model proposed by Davis-Kimball (ibid. 142) divides societal statuses as such: (i) hearth person, (ii) priest or priestess and (iii) warrior (ibid.: 142). The extension of this model, coupled with retrieved material articles found within the context of the burials, provides for the acknowledgement of the following statuses:

**Males:** (1) Warriors; (2) Male burials without (or very few) grave articles; and (3) Males buried with a child.

**Females:** (1) Hearth women; 2) Priestesses; 3) Female warriors; and; 4) Warrior-Priestesses.

Within this proposed theoretical model, a strong correlation is developed between the type and quantity of various grave goods (e.g. weaponry, jewellery, toiletry items, portable carved stone or clay altars, objects with Animal Style art, etc.) and respective statuses. Clearly, through this analytical approach one can see that the reliance upon grave good assemblages is of utmost importance. In this approach, the burial and its material components provide a direct reflection of the status of the deceased at the time of his/her death within the early nomadic society. The burial variability which Davis-Kimball encountered (i.e. different grave good assemblage patterns), during the excavation and post-excavation analyses, were used as the foundation for the formulation of a hypothetical status division (hearth person, warrior, etc.) within the Early Nomadic societal organisation.

Theoretically, this approach correlates quite closely with the archaeological analysis by Koryakova discussed earlier in which hierarchical societal frameworks could be posited through the comparison of mortuary structures, type and quantity of grave goods, etc. Again, we are led to believe that there is a direct reflection of the deceased individual’s rank and status within the burial structure composition and representative grave good assemblage. Both Davis-Kimball’s methodology and the approaches discussed earlier are predicated upon an analytical basis that was quite favourable during the 1970’s and 1980’s and is still utilised by many scholars. However, recent developments within archaeological theory during the past two decades have brought to the forefront several important analytical elements that have been largely undisclosed in previous approaches.

**Theoretical approaches to burial variability**

It can be generally stated that the re-creation of past prehistoric societal organisation has often drawn heavily upon the interpretation of burial evidence. Hypotheses regarding past societal rank, status, and role have all been developed through the examination of material evidence in the form of mortuary structures, grave good assemblages, and skeletal evidence. The patterns of these approaches have closely followed the paradigmatic nature of the archaeological discipline, and have thus developed considerably over the course of the last few decades.
Through these varying approaches, the material evidence has been utilised as a sliding scale for societal status and rank, and is thus taken as a direct reflection of the position in life that the deceased held at the time of their death.

Over the past three decades Western scholars have been heavily influenced by the early work of key individuals during the formative period of the New Archaeology movement of the late 1960’s and 1970’s. One such important individual was A. Saxe, whose doctoral dissertation, Social Dimensions of Mortuary Practices (Saxe 1970) had a strong impact with long-lasting implications on the way in which mortuary practices were viewed. Saxe’s main premise pertained to the sociological significance of burial and the relationship of this to issues such as competition for resources, frameworks for lineal descent, and the creation of separate formalised and bounded areas for burial ritual (Morris 1991: 148). Saxe’s substantial contribution was later extended by the work of Goldstein (1976), who applied and broadened Saxe’s original contribution through the use of a broad-based cross-cultural approach. In doing so, Goldstein focused particularly upon the development of formal disposal areas by ‘corporate groups’, which Saxe had originally postulated, and sought to test this hypothesis cross-culturally. However, Goldstein’s findings contrasted with those of Saxe, which prompted her revaluation and subsequent modification of Saxe’s earlier hypotheses. Concerning Saxe’s Hypothesis 8, Goldstein suggested that the problem was the question of whether cultures with similar environmental and economic conditions would symbolise and ritualise aspects of their organisation in similar ways (Carr 1995: 122). As a result of Goldstein’s clarification and extension of Saxe’s work, widespread acceptance of this pattern of inquiry emerged and the Saxe/Goldstein hypothesis became significantly influential within the New Archaeology movement.

Binford’s work in the 1970’s also added significantly to the emerging analytical treatment of mortuary remains during this period. In Binford’s, Mortuary Practices: Their Study and Their Potential, it was asserted that there were significant associations between rank and status and their resultant reflection within the burial rite in the form of quality and quantity of grave ‘furniture’ and the nature of the grave ‘facility’ (Binford 1971: 232-233).

Taken in conjunction, the strategies offered by the Saxe/Goldstein and Binford hypotheses became the primary tools used in the study of mortuary practices and added greatly to the formulation of the New Archaeology and the subsequent processual movement (Chapman 1987: 202). Within this scheme, the primary goal concerning societal reconstruction was the ‘fitting’ of the evidence into a set of prescribed social typologies, based upon the early work of Service (1962) and Fried (1967), and seen as an evolutionary ladder of societal organisation based upon the concepts of a band, tribe, chiefdom, etc. (O’Shea 1984: 13; also see Tainter 1978 for discussion). This scheme emphasised the exploration of within-group differentiation as opposed to between-group differences as well as the assumption that burial variability was a reflection of the variability within societal formation and organisation.

In summary of these approaches, as they pertain to the discussions from Koryakova and Davis-Kimball developed above, one can see that the reconstruction of past societal structures has substantially drawn upon mortuary evidence and has been constrained by particular theoretical patterning. Two significant points offered within this theoretical structure are:

1. A direct correlation of burial structure, location and grave good type and quantity to concepts of rank and status and within-group differentiation.

2. The utilisation of a societal framework based upon the evolutionary typology of the band, tribe, chiefdom and state as proposed by Service (1962).

In recent years there have been numerous arguments against the utilisation of this analytical structure for the reconstruction of past social organisation. Most notably, post-processual critiques formed during the 1980’s and 1990’s have been quite outspoken in their reaction against the usage of this type of methodology and have, by contrast, argued for a greater acknowledgement and appreciation for the complexity of burial variability.

Recent approaches to burial interpretation

Recent post-processual critiques have explored several issues key to the significance of burial variability interpretation. If we are to review the earlier analyses offered by both Eastern and Western archaeological interpretations regarding the types and quantities of burial structure and grave good inclusion/non-inclusion within the light of the new arguments, one can see that there are a host of factors which clearly deserve further analytical development. However, in the sake of brevity, the following discussion will focus upon three general theoretical areas which were noted earlier and which are clearly relevant to the context of discussion developed within this paper: 1) the role of the living within mortuary practices; 2) the role of burial ritual within the maintenance and perpetuation of society and, 3) the significant factors of age and sex/gender distinctions within burial representation.

1. The Role of the Living

Certainly, one of the key factors in many of the post-processual critiques is that the ‘living’ members of past societies are often only seen as ‘passive’ actors within rituality, or as Hodder has stated, “…individuals appear controlled by rituals according to universal expectations; there is no sense in which they actively manipulate and negotiate ideologies” (Hodder 1986:27).

Thus, if we are to consider the active nature, and knowledgeable actions, of the living participants as they relate to an analysis of burial ritual practices the problematic nature of an interpretation of the symbolic nature of the materials (mortuary structure and grave goods) is obvious.

The key component to this argument is the emphasis placed upon recognizing the important role of the living within the
ritual of burial. Important socio-cultural relationships between the living and dead members of society are incorporated within the framework of mortuary practices. Thus, understanding the roles which the living adopt during the ritual phase of burial is of paramount importance, as Parker Pearson has noted, “funerary practices are products of ‘political’ decisions (or sequences of decisions) in which the corpse is manipulated for the purposes of the survivors. Their treatment of the deceased is conditioned by their perception of death and their relationships with each other as much as by their relationship to the deceased whilst alive” (Parker Pearson 1993: 203).

Thus one can see that the ritual of burial provides an important staging point for the ‘acting-out’ of certain societal relationships between the living members of a society in respect to the vacuum created by the deceased member or members of the society. Within this social sphere of contact, the ritual provides the framework for the living members of a society to restructure, reorganize and reaffirm social identities which have been affected through the death of one, or more of the societal members.

Therefore, the funerary ritual and its components (corpses, physical materials, rites acted out, etc.) can act as important ‘symbolic resources’ for the living (Barrett 1994: 112). In lieu of this, it can easily be seen that these ‘resources’ available to the living members of the society during the ritual of burial are open for possible manipulation in either a normative or individualized manner. In consideration of this, the interpretation of mortuary remains in the form of burial structure and grave good inclusion/non-inclusion becomes considerably more complex than the analyses discussed earlier, which sought to explain the variable nature of these issues as direct reflections of societal organization in the form of rank, status and role.

Regarding the issue of the deposition of grave goods within the burial, Dark (1995:92) has suggested that grave goods have various roles pertaining to the living (e.g. gifts to the deceased, debt payment, sacrifices and sentimental tokens) as well as the dead (e.g. providing entrance into the afterlife or facilitation of reincarnation).

Clearly, these suggestions by Dark only touch upon a few of the many possibilities of grave good selection and inclusion within the rite of burial. However, within this argument it is important to take into consideration the fact that the selection of grave goods reflects a specific ‘subset’ of artifacts taken from the variety of choices available from within the material culture signature of the respective population (Parker Pearson 1993: 207). Additionally, an awareness concerning the knowledgeable human agency responsible for the placing of the artifacts within the context of the burial must be acknowledged.

2. Ritual and the Reproduction of Society
The difficulty with interpreting burial evidence has been briefly touched upon above. Therefore, the next question may be how, in terms of all the possible socio-cultural factors identified with the ritual of burial, might an approach to an understanding of this process and the material residues left in the form of material evidence be gained? One of the most generally accepted and useful foundations for this is Van Gennep’s (1960) concept of rites of passage. Composed of a tripartite system, this model seeks to apply a common structure to the transitional nature of all ritual activities. Within this approach, Van Gennep argued that there was an initial separation from one status, followed by a period of liminality and then a transition and re-incorporation into a new status (Metcalf and Huntington 1991: 30). Through the structure of Van Gennep’s model one can come to terms with an appropriate generalization for the way in which rituality is ordered across a broad range of human responses and an awareness for the important social implications relating to ritual can be perceived.

Van Gennep’s concept of liminality is one that has undergone considerable elaboration and has fostered important implications regarding the interpretation of the rituality associated with burial practices. Turner (1969), Leach (1976) and Hertz (1960) have all extended the concept of liminality by drawing attention to the structural nature of this model as it relates to the relationships created between the dead and the living and the treatment of the corpse during this stage of the rite of passage. In consideration of this, the liminal phase can be seen as providing a structure for not only the relationships between the dead and the living but also among the living members of the community (see discussion below). This leads us then to see the action of the ritual, and the symbolic messages which are interwoven within it, as an important component in not only the reproduction and maintenance of society but in the reconstruction of it as well.

Giddens (1984) has specifically explored the issue of the reconstitution of society as it relates to the significance of individual human action within ritual. Within this framework of thought, importance is placed upon the structural and perpetual nature of ritual as it relates to the reproduction of society. As Garwood (1991: 13) has noted, this “…structure is inherently historical: social reproduction, far from being the unchanging continuity of social form, involves the perpetual reconstitution of society through practical discourses conditioned by the social and material relations that already exist.” Thus, we may perceive the ritual of burial as an act conditioned by a dynamic interplay between what may be seen as a structured framework for socio-cultural reproduction but one which is also at the same time significantly charged with symbolism (in the form of material culture) and open for both interpretation and manipulation by the human actors who are engaged within the practice of ritual.

In light of this discussion, if we are to apply this analytical reasoning to the interpretation of the kurgan burials discussed earlier, we can see that rather than the material culture simply providing an indication or reflection of the deceased individual’s station in life, we are instead left with a sense of the importance with which not only the burial site held to this previous culture but also the ritual which was staged as part of the liminal process. We can thus see the kurgan structure as being a significant socio-cultural focal point within both the physical and cul-
tural landscape, one, which figured prominently within the structure and reproduction of the structure within the past society.

3. Age, Gender/Sex, and Role Relationships
The third and final area to be discussed pertains to the importance of how archaeological inquiry approaches the issues of gender/sex, age and the concept of role in past societies. Clearly these issues have significant meaning within the investigation of burial evidence. If one of the primary goals of mortuary archaeology is to reconstruct past societal structure through recovered material evidence, the inherent strengths and weaknesses of such an approach should certainly be acknowledged.

As an example, if we are to review the discussion offered earlier surrounding Davis-Kimball’s (1998) analytical models relating to the Pokrovka sites, regarding the reconstruction of statuses for the Early Iron Age Sauro-Sarmatian nomadic groups, we can see that the inferences and statistics are based upon the population uncovered in the Pokrovka mortuary sites. Yet, can we consider these burials to be an accurate indicator, or sample, of the Iron Age Nomadic culture they are taken to represent? Do the burials uncovered truly reflect the living members of the Iron Age community? Do they provide a characterisation of the various age-related categories one would expect to be represented by a general cemetery complex? Obviously the answers to these questions do not come easily.

However, it should be quite apparent that mortuary complexes can, and often do, reflect the burial activities of a select group or sub population that may not represent or reflect the totality of the respective culture. Particularly, one can see the issue of the lack of burial evidence for children and the elderly. As Chamberlain has cogently noted, “...there is now considerable evidence that most prehistoric populations had childhood mortality of at least 50%, and for a stable or slowly growing population this implies that at least half of the living individuals in any given community were children” (Chamberlain 1997: 249). There have also been similar biases concerning the representation and interpretation of the elderly age-set within burial evidence as well. Thus, one can see that there are indeed important factors to consider in the process of basing a societal reconstruction strictly upon burial evidence.

In regards to Davis-Kimball’s research and interpretations from the Pokrovka materials, there is unfortunately no elaboration or development regarding age classifications within the burial evidence, only a notation that there were incidences of children being buried with males but never with females (Davis-Kimball 1998: 143). However, Davis-Kimball’s subsequent discussion concerning the female burials does approach a clear redefinition of the common image given to the female members of the Sauro-Sarmatian culture and thus challenges the long-standing androcentric bias that has characterised much of the previous archaeological interpretation of these early nomadic groups. To extend this issue, it is important to acknowledge the significance of gender/sex categorisation within archaeological interpretation. In recent years there has been a great deal of literature devoted to the exploration and definition of the differences between sex and gender as well as attempts to separate the ambiguity, which surrounds them.

This topic can be seen to have particular relevance to Davis-Kimball’s arguments as past research has shown that there is considerable ambiguity relating to gender-sex for both children and the elderly age-sets (Lesick 1997: 36). What constitutes ‘maleness’ or ‘femaleness’ can often be fluid during these age periods and, obviously, this has important implications for how we interpret either the inclusion or non-inclusion of children or elderly burials within the mortuary patterns of the Sauro-Sarmatian groups. Certainly, the lack of representation of these individuals within the burial record must be acknowledged and an approach to increased understanding sought.

The final point to be made is that of the significance of acknowledging the existence of role for individuals of the past. As has been touched on considerably thus far, reconstruction of past societal organisation has focused extensively upon the vertical (hierarchical) strata of the society. However, it may be argued that a proper framework for approaching this concept should also take into account that there are cross-cutting horizontal categories (e.g. sex/gender, age, kinship affiliation, etc.) pertaining to role as well and that these may also be reflected within the ritual of burial (Rega 1997: 229). In consideration of this, one must take into consideration that the lives of individuals, within both the contemporary and the past, are composed of structured relationships built around a series of multiple roles. It must therefore be the intention of the researcher to strive for an understanding of how these various roles are either represented or underrepresented within the material remains of the burial.

Therefore, as a final component to this paper, the discussion will now turn towards the burial deposition patterns relative to the unpublished excavations of the Kardaielova and Chernaya cemetery sites, undertaken by L. Koryakova in 1978, in the Southern Ural region of Russia (Fig. 1 and 2). These Sauro-Sarmatian mortuary sites relate chronologically as well as geographically to the Pokrovka mortuary sites discussed above.

Kardaielova and Chernaya burial sites
The Kardaielova and Chernaya mortuary sites are represented by five kurgars with 21 burials representing 23 individuals. Temporally, the burials excavated within these sites follow the relative chronology system based upon artefact typologies established by B. N. Grakov (1947) for the Sauro-Sarmatian cultural history:

- Sauromatian: 6–5th centuries BC
- Early Sarmatian: 4th–2nd centuries BC
- Middle Sarmatian: late 2nd century BC
- Late Sarmatian: AD 2nd–4th centuries

(as quoted in Davis-Kimball and Yablonsky 1995: 18)

Although these sites are represented by a small number of kurgars and burials, which certainly does not offer a large enough sample to perhaps be statistically significant, there are
several interesting points which can be made relating to the arguments developed earlier regarding burial variability and the interpretation of societal organisation.

Kardaielova II
The Kardaielova II cemetery site was composed of three kurgan mortuary structures with Kurgan I containing no evidence of burial with only scattered associative artefacts (e.g. faunal remains, fragmented pottery, small bronze bell, iron objects, etc.) throughout the mound structure. The original site report (Koryakova 1979) postulated that this might have been a cenotaph construction and as a result of the associated artefacts it appears to have a relative date of the Late Sarmatian period.

Clearly, the nature of this construction, with its absence of burial pit features, hints at the overall significance of the cemetery complex and its position within the landscape to the past groups utilising it. The presence of a cenotaph type structure may correlate with the socio-economic structure of previous nomadic populations in that it certainly relates to issues of land use, concepts of territoriality and the overall mobile subsistence cycle which was part of the past nomadic way of life. It also speaks to issues concerning death and burial within mobile groups and how the living respond to the interment of the dead within chosen locales, possibly distant from normative and formal disposal areas.

The Kurgan II structure contained only one burial, that of a female (aged approximately 30–35 years) with numerous varied artefacts (Fig. 3). The artefact typologies suggest that it was a Sauro-Sarmatian type burial with a relative date of the 3rd–4th centuries BC. The burial complex associated with this kurgan was interesting in that it did not involve the use of a burial pit or grave structure. Instead, the corpse and grave articles appear to have been placed upon the surface of the ground, two small fire pits were dug and utilised near the corpse, and then the earthen mound structure was constructed over the body. In general, this particular burial can be seen to correlate with the Sauro-Sarmatian female burials at Pokrovka in that they share a similar range of artefacts. The fact that there was a wide variety of articles placed with the corpse, as well as it being a rather unusual single inhumation burial, does seem to suggest that there was a quite lavish and complex burial ritual performed during the interment of the individual.

Kurgan III contained six burials with a total of eight individuals (3 females, 1 male and 4 undetermined). The stratigraphy of this mound structure is also quite interesting as it clearly provides an example of the multicultural reuse of the mortuary structure with two construction sequences being represented. The kurgan earthen mound was composed of several strata with the primary mound phase being represented by a dark sandy loam soil and the second phase by a grey-yellow porous loam material. The central burial, associated with the primary phase of the mound, may be characterised as a burial from the Pit Grave culture (no age or sex obtainable) due to the orientation of the body, lack of grave good materials and the evidence for organic bedding and grave pit covering. This would suggest a Bronze Age period burial with a relative date of approximately 1900–1800 BC.

The other five burials can be attributed to the second mound phase construction. The original site report characterised these as all being of the Sauro-Sarmatian type. However, only one of these burials (Burial 3) contained artefacts that would allow for a date through typological comparison. This burial contained the remains of two individuals with an age and sex determined to be that of an adult male 40–50 years of age and a child of 7–12 years of age. The associated artefacts point to a relative date of the 3rd–4th centuries BC for this burial as well as providing evidence of imported articles (e.g. flask type pottery, Fig. 8). The other four burials within the mound may be generally characterised as Sauro-Sarmatian based upon the corpse orientation and grave pit construction (e.g. Fig. 6). However, relative dating is impossible without associated artefacts for typological comparison or the availability of radiocarbon dates.

Chernaya II
The Chernaya II mortuary complex was composed of two kurgan mound structures representing a total of fourteen burials. Kurgan I contained a series of twelve burials, which can be seen as quite complex in nature, and were comprised of five males, two females, one child and four undetermined individuals. Unfortunately, space constraints will not allow a full detailed discussion of the burials associated with this kurgan but it can be stated that there is a broad range of variability associated with the burial sequences within this structure as well as the associative grave good articles.

Chronologically, these burials reflect relative dates concurrent with the Sauro-Sarmatian period, with a range of dates between the 5th–late 2nd centuries BC. The range of grave articles reflect pottery (e.g. hand moulded and imported wheel-turned types, Figs. 7 and 9), weaponry (e.g. swords, daggers, and bronze arrowheads, Fig. 10) and faunal remains (e.g. sheep/goat, and horse). The original site report (Koryakova 1979) characterised this burial structure as that of a ‘warrior burial site’ due to the frequency of weaponry grave article inclusions and the high number of male burials (Figs. 4 and 5). However, it is interesting to note that where weaponry objects are deposited there appears to be little uniformity in their representation. One can see that there is a patterned choice being utilised by the living in that the weaponry pieces are usually swords, daggers or arrowheads, however, the exact number of these items as well as the specific placement or deposition within the burial chamber seems to vary considerably. In addition, the limitation to just these specific objects, or indeed the lack of any grave goods, may hint at more important processes (e.g. changing burial patterns) rather than simply status or rank reflection as has been a common interpretation in many past efforts. Certainly though, one should keep in mind the forces of time and nature and the taphonomic processes at work within these sites, as we are clearly left with only those preserved materials which are able to stand the test of time. We have, therefore, lost a great deal of information in the form of the organic materials.
that would have represented a significant component within the selection of grave goods assemblages.

Kurgan II contained evidence of two inhumation burials with one skeleton found in an articulated state and the other burial reflecting a disarticulated individual. The original site report postulated that this was a Bronze Age period Andronovo-type burial (approximately 1500–1000 BC), based upon the recovered pottery sherds associated with the burial chamber. In addition, however, there was evidence found for early Sarmatian activity on the site as the top of a bone comb was found with zoomorphic figures. The typology for this comb provides a relative date to the 3rd–2nd centuries BC (Moshkova 1963: table 26). Concerning this mortuary structure, the original site report postulated that the primary phase of the Kurgan had been constructed during the Bronze Age by the Andronovo Culture and had been subsequently utilised later for burial activity by Sarmatian groups. However, the latter burials that were associated with the Iron Age period had suffered through environmental exposure as well as modern agricultural use of the land.

Discussion
The previous descriptions have attempted to provide a broad characterisation of the materials and patterns associated with the kurgans and burials of the Kardaielova II and Chernaya II mortuary complexes. However, in trying to determine the nature of the ritual practices, and the variability expressed within the material cultural evidence, one can see that it is not possible to glean all the necessary information from simply the material remains found. One must provide a structured framework and an analytical perspective for such an approach. As discussed earlier, there are specific elements of many types of rituality, including burial practices, which may be seen to lie within the tripartite structure provided by Van Gennep’s rites of passage (1960). Particularly pertinent to the interpretation of burial rituality, and its inherent complexity and variability, is the concept of the liminal process. Within this important process important ‘structured’ relationships may be carried out which have significant implications upon the way the burial is represented in a material form for archaeologists to interpret.

In addition, it is imperative to acknowledge the substantial dynamics that are part of the burial process. Rather than seeing the burial evidence as simply a direct reflection of the deceased’s status and rank within the previous life, there are a host of possible alternatives which can be seen to play a part in the process of the construction of the burial structure, the preparation of the body and the inclusion/non-inclusion of artefacts with the corpse. Thus, as one approaches the burial evidence, it is necessary to consider that the material remains of the burial may indeed represent not only the rank and status of the interred individual, but also a multitude of possible characterisations of the roles which this individual may have assumed. Additionally, one should be aware of the possible powerful resource that not only the corpse but the site of the burial itself (i.e. the kurgan) may have provided the living members of the community. This latter issue clearly speaks to the reuse of the kurgan sites through time as well as for multi-cultural use of the sites.

One must also bear in mind that the complex nature of burial rituality does not occur within a socio-cultural vacuum, and that important societal elements such as wealth, power and ideology can all be reflected within the patterns of variability associated with mortuary practices. In regards to the burials discussed within this paper, it is obvious that the nomadic subsistence cycle is also of paramount importance to understanding how these past mobile pastoralists moved and interacted within the landscape around them. This relationship is certainly also related to the overall cosmology or religious practices which these early groups may have incorporated within their rituals of burial. Within these significant cognitive constructs one must consider how material culture played an active role in the negotiation of socio-cultural relationships and thus came to be reflected within the burial sequences. It is therefore, of utmost importance that one attempts to engage in contextual studies which incorporate all of the materials (e.g. skeletal evidence, faunal remains, pottery, weaponry, etc.) associated with burial patterns as well as seeking to develop an awareness for the relationship between burials within similar kurgans, mortuary sites and across the landscape.

Conclusion
To briefly summarise, the points outlined and developed within this paper illustrate the need to construct an extended approach to the understanding of burial variability and its relationship to past societal reconstruction. However, it must be said that this approach certainly does not act as a template for the analysis of a society; instead, it is simply a guideline for the construction of an analytical framework which must address an awareness for the specific criteria relevant within each cultural application. Thus, with these ideas in mind, it is imperative that a more holistically structured theoretical framework for the interpretation of burial variability be devised, one which allows for a less rigid characterisation of status and role for individuals in the past and, in turn, offers a stronger contextual approach to burial interpretation. One which clearly acknowledges the role of the living and their agency within the ritual process as well as the constructs of age and gender/sex of the deceased.

Acknowledgements
I would like to thank the editors of this volume for their kind assistance and patience during the preparation of this paper. I would also like to offer my sincere gratitude to L. N. Koryakova for her never ending advice and support and kind permission to utilize her original site drawings and photographs from 1978 within this paper.
Endnotes
1. Saxe’s work was influenced by Goodenough’s (1965) ideas concerning anthropological role theory (see Tainter 1978 for a good discussion of this).
2. This relates primarily to Saxe’s Hypothesis 8.
3. Goldstein’s approach was based upon a cross-cultural survey of 30 societies.
4. The author was granted permission by L. N. Koryakova and the Russian Academy of Science to work with the unpublished site reports and material artefacts from these sites for his MA dissertation research during 1998–1999.

References


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Figure 1. Map of Eurasia with location of mortuary sites discussed within text.
Figure 2. Map of Southern Ural region with mortuary site orientation.

Figure 3. Plan of Sauro-Sarmatian female burial from the Kardaileova II site, Kurgan II, Burial 1, with associated grave goods: 1 - bronze mirror; 2 - spindlewhorl; 3 - shell with chalk residue; 4 - hand molded pottery; 5 - fragmented iron knife (behind pot); 6 - sheep/goat bones; 7 - chalk fragments; 8 - bronze bracelet; 9 - small yellow stone; 10 - bronze object fragment; 11 - paste type bead; 12 - small bronze buckle. * Traces of chalk residue found around entire skeleton. (after Koryakova 1978)
Figure 4. Plan of Sauro-Sarmatian male burial from the Chernaya II cemetery site, Kurgan I, Burial 9b. Associated grave goods are: 1 - iron sword (bent and broken); 2 - pottery vessel; 3 - faunal remains (sheep/goat – elements not detailed); 4 - additional human crania; and 5 - iron knife. (after Koryakova 1978)

Figure 5. Plan of Sauro-Sarmatian male burial from the Chernaya II cemetery site, Kurgan I, Burial 4. Associated artifacts include: 1 - round polished stone with center hole (possible mace head); and 2 - large animal bone (taxon and element not detailed). (re-drawn from Koryakova 1978)

Figure 7. Wheel turned pottery vessel from the Chernaya II Cemetery site, Kurgan I, Burial 9. (photo L. Koryakova).
Figure 6. Plan of Sauro-Sarmatian male burial from the Kardaielova II Cemetery site, Kurgan III, Burial 5. No associated grave good articles were uncovered within the burial. (After Koryakova 1978)

Figure 8. Wheel turned (flask-type) pottery vessel from the Kardaielova II Cemetery site, Kurgan III, Burial 3. (photo L. Koryakova)

Figure 9. Hand molded pottery vessel from the Kardaielova II Cemetery site, Kurgan II, from mound structure. (Photo L. Koryakova)

Figure 10. Weaponry from the Chernaya II Cemetery site, Kurgan I, Burial 9: sword and dagger. (photo L. Koryakova)
Part II

Archaeological Excavations
Abstract
This paper reviews a group of cultic sites dating to the 4th–2nd centuries BC recently discovered in the Aral-Caspian region, Republic of Kazakhstan. The chronological and ethnocultural attributes, and the theory that sites are related to the Asian military campaign of Alexander the Great are discussed. Archaeological expeditions conducted over several years in western Usturt and Mangyshlak revealed more than a dozen Early Iron Age sanctuaries. Analysis of some sanctuaries indicate that they are a unique complex of a type previously unknown throughout the Eurasian steppes. The sanctuaries display commonalities including stone anthropomorphic statues (more than 100 have been recovered), and stone sacrificial structures with the main feature being a round cultic construction up to 10 m in diameter; the latter has parallels with the Zoroastrian dakhma, although no trace of human bones or burials were recovered. It is presumed that the sculptures represent deceased ancestors. The discovery of large monolithic altars, known as “sacrificial tables,” suggest that the sites possibly were linked to a cult involving fire and liquids while Sarmatian tamgas on several sculptures indicate the presence of a Sarmatian population at the Usturt sanctuaries.

Keywords
Kazakhstan, Sarmatians, Massagetae, sanctuary, statue, rite

Introduction
A wide belt of steppes and deserts, often referred to as the “Great Eurasian Steppe Belt,” extends across the whole of Eurasia. This belt is bounded by the taiga (forest) to the north and by inaccessible mountain ranges and plateaus to the south, and acted as a natural corridor for the migrations of large groups of people and their animals. The history of the last four millennia has revealed that nomadic and semi-nomadic tribes made regular use of the steppe corridor for latitudinal and meridional movements.

The archaeological sites of the Eurasian steppes have been well known for over one hundred years, yet some have received more extensive study than others. Planned, large-scale excavations have occurred in the steppes of the northern maritime zone of the Caucasus, in the Volga and Ural regions, and in the desert zones around the Aral sea (Davis-Kimball et al 1995). Mongolia, northern and central Kazakhstan, Turkmenistan, and the majority of Central Asia have been studied to a lesser extent (Vainberg et al 1992). Moreover, the rocky and sandy deserts between the Caspian and Aral Seas have remained very much a “blank spot” on the archaeological map of western Asia. This region is of great importance because of its strategic position; it provides the shortest and most direct route from the north (the Volga region, the Urals, and northern Kazakhstan) to the south (the agricultural oases of Khorezm, Margiana, and Bactria). Moreover, these deserts also intersect with the Iranian and Afghananian plateaus. We know that during the Middle Ages one of the Great Silk Roads passed through the Aral-Caspian “corridor,” although it is highly probable that this route had been used during much earlier periods. The earliest scientific research of the Aral-Caspian region resulted in the identification of a large number of archaeological sites ranging in date from the Neolithic to the Late Middle Ages (Yanshin and Litvinskyi 1963; Kamalov 1978; Samashev et al 1997).

Historic sources indicate that nomadic tribes of Central Asia and western Kazakhstan played a significant role in the establishment and the later collapse of two great first millennium BC empires—the Achaemenid Persian and that of Alexander of Macedonia. For this reason the ethnocultural identification of each archaeological site, and its incorporation into the context of world history, is today of great importance (Mandelshtam and Gorbunova 1992).

This paper reviews a group of cultic sites dating from the 4th–2nd centuries BC that were recently discovered in the Aral-Caspian region, Republic of Kazakhstan. Their chronological and ethnocultural attributes will be presented, and the theory that these sites are related to Alexander the Great’s Asian military campaign will be discussed.

Environment
The Usturt Plateau occupies a large proportion of the Aral-Caspian region, and is an extremely interesting geological area covering 200,000 sq. km, now divided between Kazakhstan and Uzbekistan. The plateau rises much like an island approximately 300–500 m above the surrounding territory. Its boundaries are clearly marked by steep precipices, which are only possible to climb to in specific locations (Fig. 1). The eastern area of the Usturt Plateau is in close proximity to the Aral
Sea maritime zone, while to the south it is defined by Lake Sarykamys and the Uzboi Valley. A wide depression (a dried up sea bay) separates the Ustyurt Plateau from the Caspian Kara Bogaz Gol (bay) and the low Mangyshlak plateau to the west; the northern edge of the Ustyurt Plateau is not steep and gradually merges into the Caspian Sea lowland valleys.

No lakes, rivers, or mature vegetation are on the Ustyurt, but sweet and salty water is obtained from deep wells. The current ecological situation of the plateau is extremely harsh; essentially there is no rain, and during the summer the temperature can reach up to 47 degrees celsius. In winter it is virtually impossible to survive on the plateau due to the constant strong winds and temperatures dropping as low as 30 degrees celsius.

The severe climatic conditions in Ustyurt have changed little over the last three thousand years and consequently, because of the harsh environment, it is generally assumed it would have been impossible for large populations to have lived on the plateau during the Early Iron Age. The discovery of two archaeological sanctuary sites on western Ustyurt near the Baite Wells in 1983, preliminarily dated to between the 4th–2nd centuries BC, was completely unexpected.

**Site description**

Analysis of the Baite sanctuaries has revealed that they are a unique complex of sites of a type previously unknown throughout the Eurasian steppes. Archaeological expeditions conducted over several years in western Ustyurt and Mangyshlak have discovered more than a dozen other sanctuaries similar to the Baite examples. These other complexes are less impressive than the Baite sanctuaries in terms of size and the number of statues (Samashev and Olkhovskiy 1996; Olkhovskiy and Galkin 1997). All of the sanctuaries display a number of common features including their location on hills; the existence of one to five mounds or mound-shaped embankments; up to 35 stone anthropomorphic statues; round and rectangular stone altars; and dozens of small stone sacrificial memorial structures (Olkhovskiy and Galkin 1990). By the time the sites were discovered all the statues had fallen from their original positions and a large number appear to have been deliberately destroyed. It is possible that some of the destruction may have occurred during antiquity.

**The sanctuaries**

The discovery of the Baite sanctuaries has raised a number of important questions, namely who, when, and for what purpose were these sanctuaries created in an almost inaccessible desert, far from the centers of the ancient civilizations? The sites are also important as repositories for an expressive anthropomorphic art style. Previously it was thought that the Sarmatian, Saka, and Massagetae tribes, who lived in the western Asian steppes, were familiar only with “Animal Style.” The results of a research program conducted over a several decades by a joint Russian-Kazakhstan expedition has enabled us to gain valuable insights into these issues.

Plans of the sanctuaries Baite III, Teren, and Karamunke indicate that a round cultic construction up to 10 m in diameter, or a large mound, was the main structural features of the sanctuaries (Fig. 2). The cultic structures were composed of large stone blocks that formed a circular wall approximately 1.5–2 m in height, with a width of up to 1 m. A narrow passageway generally provided access into the interior of the structure. No remains of construction debris or household refuse was recovered from the interior of the cultic structure or from the entire sanctuary territory; thus we are of the opinion that the sanctuaries deliberately were kept clean. The circular cultic constructions have parallels with Zoroastrian dakhma, although no human bones or traces of burials synchronous with the sanctuaries have been recovered.

**The sculptures**

The anthropomorphic sculptures are the most dramatic feature of the sanctuaries (Olkhovskiy 1994). Although they had fallen and were no longer *in situ*, it was possible to identify their original location because of their preserved foundation pits. It became clear that the statues had been positioned in groups composed of two to four monuments, and that each group had been located approximately 1–2 m from the next. The number of sculptures located in each sanctuary ranged from one or two up to as many as 35, and a total of approximately 100 statues have been recovered. Although the majority of the statues were broken, it was possible to reconstruct most of the monuments from broken fragments. A cluster of tall statues (approximately 3–4 m high), undoubtedly, would have made a strong visual impression.

The statues had been rather skillfully made, and provide evidence of ancient masons’ stone working skills; the precision with which the sculptors executed minute details enables one to authentically reconstruct the ethnographic appearance of the earliest inhabitants of the Aral-Caspian steppes. In general, each sculpture represents a standing man, his right arm lowered and his left arm, clasping the stomach, is bent at the elbow (Figs. 3–6). The faces are very expressive with almond-shaped eyes; a clear cut forehead that gradually transforms into an elongated straight nose; a thin drooping mustache and a small mouth. In addition, a number of the statues also have wrinkles clearly incised into the cheeks (Fig. 7). Although the majority of the sculptures display European facial characteristics, others have wide flattened faces, a lack of beards, and pronounced cheek-bones, features that are characteristically Mongolid. It should be noted that paleoanthropological studies have indicated that peoples of Europoid-Mongolid admixture lived in the eastern Caspian region during the Early Iron Age (Samashev et al 1997).

Their costume and accessories are also indicated. A wide leather belt with a metallic buckle, sometimes decorated with embroidery or appliqué, appears to have been an obligatory element of a warrior’s outfit (Fig. 3). A double-edged sword in a sheath was hung from the belt front by two straps (Figs. 5 and 6), and a *gorytus* (quiver) was attached to the left side of the belt. The Bow in the *gorytus* small and sigma-shaped (Figs. 4 and 8), and of the type typically used by the Eurasian nomads during the Scythian-Sarmatian period.
A dagger for both hunting and battle was an almost obligatory accessory for the Ustyurt nomads. Carvings of daggers on the statues indicate that it was worn in the “Saka-Median Style,” attached to the hip by one or two straps (Figs. 3, 4, and 8). An extension at the end of the sheath (buterol), or a couple of ledges on the lower part of the sheath, prevented the dagger from falling out, and ensured that it was positioned near the warrior’s hand. It is known that the Medians, Sarmatians, Saka, and Massagetae all wore daggers in this manner, although it is not certain how the Scythians wore this weapon. A leather semi-spherical helmet would have covered the head and the nape of the warrior-nomad’s neck (Figs. 3 and 8).

During the Early Iron Age, objects of precious metal indicated the high social status of their wearer. Individuals of the upper echelons (both men and women) would have worn gold jewelry including bracelets, earrings, and torques. In addition, the nomads decorated their horse harnesses with silver plaques and beads. Spiral-shaped torques, earrings, and bracelets displayed in relief on the Ustyurt statues (Figs. 3, 7, and 9) replicate jewelry that has been recovered from nomadic tombs in the Volga and Ural regions, and in Kazakhstan. Analogous spiral-shaped torques and bracelets are also included in the Peter the Great Collection (Rudenko 1962), and it is thought that grave robbers retrieved these artifacts from tombs in southern Siberia and northern Kazakhstan.

As mentioned earlier, prior to the discovery of the Ustyurt and Mangyshlak sanctuaries, there was no evidence to indicate that the Sarmatians, Saka, or Massagetae created anthropomorphic sculptures, although it was known that they positioned stone stelae or menhirs in their burial grounds and sanctuaries. It would appear that only their western neighbors—the Scythians from the northern Caucasus and the Black Sea maritime zone—created anthropomorphic sculptures. Scythian sculpture also reproduces images of standing male warriors; however, their weapons and decorations were of a different type that those on the Ustyurt sculptures, and Scythian statues appeared in the late 7th or early 6th century BC, much earlier than the Ustyurt monuments (Olkhovskiy and Evdokimov 1994). It is noteworthy that when the earliest Ustyurt sanctuaries were constructed, monumental sculpture of the western nomadic Scythians was entering a period of decline, and it appears unlikely that Scythian art would have greatly influenced the sculptors of the Aral-Caspian region. The high quality of the Ustyurt statues, combined with the fact that no evidence exists for a period of artistic development, however, would imply that there must have been sculptures from some source available that inspired the Ustyurt artisans. In my opinion, the Ustyurt sculptors borrowed technological and stylistic methods from another group or groups that enabled them to create the realistic anthropomorphic sculptures, but at the same time, the borrowing did not inhibit the creation of original sculptures, fulfilling their religious and aesthetic requirements.

A hypothesis regarding the function of the sanctuaries

By analyzing the structure of these sites, it is possible to gain insight as to which deities the sanctuaries were dedicated to. A high mound or a concentric stone construction that may have simulated, or was related to, a sacred center of the microcosmos (the territory of the sanctuary), was positioned centrally within each sanctuary. The anthropomorphic statues, clustered together, generally were placed to the south or east of the central construction. It is a well known that the eastern and southern vectors of the Indo-Iranian and Indo-European mythological systems are usually related to a theme of life, regeneration, light, and the sun. Reconstructing the site, it is now known that the statues were placed facing toward the north or the west. In the Indo-European religious systems these directions are considered to represent the sunset where the mythical “country of the dead,” and cold and darkness were located.

Various stone sacrificial vessels with vertical rims were found in close proximity to the statues. Large monumental altars, termed “sacrificial tables” and measuring up to 1.2 m by 1 m, displaying cup-shaped indentations in the corners, are of particular interest (Fig. 9). These indentations may indicate that the tables were linked to a cult involving the use of liquid, possibly water or blood as well as fire, as it would have been possible to fill the indentations with animal fat, which was then ignited. We know that water, blood, and fat were widely used by the priests of the ancient Indo-Iranian cultures—including the Sarmatians, Saka and Massagetae—during rituals linked with the concepts of humans, nature, death, and resurrection. It was believed that a priest, with the help of magic, could restore world order that had been violated by the death of a person or a major calamity; priests could also appeal to the gods for help in the struggle with imaginary and real enemies.

The role of the stone sculptures

The occurrence of large numbers of sculptures with similar facial features, displayed in series, may allow us to conclude that they depicted deceased warrior-ancestors, who were respected by the tribal community. It is also possible that each statue was considered a vessel for the dead warrior-ancestor’s soul. The sculptors emphasized the military role of the deceased as well as personal attributes, such as the advanced age of an individual. It would have been natural for a nomad to appeal to the ancestors’ spirits for help. Perhaps during a desperate struggle with the Greek Macedonians and their allies in the southern Ustyurt region, the people invoked these idol-ancestors who, during their time, had successfully repulsed the incursion of the Persian King Cyrus II, two centuries earlier.

The military leader of each tribe was considered to be the living embodiment of a mythical tribal hero-father and a protector of tribal territory, and who would continue to protect his descendants after death. The sculptural form of the dead chief—tarn, therefore, became merged into the contemporary consciousness with an ancestor, one who could renderer assistance to his descendants, provided they implemented certain rituals and offered sacrifices.

The problem of dating and ethnic interpretation

Analysis of the weapons and decorations depicted on the stat-
ues reveal when and by whom the Ustyurt sanctuaries were created. Large numbers of daggers, swords, torques, and bracelets identical to those carved on the Ustyurt statues, have been excavated in Sarmatian burials dating to the 4th–2nd centuries BC. An iron dagger, as well a mirror, and bronze arrowheads, typical of those belonging to the Sarmatian Culture, were recovered from burials at the Baite III and Teren sanctuaries. It is apparent, therefore, that the Ustyurt real objects and their representations on the sculptures, have direct parallels with artifacts from a huge number of Eurasian steppe sites dating between the 4th–2nd centuries BC. The Eurasian sites, predominantly comprised funerary complexes, and have been identified both to the north of the Ustyurt Plateau in the Black Sea maritime region, the Volga and Ural regions, and northern Kazakhstan as well as to the south in Khorezm and Sogdiana. Without doubt, weapons, harnesses, and household goods spread quickly and widely throughout the Great Steppe Belt and were used by ethnically unrelated groups. Consequently, it is not possible in this case to regard the majority of artifacts including weapons, jewelry, tools, and ceramic vessels as reliable ethnic indicators.

Many common religious and mythological concepts resulted in the use of essentially similar funerary rites by the ancient Iranian-speaking nomads of Eurasia, including the Sarmatians and Saka-Massagetae, each divided into a number of tribal groups. It is within the context of funerary rituals, however, that it is possible to identify the unique traits of each specific ethnic group. The anthropomorphic statues and rectangular sacrificial altars, the most typical elements at the Ustyurt sanctuaries, do not have analogies within the adjacent nomadic cultures. Similarity in planigraphy, and the use of monumental statues installed in rows very close to supra-tombs (kurgans) are known from sanctuaries in southeastern Anatolia—the *hyerostesiyons*—dating from the 1st century BC (at Nimrud-Dag, Kara-Kush, etc.). It is necessary to note that although the Hellenic Culture and its monumental art, so vividly embodied in the Anatolia complexes, undoubtedly made an impact on the Ustyurt artisans (Schlumberger 1970), this does not resolve the issues of ethnos in the desert locale.

Another archaeological indication identified at the Baite III sanctuary is the so-called Sarmatian tamgas that are apparent on a number of anthropomorphic statues (Fig. 8). These are identical to a large group of tamgas widely spread throughout the western Eurasian steppes during the 1st century BC to the 4th century AD (Drachuk 1975; Vainberg and Novgorodova 1976). Essentially all scholars relate the tamgas to the Sarmatians (Solomonik 1959). The location of the tamgas on the anthropomorphic statues, however, suggests that they were added to the sculptures at a later date. This assertion is also supported by the fact that the time period assigned to the sculpting, as suggested by the dagger style, does not coincide with the period when tamgas were widespread throughout the Eurasian steppes, approximately 100–150 years later. The tamgas, therefore, may be considered evidence for the presence, perhaps only temporarily, of a Sarmatian population in the territory of the Ustyurt sanctuaries.

Concerning the ethnicity of the Ustyurt peoples, it is very difficult to combine archaeological evidence with historical sources to determine who they might have been. Information in Chinese and Classical texts relating to the inhabitants of the Eurasian steppes and deserts is fragmentary, contradictory, and semi-legendary. As all nomads of Middle and Central Asia during the second millennium BC were preliterate, the texts, nevertheless, are an extremely valuable source of information. A critical analysis of written sources has enabled us to establish that during the Early Iron Age (7th to 3rd centuries BC), Sauromatians and Sarmatians inhabited the steppes of the Trans-Volga and southern Urals, while the Saka, Massagetae, Dakh (Dai), Scythians, and a number of smaller nomadic tribes resided in the steppes and deserts of the Aral Sea maritime zone, Kazakhstan, and Central Asia (Mandelshtam and Gorbunova 1992:13-20; Vainberg and Stavisky 1994). All these cultures followed a similar lifestyle; they were warrior horse riders, hunters, and nomadic herders, and were famous for their belligerence and love of freedom. A review of the archaeological data indicates that the majority of nomads of the Eurasian steppes used essentially the same weaponry and household items.

It is not possible to ascribe the creation of the Ustyurt sanctuaries to the Sarmatians because it is likely that they, along with the Massagetae and Dakh (Dai), had the same weaponry and decorative elements. These later two tribes would have been the closest relatives and neighbors of the former that belonged to the union of Sarmatian-Saka-Massagetae community. It is likely that the Baite type sanctuaries originally belonged to the Massagetae (or the Dakh-Massagetae). At a later date another, probably related group of nomads, who belonged to the Sarmatian ethntribal association, appeared in the Ustyurt sanctuary region. But what motivated the nomads to install a network of sanctuaries, linked with the cult of heroic-ancestors and military chieftains, and relate the idea of military power and regeneration in this particular location in the Ustyurt desert?

**A hypothesis relating to the historical reconstruction**

The latter half of the 4th and early 3rd centuries BC was a time of violent political and ethnocultural cataclysms across the entire ancient world; a time of clashes, and of great commingling of European and Asian cultural traditions. This period also is linked with the famous Macedonian king, Alexander the Great. Alexander generally succeeded with his brave attempts to win over the Asia region that was familiar to him following his victory over the huge, but politically weak, Achaemenid Persian Empire in 331 BC. A large number of countries in the Near East and Central Asia (e.g. Hyrcania, Parthia, Margiana, and Sogdiana) surrendered to his forces. The Greeks came to the East, however, not only as conquerors but also as the bearers of the high Hellenic civilization, a culture extremely different than that of the Ancient Near East. Greek architects built dozens of cities and fortresses in Central Asia based on Hellenic styles, and elements of Greek culture including sculptures, temples, and theaters came to embellish many of the ancient cities that had previously existed. The local sedentary population and, to a lesser extent, the nomadic and semi-nomadic tribes (initially the nobility) could not fail to fall under
the powerful influence of the Hellenic conquerors. When the Greek language became the lingua franca of international communication, the local populations absorbed much of the Greek literature, mythology, and fine art. Mixed marriages became commonplace. Greek monumental art certainly impressed the chieftains as well as the lesser nomads. It is quite possible that it was the anthropomorphic sculpture of Hellenic gods and heroes that inspired the nomads to create their own anthropomorphic statues of ancestor-protectors.

It is clear from written records that not all nomadic tribes of Central Asia surrendered to the Macedonian conquerors. Over the years, some nomads waged guerrilla-style warfare to the south and southeast of Ustyurt, in Hrycania, Parthia, Margiana, Sogdiana, and probably in Khorezm. The Dakh (Dai), Saka, Massagetae, and Scythians were active in both large and small rebellions against the Macedonians, for example, the rebellion led by Spitamem, a Sogdiana nobleman. Nevertheless, the majority of nomads came to acknowledge Hellenic power. It should be pointed out that tribal chieftains that preferred freedom traveled north leaving the Uzboi River region and the Sarykamysh Delta of the Amudarya. The northern plateau was both inaccessible and practically unsurpassable for an alien foot army, yet it served as a natural defensive base from which to resist invaders. It is understandable, to encounter in the safe western and northern Ustyurt regions, Dakh-Massagetae that did not hide from the enemy, but also erected sanctuaries.

Not enticed by loot and not attracted to this arid, almost uninhabitable plateau, Alexander’s detachments and subservient nomads did not venture into Ustyurt. Immediately after the death of Alexander in 323 BC, the newly created empire extending from the Balkans to India, quickly collapsed at which time any external threat to the Ustyurt nomads became significantly weaker.

The restoration of Ustyurt nomadic military potential required a certain amount of time. The severe climatic conditions were not compatible with the rapid development of the herding economy, which also created constraints on population growth. Relationships between the Ustyurt nomads and Sogdiana, Bactria, and Khorezm to the south were limited or temporarily severed. Without a serious enemy in the Aral-Caspian passage, the nomads engaged in seasonal meridional migrations to the northern Caspian zone, the southern Urals, and northern Kazakhstan, and possibly they also used the westward routes to reach the Mangyshlak plateau where the climate was less severe.

The popularization of the ancestor-heroes cults, military valor, and weaponry was compatible with the concept of consolidating forces to fight against the invaders. The possibility of embodying the images of the ideal with invincible ancestors in a more instructive, i.e. graphic fashion, was fully implemented upon the creation of a network of sanctuaries with numerous anthropomorphic sculptures. Techniques for artistic realization of a human body, borrowed from the invaders, were used for creating monumental sculptures that had both a psychological and emotional impact, particularly on the younger people. Rituals involving the use of fire, water, blood, and fat would have served a similar purpose, namely to prepare all members of the community for a decisive war against invaders. Priests would have appealed to the ancestors and superior gods to enable the rebirth of the spiritual and physical power of the nomadic tribes.

A peaceful respite that appears to have lasted for approximately 70 years allowed the nomads to restore their strength. In addition, it is probable that this respite enabled them to seek aid from their northern neighbors and far off relatives, the Sarmatians, while preparing for a decisive counterattack. Archaeological data indicates that the sanctuaries, as well as the phenomenon of Ustyurt anthropomorphic sculptures, existed for only a little more than 100 years at which time they disappeared as unexpectedly as they had appeared. Apparently the Ustyurt sanctuaries had fulfilled their function and when the majority of the nomads left for the south they were abandoned.

The restoration of military potential enabled the nomads to abandon the protective Ustyurt “island” and move southward, leaving behind the Uzboi to the neighboring young Hellenic states. In the context of a favorable military and political situation, the nomadic nobility was not primarily interested in revenge for past defeats but rather their focus was on raiding for rich loot. The beginning of this reconquista seems to be dated to the middle of the 3rd century BC. We know that in 248-247 BC the nomads from the north, the Dai, Parni, and possibly Massagetae headed by Arsak (Arsaces) captured Parthia and a part of neighboring Hyrcania, giving rise to the development of the Arsacid Dynasty. During the subsequent period, the nomadic and semi-nomadic nobility of the Dakh and Saka-Massagetae played a major role in the foreign political affairs and dynastic strife of not only Parthia but also a number of Hellenic states. This, however, represents another page in the history of relations between the nomadic and sedentary civilizations of Central Asia and the Near East.

Conclusion

The hypothesis offered in this paper on the development and purpose of the Aral-Caspian sanctuaries seems to almost precisely reflect the historically attested situation in the latter half of the first millennium BC. Firstly, it provides a logical explanation to account for both “southern” and “northern” elements in the culture that created the sanctuaries. It explains the sudden appearance and disappearance of an anthropomorphic cultural center previously unknown to the inhabitants of Central Asia and Kazakhstan steppes. Unfortunately artifacts discovered in the region of the sanctuaries have not been precisely dated (only to within 50–150 years). A number of the artifacts appear to date to the time of the so called “passive existence” of the sanctuaries, and it is probable that such objects are not contemporary with the main structural features at the sites. It is hoped that further research will allow the chronology of the sanctuaries to be narrowed, thereby enabling the validity of the current hypothesis to be ascertained.
Endnotes
1. The Amudarya emptied into the Caspian Sea rather than the Aral Sea during the Early Iron Age; the ancient river bed is known as the Uzboy.
2. Tamga is a Turkish-Mongolian word that signifies mark, sign of ownership, possession, brand or seal.
3. Nomadic tribes of Dakhi (Dakha) or Dai (a variant of Dakha) inhabited Aral and East Caspian regions. Some ancient historians considered Dakhi-Dai a part of the Massagetae (Dakhi-Massagetae), and others—a separate ethnos. Modern historians have not been able to solve this problem. I consider that the Massagetae, as the general name, consisted of many related tribes.

References


Fig. 1. Map of the Aral-Caspian Region.
Fig. 2. Teren Sanctuary. The main cultic construction.
Fig. 3. Konai Sanctuary. An example of an anthropomorphic statue.

Fig. 4. Baite III Sanctuary. An anthropomorphic statue.

Fig. 5. Baite III Sanctuary. An anthropomorphic statue.
Fig. 6. Baite III Sanctuary. An anthropomorphic statue.

Fig. 7. Baite III Sanctuary. An anthropomorphic statue.

Fig. 8. Baite III Sanctuary. An anthropomorphic statue.

Fig. 9. Baite III. Stone sacrificial table (altar).
Abstract
In July 1997, a joint research expedition of Volgograd State University (Russia) and Mansfield University (USA) excavated nine ancient burial mounds (kurgans) on the Aksai River in the Volga-Don region. A total of 41 burials were discovered dating from 3000 BC to AD 300. Burials dated to the Bronze Age represented three pre-Sauromatian steppe cultures: Pit, Catacomb, and Timber-Frame, characterized by the flexed position and earthenware ceramics as grave goods. The Early Iron Age was represented by one undisturbed burial of the Sauromatian Culture (700–400 BC) and 18 burials of the Sarmatian Culture (200 BC–300 AD). For the first time in this region, a painted Greek amphora was found in a Sauromatian burial along with a bronze plate on which were depicted three griffin heads. Similar bronze plates are found in Scythian sites along the northern Black Sea coast. Artifacts such as long and short swords, arrowheads, ceramics, beads, bronze mirrors, and fibulae were found in the Sarmatian burials. Preliminary analyses of these excavations demonstrate that the Sarmatian Culture in the Volga-Don region had connections with China in the east as well as with the western Roman Empire provinces.

Keywords
kurgans, Bronze Age, Iron Age, Sauromatian, Sarmatian, Greek amphora

Introduction
At the beginning of the 21st century anthropologists and archaeologists not only have new challenges but also new colleagues. With the dissolution of the Soviet Union, scholars from the old Soviet countries have emerged to seek cooperation with their international counterparts. Mansfield University in Pennsylvania, USA, and Volgograd State University, Volgograd, Russia, began an archaeological research exchange in July 1997 to excavate kurgans along the Aksai River, located on the left bank of the Don River, in the steppes between the Volga and Don rivers. Alexander Nicholaevich Dyachenko and Anatoly Stepanovich Skripkin directed the expedition, which included Volgograd State University students, four Mansfield University students, and three students from the University of Cologne, Germany.

The Excavations
The site consisted of eleven kurgans, measuring from 0.2 to 2.5 m in height, and from 12 to 45 m in diameter, located in meadow flood lands of the steppe river Esaul Aksai on the left bank of Don River, four kilometers southwest of Aksai village (Fig. 1). The expedition excavated nine kurgans containing a total of 41 burials. Burials were unevenly distributed in the kurgans. Four kurgans (1, 4, 5, and 7) each had one burial, three (2, 3, and 6) had three burials each, Kurgan 9 contained 12 burials, and Kurgan 8 held 16 burials. The material from the Aksai mounds represents a diversity of artifacts and long time span. Chronologically the burials are attributed to two epochs: 23 of the burials belong to the Bronze Age and 18 to the Early Iron Age. This article continues the published research reports on the archaeology of the Volga-Don region by Volgograd State University in 1994-1997 (Dyachenko, et al., 1995, Klepikov and Shinkar 1997).

Kurgan 9 is the oldest and is attributed to the Early Bronze Age (3000–2000 BC). Kurgans 6 and 8 were constructed during the Middle Bronze period (2000–1500 BC). Kurgans 2 and 3 were constructed in the Early Iron Age (600–500 BC). The remaining, 1, 4, 5, and 7, were created during the final period of the Early Iron Age (200–300 AD).

The Aksai River burials date to all three classical cultures of the southeastern European Bronze Age: one Pit burial of the Early Bronze Age (3000–2000 BC). Kurgans 6 and 8 were constructed during the Middle Bronze period (2000–1500 BC). Kurgans 2 and 3 were constructed in the Early Iron Age (600–500 BC). The remaining, 1, 4, 5, and 7, were created during the final period of the Early Iron Age (200–300 AD).

Historic Sources and Burial Assemblages of the Early Iron Age
The Early Iron Age of the steppes between the Volga and Don Rivers coincides with the history of the Sauromatian and Sarmatian tribes and dates from 700 BC–400 AD. The beginning of the Iron Age is associated with the distribution of iron throughout southeastern Europe and ends with the Hunnic in-
Assemblages of the Bronze Age

All the burials of the Bronze Age can be typed into three groups: Pit Burial Culture, Early Catacomb, and Timber-Framed. The earliest Pit Culture burials were found in Kurgan 9, Burial 8. This is a major burial with an encircling stone ring (16 m in diameter, 60 cm wide, 15 to 40 cm high) and assumed to be associated with the central burial. According to Merpert (1974) the burial tradition of secondary burial (the skeleton placed in a soil pit after decomposition of the body) and associated grave goods correspond to the latest group of Pit burials in the lower Volga area. Generally, funeral ceremonies involving secondary burials are more characteristic of the Middle Bronze Age as is demonstrated in excavations of lower Volga area sites that are synchronically dated with Early Don Catacomb sites (Dyachenko 1992: 79–90). In this Aksai burial, it is evident that another cultural tradition influenced the traditional funeral canons of ancient Pit Culture burials.

Next in chronology are early Catacomb burials found in the center Burial 16, and later interred burials 11 and 12, in Kurgan 8 as well as Burial 9 in Kurgan 9. Two of these burials were in simple soil pit catacombs. The skeletons in Burial 16, Kurgan 8, were flexed to the left side (Fig. 11: 9). Burials 11 and 12 in Kurgan 8, and Burial 9 in Kurgan 9 lay on their backs with their legs bent to the right side (Figs. 9: 11 and 14: 5). There was ochre in all burials in this group. The dominant orientation is north and east which conforms to the local funerary traditions during the Early-Middle Bronze Age.

Burial 16 in Kurgan 8 was very interesting. A woman and child were buried with a short-necked vessel that was decorated with a combined cord-stamped and coggd-impressed design and two rows of finger-impressed punctates around the neck (Fig. 12: 1). This vessel has numerous analogies to Donets Catacomb sites. Previously, two proto-Caucasian and two Poltavkinsk burials in the Volga-Don area had been found (Bratchenko 1976: 38; Kyashko 1998: 6). Ceramic body sherds indicate that this was a large egg-shaped vessel typical of Poltavkinsk ceramics (Fig. 12: 1). Other artifacts in this burial are: a bronze disk-shaped pendant (Fig. 12: 3), mushroom-shaped pendants (Fig. 12: 5), a buttonhole pendant, spiral silver pendants (Fig. 12: 5), and bronze beads (Fig. 12: 13). These artifacts have analogies, dating between 3000 and 2000 BC, from North Caucasian burials (Markovin 1960: 30–86). Other grave artifacts verify this date: Caucasian mineral beads (Fig. 12: 10), amber beads (Fig. 12: 7), and bone rings (Fig. 15: 1) are often found in Pit Catacomb and Catacomb burials in the territory of the Volga and Manych Rivers (Synitsin and Andriev 1987: 119; Shilov 1985: 114, fig. 22).

Four burials are chronologically associated with the Middle Bronze Age of the proto-Caucasian Catacomb Culture. The burial position was only able to be determined in Burial 3, Kurgan 6, where the skeleton was flexed on the left side with the head oriented south (Fig. 6: 3). Grave goods included two vessels with buttonhole handles (Figs. 7: 13; 9: 2), a large turpin-shaped vessel (Fig. 9: 10), and beads made from yellow minerals (Fig. 9: 12); these are typical for Proto-Caucasian Catacomb sites of the Volga-Don steppes. The population in this region during the Middle Bronze Age evidently had permanent cultural influences coming from the North Caucasus that are reflected not only in the metal artifacts, but also in ceramics similar to the material culture of the developed North Caucasian Culture stage (Markovin 1960: 30–86).

The most numerous group consists of the Timber-Frame burials represented in kurgans 8 and 9. The form of burial mounds and the rituals of this group are standard. The burials were made in kurgans or in small rectangular pits with the placement of the bodies flexed on the left side, heads oriented east. Grave goods are also typical. Handmade ceramics without decoration dominate and are typical for Timber-Frame burials (Figs. 9: 3, 6; 13: 6; 15: 3). In addition, in Burial 3, Kurgan 8, a bronze pendant (Fig. 9: 4) and beads (Fig. 9: 5) were discovered; this type has been found in sites in the region dating to the same time period (Kachalova 1985: 28–54).

Burial 7 in Kurgan 9 is different. The non-standard position of the body with the head oriented north, and the presence of a vessel with a surface treatment of slanting lines (Fig. 15: 4) places this burial in an earlier chronological period of the so-called Pokrovsky type.

The Sauromatian Culture

Two of the three burials attributed to the Sauromatian Culture (Burial 3 in Kurgan 2, and Burial 12 in Kurgan 9) had been almost completely destroyed by looters and can only be hypo-
The undisturbed burial (Burial 3, Kurgan 3), however, contained some unique artifacts which date the burial and provide important data on the cultural connections between the nomads living between the Volga and Don rivers. This was a pit burial 2.4 m in length, 1.2 m wide, and found at a depth of 1.7 m below the original ground surface. The skeletal remains of a young man in a supine position with the head to the west was found at the bottom of the pit (Fig. 4: 3).

Several important artifacts were associated with this grave. The most interesting artifact in the burial is a Greek amphora with a yellow surface and a red meander decoration painted on the neck of the vessel (Fig. 5: 1). The shoulder of the vessel was decorated with a stylized lotus and stripes surrounded the body. This Rhodos-Ionian style amphora was widespread during the Archaic Period (800–500 BC) on the western coast of Asia Minor (present-day Turkey) and in the Aegean Sea islands. The shape, decoration, and production techniques indicate that the amphora was made approximately between 600 and 540 BC (Kopeykinà 1986: 38–40). Similar amphorae have been excavated in ancient Greek towns on the north coast of the Black Sea, dating to 700–600 BC. More precisely, amphorae excavated from Germonassa and Olvia dates our amphora to the second half of the 6th century BC (Kastanyan & Arsenyeva 1984: 229, table CXL; Kopeykinà 1986: 37, table VI.XX). It is important to note that this is the first and only such amphora discovered in a Sarmatian site, and the only amphora of this type found in the Volga-Don area. Perhaps this vessel came through one of the Greek cities in the north Black Sea region to the steppe nomads in the Volga-Don region.

Burial 3 in Kurgan 3, contained a ‘Scythian style’ iron sword found near the left femur of the skeleton. Fifteen bronze and three iron arrowheads, probably kept in a gorýtus (quiver), were found near the left patella. A whetstone was positioned near the sword along with a pendant made from wolf teeth, a bone pipe, and a handmade vessel. Sheep ribs were also in the burial. Also in association with this burial was a bronze clasp cast with three griffin heads and a unidentified coiled animal in the center (Fig. 5: 2). The upper part of the clasp was missing and was not discovered in the grave. Two other exact copies of this clasp are known. One originated in the archaic necropolis of Olvia, dating from the middle to late 6th century BC (Kaposhina 1956: 173–176, Fig. 16), and another from the destroyed burials of the Dugin Mounds near the mouth of the Don River; these date to the end of 6th century BC (Kopylov 1992: 79; Fig. 1: 5). This date is also supported by arrowheads with distinctive archaic traits such as those with a bushing (Fig. 5: 10), those that are two-pronged (Fig. 5: 11), and laurel leaf-shaped (Fig. 5: 13). All of these traits are characteristic of Scythian and Sauromatian gorýtus contents during the 6th century BC. The other artifacts discovered in this burial are not as informative, but do support a date of 600–500 BC. Sauromatian burials previously excavated in the Volga-Don River region have not been dated earlier than 500 BC.

Herodotus recorded Darius the First’s invasion of the northern Black Sea region during the Scythian-Persian war in 512 BC. He placed the Sauromatian people east of the Don River and the Scythians inhabiting the region west of the Don. Our discovery of Sauromatian kurgans, dating to 600 BC, confirms the information provided by Herodotus. Therefore, the artifacts from Burial 3, Kurgan 3, date this burial to the second half of 6th century BC. It is important to note that this is one of the earliest burials of the Sauromatian Culture in the Volga-Don area.

**Early Sarmatian Burial Assemblages**

All the burial assemblages dating from the Early Sarmatian period (200–100 BC) were interred in kurgans created during the Early Sarmatian Period. These include four pit burials with long rectangular graves and one catacomb burial. The skeletons were supine and oriented south, although a few were oriented southeast. Iron swords and arrowheads, ceramics, iron knives, whetstones, clasps, bronze mirrors, and beads were part of the grave goods. One front leg and shoulder of a sheep were placed in the graves as food offerings.

The iron sword in Burial 2, Kurgan 2 (Fig. 3: 2) measures 1.0 m in length with a grip of 22 cm in length, and has a diamond-shaped hilt. Similar swords were found in Sarmatian sites in the Volga-Don steppes dating not earlier than 150 BC. This sword style also bears the influence of Chinese traditions, as similar swords with long handles and diamond-shaped hilts made from iron and bronze were widespread during the Han Dynasty (Skripkin 1996). We now know of about 20 swords of this type from Sarmatian burials, some of which are very similar to Chinese bladed-weapons. A similar sword with a diamond-shaped jade hilt, typical for Chinese swords, was discovered in a Sarmatian burial near the mouth of the Don River (Skripkin 1996).

The appearance of these swords far from China can be explained historically. We know that during the 2nd century BC the mobility of nomads in the Eurasian belt increased as nomadic peoples moved throughout the vast territory from China to the Black Sea. A powerful Hunnic state appeared north of the Great China Wall. At the end of the 3rd century BC, and particularly between 200–100 BC, the Huns expanded westward from present-day Mongolia, displacing nomadic populations after moving into the territories of their often hostile neighbors. These events caused a chain reaction as one group displaced or conquered another (Skripkin 1996). Chinese historians Sem Tzan and Ban Gu recorded these events in Central Asia while ancient European authors noted the same events in Eastern Europe. Strabo was the first to draw attention to the great cultural changes in this region, describing new associations of nomadic peoples such as the Roxolani, Siraças, and Aorsi. This historian placed the Aorsi in the Don River region. Perhaps Early Sarmatian burials on Aksai River are actually Aorsi burials.

The rounded iron girdle clasp with grille ornament (Fig. 2: 18) also testifies to Oriental connections between nomadic populations of the Volga-Don River region. Similar clasps, dating to 200 BC–100 AD, are known among the Ordos antiquities, an area now within Chinese territory, and were also common in Siberia (Davlat 1980).
The Assemblages of the Middle Sarmatian Culture

According to the burial rites and artifact associations, the Middle Sarmatian assemblages are very similar to those of the Early Sarmatians. The most typical shape of the pit burials is a long rectangular construction with the length approximately twice the width. The deceased were usually supine with the head oriented south. As in the Early Sarmatian Period, one sheep leg with shoulder were part of the grave goods. Artifact associations are also similar with swords, arrowheads, ceramics, bronze mirrors, and beads being the most common (Burial 2 in Kurgan 3, Burial 1 in Kurgan 6, burials 13 and 15 in Kurgan 8). A bronze fibula was discovered in burial 1 in kurgan 6 (Fig. 7: 4).

A long sword with a rhomboid guard and a definite Oriental design was found in Burial 1, Kurgan 6 (Fig. 7: 12). This sword is very similar to a sword found in the Early Sarmatian Burial 2, Kurgan 2. With it was a short sword with a circular pommel (Fig. 7: 9) and a bronze fibula (Fig. 7: 4). This type of fibula (militia) was widespread in western European Roman provinces, and was known from the Zaraniborsk culture as well as from some sites in the black Sea area. According to the latest publications they can be dated from 150 BC–150 AD (Eramenko and Zuravlev 1992).

Both Early and Middle Sarmatian burial assemblages contained similar forms of ceramics manufactured in one of the Kuban region rural centers. This indicates that the nomadic people of the Volga-Don steppe area continued the same cultural and economic traditions incorporating some developments over time. For example, the green-glazed alabaster two-handled vessel (Fig. 11: 3) found in Burial 15, Kurgan 8, is well known from northern Mesopotamia, in the Dura-Europos excavations, in the territory of Media, and also has been found in lower Volga, lower Don, and Kuban River sites. The largest centers of production of such glazed pottery were at Seleukia-on-Tiger and Dura-Europos. Research indicates the possibility of glazed pottery production in the territory of either Media or Armenia, with the green-blue glaze being transmitted throughout the steppes at the end of the 1st century BC (Gadgiev 1997). Two additional vessels of the same type were discovered in Sarmatian sites on the Don and Volga rivers. The Sarmatians could have obtained them in a variety of ways. In his Geography, Strabo mentions a trade route from Media through the Caucasus to the Sarmatian steppes, which was controlled by the Aorsi. The alabaster vessel in Burial 15 could have reached the Sarmatians on the Aksai River as a result of trade. Another possibility is that the Sarmatians could have obtained the vessel during military raids through the Caucasus and into Media and Armenia. Tactius, Flavius, and other authors also wrote about these raids.

Discussion of the Middle Sarmatian Culture

The current debate concerning the formation of the Middle Sarmatian Culture divides Sarmatian scholars into two groups: autochthonists and migrationists. The autochthonists assume that the Early Sarmatian Culture was created based on local resources. The migrationists connect the formation of the Middle Sarmatian culture with the movement of a new wave of nomads, probably the Alans from the East, whom the ancient authors identify as the Massagetae. Although the artifacts from the Middle Sarmatian period at Aksai are not numerous, it is possible to use them toward a solution of this problem.

The continuity of burial rites and material culture indicate that probably the same population continued to live in this region from the Early through the Middle Sarmatian periods. There is not a clear chronological split between Early and Middle Sarmatian assemblages. All the Middle Sarmatian burials date to the 1st century AD. The bronze fibula that was excavated from Burial 1, Kurgan 6, confirms this date. We propose that the Early and Middle assemblages on the banks of the Aksai River were abandoned by the Aorsi from 100 BC through 100 AD.

This does not mean that the autochthonist point of view is the only interpretation of the formation of Middle Sarmatian culture. A more global problem also exists. The artifacts and sites of the Sarmatian Culture cover thousands of kilometers, from western Siberia to the Danube River. In our opinion, the problem may be resolved by merging these two hypotheses, by analyzing both local and migrational data.

Late Sarmatian Burial Assemblages

Looters destroyed five of the six burials from the Late Sarmatian Period (Burial 1 in Kurgan 2, Burial 1 in Kurgan 3, and Burials 2 in kurgans 4–5 and 7–8). Therefore, it is not possible to describe the disposition of the burials, burial rites, or the material culture. We are able, however, able to document some changes in burial customs. Late Sarmatians buried their dead individually in narrow pits under smaller mounds. Previous traditions continued, such as the orientation of the deceased to the south, although in later Sarmatian sites the orientation to the north predominated. Because burials at Aksai were oriented south, these burials are designated as belonging to the early stage of the Late Sarmatian Culture.

Two profile fibulae (Fig. 2: 5–6) discovered in a Late Sarmatian undisturbed burial in Kurgan 1, allows us to date this complex from the end of the 1st to the 2nd century AD (Skripkin 1977). Probably all the other Late Sarmatian burials in the Aksai kurgans had been created during the same time period, built by the same ethnic group that had lived here from the end of the Early Sarmatian Culture.

Conclusions

In conclusion, we can note that the oldest Aksai kurgans were constructed in the Bronze Age and were reused during the 6th century BC, and again from 100 BC through 200 AD. This conclusion should be considered preliminary because two additional kurgans have not yet been investigated. The artifacts of the Early Iron Age from the Aksai kurgans are valuable supplements to available historical sources in the study of the southeastern European populations.

One of the most controversial problems in Sarmatian archaeology is the question of what are the distinguishing features that make up the Middle Sarmatian Culture. The artifacts from Aksai are not numerous but they can be used toward a solution of this problem. The continuity in burial rituals and material culture lead us to propose that the same population continued to live
Excavations of the Aksai Kurgans in the Volga-Don Region

here from the Early through Middle Sarmatian time. Evidently the chronological gap between the two cultures is not great. This conclusion, of course, can only be applied to this site and not to the problem of Early and Middle Sarmatian cultural development as a whole.

Note
An earlier version of this paper was presented at The XIV International Congress of Anthropological and Ethnological Sciences, August 1998, at the College of William and Mary, Williamsburg, VA.

Illustrations by V. M. Klepikov.

References


Figure 1. Location of the Aksai excavations in the Volga–Don Region.
Figure 2. Figures 1–9 - Contents of Late Sarmatian (150–400 AD) Burial 1, Kurgan 1: 1- Burial 1, female, age 18–20; 2- gray clay vessel; 3- bronze mirror; 4- gray clay pitcher found covered by bowl (no. 7); 5–6- Late Sarmatian bronze fibulae; 7- gray clay bowl found inverted covering vessel (no. 4); 8- coralline bead; 9- dark gray, red, and white beads (24 found); 10- plan of Kurgan 2 containing 3 burials; figures 11–18 - artifacts from burial 2, kurgan 2; 11-gray clay pitcher; 12- dark gray whetstone; 13- gray-brown whetstone, polished surface, sharp bevel on one side; 14- light brown whetstone; 15- lithic fragment (argillite?), unworked; 16- bronze disk mirror found with fragments of a cover or case; 17- bushed iron arrowheads; 18- Early Sarmatian iron girdle clasp.
Figure 3. Early Sarmatian (200–100 BC) Burial 2, Kurgan 2: 1- Burial 2, male age 35–40, skull rolled backwards off of a soil mound; a pillow; funeral feast bones of sheep; cattle and horse bone found in kurgan; 2- iron long sword (ca 150 BC) with fragments of wood scabbard; 3- Early Sarmatian short iron sword; 4- corroded iron rod, unknown function; 5- bronze rivets (10 found); 6- iron knife, concave blade.
Figure 4. Kurgan 3: 1- Plan of Kurgan 3 with 3 burials; 2- Middle Sarmatian pit burial 2, female of old age; 3- Sarmatian pit Burial 3 (650–500 BC), male age 12–13, and looted Late Sarmatian burial 1, adult male; figures 4–7- artifacts from Burial 1: 4- reconstructed gray clay cup, bottom had 10 repaired holes; 5- bronze fibula fragments; 6- argillite whetstone fragment; 7- black, violet, blue, and white beads (6 found); figures 8–15 - artifacts from Burial 2: 8- gray clay incense cup; 9- single-edged knife blade; 10–11- sherds of second incense cup; 12- tear-drop shaped jet bead and cornelian barrel-shaped bead; 13- 2 stylized blue glass scarabs; 14- 3 pyrite beads; 15- yellow bead and blue glass beads (32 found).
Figure 5. Sauromatian pit Burial 3, Kurgan 3: 1- Greek Rhodos-Ionian style amphora (ca 650 BC), red clay with yellow slip, lotus flower and meander in red; 2- bronze clasp with gryphon motif, unidentified zoomorph in center (650–500 BC); 3- 2 corroded bronze beads; 4- bushed bronze fragment, unknown function; 5- handmade gray clay vessel; 6- corroded iron dagger; 7- argillite whetstone; 8- wolf canine tooth; 9- polished bone pipe stem fragment; 10- arrowheads with archaic features: 3 bushed bi-lobed iron arrowheads, 1 iron tri-lobed arrowhead, 1 bushed bronze fragment; 11- 3 bi-lobed bronze and iron arrowheads; 12- 4 tri-lobed bronze arrowheads, 2 with spines; 13- 7 tri-lobed bronze arrowheads, 4 with spines, 1 bushed.
Figure 6. Kurgan 6 with 3 burials: 1- plan of Kurgan 6; 2- burials 1 and 2: Middle Sarmatian (50 BC-150 AD) rectangular pit burial with niche, male, age 22–25 and female age 40–50; 3- Middle Bronze Age Proto-Caucasian Catacomb burial 3, male, age 35–45.
Figure 7. Figures 1–12 - Artifacts from Middle Sarmatian Burial 1, Kurgan 6: 1- handmade gray clay pitcher; 2- gray clay pitcher; 3- bronze disk-shaped mirror; 4- bronze militar fibula (150 BC–150 AD); 5- iron buckle; 6- blue glass bead with black spots; 7- white paste beads (8 found) and blue glass beads (10 found); 8- iron knife fragments; 9- Middle Sarmatian short iron sword; 10- 3 iron arrowheads; 11- flint core with flake and blade scars; 12- Early Sarmatian bronze long sword, Oriental design; 13- handmade gray clay vessel, Middle Sarmatian Burial 3, Kurgan 6; figures 14–16 - artifacts from looted (undatable) burial 1, kurgan 4 (female, age 12–14): 14- dark brown glass beads (31 found) and white glass beads (10 found); 15- iron knife fragments; 16- lithic flake of gray flint; figures 17–21 - artifacts from looted (undatable) burial 1, kurgan 7 with bone scatter of female of old age; 17- handmade gray clay vessel sherd; 18- sherds of small gray clay vessel; 19- handmade gray clay incense cup; 20- sherds of second incense cup; 21- glass silver-colored beads (6 found).
Figure 8. Kurgan 8: 1- Plan of Kurgan 8 containing 16 burials; 2- Burial 1, male, age 55–60, no artifacts; 3- Middle Bronze Age Timber-Frame Burial 3 with 2 females, ages 55–65 and 45–50; 4- Burial 4, male, age 45–50, no artifacts, burial disturbed by animals; 5- Burial 5, small child; 6- Burial 7, male, age 50–60; 7- Burial 9, male, age undetermined, no artifacts and no skull.
Figure 9. Kurgan 8: 1- handmade gray clay vessel from looted Late Sarmatian burial 2; 2- handmade vessel, Burial 5 (small child); figures 3–5 - artifacts from Middle Bronze Age Timber-Frame Burial 3, Kurgan 8; 3- handmade gray clay vessel; 4- oval bronze pendant; 5- yellow glass, green Egyptian faience, and mineral beads; 6- handmade gray clay vessel, Burial 7; 7- white paste beads, Burial 7; 8- 2 fragments of clay bi-conical spindlewhorl from looted (undatable) Burial 8; 9- small gray handmade vessel (incense cup?), Burial 8; 10- wheelmade vessel from looted (undatable) Burial 10; 11- Burial 11, Early-Middle Bronze Age Early Catacomb burial, female, age 14–16 and male (Burial 12), age unknown, ochre on female skeleton and on floor of pit, ochre at feet of male, no artifacts. 12- beads made from soft yellow mineral (limonite?)
Figure 10. Figures 1–8: Middle Sarmatian pit Burial 13, Kurgan 8: 1- Burial 13, Kurgan 8, female, age 50–60 and infant; 2- small gray clay handmade vessel, found inverted; 3- red clay sherd of wheelmade vessel of ancient production covered with brown lacquer; 4- fragment of bronze disk-shaped mirror; 5- bronze horse bridle decoration; 6- bi-conical clay spindlewhorl; 7- iron fragments of awl and knife; 8- sliver and blue glass beads (49 found); figures 9–15 - contents of looted (undatable) Burial 14, Kurgan 8 with scattered bones of middle-age adult and child age 8–9; 9- handmade gray vessel; 10- gray clay incense cup; 11- small handmade gray clay vessel; 12- small handmade gray clay plate; 13- sherds of handmade clay incense cup; 14- 2 green glass beads; 15- 2 yellow glass beads, 2 blue glass beads, 2 Egyptian faience beads.
Figure 11. Middle Sarmatian pit Burial 15, Kurgan 8: 1- Burial 15, Kurgan 8, female, age 50–60; 2- red clay wheelmade pitcher; 3- Mesopotamian faience green alabaster vessel (ca 50 BC); 4- bronze mirror; 5- clear glass beads (83 found); 6- white mineral spindlewhorl or white stone beads; 7- white paste bead (1 found) and blue glass beads (3 found); 8- clear, blue, green, and yellow glass beads (54 found); 9- Early-Middle Bronze Age Early Catacomb Burial 16, Kurgan 8 with dromos stairs containing child, age 5–6 and middle-aged female covered in ochre, sheep bones found on stair.
Figure 12. Early Catacomb Burial 16, Kurgan 8: 1- body sherd of Poltavkinsk ceramic (3000–2000 BC), gray clay vessel, puntates; 2- wheelmade brazier; 3- bronze pendant and ring of gray metal (silver?); 4- white paste and clear yellow mineral beads; 5- mushroom-shaped pendants and buttons made from dark gray metal (silver?); 6- beads from 2 necklaces made from gray-brown mineral (opal?), (67 found); 7- amber beads; 8- disk-shaped beads (stone?) (8 found); 9- white glass paste beads (13 found); 10- 2 yellow translucent mineral beads (cornelian?); 11- drilled white paste bead; 12- white and green paste beads (75 found); 13- necklace of bronze beads with fragments of pendants.
Figure 13. Kurgan 9: 1- Plan of Kurgan 9 containing 12 burials surrounded by stone wall, 16 m diameter, 15–40 cm high by 60 cm wide. Center irregular contours (7 m long by 2 m wide max. width) with fragments from looted burials 10 (Sauromatian), 11–12 (both undatable); 2- Burial 2, male, age 10–12, no artifacts; 3- Burial 3, female, age 45–55; 4- iron knife, Burial 3; 5- reconstructed gray clay vessel, Burial 3; 6- handmade gray clay vessel, Burial 1; 7- Burial 4, male, 45–55, no artifacts.
Figure 14. Kurgan 9: 1- burial 5 (undatable), man of old age, worked horn from large animal near the body; 2- burial 6, female, age 22-25; 3- Late Bronze Age Timber-Framed burial 7 (early Pokrovske-type), female, age 20-22, lying face down, hand bones of infant near body; 4- Early- Middle Bronze Age Early Catacomb burial 8 (main burial of kurgan 9), incomplete skeleton of male, age 50-60; 5- Early-Middle Bronze Age Early Catacomb burial 9, female, age 14-16, lower skeleton & pit bottom covered in ochre.
Figure 15. Kurgan 9: 1–8 bone rings (bracelet?), Bronze Age Early Pit Burial 9; 2- worked sheep bone fragment, Burial 9; 3- handmade gray clay vessel, Burial 6; 4–5- large handmade gray clay vessels from Late Bronze Age Timber-Frame Burial 7; 6- small broken cup from Bronze Age Early Pit Burial 8; 7- dark gray shingle, Burial 8; 8- gray clay handmade vessel, Burial 11; 9- single-edged iron knife, Burial 11; 10- 2 bronze arrowheads, Burial 12; 11- fragments of bronze ring, Burial 12.
Burials and Settlements at the Eurasian Crossroads: Joint Franco-Russian Project

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Abstract
This paper presents a general outline of the Russian-French collaborative project undertaken in the Ural and Transural region. The objects of the research comprised the local cultures of nomads, semi-nomadic herders, and metallurgical specialists in the steppes, forest-steppes, and foothill landscapes. Throughout a period of six years, joint excavations and multidisciplinary investigations were accomplished in three settlements and five cemeteries which contained the remains of both aristocratic and ordinary burials. Chronologically, the monuments covered the continuous time frame from the 7th century BC to the 3rd century AD. The sites provided abundant materials which were characteristic of the economic bases, environments, mortuary practices, architecture, and stylistic traditions of pottery making used by these populations. In the area under study, the interactive contacts were primarily between steppe and forest-steppe inhabitants from the Bronze Age period; the contacts continued and became symbiotic during the succeeding Iron Age.

Keywords
Urals, western Siberia, settlements, kurgans, Sargat Culture, Gorokhovo Culture, Iron Age

Introduction
This paper aims to briefly present some general outlines and results of the Russian-French collaborative project, which was undertaken in the Ural and Transural regions by the French teams of CNRS (Unité Mixte de Recherche 6566, Rennes; and Unité Mixte de Recherche 5809, Bordeaux) and the Russian Academy of Science (Institute of History and Archaeology, and the Ural State University - Ekaterinburg). This collaborative effort has been in progress since 1993 when it was first directed by Dr. Jean-Pierre Pautreau and Dr. Ludmila Koryakova, and subsequently since 1995, with the French direction of Dr. Marie-Yvane Daire. The project comprises (1) common fieldwork in Russia, (2) analytical work in Russia and France and, (3) collaborative publications.

Throughout the process of data accumulation and achieving a better understanding of our material, the general interpretation of cultural development has gradually changed. We have noted the evolution of these societies from initially being primitive and poor to an advanced phase, quite in keeping with the conditions that were characteristic for the beginning of the Iron Age.

Basic objectives and area of research
The project pursues several objectives, of which the primary one is to explore the cultural systems of the Ural and Transural region within the context of internal and external relationships and connections. The secondary purpose is to study the forms of adaptation to marginal lands, and cultural contacts and geographic environments that were open to various influences. The objects of study are the indigenous populations that include nomads, semi-nomadic herders, and specialized metallurgists connected with steppes, forest-steppes, and foothill landscapes, specifically in the Kurgan and Chelyabinsk districts (Fig. 1). The Ural-Siberian forest-steppe landscapes are characterized by geographic zonality. Western Siberian is an almost flat plain with a small northward incline and it maintains a smooth transition to other geographic zones. The river network is not of great density, and the large transit rivers—the Ob, Irtyskh, Ishim, and Tobol are of the Kazakhstan type.

The climate is continental, and during the warm season the air currents come to the forest-steppe chiefly from Kazakhstan and Central Asia, with resulting droughts and arid conditions. Cold air which comes from the Arctic during the winter, and in some cases during the summer, creates a very unstable and severe climate. Additionally, the Ural Mountains retain moisture which originates from the Atlantic. As it passes through Europe the warm Atlantic air mass loses some of its moisture, causing cooling during winter and warming during the summer, resulting in some of the characteristics of a continental climate. The low Ural Mountains do not stop the western air streams, and only weaken them to a certain extent. The eastern slopes of the Ural Mountains drop towards the Transural Plateau. The general characteristics of Transural climate comprise rather limited winter precipitation, very cold winters, a quick transition to spring, hot summers, constant winds both summer and winter, and reoccurring droughts every 8-12 years.

The Trans-Ural steppes lie further to the north than the European steppes. In the former zone, the forest-steppe extends...
northwards to the small-leaved forests, and is represented by multi-grass meadows and birch-aspen coppices. To the south of the forest-steppes, the steppes are composed of multi-grass and feather-grass vegetation that until recently has been the predominant ground cover. As a whole, the landscape of the Ural-Siberian forest-steppe is characterized by alternating geographic zones and a mosaic distribution of vegetation—forests, meadows, swamps, and steppes.

The largest part of the area under study geographically belongs to the Tobol province, and is characterized by a slightly elevated, undulating surface which has many lakes. A very important factor of the Transural relief is the riverine valleys, principally the Tobol, Iset, Miass; all of which have rich soils. In the Tobol valleys, rich vegetation is associated with alluvial soils. The ancient Tobol terraces are characterized by a predominance of saline soils with their corresponding types of flora. On the high terraces the sandy soils are covered by coniferous and birch trees. Aspen groves and small birch forests consume over 60% of the surface in the northern forest-steppe and not more than 5% in the south. In the drained areas, hawthorn is profuse, and several kinds of cherry trees, wild roses, honey-suckle, rowan trees, and currants grow. In the hills, where some of the initial steppe land is preserved, the black soils are covered with meadows, an abundance of bean plants, meadowsweet grass, different varieties of cereals, wormwood, and tarragon. The fauna is mixed and both forest and steppe species of animals are found, including elk and bear and, until recently, large numbers of beavers, wolves, steppe antelopes, roe deer, wild pigs, foxes, and other animals.

The environments described above and the botanical areas currently found in the region had already formed by the beginning of the Iron Age. These areas were especially favorable for livestock breeding—the basis of subsistence for the local populations—especially during the Iron Age. The bones of these livestock animals are well represented in all of the excavated sites.

According to some Russian specialists, the climatic and landscape conditions of the Holocene changed several times. It is considered that at least three climatic fluctuations occurred from the third to the first millennia BC. During the second half of the third millennium BC, and at the turn of the second and the first millennia BC, periods of high precipitation dominated. Low precipitation apparently occurred from the middle of the second millennium BC onwards.

During the late prehistoric period, the above-described landscapes were occupied by cultures of different social levels and economic orientation—these consisted of nomads, semi-nomads, settled pastoralists, specialists in metallurgy, and hunters and fishers. Their linguistic attributions were distinct, and they are assumed to have been proto-Iranian and proto-Ugrian speakers. Compared with the populations that occupied the core Eurasian steppes, the tribes that occupied the areas of marginal contact with the forest-steppe peoples are much less understood.

**Chronological frames and cultural context**

The temporal sequence we are dealing with extends through the first millennium BC through to the beginning of the first millennium AD. The project is focused mainly on the Sargat Culture which occupies the area between the Ural Mountains and the Baraba lowlands. The project also includes several subcultures—the Gorokhovo, the Itkul, and the Baitovo—as well as cultural types—the Kashino and the Pyrgovo. These cultures and sub-cultures are archaeologically represented by various fortified and open settlements as well as by numerous kurgans (barrows).

The end of the Bronze Age during the 8th century BC witnessed the formation of metallurgical centers in the Urals, with the Ananyino center in the west and the Itkul center in the east. These two centers were rather closely connected and had a common foundation, but their spheres of influence differed. The Ananyino center lay mostly within the Scythian cultural zone, while the Itkul center was more closely connected to the Saka, the Sauromatian, and the Sargat zones.

Despite influence from the north, the Tobol-Irtysh forest-steppe region became one of the principal components of the cultural and economic system which extended to Middle Asia and the Kazakhstan steppes. This predetermined the future contacts that local chiefdoms made with the Middle Asian states, and with the Eurasian steppe nomadic confederations. A very unique flexible mechanism of cultural genesis had been determined. Innovations were synthesized without prejudice to local cultural originality (Koryakova and Epimakhov forthcoming).

**Research strategy**

The research strategy used in this study was based upon the combination of multidisciplinary investigations that included the excavation of basic settlements and cemeteries, and the subsequent analyses of the excavations. The research team consisted of specialists in archaeology, topography, and aerial photography, paleoanthropology, environmental sciences (paleozoology and sedimentology), and the study of pottery. The excavations included intensive site evaluations through non-destructive methods that included aerial photography and topographic surveys, and trenching, in addition to large-scale excavations that were as extensive as possible depending upon time and financial resources.

**Practical results**

The joint excavation and multidisciplinary analysis of five cemeteries (which contained aristocratic and ordinary burials) and four settlements (including both permanent and temporary sites) was partly accomplished over a period of six years (Table 1). Chronologically, the sites covered the continuous time period from the 7th century BC to the 3rd century AD. Some Late Bronze Age and Medieval structures were also included in the research programme (Koryakova and Daire forthcoming). Space does not permit the presentation of the complete site data, but particular structures encountered at two of the excavated sites are discussed below.
The Prygovsky Archaeological Complex

The Prygovsky complex is located 50 km east of the town of Shadrinsk in the Kurgan district of the Transural region (Fig. 1). It is situated on the left bank of the Iset river, 3 km north-east of the Kalganovo (Prygovo) village. This complex, which occupies an island that is a part of the ancient Iset river terrace, and is actually located on a floodplain, comprises more than ten archaeological sites - two fortresses, three kurgan cemeteries, one flat ground cemetery, and several settlements. These archaeological monuments cover the extensive time frame from the Neolithic period up to the Late Iron Age. First discovered in the 1960s by a student group from the Ural State University, the complex was examined by V. F. Gening who subsequently excavated a limited area of the fortress and several barrows in the Prygovsky 1 and 2 cemeteries (Gening and Pozdnyakova 1961). In 1993, the Russian-French expedition excavated three small kurgans (Koryakova et al 1993) and surveyed part of the fortress (Pautreau et al 1993).

The Prygovsky Kurgan Cemetery

The Prygovsky Cemetery 2 is situated on the northern part of the floodplain dune (island) on the left bank of the Iset River in the Shadrinsk district of the Kurgan region. The cemetery was flanked on its north and west sides by an ancient stream.

Kurgan 2 was well covered with grass, round in form with a diameter of 24 m and a height of approximately 0.5 m. The central part of the mound revealed traces of a robber’s test trench. The stratigraphy of the barrow is as follows: Below the turf and humus (about 40-48 cm) was a layer of approximately 40 cm in thickness which had been formed by soils of different dark nuances. Several layers of human activity and natural processes were revealed that included small lenses of sand, clay, and charcoal. The ancient ground surface (paleosoil) was recorded at a depth of 0.60-0.70 m from the top surface of the mound. During the removal of the mound a large number of finds were recorded including human and animal bone, pottery sherds, stone, six bronze arrowheads, one horse plaque accouterment, a Medieval iron arrowhead, one sinker, and fragments of charcoal and clay.

The kurgan contained two graves: Number 1 (central) and Number 2 (peripheral). Unfortunately, Grave Number 1 had been robbed; the surviving fragments of human skull were found near the center of the pit at a depth of ~0.28 m. The tomb pit was filled with very soft soil. It would appear that the original grave pit had straight walls which measured 2.0 x 1.12 m, with a depth of approximately 20 cm below the sterile subsoil level.

Grave Number 2, which was located on the periphery of the mound, comprised a concentration of human bone and grave goods. It had been dug into the completed mound and the burial was situated on the paleosoil. A portion of a human skull and lower human extremities were still in situ. Grave goods included a small ceramic vessel and lamp, sherds of pottery, a bronze anthropomorphic plaque (Fig. 3), and ceramic spindlewhorls. The position of the skeleton indicated that the deceased had been oriented south-west to north-east.

Bronze artifacts associated with Grave Number 1 display analogies with grave good collections found in the large Uigarak cemetery complex located in the Chorasnia area and with other early Saka sites of the Pamir Mountains and the Fergana Valley. Small bronze round plaques, measuring 3.8-4.0 cm in diameter, with a flat or convex surface and small loops on the reverse to contain leather straps recovered from the burial are analogous to those from Saka sites in the lower Syr Darya (river) Region (Vishevskaia 1973). Two types of bronze arrowheads were excavated; five of which were tanged and one was socketed. The heads of the tanged arrowheads measure 1.5-3.0 cm long with a total length of approximately 3.8-6.5 cm. Bilobed arrowheads have latent sockets; total lengths are approximately 4.5 cm. During the 8th century BC, such arrowheads—the so-called “pre-Scythian types”—were widespread throughout the Volga River region steppes, the lower Don River (Smirnov 1961), and western Central Asia, particularly around the Aral sea region (Vishevskaia 1973) where they were used during the 7th–6th centuries BC. According to Vishevskaia (1973) tanged bilobed and socketed arrowheads which are dated to this time period were typical for Central Asian sites (Fig. 2).

Grave goods recovered from the secondary peripheral burial included two ceramic spindlewhorls, a small Sargat pot, a lamp of the Gorokhovo type, a broken vessel of the Kashino type, and a small openwork anthropomorphic plaque. Small clay lamps are quite typical for Iron Age cemeteries in the Transurals. The bronze rectangular anthropomorphic plaque (Fig. 3), had been cast in a flat open mold, revealed two frontal human images, and measured 5.1 x 5.5 cm. The figures wore helmets and are enclosed in a rectangular frame of twisted cord. Eyes and mouths were formed with concentric grooves. The top surface of the plaque had been polished while the reverse, with loops for attachment, had not been worked after smelting. Microscopic analysis indicated that the surface had also been incised. The plaque had been cast from bronze although a bronze core was sometimes covered with copper. The iconography of frontal, standing human effigies is very typical for the Kukai bronze-smelting taiga (forest) culture of western Siberia where a large Kukai population group was found. Within this area birds sometimes framed such images.

Two other kurgans were similar in construction and had parallel grave goods. This complex yielded a nice series of early Saka arrowheads that represent the most northern boundary of penetration into the forest-steppes.

The Prygovsky Fortress

The Prygovsky fortress, which is surrounded by an area of occupation, is located on an island in the Iset River. The island was formed by a meandering alluvial terrace within a small forested landscape that adjoins the steppe area. It was strategically favorable because this part of the river served as a ford connecting the taiga with the open steppes. The ground surface is well turfed and covered by birch and pine trees. Encircled by a marsh-ridden valley and old river channels, the fortress lies at the edge of the promontory and was protected by two fortified, defensive lines, each of which comprised a rampart and a
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The exterior rampart is an irregular half-circle, approximately 5-6 m in width and has a height from the inside depth of approximately 0.2-0.5 m. The exterior ditch is 5-6 m wide and its depth in certain locations reaches up to 80-90 cm. The ground within the fortress lies along the northern side; it is multi-oval in shape and is also delimited by a rampart and ditch. The exterior rampart was 7-8 m in width and 0.2-1.0 m in height, and the corresponding ditch had a width of 3-6 m.

In addition, on both grounds, low sloped banks with rising hills are probably the remains of defensive constructions. The defensive system is more significant on the eastern side as a result of the necessity to protect the fortress at its most vulnerable point. Numerous depressions—the remains of ancient dwellings—have been found near the fortress grounds covering an area of approximately 25,000 sq. m. The Prygovsky fortress provides evidence that livestock breeders occupied the Transural environment between the 7th century BC and 13th century AD. Definitive stratigraphy has revealed several chronological horizons represented by various structures, including houses, storage pits, fireplaces, and special pottery types. Three major chronological horizons were identified.

Third building horizon
The third building horizon is the latest and is dated to the 10th–13th centuries AD. A surface house (Number 1) and the remains of several hearths relating to the house, were found. The rectangular house, with a central hearth, measured 7–7.5 x 5.5–8 m. Remains of wooden constructions (roof and walls) were recorded at the corners.

Second building horizon
The second building horizon was dated to the 2nd century BC–1st century AD. House Number 2 (Fig. 5) was situated beneath House Number 1 described above. Of rectangular shape, this house was constructed upon pillars which were indicated by dark stains on the floor. Traces of house repairs were noted and, according to the artifact distribution, it is apparent that all changes took place during a single period of occupation. The fireplace, located in the center of the house, was ring-shaped and measured 40 cm in diameter with a depth of 10 cm. This dwelling consisted of a living room and an antechamber linked by long corridor.

Three concentrations of vessels were excavated on the floor of the house. Two of these were positioned adjacent to the fireplace; the other group of vessels had been placed in a pit in the southern corner of the central rectangular area. This house yielded mostly ceramics of the Prygovsky type. A second rectangular house (Number 4) with analogous construction and associated with the second building horizon, was also partially investigated. Measuring 4–4.5 x 3.3 m, its foundation was cut into the ground surface by not more than 30 cm. A fireplace connected with a small ditch has been placed in the center of the house.

The remains of another house, contemporary with this horizon, were excavated beyond the defensive line (Excavation Area 6). The main architectural feature of this house was the main square chamber which measured approximately 23 sq m, and was delimited by narrow trenches that served to hold horizontally placed wooden logs that, in turn, supported pillars. Traces of the pillar were represented by postholes. A central hearth, also used for cooking, would have heated this chamber. The sleeping areas were located along the north-eastern side of the house, and were defined by a special fence that was indicated by a small trench. The entrance, which was placed in the south-western corner, was of antechamber construction. Adjacent to the door, a large hole had been dug to hold wood. It is quite probable that this chamber would have had an extension that had not been sunk into the soil. The stratigraphy indicated that the house was inhabited for only a single period.

The remains of House Numbers 2 and 4, and the house from the area outside the fortification were all associated with the second chronological horizon (Fig. 4). Sargat and Prygovsky pottery types were associated with this stratum. Thus, their chronological position was determined by their intermediate position between the earliest and latest deposits.

First building horizon
The earliest horizon was represented by the remains of House Number 3, which had been partly damaged by later structures, and Structure 6 which corresponded to a small household construction. This horizon included ceramics of Nosilovo, Baitovo, Gorokhovo, Vorobievo and Itkul types. Bronze arrowheads, characteristic of those used during the 7th–4th centuries BC, provide a preliminary chronology for this horizon. It is possible that the earliest burials in the Prygovsky kurgans were synchronous to some areas associated with the first building horizon of the fortress.

The stratigraphy indicated that the internal ditch of the fortress had been constructed during the Middle Ages and should be connected with the third chronological horizon. In contrast, the external ditch is associated with the Iron Age.

The number of artifacts recovered from this excavation was rather high—approximately 2000 finds, excluding bones. A total of 90% of this material was represented by ceramics. Other types of artifacts included metal, bone, stone, and clay articles (Fig. 6). Bronze arrowheads are related to Sauromatian types dated to the 5th–4th centuries BC. Small blue glass beads are analogous to those produced in Egyptian workshops, that were in use during the 1st–2nd centuries AD. A bronze adz-shaped object was dated to the Medieval period (Late Iron Age), as was an iron awl, and three bone dart heads. Many remains are indicative of metallurgical working; among these were a concentration of iron slag, pieces of malachite, sherds of technological vessels, and cauldrons which were used for smelting. Of note is a two-sided talcum stone mold; one side was used for the production of an ax, while the other was used for the creation of a bird similar to those of the Ural Style. Many spindleswhorls that had been made from pottery sherds were also excavated from all three horizons. Pottery debris also appears to have been utilized as polishing tools.
Clay vessels from the excavations numbered 300 and represented a general ceramic collection. They were classified using the existing typology applied to pottery from the Transurals. Thus, nine cultural groups, corresponding to the known Transural types, were identified.

The remains of large animals found in the archaeological sites contributed to the identification of human diet and economy. The excavation at the Prygovsky fortress yielded many animal bones, and demonstrated the important role that meat played in the diet of the local populations. Bone analyses identified basic species characteristic for the site; these bones were divided into two groups - domesticated animals and hunted wild animals. Cattle and horse—the predominant animals, represent domesticates. Although few sheep bones were found, many dog bones, including complete skeletons and crania, were excavated. In addition, camel bones were also recovered. Elk, roe deer, wild pig, bear, fox, and beaver appear to have been hunted for meat.

As a consequence of its very favorable geographic and strategic location—near a river crossing that allowed its inhabitants to control a vast territory—and the extremely rich biological resources found in the Iset Valley, the Prygovsky site had a long period of occupation.

Scientific results
Field excavations undertaken within the framework of the project and the subsequent laboratory analyses, allowed some scientific conclusions to be made and presented the formulation of further hypotheses to be used in continuing research. Each is related to the different topical aspects under study.

Cultural and chronological aspects
Specific attributes of the western variant of the Sargat cultural region were determined by the broad contribution from the semi-nomadic Gorokhovo Culture, the metallurgical techniques from the Itkul Culture, as well as contributions from other smaller regional groups. The variety of contributions explain the exceptional cultural diversity that was characteristic for the territory under discussion. The diversity is reflected in ethnographic amplification, such as the architecture, the funeral rituals, and most specifically the pottery. The latter displayed variability in traditions of form and design as well as providing evidence for ornamental and morphological continuity. Thus, vessels from the site differed from each other only by one or two elements, as forming a chain. The continuity is so marked that, in fact, it is not possible to find completely identical, or completely different, ceramic collections from within the relatively homogeneous landscapes. This problem of morphology and ornamentation is encountered at two levels. The first involves the formal classification of the pottery, and the second the historical and chronological content of the numerous archaeological subdivisions.

As mentioned above, the Sargat area repeatedly received influence from the south during the Iron Age, beginning at the time the nomadic world was formed no later than the 7th century BC. This situation arose as a result of the direct penetration of an undetermined Saka population (Koryakova 1988). This is apparent in the Prygovo burial ground where small kurgans contained central burials that were placed either on the ancient surface—accompanied by traces of a fire—or in shallow pits. These burials have yielded socketed and typical tanged eastern-type bronze arrowheads.

Nomadic influences were primarily expressed in funerary ritual patterns that parallel those found among various groups in Kazakhstan, the southern Urals, and eastern Europe. Sargat funerary rituals were formed as the result of a cultural synthesis between nomadic and local sedentary populations, both of whom trace their origins to the Bronze Age (Koryakova and Daire 1997). These rituals have been identified in the Murzino, Bolshekazakhbayevo, Scaty, and Gayevo cemeteries.

Cultural and chronological generalizations are based upon the stratigraphy identified in the settlement sites that had been occupied for a long period of time, primarily on the basis of analogies with grave goods excavated from the barrows. Radiocarbon dates obtained from a number of sites were also useful (Table 2).

Environmental and economic aspect
The types of settlements which were investigated are noted below; they differed in size, form, and function.

- A small fortified but temporary camp, Malokazakhbayevo, was polygonal in form as indicted by the combination of a moat and ditch. A thin cultural deposit containing a limited number of artifacts is usually characteristic. Such settlements functioned within a short time period and served as a frontier post.
- Large settlements comprised of a fortified area (citadel) and a vast open inhabited space in which numerous houses were constructed. The settlements at Prygovo, Baitovo, Pavlinovo represent this type. Used over a long period of time, they played a role in the regional (administrative?) centers. The fortification systems varied from a simple enclosure to a rather elaborate combination that could be comprised of two deep ditches and two ramparts constructed from wood and clay.
- The subsistence economy of the Sargat population was primarily based upon stockbreeding and the seasonal exploitation of the rich biological resources found in the forest-steppes. All settlements were situated in close proximity to large river valleys or lakes. The populations raised an abundance of animals, including horses, cattle, and sheep as well dogs. Bones of all the domestic animals were recovered from both the habitation sites and the kurgans where they had been placed as sacrifices and food offerings. On the basis of the investigated sites we have hypothetically outlined the following forms of stockbreeding that were developed by the local population.

1. Semi-nomadic pastoralism with relatively high mobility, more inherent in the southern areas (Gorokhovo Culture).
2. Semi-settled pastoralism with a high percentage of horses (Pavlinovo and Prygovo).
3. Settled pastoralism with a predominance of cattle (Baitovo).
Settlements and kurgans provide abundant materials for the reconstruction of the Sargat society architectural patterns. A relatively high level of spatial organization, planning, house and fortification construction corresponded to the specific environmental conditions (Fig. 7). Wood was the basic material for funerary and residential construction. Types of houses varied between small and large dwellings, such as at Malo-kazakhhbayevo, to large and multi-roomed houses with approximately 100 sq m, and having several hearths and internal economic areas. Complex houses of this type are known at Prygovo and Pavlinovo.

Some aspects of mortuary practice
Comparison of settlements and cemeteries reveals a discrepancy from the point of view of their demographic potential. The number of burials and the demographic composition of burial grounds do not correspond to the probable number of settlement inhabitants. This observation provided a new hypothesis concerning the possibility of alternative funerary practices that did not include a kurgan. Indirect arguments in favor of this hypothesis are represented by the occurrence of occasional flat burials located outside kurgan mounds. This hypothesis will be tested by further research.

Detailed analysis of funerary rituality revealed several patterns relating to the different chronological time periods and different social gradations. Barrows covered the burials; this architecture included a circular or polygonal ditched enclosure that served to delimit the mortuary area. Ditches usually correlated with the different phases of barrow construction. The size, construction, and number of burials varied between kurgans. Large mounds, approximately 100 m in diameter, usually dominated the high riverbanks, and towered over other kurgans. A good example of such a cemetery is the Scaty burial ground that contained kurgans that reveal it to have had an aristocratic character. The funerary ceremony also included some actions connected with animal sacrifices and food offerings. Each kurgan contained several burials (Fig. 8). As a rule, the first and second central burials in a cemetery were primary, while later dated burials were arranged around the periphery.

Grave pits were of two types: (1) those with straight vertical walls and (2) those with ledges cut into the walls. In some pits there was evidence of wooden pillars supporting an upper covering, and the burial chambers reflected some of the elements belonging to a house. Special coffins or litters were employed in the burials. Accompanying grave goods reflected the social and professional status of the deceased, who were buried in an extended position, and were generally oriented to the north.

An integral part of the mortuary assemblage was food offerings—pieces of horsemeat and vessels that contained milk or broth. Horse, cattle, and sheep meat were consumed during the funeral feast and their remains have been found outside the grave pit. Male burials clearly expressed warrior characteristics. Weapons could accompany a 12–14 year old (Fig. 12), thereby shedding light on the age group system that existed within Sargat society. Females were buried with ornaments, including beads and earrings, as well as tools associated with textile production, and various vessels including bronze cauldrons (Fig. 9) and stone plates. Fire appears to have played an important role in the funerary ceremonies.

The central burials invariably belonged to major personages. Their pits were much larger than those on the periphery and they contained more imposing wooden constructions, including large upper roofed areas (Koryakova 1988; Koryakova and Daire 1997).

Anthropological analysis
A component of the project focuses upon the examination of human remains. Various methods of physical examination were undertaken to enable the reconstruction of the age and sex profile of the population. Muscle markings were analyzed to assess the types of human activity which were undertaken by the deceased during their everyday life. It is difficult to synthesize the health of this population because the majority of burials had been robbed, resulting in the disturbance of the skeletons that were frequently incomplete. Thus, our sample is not large and does not include the entire population. Nevertheless, we observed a significant prevalence of porotic hyperostosis, cribra orbitalia, or thickness of the diploe, lesions which are indicative of a high frequency of anemia. Enamel hypoplasia was also relatively frequent as was osteoarthrosis that was especially observed on the vertebral column (Fig. 10). Muscular activity was relatively high, and the insertions of the main muscles are well developed, a condition often associated with entheseopathies. These were the main pathologies encountered. Very few traumatic lesions were observed, which would contradict a military characteristic for the Sargat society. The clearly expressed marker of a horse rider’s pathological complex is indicated in some male burials (Fig. 11), but, it should be noted that for the most part, the deceased could not be described as being involved in extreme nomadic activity, although they frequently rode horses (Courtaud and Rajev 1997).

The majority of the investigated burials were of adult personages. Males and females died at a relatively young age, not corresponding to the expected normal mortality rate. The sample was too small, however, to enable a proper demographic profile to be reconstructed for the population. Thirty-four subjects were excavated - 5 children and 29 adults. We would expect for this time period and the probable birth-life expectancy, that we would find approximately 50 percent adults and 50 percent immature individuals. Thus, a large quantity of immature individuals was not found—with one exception. Three children and an equal number of adults were excavated from the Skaty Cemetery. Among the adult individuals, we encountered 14 males, 5 females and 10 of indeterminable sex due to their incomplete skeletons.

Conclusions
The Sargat settlement sites provided abundant material culture which enabled the determination of the economic bases, environment, architecture, and the stylistic traditions used in pottery manufacture. These artifacts allowed the chronological and
cultural sequences that were brought about by changes resulting from intercultural contacts to be defined. This study has posed some important questions concerning the relationship between the settlements and the cemeteries. The material also reveals a wide range of variability in burial practices—various type of cremation (Bronze Age) and classical inhumation under the mound—all of which are dependent upon chronological, cultural and social factors. Beginning in the Bronze Age, the most interactive contacts in the area under study took place between the steppe and forest-steppe inhabitants. These relationships became symbiotic during the Iron Age, leading to a direct nomadic impact upon the indigenous societies that marked the complimentary cultures along the northern margin of nomadic world. These cultures proved to be of great importance through their establishment of long distance connections and divisions of labor within the north-central Eurasian populations. Some specific aspects of this research, particularly the paleoenvironmental and ceramic studies, are discussed in separate papers by other specialists who are members of the research teams involved in this program.

Acknowledgments
This work is supported by grant PICS 585/RFBR 98-06-22011 and Federal Program “Integriatsiya.” The paper is also due to the many people who supported the project. The field work was made possible due to the students of the Ural State University and other universities who have been faithful to our expedition over many years, and each summer shared all the adversities of camp life. We are very grateful to our driver, O. Kostuk, and camp keepers, V. Smirnov and E. Korockova. Our true assistants—former and current students—S. Panteleeva, O. Mikrukova, O. Kozeko, N. Berseneva and others deserve our special gratitude. We are also appreciative of the American students, Ann Kroll and Bryan Hanks who have worked with us in the field.

Endnotes
1. Institute of History and Archaeology, Ural division of Russian Academy of Sciences, Ural State University.
2. UMR 6566 “Civilisations atlantiques et archeosciences.”
3. UMR 5809, Laboratoire d’Anthropologie, Universite de Bordeaux.

References

Table 1 (right). General characteristics of the excavated sites.

<table>
<thead>
<tr>
<th>Burial grounds</th>
<th>Locality</th>
<th>Square/ number of kurgans</th>
<th>Excavated area/ number of kurgans</th>
<th>Number of burials/ houses, structures</th>
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<tr>
<td>Prygovo 2nd</td>
<td>Iset river</td>
<td>&gt;12</td>
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<tr>
<td>Murzino</td>
<td>Iset river</td>
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<td>B. Kazakhbayevo</td>
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<td>5</td>
<td>36</td>
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<tr>
<td>Skaty</td>
<td>Tobol river</td>
<td>&gt;30</td>
<td>4</td>
<td>10</td>
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<tr>
<td>Gayevo 2</td>
<td>Iset river</td>
<td>&gt;9</td>
<td>5</td>
<td>20</td>
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Table 2 (below). General chronology of the sites excavated by the Russian-French project.

<table>
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<tr>
<th>Sites</th>
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Fig. 1. Location of the sites that were investigated.

Fig. 2. Bronze arrowheads from Prygovo kurgans.
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Fig. 3. Bronze plaque from Prygovo Kurgan 2.

Fig. 4. The Prygovo fortified settlement. Plan: 1- moat; 2- ditch; 3- house depressions).
(after Gening and Pozdnyakova 1961, ris.1)

Fig. 5. Prygovo fortified settlement. Remains of house 2 (second building horizon). (Drawn by A.Kovrigin)
Fig. 6. Prygovo settlement; some artifacts. (drawn by A. Kovrigin)

Fig. 7. Pavlinovo fortified settlement; house [Structure 5].

Fig. 9. Bronze cauldron from Kurgan 2; Bolshekazakhayevo Cemetery. (drawn by A. Kovrigin)
Fig. 10. Femoral and pelvic bones with osteoarthrits markers. (photo by D. Razhev)

Fig. 11. Femoral bone with markers of rider. (photo by P. Courdaud)

Fig. 12. Gayovo–94, Kurgan 6, Burial 1; child, 10–12 years. (drawn by P. Courdaud)
Abstract
The aim of this paleoenvironmental and paleoethnographical study was to reconstruct the environment around six archaeological sites and to determine the nature of the link between the populations and the forests. Iron Age settlements and burials east of the Ural Mountains in Russia were studied for this purpose. Charcoal and wood samples from six sites along two major rivers were microscopically analyzed. These observations led to species identification, in conjunction with tree ring width measurements and tree ring curve observations. It appears that pine and birch were the predominant species among the archaeological structures taken into account. Pine trees show restrictive growing conditions compared with today. The population appeared to have indiscriminately used trunks or branches, with the exception of two sites where the major tree elements exploited comprised trunks.

Keywords
paleoenvironment, paleoethnobotany, anthropogenic fires, archaeological structures, charcoal analysis, Russia

Introduction
This paper presents the preliminary results of a paleo-environmental and paleoethnographical study based on charcoal samples retrieved from combustion structures and occupation levels in cemeteries and settlements in the Ural Mountains and Transural areas of Russia. The research is a component of the Franco-Russian Project entitled “Burials and Settlements at the Eurasian Crossroads,” which began in 1993.

The aim of the research was to reconstruct the environment around Iron Age archaeological sites and, as far as possible, to highlight the relationship which would have existed between the populations and the vegetation. Throughout the ages in Russia, wood has been an important, or even the exclusive, raw material used for a variety of different purposes. Today, this is still true in the rural areas of the region under study. We observed, for example, that in the countryside birch branches and trunks are currently used as fuel, while pine trunks are usually used as timber. Was this also the case in the past?

Study area and archaeological sites
The study area is located in western Siberia, approximately 300 kilometers to the east of the Ural Mountains. Located in the southern part of the wooded steppes, the area is a transitional zone between the taiga and the steppe lands and is characterized by a mixed forest with prairie and steppe areas (Fig. 1). Birch and aspen in coppice formations are the predominant leafy arboreal species, while pines are the predominant coniferous arboreal species. The study area is located on a sedimentary depression comprised of various fluvial and marsh deposits. This assemblage, with the forest-steppes as described above, is a veritable patchwork of vegetation types. Lakes and river valleys are also important elements of the Transuralian relief.

The climate is continental and particularly unstable (varying rapidly). During summer, the temperatures are high and the precipitation is low, relative to predominant southern and eastern air masses. The winter is cold, with the arctic air mass being the primary influence at this time of the year.

Until now, the Franco-Russian project has focused on the Sargat Culture which is composed of different cultural and sub-cultural types during the period between the 7th century BC and the 3rd century AD (Koryakova et al. 1993; Koryakova and Daire 1997; Koryakova and Daire forthcoming). From an archaeological point of view, this framework offers many fortified and open settlements and kurgans for study.

Six sites located along the Tobol and Iset Rivers were analyzed for the charcoal palaeoenvironmental and palaeoethnographical research (Fig. 2). Two of these sites comprised permanent and temporary settlements–Baitovo and Malakazakhbaievo, respectively–while the others–Prygovsky, Gaiova, Skaty and B. Kazakhbaievo–are cemeteries which contained both aristocratic and ordinary burials. Today, the sites are surrounded by a mixed forest of birch and pine trees with some poplars and maples included. Saline soils are predominant in the ancient terraces of the Tobol and Iset Rivers. Beyond, black soils are predominant, covered by meadows with a great variety of cereal and bean plants.
Methodology
In the field, samples were taken from sediments that contained charcoal fragments and pieces of wood. The charcoal and wood were separated from the sediments in the laboratory by sieving (to 2 mm) and flotation. The woody material was then observed under the microscope and identified on the basis of the wood structure (Schweingruber 1990). The species and diversity revealed the types of wood chosen for use by the population, in addition to the particular methods of exploitation for the different types of wood.

When possible, the growth ring widths were systematically measured. This data can provide information on the growing conditions of the trees, including climate, the type of soil, and the density of the forest. Narrow rings correspond to restrictive growing conditions, while, in contrast, large rings reveal favorable growing conditions.

In the field, cores were made in living birch, pine and poplar trees growing in different types of environment. The purpose of obtaining these samples was to enable a comparison to be made between the ring widths of living trees with those observed in the subfossil samples. The relationship between modern tree ring patterns and their environments can provide information on the origin of the wood charcoal recovered during archaeological excavations.

Finally, when possible, the tree ring curves of the charcoal pieces were noted. This characteristic can enable the identification of which part of a tree was used (Marguerie 1992). A smooth curve corresponds to the tree trunk, while a marked curve corresponds to the branches.

Results
The results appeared to be very homogenous between the samples from a given site regardless of the method of analysis (species diversity, tree growth, and tree element). For the first approach to the problem, the samples were grouped by site. Note that graphs for some sites are not presented, especially for tree growth and tree elements, because there was no data or too little data for the results to be representative.

Species diversity
No major differences between the charcoal species identified from the settlements and the burial sites were noted (Fig. 3). Pine and birch were the most common species recovered from all sites. These two species were found to occur exclusively at the Prygovsky and Scaty sites. In addition to these two forest trees, river bank taxa were also found to be present at the B. Kazakbaievo site and, to a lesser degree, at the Gaiova and Baitovo sites. At Malakazakbaievo, however, no pine samples were found, and because of its diverse species assemblage without pine, the Malakazakbaievo site appears to be unique.

Tree growth
The distribution of birch ring widths is wide, particularly at the Scaty and Baitovo sites, the two sites situated along the Tobol River (Fig. 4a). This finding may indicate that the samples had probably originated from many forest types, which contained a variety of growing conditions. In contrast, the coarse range of the pine ring width distributions probably means that the Iron Age populations only retrieved pines from one particular forest type characterized by specific growing conditions. The only possible exception to this situation is found at the Gaiova site (Fig. 4b).

If the measurements made on living samples are compared with the mean values per site of the subfossil material, more information can be gleaned concerning the nature of the environment in which the trees were grown. In the case of birch (Fig. 5a), the analysis of living trees would tend to indicate that narrow rings are found in coppice formations, while large rings are found in humid forests. Medium ring widths (values in between the narrow and large rings observed in living trees) were observed on the birch charcoal (subfossil material), making it difficult to draw conclusions concerning the nature of the environment from which the trees had originated.

The results appear to be clearer in the case of pine charcoal (Fig. 5b). Cores made in living pines show two patterns of growth depending on the forest type - c. 0.5mm radial growth per year in an ancient forest, and 2–3 mm in exploited small forests located near rivers. The rings of the pine charcoal samples (subfossil material) have, in general, an average width of approximately 1 mm. At Scaty, however, the pines were found to have very narrow rings with a mean width of less than 0.5mm. Therefore, it would appear that the Iron Age people probably collected these trees from fully developed forests. This type of forest environment leads to restrictive growing conditions which are related to the competition which exists between trees for nutrients, light, water, etc.

Tree elements
At the Prygovsky, Gaiova, and Malakazakbaievo sites, results obtained from the tree ring curves indicate that the birch charcoal had originated equally from trunks and branches (Fig. 6a). In the case of pine, all tree elements were also used at the Prygovsky and Gaiova sites (Fig. 6b). In contrast, at Baitovo and Scaty, in most cases, the pine and birch charcoals had originated from tree trunks. This finding may indicate that the Iron Age people had deliberately selected large pieces of wood at these two sites located along the Tobol River.

Discussion and Conclusions
The data obtained from charcoal analyses can provide pertinent ecological information. In comparison to the actual living regional vegetation, our results seem to show that, during the Iron Age, the forests were composed of the same species as today, namely pine and birch trees. In the samples obtained from the Malakazakbaievo site, however, pines was conspicuously absent. Following the hypothesis that the presence of a tree species near a site (particularly at settlements such as those of the current study) results in its exploitation by the population, it is possible to infer that pines were not available at the
Malakazakhbaievo site during the Iron Age. The Malakazakhbaievo site has also been found to be different to the other sites of the current study since it contains a more diversified species assemblage.

The tree rings of the pine charcoal appeared to be narrower than those obtained from living pines. This finding may be due to a change in the density of the forest, which could be related to the existence of greater competition between the trees. This situation can also arise as a consequence of poor climatic conditions which may have led to less annual growth during the Iron Age.

In addition, and in some cases above all, charcoal analyses can provide palaeoethnographical information. In this study, the result obtained from a number of the sites indicate that Iron Age people deliberately selected particular wood species and tree elements for exploitation. This situation was apparent at the Baitovo and Scaty sites where pine and birch trunks were preferred to branches. This finding may be related to the location of the two sites in close proximity to the Tobol River.

The next step of the research will be to bring the analysis to a more precise level. By systematically understanding the precise origin of the charcoal assemblages, it will be possible to determine the relationship between the wood selections observed and their specific uses during the Iron Age in Russia.

Finally, these first six Russian sites show great promise for charcoal analysis. Even with an averaged result per site, it has already been possible to make some observations on the nature of the environment and the types of wood which were deliberately selected by the local populations. In combination with these results and the more precise charcoal analysis planned for future research, it will be interesting to undertake pollen analyses to determine, for example, if pine, birch, or mixed forests did or did not exist in the vicinity of the sites. The study area is a perfect location for pollen analysis since peat bogs are abundant around the archaeological sites, particularly in the large Iset and Tobol river valleys.

Acknowledgments
The authors are grateful to Bernard Bigot, Esther Gonzales, Marie-Céline Ugé, and Rebecca Short for assistance with field work, and to Yannick Garcia for laboratory analysis.

References


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Fig. 1. Wood resources map (%). (after Coll. 1999)

Fig. 2. Location of the study sites (S = settlements; B = burials).
Fig. 3. Graphs of taxa lists per site: A - Prygovsky; B - Scaty; C - Gaitova; D - B. Kazakbaivo; E - Baitova; F - Malakazakbaivo.
Fig. 5. Comparison between actual tree ring widths and average tree ring widths of subfossil material per site:
a - Birch; b - Pine

Fig. 4 (left). Distributions of tree ring widths per site: A - Skaty; B - B. Kazakbaievo; C - Baitovo; D - Malakazakbaievo;
E - Prygovsky; F - Gaiova. a. Birch; b. Pine.
Fig. 6. Trees element identified by the tree ring curves: A - Baitovo; B - Prygovsky; C - Skaty; D - Gaiowa; E - Malakazakbaievo. a - Birch; b - Pine
Abstract
Members of the Kazakh-American Talgar Project conducted archaeological field surveys in the Talgar Fan, and the upland valleys of Turgen and Asi rivers. The Talgar Fan is an area of intensive agricultural production where 287 transects, covering 180 sq km, were walked in plowed fields. Artifacts were found at 480 locations with 55 being Iron Age sites; 80% of the ceramics recovered belong to the Iron Age. The Turgen-Asi area is located in the high Tien Shan Mountains between 2200 and 2890 meters in an area characterized as an alpine environment; here Kazak herders graze their animals from June to early September. In this region, archaeologist located 120 burial complexes and six settlement sites belonging to both the Bronze Age and Iron Age. Further work will be needed to determine how these sites fit into our agro-pastoralism settlement model. Currently we are testing several of the sites and building a ceramic chronology.

Keywords
Agro-pastoralism, Eurasian steppes, Iron Age, archaeological survey

Introduction to the Talgar surveys
In 1994 we began our fieldwork in the Talgar area of southeastern Kazakhstan (Fig. 1. Map) with excavations at the Medieval Talgar site, and the Saka Period site of Tuzusai. For three seasons we focused our research on the Tuzusai excavations. As we worked at Tuzusai, we asked the obvious question: “Where are the other settlement sites?”

Field survey, especially field walking, is a distinctively Western methodology for locating ancient archaeological sites. We implemented our survey strategy of field walking on the Talgar alluvial fan (Fig. 2). This paper includes the preliminary results of our survey work from 1997 through 1999. At this time we still lack some important pieces of information that must be compiled, including (1) the ceramic inventory and typology of the Bronze Age through Medieval period ceramics collected from the survey; (2) an inventory of all artifacts and; (3) an estimation of the number of previously unrecorded kurgans in the Talgar Region.

Soviet period archaeology, noted for its large excavation projects, tended to overlook the importance of undertaking archaeological surveys of bounded areas such as the Talgar alluvial fan and the upland valleys of Turgen and Asi. In Western archaeology, survey or systematic investigation of landscape surfaces in search of archaeological sites (e.g., graves, cemeteries, burial mounds, camps, settlements, shrines, paths, roads, artifact scatters, and rock shelters) is often seen as the prerequisite for subsequent excavations or regional studies of archaeology. The two reasons why archaeological survey has become so essential in the practice of Western archaeology are: (1) the necessity to inventory and document all archaeological places on maps for the protection and preservation of such sites and; (2) the importance of the geographical distribution of archaeological places over local and regional landscapes.

The setting
The Talgar Fan is located 20 kilometers east of Alma Ata, the former capital of Kazakhstan. The Talgar Fan Survey Area covers approximately 180 sq km, and varies in elevation from Medieval Talgar at 1100 meters in the south, sloping gently down to 680 meters at the designated northern boundary, the main road (A-351) that runs east to Chalk and onto China. The Talgar Fan is watered by the Talgar River, which is fed by meltwater from the glaciers of the Tien Shan Mountains. Three smaller streams all are seasonal with the exception of Talybulak. The rich agricultural land of the Talgar Fan is currently irrigated by a series of Soviet period canals, some of which feed old stream channels.

Our specific reasons for conducting intensive, local surveys on the Talgar landscape are: (1) to inventory and document the range of sites on the Talgar fan dating from the Bronze Age through the Medieval period and; (2) to understand the ancient patterns of land use and settlements in terms of a model of agro-pastoralism (mixed herding and farming).

This types of surveys are: (1) systematic archaeological field walking in ploughed fields, and along rivers, canals, and ancient stream profiles; (2) limited test trenching and; (3) detailed geomorphological descriptions and analyses of the natural soil profile cuts that contain archaeological materials. The analyses include dating of deposits with radiocarbon samples, palynology, soils analyses, and spectral analyses of mineral trace elements. As we have yet to obtain the final results from our
geomorphological research, we will focus primarily upon the archaeological findings, and how the discipline of geomorphology can contribute to a more accurate understanding of the ancient land surfaces used by the populations for over four millennia.

The resurfacing and plowing of land surfaces in a heavily cultivated area such as in the Talgar alluvial fan, has radically influenced what exists on the modern surface and what is buried deep below the water borne and wind blown deposits. An archaeological site on such surfaces may appear to be quite obvious—such as the burial mounds or kurgans that stand from one to five or six meters above the ground, appearing as quite unnatural hillocks—or they can be barely visible. In fact the very sites that we have always been most interested in locating, specifically settlement sites where people lived or merely camped for shorter periods of time, are in fact the most difficult sites to find. In some areas they are buried beneath 30 cm to over 1.5 m of loess soils.

Fieldwork was aided by the fact that the Talgar alluvial fan has 3–7 meters of loess deposits underlain by Pleistocene gravels so that the undisturbed topsoil is relatively free of stones. Thus, the presence of stones usually indicates human activity.

A series of series of six topographic maps (1:50,000 scale) were used as our base maps. Transects were walked by two archaeologists, five meters apart. All finds were noted both by description and GPS location. Once an artifact was located we radiated out and searched for other artifacts. All diagnostics sherds were collected, but only a sample of other sherds were kept. Grinding stones, often weighing 20–30 kilos, were drawn and photographed and left in the field. Kurgans were given their own designation and plotted. Intact kurgans were noted as to their diameter and height, and whether they had been plotted on our topographic maps. If plowing had destroyed a kurgan, we noted the estimated diameter, height of the stone cluster, and the size of the cobbles that varied from fist to watermelon in size.

Transect survey in heavily cultivated areas is dependent on the existence of plowed fields. As a result, surveys had to be conducted after the harvest in late summer and fall, and before planting in spring. The locations of transects was opportunistic based on the availability of plowed fields. With the breakup of some of the collective farms, some fields that had not been plowed in over 30 years, are now again under cultivation. Old diseased apple orchards are being removed and truck gardens are taking their place. Thus, all of these added new areas for survey. Unplowed grazing areas were examined in the early spring after the snow had melted and before the agricultural fields were plowed and dry enough to walk. As a result of these surveys an additional 30 kurgans were mapped and potential locations for sites were noted in the event that the land should be later plowed.

Transect locations were carefully monitored to avoid re-surveying areas previously examined with the exception of a few selected locations with the high probability of sites and poor visibility during an earlier survey. Generally, transects were kept to a minimum of 250 meters apart.

The results of the autumn 1997 through Spring 1999 Talgar survey
In mid-May, at the end of the 1999 survey season, we had completed 287 transects across the Talgar fan that varied in length from 180 m to 1.54 km, with the average length being about 500 m. If we estimate our transects as being 10 m wide, we can calculate that we had surveyed about 1 sq km of the fan, or about 0.5% of the survey area. One hundred and fourteen of transects (40%) were negative. We located over 480 waypoint locations in the 180 sq km survey. These locations include string kurgans, destroyed kurgans in plowed fields, single artifact finds (e.g., pottery sherd, grinding stone), small scatters of animal bones, and pottery, and actual settlement sites.

The break down by categories is as follows (Table 1). (1) 55 Iron Age settlements (10 ceramic pieces per 100 sq km); (2) probable settlements (more than 3 ceramics per 100 sq km.; (3) 20 places with only 2 ceramic pieces; 100 places with 1 sherd; 7 places with 1 sherd and bones and; (4) places with only grinding stones. (2) 182 Iron Age kurgans.

We expect that the actual site density of Iron Age settlements is far greater than 55 settlements per 180 sq km (a density of 0.3 sites per sq km). It is very difficult to find the Talgar Iron Age settlements because many of these sites are buried under 0.5–1.0 m or more of alluvial soil. Unless an agricultural field has been deeply plowed, or the cultural level of a site appears on a river bank, in an irrigation canal, or in an erosional channel, most archaeological sites of the Iron Age are not visible. Tseganka 8 is a case in point. This extremely important site with architectural remains of at least three pit houses was seen in the profile of a stream cut but not by sherds in the field above. The site would have been overlooked if it had not been for the stream cut. It may be that for the same reason, we have not yet found Bronze Age sites that may be even more deeply buried or are represented by small settlements scattered over a large territory. Therefore, using our survey methods such settlement sites would be very difficult to find.

As part of our survey, we also recorded the number of kurgans recorded on two different series of Soviet period topographic maps, a 1:50,000 and a 1:25,000 scale map. The different scale maps show great differences in the number of kurgans (Table 2). More than twice the numbers of kurgans were found on the larger scale map. There may be several reasons for why this is so: (1) the 1:25,000 scale maps were more accurate in recording archaeological sites and/or; (2) the 1:25,000 scale maps were made in 1959 and 1960, while the 1:50,000 scale maps were made 20 years later when many of the kurgans could have already been destroyed by modern construction and agriculture.

During the early summer of 1999 aerial photographs (1:20,000 scale) from the mid-1950s were made available to us. We were able to examine a large section of our survey area, 8 km north-south and 10 km east-west. Preliminary examination of the
aerial photographs reveal that there had been considerable surface modification of the fan since the 1950s. It appears that when the B.A.K. (Bolshoi Almatinski Kanal-Great Almata Canal) was built, the adjacent fields were leveled for more efficient irrigation. Field evidence indicates that prior to the introduction of cement lined canals, unlined canal channels were used. Fast moving water flowing through these channels rapidly eroded the channels to a depth of 2–3 meters. When a channel became too deep to water the adjoining fields, another channel was dug a few meters away. On the surface today we see the evidence of many of these parallel channels as well as the more recently constructed cement lined channels. As a result of 50 years of Soviet agriculture, the alluvial fan has numerous small artificial channels. Subsequently, many of these channels were filled in so that large-scale agriculture could be practiced with mechanized machinery although the low-tech method of irrigation with unlined channels continues to be practiced.

Examination of the aerial photos (1:20,000 scale) revealed 309 kurgans. This is almost twice as many as marked on the 1960 1:25,000 Soviet topographic map, in an area almost 30% smaller. An additional 109 anomalies in the fields suggest even more kurgans or settlement sites. One of the anomalies falls exactly where Taldy Bulak 3, a Saka-Wu Sun period site, is located, and where we have surface collected large amounts of ceramics, bones, grinding stones, and fragments of burnt clay. A test pit on the site, measuring 1 x 2 m, revealed a plastered floor and pits.

Preliminary results of laboratory analyses from survey materials
Preliminary analysis of the ceramics collected at our waypoint locations was conducted in the fall of 1998. Diagnostic sherds were designated as fragments of vessel rims, bases, handles, spouts, and spindlewhorls; some diagnostic sherds were vessel body parts with incised designs. This large Talgar fan collection of survey ceramics will be used to develop a typology of ceramic types from the Bronze Age through Medieval period. A rough estimate of the diagnostic pottery counts (roughly 300 fragments) suggests that about 80% of the survey ceramics were from the Iron Age while less than 20% came from the Medieval and Bronze periods. Preliminary analyses of the ceramics indicate the following trends: the Iron Age ceramics are well fired, more typically in an oxidizing atmosphere. The ceramic paste has a high iron content. The inclusions consist primarily of crushed granite with a small percentage of organic materials such as plant and animal dung. The majority is red ware while a few are red and cream slipped ware. The vessel forms indicate a much higher number of utility ceramics, such as storage vessels (hamcha) as well as the usual jars, cooking containers, and bowls.

Conclusions reached on the Tagar survey
The density of Iron Age kurgans and settlements on the Talgar fan is actually quite high, suggesting that the Talgar fan was a densely populated oasis during the first millennium BC, through the middle of the second millennium BC. This high density of sites may indicate a hierarchy of site types: villages, hamlets, and small seasonally used camps.

It is our intention to survey an area in the mountains as part of testing our model of agro-pastoralism subsistence-settlement patterns. In July and August temperatures in the mountains are vary in elevation from 2200 m in the valleys to 2890 m on the upland plateaus. A few of the high peaks to the south have perennial snowfields that feed the Turgen River. The vegetation is characterized by alpine grasses, wildflowers, and Tien Shan firs along with a few deciduous shrubs on the north slopes and in the smaller protected valleys. The area is currently seasonally occupied from early June until late August or early September by Kazak shepherds with their flocks of cattle, sheep, and horses. The economy consists of herding, some hunting, and also fishing; no agriculture is practiced at these elevations.

Our initial survey concentrated on the terraces and valleys within a 3 km radius of our base at Camp Edelweiss, an abandoned Pioneer Camp at 2240 m, and consisted of systematically walking over all of the terraces along the upper forks of the Turgen River. The graves were generally easy to locate as they were usually slightly elevated, 0.5–1.0 meter, above the surrounding surface. Surface visibility was generally poor with the exceptions of the overgrazed areas surrounding the Kazak summer camps. Sixty-five locations were noted during this initial 10-day survey and one terrace opposite our base was tested for subsurface material. Five of these locations appear to be Bronze Age and Iron Age settlement sites while the other 60
locations are graves from the Bronze Age through the Turkish period as well as a few modern Kazak burials. The settlement sites all appear to have a southeastern aspect; possibly to be exposed to the early morning sun. One of these sites, Oijailau 1, is a complex of stone walls and depressions covering an area of over 100 sq km. Numerous Saka period sherds were surface collected from this site. Testing revealed subsurface features as well as ceramics, grinding stones, and animal bones. The graves on the other hand were located on any semi flat dry ground surfaces. Following the survey of the terraces adjacent to the streams, upland terraces, low ridges and saddles were surveyed.

Two days of survey were spent in the headwaters of the Asi River drainage. The first day was a survey type we call “side-car.” It utilizes an Ural motorcycle with a sidecar to conduct a preliminary survey of the area prior to a more intensive survey. This five-hour survey, cut short by a thunderstorm, revealed a wealth of cultural resources along a 7-km section of an elevated terrace on the north bank of the Asi River. Numerous graves were noted and a dirt trail passed directly over several Bronze Age graves. We took notes at eight locations, each having 3–8 grave mounds. Unlike the lower constricted valleys of Turgen, the Asi River is characterized by a broad open valley several kilometers wide, and narrow side valleys; it is enclosed by higher mountains of approximately 3000 m altitude. Several large Saka type kurgans that are 3–5 m high were noted. In addition to the graves, we found several rectangular lines of stone sticking up through the sod. These appear to be similar to Wu Sun Period structures excavated in the early 90s by Alexi Mariashev, 40 kilometers to the east on a high terrace overlooking the Chilik River.

An unusual grave shaped like a “donut” ring of rock rubble, 27 meters in diameter was also located. In 1998, we discovered a level of Saka Period ceramics eroding from the terrace 100 meters from this stone monument.

We spent an additional day in the uplands following the upper reaches of the headwaters of the Turgen River. The local Kazak shepherds told us that there was a large stone sticking out of the ground on the high ridge. Subsequently, we located an upright stone slab surrounded by a complex of eight earlier graves. From this high ridge we could see numerous graves 15-20 meters in diameter in a small valley. We quickly examined and mapped several of these graves. Our time was limited since it was an 8 km hike back to the motorcycle and another 6 km to our camp. The result of this two-day foray into the higher uplands resulted in mapping 25 additional locations.

In 1998, we conducted another 10 days of survey in which an additional 48 sites were recorded on the ridges and plateaus at 2600 to 2890 meters to the east and south of our base. As noted in the previous year, many of these locations appear to be multiple grave complexes. One additional Saka period site was located on a terrace above a seasonal stream; again it had a southeastern aspect, and two lines of stones protruded from the sod to form a right-angled corner. Several Saka period sherds were found in the back dirt of marmot burrows. It appears that the marmots also prefer the southeastern slopes.

Results from these two seasons of survey and test excavations indicate that the uplands were utilized from the Bronze Age to the present time. As time allows additional survey and excavations should continue in the Turgen-Asi area. Survey and excavations in the high mountains are always cut short by rain. In 1998, it rained on 7 of the 12 days we were in the area.

Acknowledgements

Funding for this research came from a grant, National Science Foundation Archaeology Program SBR-9603361, “The Social Evolution of Eurasian Steppe Communities in Southeastern Kazakhstan and the Rise of Ancient Civilizations.” Since 1994 Dr. Karl M. Baipakov, Director of the Institute of Archaeology, The Kazakh Academy of Sciences, has been a generous collaborator and host of the Kazakh-American Talgar Project, and is responsible for providing us with official permission and protocol to carry out our scientific research.

Table 1. Counts of waypoint locations on the Talgar Fan.
Field Surveys in the Talgar and Turgen-Asi Areas of Southeastern Kazakhstan

Table 2. Counts of kurgan locations on the Soviet period map series in the Talgar Fan.

<table>
<thead>
<tr>
<th>Map Series</th>
<th>West of Talgar River</th>
<th>East of Talgar River</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>159 km sq.</td>
<td>16 km sq.</td>
</tr>
<tr>
<td>1: 25:000</td>
<td>153 kurgans</td>
<td>43 kurgans</td>
</tr>
<tr>
<td>1: 50:000</td>
<td>54 kurgans</td>
<td>21 kurgans</td>
</tr>
</tbody>
</table>

Fig. 1. Map of the Talgar area in southeastern Kazakhstan.
Fig. 2. Map illustrating areas surveyed in the Talgar and Turgen-Asi areas.
The Beiram Mound
A Nomadic Cultic Site in the Altai Mountains (Western Mongolia)

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Abstract
An isolated stone covered mound located at the top of the Beiram mountain pass (ca. 9000 feet altitude) in Uvs aimag, western Mongolia, was surveyed in 1996 and again in 1999. The architectural configuration was similar to Saka burial mounds (ca. 450–400 BC) in southern and eastern Kazakhstan as well as in the Gorny Altai in southern Siberia. Although no archaeological excavations had been previously undertaken in the Mongolian Altai Mountains, it was assumed that the mound contained a burial, possibly frozen as it lies well within the Siberian permafrost zone. Excavations by the Center for the Study of Eurasian Nomads, and the Mongolian Institute of History, Department of Archaeology, took place during summer 1999. The excavation revealed no skeletons; however, the architecture of the mound and the more than 4000 artifacts of votive nature indicated that the Mound was specifically designed as a cultic or religious site, and that it had been used continually from the time of its construction to the present-day, except for periods when nomadic populations did not pasture in the region.

Keywords
Saka, Mongolia, Manchu, Altai Mountains, cultic site, mound

A Note on Terminology
The generic Mongol language term for several discrete types of archaeological monuments, with or without artifacts, is khuregšur. Different archaeological names have been applied to the ancient Siberian, Tuvinian, Mongolian, and Kazakhstani populations; Mongolian archaeology refers to the Altai Saka as Chandman. In Soviet literature the ancient Siberian, Altai and Tien Shan mountain cultures are referred to as Scythians, Scytho-Siberians, Altaic, and Tien Shan Mountain populations. Currently, the term Saka, derived from ancient historical sources, is used for the major nomadic tribe that inhabited the area from the Aral Sea steppes, east to include southern Siberia, and the Tien Shan and Altai mountains (Yablonsky 1995). In this paper, the term Saka is used in reference to Iron Age nomads or their archaeological remains that previously were referred to in the literature as Siberian, Scytho-Siberian, Altaic Scythians, Uyuk Culture, Chandman Culture, or Ulaangom Culture/people. A kurgan is defined here as a burial mound that contains human remains; a cenotaph is a commemorative burial without human remains; and a mound is a construction which was not meant to be for a burial or cenotaph. In Mongolia, an aimag, e.g. Uvs aimag, is a contemporary political division similar to a state in the United States; a sum, pronounced soom, is a division within the aimag, similar to a US county. In this paper the following proper nouns have been used for areas in the excavation to distinguish from generic terms: Mound, Stone Ring, Central Mound, Path, Test Pit, and Central Pit.

A Caveat
Although many archaeological monuments grace the Mongolian landscape, the archaeology is far from being understood because of the paucity of excavations. The geography and climatic conditions vary dramatically from the Siberian north to the dry southern Gobi; from the low grassy steppes in the east to the high Altai glaciers in the west. Influences from, and interactions with, other cultures have been uneven and varied throughout time and space. The minimal information presented in the following Introduction is based upon currently published materials and archaeological and ethnographic surveys. Excavations and surveys currently in progress in north central Mongolia, for example in the Selenge Valley, will eventually provide additional information and the character of the prevailing interpretations will undoubtedly be modified.

Introduction
To place the Beiram Mound in context with the archaeological cultures in the region extending from east of the Altai, north into Siberia, and to central Mongolia—the apparent eastern boundary of the first and second millennium BC Caucasian populations—the archaeological time frames and cultures are very briefly reviewed.

Historically and culturally, the geography of northern and northwestern Mongolia is similar to the adjacent Gorny Altai, Tuva, and Transbaikalia in present day Russian Siberia. Although of high altitude and fluctuating temperatures, the endless pastures offered favorable conditions for the emergence and development of sedentary cattle breeding (Neolithic and Bronze Age), followed by nomadism (possibly beginning in the Late Bronze Age and Early Iron Age) that continued throughout the Medieval Period to modern times. Following a minimal attempt at collective animal husbandry during the Soviet Period (1934-1990), nomadic animal herding and husbandry is today among the prominent industries in Mongolia and continues on the upswing increasing by about 50% between 1991 and 1998 (Bank
of Mongolia 1998). Because of its long history of “pure” nomadism with little influence from sedentary societies over the millennia, and a paucity of industrialization in recent centuries, archaeological monuments are found in great numbers throughout central and western Mongolia (Davis-Kimball surveys 1992, 1996, 1999; Mongolyn Khumuunligiin Ukhany Akademi 1999).

Cattle breeding in Mongolia dates from the Neolithic and Eneolithic and remains of domesticated sheep and cattle have been found in the Selenge River region in north central Mongolia. The Afanasievo cattle breeding economy (late third–early second millennium BC) was found in the Minusinsk Basin and the Gorny Altai in Siberia, as well as on both the eastern and western slopes of the Hangai Mountains in Mongolia (Novgorodova 1989: 81, 85). The Bronze Age economy was better developed than was the case for the earlier periods, although it is represented primarily by chance finds including axes and celts of the mid-2nd century BC Seima-Turbino Type (Koryakova 1998). Other weaponry and decorative elements are related to the Karasuk Culture of southern Siberia as well as the Chou Dynasty in China.

A transition period from Bronze Age to Early Iron Age is noted in the oleniye kamni, monolithic stone stele incised with a variety of motifs, but frequently featuring stylized deer (dating c. 1000-800 BC). These stones have not been connected with any particular culture, yet iconographic motifs are similar to those found in artifacts from the subsequent Early Iron Age nomadic societies (Volkov 1981). Oleniye kamni, with a wide distribution, are known from Chita (Russian Siberia, near the Mongolian border, east of Baikal), Transbaikalia (found as corner stones for slab graves), Tuva (located near Uyuk Culture [Saka] kurgans), the Gorny Altai, and western Mongolia (Volkov 1995, figs. 3–5; Jacobson 1993).

In Siberia, the Karasuk Culture (Late Bronze Age) preceded the Slab Grave Culture (Early Iron Age, c. 7th–3rd centuries BC) (Volkov 1995). Their traditions—such as some artifact types, ornamentation, and bronze casting techniques—survived into Slab Grave times. The Slab Graves belonged to an ethos that occupied north central and northeastern Mongolia and their burials are identical to those of the Transbaikalia Slab Grave Culture (Erdenbaatar 1997). In Western Mongolia, Slab Graves are noted in the Uvs aimag along the eastern edges of the Altai Mountain (Fig. 2). In the Bayan Ulgii aimag, the highest and westernmost region of Mongolia, Slab Graves were found in the Tsentel and Ulaanhush sums; south of Achet Nuur; and following a swath running east/west, and slightly north of the Ulgii (Davis-Kimball survey 1996). None of these sites have been excavated. Interestingly, Slab Graves are not found in the Gorny Altai or Tuva but are known in Xinjiang, western China, and as far afield as Tibet. Skulls from the excavated burials are Europoid with traces of Mongoloidism; their closest parallels are cranial from the Karasuk and Okunevo Culture in southern Siberia, Tuva, and the Sakha-Ussuri cemeteries in Kazakhstan and Kyrgyzstan (Aleksseev and Gokhmans 1984; Volkov 1995) and in the Tien Shan in Xinjiang, China (Debaine-Francfort 1988).

During this time when pastoral nomadism was coming to the fore, the burial rituals were uniform. The deceased of the Slab Grave Culture were placed in ground pits or stone boxes in the supine position, and oriented to the east. Pottery, bronze knives, weaponry, bone- and horn-carved objects, and personal adornments, such as turquoise and carnelian beads, were included among the funerary artifacts (Erdenbaatar 1992; Volkov 1995). Following burial, the site was marked with flat stones placed in an upright position and the surface was covered over with more slabs (Fig. 2). From before the beginning of the first millennium BC, a specific ethnocultural zone developed which encompassed northern Mongolia and the region adjacent to the Altai and Sayan mountains in which the burials were similar to those from Pazyryk I in the Gorny Altai (Rudenko 1970), the Siberian Ukok plateau (Polosmak 1994; 1996), and Tuva (Gryaznov and Mannot-Oel 1975).

The only cemetery of the Early Iron Age to be excavated in western Mongolia was in the Uvs aimag. In the drainage basin of the great Uvs Nuur (lake) the mounds, excavated in 1972–1974 by the Soviet Mongolian History and Culture team, were located in the small Chandman “mountain” some 10 km south of Ulaangom. Bone, bronze, iron artifacts, and a series of pottery types, some of which were decorated, accompanied well-preserved burials of one or two skeletons in stone boxes (Tseveendorj 1980; Novgorodova et al. 1982; Volkov 1995). Petroglyphs in the vicinity of the Chandman Mountain also reveal the presence of Iron Age nomads (pers. observ.). The artifacts relate the Chandman burials to the Late Uyuk Culture found in northwestern Mongolia and primarily in Tuva (Semenov and Chugunov 1995), yet they are radically different from Slab Grave artifacts (Tseveendorj 1980; Novgorodova et al. 1982; Volkov 1995). Thus, two burial types with discrete rituals as well as different anthropomorphic types were known in western Mongolia during the first millennium BC. These people probably had contacts, but primarily because of similar nomadic lifestyles, they shared a few traits and cultural elements including Scythian trilobed arrowheads, psalia, bridle bits, and some Animal Style motifs.

In the Siberian Altai (Fig. 1), the kurgan, Ak-Alakha I, and other kurgans are similar to the Beiram Mound in both size and architectural configuration, even to being outlined with a ring of stones (Polosmak 1994; 1996). Similar kurgans are also known in the Issyk region (60 km NE of Almaty) in southern Kazakhstan (pers. observ.). All of these sites are dated to the Early Iron Age.

Turkic monuments dating to the 6th–8th/9th centuries AD are dominant in the Altai Mountains west of the Beiram Mound in the Uvs aimag, and in the steppes west of the great Uvs Nuur. Since these sites represent a later cultural development they are not discussed in the current paper.

**Beiram Mound Survey**

The Beiram Mound (Fig. 3) is the largest and most prominent of three mounds located within a radius of approximately two
kilometers adjacent to the high road in the Altai Mountains that links Ulaanbatar (Uvs aimag) (97 km east) and Ulgii (Bayan Ulgii aimag) (125 km southwest) (Fig. 1). At an altitude of approximately 9000 feet, a boggy ground surface reveals the presence of permafrost. In July 1996, we surveyed the Beiram Mound and its Mongolian cultic monument—an oovo that has been in continual construction only since the 1930s. The Mound is slightly elliptical, measuring 18.2 m (E-W) × 22.0 m (N-S). A Stone Ring encircles it at a distance varying from 17.0 m and 17.70 m beyond the Mound. Paths of stones at the cardinal points connected the Mound to the Ring (Schematic, Fig. 3). Because of its large size, its similar configuration to Saka kurgans, and its mountainous isolation, we assumed that the Mound had special significance, although we had no excavated comparative parallels in Mongolia. In April of 1999 (Davis-Kimball 1999) we again surveyed the area and the kurgan. Seeing that the Mound itself was undisturbed, we returned to Ulaanbatar, finalized excavation protocol with the Mongolian Institute of History and Department of Archaeology, and in June 1999 the joint American-Mongolian expedition began the excavations.

Excavation Methodology
The Beiram Mound was divided into four quadrants (I through IV) (Schematic, Fig. 4); detailed drawings and laser theodolite readings were completed of the Mound, Rings, and Paths before excavation commenced. These continued throughout the excavation as other features were identified. The height of the Mound varied from ca. 1.0 m to -40 cm; the negative depth was the result of stones having been removed in Quadrant III to construct the oovo. The height of the Paths varied from 20–40 cm, depending upon the stone size and the humus that had accumulated. The Stone Ring was extremely well defined, generally about 2.5–3.0 m in width and 1.0–1.5 m in height. The Paths and Stone Ring were all constructed from rough field stones of the same type that had covered the Mound. After the first level of stones was removed from the Mound, a ditch of ca. 2 m in width was identified within the outer perimeter; this area was excavated independently of the layers on the Mound (Fig. 5) that revealed Levels 1–5, with varied thickness and composition as noted in Table 1.

Over the surface remnants of log had been placed, radiating outward from the center of the Mound, a construction similar to that found in the Arzhan kurgan (Bokovenko 1995: 266, fig. 1; Moshkova 1992: tab. 71:7). Large quantities of wood shavings were found in the trench, particularly in Quadrants I and IV. After the massive stones of Level 1 were removed, a depression was visible in Quadrant I in the Central Mound.

Feature 1
In Quadrant III, adjacent to the center of the Mound, the top of a covered wooden box was encountered at a depth of c. 30 cm. It had been placed on a massive flat stone that was surrounded by other stones, interspersed with a layer of black humus, indicative of a quantity of decomposed organic material. The box, measuring c. 40 cm high and 25 x 25 cm (width and depth) was constructed from well preserved wooden planks, ca. 1.5–2.0 cm thick (Fig. 6). Votive objects found in the box are discussed below.

Test Pits
Upon encountering smooth river stones, measuring 30–40 cm in length, at the juncture of Levels 5 and 6, seven test pits as noted in Table 2, were opened on the Mound (Schematic, Fig. 4). These were excavated to determine (a) the depth and extent of Level 6 and, (b) the configuration of subsequent layers. The marked difference between Levels 5, (rough surface stones) and Level 6 (smooth river stones) is illustrated in Fig. 7.

Units 1–3
Three trenches, Units 1-3 (Table 3, Schematic, Fig. 3), were opened to determine if the soil had been disturbed below the Ring or along the East Path where a depression was noted between the two rows of stones that formed the path.

Central Mound
Following the excavation of Test Pits 1–7 it was determined that the river stones of Level 6, visible in the foreground balk in Fig. 8, had covered the entire Mound to the edge of the ditch. Excavation began in the Central Mound (Schematic, Fig. 4, Fig. 8) by opening two squares as noted in Table 4.

Excavations continued in the Central Pit through Levels 7–12, the composition of which is noted in Table 5. Although occasionally ice was found in the stone interstices of Level 6, it was not until reaching Level 7–when humus and clay were encountered as the main component of each of the subsequent six levels—was actual permafrost found. During the night the permafrost in the walls melted and it was necessary to pump water from the Central Pit and clean the loose rocks from the walls. This process enlarged the size of the pit as noted in the dimension of Level 7 compared with Level 12 in Table 5.

Upon reaching the shale matrix at the bottom of Level 12, the excavations were terminated. The walls and balks were cleaned and photographed. No evidence of a burial or human remains was found in the Mound.

Artifacts
Feature 1 Artifacts
The wooden box encountered in the center of the Central Mound contained a white (tin?) glazed wheel-thrown vase filled with black decomposed organic material and intact grain seed. Additional organic material was recovered from the box (Fig. 9). Within the box, but outside the vessel, other votive artifacts included one complete and one partial cowry shell fragment (Fig. 10: 2); a hollow silver bead covered with gold foil with a repoussé design (Fig. 10: 3); four seed pods of a type from the China lowlands; a lead shot; five sheep astralagi; pieces of charcoal; and textile fragments. A bilobed iron arrowhead with holes (the “whistling” type), tanged, and hooked at the end (Fig. 10: 1) is a well-known Mongol type (Swietoslawski 1990: 62, 132, pl. XX: 10). It was possible to date the approximate time that the votive box had been placed in the Mound as an inscription—written in black ink on a flat bamboo (Fig. 10: 4)— and mea-
Kurgans, Ritual Sites, and Settlements: Eurasian Bronze and Iron Age

Votive Artifacts
Astragali (Fig. 11), the ankle bones from various animals (sheep, mountain goat, antelope, and several bovine) used for divinations (Table 6), were the most dominant votive artifact among the more than 4000 votive-type artifacts excavated from Levels 1-5. No artifacts were recovered from below the bottom of Level 5.

At Level 2 in the Central Mound, a wood-carved animal possible representing a deer (Fig. 12) was encountered. The configuration of an animal standing on a platform is similar to excavated examples from the Sailyogema kurgans in southern Siberia, northwest of Beiram, that date to the Saka Period (Kubarev 1992). The head and right leg were lost on the Beiram example.

Fifty-nine sheep scapula, an equine mandible, hundreds of equine teeth, and an ibex horn were other votive offerings derived from animals remains found throughout the mound, and in all layers. Several distinctive wood-carved finials with tongs were found generally in the area of the ditch; their function is unknown (Fig. 13: 1). The earliest dated votive objects were fourteen Neolithic red and gray flaked stones and a greenstone core. Two wood-carved tanged trilobed (Early Nomadic type) arrowheads (for type see Davis-Kimball et al. 1995: fig. 18: 9), and a wood-carved psalma replica (Fig. 13: 2) had probably been carved during the Saka Period. A wooden bowl (Fig 14: 1) and a wood-carved spoon, both incomplete, are not datable although similar items are known from Saka burials. A sheep astragalus incised with a swastika, a sign frequently found as a petroglyph, as well as another drilled, most probably for suspension, reveal their amuletic functions. Several large iron bilobed arrowheads date to the Mongol period (13th–17th century) (Fig. 14: 3). A square carved bone drilled with a center hole may have been suspended from a saddle as an amulet (Fig. 14: 8). Turquoise glass, carnelian, and wooden beads (Fig. 15), and 40–45 small white glass seed beads, as well as a modern Mongolian button indicate that women also made offerings from ancient to modern times. Hundreds of fragmentary sheep bones were also found, cracked open probably to release the marrow, were indicative of feasting at the site while the mound was under construction and possibly during the time of ritual ceremonies.

Iron objects were more plentiful than bronze and included an iron knife (Fig. 14: 7); an iron hook (quiver hook?); two fragments of an iron cauldron without ornamentation (possibly from the bottom of the vessel); an iron horse shoe; and an iron buckle. The most unusual object was stone carved, possibly representing a scrotum (Fig. 16). Nine rather large, hand-forged iron nails (ca. 8–10 cm in length and ca. 0.5 cm square) were offerings found in the mound. The nails were bent, which may be indicative that they had been used. These may have been manufactured locally as we located an iron smelter some 2-3 km northeast of the excavation site near a valley bottom. A small area of the iron smelter was excavated but did not reveal artifacts, although large quantities of slag were present below the top humus layers (Figs. 17 and 18).

Above Level 6 and throughout the excavation many small wood-carved two dimensional animal representations were found, particularly around the edge of the mound in the ditch (Fig. 14: 2). From the same general locale, a variety of wood-carved finials (Fig. 13: 1) of unknown significance were found along with many wood shaving deposits indicating they may have been made on the spot. A wood-carved representation of a spoked-wheel (Fig. 19: 5) was a replica of a petroglyph found on a rock outcropping about 2 km east (direction Ulangoom) from the Mound.

Other noteworthy artifacts which indicated that offerants, subscribing to a more urbanized society, had visited Beiram; these included two brass (?) Chinese-style long-stemmed pipes (Fig. 14: 6); a bronze bowl (Fig. 13: 5); five Manchu coins (Fig. 14: 4); and several iron shots.

Conclusions
The Beiram Mound, with an external architectural configuration similar to First millennium BC Saka kurgans (burial mounds), was constructed exclusively for ritual or religious purposes. The excavation revealed the method of construction. A ceremonial pit (?) was dug and some organic material was dropped into it before filling. A ditch was excavated to define the perimeter of the mound. River rocks were brought to the site from as far away as 15 km and carefully laid over the entire surface within the area defined by the ditch. Logs were brought from a lower altitude and placed over the river rocks. Because of the amount of humus at this point it appears that sod could have been placed beneath the trees. Surface stones were gathered and layers of these were alternated with more sod. During this time, an extensive amount of woodcarving that left shavings was undertaken within the ditch. Small, wood-carved animals and other artifacts, astragali, and horse teeth were among the votive objects that were offered during this early period. It is not clear who may have been offering at Beiram during the ensuing centuries but it would appear, judging by the quantities of astragali and other animal remains, that the Early Medieval nomads were far from wealthy. During the 17th century AD, the Manchu—who must have been nomadizing along the lower slopes and visited this high and isolated locale, but who also had some connections with a sedentary society as witnessed by the wheel-thrown glazed vase that contained grain—opened the Mound and placed their offerings (Feature 1) before replacing the field stones.

A few of the more than 4000 votive artifacts offered by nomadic tribes that summer pastured in the region, have provided some clues to dating. The wood-carved animal on a pedestal, the trilobed arrowheads, and cheekpiece are associated with Saka tribes. Artifacts, found in the votive box (Feature 1) and dated by inscription to ca. AD 1645, reveal a Manchu presence.
in the region. The thousands of other offerings indicate the mound had been held sacred over millennia; Mongols today continue to offer at the adjacent oovo. Is it coincidental that these latter-day herders began their own sacred offering site at precisely the time that Sovietization and collectivization were coming to the fore?

The Beiram Mound is possibly the first site of a strictly cultic nature--constructed by Saka nomads, and used by successive cultures--to be excavated and recognized as such. This labor-intensive religious monument constructed at a very high altitude under rigorous weather conditions, reveals the indisputable spiritual intensity of ancient nomadic populations. Because of its architectural plan, the Mound securely binds the burial ritual to the totality of the Early Nomadic religious belief system, thus adding an additional aspect to our understanding of these ancient populations.

Acknowledgments
I would like to thank Dr. Ochir, Institute of History; Dr. Tseveendorj, Department of Archaeology; Prof. Inkhtur, Institute of History, all in Ulanbaatar; D. Bynbadorj, Ulangom Museum, and B. Lkhagvasuren, Minister of Culture, Uvs aimag, both of whom gave general time and provided additional ethnographic and archaeological information on this region; and William Honeychurch, University of Michigan and Alexander Lemeshko who have supplied me with obscure reference materials.

The excavation was funded by a generous grant from The Discovery Channel, and American and Swedish volunteers.

Endnotes
1. High altitude pastures are richer in nutrients than those in lower climates allowing for faster animal growth and regeneration following the severe winters.

2. The definition of nomads used here is: Populations whose economic basis was (or is) animal husbandry; principally sheep, goats and horses, but who also may have had camels, and in the higher elevations yak, and who, riding horseback, trail these animals to seasonal pastures. Under normal stable conditions they grazed the same spring, summer, and fall pastures on a yearly basis, moving as needed to provide feed for the herds. They wintered at the same location--although the locales of herding and even the winter pasture may have changed if the situation warranted. In small groups of three to seven yurts (flee tents) they lived in portable housing, but their winter quarters located along a river valley, may have been a more typical permanent habitation. Kazak and Oirad Mongol tribes currently practice this type of nomadism in the Altai Mountains.

3. Unseasonable snows in February 2000 killed about one million animals, a tragic development that will undoubtedly further depress this economy.

4. Types are illustrated in Bokovenko 1995.

5. The Usun nomads follow the Saka in time. A close interaction is apparent between the Saka and Usun in southern Kazakhstan and those in the Xinjiang Tien Shan. (Davis-Kimball 1998).

6. The burials of the Usun elite are in the Tien Shan Mountains, many of which are in Xinjiang, China (Dr. Li Engou 1997 pers. comm.).

7. Information from a local Mongol official who met each autumn to exchange strayd animals with Russian border patrols.

8. Kurgans generally are placed in groups along a low promontory adjacent to, or in the near vicinity of a river or a tributary.

9. The Mongolian Institute of History is headed by Dr. Ochir, the Department of Archaeology by Dr. Tseveendorj.

10 Translated by D. Bynbadorj, Ulangom Historical Museum, who also provided information on the life of Naikhaijamts.

11. Our group collected Neolithic period flaked stones from the gobi-stepes in the vicinity of Achet Nuur, southwest of Beiram. A collection of Neolithic stones was also excavated from a Middle Sarmatian period burial at Pokrovka (Yablonsky et al. 1996, Pokrovka I: Kurgan 7: Burial 1).

12. The author has observed Mongols, generally the women, who will crack open and suck out the marrow in sheep bones.

13. Stones of this type (called a bolo by Alaskan Eskimos) are held together with sinew lines and thrown at birds to bring them down (Graburn et al. 1996: 83, pl. 108).

14. The Mancha, who ruled China from 1644 to 1911, were descendants of the Juchen tribes who ruled north China as the Chin Dynasty from the 12th century

References


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Table 1. Description of Levels 1 through 5.

<table>
<thead>
<tr>
<th>Level</th>
<th>Description of Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rough field stone maintained a depth of 50–100 cm where they had been removed from Quadrants III and IV to construct the oovo, to in excess of 1.5 m in undisturbed areas.</td>
</tr>
<tr>
<td>2</td>
<td>Humus, clay and wood layers varying from 20–50 cm thick.</td>
</tr>
<tr>
<td>3</td>
<td>Rough field stones were ca. 20-30 cm in one layer deep</td>
</tr>
<tr>
<td>4</td>
<td>Humus, clay and logs placed radiating out from the center, varied from 20–50 cm thick.</td>
</tr>
<tr>
<td>5</td>
<td>Rough field stones were, in general, ca. 20–30 cm, sporadically one layer in depth.</td>
</tr>
</tbody>
</table>
Table 2. Location of the Test Pits in the Mound, and the description of Level 6.

<table>
<thead>
<tr>
<th>Test Pit No.</th>
<th>Quadrant Location</th>
<th>Location in Mound</th>
<th>Description of Level 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I, E</td>
<td>Midway between center and perimeter</td>
<td>All the balks revealed a layer of well-placed smooth, near-white colored river stones, without addition of humus or clay. This layer completely covered the Mound to a depth of ca. 1.2 m. Some ice was encountered between the stones, but permafrost was not encountered until reaching the subsequent Level 7.</td>
</tr>
<tr>
<td>2</td>
<td>IV, N</td>
<td>Midway between center and perimeter</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>III, S</td>
<td>Midway between center and perimeter</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>IV, W</td>
<td>Midway between center and perimeter</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>III, W</td>
<td>Perimeter</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>I &amp; IV, N</td>
<td>Midway between center and perimeter</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>II, E</td>
<td>Midway between center and perimeter</td>
<td></td>
</tr>
</tbody>
</table>

Table 3. Trenches, Units 1-3 and the findings.

<table>
<thead>
<tr>
<th>Unit No.</th>
<th>Dimensions</th>
<th>Location</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1 x 4 m</td>
<td>On the NE across the Ring</td>
<td>At sterile soil ca. 30-50 cm, undisturbed</td>
</tr>
<tr>
<td>2</td>
<td>1 x 6 m</td>
<td>Midway across the E Path</td>
<td>At sterile soil ca. 50 cm, the balk at mid-section of the trench revealed that the humus had been compacted in the path between the rows of stones.</td>
</tr>
<tr>
<td>3</td>
<td>1+ x 6 m</td>
<td>Across the E Path on the periphery of the Mound</td>
<td>A depressed area of humus, sloping from the sides to the center between the two rows of stone the path.</td>
</tr>
</tbody>
</table>

Table 4. Squares 1 and 2 located in the Central Mound.

<table>
<thead>
<tr>
<th>Central Mound Square</th>
<th>Location</th>
<th>Size</th>
<th>Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>S of the E midline in Quadrants III and IV</td>
<td>4.0 x 3.0 m</td>
<td>Below Level 6, Squares 1 and 2 were combined, to become the Central Pit</td>
</tr>
<tr>
<td>2</td>
<td>N of Square 1 in Quadrant I and IV, over the Depression</td>
<td>2.0 x 3.0 m</td>
<td></td>
</tr>
</tbody>
</table>
Table 5. Central Pit, Levels 7 to 12.

<table>
<thead>
<tr>
<th>Level</th>
<th>Dimension at Top of Central Pit</th>
<th>Dimension at Bottom of Central Pit</th>
<th>Composition of the Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>E/W 2.60 x N/S 3.30 m</td>
<td>As the permafrost thawed each night, the loose rock and mud were removed from the side walls. The dimensions was taken at Level 7 when the pit was opened, and again at Level 12 when the bottom was reached.</td>
<td>Medium and large field stones in yellow clay Yellow clay with a few very larger field stones Small field stones, clay, organic humus deposits, and pockets of clear ice Yellow clay and a few medium sized river stones Medium surface stones closely placed, packed with clay Ice with a few small surface stones. At the bottom of this level shale matrix was encountered.</td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>E/W 4.72 x N/S 5.55</td>
<td>E/W 6.55 x N/S 7.85 m Total depth 6.0 m</td>
<td></td>
</tr>
</tbody>
</table>

Table 6. Astralagi recovered from the Beiram Mound, Level 1.

<table>
<thead>
<tr>
<th>Animals</th>
<th>Quadrant I</th>
<th>Quadrant II</th>
<th>Quadrant III</th>
<th>Quadrant IV</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheep</td>
<td>65</td>
<td>669</td>
<td>1936</td>
<td>1242</td>
<td>3192</td>
</tr>
<tr>
<td>Argal</td>
<td>12</td>
<td>50</td>
<td>66</td>
<td>44</td>
<td>172</td>
</tr>
<tr>
<td>Cow</td>
<td>5</td>
<td>7</td>
<td>10</td>
<td>9</td>
<td>31</td>
</tr>
<tr>
<td>Yak</td>
<td>0</td>
<td>8</td>
<td>10</td>
<td>2</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>82</td>
<td>734</td>
<td>2022</td>
<td>1297</td>
<td>3415</td>
</tr>
</tbody>
</table>
Fig. 1. Northwestern Mongolia in relation to southern Siberia, western China, and eastern Kazakhstan illustrating the locations of the Beiram Mound and the aimag centers of Ulangom and Ulgi.

Fig. 2. Slab grave in the Gobi steppe near Ureg Nuur, eastern foothills of the Altai Mountains.
Fig. 3. Beiram Mound in the foreground and the Mongolian oovo behind, looking west toward Achet Nuur (lake). July 1996.

Fig. 4. Schematic of the Beiram Mound and areas of excavation: Mound, Oovo, Ring, Paths, Central Mound, Test Pits, Units 1–3, and Test Pits 1–7.
Fig. 5. Ditch around the Mound during excavations in Quadrant II; looking SSW, oovo in the background.

Fig. 6. Manchu wooden box in situ, partially excavated.
Fig. 7 (left). Level 5, on the left, composed of rough surface stones, and Test Pit 6, to the right, revealing the top of Level 6 composed of smooth river stones. Quadrant III.

Fig. 8 (below). Opening the Central Mound. Test Pit 6 is in the foreground; Square 2 of the Central Mound, opened over the Depression, is in front of the Mongolian student. Stones of Level 6 have been cleaned in the area that will be Square 1 on the Central Mound (See Table 4). Test Pit 1 is on the right, partially filled with water from melted permafrost. Level 6 river stones are exposed in the balk. Looking SSW.
Fig. 9. *In situ*, the top and sides of the Manchu wooden box (Feature 1), at the center of the Mound have been removed revealing the interior contents. A white (tin?) glazed vase with a flat base, sharp shoulder, narrow neck, and everted rim held grain and organic material. The bamboo with inscription (inscription is face down in the illustration above) is center front.
Fig. 10 (opposite page). Artifacts from Feature 1 included: 1 - an iron Mongol period arrowhead with hooked tang and holes in the blade; 2 - cowries; 3 - a repoussé hollow silver-gilt disk; 4 - an inscription on a piece of bamboo and. Found elsewhere on the Mound: 5 - a wood-carved "spoked-wheel," a replica of a petroglyph on a nearby rock outcropping.

Fig. 11 (left). Votive objects from Quadrant 4, Level. 1. Astragali: 1 - sheep, 2 - bovine, 3 - argali (mountain sheep); 4 - equine teeth.

Fig. 12 (right). Wood-carved animal, possibly representing a deer (head and right leg lost). Based on excavated parallels, it dates to the Saka Period (ca. 450-400 BC).
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Fig. 13. Votive objects from various locales in the Mound: 1 - wood-carved finial of unknown significance, one type of various found in the Mound; 2 - wood-carved replica of a psalia.

Fig. 14. Votive objects from various locales in the Mound: 1 - wood-carved bowl, partially lost; 2 - wood-carved animal figurines; 3 - iron arrowheads, Mongol period; 4 - Manchu (Chinese) coin; 5 - bronze (or brass) bowl; 6 - brass (?) Chinese-type pipes; 7 - iron knife; 8 - carved and drilled bone.

Fig. 15. Beads: 1, 3 - carnelian; 2 - turquoise-colored glass; 4 - wood.

Fig. 16. Stone-carved votive object, possibly representing a scrotum.
Fig. 17. Two iron slag deposits were revealed when the humus covering dropped away. The perspective and angle of the slope in this illustration are deceiving flat; in reality, the hill is extremely steep. Above in the upper plane, a stand of Tien Shan fir are visible. These trees may have been a source of fuel for iron smelting, although there are deposits of anthracite coal within 15 km of the Mound, direction Bayan Ulgii, that are still mined today. This site is, as a crow flies, within a kilometer of the Mound but by jeep, because of the steepness of the mountain, from 3-5 km.

Fig. 18. The balk of the slag excavation revealing the humus layer on top, the slag layer, and the small humus layer below. (all photos and illustrations © Jeannine Davis-Kimball)
Part III

Interpretations of Eurasian Archaeology
The Bronze Age
Kurgans, Ritual Sites, and Settlements: Eurasian Bronze and Iron Age
Abstract
Textile goods played an important role in the culture of many Eurasian peoples. New methods and new data concerning ancient textiles allow us to study the textile goods produced by the Eurasia nomadic population of the Bronze Age (third-second millennium BC). The specific area of our study is the Kalmyk steppe, and the general region is the Black Sea and the Caspian Sea maritime steppes, the Ural region, and the northern Caucasus region of the Eurasian steppe belt. We identified and classified sources that included 50 objects. This was followed by technological analyses that included identifying and studying the textiles and their structure; determining the type of fiber used for yarn; the type of twisting; the type of thread spinning; the structure of the sample; and the type of thread weave. The analysis of the raw materials base provided indisputable evidence that plant and wool fibers both were used during the Bronze Age. A comparison of archaeological finds with the components found on historical and ethnographic looms helped establish the types of weaving devices used in prehistoric times. Finally, it became possible to characterize the significance of textiles within the context of steppe cultures, not only in the everyday life, but in ritual practices as well.

Key Words
textiles, nomads, Bronze Age, Eurasian steppe

Introduction
The economies of the cultures of the west Eurasian steppe were strongly affected by local ecological and natural conditions, particularly during the Bronze Age. The steppe changed ecologically from the third millennium BC onwards, and an economy of mobile herders evolved. This shift in economy was accompanied by the gradual development of a new mode of life and new technologies, which were directly linked to the economy. Recent studies of bone and wood working, pottery manufacturing, and metallurgical production in this region has allowed us to evaluate the skills which typify the Yamnaya (Pit-grave), Catacomb, Srubnaya (Timber-grave) and other Eurasian cultures that lived in the steppe (Remeslo 1994; Chernykh 1997). Such studies present a new perspective on the development of the new type of economy, i.e. a system of mobile pastoralism. This perspective reveals the relationships that existed between the individual elements of this system, and the identification of these links increases the significance of all sources. In addition, in a number of cases it has been possible to identify previously unknown aspects of these cultures. The textiles originating in sites located within the Eurasian steppe belt are an understudied economic commodity. Textile goods played an important role in the culture of many Eurasian peoples (e.g. Tayzhanova 1995; Zhitetsky 1893). Historical studies have indicated that textiles had not only an everyday, but also a social and religious role in these societies.

While scholars became aware of the existence of Bronze Age textiles as early as the beginning of this century (Gorodstov 1910), an almost complete absence of textiles from either burial or settlement sites made their study (an organic material) difficult. Very often the only evidence for the existence of various weaving or plaiting types was the tools associated with textile technology, or imprints of textile goods on ceramics. This information has contributed to our understanding of ancient weaving, but scholars limited their studies to the analysis of certain types of archaeological goods thereby linking the latter with a series of technological operations (e.g. Glushkov and Glushkova 1992). The current diversity of opinions which exists concerning the methods used by the Eurasian peoples to weave and plait their cloth is indicative of the active research in the field. The authors believe that each study conducted to achieve this objective has greatly contributed to the identification of the origin of this ancient technology.

New methods and new data concerning ancient textiles has enabled us to return to the study of the textile goods produced by Eurasian groups. The region of our study is, in particular, the Kalmyk steppe, and in general the Black Sea and the Caspian Sea maritime steppes, the Ural region and the northern Caucasus.
region of the Eurasian steppe belt. The borders of the research area have been determined to a large extent by the geography of the collections curated at the State Historical Museum in Moscow.

In order to assess the role of woven and plaited materials in the economic system of the Bronze Age nomads of the Eurasian steppe, our research design included technological analysis, ethnographic comparisons, information on the types of raw textiles, the analysis of local and regional paleoecology, and historical reconstruction. The archaeological data includes: (1) fragments of mats and cloths found in Bronze Age steppe burials and settlements, and imprints of cords, bands, and woven cloth present on ceramics, and house and grave floors, and (2) preserved components of weaving tools. The role played by textiles in the funeral and domestic contexts of the Bronze Age nomads is also reviewed.

**Objectives of the research**

The objectives of the research were as follows:

1. To identify the source of genuine textiles and mats recovered from graves;
2. To analyze major technological characteristics of the textiles and closely related goods made of non-fiber materials. This aspect of the analysis including the determination of the types of fiber used for making yarn; the method of twisting; the method of thread spinning; the structure of the sample, and the identification of the method of weaving the thread;
3. To determine the technology of textile dyeing;
4. To reconstruct possible types of textile devices which could have been used for making textile goods of classified types;
5. To correlate preserved components of weaving tools with hypothetical textile devices;
6. To study ethnographical textile devices and determine their correlation with preserved archaeological components of weaving tools;
7. To determine the role played by textiles in the funeral and household practices of Bronze Age nomadic economy.

**Archaeological data**

A total of 59 archaeological samples recovered from the burials (two samples came from settlements) of the Bronze Age Eurasian steppe nomads were included in the analysis. These materials have been attributed to textiles and have been categorized in the following groups: (1) impressions and imprints; (2) fragments of “real” textile goods; (3) fragments of mats; (4) heavily mineralized textile goods, and (5) samples which are disputable as textile remains (Orfinskaya et al. 1999). It is now possible to provide a detailed analysis of textile goods recovered from the burials of the Yamnaya (Pit-grave), Yamnaya-Catacomb, northern Caucasus, Catacomb and other cultures of the Eurasian Bronze Age.

1. **Impressions and imprints**

Firstly, the imprints of mats and cloths apparent on clay pots were analyzed (Figs. 1 and 2). Many scholars have noted that simple cord and double cord ornamentation on pottery became a typical element of steppe decoration starting from the Early Bronze Age. The earlier Khvalynsk Culture (Eneolithic period) of the Volga region had impression ornamentation that was not only made with the help of a cord, but also with the use of a genuine woven cloth. A number of examples indicate that the cloth was decorated with embroidery, or had been obtained by twining the weft all across the warp based on the “backstitch” principle. Textiles with a twined warp were also used to decorate ceramics of the Bronze Age Yamnaya Culture (Fig. 1). When decorating a vessel of the Yamnaya Culture, a narrow cloth band – which was sufficiently soft to be folded – was used to imprint a pattern on the exterior surface of the still damp clay. Mat and cloth imprints have also been found on the bases of vessels of the Bronze Age culture of the northern Caucasus, for example, from the Bamut burials. Sackcloth of a plain weave or a cloth with a twined warp has been recovered from one of the Bamut burials, while another of these burials contained a knotted fabric (Fig. 2). Imprints of multi-row cloth band and cord impressions are the characteristic ornamentation used on Catacomb Period (Middle Bronze Age) ceramics. Imprints of plaited mats on the bases of large turnip-shaped Catacomb Culture vessels provide evidence of the structure of these mats. Apparently, during the manufacture of the ceramics, the unbaked vessels were placed on plaited mats or sack-type coarse cloths to dry and, consequently, the imprints of these mats are clearly preserved on the exterior aspects of their bases.

2. **Fragments of “real” textile goods**

The second stage of the analysis involved the examination of real cloths, which were recovered from Bronze Age graves. It is very important to note that the Novosvodnaya and Maikop textiles of the Early Bronze Age were manufactured from plant fibers; substantial evidence also exists to indicate that wool fibers (Fig. 3) came into use in the steppe during the Middle Bronze Age (latter half of the third millennium BC). As for the technological reconstruction it is possible to state that these cloths comprised twined and plain weave, a finding which may be indicative of the use of different types of weaving devices.

3. **Fragments of mats**

The next step in the investigation involved the analysis of mats retrieved from graves (Golyeva 1999). The objective of the analysis was to determine the type of fibers that had been used in the production of the mats. Well preserved mats are only occasionally recovered from burials, and these mats include those in which it is possible to see the woven pattern of fibers, the fibers are clearly morphologically distinguishable, and are easily separated one from another. Such mats provide the greatest amount of information, since it is also possible to identify the plant materials used for their manufacture. It is also very important in these cases to be able to determine if several different plants (e.g. cereals, sedge, dicotyledon grasses, or branches of bushes and grasses) were used to create a mat. Two well-preserved textile mats found in Catacomb Culture burials of the Eastern Manych River have been studied. The analysis of the microstructure and separate plant filaments apparent in the mats has made it possible to identify the nature of their
manufacture, and define which plants were used. One of the mats is woven with the use of fine twisted plant reed fibers, and the phytolith of this plant has been identified (Fig. 4). The second mat is made of thick fibers. A visual study has not identified any differences in the structure of the individual fibers, but a microscopic analysis has shown that the textiles are made of two types of plant fibers. In some cases uniform thick fibers were used, while in others several fine fibers twined together were used. Since their structure is the same (reed mace), the differences in the fiber quality can be explained by the fact that various threads were used to weave the mat.

Semi-decayed mats are frequently recovered from graves (Fig. 5). In these cases it is not possible to define the type of weave - even its very presence is unclear - but it is possible to identify separate plant fibers. As plants decay in natural conditions at a different rate, the whole substance under investigation is heterogeneous in terms of morphology. This situation means that if different plants were used, some of them could have been completely mineralized and decayed, thereby making their identification impossible (Fig. 5d). This finding means that there may be some losses during the definition of plant diversity. The situation is dependent on the specific plants that were used. A comparative and morphological analysis of the plant’s anatomy is possible for preserved sectors, and one should also undertake the analysis of phytolith, pollen, and plant detritus (the reinforcing, mechanical plant tissues).

(4) Heavily mineralized textile goods
The majority of materials discovered during excavations belong to the category of completely decayed substances (Fig. 5 a–c). Macromorphologically, this type of mat is defined as a dark, in some cases, completely black layer with a thickness of several millimeters which overlies the soil surface and is located in the vicinity of a skeleton. No separate fibers are distinguishable, and the substance itself cannot be easily attributed to plant type. In this case the comparative and morphological method is not efficient since the extent of decay is so high. Phytolith, pollen and detritus analyses will provide most information. This complex of analyses will enable a clear definition of the genesis of the material (plant or animal) and, to a certain extent, which materials were used in its manufacture. This system of analysis was undertaken on a highly decayed mat retrieved from Burial 1 of Kurgan 8 at Zunda-Tolga.

When the mound was removed a series of wooden boards were uncovered and a decayed plant substance was found to be lying both on the boards and around the walls. A scaffold, which had been entirely covered with a decayed mat that differed from the surrounding surface in color and density, had been placed in the bottom of the burial pit. Analyse of the samples revealed the presence of phytoliths and fine fragments of cane detritus, while a sample retrieved from the bottom of the burial pit contained reed phytoliths (Fig. 4). It would appear, therefore, that the facing of the walls and the upper part of the said burial had been made from cane mats. In addition to cane, reed had been used to make the mat recovered from the surface of the scaffolding.

(5) Samples that are disputable as textile remains
In some cases it is possible to predict that a mat would have been present, for example, in a burial. The complete mineralization of plant material occurs in certain environments, which means that morphologically a mat is not identified within the burial. In the past, the occurrence of a mat in this location was based on evidence derived from analogous burials where such mats were found. The use of a complex system of analysis—phytolith, pollen and plant detritus—allows us to define the presence or absence of a mat, and identify the plants that had been used in its manufacture.

During the excavations of Burial 1 of Kurgan 2 at Zunda-Tolga a cenotaph without any signs of a plant mat in a supposed burial place was uncovered. A “grid” method was used, whereby a grid was created on the floor of the grave, and samples were taken from each of its corners. Further studies have allowed us to conclude that plant matter, which consisted only of flowering wormwood stems, was restricted to the center of the burial chamber. Considerable differences in the pollen record for the grave have enabled us to conclude that plants were deliberately placed and oriented within the grave, but that plant mats were not present on the grave floor. Therefore, the existence of textiles in steppe burials provides evidence that textile goods played a significant part in the funerary rites of the steppe peoples throughout the Bronze Age.

Paleoecological investigations
By adopting an “ecological approach” to the research problem through the reconstruction of local paleolandscapes, the identification of plant types, and the evaluation of their use in plaiting and weaving, it was possible to reach a very important conclusion. Analysis of the raw material base provided indisputable evidence that plant fibers which were typical for the preceding Neolithic Age continued to be used in the steppe during the Bronze Age. Phytolith analyses of mat and textile fragments, and the identification of a wide use of plants including reeds and reed mace for ancient weaving, provided evidence that indicated that plant fibers played an important role in ancient steppe textile technology.

Tools used in textile manufacture
The study of the associated archaeological artifacts was another important aspect of the research design. A comparison of archaeological finds with components of historical and ethnographic looms helped establish the types of weaving devices that were used during prehistoric times (Barber 1991; Rutschowskaya 1990). Components connected with other operations (e.g., fiber combing and plaiting) also provided indirect evidence for the types of fibers that were used.

Analyses of the tools associated with weaving and plaiting, including spindle whorls, needles (Fig. 6d), spools (Fig. 6c), combs (Fig. 6 a, b) and loom parts (Fig. 6 e–g) was also undertaken. These elements, plus the technological analysis of cloth fragments and cloth and mat imprints, enabled the reconstruction of the weaving devices that could have been used by the Bronze Age cultures which inhabited the Eurasian steppe.
It is clear that textile goods were made both by weaving and plaiting from the earliest occupation of the steppe. The study of artifacts suggested that primitive weaving devices had appeared on the steppe as early as the Eneolithic period. The earliest “looms” comprised a horizontal or a vertical frame (Fig. 7a) that was used to hold the warp threads stretched and rigid, and a rectangular placket was used for separating threads. Classical looms appeared as early as the Yamnaya Age, and these consisted of a frame, a thread separator and a device for making a second loom shed. Looms of the Catacomb Culture were more diverse, and in the majority of cases the loom appears to have been a primitive weaving device that consisted of a horizontal placket, was held rigid on vertical pillars, and had warp threads that were not held rigid. Similar looms also existed that already had a device for holding warp threads. Other types of looms (Fig. 7 b, c) included a simple loom with a horizontal or vertical frame and a variety of types of thread separators. Classical looms had reeds, planks, or rings that were used to create the second shed. The use of these devices enabled the steppe peoples to manufacture cloth with a plain weave and a twined warp.

**Raw materials**

The evidence indicates that plant fibers were the major raw material used for making the earliest textiles on the steppe. The use of wool as a major textile material on the steppe began during the Middle Bronze Age. Its fiber collection and treatment was a carefully considered operation, and the remains of tools associated with wool collection and processing have been recovered from the burials of both men and women. Over time other devices were used for these purposes, such as combs and needles.

**Weaving techniques**

We can make inferences about the techniques of weaving which were employed on the basis of preserved textile goods and their imprints on ceramics. Simple looms of a horizontal or vertical type were initially used and, at a later stage additional devices, including planks, heddle frames, reed and woven planks were used in the weaving process to make narrow textile bands. A more complex method of plaiting plant mats and bands was developed, and special constructions for plaiting seem to have been used. Finishing and dying plain cloths must have been of particular importance, but our study of this aspect of archaeological textiles is in its infancy.

**Ethnographical and historical comparisons**

Finally, it became possible to characterize the significance of textiles within the context of steppe cultures, not only in the everyday life of the people, but also in their ritual activities. The analyses of the textiles were undertaken with a view to determining the levels of adaptation to the different steppe environments; data derived from the history and ethnography of the nomads that lived in the region under investigation during recent and historic times have been used to interpret the archaeological materials.

Ethnographical and historical comparisons (e.g. Zhitesky 1893; Popov 1955; Faegre 1979) indicate that mats were used in the construction of light portable houses, fences (e.g. for cattle), in the manufacture of pottery, and as matting, covers, and beds. Bronze Age steppe people are likely to have plaited these items in addition to baskets, boxes, cases, and, possibly, wagon bodies. Traditionally, woolen cloth was used to make clothing and distinctive nomadic gear, including cases, boxes and bags. While the ancient steppe peoples must have possessed felting skills and, maybe, even carpet-making techniques, no definitive archaeological remains which provides evidence relating to the antiquity of these technologies have yet been identified from the steppe region. The results clearly indicate that the early steppe peoples employed many plaited and woven goods in their burial rituals, and they were used not only for decorating the burial pit, but also as funeral clothes, shrouds, and canopies. The similarity of the weaving and plaiting techniques used by the different modern peoples of Kazakhstan, Central Asia and Siberia, with the weaving technology of the Bronze Age steppe peoples provides evidence for the preservation of a traditional technology which has a deep antiquity.

**Conclusions**

Given our current understanding of ancient steppe textiles, it is quite clear that they played an enormous role in the ability to survive in these environments. In each region, separate cultures made their own contribution to the development of diverse textile technologies, and to some extent, the variation was determined by the natural features of the local ecological niches – including the irregular spread of plants which were suitable for weaving, such as flax and cotton. The spread of the technologies associated with the preparation of wool fibers and their use in weaving occurred at a later stage and was a much slower process. It appears that the mobile mode of life (typical for the nomadic cultures of the Eurasian steppes) did not promote the appearance of bulky weaving devices. While models and parts of primitive and improved horizontal and vertical looms were used throughout the 3rd and 2nd millennia BC in adjacent regions of Europe, Egypt, Mesopotamia, and Asia Minor, we only have evidence for the use of simplified wooden constructions in the western part of the Eurasian steppe. All seven tasks of the analysis seem to be interrelated and, in the long run, the use of this multidisciplinary approach will enable us to learn a great deal about not only the textile technology of the steppe Bronze Age, but also the role played by textile goods in the ancient nomadic cultures.

**Acknowledgements**

Russian Humanitarian Scientific Fund and the Wenner-Gren Foundation supported this work. We would like very much to thank Alexandra Golyeva who participated in the program.
References


Fig. 1. Yamnaya Culture. Dneprorudny village: a - two imprints of a cloth with a twined warp obtained from a single ceramic vesse; b - diagram of a textile weave.

Fig. 2. Northern Caucasus Culture, Bamut Burial Mound: a - imprint of a cloth with a twined warp; b - diagram of a textile weave.
Fig. 3 (left). Catacomb Culture, Vostochny Manych: a - a secondary textile item of a belt type, consisting of a woolen cloth, leather, and "threads" made of non-fibrous material; b - diagram of a secondary textile item of the belt type. (1) woolen cloth with a plain weave (the solid line indicates the selvage of the cloth, and the dotted line indicates the rupture of the cloth); (2) leather; (3) "threads" that join the leather with the cloth; (4) fragments of the "threads" that pass through the cloth that might have been used to attach the sewn parts to the belt.

Fig. 4 (right and left). The general appearance and forms of reed phytoliths (Scirpus L.).
Fig. 5. Mats. Yamnaya Culture and Yamnaya-Catacomb Culture burials: a - Kalmykia. Burial ground KVCH-56, Kurgan 6, Burial Ground 17 (excavations conducted by N. Shishlina); b - The Ingul Basin. Malozakharyino village, Kurgan 1; c - Chernyshevsky Burial Ground, Burials 82 and 85; d - Middle Volga. Kutuluksky burial ground, Kurgan 4, Burial 1.
Fig. 6. Textile devices: a - curved awls from the Botai settlement; b - Slav combs for combing fibers; c - spool for winding threads from the Liman settlement, Ukraine; d - needle from the Liman settlement, Ukraine; e - comb from the Arich Burial Ground, Armenia; f - comb from the Uzerlikepe settlement; g - cone loom weights (?) from the Galyugai settlement, northern Caucasus (a and c-f, bone; b, wood; g, clay).
Fig. 7. Loom designs: a - vertical loom; b - planks with six holes for making narrow cloth; c - horizontal loom used in the “black tents” regions. (after Faegre 1979)
The Eurasian Steppes
The Transition from Early Urbanism to Nomadism

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Abstract
In this paper I will discuss some of the disputable problems in the light of recent data relating to the origins and development of pastoral nomadism. Contrary to A. Hausler and M. Levine, I believe that the horse was domesticated in the Pontic-Caspian steppes during the fourth millennium BC. Contrary to the opinions of D. Teleguin, V. Danilenk, N. Shmaglii, M. Gimbutas, and D. Anthony, I am of the opinion that horses were not used by riders for forays into Europe at neither 4000 BC nor 3000 BC. At this time the animal was bred only as a source of food. The period preceding the formation of the Timber Grave and Andronovo Cultures was of key importance and developed from a synthesis of the late Catacomb and Abashevo Cultures. It was also marked by the emergence of proto-urbanism, advanced bronze metallurgy, and the battle chariot. The chronology of this period is quite disputable, but in general covers the third and second millennia BC. However, contrary to Besedin (1966) and Trifonov (1996), following Renfrew (1955), the basis of the chronology that was synchronized with the Mycenaean Culture, is far from a definitive solution. The generally recent dating of the Mycenaean Culture—based upon Anatolian connections—and of European cultures—dated by dendrochronology—probably will modify the dating of this period in the steppes to the 18th-17th centuries BC. The specific steppes environment conditioned the extensive evolution of a complex economy and then nomadism, instead of the development of intensive urbanization.

Keywords
stockbreeding, horse domestication, charioteers, warriors, nomads

Introduction
A considerable proportion of humanity was nomads, or tribes of stockbreeders, with a non-sedentary lifestyle. A number of academics including Toynbee (1935), Brodel (1969), and White (1959) have an understanding of the history in which the nomadic populations played a catalytic role in many of the major historical processes of the Old World. The development of nomadic societies is, therefore, of major importance to our understanding of the dynamics of the past, yet a number of aspects relating to this process are still the subject of much dispute.

The problems of horse domestication
Over thousands of years the Eurasian populations developed their economy based upon the changing ecology of the steppes in conjunction with contacts established with the land-tillers of the Danube area (Kuzmina 1994; 1996). During the Late Neolithic period, an economy that concentrated on the stockbreeding of cattle, sheep, goats, and pigs extended from the Danube to the Pontic-Caspian steppes.

Sites of the Chalcolithic period (fourth millennium BC) have been found to have high proportions of horse bones in their osteological assemblages. During the 1970s archaeozoologists recognized the steppes of southern Russia as a center of horse domestication, and from this region the practice spread to the land-tillers of the Dnieper and the Danube (Biblikova 1967; 1970; Zalkin 1970; Bökönyi 1974). The prerequisites for horse domestication included the existence of wild horses in the steppes, knowledge of a stockbreeding economy, and requirements for food. A number of recent researchers have disputed the development of horse domestication during the Chalcolithic period (Levine 1990; Uerpmann 1990; Häusler 1994). Their arguments do not appear convincing, but the decisive word in this dispute can be that of the palaeozoologists, and most recognize the steppe horses of the Chalcolithic period to have been domesticated animals (Petrenko 1984; Beneke 1993; Bökönyi 1994). We can also add such evidences as (1) artistic images of horses including those with bridles; (2) ritual burials of horse and bull heads and legs in the necropolii of Syezhaya and Khvalynsk, indicating that these animals played an important role in mythology and the formation of cult (Kuzmina 1977).
about aggressive warriors invading European farmers with fire and a sword, thus attaching a political character to the study. Recently, Anthony (1986), Anthony and Brown (1991), and Liehardus (1984) have revived the hypothesis of militant riders.

The riding of horses by warriors of the Chalcolithic period has been already contended (Kuzmina 1977; 1994). Some European cultures, including those that were not familiar with the horse (Dietz 1992) as well as those in China (Komissarov 1980), have produced a number of bone objects that were similar, and according to ethnographic analogies, they may be compared with tools for uniting knots or weaving nets. This interpretation corresponds to the information obtained for fishing in Dereivka and Switzerland.

It would have been possible for herders to ride horses using a leather bridle without a leather bit, but it would have been impossible for warrior riders to maintain control of their horses without a bit. The nomadic lifestyle of the early horse breeders, moreover, is refuted by the existence of settlement sites with evidence of pig husbandry. In addition, no clear evidence exists that reveals mass migrations of steppe peoples to the Danube.

The spread of wheeled transport

The dissemination of wheeled transport was the main precondition that led to the formation of a mobile form of stockbreeding. Isbizer (1993) recorded the presence of approximately 250 burials that contained the remains of carts in the Novosvobodnaya and Novotitarovskaya cemeteries; these cultures are characteristic of the Kuban and Pit Grave Cultures in the region that extends from the Don to the Urals. These graves have been dated to the second half of the third millennium BC (Mallory and Telegin 1994). The vehicles appear to have been adopted from the Danube and Caucasus regions; most of them would have had four solid wheels, and would have been pulled by a pair of oxen. Contrary to the opinion of Isbizer (1993), however, the remains of two-wheeled vehicles and models of the latter have been recovered from a number of burials.

A deterioration in the ecology of the steppes (Kremenetskii 1991; Spiridonova 1991) encouraged the widespread adoption of the cart as it enabled populations to settle in new areas, and thereby helped alleviate problems of overpopulation. The appearance of ochre in graves in the Danube and Carpathian regions is indicative of the beginnings of contacts with copper ore producing regions. In addition, copper was necessary for the manufacture of carts. The use of carts for transport, and copper tools for their manufacture, resulted in the tribes of the Pit Grave Culture developing a specialized form of stock-breeding that became the most suitable form of economy for the steppe environment. This innovation represents the earliest adoption of this form of economy in the Old World.

Metallurgy, chariots and fortifications

A crisis occurred involving the Carpathian metallurgical center (Chemykh 1978) and thus it became necessary for the tribes of the Pit Grave Culture to master the local metallurgical deposits at some time between the third and second millennium BC. The largest of the local ore deposits was situated at Kargaly in the southern Urals (Chemykh 1993; Morgunova and Kravkov 1994). Progress in their own metallurgical industry initiated the development of the most important cultural inventions characteristic for the Sintashta sites. Intensive metalworking resulted in a change from the forge technology to one in which casting was undertaken in closed molds. The new technique resulted in the mass production of a number of new tools and weapons including axes, chisels, spears, and shafted arrowheads (Grigoryev 1994). Increasing progress in metallurgy was also connected to the development of warfare; this theory is supported by burials containing the remains of warriors, weapons, and pieces of ore (e.g. Kamennyi Ambar, and Bestamak). Pairs of horses (which in some cases have shield-shaped cheek pieces), in addition to the imprints of wheels with 10–12 spokes have been recovered from a number of Sintashta Culture burials. These findings should be considered as evidence for the use of horse-drawn chariots for warfare purposes (e.g. Sintashta, Kamennyi Ambar, and Soinez II in the Urals; Ulubaj, Berlik II, Bestamak in northern Kazakhstan, and Satan in central Kazakhstan). Horse bones associated with shield-shaped cheekpieces have also been found in sites of the Potapovka Culture in the Volga region as well as in the related complexes of the Don and Seversky Donetz regions. Apparently, at this time fighting techniques, based on the use of chariots, had become the most important invention in warfare.

The struggle for ore deposits in the Urals resulted in the construction of fortresses in areas where large-scale metalworking took place. Using information derived from military aerial photography, the geologist, Batenina (1935), identified a number of these fortresses during the 1960s. A complex of 17 fortresses was discovered in the southern Urals in the region of Magnitogorsk, Troizk, and Orenburg. Excavations have been undertaken at the settlements of Sintashta, Arkaim, Ustje, Kujuk, and others (Genning et al 1992: fig. 1; Zdanovich 1995; Vinogradov 1995; Malutina et al 1995). The distance between the fortresses is approximately 40–70 km. In general, the walls of the fortresses were constructed from wood and earth, and in a number of cases, they were strengthened with stone slabs (e.g. Olgino, Alanskoie). The walls were constructed so that they formed an oval, ring, or square, and they were invariably surrounded by a moat. In some cases, evidence for rebuilding a fortress wall has been noted. The Arkaim site has two rings of defensive walls and mounds in addition to an entrance gateway. The internal area of the fortresses generally displays a regular plan that was subdivided by radial or perpendicular streets. Evidence for the occurrence of metalworking has been recovered from the interiors of all the excavated fortresses.

The discovery of “country of proto-cities” is not an unusual finding as earlier, smaller but similar constructions, are known from northern Kazakhstan that belonged to the Petrov Culture settlements (e.g. Petrovka II, Novorankolskoie, and Bogolyubovo) (Zdanovich 1988), and in the Urals (e.g. Kulevchi III and Semiozemnoye) (Pamyatnik. . . ). Defensive fortresses
have also been discovered in the Crimea (e.g. Kamenka) and along the Don River (e.g. Livenzovka) (Karataevka and Bratchenko 1976). The architecture of the fortresses is considered to have its origins in the traditions of Eastern Europe (Merpert 1995).

**Site of the Sintashta-Potapovka Type**

Twenty years ago, on the basis of the stratigraphy of Kurgan 25 in the Novuyi Kumak Cemetery, K. Smirnov and I proposed that the Novokumak Horizon should be positioned between the Catacomb Culture and the Srubnaya and Andronovo Cultures (Smirnov and Kuzmina 1977). It was also suggested that the Novokumak cultural sites should be included within the sphere of European cultures that appeared in the Ural and Kazakhstan as a result of the westward migration of Abashevo, Poltavka, and Babino (KMK) cultural tribes. Now it is possible to affirm these conclusions more precisely.

The lower layer of the settlement site of Kuijsak belonged to the Pit Grave Culture; ceramics recovered from the middle layer indicate a combination of the Pit Grave and Abashevo Cultures, while the upper layer is characteristic of the Sintashta Culture. At the site of Beregovka I, the lower layer is characteristic of the Abashevo Culture, the middle layer is indicative of the Novokumak Culture, and the upper layer displayed attributes of the Srubnaya Culture (Vasiliev et al 1995). The main graves at the cemeteries of Tanabergen, Kurali, Zhaman, Kargaly, and Barrow 11 at Bolshekaragan are characteristic of the Potapovka Culture, while Sintashta Culture burials at these sites should be considered to be later intrusions. At the site of Alexandrovka, ceramics of the Poltavka and Abashevo Cultures were commingled (Tkachev 1996). The main burial of the Kondrashkino Kurgan, located in the Don River region, was of a Catacomb type while a burial from the Abashevo Culture represented a later intrusion (Pryahin et al 1989). A large number of sites from the Catacomb Culture have been discovered in the Lower Volga region, and have been found to predate sites of the Srubnaya Culture. These findings should be considered evidence that the Abashevo and Poltavka Cultures integrated to form the Sintashta Culture.

Within the framework of the Novokumak Horizon, stratigraphy indicates the Sintashta Culture sites are earlier than those of the Petrovka Culture (e.g. the settlement of Ustye and the cemeteries of Krivoye Ozero, Stepnoye I, and Kamenni Ambar) (Vinogradov 1995). Analysis of buckles has indicated that the Sintashta Culture sites are earlier than those with a marked lath, and finally cheek-pieces appeared with inserted tenons and occasionally with holes in the other plane. Unanimously, we acknowledge Western Europe as the center for the invention of cheekpieces, and from there they were spread to the Balkans and Greece.

The most recent discoveries of cheekpieces, including those which have been recovered from stratified sites, reveals their evolution. The most ancient cheekpieces of Type I are typical for the European Babino and Abashevo Cultures; these could serve as a basis for the developing elements of the Sintashta Culture. Type I cheekpieces are not decorated. Type II cheekpieces from the area between the Danube and Volga Rivers are often decorated with Mycenaean ornamentation. These cheekpieces are typical for the late Abashevo complexes in the Don River region, Pokrovka, and Petrovka, along with Alakul; they are decorated with post-Mycenaean ornaments. This reveals the independent evolution of horse harnesses and provides some reason to consider the European steppes as the center of chariot origin.

**Chronology**

A chronology for the sites has been derived on the basis of the following synchronization:

a) Cheekpieces and ornaments from Shaft grave IV at Mycenae, are dated from 1570-1550 BC; these provide a terminus ante quem for Type I cheekpieces.

b) Cheekpieces and pendants with the Monteouru Culture.

c) Segmented faience beads from a number of European cultures.

During the final stage of the Babino Culture, contacts with the Danube region increased and spread westward to the Danube River (Chernyakov 1996; Litvinenko 1996). Cultural links with Greece could have been maintained through the Danube region as well as by sea. The Kamenka settlements and ports exhibiting lighthouses, and populations that included fisherfolk, were discovered in the Crimea. These may be interpreted as evidence for coastal navigation (Kisliv 1996) (Table 1).
A trend also exists to make the traditional chronology older in Central Europe (Stages A1 and A2, after Reinecke), on the basis of dendrochronological data (Krause et al 1989; Sheratt et al 1991; Ransborg 1992; Kroemer et al 1993; Kuniholm 1993). The dendrochronological dates are one to two centuries older than the traditional dates, but much younger than calibrated radiocarbon dates (Dietz 1991; Warren et al 1989; Betancourt and Michael 1987; Manning 1988; Astrom 1987; Dickinson 1994).

There is also a trend to lower the chronology of the Sintashta-Potapovka Culture on the basis of the new radiocarbon dates obtained from the Krivice Ozero, Patapovo, and Utevka cemeteries. These new dates position the Novokumak horizon close to the boundary of the third and second millennium BC (Vinogradov 1995; Anthony and Vinogradov 1995; Kuznezov 1996; Trifonov 1996). Renfrew’s (1968) article, “‘Wessex without Mycenae,” caused major debate. The calibrated dates were neither accepted in Germany or Russia because they differed greatly from the historical chronologies of Egypt and the ancient Near East (Cheryn 1997), thus creating a large time gap.

It is very important to check the chronology and define the southern contacts of the steppe tribes. Ceramics of the Andronovo-Fedorovo type have been found in post-Harappan levels at the settlement site of Shortughai in Afghanistan, dated to 2000–1700 BC (Francfort 1989). Lapis-lazuli beads were found at Sintashta, and molded ceramic plates modeled after wheel thrown pottery, were found in the Petrovka cultural levels at the Usitje settlement (Kuzmina 1994; Vinogradov 1995). The most important discovery was the metallurgical settlement, Tugai, near Samarkand, located near the polymetal layer near Zarafshan; Petrovka type ceramics occur in the complex along with the pottery from the neighboring agricultural settlement, Sarazm IV (Avanesova 1996). The calibrated date of the stratum is 2300–1900 BC (Issakov 1991). This date is overstated, according to Lyonnet (1996), and is understated, according to Avanesova, but it is close to the calibrated dates of Potapovka.

Early Sintashta type bone cheekpieces were found in the Zardcha Halifa grave near Samarkand, in a complex with pottery of the Namazga VI type—the Mollali stage of the (BMAC) Bactria-Margiana Archeological Complex. Other findings include gold and silver vessels and ornaments similar to those from Tepe Hissar III and from the BMAC Culture (Bobomulloev 1997). These date to beginning the second millennium B.C according to the C14 chronology.

It seems acceptable to refer to both chronological systems because the historical dates and the calibrated radiocarbon dates do not correlate. The date of the Sintashta-Potapovka cultures, therefore, may be defined with the following periods (1) 17th–16th century BC according to traditional chronology or, (2) to the 18th–17th century BC on the basis of the new European chronology, or (3) the 22nd to the 18th century BC according to radiocarbon dating.

The transition from early urbanism to nomadism

The Srubnaya and Andronovo Cultures were formed in the steppes in the middle of the second millennium BC on the basis of the Potapovka, Sintashta, and Petrovka cultures. The Srubnaya Culture spread from the Dniiper River to the Ural Mountains, while the Andronovo Culture was found from the Ural to the Yenisei River. Despite the evident features of genetic continuity, the cultural groups underwent a dramatic transformation; fortified towns and high status chariot burials of warriors vanished while metalworking changed from a very specialized industry to one that was practiced even in small villages. These changes were due to the cessation of intertribal conflict over mining sites that led to the unification of tribes into a single ethnic group; these tribes continued to develop under a more stable situation. Once the threat of conflict had ended and fortified settlements and a mass production of weapons were no longer necessary, the warrior elite attained a lower status.

Another important factor that contributed to this development was related to the specific ecology of the steppes. The climate became warmer and wetter between the 18th to the 15th centuries BC. This led to the development of a sedentary agricultural and stockbreeding economy. Stockbreeding, concentrated upon the production of meat and milk, guaranteed a stable food supply, that eventually resulted in a significant population increase. In turn, more livestock was required. As the availability of adjacent pastures strictly limited the number of animals that could be maintained, excess human population and livestock brought pressure on the environmental resources. The solution was the exploitation of the largely uninhabited steppes. The nature of this cultural development was one that involved an expansion of a population’s territory, as opposed to an intensive form of urban civilization. The scope for the territorial expansion of the steppes became exhausted at some stage between the 13th and the 12th centuries BC. When the crisis arose, it was aggravated by a brief climatic deterioration and a lowering of temperature.

Conclusions

The solution to the crisis was the development of more suitable forms of stockbreeding. The economy became semi-nomadic pastoralism; a proportion of the tribe maintained a sedentary lifestyle, living in the villages while herdsmen moved with their livestock from pasture to pasture at specific times during the year. Factors that permitted the change to this new type of economic system were: 1) an increase in the numbers of horses and sheep that were able to make long marches and could get fodder from beneath the snow; 2) the invention of light portable dwelling—the prototype of the yurt; 3) the spread of horseriding; 4) bar-shaped cheekpieces invented in the 13th-
12th centuries BC (found in many settlements) and: 5) perfection in controlling the horse while riding that was developed because of the necessity to dominate as well as to protect herds while nomadizing. Thus, warrior-horsemen appeared in the steppes, not in the fourth millennium BC but at the end of the second millennium BC.

Endnote
1. The district in the Urals where the large fortified settlements were discovered.

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KMK. Kulture mnogovelikovoi keramiki. (Culture of the multiroles of ceramics).


Kurgans, Ritual Sites, and Settlements: Eurasian Bronze and Iron Age


Trifonov, V. 1996. K absolutnomu datirovaniu “mikenskogo” ornamenta epohi rasviti bronzy Eurusii. *Arheologiya i radiogneryd* 1, 60–4 (Towards the absolute dating of "Mycenaean" ornament of the Bronze Age").


### Table

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Table 1. Comparative traditional and C\textsubscript{14} dating for China, southern Asia, eastern Europe with the Eurasian cultures/sites, Alexeev, Fedorov, Timber-grave, Novo Kumak, Catacomb, and Pollavka.
Sintashta Burials and their Western European Counterparts

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Abstract
The Bronze Age site of Sintashta provides the best documented burials from the Arkiam cultural region which occupies an area approximately 400 km x 200 km east of the southern Urals. The Sintashta burials, and those found at other Arkiam sites, vary greatly in detail but provide a number of significant similarities with burials further west in Europe. As a group, these burials also seem to provide archaeological evidence for numerous aspects of the burial rituals set down in the Rig Veda and Avesta and, thus, also furnish us with some of the earliest evidence that might be called Indo-Iranian if not Indo-European. This paper examines the Sintashta burials, and draws parallels with the Sintashta burials and those from other parts of the Indo-European World, in order to provide further evidence for the hypothesis that an Indo-European burial rite can be defined.

Key Words
Sintashta, Arkiam, Rig Veda, Avesta, Indo-European, burial

Introduction
The Sintashta-Petrovka cultural area runs along the eastern Urals of the Eurasian steppe for about 400 km south of Chelabyansk and to the east for about 200 km. There are 23 sites recognized as belonging to this group (Fig. 1); the first of which was only discovered approximately 35 years ago. The sites have been called “towns” and, because most of them have been discovered through aerial photography, we can see that they are laid out in round, square, or oval shapes. While only two of these “towns,” Arkiam and Sintashta, have been excavated to any great extent, they are characterized as being fortified, having connecting houses, and having extensive evidence for metallurgy. The best documented burials from this cultural area come from the first site found and excavated, that of Sintashta. These burials, and those found at other sites, vary greatly in detail but have broad similarities. The excavator of Sintashta, Gening (1977; 1979), has shown that the burials from Sintashta do, however, provide archaeological evidence for numerous aspects of the burial rituals set down in texts of ancient Indo-Iranian provenience, the Rig Veda and Avesta. Thus, they also furnish us with some of the earliest archaeological evidence for a culture that may be called Indo-Iranian; that is, a period before this group split and went their separate ways. Because the Rig Veda and the Avesta are written in two Indo-European languages, Indic and Iranian, it follows that the rituals they prescribe are of Indo-European origin. It also follows that we should find similar rituals in other areas that also spoke Indo-European languages. The purpose of this paper is to discuss some of the similarities.

There are, of course, problems. These texts are not always clear, are often contradictory and, thus, open to conflicting interpretations. The problem is compounded by the differing ages and the incompleteness of the Avesta.

The Avesta, the sacred book of the Parsi, was composed by the religious reformer, Zoroaster, who attempted to erase the earlier practices of the Indo-Iranians. Nevertheless, traces of the earlier traditions can be gleaned from the Avesta, and they often correspond with what is given to us in the Indie Rig Veda. While “no single exclusive belief was held by the Indo-Iranians about death and the hereafter” (Boyce 1996: 109), it is generally believed and the evidence would tend to suggest that they practiced burial.

The dating of the Avesta is problematic, at best, since we do not even know when Zoroaster himself lived. The best guess is ca. 600 BC, but claims have been made for as early as 6000 years before Plato. All scholars, however, agree that the Avesta itself does preserve material that is much older than 600 BC. In the case of the disposal of the dead, the Avesta prescribes excarnation of bodies, and once they have been defleshed, the bones are to be placed in an ossuary. Only in the event of bad weather was inhumation allowed as a temporary measure.1 Herodotus tells us that the Persians sometimes disposed of their dead in this manner.

But there are other matters concerning the dead which are secretly and obscurely told-how the dead bodies of Persians are not buried before they have been mangled by bird or dog. That this is the way of the Magians I know for a certainty; for they do not conceal the practice. But this is certain, that before the Persians bury the body in earth they embalm it in wax (Herodotus I, 140, see 1920: 179).

Reference to both cremation and burial, however, can be found in the Avesta. There are, for example, references to “corpse-burning” nasu-pāka (Bartholome 1904: 1059 as quoted in Gamkrelidze and Ivanov 1995: 727) and “giving the corpse over to the earth” (zanē ni-kan Benveniste 1962: 39-43 as quoted in Gamkrelidze and Ivanov 1995: 727), both of which are condemned. Moreover, there are passages (Vd.VII.47.51)2 which would tend to suggest that exposure was not at first generally adopted or enforced (see also, Boyce 1996: 326).

At Sintashta, most of the skeletons were found in a flexed position and some seemed to have been tightly wrapped in cloth.
There are several instances of excarnation where the bones had been picked clean of all soft tissue and cartilage, and were then laid neatly on the bottom of the burial pit. Cremation is not found, but large bonfires were built over some of the graves creating a “pseudo” cremation or more likely a sacrifice, probably to a fire god-Agni in the *Rig Veda* and ātār in the *Avesta*. We should remember that fire forms a key component in both the *Rig Veda* and the *Avesta* and that the Indo-Iranians are the only Indo-European people who have actual fire deities. Numerous classical authors refer to Iranian fire worship.

The most widely accepted date for the composition of the *Rig Veda* is no later than 1300 BC and perhaps as early as ca. 1500 BC, although the first actual written text dates to the 11th-century AD (Macdonell 1900). While the primary mode of disposing of the dead in the *Rig Veda* is cremation, there are also several instances which indicate that inhumation was practiced and can be seen in RV.X.16.1 and X.18.11.

**RV.X.16.1** - Do not burn him entirely, Agni, or engulf him in your flames. Do not consume his skin, or his flesh (O’Flaherty 1981: 49).³

**RV.X.18.11** - Open up, earth; do not crush him. Be easy for him to enter and to burrow in. Earth, wrap him up as a mother wraps a son in the edge of her skirt (O’Flaherty 1981: 53).

It has been suggested that cremation and excarnation are alternatives of the same ritual (Litvinsky 1967). This may in fact explain the presence of cremation, but one would expect more evidence of excarnation which outside the Iranian World is conspicuous by its absence. Gamkrelidze and Ivanov (1995: 730) suggest that cremation was a method of preventing the spread of the plague which seems to have had its center in Egypt having been brought up from the African lakes, and it may have been fear of disease that inspired the exposure of bodies. In Vd.VII.47.51, Zoroaster asks how long it takes for bodies to return to dust when exposed, placed in the ground, and placed in a *dakhuma* or tomb. The answer comes back one year, 15 years, and until the tomb falls. We can suppose that the entombed body was embalmed, perhaps in the manner suggested by Herodotus—that of covering the body with wax. In Vd.VII.56-58 the tombs are said to be places of corruption which generated disease (Boyce 1996: 326). The burial place is also called a place of corruption in Vd.III.35, and in the same passage the grave is referred to as the place of darkness; there is a connection with the Zoroastrian hell. It is through this type of reference and condemnation of older practices that Zoroaster preserves for us the practices that he sought to eliminate, and we are thus able to see that the Indo-Iranians did, indeed, practice burial.

That cremation and inhumation may have been interchangeable to Indo-European speaking people can be seen in the wealth of literature written in various Indo-European languages. *Beowulf* provides us with two burials, one is a cremation and the other describes a body adrift in a kind of floating inhumation (Heaney 2000; Jones-Bley 1997: 195). The Hittites also give evidence for both; the Royal Funeral Ritual prescribes cremation,⁵ but Hattusilis I, during the Old Kingdom, leaves instructions to be buried in the earth. There are also conflicting messages from Old Norse while Odin ordered the dead to be burned (Snorri 1964: 12), “they raised a burial mound for Gunnar and sat him upright in it” (Magnusson and Pálsson 1960: 172), but “Sigurd’s body was then prepared according to the ancient custom and a tall pyre was built. When it was fully kindled, the body of Sigurd, the bane of Fafnir, was laid on top of it” (Byock 1990: 93; Jones-Bley 1997: 196). In Greece, although inhumation was the standard burial rite, after ca. the 13th century BC cremation became more common and between the 8th and 4th centuries BC they were practiced concurrently (Garland 1985: 34). Between AD 150 and 300 the Roman burial rite changed from cremation to inhumation (Morris 1992: 201). The alternation of these two rites is not a riddle that can be solved here. It is enough to recognize that both cremation and inhumation were common practices among Indo-European speaking peoples.

In a paper a few years ago, I attempted to define Indo-European burial. Taking as my starting point the eight burial points laid down by Marija Gimbutas (1974: 293-294), I attached to them both literary and archaeological evidence. I believe it is useful to revisit these points in order to show the connection between the Sintashta graves and those found in the rest of Europe from the Bronze Age onwards in order to demonstrate their connections. I rearranged Gimbutas’ eight points in order of priority beginning with a point she did not specifically mention, that is individual burial, and here it should be made clear that I mean “one-time” burial. Several of the Sintashta graves are called “collective or multiple” burials due to more than one skeleton being positioned in the burial chamber, but they were all placed there at the same time and were therefore “one-time” burials. This is in contrast to what are also called collective or communal tombs which are found so frequently during the Neolithic, particularly in megalithic tombs where corpses were added to the tombs over often great lengths of time. In order to avoid this confusion, I propose a change in terminology. I propose the use of the term “repetitive” burials for the Neolithic tombs and “one-time” burials where a chamber was used once and then closed for good.

**Sintashta Burials and the Eight Points of the Indo-European Burial Tradition**

There were five burial sites at Sintashta: (1) SM—a large flat cemetery with 40 graves; (2) SI—a complex kurgan with 16 burials; (3) SII—a small flat cemetery with ten graves; (4) SIII—a small kurgan with one grave; (5) SB—a large kurgan robbed in antiquity. Each of the eight points can be illustrated with examples from the Sintashta burials, other areas of the steppe, and across Europe.

(1) **One-time burial**

According to my definition, I believe that all of the Sintashta burials fall into this category. That is, there were no signs for the reopening of the burial chambers (see Gening et al. 1992).
One-time burial is first seen on the steppe on a wide scale with the Yamnaya people (ca. 3500-2100 BC), and early Yamnaya burials are found as far west as the Hungarian Plain (Ecseedy 1979). The Corded Ware people also practiced this one-time burial but often the graves contained more than one skeleton. From the Early Bronze Age onwards, one-time burials became the rule not the exception across Europe.

(2) The kurgan

Kurgans (burial mounds) were built over most of the grave pits at Sintashta. Only three of the adult burials and many of the children in the SM cemetery lacked kurgans. None of the kurgans were of a great height, and those that were preserved were only 30-40 cm high (Gening 1979: 26). While there were two substantial flat cemeteries at Sintashta, there were also kurgans and perhaps the most elaborate grave, SB, was under a kurgan (Gening et al. 1992).

Many, if not most, kurgans found throughout Europe and Eurasia contained secondary burials which should not be confused with “repetitive burials.” These secondary graves are entities within themselves and the kurgan acts more like a cemetery than a single tomb. While some kurgans may have only contained one or two secondary burials some have dozens. The Magdalenenberg in Baden-Württemberg, Germany, for example, contained 127 graves (Collis 1984: 85).

Earlier people, beginning with the Yamnaya, buried their dead almost exclusively in kurgans, and although flat graves do occur (see Jones-Bley 1999), they are rare. It was because of the ubiquity of kurgans that gave rise to Gimbutas’ term “Kurgan Culture” which she used as a blanket term to cover many more closely defined cultures but ones that she, and other scholars, believed to have been Indo-European speakers.

It is the kurgan as the most visible part of the monument that signaled the burial of someone of importance. Although not specifically prescribed in the Rig Veda, we find a definite reference to burial mounds - "Let them live a hundred full autumns and bury death in this hill" (RV.18.4; O’Flaherty 1981:52).

From the Early Bronze Age, burials mounds with one-time burials are found across Europe not only on the landscape but in the literature. Achilles built a great mound for Patroclus and the Trojans did likewise for Hector. In Iphigenia in Tauris, Euripides has Orestes say “heap up a mound for me” (see 1938: 702). Odin prescribes mounds for notable men (Snorri 1964: 12), but mounds were built not only for the great but the near great. “A burial mound was erected for King Hrolf, and his sword Skofnung laid beside him; and for each champion his sword Skofnung laid beside him” (Jones 1961: 318). As late and as far west as the Germanic territory, Tacitus tells us that “The tomb is a mound of turf” (Tacitus, Germania 27 1981:171). The Hittites are a major exception here as they did not build barrows over their burial chambers.

(3) A mortuary house-like structure

Most, if not all, of the graves at Sintashta were enclosed in wooden structures. Some were large enough to require central supporting posts and again the most elaborate was discovered in SB. In the Rig Veda the House of Yama is the Otherworld; the Greeks had the same concept but called it the House of Hades; and the Germanic reference is to the Hall of Heljarran. All these words for the Otherworld employ a word that means a constructed building. By extension, it is not difficult to see why bodies were put in a “house-like structure.”

In RV.VII.89.1 “the house of clay” is used as a metaphor for the grave, and it could also refer to the urn in which the cremated bones were placed. Actual house structures can be found at numerous sites including the Unetice burials at Leubingen in Saxony (Gimbutas 1965: 264-265, fig. 173; see also Piggott 1965: 127, fig. 67; Collis 1984: 26) and Helmsdorf (Gimbutas 1965: 260-264, fig. 172). Many Greek funerary vases and Roman reliefs feature the deceased in a house (e.g., see Gilman 1997: 93; Burn 1992: figs. 81 and 154), and Mycenaean chamber tombs were sometimes painted to resemble a house. Furthermore, coffins from the Late Bronze Age and from the Classical period often imitated houses (Vermeule 1979: 48). The Villanovans frequently fashioned clay cinerary houses, particularly in the early period (Hecneck 1968). These clay houses were often decorated with swastikas much as the Sintashta people decorated the clay vessels found in their graves (see Gening et al. 1992: fig. 47).

(4) Class distinction by the inclusion or absence of grave equipment or architectural elaboration

Neither the Rig Veda nor the Avesta speak of grave goods, but the placing of goods in the grave is such a widespread practice that we can only assume that those who were carrying out the burial process believed that the goods were things that were needed or wanted in the Otherworld. The literature is filled with descriptions of burials and a listing of their grave goods. It is these grave goods that are often-but not always-the clearest statement to class distinction. No one would deny that a grave filled with items of great wealth was the grave of a wealthy and important person. There are many examples of this. A Middle Bronze Age grave from the Poltavka Culture from the Volga-Don steppe demonstrates a variety of wealthy and diverse items. This grave which held a possible adult (sex unknown) contained over 20 items including bronze tools and weapons, a serpentine macehead, ceramics, and more exotic items such as petrified wood, a freshwater pearl, and a snake skeleton (Jones-Bley 1999: 74-75). Later in time graves and grave goods became much more elaborate as seen by many Saka graves such as Aul’ul and Arzhan (see Rolle 1979) and further west with graves such as those found at Hochdorf (Biel 1985), Vix (Joffrey 1979), Hochmichele (Filip 1977), and as late as Sutton Hoo (Evans 1986) which is frequently compared to the burials described in Beowulf.

We cannot, however, dismiss graves that lack elaborate goods as belonging to someone poor because we do not know what was placed in the grave that has not been preserved. This may also be where grave architecture becomes important. At Baranovka on the Volga-Don steppes the primary grave—
in a study of over 120 kurgans–by far the largest kurgan (34 m diameter x 4.21 m height) contained a cenotaph which held only a single well-made and well-decorated vessel (Sergatskov 1992; Jones-Bley 1999: 73-74).

The burial of Ockov in Slovakia (Paulik 1962; Gimbutas 1965: 319-321, fig. 219) is an excellent example of a grave that had both extremely rich grave goods and elaborate architecture. This Early Urnfield mound was 6 m high by 25 m in diameter and contained an elaborate interior with the burned remains of 144 items including metal and elaborate pottery. A somewhat later burial further east, again with elaborate architecture and grave goods, is that of the Scythian grave of Ordz’ónikidze (Rolle 1979: 22-27). Both of these graves have every indication of being the burials of important personages.

This point is illustrated in several graves from Sintashta but two examples will suffice. SIII was a small kurgan and contained a number of important grave goods including a two-wheeled vehicle (see below Point 6 for additional grave goods). The structure under the mound was fairly elaborate (Gening et al. 1992: 333-334, fig. 198) and can be compared to Ockov. The best example of elaborate architecture is seen by the burial at SB even though it had been robbed in antiquity and only a human femur remained to attest to the fact that it was a grave. Here an elaborate mortuary house had been built above the grave and a large mound placed over it. At a later time a temple was built over this kurgan which may also attest to the importance of the grave’s occupant (Gening et al. 1992: 342-374, fig. 213).

(5) Central burial of males with secondary position given to children or females

At Sintashta, inferior position was seen in some female graves as they were the only graves that did not include animal sacrifice. By its presence in such quantity, animal sacrifice was clearly very important to the people of Sintashta, and its absence suggests low status. Although children were among the buried at Sintashta, they did not have the rich grave goods given to earlier Yama or even Catacomb children (Mallory 1990; Jones-Bley 1999; 1999). The gap between females, children, and males seems to widen after the Middle Bronze Age since fewer are found in either primary position or with elaborate grave goods. In the case of females, however, there is something of a reversal of fortunes in the Iron Age particularly in the Celtic area as seen by such graves as Vix (Joffrey 1979), Waldal-gesheim (Megaw and Megaw 1989: 113), Rheinhem (Megaw and Megaw 1989: 90), and on the steppes in the Sarmatian area as demonstrated by the Kobyakovskiy burial (Prokhorova and Guguev 1988), and the Altai Mountain Saka burials such as the Ak-Alakh (Polosmak 1994) and Kara-Kobins (Polosmak 1998).

(6) Human and animal sacrifice including the presence of suttee

Animal sacrifice, particularly that of the horse, takes on a position at Sintashta not seen earlier and rarely again until the first millennium BC burials of A zhan and Aul Ul’ where 150 and 360 horses respectively were sacrificed (see Rolle 1979: 41, 45). We do, however, have ample textual evidence for animal sacrifice. The Brahminian texts tell us that in Vedic times the descending order of sacrifice is man, horse, cattle, sheep, and goat. The Hittite ritual texts prescribe human and animal sacrifice. Both Homer and Germanic literature provide many examples of the sacrifice of both humans and animals.

There seems little doubt that animal and human sacrifice was widely practiced in Indo-European society (Sauvé 1970; Ward 1970; Puhvel 1981). Although the reason for sacrifice may not always be clear, here we are primarily concerned with burial sacrifice. Homer is explicit when he tells us - “many goodly sheep and many sleek kine of shambling gait” (Iliad 23: 166-167), nine dogs, four horses, and “12 sons of the great-souled Trojans” (Iliad 23: 175) are placed on the pyre with Patroclus. The call for sacrifice is frequently found in the Germanic literature, and Baldr’s horse, for example, is put on his pyre in a clear case of sacrifice (Snorri 1954: 83).

At Sintashta, a number of dog burials were found in the backfill over the burial chamber (Gening 1977, 1979). The dog had important chthonic connections in Indo-European burial beliefs. RV X.14.10-12 describes the two dogs of Yama, (Avestan Yima) who, like their Greek counterpart Cerberus, guard the gates of the Otherworld. In Vd VIII.3.14, the Avesta also gives special place to the dog and speaks of the “carcases of dogs or corpses of men” (Darmesteter 1880: 97), and the yellow dog with four eyes or the white dog with yellow ears appears to be the counterpart of Yama’s two dogs and Cerberus. References to the dogs of the underworld can also be found in Celtic, Germanic, Armenian, and Latin (Lincoln 1991: 96; Schlerath 1954). The sacrifice of animals can be found in both earlier times and in other parts of the steppe. At Tsatsa in the southern Volga-Don area, 40 horse skulls were found in one secondary Catacomb grave along with a single male (Shilov 1985: 99; Jones-Bley 1999). At Botai in Kazakhstan, in burials that date to ca. 3700-3100 BC cattle, sheep, and dogs were found as well as at least eight horses buried with humans (Olsen 2000). There is abundant evidence that animal sacrifice was a part of the Indo-European burial ritual. Rig Veda I.162-163 and Atharva Veda IX.5.1.3, call for a goat to be burned with the horse and human corpses, but later Vedic ritual calls for either a goat or cow (Macdonell 1900: 125).

The Hitite royal texts are quite exact on this point, calling for a specific number of oxen and sheep to be sacrificed. In non-royal Hitite graves bones of the usual cattle, sheep, and pig are found, but the remains of dogs, horses, and donkeys (presumably used as a less expensive substitute for horses) are also recovered (Macqueen 1975: 134). Although the Greek literature mentions only sheep and oxen as sacrificial animals, bones found in graves during the Geometric period include cows, pigs, goats, and hares. Only female or castrated animals were sacrificed and preferably those which were black in color (Garland 1985: 112). In 594 BC, Solon introduced legislation that banned the excesses of burial sacrifice which may indicate that it had become extreme.

Human sacrifice is much less common than animal sacrifice and often difficult to prove from the archaeological record.
I:

There are instances, however, where there are strong indications of such a practice including the burials of Leubingen, and of a number of Saka burial, particularly at Arzhan where 17 retainers appear to be sacrificed for the central male along with a female, presumably his wife (Gimbutas 1965: 264-265; Piggott 1965: 127; Rolle 1979: 42-44). There are also cases where a male and female are in the same grave but there is no indication that one is sacrificed to the other. At Ak-Alakh in the Altai Mountain area 14 km from the Chinese border, a grave contained two elaborately made larch coffins, one which contained the remains of a 45-50 year old male and the other a 17 year old female. Both coffins held warrior equipment and other goods indicating that the two were social equals (Polosmak 1994: 354), but there was no indication of sacrifice. Just because more than one person is buried in a grave does not mean that one was sacrificed to the other. To judge a body as a sacrifice, we need to look at burial position and distribution of grave goods— and even then it is not always clear.

The Rig Veda details both animal and human sacrifice (purusamedha), and we have textual evidence in other parts of the Indo-European world that clearly state that both were practiced. What is of interest in the Rig Veda is that there are indications that at least human sacrifice was no longer practiced. One of the clearest indications is in regard to the practice of sutee. RV X.18.8, suggests that it was no longer appropriate for a woman to die along with her husband:

> Rise up; come to the world of life, O woman; Thou liest here by one whose soul has left him. Come: thou hast now entered upon the witchhood Of this thy lord who takes thy hand and woos thee (Macdonell 1900: 126).

Still, we have numerous examples of sutee in the Germanic literature, and in Scandinavia we have quasi-historical accounts of human sacrifice from Saxo in his Gesta Danorum. As late as the 9th century AD, we are told in a passage from Flateyjabók I: 63:

> Now at this time Sigrid the Proud had left King Eric, and people said that he felt disgraced by her behaviour. For it was in fact the law in Sweden that if a king died the queen should be laid in howe beside him; she knew that the king had vowed himself to Odin for victory when he fought with his kinsman Styrbiorn, and that he had not many years to live (Davidson 1964: 151).

There even seems to be a case of female servants being sacrificed to an upper class woman at the site of Birka, Sweden (Brønsted 1965: 293).

We have instances in Greece of the sacrifice of horses and apparently sutee. At Eubaia during the 10th century BC a grave with two compartments was found. In one compartment there were three horses that seem to have been thrown into the pit. The second compartment contained the skeleton of a female and an amphora with ashes, presumed to be male, along with an iron sword, a spearhead, and a whetstone (Garland 1985: 35).

SIII at Sintashta may be an example of human sacrifice. The remains of a two-wheeled vehicle were found in the northern part of the pit, five bodies, four defleshed, were in the cart with vessels in and out of the cart. At the opposite end of the grave near the cart pole were the skulls of two horses and a human skull cap. Here also were several clay vessels, a bronze knife, awls, a stone macehead, t alc plates, clay nozzles, and additional stone and bronze artifacts (Gening et al 1992: 333-340). This person would seem to be the dominate skeleton as suggested by his singular position and grave goods. The numerous bronze artifacts imply an elevated position but perhaps more important is the macehead, which I have suggested elsewhere (Jones-Bley 1999) is a symbol of power, just as similar maceheads found in Britain have been said to be power symbols (Clarke et al. 1985).

(7) Dead placed on the floor of the grave in a contracted position
Many of the Sintashta skeletons were found in a contracted position. These corpses may have been wrapped in cloth to preserve this position, but we have no ritual or literary record for this practice. In addition, the position of the corpse appears to change over time both in position—crouched during the Bronze Age, extended supine during the Iron Age—as well as orientation.

(8) Burial of animals in separate graves
The burial of animals at Sintashta is of great importance. Large numbers of cattle, sheep, horses, and dogs were found in human graves and buried in separate graves.

It is the asvamedha, RV 1.162, that is the most prominent of animal sacrifices and horse sacrifice is found at the far ends of the Indo-European world in the forms of the Roman October Equus and the Irish ritual as described by Giraldus Cambrensis in his Topographic Hibernia (Puhvel 1987: 269-276). A Hittite vase (Özgüç 1988) shows a man and woman copulating as beasts which, although associated with a bull rather than a horse, Watkins (1995: 267) interprets as another possible reference to the asvamedha. But these are ritual sacrifices, not burial sacrifices, and while the asvamedha sacrifice might be associated with horse alone burials, it cannot be applied to horses that accompany human burial.

Conclusions
We can see that all eight points are apparent in the Sintashta burials, but it is clear that there was a greater emphasis placed on some than others. This situation causes me to slightly revise my earlier thinking on the importance of the burial of animals in separate graves and the sacrifice of animals. I had suggested dropping the separate burial of animals, but now believe that although it may not be as prevalent in some later Indo-European societies, it is clearly an important factor to the Sintashta people. Because of its importance in a society that displayed so many characteristics of what we know of Indo-Iranian people it should be maintained. It may be that the practice of sacrificing animals in the grave absorbed the earlier practice of the separate burial of animals when it became less economically
feasible to sacrifice so many animals. This would be particularly true in areas that had less access to large herds of horses. A further extension of this may have been the substitution of figures of horses, such as on the Hochdorf yoke (Biel 1985: plates 45 and 46) and the Vix diadem (Joffrey 1979: plates 71, XIII, and XIV). Such variation is to be expected in the evolution of a tradition that spans millennia.

It is the variation within the Indo-European burial tradition that I believe has caused many scholars either not to recognize or to reject (Häusler 1998) the idea that there was a continuity of burial rite that began in the Eurasian steppe and spread across Europe. At Sintashta we see a remarkable amount of variation, but variation that we can connect with Indo-European texts. The Indo-European burial tradition would, of course, be easier to see if there was exact duplication. Unfortunately, for the archaeologist, human societies may accept an idea, but almost always add their local stamp to it.

Endnotes
1. Vendîdâd VIII.II.10 tells us that the body shall be taken “to the building of clay, stones, and mortar, raised on a place where they know there are always corpse-eating dogs and corpse-eating birds” (Darmesteter 1880: 96; see also Jones-Bley 1997).

2. For all Vendîdâd references, unless otherwise specified see Darmesteter (1880).

3. In most cases, I have chosen to use O’Flaherty’s translation because it is the most accessible to English readers.

4. Though we have fragments for 13 days of Le Rituel Des Funérailles Royales Hittites, it may have lasted longer. Moreover, although the tablet for the first day has a number of lacunae, the tablet for the second day is nearly complete, and this tablet makes it clear that the body has been cremated. “Le deuxième jour, le matin, les femmes vont au bûcher recueillier les ossements. Elles éteignent le feu avec dix cruches de bière, dix cruches de vin, dix cruches de walhi-” (Christmann-Franck 1971: 65). Moreover, both cremation and inhumation of non-royal persons have been found outside Bogazköy (Gurney 1952: 140; Jones-Bley 1997).

5. These burials belong to the Saka culture. (Ed. note).

6. If these individuals had died during the winter, they may have been wrapped and stored until the ground thawed enough to be dug. I am grateful to A. V. Yepimakhov for bring this suggestion to my attention.

7. Perhaps the point to be eliminated is Number 7 because the burial position is so fluid. As I suggested earlier (Jones-Bley 1997: 211) little weight should be given to this item which does not even exist in the case of cremation. After additional thought, I believe this item should be eliminated completely due to its fluctuation over time and lack of literary reference.


Fig. 1. Sites of the Sintashta-Petrovka Cultural Area (only 17 are mapped). 1 - Sintashta; 2 - Arkaim; 3 - Sarym-Sakly; 4 - Alandskoe; 5 - Isiney; 6 - Bersuam; 7 - Kizil'skoe; 8 - Zhurumbay; 9 - Ol'ginskoe; 10: Kuysak; 11 - Rodniki; 12 - Smepnoe; 13 - Chernoreche III; 14 - Usm'ye; 15 - Andreevskoe; 16 - Sintashta II; 17 - Chekomay.
The Sintashta “Chariots”

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Abstract
In the 1970s a group of two-wheeled vehicle burials, called “chariots burials” was reported by V. V. Gening. A subsequent discovery of an additional two-wheeled vehicle “chariot” burial associated with the Sintashta cultural group has stimulated comment on the function of these “chariot” burials. Looking at the textual and iconographic evidence for chariots, it appears that ritual was in fact the earliest use for chariots. We see this from Hittite texts, the Rig Veda, and seals from Mesopotamia. This ritual, however, took several forms: transportation for the gods, burial, ritual racing, and warfare. In this paper I will look at chariots found in graves and discuss their possible use. The overriding question is what was the function of chariots found in graves. Three alternatives are presented: war chariots designed for combat, ritual racing chariots intended for speed and maneuverability, and ceremonial chariots designed as burial vehicles to carry the deceased to the Otherworld. I will deal with the linguistic, textual, and archaeological evidence, and I am specifically concerned with the vehicles found east of the Urals connected with the Sintashta-Petrovka Culture.

Keywords
chariot, horse, Rig Veda, ritual, steppe, burial

Introduction
Numerous chariots have been found in graves in Eurasia and several hypotheses have been presented to account for their presence and function. Three alternatives are examined here: war chariots designed for combat with a bow, ritual racing chariots intended for speed and maneuverability, and ceremonial chariots designed as burial vehicles to carry the deceased to the Otherworld. In order to examine this question fully, it is necessary to deal with the linguistic, textual, and archaeological evidence. While chariots are dealt with in general, this paper is specifically concerned with the “chariots” found east of the Urals connected with the Sintashta-Petrovka Culture.

Definitions of Chariots
About 250 wheeled vehicles consisting of wagons, carts, and chariots have been found in steppe graves. While we are certain that these remain do indeed constitute vehicles, some debate exists around the use of the term “chariot.” Different scholars have drawn distinctions among vehicles and especially between carts and chariots in different ways. There is general agreement that a chariot is a two-wheeled vehicle and that they differ from carts. Carts can have solid or spoked wheels, but they are confined to the transport of people or goods; a passenger usually sat. Chariots have spoked wheels and the occupant presumably stood. They were used for hunting, war, or ceremony (Littauer and Crouwel 1979: 4-5), and the linguistic evidence agrees with this definition (Gamkrelidze and Ivanov 1995). These are the current definitions for the chariot:

- “A light, fast, two-wheeled, usually horse-drawn, vehicle with spoked wheels; used for warfare, hunting, racing and ceremonial purposes. Its crew usually stood” (Littauer and Crouwel 1979: 4-5).
- A vehicle “lightly built brought with it the potentialities of greater speed as a new enhancement of prestige in transport in peace and war” (Piggott 1992: 40). This modifies Piggott’s earlier more military definition for one which de-emphasizes war in favor of a prestige vehicle.
- Anthony (1998:105, fn. 10) follows Piggott but attaches the horse, defining the chariot as “a light vehicle with two spoked wheels, pulled by horses, and designed for speed.”

Discussion
Carts may have heavier frames, a medially placed axle, solid or spoked wheels, and be suitable for a seated occupant. Chariots, on the other hand, have lighter frames, a rear-positioned axle (particularly in later periods), must have spoked wheels, and the driver stood. The specific chariot features, of course, have a common purpose: the reduction of weight and the consequent increased speed potential. Placement of the axle at the rear of the vehicle allowed the driver to stand and easily exit. A further consequence of the evolved design of the chariot is its takeover of uses that had earlier been carried out by wagons and carts.

Among the above definitions, I believe Littauer and Crouwel’s is the most useful as it describes the vehicle and its use and makes the horse the usual, but not mandatory, form of traction. Although Piggott (1992:45) included the horse as part of the “chariot package-deal”, the inclusion of the horse in Anthony’s (1998) definition is limiting as it is clear that the earliest chariots in the Near East were pulled by equids other than horses (see Littauer and Crouwel 1979). Moreover, in cases where the means of traction is not specifically known, Anthony’s requirement of a horse to make a chariot introduces an added element of inference or uncertainty. Furthermore, we have iconographic and textual evidence that, while fanciful, indicates that ancient people did not believe horses were a require-
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ment for chariots. In mythology, as seen on Greek pots, even griffins and snakes were used for traction. *Rig Veda* VI: 55.6 tells us that goats pulled the chariot of Pūšān, a fact mentioned in all descriptions of this god (Macdonnell 1917: 111; Hillebrandt 1927: 206; O’Flaherty 1981: 194–195; Gamkrelidze and Ivanov 1995: 502). In this paper, it is the vehicle rather than the source of traction that is our concern.

By the middle of the second millennium, however, the horse did become the traction animal of choice, and its importance can be seen in the numerous texts that speak of the care of horses. The most famous of these texts, as well as the most complete, is the Hittite text of Kikulli (Kammenhuber 1961), a Mitanni horse trainer. Kikulli’s vocabulary, like that of the Mitanni elite, uses a noticeable Indo-Aryan element, especially in technical terminology and the names of the ruling elite. The everyday language of the Mitanni, however, was Hurrian a non-Indo-European language (Mayerhofer 1966, esp. Sections 4 and 5). The location in northern Mesopotamia of the Mitanni kingdom with its Indo-Aryan ad strate is important because their Indo-Iranian ancestors are often placed in the Central Asian steppe—a place well-known for its horses.

Looking at the textual and iconographic evidence, it appears that ritual was in fact the earliest use for chariots. We can see this from Hittite texts, the *Rig Veda*, and the seals from Mesopotamia. This ritual took several forms: transportation for the gods, burial, ceremony, and warfare.

The evidence is plentiful for chariots serving both war and ceremony, but some of the earliest evidence for ceremony indicates that solid or possibly triparte wheels were used initially for two-wheeled vehicles acting as a forerunner of the true chariot (Littauer and Crouwel 1979, figs. 17 and 28). That chariots can have both the ceremonial and war aspect is seen on seal impressions and on a stone relief at Abydos of Rameses II—(Littauer and Crouwel 1979, figs. 28 and 45). The seal, from Kültepe, Karum II, shows a two-wheeled vehicle pulled by two hooved animals carrying a figure holding what appears to be a drinking vessel. A second seal (Littauer and Crouwel 1979, fig. 29; MMA acc. no. 66.245.17b) has a similar vehicle but with spokes wheels, pulled by two horses, carrying a figure holding a hafted macehead or axe. Both figures are dressed in skirts wearing pointed hats. Both seals seem to be ceremonial, but the second seal might also have a war aspect. Earlier four-wheeled “battle cars” (Littauer and Crouwel 1979, fig. 3) also speak to a military purpose. War chariots are well documented in the Near East (see Littauer and Crouwel 1979) and the use of war chariots by the Hyksos in Egypt is legend. The war chariot was considered the principal offensive weapon of the Hittites and their Near Eastern contemporaries.

The use of a single word for chariot that could be used for both ceremony and war is a source of ambiguity but not a new problem. Hittite distinguished between light carriages harnessed with horses and heavy wagons harnessed with bulls, but the light two-wheeled chariot harnessed with horses was used for “military and ceremonial purposes and for ceremonial competitions” (Gamkrelidze and Ivanov 1995: 628). Nevertheless, the heavy wagons could also perform ceremonial functions, and this can be seen in the burial ritual where the image of the royal personage was placed in a light chariot while the remains of the king were put in a heavy wagon and transported to the place of cremation (Gurney 1977: 61; Gamkrelidze and Ivanov 1995: 629). The use of a heavy wagon, *ānāṣa-,* was also used in Sanskrit tradition to carry the dead to the funeral pyre. Cattle pulled it (Gamkrelidze and Ivanov 1995: 632). It is interesting to note that in the earlier wagon burials found north of the Caucasus, the dead were placed in a sitting position (Izbiszer 1993: 21). It should also be mentioned that this is the word used for the vehicle which is driven by the Dawn goddess Usas and which is often translated as “chariots” (see Dexter 1990: 37-38 and n. 20).

A Hittite hymn tells us that the sun god rides out on a chariot harnessed to four horses “O Sun God! Great king! You constantly ride [in a chariot] around the four corners of the world” (Gamkrelidze and Ivanov 1995: 627). The *Rig Veda* clearly states the cultic and mythological use of the chariot in a war context “O divine chariot, accept the sacrificial libations” (*RV* VI: 28; Gamkrelidze and Ivanov 1995: 631). The importance of this sacred chariot can be seen in that this same verse was repeated in the later *Atharva veda* (VI.125.1-3; Gamkrelidze and Ivanov 1995: 631). In the *Rig Veda*, war chariots are usually ridden by gods who compete with one another which in itself emphasizes that war is an extension of ceremony or perhaps the ultimate ceremony.

Four-wheeled wagons were used in the burial rite in Sumer from the first half of the third millennium BC. We have depictions of Sumerian two-wheeled chariots from the Early Dynastic Period. They show a chariot pulled by four horses or onagers with a standing figure, presumably an image of the deceased (Gamkrelidze and Ivanov 1995: 630). This iconographic depiction is very similar to the Hittite royal burial ritual described above. By the second third of the third millennium BC, we also have wagon burials in the Caucasus (Izbiszer 1993: 20) and in the Ural River region (Izbiszer 1993). Let us now turn to the Sintashta vehicles.

Sintashta “Chariots”

At Sintashta, five two-wheeled vehicle burials were found and reported by Gening (1977). They have sometimes been referred to as “war chariots” (Masson 1992: 347; Anthony 1995; Kuzmina 1998: 73), but Gening referred to them as transport to the Otherworld. Yet another interpretation has been presented by Anthony (1995) and Anthony and Vinogradov (1995) who have called them “chariots” for ritual races.

The only remains we have of these vehicles are the lower part of spoked wheel impressions left from rotted wood. We do not have remains of the vehicles themselves and thus we do not know if they were carts or proper chariots (Littauer and Crouwel 1996). We do know that the wheels have diameters up to 1 m with ten spokes. The gauge has been reported variously from ca. 1.07-1.30 m. Because we have no actual wheels,
we are deprived of valuable information regarding wear on the wheels. There was also no evidence of a draft pole nor of the vehicle itself; and thus, we do not know if the axle was placed at the back or medially. These must have been lightweight vehicles ca. 0.90 m wide, drawn by horses, which have also been found in the graves. An additional vehicle was found at Krivoe Ozero about 80 miles north of Sintashta and reported by Anthony (1995) and Anthony and Vinogradov (1995). Radiocarbon dates of ca. 2000 BC were reported for this last site (Trifonov 1997; Anthony 1998). The grave goods associated with all these graves include pottery, weapons, and ornaments, and in several instances complete horses were buried above the human and his vehicle as well as horses in the actual grave. The grave from Krivoe Ozero was the same type of burial as reported by Gening (1977). These vehicle burials are all connected with the Sintashta-Petrovka Culture, located east of the Urals.

Although Anthony and Vinogradov first suggested that these vehicles were war chariots, they ultimately put them down as chariots for racehorses. Several suggestions authored or co-authored by Anthony require comment: Anthony and Vinogradov (1995) asked why chariots were used for warfare when horse riding, which Anthony (at the time of the publication of the two 1995 articles) placed at 4000 BC, already existed. The answer they give is that perhaps the short bow had not yet been invented. There is, however, evidence that the short bow was already in use in Egypt. It is depicted at Mari and dates to the earlier third millennium (Littauer and Crouwel 1979: 92, fn. 72). While we have iconographic representations of the use of the long bow on chariots (Littauer and Crouwel 1979: 44, 53, and Rameses at Ahydos [see Anthony and Vinogradov 1995]), a short bow is also depicted (Littauer and Crouwel 1979: 36, 56–58), and the length is similar to that shown with riders (Littauer and Crouwel 1979, figs. 76 and 78). Whatever the reason, all the evidence shows that chariots were used in warfare prior to the use of a cavalry, but the bow does not appear to be the reason. In regard to the Sintashta-type chariots, Anthony and Vinogradov do note that if used in battle, they would have been “somewhat top-heavy on high-speed turns” (Anthony and Vinogradov 1995: 38) due to the narrow wheel base, which they put at as between 3.6 to 3.9 feet (1.07–1.14 m), Littauer and Crouwel (1996: 939) point to aspects of the Sintashta vehicles—gauge and dimension of the naves—that make them inherently unstable and unsuitable for speed or maneuverability. Numerous Hallstatt vehicles, both two- and four-wheeled, have been found with gauges of 1.1–1.3 (Pare 1992: 133), and while Pare argues against a purely funerary use for the Hallstatt wagons he does concede that their construction precludes “travel and transport over long distances” (1992: 135).

Based on the fact that the gauge of the Sintashta vehicles is narrow, Anthony and Vinogradov (1995: 38) suggest that “the narrow wagon gauge was retained suggesting that these vehicles were local improvisations representing an early phase in chariot evolution.” It is certainly possible that these were early chariots or proto-chariots, but Izbitser’s comprehensive work on wagon burials states that by the middle Bronze Epoch, the gauge had been determined by tradition at no less than ca. 2 m, for the Early Bronze Age period and later, up to the end of the Catacomb culture (ca. 3000-1700 BC) (Izbitser 1992: 23 and per. comm.). The two-wheeled vehicles from Lchashen in the Caucasus, which were probably carts and are traditionally dated to the 15th-13th centuries, have a significantly larger gauge of 2.25 m than the Sintashta vehicles. The gauge for Egyptian chariots in the later second millennium was 1.54–1.8 m. (Littauer and Crouwel 1979: 78).

The purpose of the Sintashta vehicles accepted by Anthony (1995) and Anthony and Vinogradov (1995) is that they were racing chariots attached to racehorses; several verses from Rig Veda hymns are quoted (Anthony and Vinogradov 1995) to support this. Anthony and Vinogradov say that “Horses were often sacrificed during the mortuary rites of the Sintashta-Petrovka Culture. Many like the pair at Krivoe Ozero, appear to have been chariot teams and may possibly have been racehorses” (Anthony and Vinogradov 1995: 40). This alternative has several problems. First, although the horserace is a common motif in the Rig Veda, it is most often used allegorically. Sparreboom (1985: 13) points out that it is often used in an attempt to curry favor with the gods and that metaphorically “the chariot represents the word, speech, or, more specifically, the hymn of praise or the ritual as a whole.” Second, there is no clear distinction between a ceremonial race and a raid (Sparreboom 1985: 14). Last, if these were racehorses (attached to chariots) used for “ritual races that offered prizes or settled disputes” (Anthony and Vinogradov 1995: 40), why would they be carrying weaponry? There is no indication in the Rig Veda that racehorses or their chariots carried weapons or that weapons were buried with them. However, this might be explained away by the fact that athletic competitions were often a preparation for warfare, one example being that the ancient Olympic Games had a foot race in full armor. Presumably these and other games were preparation for warfare, but the distinction between military exercises and sports is blurred. In fact, the evidence for racing (on which the outcome was bet) is only clear in later Classical Sanskrit literature like the Mahābhārata. We should also not remember that the word ‘race’ means two things: ‘run very fast’ and ‘run in competition.’ Furthermore, and more importantly, the Rig Veda hymns in question, I.162 and I.163, have only one horse, and thus there is no competition.

A more difficult problem is the use of the term ‘racehorse’ in the quotations from Hymns 162 and 163 of the Rig Veda. Here, Anthony and Vinogradov depend on the translation by O’Flaherty (1981). While this translation is the best known to English speakers unfamiliar with the Vedas, it is not the only translation. Geldner (1923), the great German scholar, on whom all other Vedic scholars depend and refer (including O’Flaherty), translates what O’Flaherty calls ‘racehorse’ in various ways including Streitross (war-horse). In the two hymns in question there are in fact four different “horse” words 1) arvann translated by O’Flaherty as ‘swift runner’ and Geldner...
as simply ‘runner’; 2) vājy-arvā is translated by both as ‘racehorse’ but vājy-arvā is merely a synonym of arvan; 3) vājī is translated by O’Flaherty as ‘racehorse’ and Geldner as alternately ‘war-horse’ and ‘triumphant horse’; and 4) āsvō is the simple word for ‘horse’. O’Flaherty translates āsvō as both just ‘horse’ and ‘racehorse’ but Geldner translates it as simply ‘horse’ and ‘war horse.’ The 19th century scholar Griffith (1889) translated the same words more romantically as either ‘steed’ or ‘charger.’ It is clear, therefore, that there is no compelling reason to translate these “horse” words as ‘racehorse’ and, in fact, it is misleading.

Anthony and Vinogradov (1995) quote Hymn I.163 which is a hymn in praise of a horse, and I.162 which describes the aśvamedha, the sacrifice of the horse. It is possible that these hymns may apply to the horse burials found alone without vehicles at Sintashta, but they do not apply where human burials are concerned. There is nothing in either hymn to indicate a human burial connection. It is also highly questionable as to whether or not the horses in the hymns are chariot horses. The chariot is mentioned only once in each hymn and in the O’Flaherty translation the clearest reference is from RV I.163.8:

“The chariot follows you, Swift Runner; the young man follows, the cow follows, the love of young girls follows. The troops follow your friendship. The gods entrusted virile power to you” (O’Flaherty 1981: 87).

Geldner’s (1923: 225-227) translation is similar, but why the chariot and all the others follow the horse is unclear. Perhaps because of the swiftness of the horse, perhaps because this is the order in which they are favored by the gods, or perhaps as a logical description of the acquisition of wealth dependent on the domestication of the horse.

Only at the end of Hymn I.162.21 is the chariot mentioned. According to O’Flaherty (1981: 91-92):

“...the two bay stallions, the two roan mares are now your chariot mates. The racehorse has been set in the donkey’s yoke.” RV I.162.21 .

But Geldner (1923: 225) translates the second half of the verse as

Das Streitroß ward an die Deichsel des Esels eingestellt.

“That war-horse has been set on the Ass’s shaft”

It appears that the horse, be it race or war, has now become a chariot horse. But we should also remember that only gods drove chariots in the Rig Veda and that humans were buried in the chariot graves in the Sintashta-Petrovka type burials. Therefore, keeping in mind the allegorical nature of races in the Rig Veda, it seems questionable to interpret these horses with their “chariots” as racehorses.

Furthermore, if the vehicles would have been unstable as war chariots, which Anthony and Vinogradov admit, they would have been equally unstable for races. An added impediment to this theory is where would these chariots have been raced? The Steppe, although flat, is not even and would have been extremely hazardous as a place for racing vehicles. If race courses had been created, no trace of them has been found despite extensive aerial photography in the area.

There is precedent, however, that chariots were the ceremonial transport to the Otherworld. We find this both in the Sumerian and Hittite examples already mentioned and in the wagon burials found in other parts of the steppe and the Caucasus (Izbitsker 1993). This tradition of Otherworld transport continues both on the Steppe and in Europe down to the Iron Age (Piggott 1983; Pare 1992; Jones-Bley 1997). Moreover, that the chariot as transport to the Otherworld is spelled out clearly in RV X.135. Here it is the sacrifice, the means of transportation, to the world of Yama—the Otherworld (Macdonell 1917: 212-216).

Burial with wheeled vehicles seems to have begun soon after the invention of the wheel and continued through the Iron Age. There is nothing to suggest a tradition of taking racing chariots to the grave but there is a wealth of evidence to suggest that the vehicles—both four-wheeled and two-wheeled—were used for transport to the Otherworld (Jones-Bley 1997; see also Piggott 1983). Genzing took this view in 1977 and no evidence has been presented for the burials of Sintashta-Petrovka for this view to be changed.

Although we have records of great chariot battles, where these battles took place had to be selected with care in order to have space for the chariots to maneuver and the ground had to be reasonably flat (Littauer and Crouwel 1979: 92). While much of Anatolia would be unsuitable for chariot warfare (Macqueen 1986: 59), much of Egypt and the Near East would qualify. Another factor rarely mentioned are roads. One Hittite text refers to the king arriving at a ritual place, he{l}iti-house, on a light chariot by way of a “great road” (Gurney 1977: 41). Roadways in areas outside the Near East are very problematic. Trackways are known from England, Ireland, and Germany but they are narrow and would hardly have serviced a wheeled vehicle. Wheeled vehicles require more than a path used by pedestrians that in a wet climate would often become impassable except on foot. Egypt and Mesopotamia have much drier climates with flat, less encumbered terrain more suitable for wheeled transport. Moreover, these very complex societies had extensive trade routes that were in constant use.

Conclusions

If the Sintashta-type “chariots” would not be stable for battle, they would also not be stable for a race. These are not the sturdy vehicles found in the Near East that provided heavy use on either the battle or playing field. This point was made by Piggott in 1983, and again in 1992. There is not enough evidence to indicate that the Sintashta-Petrovka chariots performed in the role of war chariot or race chariot. Piggott (1992) and Littauer and Crouwel (1996) believe these were prestige chariots, and to some extent, I agree. More importantly they were burial vehicles. These chariots took their warriors to the Otherworld, and there is an enormous amount of evidence for the burial
vehicle (Pare 1992; Jones-Bley 1997). They were first seen in Sumer, and in the Indo-European speaking world first in the Russian steppe north of the Caucasus.

There is no reason to deviate from Gening’s conclusion that the Sintashta-type “chariots” were anything but transport to the Otherworld. Given the technical problems with these vehicles, the narrow gauge and nave dimensions that rendered them markedly unstable (Littauer and Crouwel 1996), Anthony’s hypothesis that these were chariots used for racing competitions is based at the very least on incomplete information and on faulty assumptions. The Sintashta-type “chariots” were not the “Birth of the Chariot” (Anthony and Vinogradov 1995) but as Littauer and Crouwel (1996: 938) suggest imitations of vehicles found in the Near East, but at Sintashta used as transport to the Otherworld.

Acknowledgements
I am grateful to Mary Littauer for her suggestions. I am, of course, responsible for any errors.

Endnotes
1. The Germanic god Thor also had a vehicle (alternately called a chariot or wagon) pulled by goats.

2. Huld (2000) has shown that there is a correlation between wheel words and the development of the wheel.

3. I am grateful to Mary Littauer for pointing out to me the article by A. von den Driesch in which she shows that onagers were never domesticated. My thanks also go to Dr. von den Driesch who sent me the reference.

4. Gening (1977) was translated by Warren Brewer in 1979 under the auspices of Marija Gimbutas and published as “The Cemetery at Sintashta and the Early Indo-Iranian Peoples”

5. Anthony and Brown (1991) claimed, based on a single tooth from a stallion from the Eneolithic site of Dereivka in Ukraine, that horses were hobbled and ridden. The radiocarbon date for this Dereivka stallion was early on disputed and has been shown to be not 4000 BC but Early Iron Age, ca. 700-200 BC (Anthony and Brown forthcoming).

6. Littauer now believes that the Lehashen vehicles to be chariots (per. comm.).

7. The foot race in full armor, hoplitodromos, was added to the 65th Olympic in 520 BC after the four-horse chariot race, tettriippom, was added in 680 BC, but it is not clear if the chariots held weaponry (see Swaddling 1980: 38).

8. There is no complete modern translation of the Rig Veda into English. On the difficulty of this problem see Jamison (2000).

9. There are 23 sites that are of the same type as Sintashta and nearly all of them have been found through aerial photography.

References


Investigation of Bronze Age Metallurgical Slag

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Abstract
The Sintashta Culture was formed in the southern Urals during the early second millennium BC. The objective of the investigation was to reconstruct the metallurgical technology of these tribes. The investigation of the metal ores was undertaken using spectral analysis. The results indicated that the ores recovered from Sintashta settlements did not contain arsenic while, in contrast, slag retrieved from the same sites contained high levels of the element. This finding may indicate that the metallurgists had alloyed copper with arsenic during the ore smelting process. The principal component of the current research was the investigation of slag, and by using optical mineralogy it was possible to identify four mineralogical groups of slag. Metallurgy was absent in the Transurals prior to the development of the Sintashta Culture. Metal structures of the Caucasus and Anatolia are similar to the metal structure of the Sintashta Culture, however, and it would appear that the tradition of alloying during the ore smelting stage was established in the Transcaucasus. This finding reaffirms the author’s theory that the Sintashta people migrated from either Anatolia or northern Syria.

Key words
Bronze Age, metallurgy, Sintashta Culture, slag

Introduction
The Sintashta Culture of the southern Urals is one of the brightest archeological ensembles of northern Eurasia, and is represented by large fortified settlements and cemeteries with magnificent burial tombs. It was formed during the 18th century BC (in the traditional or non-calibrated chronological system) that in radiocarbon terms corresponds to the late third or very early second millennium BC.

The Sintashta Culture was the basis on which the subsequent Petrovka, Srubnaya and Alakul’ Cultures of the Late Bronze Age developed. These cultures were localized in a vast geographic region from the Dnieper River to eastern Kazakhstan. The origins of the Sintashta Culture, therefore, always have been considered within the framework of the origins of the Indo-Iranian populations that have some features relating to the cultures of Eastern Europe, e.g., the Abashevo and Late Catacomb Cultures, the Multiroller ceramics, and the late Yamnaya Culture. This theory enables one to suggest that the Sintashta Culture originated as a consequence of Eastern European impulses (Smirnov and Kuzmina 1977), but these parallels are too limited. In addition, it is possible only to compare the contemporary complexes of Eastern Europe, which are dated to within the framework of the Middle Bronze Age II. Comparisons with earlier complexes are virtually impossible. This perspective has been the subject of discussion by Zdanovich (1997) who suggested local Eneolithic roots for the Sintashta Culture, although he assumed some degree of western impulses. He did not, however, adduce any proof for his point of view. This is understandable because of the enormous distance which existed between the hunter and fisher villages of the Transurals during the previous epoch and the developed economics of the Sintashta communities. More recently, a theory has been proposed which suggested that the formation of the Sintashta Culture was connected to the migration of Iranian tribes from the Syro-Anatolian region (Grigoryev 1996a; 1998; 1999a). All the features of the Syro-Anatolian cultures have parallels with the archeological cultures of this region, the most remarkable of which are the Sintashta fortified settlements that are identical to Anatolian settlements, including Pulur, Demirciuyuk, and many others. In addition, we find many analogies with the Sintashta Culture in the ceramics, and stone and metal artifacts of the Syro-Anatolian cultures.

The problem of the correlation between the Sintashta Culture and Abashevo Culture has been reviewed. Kuzmina (1992) has suggested that the Sintashta Culture was formed on an Abashevo base and that it corresponds to the latest stages of development of the Abashevo Culture. In contrast, the author’s opinion is that the Sintashta and Abashevo Cultures were contemporary.

Materials connected with metallurgical production including slag, ore, small ingots, and furnaces are very typical of the artifacts that are recovered from Sintashta settlements. As a consequence of this situation, a number of archaeologists consider the settlements to represent very important centers of metal production in the Volga-Urals region. The settlements are described in the archaeological literature as metallurgical centers with developed levels of craft production as well as trade and exchange. Accordingly, Sintashta settlements as a whole may be discussed and, in fact, are discussed in some instances as the first pre-civilization stage in the vast Eastern European territory as well as in the Urals and Kazakhstan (Zdanovich 1995). Therefore, the problem of Sintashta metallurgy is not only...
archaeometallurgical, since it also has repercussions for the origins of the Indo-Europeans and the formation of early civilizations.

**Objectives of the research**
The main objective of the investigation was to reconstruct the metallurgical production technology found in Sintashta settlements, and examine how this technology corresponds to concepts of craft production, and in addition to the question of a Near Eastern origin for the culture. The following issues were addressed within the overall research framework:

1. The types of ore (chrysocolla, malachite etc.) that were used.
2. The types of ore bearing rock (quartz, serpentine etc.) that were used.
3. The smelting temperature that was employed. This aspect of the research was determined through the investigation of molten, non-molten minerals, and metals.
4. The smelting atmosphere that was used. This area of the research was determined through the correlation of the quantity of copper and oxides.
5. The relative rate of smelt cooling that was followed. This was determined through the investigation of the shapes and sizes of crystallized minerals resulting from the melt.
6. The presence of fluxes.
7. The quantity of copper that remained in the slag.
8. The volume of charge that was used.

The principle methods involved in the analysis included optical microscopy, x-ray diffraction (XRD), optical emission spectral analysis, and wet chemical analysis. A total of 637 analyses of 367 samples of slag and ores were undertaken. In addition, an attempt was made to classify the various metallurgical furnaces excavated at Sintashta settlements.

**Furnaces**
The predominant type of Sintashta metallurgical furnace was a small dome-shaped model with a diameter that ranged from 0.7 – 1.0 meters (Grigoryev 1996b). The furnace was generally placed in a small recess on the floor although in some cases it was attached to a well that provided an air supply, and had a flue. Metallurgical slag was found in some furnaces (Fig 1: 2) and some furnaces were joined to wells (Fig. 1: 4). Experimentation has confirmed that a temperature differential existed between the furnace and the well (Grigoryev and Rusanov 1995). Other furnaces had flues that were fixed to a ditch that a depth of 10 cm, a width of 35 cm, and a length of 120-180 cm; it cannot be ruled out that other furnaces had flues not affixed to ditches. Some furnaces were constructed of lighter weight materials, were subject to distraction, and now are recognized by a conglomerate of rocks or black markings on the floor (Fig. 1: 1-4). Flues were developed to remove hazardous gasses following the introduction of sulfide ores, although the use of these ores was not especially typical for Sintashta metallurgy. Covellite and chalcocite smelting was known to have occurred in some cases, but chalcopyrites were never used in the smelting process. The furnaces were multifunctional, and were also used as ovens (Fig. 1). Furnaces that had flues with a small smelting capacity were used for more specialized purposes, namely for ore and copper smelting. It is probable that this type of furnace had developed from dome-shaped furnaces with flues.

The second type of metallurgical furnace were those which comprised two sections. The first sector was used for ore smelting, while bellows were situated in the second section. This type of furnace came into use at the end of the Sintashta Culture, and at present only a single example of this variety of furnace is known. These furnaces became more typical of the Petrovka Culture that replaced the Sintashta Culture during the 16th century BC (Evdokimov and Grigoryev 1996). The Petrovka Culture furnaces, however, warrant further research as they display a number of variations similar to Sintashta Culture furnaces. It is possible that the second section of certain Petrovka furnaces were used for tapping slag, and similar furnaces at Timna have been investigated (Rothenberg 1990).

**Ores**
The investigation of ores was carried out by means of optical emission spectral analysis. According to Chernykh (1970), metallurgists of the Sintashta period exploited two main raw materials. Copper ores were obtained from the sandstone of the western slopes of the Urals and were exploited by the Abashevo populations, while ores derived from the Tash-Kazgan deposit were exploited by the Sintashta peoples (Chernykh 1970). The latter source was the more important of the two due to its richness in arsenic, and smelting these ores resulted in the production of natural arsenical bronzes. The current research of the author, however, provides a different conclusion. The ores recovered from Sintashta settlements were found not to contain arsenic, although the slag retrieved from the same sites had a high content of this element (Fig. 2). The majority of ores were mined from either serpentine or ultra basic ore-bearing rock deposits, although quartz is known to have been the ore-bearing rock of the Tash-Kazgan deposit. This finding may indicate that the metallurgists had alloyed copper with arsenic at the ore-smelting stage.

The chemical characteristics of the ores revealed the presence of three chemical types (I - III) and eight chemical groups (Table 1). Therefore, the Sintashta metallurgists used at least some ore deposits. The optical emission spectral analysis, however, does not indicate that the ore had originated from any specific deposit, and only isotopic analysis has the potential to provide such evidence. Nevertheless, the data obtained from this small number of deposits that were used during the Sintashta period, essentially changes the current state of knowledge concerning the nature of metallurgical production during this time.

**Slag**
The principal aspect of the research was based on the investigation of slag. Two types of non-tapped slag were identified: a non-forming type, and a variety that was flat (Table 2). The
latter form of slag was found to be dominant in the Sintashta collection (72%), while only 38% of the Petrovka examples comprised this type of slag. The forms of slag are identical to the varieties of early slag found in Eastern Anatolia and Iran (Hauptmann, et al. 1993, abs: 2. 3–4).

Optical mineralogy enabled the identification of four mineralogical groups of slag (Table 3):

**Group I** - The main component comprised large olivine crystals. Other components included chromites, magnetites, copper (0.1 - 1%), and ores (predominately malachite, followed by azurite, covellite and chrysocolla). This type of slag had been obtained by smelting ores from serpentine and ferriferous ultra basic rock. Initially, it was identified from the presence of chromite grains. All varieties of this group relate to the flat form of slag.

**Group II** - The microstructure of the slag is similar to that of Group I, but without chromites. The slag contains grains of quartz associated with the ores, and it was produced from a quartz ore-bearing rock.

**Group III** - This variety of slag contained both quartz and chromite inclusions.

**Group IV** - This type of slag contained high levels of cuprite inclusions, and the level of crystallization was very poor.

Slag samples were also subjected to spectral analysis that enabled the determination of certain chemical groups. The correlation of chemical and mineralogical groups indicated that slag of the Group I and III mineralogical groups had been obtained as a result of smelting ore which was derived from deposits of a single type. Therefore, ore deposits in serpentine and ultra basic rocks sometimes contained quartz veins with additional rich copper ore. Slag from the Group II mineralogical group was found to have been obtained by smelting ore that had been obtained from diverse deposits located in quartz rock. The slag belonging to the Sintashta collection which had been smelted from ultra basic rock that comprised 82% of the sample (Groups I and III) (Table 3). At the beginning of the Late Bronze Age Petrovka Culture, the use of such ore was found to have been reduced to 14.5%. This finding therefore allows one to postulate that the Petrovka Culture had developed in northern Kazakhstan as a consequence of Sintashta impulses to this region. In addition, it would appear that the early stage of the culture was partially synchronous with the Sintashta Culture in the Transurals. The use of similar ores apparently was a characteristic of the early stage of the Petrovka Culture, and this finding has been confirmed by the paucity of similar slag among a significant number of Late Bronze Age slag samples that were investigated by the author earlier this year. It is also of interest to note that the Abashevo collections contain a larger quantity of the “later” group of slag, relative to the Sintashta collection.

The smelting of ores from ultra basic ore-bearing rocks and serpentine, that contain insignificant levels of copper is a curious paradox of Sintashta metallurgy. A great number of ore deposits of other types that are rich in copper are present in the Urals, but no evidence has surfaced for the use of such pure ores by the Sintashta metallurgists.

**Technology**

The technological characteristics of the Groups I to III types of mineralogical slag are similar, and it is therefore probable that they relate to a single technological group (Table 4). Smelting temperatures would have occurred at approximately 1200°C, and definitely at a temperature less than 1400°C as indicated by the crystallization of olivine, the overheating of cuprite, the non-molten condition of the magnetite, the occurrence of molten chalcocite, the presence of tridimite, and the lack of crystobalite. The rate of smelt cooling was low since the size of the crystallized metals produced during the smelting process were small. The atmosphere was reduction, a situation that is rarely associated with cuprite, and only low levels of copper were lost in the slag. The nature of the slag permits the identification of the quantity of loaded charge and copper that was produced. The copper ingots had a diameter of approximately 8–10 cm, with a depth of 0.5–1 cm, and a weight of charge of 0.5–1 kg. Therefore, the charge comprised 10–15% copper, although the preliminary ore was probably poorer.

The second technological type of slag that belongs to the Group IV mineralogical group was discrete. Although the smelting temperature was similar (1200–1400°C), the smelting atmosphere was oxidation, and higher levels of copper were lost in the slag. The technological processes were not, therefore, typical for Sintashta metallurgy although they became characteristic of the early stages of the Petrovka Culture. This change in technology appears to have arisen as a consequence of a change in the types of raw materials used. The technology practiced by the newcomers from northern Kazakhstan was not suitable for smelting ores containing quartz because of the tradition of using fluxes that may have been absent throughout the entire Sintashta period. This problem was solved when sulfide ores became used for smelting (Group III technological group).

**The origin of Sintashta metallurgy**

Metallurgy is not known in the Transurals before the advent of the Sintashta Culture. The metallurgists of the Yamnaya Culture located on the western slopes of the southern Urals were not familiar with the production of arsenaical bronzes. Alloys, in the form of copper with arsenic, were typical for the Circumpontic region during the Middle Bronze Age (Chernykh, et al. 1991, fig 5), but ore smelting was not known in the northern Caucasus and Eastern Europe. Metallurgical production in the Balkan Peninsula was primarily of “pure” copper; copper alloyed with arsenic or tin was less typical. The metal structures of the Caucasus and Anatolia appear to have been more closely related to those of the Sintashta Culture (Fig. 3), but tin bronzes were used more extensively in these regions than in Sintashta metallurgy. This finding may be explained by a paucity of tin in the Urals. The tradition of alloying, as a stage of ore-smelting, was noted at the Uzerlik-Tepe settlement in Transcaucasia. This finding corresponds to the author’s preliminary conclusions that the Sintashta people had migrated from Anatolia or northern Syria. Therefore, in the period directly previous to the migration into the Sintashta Culture, the enormous trade in tin that was occurring in eastern Anatolia, had been interrupted by the Hittite expansion and elimination.
of the Assyrian trade colonies. Subsequently, this trade was re-established throughout northern Syria and the Mediterranean.

As noted above, the reasons for the use of poor ores from serpentine and ultra basic ore-bearing rock by the Sintashta metallurgists of the Urals is not clear, particularly since it is known that many rich deposits of other types occur in this area. The situation can be explained, however, if we take into account that copper deposits are also found in the ultra basic rocks and serpentine of southeastern Anatolia, the location from where the Sintashta people migrated (Seelig, et al. 1985). A comparison of Sintashta metal structure with the metal structures of the various regions within the Circumpontic zone reveals that the ratio of tools to weapons, and weapons with ornaments and other finds is similar to those from the Transcaucasus and Asia Minor (Fig. 4). This finding adds further support to the conclusion that Sintashta metallurgical technology originated from the Near East.

Conclusions

Iranian tribes appeared in northern Eurasia and settled primarily in the Transurals and along the Belaya River. In the vast region from the Dnieper River to the Ural Mountains, two discrete zones were formed—a metal-producing zone in the southern Urals, and a metal consuming zone in the remainder of the area (Fig. 5). Metallurgical slag dating to the end of the Middle Bronze Age has only been recovered from the first zone. This situation reflects the cultural and “political” system that formed as a result of Iranian migrations from the Near East. The distribution of slag in this region permits us to draw conclusions pertaining to the correlation of the Sintashta and Abashevo Cultures. The latest metal used was from the Urals (Chernykh 1970). The absence of Abashevo smelting in the Volga region indicates that Abashevo people imported metal from either the Sintashta settlements or from populations living along the Belaya River in the western slopes of the Ural Mountains. Nevertheless, the Abashevo settlements along this river have been found to contain a number of Sintashta cultural features. This finding is a very important aspect for the theory that supports a synchronization of the Sintashta and Abashevo Cultures.

In my opinion, however, it is not possible to describe Sintashta metallurgy as a craft production system associated with developed levels of trade and exchange. Every Sintashta settlement and every Sintashta dwelling contains metallurgical remains and, therefore, none of the settlements should be described as metallurgical centers. If this distinction is not incorporated into the terms of a “metallurgical center,” the term loses its specific connotation. The beginning of craft production commenced with the division of labor. Moreover, the volume of production was very small and is more characteristic of typical home production. Metallurgical development of the Sintashta Culture does not correspond to the theory that it represents a “pre-civilization” stage; moreover, the term “pre-civilization” used by Zdanovich (1995), is very obscure. The term “civilization” apparently implies a social structure where “socio-individual relations within the system are realized through legal norms” (Grigoryev 1999b: 111). Even this situation cannot be assumed for the Sintashta society. Nonetheless, Sintashta must be a level of society that corresponds to the attainment of an early state. I do not know exactly what should be understood by the term “pre-civilization stage,” and the conventional term “chieftain” is also not concrete. Indeed, nothing exists within the Sintashta Culture that provides sufficient information to enable discussions relating to issues of whether the society was either a “civilization” or a “pre-civilization.”

There is a possibility, however, that the appearance of Sintashta metals in Eastern Europe could reflect long-distance exchange, and could therefore be used as a basis for a “pre-civilization” theory. To understand this exchange system it is necessary to perceive the possible mechanisms of exchange that may have been in action. It is quite feasible that a certain distribution of metal may have occurred, if westward migrations of discrete Sintashta populations occurred during the later years of the culture. Subsequently, it is necessary for specific research to be undertaken to determine the relationship that existed between the Sintashta Culture and the populations of Eastern Europe. Without further investigation, the current state of knowledge does not permit us to envisage any extraordinary stage of development in the Sintashta society.

Endnotes

1. Currently, the majority of archaeologists include the Alakul Culture together with the Petrovka, Fyodorovo, Cherkeskai, and a few other cultures within the so-called “Andronovo Culture.” A common point of view, and my own opinion, is that the Petrovka and Alakul Cultures were formed on the basis of the Sintashta Culture. The Fyodorovo and Cherkeskai Cultures, however, had different origins and developed in other directions. This is why the Andronovo Culture (or either the Andronovo family of cultures or any other terminology) should be considered to be an archaeological myth. The Andronovo cemetery belongs to the Fyodorovo Culture. Therefore, the overextension of this term results in the unjustified simplification of the very complicated processes that occurred during this era.

References


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Table 1. Chemical groups of the ores recovered from the Sintashta settlements.

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<th>II – 2</th>
<th>II – 3</th>
<th>III – 1</th>
<th>III – 2</th>
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145
Table 2. The distribution of the flat and non-forming slag over the various cultural groups

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<th>Non-forming</th>
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<tr>
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Table 3. Distribution of the mineralogical groups of slag over the different cultural groups.

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<td>15%</td>
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<td>100%</td>
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<td>14.5%</td>
<td>100%</td>
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Table 4. The distribution of the different technological types over cultural groups.

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Fig. 1. Types of furnaces found in the Sintashta settlements.
Fig. 2. Correlations of arsenic-inhalt in ores and slag in the Sintashta Culture.

Fig. 5. Locations of slag found in the Volga-Ural region.
Investigation of Bronze Age Metallurgical Slag

Fig. 3. Correlations of different types of alloys in northern Eurasia.

Fig. 4. Correlations of different artifact types in northern Eurasia.
Part IV

Interpretations of Eurasian Archaeology
The Iron Age
Historical and Archaeological Sources Relating to the Migration of Nomadic Peoples
Toward Central and Southern Europe During the Imperial Age
(1st - 5th centuries AD)

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Abstract
The ever-growing interest in the history of the Eurasian populations is due to the leading role that they played in the fate and events of the European lands, particularly from the 3rd century onward. Starting from that date, it became increasingly difficult for Roman political authority to supervise and manage its frontier territories; this promoted new cultural contacts and relationships that were of basic importance to the historical and political pattern of the infant Europe. The concept of *limes* itself, was no longer interpreted as a barrier or an impassable frontier, but as a permeable fabric which opened the way for new populations to enter into the European ethnographic frame. The analysis of such channels of transmission and acquisition is a still an unexplored field of research and study, and it is likely that it will reveal the level of amalgamation and interpenetration that existed between the different cultures.

Keywords
Migrations, nomadic populations, Black Sea, Europe

Introduction
This report provides a detailed and exhaustive outline of the population movements that occurred in areas of southern and western Europe that were under the control of the Roman Empire. These population movements are particularly clearly illustrated in the region selected for this study. The historical and archaeological sources will be examined as a component of a multidisciplinary research system, thereby enabling the most exhaustive analysis. The first Germanic tribes appeared on the northern coast of the Black Sea during the first half of the 3rd century AD (Wolfram 1990: 55-61). The quick succession of events resulted in a dramatic change to the ethnic structure of the peoples who had previously settled in the region. Jordanes has argued that the Germans initially settled on the northern banks of the Meotide in an area that was under the control of the Bosphorus Cimmerian Kingdom (Jordanes 140-142). Here they partly coexisted with scattered groups of Alans and Sarmatians, who had established their own villages and lived in unfired clay houses with rock-cut floors. Archaeological surveys of these settlements have indicated that agriculture, cattle breeding, metalworking, and ceramic production were well-developed activities. During the second half of the 3rd century AD, Germanic and Alanic raids increased in frequency, partly as a consequence of their large scale developments, thereby absorbing a range of objects that affected both female and male clothing as well as their daily life (Ajbabin 1995: 156–170). The Huns settled in the northern Caucasus region after the second half of the 4th century AD, yet there is no agreement as to the nature of their origins and ethnic features. Ammianus Marcellinus stated that the Huns subjugated the Alans who were settled along the Don River, and the Goths led by Ermenric during the reign of Emperor Valens (AD 364-378) (Ammiano Marcellino XXXI.3). Zosima (Zosimus IV.20) and Paolo Orosio (Paolo Orosio XXXIII.10) argued that during AD 376, they had forced a component of the Goths and their allies to cross the Danube and settle in the Roman provinces. Depopulation and repopulation processes in the areas inhabited by Hun ethnic groups brought about the birth of a Hunnic reign that remained unchanged until the first half of the 5th century AD. In addition, these transitions led to the occurrence of a number of major historical procedures. Indeed, the migrations of Vandals, Alans, Swabians, Gepids, Rugi, and Lombards towards western regions resulted in the decline of the Roman Empire defenses, and the inception of Germanic rule in those areas that were already under the control of Roman political influence (Godlowski 1994: 1335–1337).

Geographical perceptions of Europe
The study of the European division of territory should be considered the first basic step towards an understanding of the socio-political relations that existed within the various nomadic populations of the 1st to the 6th centuries AD (Godlowski 1994: 1293–1298). In addition, it is also possible to gain an understanding of the influences that they had on the exploitation of the lands, woods, and animals as well as their contacts with the Romans. Two different geographical perceptions of Europe exist; in the first, Europe is regarded as a peninsula and its entire hill-covered western region is considered to be distinct from the western regions of Eurasia. Its coastal strip overlooks two great bodies of water—the Mediterranean Sea and the Atlantic Ocean. During their various migrations westwards, Asi-
atic tribes would have had the choice of two major waterways. A western route existed that involved travelling through present-day Ukraine and Byelorussia, and through the woody planes of Western Europe. The other, less comfortable route ran along the lower Danube Valley and into the wide Hungarian plain. Following this perception Europe is considered to be a mountain peninsula, associated with proper circular passageways surrounded by the sea and the mountains, or solely by mountain ranges (Cunliffe 1994: 1257). The second, more conventional, but limited, perception envisages the European mainland as a sequence of wide lands running east to west and, starting from the Mediterranean basin, expanded backwards to the north. The front line is comprised of a mountain barrier formed by the Pyrenees, Cévenes, Alps, Dinaric Alps, and Balkan Mountains. Beyond these mountain ranges lay a mild Europe composed of hills, ridges and valleys, behind which is situated the forested European western plain that disappeared into a sea of islands and the unknown (ibid.). This theory dictates that all northward communication routes crossing the various mountain ranges were of major importance—the Pass of Carcassonne toward the west and the Atlantic Ocean; the Rhône towards the confluence of the main central and western European rivers; the Alpine passes towards the Danube and the North; and finally the land stretching throughout Slovenia from the upper Adriatic Sea to the Trans-Danubian region and the Hungarian plain.

Several populations lived and migrated within the European configuration that stems from these two different geographical perceptions. The western European regions were the target for successive waves of peoples coming from the east and north—the Goths, Cimmerians, Alans, Scythians, Sarmatians, Huns, Avars, Bulgarians, Magyars and Mongols—who all played a crucial role in the history of Europe between the 8th century BC and AD 13th century (ibid. 1258–1259). This picture also includes a population—the Goths—who would have at least initially occupied the northern European plains from the Pannonian moors and bogs to the wide Byelorussian plain (Vacccaro 1996: 34). Their evolution is quite clear, and initially they would have lived in the north surrounded by the Baltic and North Seas, and by the steppe peoples of the east. At times of overpopulation their only expansion route would have been southwards through the hills and valleys to the plains of Moldavia, the Ukraine, the lower Danube, and the Crimea. As a result of pressure from the Huns, they were finally pushed towards the Carpathian region and the heart of the western Roman Empire (Italy, Aquitania, the provinces of Narbonne, and Tarragona). Eventually, they came to occupy the entire Iberian Peninsula that was under control of Visigoth kings, headquartered in Toledo until the Islamic conquest in 719 AD (ibid.).

To summarise, during the first six centuries AD, three population groups originating in the Russian steppes, and the northeastern and southern European plains, came into contact. This resulted in the development of a politically unstable situation. The main area of contact for the three groups throughout the majority of time followed an east-west axis that coincided with the Rhine and Danube valleys. Indeed, the Roman border developed along this line, apart from a few local exceptions in the 1st and 2nd centuries AD. At an advanced stage, the Roman frontier was not the result of a precise political strategy formulated by the Romans, but rather as a temporary stabilization of a zone of contact between two opposing elements. From the middle of the 2nd century AD, changes in military equilibrium occurred that were a detriment to Roman supremacy; the artificial division had totally disappeared by the 5th century AD. It is necessary to examine this issue with a perception of Europe that goes beyond the Roman frontiers. In addition, it is important to analyze the interactions that occurred between the Romans and nomadic cultures, as these variables may prove crucial to understanding the nature and extent of cultural contribution originating from both groups. Indeed, the substantial quantity of durable goods provided by the Roman World in conjunction with the labor force (principally slaves) from among the nomadic populations, may have acted as a catalyst of diversified needs, sharing a common denominator. It would be a mistake, therefore, to regard the Roman frontier as simply a symbol of military defense and permanent conflict. Indeed, an examination of other social activities may help us to understand how the different ethnic groups interacted with each other until the collapse of this politically unstable situation. It was within this context of instability that a series of mass migrations occurred that would leave an indelible mark on the history of infant Europe (Cunliffe 1994: 1259–1260).

Historical and ethnographic outline

Of the populations that played a leading role during the first five centuries of the Roman Empire, a major contribution was made by the ethnic groups living on the steppes along the Black Sea, and on the plains of northern and central Europe. Despite the differences in lifestyle and cultural practices, two elements were common to these groups; an economy based on cattle breeding and constant migrations. In some cases, in certain regions the tribes adopted a semi-permanent lifestyle. The steppes not only represented an environment of relative isolation, but also an established route that enabled easy contact with the nomadic populations that lived beyond the middle and lower Volga region and the Urals, to the Chinese border (Leciejewicz 1994: 73–74).

The Alans and the Sarmatians were part of the Indo-European Iranian group (Ajabin 1995: 156). It is recorded in the Chinese Annals that during the 1st century AD, these tribes ruled a nomadic confederation based in the Asian steppes (Artamov 1962: 43). They occupied the lands between the Don River and Aral Sea and the region north of the Caucasus; it was from here that they set out on their migrations towards the southern regions (Erdéyi 1991: 283). It is possible to gain a partial confirmation of the precise location of the Alans in the texts of Roman chroniclers who date the first contacts with such peoples to the first half of the 1st century AD. Lucanus stated that they were located in the northern Caucasus (Kulakovsij 1899: 11–13), while Flavio Giuseppe recorded that they were along the Tanais (Don) River, and around Lake Meotide (Flavio Giuseppe VII.7.4). The geographical distribution pattern, however, did not imply that these peoples shared historical developments, but rather favored the possibility of diverse developments that
led to non-uniform results. In AD 135, as a consequence of the forays and sacks that were undertaken by these peoples, the pro-praetor of Cappadocia, Flavio Arriano, organized an expedition against them. A report written by one of the officers of this expedition—the Impresa contro gli Alani—records that the boundaries of the territory occupied by these populations were between the northern Caucasian spurs, the Meotide area and the river Tanais (Arriano fr. 25). Excavations undertaken in this region have produced a number of cemeteries containing kurgans that were considered to have belonged to the Alans. The kurgans are generally constructed over graves that have a long entrance (dromos) and an inhumation room, and contain artifacts dating to the 1st–2nd centuries AD (Kuznetsov 1984: 20–22). It is thought that up until the second half of the 4th century AD, the Alans who lived in the vicinity of the Sea of Azov followed a generally nomadic lifestyle. This assertion is confirmed in the writings of Ammianus Marcellinus who notes that “The Alans…being a nomadic people,…wander through extended regions…They build no huts, neither they grow the lands, and they live in bark-covered carts used to cross the boundless steppes…By driving their draught animals and flocks, they graze them; they have the utmost care towards their horses…” (Ammianus Marcellinus XXXI.2, 12-25).

From the first half of 3rd century AD (Wolfram 1990: 55–61), several groups of Germanic tribes appeared on the northern coast of the Black Sea (Kazanski 1991: 28–39). Their appearance caused moves that greatly changed the ethnographic profile of this region (Ajbabin 1995: 156). Jordanes reports that one of these migrations consisted of Gothic tribes that would then come to occupy the entire area to the north and northwest of the Black Sea (Jordanes: 72). Here they created two separate cultures that developed as a consequence of the differences existing between the Greuthungi, or eastern Goths (Ostrogoths), and the Tervingi or western Goths (Visigoths). The two new cultures became known as the Cernjachov Culture and was located near Kiev, and the Sintana-de-Mures Culture, based in Transylvania. The Cernjachov Culture developed during the second half of the 4th century AD; its formation was a complex phenomenon, strongly inspired by the Wielbark Culture. The impact of the Wielbark Culture can be clearly seen in hand-made pottery, the morphology of certain metalwork pieces and, above all, in the burial rites (Kazanski 1991: 18–28). Some important influences also came from the local Sarmatian and Dacian substrata, as well as from the old centers of archaic cultures that had lived along the North Sea coast (Heather 1998: 18-30). The Cernjachov Culture was characterized by large cemeteries with typical double burials. The settlements contain artifacts indicative of several forms of craftworking including ironwork, fine wheel-thrown pottery with a variety of morphologies, glass objects decorated with a checkered pattern, objects from everyday women’s costumes, and personal ornaments including bone combs, necklaces with pendants indicating Eastern traditions, and amulets (Godlowski 1994: 1324–1325). The typical characteristics of these settlements are illustrated in the sites of Lepesovka in Volinia, and Velikaja Smitinka in the Ukraine. Clearly lacking in defenses, these sites displayed a close relationship with the waterways, and contained oblong huts arranged in parallel rows. Farming was well developed; barley, millet, and oats appear to have been sown and then harvested during late summer (Vaccaro 1996: 35). Nomadic cattle breeding, however, also played a major role in the economy. Seasonal moves in search of better climatic and geographic conditions were necessary to obtain fodder for the livestock. The communities were clearly aware of this need and used their knowledge of the land to mark the best routes for their cattle moves and establish the most suitable sites for their various seasonal settlements (Fodor 1998: 43–44).

The appearance of a new ethnic group brought about the territorial and demographic fragmentation of the Alanic tribes throughout different areas, thereby causing at least partial disruption to the previous distribution pattern. Indeed, Germanic populations interrelated with isolated Alanic and Sarmatian groups, resulting in the development of sedentary mixed villages that were scattered along the northern shores of the Black Sea. Attacks originated from this sedentary base on the troops garrisoned to defend and supervise the fortifications located along the Black Sea (Ajbabin 1995: 158). A second group of Alanic tribes moved toward the southern Crimea, while a third nucleus maintained its semi-nomadic status and confined the routes of its periodic moves to a narrow strip of land limited by the Dniester River in the west and the Danube in the east (Ajbabin 1995: 156–157). The first of these demographic fragmentations, which had parallels with the Gothic migration from the Baltic regions, resulted in the occurrence of the most significant events, both historically and culturally. Archaeological surveys have attested to the existence of a series of villages that are likely to stem from the Cernjachov Culture, while excavations have identified the remains of subterranean dwellings with unfired clay roofs. On the basis of these archaeological remains, it has been suggested that the population followed a semi-nomadic lifestyle and devoted themselves to farming, cattle breeding, metalworking and pottery manufacture (Magomedov 1987: 62–75). Excavations in Koblevo, Furmanovka, and Bol’saja Korenicha have uncovered a number of cemeteries with distinct graves—inhumation burials for the Alanic and Sarmatian peoples, and cremation burials for the Germanic peoples. These findings confirm that there was a substantial coexistence of different funerary rites and customs at this time (Ajbabin 1995: 158). During the second half of the 3rd century AD, a series of artifacts spread among the Alanic tribes that inhabited the Crimea, and the mixed settlements scattered along the northern coasts of the Black Sea. These artifacts may be considered an indicator of both a sedentary lifestyle, and the acquisition of manual skills that precipitated an increase in the production of oval-shaped arched buckles, miniature bells, and harnesses for horses, knives, camelian necklaces, amber, and polychromatic glass pots. The use of dark clay vessels, double-cone ware of the Germanic tradition, various forms of Roman amphorae, or local imitations was also common (Ajbabin 1995: 158).

The appearance of the Huns in the northern Caucasus (Heather 1998: 97–108) at some time after the second half of the 4th century AD, disrupted the earlier system of territorial organi-
zation. The precise origins of the Huns and their ethnic composition have been the subject of numerous unresolved conflicting opinions. The most reliable theory is that they had descended from the Turkic peoples and initially settled on the Cilician frontier. There is no evidence, however, to suggest the straightforward correlation between the Hunnish and Turkish languages (Derfer 1986: 72–116). Following this theory, it is assumed that they had moved from the Cilician frontier via the steppes to the west at some time between AD 155 and 160 (Gumilev 1960: 220). According to Ammianus Marcellinus, during the 4th century the Huns had subjugated the Alanic tribes, that were settled on the Don River, and the Goths, led by Ermenric (Ammianus Marcellinus XXXI.2,12: XXXI.3.1). Zosima (Zosimus IV.20) and Paolo Orosio (Paolo Orosio VII.33–10), however, recorded that in AD 376, the pressure on Gothic and Alanic populations forced them to cross the Danube and occupy Roman territory (Kazanski 1991: 66–87). The Huns that were established within Roman territory continued to practice a primitive form of nomadic cattle breeding (Randers-Pehrson 1983: 41–45). It is worth noting the co-existence of a double burial custom. The excavations of Novogrigrorovka uncovered the remains of a number of graves covered with stones of various sizes and earth, and that contained the remains of human and animal cremations, in addition to armament, including swords, arrowheads, and horse harnesses (Ambroz 1981: 19). A number of kurgans that contained Eastern burials have been found in the Odessa region where the deceased was associated with disarticulated animal bone and horse harnesses (Michajlov 1993: 109–110). On the basis of the variety in burial rites, it is probable that different ethnic groups coexisted within the Hunnic population. By the early 5th century AD, the Huns living on the northern coast of the Black Sea began to exploit the Crimean steppes for seasonal grazing (Ajbabin 1993: 209). Some burials have been found to contain personal objects ascribed to these nomadic peoples. Indeed, excavations in the cemetery of Belajus produced a very rich burial dug into the floor of an old funerary chamber and covered with stone slabs. The burial containing the remains of a nomadic adult male and his equipment, and the skull, ribs and lower limbs of a horse were recovered from immediately below the slab roof. It is probable that the horse remains are associated with a ritual characteristic of Asiatic origin (Révész and Nepper 1998: 55–56) and Baltic (Jaskanis 1991: 39–40) nomadic populations. The human skeleton was positioned on the bottom of the grave in the Mongolian-like north-south orientation. A gold earring was found near the skull, a silver buckle dated to the 5th century was recovered from near the pelvis, and a horse bit and harness were situated on the man’s knees (Ajbabin 1993: 160).

By the 5th century AD, the upper regions of Pannonia and the Noricum had become favorite migration routes for entire populations, and they were crossed by the Vandals in AD 401, by the Alaric and the Visigoths during the following year, and by the Radagaisus in AD 405. In AD 408 the Huns and their allies, the Scythians, increased their attacks on the lower Danube; they were eventually defeated and the captives were reduced to slavery. The Hunnic pressure, however, did not show signs of decreasing and by AD 420, large portions of Pannonian lands were under their control. A formal treaty that was signed in AD 433, further strengthened the Hunnish control (Whittaker 1994: 418–419). In AD 451, the defeat of Attila the Hun at Campus Mauriacu was not only the most significant military event of the 5th century, but it also represented the end of Hunnish supremacy. This process was accelerated in the succeeding few years as a consequence of the death of Attila (Kolendo 1994: 435–436). Jordanes (Jordanes, 118–120) reports that following their defeat in the battle of the River Nedao, Pannonia, the Huns were forced to withdraw towards the northern regions of the Black Sea (Heather 1998: 109–129). Prisco di Panion refers to the Hunnic tribes that led a nomadic life in this region during the 5th century AD as the Akatziri (Prisco di Panion, tomo XI, 823), while Procopius of Caesarea designates the tribes that abandoned the Danubian lands and returned to the Crimea as the Utigiri (Procopio di Cesarea I.12, 7). The appearance of Attila resulted in a reduction of their lands and a fragmentation of the Huns into distinct groups. These processes finally resulted in the emergence of a number of different tribes—the Rugi in southern Austria, the Heruli in southern Moravia, the Swedish Alans, and the Vandals in Pannonia (Whittaker 1994: 420–421).

**Military events**

By the second half of the 4th century AD, the Huns advance resulted in a wave of immigrations. The Cernjachov Culture inhabitants of settlements in the Ukraine moved southwards along the shores of the Black Sea and westwards into Dacia. The Ostrogoths, who decided to keep their independence, in conjunction with the western Alans and some Visigoths, joined the flow of refugees that moved along the Mesian frontier. During the winter of AD 375-376 the Emperor Valens, in an attempt to settle the situation allowed them to cross the Danube attempting to establish a portion of them in Thrace, and recruiting the remainder into the army. This type of solution had proved successful in the past, but in this case it did not provide the expected result as the influx of refugees substantially increased during the following two years. In AD 378, when the Emperor Valens organized a military expedition to restore order, he was forced to fight against a combined army of Gothic, Alanic, and Hunnic warriors; he suffered a dramatic defeat at Adrianopolis (Cumiliffe 1994: 1200–1291). The new Emperor Theodosius, attempted to settle the situation in a diplomatic manner by lavishing privileges and generous gifts on the main leaders of each tribe. The majority of the Goths settled in Thrace and Mesia in AD 382 (Whittaker 1994: 406–407), between the Balkans and the southern shore of the Danube, whereas the smallest communities of Huns and Goths were given lands in Pannonia. This agreement was beneficial for both parties as new settlers acted as a potential barrier against further tribal movements. In addition, the dramatic decimation of the Roman army was somewhat reversed by the introduction of new soldiers (ibid., 1291–1292). The solution, however, proved to be successful for only a short period of time. As insurrections and migrations of individual groups combined into a single force, the situation evolved into a veritable kaleidoscope of different tribes uniting according to their needs, and moved.
into new lands. The existing unstable political situation was slowly shattered as new population waves began moving throughout central and Western Europe.

Acknowledgements
The text was translated by Sonia Ligorati and I am grateful for her careful and professional work.

Endnotes
1. With regard to the said nomadic populations it is necessary to consider the questions concerning the Goths, the Alans and the Huns, and their different links with the Roman World.

2. Nomadic peoples began cattle breeding during the second half of the first millennium BC. This form of economy then spread throughout the Eurasian steppes and forest steppes and, finally, to the vast territory that lies between modern China and the mouth of the Danube (Fodor 1995: 43).

3. Constantine paid great attention to the situation in Thrace and Mesia and engaged himself in a number of battles against the Tervingi that, facing starvation and cold, were forced to sign a treaty in AD 332. The treaty enabled them to trade with the Romans and to receive financial aid and food in exchange for royal hostages and military service in the Roman army. This event, which the historical sources refer to as a Roman victory, marked the beginning of the Gothic integration into Roman culture (Whittaker 1994: 409).

4. These two cultural spheres cover a very wide region that comprised the entire forest-steppes and steppes of the Ukraine west of the Dniester, the large territories located to the east of this river, Moldova, and part of Walachia and Transylvania.

5. The loss of the Dacian province and Aurelian’s decision to leave Transylvania and the Carpathian Mountains, coincided with the appearance of these two cultures. Rome never intended, however, to relinquish control of the fertile planes of Walachia and the Banat that stretched between the Carpathian Mountains and the Danube. A substantial amount of evidence exists that pertains to the Roman presence and Diocletian’s battles against the Goths and Sarmatians on the lower Danube. Several historical accounts indicate that great attention was paid to Lower Mesia and the limes Scythicus in Dobrudja (Whittaker 1994: 408).

6. The evidence obtained from archaeological surveys indicates that the phase of Gothic settlement identified in the vicinity of the Baltic coasts may be recognized as the Wielbark Culture. This culture started its expansion in the early Imperial Age in the region crossed by the lower Vistula. At the beginning of the 1st century AD, both the burial rites and the material culture changed. The Wielbark Culture was characterized by cemeteries that contained both inhumation and cremation burials, and weapons were lacking and tools are rare (Godłowski 1994: 1310). Personal ornaments recovered from female inhumations usually included snake-headed armlets, buckles, and Almgren-type fibulae that were used to fasten clothing or cloaks (Vaccaro 1996: 34).

7. A glass-making workshop was recovered from a Cernjachov Culture settlement in Komarov; along the middle Dniester River.

8. The spread of the Wielbark Culture, and the appearance of the Cernjachov Culture, resulted in the collapse of the border that, before the Imperial Age, had separated central and Eastern Europe. Despite the peculiarity of the Cernjachov Culture, its links with central Europe were so close as to suggest that it was a component of a single cultural community generally extending as far as the Rhine and Scandinavia (Godłowski 1994: 1325).

9. During the late 4th century AD, the Huns moved towards the Danube, destroyed some Cernjachov Culture villages scattered on the steppes along the north Black Sea coast. The Hunnic tribes that had settled in this area made incursions into the Danubian provinces of the Roman Empire (Ajbabin 1995: 159).

10. During the winter the cattle were bred in the sheltered valleys or at the southern mouths of rivers where the snow was never deep enough to prevent the animals from grazing. As soon as spring drew, near the cattle would have been moved to high pastures and forested plains (Fodor 1995: 43).

11. Horse burial was typical of graves belonging to the middle classes and the Hungarian elite populations. One of the best horses would be selected, and then sacrificed and skinned. The skull, and bones of the lower limbs remained within the hide, which was then laid next to the deceased. The horse’s tail was removed (Révséz and Nepper 1998: 55).

12. The major importance of the battle of Campi Catalaunici was that it enabled the examination of the Roman military organization. Roman soldiers were lower in number compared to the Visigothic foedusdráti. The victory was not a Roman military success, despite the unquestioned strategic genius of the magister militum Exio I. The Visigoths’ victory should be regarded as a defense of personal interests and retrieval of conquered lands and rights from the Hun invasion (Kolendo 1994: 436).

13. The presence of foreign populations within the Roman Empire had a practical purpose that involved the defense of its frontiers against population movements. A secondary aim was to recover the lands destroyed by the numerous forays caused by garrisoning new troops. This plan stemmed directly from the difficult task faced by Rome in its attempt to preserve and maintain control along the frontiers of an immense empire (Kolendo 1994: 436).

14. The defeat of Adrianopolis proved that the loss of frontier lands was not the result of exterior military pressures but rather of inner political instability. Although this battle was one of the major military defeats suffered by the Roman army, and despite the huge number of foreign settlements in the Empire, none of these elements were responsible for the deterioration of the frontier (Whittaker 1994: 407).

15. Note that the military recruitment was not generalized as the newly acquired armies were put under the command of warriors of the same ethnic group and armed according to specific customs. This strategy made the situation more complex and forced the Romans to adapt to completely new fighting techniques. The gradual development of a military organization that counted a very small number of Romans became a major factor from the 4th century AD onwards (Kolendo 1994: 438–439).

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Abstract
Preliminarily, this article focuses on a crucial aspect of the Early Iron Age material culture (9th to 7th centuries BC) in the Carpathian Basin and Central Europe, specifically Eastern inspired horsegear types, harness equipment, and weapons traditionally referred to as “Thraco-Cimmerian.” The supposedly northern Caucasian and Pontic origin of these items has traditionally been connected with the idea of an aggressive invasion of Eastern mounted warriors. The article argues in favor of a far more complicated model of mutual cultural contacts, with regular patterns of exchange and communication, between communities of sedentary stockbreeders in the northern Caucasus and Pannonia. The main part of the article examines the eastern area of the Carpathian Basin, i.e. the Great Hungarian Plain, which forms the most western part of the Eurasian Steppe belt. It is proposed that the fundamental changes in the cultural appearance of this area in the 9th century BC—which led to the formation of the so-called Mezőcsát Group—were mainly due to anthropogenic changes of the environment during the earlier Urnfield period (13th–11th centuries BC). Local populations adjusted to the new conditions by adopting a steppe-oriented lifestyle as mobile pastoralists as a result of intensive contacts across the Carpathian Mountain range. The Mezőcsát Group was the second important agent in transmitting Eastern cultural concepts and aspects of material culture to the West. Presumably relations between the steppe oriented group and the sedentary communities of the Late Urnfield and Hallstatt periods on the Eastern Alpine Fringe and in Transdanubia, tended to be antagonistic. Thus the interface between East and West reveals a complex pattern of conflict, exchange, and familial ties.

Keywords
Early Iron Age, Thraco-Cimmerian-Problem, Hungarian Plain, migration, horsegear

Introduction
The cultural transmission on the interface between the steppe and forest zone in Eurasia must be seen within the context of a complex pattern of communication involving pastoral nomadism, migration, acculturation and conflict. In this paper I would like to demonstrate this with a case study focusing on the Carpathian Basin, the lowland plain encircled by the mountain ranges that lie within the heart of southeastern Europe. Its eastern half that lies in Hungarian, Slovakian, and Rumanian territory is the southwestern outlier of the Eurasian steppe belt (Breu 1970-89; Horváth, Glavač and Ellenburg 1974).

Kristiansen’s (1989) examination of the late Neolithic Single Grave and Corded Ware Cultures and Anthony’s (1990) article “Migration in archaeology: the baby and the bathwater” have called the processual anti-migrationist approach towards phenomena of cultural change into question. This has led to a climate in which scenarios where migration of social groups, be it in the form of a drawn out process of immigration or a more sudden event in the sense of invasion, are again being considered as valid explanations in prehistory.¹ In central and southeastern European prehistoric research, the migrationist approach was by and large never abandoned, and is still seen as a plausible model in very recent contributions (Falkenstein 1997).² This is especially true if we look at this region during the Early Iron Age in the first half of the first millennium BC, which is the subject of this article.³

A summary of previous research
Traditionally, Central European research has seen the transition from the Bronze to the Iron Age connected with a migrationist theory originally proposed by Paul Reinecke in 1925 and embellished by Ion Nestor (1934a; 1934b) Gallus and Horváth (1939), and Friedrich Holste (1940). They saw the presence of a series of equestrian bronzes and weapons in central and southeastern European graves and hoards that showed East European steppe bound analogies as a reflection of the invasion of mounted warriors. These putative invaders were identified with the historic Cimmerians, who were thought to have caused major disruptions in the cultural development of the Carpathian Basin and beyond into Central Europe, despite the fact that there is no written evidence for such an incursion. Herodotus records that the Cimmerians were expelled from their native lands by the Scythians and decided to flee along the coasts of the Black Sea into the land of the Medes (Herodotus IV: 11). Accounts of their attacks against Urartu and Assyria are abundant and reports of their attacks against Urartu and Assyria are to be found in Akkadian written sources (Ivantchik 1993), which record events from the late 8th century to the middle of the 7th century BC (Metzner-Nebelsick 2000a).
In contrast to the foreign so-called “Cimmerian” objects, the local element of the material culture of the Carpathian Basin was attributed to the Thracians–first by Reinecke and more explicitly and with a wider range of artifacts in 1934 by Nestor. The link postulated between the horsegear dominated hoards and grave inventories in the Carpathian Basin and Central Europe and the Cimmerian expulsion allowed scholarship to date the finds to the turn of the 8th–7th centuries BC and, henceforth, referred to as Thraco-Cimmerian. Furthermore, the proposed short term invasive character of this event justified the postulation of a short lived Thrac-Cimmerian horizon (Milojčić 1959) that was used as an important chronological benchmark in early Iron Age research.4 The term Thraco-Cimmerian is still in vogue, although many scholars now simply use “Cimmerian” when referring to the eastern component. Thus, the word Cimmerian has become more or less a synonym for a model that assumed an invasion of nomadic riders into the Carpathian Basin and beyond. According to this model, the decline of the Urnfield Culture at the close of the Late Bronze Age and the emergence of the Early Iron Age Hallstatt culture of in the 8th century BC was at least partly caused by these supposedly disastrous events. More differentiated approaches have recently been put forward by Kossack (1980; 1986; 1994; 1998), Patek (1989/1990; 1993) and the author (1994; 1996; 1998). The migrationist approach however, still enjoys widespread currency (Chochorowski 1993; Kemeneczi 1984; Romsauer 1998; 1999).

A closer look at the material evidence as well as the overall archaeological record shows, however, that the historical paradigm of a disastrous invasion of Easterners falls short of a convincing explanation for cultural change at the beginning of the Iron Age in southeastern Europe.

The material evidence

As I have shown on different occasions (1994; 1996; 1998), the new Carpathian horsegear types occurring at the end of the Bronze Age are hardly ever real eastern imports. Similarities between Early Iron Age briddles and bits in southeastern Europe and the Ukraine as well as Ciscaucasian contexts are obvious–most prominent is the uniplane system (i.e., the strap holes all face in the same direction) that represents a new way to bridle a horse–but many other so-called Thraco-Cimmerian horsegear types have specific features that do not occur east of the Carpathians (Fig. 1). These types are definitely modeled on eastern prototypes but were clearly changed into local variants. Some are clearly confined to central and southeastern Europe, whereas others show a distribution both east and west of the Carpathians. The angled sidepieces (Fig. 2), originally referred to as type Kamyshevacha (after Terenozhkin 1976: 49, fig. 19), can also be found in a traditionally central European construction with a biplane system for the application of the straps. This clearly shows the ability of the local horse riding elite to adopt new forms of horsegear while at the same time keeping their traditional bridling technique.5 If we look at the horsegear ornaments, such as reign knobs, a similar phenomenon becomes apparent. In the west, eastern prototypes have been altered into local forms (Metzner-Nebelsick 1996: 297 f., fig. 8–9) mostly with a traditionally western ring base. Therefore, they prove to be mostly imitations of the eastern parallels, as reign knobs with ring bases had been produced in southeastern and central Europe since the 13th century BC (Metzner-Nebelsick 1998: 388, fig. 25). These forms, thus, cannot be seen as evidence of an invasion of mounted warriors as the “Cimmerian Model” implies. The horsegear finds, moreover, are dated within a period of more than 150 years (Metzner-Nebelsick 1994; 2000a). This disqualifies them as an indicator for a single and sudden influx.7 It should be argued instead, that a local traditions of horse breeding and a local production of horsegear types must have existed in the Carpathian basin (Hüttel 1981). It surely formed the basis for this almost immediate translation of new forms and construction principles, such as the uniplane system for rein guidance, into a local aesthetic concept leading to the creation of something specifically Danubian. This flexibility is a reflection of the mobility and intensive exchange pattern of the communities involved.

The contexts of the so called Thraco-Cimmerian finds within hoards also demonstrate typically western characteristics. Moreover recent research demonstrating complex and recurrent patterning in the composition of hoards have shown conclusively (Hansen 1994; Hänsel and Hänsel 1997; Metzner-Nebelsick 1996: 291 f.; Nebelsick 1992: 414, fig. 3; Sommerfeld 1994) that we are dealing with the product of ritual deposition, that is material sacrifice. The composition of hoards with Pontic-Caucasian horsegear such as the 9th century deposit from Vetis in Transylvania (Bader 1977), which contains Carpathian socketed axe types and horsegear, reflects traditional modes of sacrifice already apparent in the same region in the 12th century BC (Metzner-Nebelsick and Nebelsick 1999). Other hoards show a different pattern involving an equestrian, a male and a female component (Nebelsick 1992) like in Šrengrad near the Danube in eastern Croatia (Vinski-Gasparini 1973: 131, pl.130B), or is sometimes supplemented by tools—probably with a sacrificial aspect—as in Haslau-Regelsbrunn in lower Austria (Müller-Karpe 1959, pl. 143A).

The Mezőcsát Group

Leaving the hoards aside, another cultural phenomenon, which has been and is most ardently identified with an eastern intrusive population, was the so-called Mezőcsát Group. It was first described by the Hungarian archaeologist Patek (1974; 1989/1090; 1993). The Early Iron Age graves of the Mezőcsát Group can be dated from the 9th to the early 7th centuries BC (Patek 1993; Metzner-Nebelsick 1998). They are located in the loess and forest steppe area of the Great Hungarian Plain (Fig. 3). This group, that scholarship also refers to as Pre-Scythian, has so far mainly been defined on the basis of a specific burial rite.

Mezőcsát graves are always inhumations, usually in supine, but also occasionally in crouched position. Their predominant orientation is west-east (Metzner-Nebelsick 1998). They are found on slight elevations such as sand dunes or abandoned tell settlements and form little cemeteries, rarely having more than 10 graves. Fairly often they are found alone. They hardly ever contain more than two vessels, usually a large pot, a cup,
or a bowl (Fig. 4). In many graves cattle or sheep bones indicate that large portions of meat were included. Stones or querns next to the deceased are also a typical grave good, i.e., in Mezőcsát 27 (Fig. 5; Metzner-Nebelsick 1998: 378, fig. 14) as well as richly ornamented bone plates associated with female graves (Fig. 6) (Patek 1989/90, pl. 28–29).

Before we go into a more detailed analysis of the Mezőcsát burials it should be emphasised again that this archaeological group has been traditionally seen as representing mounted warriors and their hangers-on who invaded the areas beyond the Carpathian Mountains causing major disruptions in the cultural development of the Carpathian Basin (Kemenczei 1975: 70; 1981: 41; 1984: 86, 95; Chochorowski 1993).

The material evidence of the Mezőcsát Group as well as the overall archaeological record, however, reveals a much more complicated picture.

Indeed, it is clear that the rite of inhumation marks a substantial break with the funeral tradition of the Carpathian Basin. This was a key argument for the proposed population shift (see above, recently, Romsaucier 1998; 1999; Romsaucier and Veliačik 1998). From the Middle Bronze Age until the 10th–9th centuries BC, cemeteries with cremation burials and a distinctive pottery style have been in continual use in northeastern Hungary and parts of Slovakia. Late Bronze Age so-called Kyijatice cemeteries such as Szalja in Hungary (Kemenczei 1984: 135, pl. 71) or Radzovce in Slovakia are typical examples (Furmánek 1990).

Surely, such a change in funeral ritual primarily reflects new religious concepts not necessarily linked to the influx of new groups of people. Moreover, a comparison between the inhumations in the Carpathian basin and contemporary inhumations in the various eastern regions postulated as the homeland of the putative invaders shows obvious differences in their grave good assemblages.

One of the most striking facts about the Mezőcsát Group is the absence of weapons in the graves. The only exception is a miniature bone axe from a grave from Mezőcsát itself (Fig. 7). This only serves to underline the taboo against sepulchral armament that stands in strange contrast to the burial customs of the hypothetical homelands of the newcomers, where weapons play an important role in funerary status representation.

**The North Pontic steppes and the Northern Caucasus in comparison**

In the northern Pontic steppe and forest steppe zone, weapons in graves are an ubiquitous feature (Terenozhkin 1976; Dubovskaja 1998). This is also true in the northern Caucasus, especially in the area of Adygei in the Kuban region, in the Kislavodsk area of Kabardino-Balkaria, and in northern Ossetia where weapons such as bimetallic daggers, iron and bronze spearheads, and different types of iron or bronze axes as well as horsegear are regularly found in graves from inhumation cemeteries. Judging from the material evidence in these graves a horse riding warrior elite emerges sometime around 900 BC. The ideological importance of the warrior and his horse is especially evident in the cemeteries of Serzhen-Yurt in northern Ossetia (Kozenkova 1992) and in Fars at Adygei (Leskov and Erlich 1999), horses sometimes were buried next to their riders. Horse burials are not found in the Pre-Scythian steppe zone or in the Carpathian Basin at that time.

In Serzhen-Yurt, as in contemporary graves with different types of bits and cheekpieces such as in the recently published Fars-Klady Cemetery in Adygei in the Kuban region (Leskov and Erlich 1999) or Klin-Yar in Kabardino-Balkaria (Bereznev and Dudarev 1999), to name just a few, the horsegear belongs to riding equipment (i.e., a single bit and two cheekpieces). So far only one chariot grave drawn by two horses with Pre-Scythian horsegear of the Novocherkassk type has been discovered in a kurgan in Kabekhab’i' Uashkhitu (Erlich 1994). This extraordinary find might be seen as a reflection of Near Eastern forms of warfare.

Before we turn back to the Mezőcsát Group, it should also be mentioned that the most prominent horsegear type for the Pre-Scythian era in the Ukrainian steppes as well as the northern Caucasus—the aforementioned Novocherkassk bridle of the 9th and 8th centuries BC, does not occur west of the Carpathian Mountains. Here, horsegear of that period reflects the Pontic-Caucasian role models mentioned before and can be attributed to wagon as well as riding sets.

If we try to envisage those mainly horse riding elites of the northern Caucasus regions in the Early Iron Age in their social contexts, a picture of sedentary stockbreeders and pastoralists emerges. An aggressive warrior component is an integral part of their social system. The location of the cemeteries in the vicinity of the hilly slopes of the Caucasus promontories and the existence of contemporary settlements like in Serzhen-Yurt or Bamut (Kozenkova 1977, pls. 2–7) in northern Ossetia or in Krasnogvardeyskoie II in the Kuban region (Sharafutdinova 1989), make it difficult to see these groups as nomads. The situation in the open steppe area further north and east towards the Caspian Sea (Noguyskiye Steppes) or to the west in the northern Pontic steppe area and parts of Moldova is rather different.

**Central Europe at the transition from the Late Bronze Age to the Early Iron Age**

Within the central and southeastern European cultural frame work, riding sets in graves and hoards, although rare, reflect something new in the Late Bronze and Early Iron Age. In the local tradition the use of bridled horses was connected with draught animals used for war chariots or four-wheeled wagons in ceremonial and funeral contexts (Pare 1992). There are only a few graves of the Late Bronze Age, i.e., in the Early Urnfield period, containing horsegear that was composed of a single bridle or cheek piece, making it likely that a rider’s horsegear, and not the harness for a wagon with two horses, was deposited in the grave. Therefore, it is not surprising that the majority of late Bronze Age and Early Iron Age horsegear and reign ornaments of Pontic-Caucasian influence found in graves sym-
bolizes the traditional Central European set for two horses (Pare 1992). These graves containing horsegear, and dating to the 9th and 8th centuries BC, belong to the cultural context of the new Hallstatt elite of the eastern Alpine and Pannonian region of modern Austria, western Slovakia, Hungary, and Croatia. Surprisingly, in the eastern Carpathian Basin, home of the Mezőcsát Group, they are almost absent in graves (Fig. 7). One of those rare examples, an iron bridle from Mezőcsát (Patek 1993: 42, fig. 29) has direct parallels in Moldova (Lapushnyan 1973: 108, fig. 6) but not in the northern Pontic or Ciscaucasian region. Judging from the material evidence, the northern Pontic or Ciscaucasian cultural groups were not responsible for the drastic funerary behaviour changes in the eastern Carpathian Basin.

The Mezőcsát Group: a pastoral society?

If we look at the eastern Carpathian grave ensembles of the 12th and 9th centuries associated with Kyjatice and Gáva ceramics, we find the same dislike of weapons in graves that is characteristic of the Mezőcsát burials. Thus, the Mezőcsát burial rite is best seen as a reflection of a long-standing local tradition. Another traditional element is represented by occasional pins as costume accessories in graves, for example, from the Urnfield cemetery of Szalja (Kemeneczi 1984, pl. 71-87) and Mezőcsát Group inventories (Patek 1980; 1989/1990; 1993: 19ff). Although horsegear very rarely occurs in Mezőcsát graves, it is a regular feature of the few contemporary hoards of areas such as Prügy, Fügöd, Sarkad, Vető, or Szanda.

The question remains. Which role did this group, and the new eastern and eastern inspired artifacts as horsegear types, play in the process of cultural change at the beginning of the Iron Age? If we envisage eastern Hungary today, many of us might imagine a rather romantic scenario of herding cattle and horses that roam the vast Puszta steppe country. Although most of this land is now intensively farmed, this was not always the case. Before the great dike building programs at the end of last century, due to their low relief the steppes and meadows of the Great Hungarian Plain were endangered by constant flooding (Breu 1970–1989, map 181; Hänsel and Medović 1991, pl. 1) a fact underscored by the disastrous spring floods of the Tisza River in eastern Hungary in the year 2000. This made large scale cultivation a rather daunting enterprise leading to the use of the land by partly mobile pastoralists and transhumance populations. The predominant natural vegetation type of the Great Hungarian Plain are various kinds of forest steppes which differ from the steppe formations of the northern Pontic region, but also from the neighbouring deciduous forest areas to the west (Breu 1970–89). These environmental conditions were the ecological as well as economical background for centuries of occupation of the plain by pastoralists either semi-nomadic or transhumant.

The Mezőcsát phenomenon, in my opinion, is the most convincing explanation as the reflection of pastoral nomads and transhumant pastoralist who, through their mobile way of life, helped to transmit eastern ideas and cultural concepts from the Eurasian steppe belt to the west. Besides the natural steppe vegetation, which offers best conditions for stock breeding by sedentary as well as transhumance communities or semi-nomadic pastoralists, there are a series of archaeological indications to support this model.

The spatial analysis of the small cemeteries and single graves of the Mezőcsát Group seem to cover a chronological period of at least 200 years. The burials also seem to suggest a picture of rather small groups of people without a canonical funeral ritual for all members of the population. They seem to have practiced a mobile way of life, where regular cemeteries were not always maintained in one particular place (Fig. 8). A further piece of evidence for a pastoral ideology of the Mezőcsát Group may be the frequent presence of large cuts of mutton and beef that survive as animal bones in the graves. Direct evidence for settlement sites is still scarce. A very recent example of a well with Mezőcsát pottery from Kompol in Eastern Hungary (Matuz et al. 1998) is the only known site to date; settlement structures are still not traced.

In my view the most convincing argument for the pastoral nomadic or semi-nomadic and transhumant character of the Mezőcsát Group is supplied by its pottery. One of the main characteristics of this group is the typologically diverse character of the vessels in the graves (Patek 1989/1990; 1993; Metzner-Nebelsick 1998). What we see instead is a collection of pots whose forms are rooted in different ceramic traditions, among them many imports as shown in the diagram (Fig. 9). This probably reflects modes of exchange between Mezőcsát communities with other sedentary as well as mobile groups.

Longer distance contacts can be detected by the same type of vessel found in an isolated inhumation grave of the Mezőcsát Group in Želizovce in Slovakia (Ostáči and Nevizánsky 1996), with direct parallels in a warrior grave in Carevbrod, found in the steppe environment of the Bulgarian lower Danube (Hänsel 1974: 213, fig. 11). The weapon assemblage and horsegear in this grave stands in contrast to those of the Mezőcsát, yet shows close links with grave assemblages of the Ukrainian steppes as well as the northern Caucasus.

Artifacts—pottery as well as jewelry—from Mezőcsát graves also indicate contacts with the segmented societies of southwestern Hungary and northeastern Croatia, as the Dalj Group of the Urnfield and Hallstatt Period (Metzner-Nebelsick 1996; 1997). The ceramic production of these groups shows a homogeneity, foreign to the diversity of ceramic production of the Mezőcsát Group. Despite the typological diversity, it is possible to see undeniable similarities between Mezőcsát pottery and the ceramic styles of the preceding Late Bronze Age cultural groups of northern Hungary and Slovakia as shown in Figure 10.

It would seem that the Mezőcsát population had strong ties to the preceding Late Bronze Age groups of Gáva and Kyjatice; that is where their descendants who changed burial customs along with their way of life for reasons to be explained. It is also conceivable that only a part of the sedentary Late Bronze Age society became transhumant or adopted a mobile lifestyle, while maintaining close contacts to sedentary farming communities, living in more mountainous regions on the slopes of the Carpathian Mountains.
On a small regional scale, this interaction model of close contacts between sedentary and mobile pastoral populations can so far only be convincingly applied in western Slovakia.6

**Putting the puzzle together: man and the environment in the Hungarian Plain: a model**

I have argued that the ecological and environmental conditions in the Great Hungarian Plain in the Early Iron Age were of a predominantly steppe character that favored a subsistence strategy based on the stock breeding of gregarious animals, such as cattle, sheep or horses. In view of the vast Neolithic as well as Early and Middle Bronze Age tell settlements (Kovács 1988; Meier-Arendt 1992), or the aforementioned Late Bronze Age cremation cemeteries that had been used for many generations, this was not always the case. But when and why did these proposed fundamental changes happen?

As far as our period in question is concerned, recent pollen analysis in the area of Lake Balaton in Transdanubia have shown that there was a steady climatic deterioration after ca 1400 BC until 800 BC (Gyulai 1996). A worsening of the climatic conditions with lower average temperatures and a higher rainfall level could, however, in my opinion, not be the sole cause for such unfavourable conditions that forced formerly sedentary groups—dependent mostly on crop cultivation—to change their subsistence strategy and become transhumant, semi-nomadic pastoralists or pastoral nomads. The change of the subsistence strategy and the attendant drastic change of the cultural identity in the Great Hungarian Plain was certainly multifactorial.

One factor, or maybe the most important, will have been the radical change of the environment caused by massive erosion due to deforestation and, as a consequence, sedimentation and intensified flooding after 1000 BC.

If we take into account the vast quantity of Early Urnfield bronze hoards of the BzD/HaA1 period in the eastern Carpathian Basin (Hanssen 1994), we might see them—apart from the religious motivation of these finds—as a reflection of an enormous labor input involved in their production. We have to imagine the immense amount of wood needed, not only in the mines, but above all during the processes of metal production, before an unknown percentage of this production went out of use for religious purposes in the form of ritual offerings in hoards.

Case studies in mountainous mining areas in Bulgaria and Serbia have shown (Horváth 1974: 58 f.; 229 f.; 589), that erosion caused by intensive metal producing activities can be very substantial. Looking at the archaeological record of the Late Bronze and Iron Age in the eastern Carpathian Basin, I think it is possible to sketch the following model of an artificial change in the environmental conditions (Fig. 11).

As a result of over-exploitation of forest resources through deforestation in the course of mining and metallurgic activity in the Carpathian Mountains during the Early Urnfield period, land degradation and erosion began on the mountain slopes. This process might have been reinforced by intensive cattle grazing that prevented reforestation in hilly locations by down-trodding young shoots. As a result of the erosion process, sedimentation in the plain was intensified, and because of the low relief of the region this led to recurrent flooding. A research project in the Kis-Mohós-Lake Basin north of Miskolc in northeastern Hungary, recently published by Willis e. al. (1998), supports this theory. Here pollen analyses show a remarkable degradation impact coinciding with the depletion of beech trees between 1200–800 BC, which is the period of intensive metal production. There is also a drastic decrease of settlements after 800 BC. Both the massive deforestation in the plain since the Neolithic, and intensive grazing turned larger parts of the eastern Carpathian Basin into the steppe environment, as it would be under natural vegetation conditions even today.

Pastoral nomadism and transhumant pastoralism that were practiced in the Transcarpathian steppe and mountain regions provided, at least for parts of the overall population, a better way of coping with this changing environment. Additionally, in parts of the eastern Carpathian Basin old power structures, presumably depending upon metal production and distribution, collapsed and this intensified a situation of crisis. Traditional religious concepts concerning death were also no longer maintained. Instead a new concept of the afterlife prevailed and, as a result of the political crisis, the formation of the Mezőcsát Group with its pastoral ideology reflects the emergence of new political power structures in the eastern Carpathian Basin. At this point, the undeniable eastern contacts most apparent in the existence of prestigious artefacts, such as horsegear, probably played a decisive role. A closer look at those contacts may help us to understand the role of the Mezőcsát Group within the cultural network of the Early Iron Age in southeastern and central Europe, and place it into a wider European perspective.

**Conclusion**

Looking back, since the 13th century BC there is a long tradition of intensive contacts between the eastern Carpathian Basin and the Ukrainian forest steppe (Klochko 1993; Sava 1998). This devalues the accepted traditional view of a sudden eastern influx represented by eastern inspired horsegear and weapons referred to as Thraco-Cimmerian or Cimmerian. That those contacts were very intensive and formed a communication network between East and West can, among other things, be demonstrated by the distribution of clay figurines in settlements dating from 1200–600 BC (Fig. 12). They symbolise the pastoral ideology of their producers, but in their contextual meaning as part of rituals in connection with hearths within settlements, they also reflect the close intercultural contacts on a ritual and ideological level between communities or tribal entities on both sides of the Carpathians.

Obviously these tribal entities or polities were part of a communication network. Between southeastern Pannonia and in the Northern Caucasus this probably also involved intermarriage. A special Carpathian earring type, which also occurs in grave contexts of the Kuban region and the central Northern Caucasus (Metzner-Nebelsick 1996; 2000b), serves to illustrate this. Intensive communication including the domestic as...
well as a ritual level is expressed by the same motifs on locally produced pottery deposited in the Dalj Group graves located in Northeast Croatia (Metzner-Nebelsick 1996: 290, fig. 6), or in Fars in the Kuban region (Leskov and Erlich 1999: 142, fig. 50). The evidence also indicates that these polities were connected by institutionalized modes of exchange involving gifts such as horses and their prestigious bronze gear, as well as the knowledge of how to use it. Examples of horses as prestigious gifts were recorded impressively in the Iliad. Agamemnon offers Achilles among other precious goods, 12 horses as compensation for his theft of Achilles’ concubine (Iliad XIX: 246 f.). Other examples of the high value of horses were recorded in the Assyrian Annals (Starr 1990, Nrs. 65–66; Ivantchik 1993, Nr. 32, 9–11; 33, 3–4) or in several later sources that reached from the Alpine Celts (Dobesch 1980: 122 f., 141 f.) to Native Americans of the North American Plains (Hassrick 1989).

Among the innovations developed in the east, the military advantage of a new way of riding cavalry horses with a new type of horsegear was most important. As we have seen, despite the obvious scarcity of horsegear in Mezőcsát graves, its presence in contemporary hoards in the area, proves that horses had a significant meaning within the social and religious cosmos of the Mezőcsát people. The mobility of this group probably helped to convey eastern ideology and technical know-how to the west. The eastern horse riding elites within the social hierarchy of mobile and sedentary stockbreeders in the northern Caucasus, as well as in the Upper Dnieper region, may also have functioned as a superstructure in transmitting new military riding techniques into the Carpathian Basin. As mentioned above, eastern or eastern inspired horsegear types also occur in similarly structured hoards (Metzner-Nebelsick 1996: 292, fig. 7; Nebelsick and Metzner-Nebelsick 1999: 86) on the western edge of their distribution in the East Alpine fringe (Müller-Karpe 1959: pl. 143A), Bohemia kříčková 1991: pl. 55–58), Moravia (Podborsky 197, pl. 35) and Silesia (Seger 1907; Müller-Karpe 1961: pl. 61). Furthermore, they represent an almost regular feature of the Late Urnfield and Early Iron Age in the male social elite graves. These new, but locally rooted warrior elite, chose the eastern or eastern inspired prestige goods, especially horsegear, probably in connection with eastern horses, to symbolize their power; rarely were eastern weapons used as sepulchral status symbols although they were in vogue at that time. Obviously different networks of communication and mechanisms of exchange between polities of a similar social organization can be observed (Fig. 13). Interestingly, it seems that the northern Caucasus and areas of northeastern Croatia in the Middle Danube had especially close contacts with each other, whereas the Pontic steppe area seems to have functioned as a corridor (Metzner-Nebelsick 2000b).

This is most impressively shown by the distribution of a typical Carpathian horsegear ornaments with perforated cross-shaped decor. A cluster of finds may be observed in southeastern Pannonia, another in the northern Caucasus, and especially in the Kuban region. Astonishingly enough they are almost absent in the eastern Carpathian Basin, home of the Mezőcsát Group (Metzner-Nebelsick 1996: 299, fig. 9). Perhaps the closest parallels in grave goods composition patterns between the assemblages in the northern Caucasus and the west can be observed in southwestern Hungary at Pécs-Jakabhegy Tumulus 1 (Metzner-Nebelsick 1998: 392, fig. 26). These belong to the oldest graves within a large tumulus cemetery in the forefield of a fortified hillfort settlement (Marúz 1978; 1996). It contained a northern Caucasian dagger type—Kabardino Pyatigorsk (after Kozenkova 1975)—an iron spearhead and axe, again with North Caucasian parallels, locally made horsegear of northern Caucasian/north Pontic inspiration, that functioned as tokens of wealth and status. The iron knife and bronze pearl as part of the belt, can be regarded as typical for the Hallstatt Culture. Local components include the remains of a set of locally made pottery, the cremation ritual, and the erection of a tumulus with a central grave, whereas in the northern Caucasus, inhumations in flat graves were the almost exclusive burial rite of that time (Kozenkova 1977; 1989; Berézin and Dudarev 1999).

The integration of eastern imports or eastern inspired artifacts in graves of the early Hallstatt period in Central Europe were an important facet of status representation during the 8th century BC. It was fashionable to portray oneself as an easterner or, let’s say, in a “Cimmerian” or rather Pre-Scythian mode (Kaus 1988/1989). It was a period when the uniform expression of status that became canonical in the late 8th and 7th centuries BC, had not yet been found. Another contemporary cremation grave in Pécs-Jakabhegy, Tumulus 75, shows this very clearly (Metzner-Nebelsick 1997). By contrast, the grave goods of this other chief-tain belong to a locally rooted eastern alpine weapon set. These graves of the social elite can only highlight the remarkable contrast of the burial customs as well as the social structure between the segmented societies in the western Carpathian Basin and eastern alpine fringe zone and the Mezőcsát Group in the eastern Carpathian Basin, which I have tried to illustrate here in summary form.

In the west, eastern inspired artifacts and real imports are embedded into local patterns of status representation within graves. By contrast, in the eastern Carpathian Basin the assimilation processes of the local population groups towards a steppe orientated new pastoral lifestyle could be shown. In this region, the trakt’s formation of formerly sedentary communities into a mobile, or partly mobile pastoral society, may have led to a presumably antagonistic relationship between those communities and the adjacent sedentary segmented polities of the Late Urnfield and Hallstatt culture on the Alpine fringe and in Transdanubia.

The immigration of foreign populations on a large scale could not be recognized in either of these differently organized western and eastern cultural landscapes. Single contacts between people, or mobile groups like pastoralists, or perhaps mobile warrior bands who may have had destabilizing effects on the social system of sedentary communities, must be seen within a structured mode of communication networks. Even wars and aggression between different tribal or ethnic groups—that are always present in history but rarely detectable in the archaeological record of graves—form part of these structures.
Acknowledgement

This article is based on lectures held at the EAA meeting in Gothenburg, Sweden in 1998, and at the University of California at Berkeley, in 1999. I would like to thank Dr. J. Davis-Kimball and Dr. P. Biehl for their kind invitation to hold the Berkeley talk. I would also like to thank my husband L. D. Nebelsick for support in editing this text.

Endnotes

1. For a compilation of the recent discussion of the phenomenon of migration in prehistoric societies; see Chapman and Hamenow 1997 with older literature.

2. For recent trends in German archaeology that stand in contrast to the prevailing Anglo-American approach, and place an emphasis on processes of acculturation and transmission as motor for cultural change, see Härke 1997 with further literature and special emphasis on the Migration Period; also Symposium Schleswig 1995.

3. A more comprehensive version of this article is published in German (Metzner-Nebelsick 1998).

4. For the so-called “Cimmerian Problem” see, for instance, Sulinowski 1959. Current Russian and Ukrainian research focuses on the evaluation of the historical as well as chronological meaning of Terenozhkin’s cultural phases, i. e., the older Chermogorovka and the younger Novocherkassk (i. e., Leskov and Erlich 1999; Machortych 1994; Machortych and Ievlev 1992; Dubovskaja 1998); that are traditionally identified with the Cimmerians (Terenozhkin 1976). A critique of Terenozhkin’s system has recently been put forward by Dubovskaja (1998), who sees Chermogorovka not only as an assemblage of types and a chronological phase within the Pre-Scythian era, but also as a cultural group with a distinctive burial custom and ceramic style. According to Dubovskaja, its character is nomadic. The North Caucasian Kuban Culture has been dealt with in a variety of publications mainly by Kozenko (1977; 1989; 1998). For further references see also Machortych 1994; Beglova et al. 1997; Berezin and Dudarev 1999; Leskov and Erlich 1999.


6. For details concerning typology and construction of horsegear see Hützel 1981; Metzner-Nebelsick 1994; for a compilation of Russian and Ukrainian horsegear, see Dietz 1998.

7. The protagonists of the migration model, Kemenczei and Chochołowski, also recently argued for a chronologically differentiated approach (Kemenczei 1998, 1984; Chochołowski 1993); Nonetheless both hold on to the invasion model.


9. Other contexts with double sets of bits and cheekpieces, exclusively of the classic Novocherkassk type, may indicate that horsegear for wagons i.e., chartots, were deposited, e.g., in Fars/Klady, Kurgan 46 in the Kuban region (Leskov and Erlich 1999, fig. 42), or Butenski and Nosachiv in the Ukrainian forest steppe zone (Terenozhkin 1976, fig. 38, Kovpanenko 1966).

10. Triple looped sidepieces with splayed and flattened lower finals, bits with double-ring ends.

11. Mikulčice in Slovakia (Pivovanova 1965); Wörschach in Austria (Modrjan 1953), and Befrode in Denmark (Thrafen 1963).

12. This tradition reflects a funeral custom of status representation beyond death. It does not mean that horses were not ridden in Central Europe. The deceased male and rarely female of the social elite were however, portrayed as a wagon driver and not a horse rider.

13. Mezőcsát graves with horsegear: Füzesabony Öregdomb, Gr. 3 (Metzner-Nebelsick 1998, fig. 5); Mezőcsát, Group 52 (Patek 1993, fig. 29); Senica (Nevizansky, 1985, pl. 1); Posadka (Dolci 1961).

14. In Hungarian and Slovakian literature, these ceramic styles are referred to as cultures (Kemenczei 1984), and are regarded as preceeding the invasive Mezőcsát; see Gáva for new interpretation (Szabó 1996).


16. The Mezőcsát burials of 2 Zaruň (Poulík 1995) are located only a few kilometers away from the typesite of the late Urnfield cemetery at Podolí.

17. Further examples include strap ornaments (Metzner-Nebelsick 1996: 299, fig. 9); see also Metzner-Nebelsick 2000b.

18. Livius tells in his work about Roman history (“Ab urbe condita libri”) about Roman Senate gifts to the Celtic King Cincibilus, 170 BC. Among the gifts were horses including equipment and their aggrae, i.e., grooms and trainers (Livius, 43, 5, 1–10).

19. Note the hoard of Sarkad in the Comitat of Békés as an exception (Gyucha 1996).

20. For further examples see Fröll (Tomedi 1994); Pelméncie (Werner 1961; Metzner-Nebelsick 1998, fig. 29); Stillfried (Kaus 1988-1989).

21. This contrast became increasingly apparent in the following later Hallstatt Period that involved the so-called Scythian/Vekerzug groups of the late 7th and 6th century BC (Chochołowski 1985; Teržan 1998).

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Early Iron Age Pastoral Nomadism in the Great Hungarian Plain


Kurgans, Ritual Sites, and Settlements: Eurasian Bronze and Iron Age

Anniversary of the Institute of Prehistoric Archaeology of the Leopold-Franzens-University Innsbruck.


Sharafutdinova, E. S. 1989. Dvusloinoe poselenie Krasnogvardeiskoe pamyatnik epokhi pozdnei bronzy nachala rannego zheleza na Kubani, pp. 46–73 in Money predky Adygov. Maikov (“The Two-Phase Settlement of Krasnogvardeiskoe, a Monument of the Late Bronze Age and the Beginning of the Early Iron Age in the Kuban.” The Meotians, Ancestors of the Agygeys)).


Fig. 1. Distribution of Type I cheekpieces. (after Metzner-Nebelsick 1994: 440 f.)
Fig. 2. Distribution of angled cheekpieces, Types VI and VII. After Metzner-Nebelsick 1976, Metzner-Nebelsick 1994: 443 f. updated.

Fig. 2. Distribution of angled cheekpieces, Types VI and VII. After Metzner-Nebelsick 1976, Metzner-Nebelsick 1994: 443 f. updated.
Fig. 3. Distribution of the Early Iron Age burials of the Mezeno-Type tumbrae. (after Metzner-Nebelsick 1998: fig. 411 with additions, after Romsauer 1999: 168, fig. 1).
Fig. 4. Algyő, Comitat Csongrád, southeastern Hungary: Grave 83 containing grinding stone with animal bones and pottery above the head of the deceased. (Trognayer 1983, 56, fig. 17)
Fig. 5. Cemetery plan and selection of graves from the Mezőcsát Cemetery, Comitat Borsod-Abauj-Zemplén, Northeast Hungary. (after Patek 1993)
Fig. 6. Bone plates from Mezőcset type graves from Fűzesabony-Kertő-shalom and Sirok, Akasztomály, Northeast Hungary. (after Patek 1989/90, pl. 28)
Fig. 7. Combination diagram of grave goods from the Mezőcsát cemetery. (after Patek 1993: fig. 10-11)
Fig. 8. Number of Mezőcsát burials per site.
Fig. 9. Pottery imports in graves of the Mezőcsát Group. The vessels symbolize the types pottery and the arrow denote the area of origin to the destination in Mezőcsát graves.
Fig. 10. Vessels from the cremation cemeteries of Szalja, northeastern Hungary, and Radzovce, Slovakia (left), and their equivalents from inhumation graves of the Mezőcsát group (right). (after Kemenczei 1984; Furmánek 1990; Patek 1989/90)
Fig. 11. Model of commonly accepted ecological changes and their cause in the Carpathian Basin between 1200-1000 BC.
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Fig. 12. Distribution of clay figurines belonging to the Urnfield and Hallstatt Period from settlement contexts. (Metzner-Nebelsick 1998, fig. 27; 415)
Fig. 13. Model of interaction between cultural groups of the northern Caucasus, the Ukrainian steppe zones and central and southeastern Europe between 1000–700 BC.
Abstract
The relationship between pastoral nomadism in Fennoscandia and Siberia are discussed within a context of a large–scale division of labor, economic specialization and interaction in Eurasia. Nomadic communities became important components of extended systems of interrelated socio–cultural units in the Eurasian territory. Long distance contacts were established and the taming and training of domesticated reindeer became meaningful in an environment of newly established economic and social networks. Settlement patterns changed as a result of a new strategy for resource utilization and new modes of transportation. Reindeer exploitation for transport influenced the human settlement pattern because of the requirements for domesticated reindeer pasture. Studies of changes in settlement patterns in Swedish Lapland, in conjunction with information derived from pollen analysis, have indicated that this transition took place during the first millennium AD. Archaeological finds have demonstrated that long distance contacts between Fennoscandia and Siberia existed in the first millennium BC; it is possible that elements of reindeer herding traditions can be traced back to the time of these contacts. It also seems obvious that some mythological motives of the pre–Christian Saami society can be related to the belief systems of the nomadic horse breeders of the eastern steppes.

Keywords
Pastoralism, nomadism, reindeer, settlement, interaction, Lapland

Introduction
The introduction and spread of pastoral nomadism in Eurasia can be analyzed within the context of large scale division of labor, economic specialization, and interaction. Herding domesticated animals enabled new strategies for resource utilization, developing economic and social interactions, and nomadic communities to become an important component of extended systems of intercultural relations. A further important aspect of the transition from hunting to herding domesticated animals, was the strong influence that livestock requirements for pasture had on human settlement patterns. In the following paper the transition from an economy based on hunting and fishing to one that concentrated on pastoral nomadism is discussed within the context of northern Fennoscandia. In addition, a brief review of the current academic debate concerning reindeer pastoral nomadism will also be provided.

Reindeer Pastoral Nomadism
Two principal views are recognized in the debate on reindeer pastoral nomadism in Fennoscandia. A number of scholars are of the opinion that the transition from hunting and fishing to pastoral nomadism was a relatively late phenomenon occurring during the last 400 years (Vorren 1980: 253 and 261; Lundmark 1982: 171, 1989: 37; Mulk 1988: 255, 264). The transition is considered to have arisen as a result of changes to the prevailing hunting–fishing societies, influenced by the intervention of the Scandinavian states. The increase of reindeer herding is thought to have resulted from a scarcity of game, which may have been due to external factors including taxation and trade. The second theory argues that the societies of northern Fennoscandia cannot be analyzed as isolated units until the 1500s and 1600s (Baudou 1988a: 19–20). This latter viewpoint considers that relations with the outside world had already resulted in an economic transition from hunting and fishing to reindeer pastoral nomadism by as early as the Iron Age (Aronsson 1991: 113). Anthropologists have highlighted the similarities between the reindeer herding techniques of Scandinavia and western Siberia (Vainshtein 1980: 130–144). It would appear that the inhabitants of these regions not only interacted with neighboring farming communities but that they also had established long distance east–west contacts. Archaeological artifacts retrieved from excavations in Scandinavia and western Siberia have added further support for the existence of these long distance contacts. It is possible that reindeer herding may have been one element of these long distance interrelations, but to date no archaeological evidence has been discovered which proves this assertion. Archaeologists working in the early 1900s were already aware of these problematic issues (Tallgren 1937).

Reindeer herding equipment mainly consists of organic materials including bone, wood, and leather, generally not preserved in the acidic podsol soils of northern Fennoscandia. Occasionally, certain organic materials are recovered under exceptional preservation conditions, such as permafrost and peat. The pau-
city of archaeological artifacts indicative of reindeer herding makes it necessary to turn to other potential indicators of this economic practice; analyses of settlement pattern changes and palaeoecological studies have been used for this purpose.

Some researchers class pastoral nomads, herd-following hunters, and similar groups into a single category in which some form of deliberate conservation of the particular animal species was practiced. The transition from hunting to pastoralism is explained as an internal social evolution that arose as a consequence of the local scarcity of game. Researchers who support this theory regard the possibility of identifying the transition from hunting to pastoralism in the archaeological record to be extremely limited (Ingold 1980: 118, 128–133). It may be argued, however, that a scarcity of game cannot entirely be used to explain this transition. Throughout the long history of the northern Eurasian hunters it is probable that scarcities of game would have frequently arisen, and it is notable that reindeer hunters of North America never became reindeer herders. It would seem unlikely that a temporary scarcity of game would have resulted in a large-scale adoption of reindeer pastoralism, and this traditional explanatory model has received criticism (Olsen 1987). It is necessary to examine other possibilities for an economic transition, and attention must be directed toward the interaction of the Saami (Laplander) society with the outside world. Khazanov (1984) discusses the economic relationships between nomadic societies and the outside world in great detail; his research is of major relevance in understanding the economic transition processes within the context of Fennoscandia.

The reindeer hunters of Eurasia would have had frequent contacts with cattle breeders, agriculturists, and metallurgists. It is interesting to note that this situation did not occur in North America; the reindeer hunters were not exposed to other economic groups. In contrast to North America, different forms of contacts and interactions established between Eurasian societies seem to have played an important role in influencing the transition from hunting to pastoralism. Metallurgical centers in Siberia became a vehicle for long-distance economic exchange and socio-cultural interaction throughout northern Eurasia; influence was not solely restricted to technology. Social organization and ideological belief systems were affected over vast areas. The Saami pre-Christian beliefs, for example, included the "Ruto" motif, a mythological rider on horseback relating to the world of the dead. Obviously not a native motif, it may be traced to influences from belief systems of the nomadic horse breeders of the eastern steppes. A fuller discussion of the northern Eurasian background of the Saami "Ruto" cult is found in the works of Mebius (1968), Pettersson (1985), and Ränk (1985).

**Eurasia at the end of the first millennium BC and the beginning of the first millennium AD**

The end of the first millennium BC was an era that saw an increased influence of state societies and the rise of contact with peripheral areas. At this time within Eurasia, large inter-related socio-cultural units had their own centers and peripheral areas. Koryakova (1997a: 156–157) referred to a number of interrelated "cultural worlds" that provided the context for Eurasian nomadism:

1. The Hellenistic and Roman World
2. The world of the Celts
3. The "Third World" of Europe (Proto-Germanic northern cultures of Europe)
4. The Thracian–Dacian Carpathian World
5. The world of Eastern Europe (Proto–Baltic and Proto–Slavic) forest cultures
6. The world of Finno–Permian cultures west of the Urals
7. The nomadic Iranian World in the Eurasian steppes
8. The world of the Ugrian and Iranian cultures in the Trans–Ural and western Siberian forest–steppe
9. The world of the Ugrian and Samodian forest cultures of western Siberia

Northern Fennoscandia can be regarded as the westernmost component of the "Finno–Permian World," situated in close proximity to the Proto-Germanic tribes. Not only related to the Finno–Permian cultures, the area was also inhabited by northern European cultures. In addition, long-distance contacts with Siberia would have existed. During the 8th and 7th centuries BC and onward, the economic and cultural changes that occurred in northern Fennoscandia were mainly related to links with Ananino Culture (800–200 BC) metallurgical centers to the east (Baudou 1988a: 15–16; 1988b: 234–236). The forms of economic specialization that would have existed in northern Fennoscandia included metallurgy, cattle breeding, hunting, and fishing. Reindeer herding probably introduced to Siberia during the first millennium BC, but true reindeer nomadism is considered to be a much later phenomenon (Vainshtein 1980: 142–143). During the 1st century AD the Roman writer, Tacitus, describes northern hunting populations that he refers to as "Fenni." His description of the "Fenno" as hunters may be considered evidence that reindeer nomadism had not yet been established in Fennoscandia (Aronsson 1991: 10, 102).

The end of the first millennium BC saw a decrease of southern Ural settlement sites in the steppes, and a concomitant increase in the number of forest–steppe zone settlements. By the middle of the first millennium AD, the adoption of iron metallurgy in the forest–steppe had been completed, and this technology was widespread throughout the western Siberian forest zone (Koryakova 1997b: 171). Possibly a parallel development occurred in northern Fennoscandia. Hunting and fishing culture settlement sites were concentrated along the coastline and around inland rivers and lakes; animals of the areas were the principle natural resources exploited. At the beginning of the first millennium AD, the settlement patterns changed and an expansion occurred into the forest zone and Scandinavian mountain ridge. Considerable debate pertaining to the settlement pattern change has occurred in Nordic archaeological research, and two main views are recognized. The first viewpoint considers the change to have arisen as a consequence of an inter-
nal development among hunting and fishing societies, leading to an increase in reindeer hunting. In addition, climatic changes may have contributed to the expansion of settlement (Mulk 1988: 71). Other researchers have suggested that increased economic interaction with neighboring societies was a decisive factor that contributed to the intensified exploitation of inland resources (Baudou 1988a: 19).

East–west contacts

In Scandinavia during the latter part of the late Iron Age (500–1050 AD), an increased economic interaction took place that strongly influenced the northern cultures. Earlier, far–reaching contacts with the outside world had been of importance. Bronze production was introduced during the Ananino period, and knowledge of iron working spread westwards from the eastern cultures. During the first centuries AD, iron replaced stone technology in northern Fennoscandia. It is possible to identify an eastern origin for iron metallurgy that paralleled the spread of this technology in southern regions (Baudou 1988a: 15–16). The long distance contacts with the east later declined, and new contacts were established to the south and southeast with political and commercial centers in the Baltic region (Baudou 1988b: 235). This change is particularly obvious during the Viking period (800–1050 AD) (Fig. 1).

Developments in the North Sea and North Atlantic areas also influenced economic developments in Fennoscandia. Around AD 892, the Norseman Ottar related to King Alfred of England that the Saami possessed tame reindeer decoys and that he was the owner of 600 reindeer. From this evidence it must be concluded that reindeer herding was established at that time (Aronsson 1991: 10, 102). The recovery of reindeer sledges from burial excavations supports the theory that the Saami were using reindeer not only as hunting decoys but also as draught animals (Schanche 1997: 179).

The theory that domesticated animals were first integrated into hunter–fisher societies for transport purposes is of importance when analyzing the early development of reindeer herding (Lundmark 1989: 31–32). Apparently, specific historical conditions of economic and social interaction made taming and training animals a meaningful social practice. The domesticated reindeer was introduced into the new economic and social networks that were established.

To summarize, during the first millennium BC long distance east–west contacts were of importance for the northern Fennoscandia cultures. Bronze artifacts related to the Ananino Culture, are the most obvious evidence of these relations; iron-working techniques also spread from east to west. It is possible, but not proven, that some Siberian reindeer herding techniques also reached Fennoscandian cultures during the first millennium BC, and earlier researchers have observed common traits between reindeer herding cultures. Fennoscandian reindeer herding seems to be related to reindeer herding of both southern and western Siberia (Vainshtein 1980: 142–143). The transition from hunting and fishing to reindeer herding in Fennoscandia may have been influenced at an early stage by Siberian reindeer herding, but the later stages are obviously the results of independent developments in Fennoscandia. This assumption is not contradicted by the archaeological finds, but it is not possible to find support in the contemporary historical sources due to the paucity of materials.

Changes in settlement patterns in Lapland

Archaeological investigations in the Arjeplog area of Swedish Lapland have been undertaken over a number of years with the results demonstrating that an obvious change in settlement patterns occurred during the first millennium AD. Until ca. AD 400, the settlements were mainly located on the shores of rivers and lakes, the waterways were important for transport and communication, and fish was a significant source of food. After this date it appears that nearly all settlement sites disappeared from the shores (Bergman 1995: 201), and a new settlement pattern was established. These newer settlements were located some distance from the river and lakes shores, and were situated in forests, near mires and small fresh water streams (Fig. 2). The physical remains of the settlements consisted of hearths, similar in morphology to those found in modern nomadic tents and huts of the area (Fig. 3). The preferred locations also correspond to the historically attested settlement sites of the reindeer herding Saami. A hypothesis is that the change was related to a new system of resource utilization in which reindeer pasture grounds had gained importance. The choice of settlement locations also indicates that transport via waterways was of less importance than during earlier periods. The new economic strategy included increased interaction with neighboring farming communities. Hunting of wild reindeer as well as small fur–bearing animals was important for exchange between the Saami society and the outside world (Aronsson 1991: 113; Storli 1993: 16–19).

A parallel change has been observed in the mountain area where a settlement expansion is recognized from approximately AD 500 and onward (Mulk 1988). Storli (1993) has argued that this expansion is related to the introduction of reindeer pastoralism. Those scholars who favor the theory that the transition to reindeer pastoralism was a late phenomenon arising as a result of a scarcity of game during the 1600s do not agree, and argue that the expansion was related to intensified hunting (Mulk 1993). Storli’s theory that reindeer pastoralism was established during the Viking Age is much stronger than the alternative theories. The dwelling sites are located in the reindeer summer pasture grounds (Aronsson 1993). The main part of the settlements and the wild reindeer pit traps reveal different geographical distribution patterns (Storli 1993: 17–18). The pit trap systems are usually situated in the valleys where reindeer migrate between the summer and winter pasture grounds.

Radiocarbon dates obtained from pit traps in Lapland have indicated that most of the traps predate AD 500 (Forsberg 1989: 7). To date, these hunting remains appear to belong to an earlier period than the settlement expansion into the forests and mountains under discussion occurred.
Results obtained from a survey of ancient remains in Swedish Lapland further highlight this situation. Differences in the settlement distribution patterns from the Stone, Bronze and Early Iron Ages (c. 5000 BC–AD 500), the pit systems and the nomadic style settlements with the remains of hearths indicative of tent and hut sites, can be recognized (Figs. 4–6). The change in distribution pattern from the older settlements to the younger nomadic style settlements is obvious; it is probable that this change occurred as a result of a new strategy for resource utilization in addition to a new mode of transportation. The exploitation of reindeer for transport probably also influenced the human settlement pattern because of the requirements of pasture for the tame reindeer.

**Palaeoecological investigations**

Studies of modern pollen deposits associated with semi-nomadic settlements and reindeer pens have demonstrated that even small-scale changes in forest vegetation can be detected through pollen analysis. Small-scale clearances at the settlement area, trampling and fertilization by reindeer, reindeer grazing, the collection of plants for fuel and food, and the occurrence of waste from the dwellings are all factors that can cause changes to the local vegetation. Even on a small scale, this form of human impact can result in the development of an herb-rich type of vegetation.

Pollen studies undertaken in the forest zone of northermost Sweden provide evidence for small-scale human interference with the forest, and the trampling and manuring of the soil by small herds of reindeer during the last 1500–2000 years. The early small-scale interference may be related to a combination of reindeer herding with a food extracting economy specific to semi-nomadism (Aronsson 1994). This form of semi-nomadism has been widespread throughout northern Eurasia (Khazanov 1984: 40-44). A more obvious cultural influence on the forests of Lapland is related to the expansion of true reindeer nomadism occurring during the last 400 years. It should be noted that pastoralism comprises a number of different forms of nomadism (Aronssson 1991: 6-7).

**Conclusion**

It can be concluded that the introduction of reindeer herding to Lapland arose within a context of far-reaching economic and cultural changes throughout Fennoscandia and the surrounding world. Technological innovations such as the development of metallurgy, in addition to economic and social interaction brought about changes in the hunting culture. Long-distance contacts between Fennoscandia and Siberia resulted in the spread of a number of cultural elements. There is, however, nothing to indicate that the Ananino Culture in Fennoscandia was reindeer herding, but metallurgy and other cultural traits, such as the production of bronze items spread from the east. Long distance east-west contacts between Siberia and Fennoscandia continued after the end of the Ananino period, but came to an end in the Late Iron Age. It is likely, however, that some of the eastern elements involved in the Fennoscandia reindeer herding traditions can be traced back to the time of these long-distance east-west contacts.

In comparison to Inner Asia, maritime adaptations, and riverine and lake resources were of great importance in northern Fennoscandia. The shift in settlement patterns that occurred after AD 400, represented a break in a long tradition of resource utilization and a new strategy was established. In Fennoscandia, the scarcity of game probably resulted in intensified utilization of maritime resources and the development of agriculture; it seems likely that east-west contacts also played a role in the transition to reindeer pastoralism. Currently it appears that the reindeer herding tradition was the result of east-west contacts rather than an independent western development. Archaeological finds indicate that these contacts may have been of importance during the early stage of the transition from hunting and fishing to reindeer pastoralism. The Late Iron Age and Medieval (500–1500 AD) developments in the Baltic and North Sea area were, however, decisive for the later stages. This viewpoint corresponds with archaeological, palaeoecological, ethnographical and historical data.

**References**


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Fig. 1. East-west contacts: 1 - Late Neolithic; 2 - Bronze Age; 3 - Viking Age; 4 - a border-line between east and west can be recognized during the Early Iron Age in the mid-Sweden region. Swedish Lapland is situated north of this border-line. (after Baudou 1988b)

Fig. 2. Distribution of settlements from the hunting culture during the Bronze Age (black dots), and from nomadic settlements during the Late Iron Age (triangles). The city of Arjeplog in Swedish Lapland is marked on the map. (Investigations by Hedman)
Fig. 3 (left). An example of the remains of a hearth inside a nomadic tent. (investigation by Hedman)

Fig. 4 (below). Example of distribution and concentration of settlement sites from hunting and fishing cultures during the Stone and Bronze Age in Swedish Lapland (black dots). (investigations by Aronsson in the Gellivare area, north of the Arctic Circle in Swedish Lapland)
Fig. 5. Example of distribution and concentration of pit traps (black dots). (investigations by Aronsson in the Gellivare area north of the Arctic Circle in Swedish Lapland)
Fig. 6. Example of distribution and concentration of nomadic style settlements with remains of hearths inside tents (black dots). (Investigation by Aronsson in the Gällivare area north of the Arctic Circle in Swedish Lapland)
A Comparative Study of the Early Iron Age Cultures in the Southern Volga and the Southern Urals Regions

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Abstract
This paper summarizes the results of a complex study of the ancient Greek sources concerning the Sauromatians, and more than 500 Scythian period (6th–4th century BC) archaeological sites from the lower Volga and southern Ural regions were included in the analysis. The results of the study enabled the author to criticize the ancient Greek sources which infer that the Sauromatians were present in the lower Volga region. The ancient authors stated that the Sauromatians had lived in the west, in the vicinity of the Black and Azov Seas in the lower Don River region. Conclusions reached in this paper indicate that by placing the Sauromatians in the lower Don region, the fact that a genetic connection existed between the Sauromatians and the Sarmatians is negated. This finding in turn indicates that there were fundamental socio-chronological divisions within the Sarmatian Culture. A comparative study of the archaeological sites of the lower Volga and the southern Urals, which included funerary rituals and the principal artifacts of the mortuary inventory—ceramics, arrowheads, daggers, and swords—reveals that these sites cannot be considered to be a single archaeological culture. In conclusion, the author reviews the findings of the present study in conjunction with data obtained from the research of other scholars which has been found to confirm the results of the present investigation.

Keywords
Early Iron Age, Sauromatians, Sarmatians, ceramics, weaponry

Introduction
Russian archaeologists, beginning in the late 1940s, have associated the Early Iron Age sites of the lower Volga and the southern Urals with the Sarmatian Culture (Fig. 1). At this time the leading Sarmatologists, B. N. Grakov and K. F. Smirnov, developed the fundamental periodization for the Sarmatian culture. It has been stated that the Sarmatians inhabited the southern Russia steppes for over a thousand years (Grakov 1947: 100-120; Smirnov 1961, 1964, 1964; Davis-Kimball et al., 1995). According to their periodization, the Sarmatian Culture has four chronological stages that have been given various names as noted below. The evolution of the culture is characterized by the changes that appeared in the Sarmatian mortuary ritual and in the aggregation of grave goods. The cultures and chronologies are listed in Table 1.

The Sauromatian, the first stage of the Sarmatian Culture, is named after the tribe known to us from Herodotus and other Greek authors. These tribes allegedly were the eastern neighbors of the Scythians. It is difficult to postulate particulars concerning Sauromatian-Sarmatian connections on the basis of ancient texts. According to the earlier manuscripts, the Sarmatians were a new tribe coming from the east; later references indicate that "Sauromatian" is the earlier name for the Sarmatians. M. I. Rostovtsev, an expert in ancient literature, postulated that none of the ancient authors who wrote about the Sarmatians ever mentioned the role of females in the society. Their prominent role, according to the Greeks, was one of the basic features of the Sauromatians. In the written sources, the Sarmatians acquired the characteristic Sauromatian features only after the original documents had undergone literary interpretation (Rostovtsev 1925: 127). Because the transition occurred in the textual information, Rostovtsev considered the Sauromatians to be a distinct tribe that had inhabited the Azov Sea area and disappeared after the Sarmatian invasion.

Smirnov assumed that the Sauromatians were various ethnic groups, descendants of Bronze Age steppe tribes that were essentially nomadic, and that they had developed in the eastern Don steppes, along the left bank of the Volga River, and in the southern Urals during the 8th–7th centuries BC (Smirnov 1964:3). Smirnov justified this broad definition of Sauromatians by the fact that Classical sources had not given a general name to the Scythians’ eastern neighbors until the 3rd–2nd centuries BC (Smirnov 1964: 194). Thus, the genetic link between the Sauromatians and Sarmatians was made only on the basis of archaeological monuments and the Early Sarmatian Culture (Prokhorovskaya) that had developed in the southern Ural region (Moshkova: 1974).

As all nomadic monuments from the Don to the Urals were known as the Sauromatian Archaeological Culture, the Sarmatians were assumed to have descended from the Sauromatians. Antiquities dated to 6th–4th centuries BC in the lower Volga and the southern Urals were considered to belong to the Sarmatian cultural period, and were distinct from the synchronous Scythian Culture in the Eurasian steppes. The Eurasian steppes generally were divided into the eastern and western regions; the central section was al-
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legedly a vast Sauromatian-Sarmatian area and, according to the new conception supporters, was characterized by a specific unity and continuity of culture.

In spite of the fact that Greek authors never considered the Sauromatians to have lived west of the southern Urals, the assumption of a Sauro-Sarmatian generic connections has two principal propositions: (1) antiquities from the lower Volga region and those from the southern Urals form a common archaeological culture with only local variations and, (2) this culture can be named Sauromatian due to the cultural unity of monuments.

Although these propositions appear to reveal a harmonious conception of the Sarmatian Culture, their origins may be revised. A special study of Greek texts permits me to argue that the Sauromatians settled in the lower Don in the vicinity of the Azov and Black seas. The antiquities of the lower Volga region and the southern Urals bear no relation to those of the Sauromatians. These areas could have been inhabited by tribes dating to the Scythian period in the 6th–4th centuries BC that were overlooked by Greek authors and, for this reason, were not mentioned in their manuscripts. Thus, the thesis concerning Sauromatian-Sarmatian genetic linkage loses its archaeological foundation (Otchir-Goriaeva 1988a: 95–99). This point of view seems current only to the younger generation of Sarmatian investigators although M. I. Rostovtsev first argued the point at the beginning of the 20th century. As noted above, it was subsequently challenged in the 1940s–1960s.

The next question concerns the cultural unity of the lower Volga and the southern Urals and is important as it is enfolded within the general problem discussed above. In 1929, Rau presented all the necessary arguments to resolve this problem. He pointed out the sharp discrepancies between the contents of quivers sets from the “Northern” group of monuments, as he referred to those from the southern Urals, and “Southern” group from the lower Volga. The Northern peoples manufactured only heavy quiver sets while the Southern sets are represented by light and elegant trilobed arrowheads. Typical of the former group are the diametrical heavy arrowheads with pins that are not known in the lower Volga. The localization of portable stone sacrificial tables resembling the massive arrowheads that, in Rau’s opinion, confirmed the existence of an autonomous Samara-Ural cultural region (Rau 1929).

Subsequent investigators in favor of the above-mentioned fundamental conception ignored Rau’s conclusions. Decades later, as new information was accumulated, the problem arose again and some investigators began to assume that these cultures differed from each other (Shilov 1966: 3–4; 1975: 124); others still believed that “local” distinctions were of minor importance (Smirnov 1977: 124–139; 1979: 74–78; Zhelezchikov 1980a: 15). In order to resolve these questions, it was necessary to conduct a scrupulous comparative study of the lower Volga and southern Urals antiquities. In 1983, E. F. Chezchina carried out an art critical analysis of the Animal Style artifacts (Chezchina 1983: 16–30), and slightly later I performed a comparative study of funerary rites and the principal grave inventories (Otchir-Goriaeva 1987: 35–53; 1988b; 1990: 81–92; 1996: 41–45). In addition, members of the joint Soviet-Italian Computer Program (Zhelezchikov and Babarunova 1991: 127–151) whose results not only confirmed but also added to my previous conclusions, conducted a second funerary ritual analysis. It should be noted that these results confirm Rau’s theories. The complex Soviet-Italian study serves as a model in the development of the archaeological cultural theory. Moreover, the comparative methodology, separating specific features, will be useful for future archaeological investigations in each region.

Following is a review and summary of the results obtained during the comparative analyses of the lower Volga and the southern Urals sites (Fig. 2) and their associated artifacts.

Funerary rites

Of the total number of burial complexes, 326 were used for the mortuary ritual comparative analysis; 222 belonged to the lower Volga region and 104 to the southern Urals (Otchir-Goriaeva 1987: 35–53). The mortuary ritual includes a set of interrelated features characterized by (1) burial structures, (2) condition and orientation of the deceased and, (3) grave inventory. In total, thirty features were noted, mapped, and calculated to determine the percentages for both the lower Volga and southern Urals (Fig. 2). This allowed me to determine the features that were common, as well as specific, to both regions. Thus, two types of burials were noted. Type II burials are found in both the regions: these are single burials—very rarely are they collective and/or simultaneous burials—found in grave pits under earthen, stone or earth-stone mounds. Only very rarely did they have rectangular-shaped wooden burial structures within the pit. The fire ritual mortuary procedure is characteristic in both regions. The prevalent orientation of the deceased in the grave was supine with the head oriented to the west. Burials of Type II are the only type found in the lower Volga region.

In the Southern Urals, Type II burials alternate with Type I. The burial structures of several mounds in the south are unique. They have chamber graves of Type I with wooden, round or rectangular structures beneath the mound that show traces of a funeral feast held on the ancient ground level or in the dromos. Sometimes a saddle horse or guard accompanied the deceased in the burial. Burials of this type are collective and sometimes are reused. Earthen mounds are the most characteristic although some are partially built from stone. Type I burials account for 30.7% of the total sites in the southern Urals (Fig. 3).

Specific to the lower Volga burials is the paucity or complete absence of mortuary gifts, and almost complete—except for one complex—absence of the inventory associated with the priestess. The later burials account for 14.5% of the total and can be considered specific to the southern Urals group (Fig. 4). Some significant differences are also observed in the animal bones, some of which are remnants of funeral feasts. In the southern Urals, burials containing animal bones are twice that of the lower Volga. Moreover, the southern Urals’ burials contain...
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horses as well as sheep bones, whereas in the lower Volga sheep bones are prevalent.

Pottery
It is important to study a large number of graves that provide a variety of artifact categories in order to compare the two site groups. Pottery is one such category, for it is believed that the hand-made pottery of a specific population group is one of the most reliable ethno-cultural criteria. The lower Volga pottery is categorized into fourteen types that differ from each other in the following categories: (1) maximum diameter level, (2) body form and, (3) bottom shape. In this study, all the pottery types are flat-bottomed. The clay used in the lower Volga pots is coarse. Nearly all the pots are lopsided, frequently asymmetrical with uneven rims and bottoms; they characteristically have thick walls and particularly heavy, massive bottoms.

Ornamented pottery from the lower Volga types comprises 38.5% of the total pots. The seven principal ornamentation types are (1) pearls, (2) pricked-pits, (3) finger-pinches, (4) nail impressions, (5) drawn ornamentation, (6) rim thread, and (7) hollow tube pricks. Combinations of different ornamentation on a single pot are very rare. The most popular designs are stick pricks, finger-pinches, and drawn designs.

From the southern Ural sites, 99 pots divided into two groups were used for comparative analyses based upon the following criteria: (1) if the shape of the pot were different from those from the lower Volga and; (2) those which were of identical shape (Fig. 5). Pots with round bottoms represent the first group of 32 specimens. Until recently these were considered rare in the Scythian period complexes (6th–4th centuries BC) because a round-bottom vessel was assumed to be a sign of the subsequent Prokhorovskaya (Early Sarmatian) ceramics in the southern Urals. However, research of the past few years indicates these were an integral part of the southern Urals material culture during the Scythian epoch (Pshenichnyak 1983: 100-101; Zhelezchikov 1980b: 73-74).

In addition to the round bottom vessels, 46 different types of flat bottom vessels peculiar to the southern Urals region are known. The 2nd 5th, and 10th types of lower Volga pottery belong to an identical shape group. Quantitative analysis of the southern Urals ceramics reveals that the overwhelming majority, 78 vessels, belonging to the first group differ from the lower Volga pottery, and only 21 vessels are included in the group that are similar.

However, the southern Urals pottery types have degrees of identity. The lower Volga Type 10 and the southern Urals Type 2 are each a local shape, popular along the border of the two regions. The lower Volga Type 5 and southern Urals Type 3 are not common for either region in spite of their similarity in shape. The ornament on the southern Urals type, moreover, is not found in the lower Volga region and, consequently, the Urals ceramic type is unique. There is no doubt about the similarity between Type 2 lower Volga vessels with the Type 1 vessels from the southern Urals (Fig. 5). Represented by ten vessels, they have a very simple pot-shape that spread to all the Eurasian steppe archaeological cultures.

Several ornamental types found in the southern Ural region are not represented in the lower Volga. B. F. Zhelezchikov conducted an analysis of 166 southern Ural’s vessels spanning the Scythian epoch and identified 20 ornamental elements (Zhelezchikov 1980b: 75; table 54). In contrast, seven types are known for lower Volga vessels. Thus, although there is a common ceramics type in both the southern Urals and the lower Volga, two unique traditions were present. Simple shapes, rough texture, and plain—almost primitive—ornamentation characterize the Volga ceramic complex. In contrast, the Urals pottery has a more variegated shape and is elaborately ornamented (Otchir-Goriaeva 1990: 81–92).

Arrowheads
The majority of the Scythian epoch burials contained armor–bronze arrowheads, swords, daggers, and spears. Although some similar shapes are noted, armaments from different regions are quite original. Arrowheads (here identified as quiver sets) represent one of the most specific and reliable sources of information. Seventy-four lower Volga and 60 southern Urals quiver sets were analyzed in the comparative study to determine types specific to each region. Eleven types identified from the lower Volga burials are not found in the southern Urals; the most frequent types are both the bronze trilobed arrowhead with narrow arched head and the iron trilobed arrowhead. Sixteen arrowhead types were detected in the southern Urals that were not found in the Volga region (Fig. 6). Compared to the Volga types, more are found in the southern Urals, although several types are represented by only a few examples. The morphological categories are unique and include bilobed arrowheads with two cast holes in the haft (Fig. 6: 1). Massive arrowheads were cast with tracery ornamentation (Fig. 6: 9); in addition, three types of shafted arrowheads are noted (Fig. 6: 10, 11, 15). Four so-called diverse types were found both in the lower Volga and in the southern Urals. Originally they were classified as being the same type, but details, proportions, and quantity differentiate them from common types.

In order to investigate the uncharacteristic types of arrowheads and their developmental trends, correlation tables were made. The southern Urals quivers were classified into three groups. The first group is the most numerous and comprises the majority of the quiver sets. A secondary set of nine types are distinct from the general arrowhead type; two main types are noted, Type II 2 and Type II 2-1. The first has a triangular head and a hollow shaft, while the second has a triangular head and a pin on the shaft. The third and most numerous group include two new types, Types 3 and 4, that are similar in shape to the two main types of Group II. They have, however, a very sharp point, and are larger and heavier; Types 3 and 4 can be traced to a later date. They are the prevalent types in the classical Prokhorovskaya Culture quiver sets. The first group of southern Urals arrowheads includes 17 diverse types. Four discrete types make up the second group; the third group includes three unusual types in addition to the common ones. These data indicate that
specific arrowhead types had always played an important role in the development of southern Ural quiver sets (Fig. 7a).

In the lower Volga, two quiver set groups were noted. The correlation of arrowheads in every quiver set made it possible to determine the types of arrowheads prevailing during different periods (Fig. 7b). Two distinct groups of arrowheads reflect the development of quiver sets for different time periods. Thus, all types of bilobate arrowheads and massive trilobate arrowheads have been placed in the first group. In the second group, although iron arrowheads were found, the small fine bronze arrowheads are still dominant. Eight types of uncharacteristic arrowheads represent the first chronological group from the southern Ural. The second chronological group is composed of common arrowheads belonging to the types of the first group, plus nine additional types including four that are uncharacteristic for the southern Ural (Otrchir-Goriaeva 1996: 51). During the time period, the basic arrowhead has an arched head; the main types are the ones with a triangular or arched head and a protruding shaft. Arrowheads become smaller and more graceful over time.

These analyses lead to the conclusion that each region had its own pattern of quiver set development and dynamics. Whereas in the lower Volga nearly all types become less massive and more intricate over time, the southern Ural arrowheads do not show the same trend. An additional modification was implemented in which the arrowheads become narrower and longer although the weight was essentially the same. This modification seems to have been advantageous if the comparison is made between the southern Ural arrowheads and those from the lower Volga. This change may have been instrumental in the migrations of Prokhorovskaya tribes to the West. It must be emphasized that the differences in arrowheads within the two regions, not only in the diversity of types but also the developmental trend, is of primary importance.

Swords and daggers

The distinction between swords and daggers in the two regions is equally important. They are represented by two types: (1) swords with a bar pommel decorated by cast ornamentation in which two opposed birds of prey with coiled beaks compose the haft and guard and; (2) swords with a zoomorphic pommel representing pairs of animal or bird heads (Fig. 8). The latter are analogous to numerous swords and daggers from Siberia and Central Asia. Other types of swords from the southern Urals have features that are characteristic of regions to the east and are not found in the lower Volga.

Especially important is a group of swords with zoomorphic pommels representing birds’ feet with claws. This group belongs to a large series of swords used in the European Scythian Culture. Although quite popular in the southern Urals, they were not widely found in the lower Volga. Spearheads are extremely rare in the southern Urals as only four have been noted as compared to nineteen found in the lower Volga (Otrchir-Goriaeva, 1988b: 10-13).

Animal Style and decoration

Animal style decoration is noted in the data obtained by E. F. Chezhina who conducted an analysis of art objects of the Lower Volga and the southern Ural. Chezhina identified two discrete stylistic and thematic groups. The most popular image, specifically a local style in the lower Volga, was a short-nosed fabulous beast frequently appearing as an image carved on frauds. In addition, artifacts depicting camels and animals in combat were widespread, although they are never encountered in the lower Volga region. Distinctive art features of the lower Volga are richness of ornamentation and the use of intricate geometrical patterns in conjunction with zoomorphic elements.

The image of a wolf was most widespread in the southern Ural where the decorative art is characterized by simplicity of technique, larger and less complicated designs, unity of surface design, and expressiveness of contour. Whereas in the lower Volga, preference was given to bone carving, in the southern Ural, art objects are characterized by the wide used of bronze (Chezhina 1983: 16–30).

Common comparisons

The results of the comparative study of funerary rituals, ceramics, armament, animal style, and developmental trends had lead to some general conclusions on culture and history of the tribes under consideration. I have attempted to group the archaeological data into several groups that represent cultural orientation, social status indices, ideology, economy, and contacts with neighboring regions. The grouping is rather rough but, nonetheless, effective and they have enabled me to determine that the lower Volga and southern Ural sites were independent and unique.

There is no doubt that both groups belong to the vast cultural domain of the Eurasian steppes during the Scythian epoch. This suggests the existence of common cultural features within the groups—although the sites under comparison manifest certain distinctive traits within the nomadic tradition. These traits can be observed in artifacts that reveal spiritual characteristics such as the Animal Style, ceramic ornamentation, and specific funerary rituals.

In addition to the distinctive forms, ceramics ornamentation varies considerably. In the lower Volga, vessels are decorated with nail imprints, finger nips, etc., all rather simple patterns. In contrast, the southern Ural vessels are much more varied. Here, patterns include stamped designs—herringbone, pressed U-shaped motifs, arches and triangles, and unevenly hatched geometric designs. The incised ornamentation in both regions has its own peculiarities. In the lower Volga, the ornamentation is an isolated motif while in the southern Ural, the design is represented in friezes of complex compositions.

Burials in the southern Urals

Certain features discovered during the analysis of mortuary rites may represent religious and cultic belief systems. Characteristic in the southern Urals are single and collective cremations,
with varied mortuary offerings, performed on the ancient ground level. The varied burial structures within the mounds are noteworthy, including a stone ring surrounded by rocks and a massive tombstone in the center of the mound. Radially placed logs oriented to the center of the mound indicate the originality of the burial ritual. Other complexes of special interest are those with the deceased placed in a diagonal position directly on the earth, and located next to priestess burials. These features, not found in the lower Volga, identify the southern Urals burials.

**Cultural orientation in the lower Volga**
The Eurasian steppe cultures have been divided into the eastern and western complexes, each identified by its historical monuments. The lower Volga monuments are culturally oriented to the Scythians near the Black Sea and, in my opinion, were rather closely connected to the northern Caucasian. Quiver sets in the lower Volga often have laurel-leaf or trapezium-shaped heads as well as being bilobed; these are also specific to Scythian quiver sets.

Analogous sets of bronze bridle decorations—zoomorphic and round plaques with a ribbed edges, and elongated rhomboidal-shaped forehead plaques—are significant (Molchanovka, Kurgan 2). Characteristic elements, such as zoomorphic cruciform plaques (Khoshoutovo, Kurgan 1) representing a deer head with branched-antlers and plaques in the form of a pair of fanged wild boar heads (Krivaya Luka VIII, Kurgan 5) have direct analogies with those from the Scythian Black Sea region. Bronze-cast beast of prey (Three Brothers, Kurgan 25) are considered either Greek products from north of the Black Sea or locally made under Greek-Scythian artistic influence (Zasetskaya 1979: 42–44; Chezhina 1984: 64). Typically Scythians had scale armor and bronze helmets. Nearly all-lower Volga mirrors belong to the types that were popular among the Scythians.

**Lower Volga contacts with neighboring regions**
From an archaeological point of view, contacts with the northern Caucasus appear to be rather close as exemplified by lower Volga spearheads that certainly are of northern Caucasian origin. Influence from the Caucasus is also noted in vessels shapes. Finds from the right bank of the Volga and in the Kalmyk steppes include trilobed and quadrilateral arrowheads carved from bone, typical of those from the Caucasian (Kozhenkova 1982: 13–17). Polished vessels from lower Volga burials have analogous counterparts in the northern Caucasus. The contacts between the two regions are further emphasized by gold earrings in the rich Sazonkin Bougor burial that features images of two horsemen in chariots. Similar earrings or temporal bone pendants were found in a female tomb in Akhalgory, East Georgia (Smirnov 1934: 73). Other analogous earrings are from Tomb 6 on the lower terrace of V any town in western Georgia (Lordkipanidze 1977: 159–175).

**Cultural orientation in the southern Urals**
Traits in the southern Urals monuments indicate a different cultural orientation and certainly must have been influenced by eastern Siberian cultures. Chezhina noted a number of peculiarities in the art such as images of a long-nosed beast with exposed fangs representing a wolf motif, reminiscent in its detailing as well as the treatment of the entire image of Asia-Siberian and Ananyin cultural motifs. Stone plaques are a distinctive feature of the southern Urals culture; they measure three–four feet in height and have zoomorphic ornamentation. Representations of wild mountain goats in the southern Urals are similar to those from central Eurasian and the Minusinsk steppes (Chezhina 1983: 16–30).

Mortuary rituals specific to the southern Urals reveal influence from the East. Similar diagonal tombs and radically wooden structures located in the mound were found in regions as diverse as south of the Aral Sea to western Mongolia (Moshkova 1972: 76–79; Vishnevskaya 1973: 68–69).

Worth mentioning among other southern Ural findings is a series of pear-shaped vessels with a gently curved profile and a rounded bottom that are analogous to objects from the Ougarak tomb. Common traits are also observed in vessels with a cylindrical spout. A. Kh. Pshenichnyuk, who conducted the excavation of the well-known Filippovka “Tsar” Kurgan in the southern Urals, noted that the grave inventory and funeral ritual resembled those features found in synchronous eastern and southern sites, i.e., the Issyk Kurgan in Kazakhstan and the Pazyryk kurgans in the Altai (Pshenichnyak 1989: 13)

Development and wide distribution of hafted and oversized arrowheads with hooks at the base are characteristic of eastern tribes; they are also typical of the Urals arrowheads cast in both bronze and iron, and bone-hafted. Two types of arrowheads—trilobed and quadrilateral—have large shafts and hooks at the base. Quiver set development in the southern Urals is essentially discrete from that of the lower Volga. At the same time the former is parallel to that of Central Asia, as indicated by two forms of arrowheads—one with long sockets and the other with internal sockets (Medvedskaya 1972: 75–87).

Kazakhstan, the Altai, and southern Siberia are the principal areas where the round groove buckles with a rectangular or trapezium-shaped frame and a rigid hook-clasp predominated. Zoomorphic buckles with the same type of clasp are also characteristic in these regions. Among the southern Ural artifacts are a series of such clasps that have zoomorphic representations: a standing camel, two fighting camels, a combat scene (a beast of prey tearing another animal apart), and two heraldic floppy-eared griffins.

**Southern Ural contacts with populations in neighboring regions**
Eastern motifs are also found among the imported artifacts. According to data presented by T. V. Savelieva and K. F. Smirnov, the southern Urals has about twenty kurgan tombs containing goods imported from the Near East and Achaemenid Iran. They include a silver rhyton, a gold torque, a chalcedony Achaemenid stamp seal in a gold frame, a bone comb engraved with a hoofed animal, sev-
eral kinds of beads, small “Phoenician” glass vessels, and Near Eastern type vessels made of red clay. One of the southern Ural type vessels contained an alabaster Egyptian vessel bearing Egyptian hieroglyphs and cuneiform inscriptions in four languages that translated “Artaxerxes the Great Pharaoh” (465–424 BC) (Savelyeva and Smirnov 1972: 106–115). The gold jug, silver rhytons with handles representing mountain goats, and the silver rhyton with a bovine protome must have been brought from the Near East. Similar items can be observed among art objects of Achaemenid Iran.

Social and economic development

The existence of complex burial structures with various grave inventories, accompanied by saddle horses and guard warriors suggest a greater degree of social stratification among the southern Ural tribes than is found in the lower Volga population. In addition, some investigators have assumed that, assisted by the climatic and geographic environment, and as revealed by dromos tombs with subsequent burials, the southern Ural tribes had become partially settled. This way of life is similar to that found in the Urals steppes further to the east and among the forest tribes (Moshkova 1974: 49).

Conclusions

The data reviewed above demonstrate the originality of the sites that belong to each of the nomadic groups compared in this study. As the specifics indicate, the lower Volga populations were influenced by European Scythians while the southern Ural peoples, being more numerous and with a richer and more varied material culture, had wider and more varied contacts. Being the western-most outpost of the Asiatic sphere, the southern Ural cultures focused on the principal traditions of eastern nomadic cultures.

Of paramount importance, in my opinion, is the fact that the southern Ural peoples, being an autonomous and complex union, became a melting pot in which the new Prokhorovskaya Culture was formed. The principal distinctions between the lower Volga and the southern Ural sites are in the main development trends. M. G. Moshkova and K. F. Smirnov carried out detailed studies to prove that the Prokhorovskaya Culture developed from sites in Samara-Ural regions during the Scythian epoch in the late 5th century BC, and especially in the 4th century BC (Moshkova 1974; Moshkova and Smirnov 1977: 265–274).

Recent investigators have shown that the southern Urals region had a number of 5th–4th century BC sites that combine traits of both the Sauromati and Prokhorovskaya cultures (Pshenichnyak 1983; Tairov 1988: 141–160). It is also noteworthy that in the lower Volga, Prokhorovskaya cultural features were identified dating to the 3rd century BC; this development occurred as the result of migrations into the region from the southern Urals. Moreover, tribes from the north could have

References


Table 1. Sauro-Sarmatian dating and cultural identification

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Table 1. Sauro-Sarmatian dating and cultural identification
Fig. 1. Lower Volga and southern Urals archaeological sites.

Fig. 2. Comparative table of funeral rite features in the lower Volga and the southern Urals. 1- earthen mounds; 2- stone mounds; 3- under-mound rectangular-shaped wooden structures; 4- burials on the ancient ground level; 5- fires in the mound, 6- traces of funerary feasting; 7- secondary burials into Bronze Age kurgans; 8- secondary burials into Sauromatian period kurgans; 9- collective burials; 10- single burials; 11- mounds with rocks on the surface; 12- cenotaphs; 13- stone structures in earthen mounds; 14- earthen mounds built partially of stone; 15- under-mound round wooden structures; 16- burials accompanied by saddle-horse burials; 17- burials accompanied by guard burials; 18- repeated burials; 19- chamber graves; 20- Group I graves; 21- Group II graves; 22- head orientation of the dead to the west; 23- diagonal position of the deceased; 24- cremation burials; 25- "priest" inventory burials; 26- burials with scarce or complete absence of inventory; 27- burials not containing animal bones; 28- burials containing horse bones; 29- burials containing sheep bones; 30- burials containing ritual substances (ochre, etc).
Fig. 3. Correlation of burial structure features in the lower Volga and southern Urals. 1 - repeated burials; 2- chamber graves; 3- graves of Type I; 4 - collective burials; 5 - under-mound round wooden structures; 6- burials accompanied by saddle-horse burials; 7 - burials accompanied by guard burials; 8 - traces of funerary feasting; 9 - rectangular-shaped wooden under-mound structures; 10 - earthen mounds; 11 - earth and stone mounds; 12 - kurgans not containing wooden under-mound structures; 13 - stone mounds; 14 - simple burials (as compared to repeated burials); 15 - graves of Type II; 16 - single burials.

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Fig. 4. Correlation of grave good categories in the lower Volga and southern Urals burials. 1 - daggers and swords; 2 - quivers; 3- bridle bits and psalia; 4 - buckles and vorvorks; 5 - arrowheads; 6 - whetstones; 7 - knives; 8 - vessels; 9- spearheads; 10 - horse bridle plaques; 11- bone spoons; 12- boar's fang pendants decorated in Animal Style; 13 - bronze wheels as amulets; 14 - mirrors; 15 - sacrificial altars with three-four feet; 16 - "divining" stones; 17 - beads; 18 - small vessels; 19 - shells.
Fig. 5. Ceramic types in the lower Volga and southern Ural.

Fig. 6. Arrowhead types not found in the lower Volga region.
A Comparative Study of the Early Iron Age Cultures in the Southern Volga and the Southern Urals Regions

Fig. 7a. Correlation of arrowhead types in the southern Urals.

Fig. 7b. Correlation of arrowhead types in the lower Volga.
Fig. 8. Dagger and sword types decorated with Animal Style from the southern Urals.
1 - Vinnovka; 2 - Bolshoy Tolkay; 3 - Verchny Avzyan; 4 - Mykachevo; 5 - Petrovka; 6 - Voskresnkena; 7, 12 - Talachevo; 8 - Kunakbaevo; 9 - Orenburg; 10 - Bachmutino; 11 - Belebey; 13 - Byasovka; 14 - Urshek. (Drawings by R. Ismagilov)
Iron Age Ceramics of the Transurals

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Abstract
A formal typological approach to the study of artifacts is a traditional aspect of Russian archaeology. This methodology also prevails in the study of pottery where stylistic parameters are based on the analyses of decoration and morphology. This paper attempts to apply the concept of style to materials recovered from Iron Age sites in the Transural region. The study is based on a formal typological methodology that is supported by statistics. A summarized description of the basic ceramic types encountered in these sites and the results obtained from the current research are provided.

Key words
Transural, Iron Age, ceramics, decoration, style

Introduction
Potsherds are one of the most numerous classes of artifacts to be recovered from archaeological excavations. In some cases the type of decoration apparent on pottery is the main criterion for the identification of archaeological cultures. Therefore, the subject of the paper will focus on a review of Iron Age ceramics from the Transural region. With regard to the geographical distribution of these ceramics, the primary zone of concentration lies within the vast forest-steppe territory. The archaeological dimension, which relates to Transuralian antiquities, is characterized by a great diversity of cultural traditions, reflected in the ceramic artifacts. In addition, several lines of development are apparent in these artifacts.

Initially, the ceramics of the Transurals and western Siberia were not a subject of special study, although they were grouped within the archaeological exploration of the regions’ antiquities. Such explorations were initially undertaken by local amateurs at the end of the 19th century, and these individuals were interested in excavating kurgans as well as gathering information relating to finds, the location of settlements and the kurgans themselves. Research was continued by archaeologists and semi-professional specialists at a later date. This particular branch of science was developed within the Archaeological Committee and was systemized by A. Spitsin. Material collected by V. Tolmachev enabled the development of an archaeological map of the eastern slope of the Ural mountains and the forest-steppe zone. As a rule this research was not systematic and it generally represented the collection of oral facts. Planned investigations of the archaeological sites of the Transurals and western Siberian forest-steppe zone were undertaken by P. Dmitriev, V. Tchernetsov, K. Salnikov and others during the 1920s and 1930s. They described several aspects of the archaeological material recovered from Iron Age kurgans and undertook extensive settlement and cemetery excavations. P. Dmitriev first proposed that the culture of the ancient population which had inhabited the area from the Transurals as far as the Irysh River had developed in close association with Sarmatian tribes. V. Tchernetsov and K. Salnikov offered an alternative point of view, and proposed an Ugrian origin for the Transuralian population (Mogilnikov 1992: 274).

In the period between the 1960s and 1980s some basic results were obtained through a series of broad field investigations undertaken by V. Gening, V. Mogilnikov, V. Victorova, V. Stoyanov, L. Koryakova, N. Matveeva, and others. Subsequently, the systematization and interpretation of the archaeological materials was undertaken. Archaeological sites of the early Iron Age are identified as Nosilovo, Baitovo, and Vorobievo (Stoyanov 1969). The archaeological investigation of Iron Age ceramics had therefore been initiated. A series of common features among the Transuralian Iron Age ceramics was illuminated, including the technology associated with their manufacture, the shape and types of decoration. Ceramic vessels were vertical-ellipsoid, spherical (globular), or horizontal-ellipsoid in shape, with a round or slightly sharpened base. As a rule, the neck was well defined. The majority of vessels were hand-made using the band-braid technique, and were fired in open fires. Usually the ornamentation covered the neck, throat, and shoulder of the vessel and is characterized by several consistent decorative techniques as well as a minimal set of decorative patterns and compositions.

The ceramics were analyzed following several approaches. The most common approach involves a formal typological method that concentrates on the morphological features of the shape of a vessel and its decoration (Gening 1973; 1992; Koryakova 1988). Technological analyses and, by extension, experimentation identified that the manufacture of pottery had been specific to different regions, and was discrete to the various cultures (Bobrinsky 1978; Gloushkov 1996). These approaches corresponded with ceramic types that had been identified by a subjective perception. Furthermore, the classification scheme of ceramics, which was based upon the concept of type and typological method commonly used in Russian archaeology, has not seriously changed since the 1960s (Stoyanov 1969).
The classification of different types of ceramics to each time period was based on the analysis of materials recovered from a number of archaeological sites. To make the following discussion more precise and comprehensible a short description of the original ceramic types will now be provided.

**Description of the original ceramic types**

By the end of the Bronze Age and the beginning of the Iron Age, inhabitants of the settlements were making use of ceramics that were decorated with comb-stamps (Nosilovo Type) (Fig. 1: 4-5, 8). These sites were located in the middle and lower Iset River basin and middle Tobol River region. Sites that contained ceramics which were decorated with pit-pricked ornamentations (Baitovo Type) are partially synchronous; they date to the 7th–4th centuries BC (Fig. 1: 3, 6, 7, 9) and have been recovered from the Ishym and Tobol regions. The majority of vessels were constructed from a strong, sandy temper with a microscopic sand admixture. Vessels of both the combed and pit-pricked decorated types have straight, broad necks, and flat rims. The ornamentation covers the neck and upper body of the pot. The so-called “pit and pearl” type of decoration is sometimes found in combination with angular depressions that are considered a typical decoration of the Baitovo Type. The same design with an added horizontal band of sloping or vertical lines, achieved by using a comb-stamping technique, is typical of the Nosilovo Type. One of the most remarkable elements of shoulder decoration is the so-called “rocking” design that was undertaken using the same technique.

Two types of ceramic talcum temper and comb-stamped decoration (Itkul and Vorobievo) have been dated to the 6th–4th centuries BC (Fig. 2). These styles were concentrated in the upper and middle Iset and the middle Tobol River basins. In addition to the occurrence of talcum inclusions in the temper, a number of vessels retrieved from the Tobol River basin contain a small concentration of talcum and sandy clay. Both vessel types are characterized by comb-stamped ornamentation. The majority of the Itkul pots have straight, broad necks, and usually flat rims. The basic decorative patterns comprise bands of vertical, horizontal, and sloping comb-stamped lines, but the “rocking” ornamentation only occurs on rare occasions. The Vorobievo pots have high and thick straight necks, and their flat rims are decorated using a comb-stamped technique. Horizontal angle lines and a band of sloping lines, sloping columns, wave-shapes, and “rocking” designs are the basic decorative patterns identified among this type of ceramics.

The Gorokhovo Type received its name from the archaeological culture that was identified after excavations of the eponymous fortress (Fig. 3: 1–4). This culture covered various territories that had previously been occupied by the populations that used the Itkul and Vorobievo types of ceramics during the 5th - 2nd centuries BC. The Sargat Type of ceramics has been extensively studied (Fig. 3: 5–7), and since the population of the Sargat Culture occupied the vast forest-steppe zone, ceramics of this type were recovered from throughout the region. Gorokhovo ceramics differ from the Sargat Type as they are much cruder and the use of talcum temper and decorative motifs are less varied. The basic decorative patterns include horizontal angular lines and zigzags, while belts of horizontal lines, finger pinches, and festoons cover the shoulders of the vessels. The ornamentation is generally made using an incised technique, and in some cases by comb stamping. Sargat ceramics were usually decorated with festoons, and vertical or horizontal angled lines that were either incised or made using a smooth stamp. In some cases finger pinches and pit-pricked elements are also included. Non-decorated vessels are found among both the Gorokhovo and Sargat ceramic types. Despite their differences, the Sargat and Gorokhovo ceramics also display a number of similarities; they share common morphological features including straight, broad necks, while curved necks are quite rare. In addition, the vessel rims have been found to be flat, sharp or round.

Sites with ceramics of the Kashino Type have been discovered in the middle basin of the Tura and Iset Rivers (Fig. 4: 6-8). In the absence of an absolute chronology a relative scale has been developed which dates this type of ceramic to the end of the Iron Age. These vessels have spherical or horizontal-ellipsoid bodies; straight, broad necks, and flat rims. The temper contains mica, a mineral which has not been found in the analysis of vessels from the Tobol River basin. Ornamentation was primarily achieved using the comb-stamped technique although some vessels were decorated with a smooth-stamped pattern. In general, the decoration comprises horizontal angular lines, zigzags, and columns of horizontal lines on the neck and upper body, but in some cases the only decoration consisted of a horizontal line. In the relative chronology that has been constructed for the pottery types, the Prygovo Type follows the Kashino ceramics, and dates to the latter half of the first millennium AD. It has been found in the same geographical regions as the Kashino Type ceramics (Fig. 4: 1–5). In the majority of cases, the vessels have straight necks with very large diameters and flat rims. The inclusions consist of sand, grog (crushed sherds) or mica. The ornamentation generally covers the neck of the pots, and the basic decorative patterns comprise one to three lines of horizontal zigzags and bands of sloping lines made by comb stamping. In general, the top (more so than the base) of the decorative composition was restricted to one or more comb-stamped or incised lines. The external aspect of the rim may display a simple ornamentation. In addition to the basic decorative motifs, smooth- and cord-stamped techniques created parentheses, zigzags, or lines.

**Objectives of the research**

In spite of the variations apparent among the Iron Age ceramics, many researchers also noticed that a degree of similarity existed between the different types of pottery, as well as the so-called “ornamental and morphological” continuity (Koryakova 1993: 14). Ornamental diversity, however, is too complex to be determined simply from a definition of type and the associated archaeological culture. This paper attempts to offer a new approach and add a different perspective to the previous traditional methodologies used in the analysis of ceramics. By using statistics, and formal typological and technological evaluations, stylistic analyses were undertaken (Sharapova 1998;
This research encompasses all of the above-mentioned ceramic types, their ornamentations, the techniques used in their manufacture as well as developmental characteristics. The two main points of tradition and style are considered (Sharapova 1998). Tradition includes a system of various components, i.e. technology, shape, and ornamentation (Koryakova 1988: 92), while style is a complex concept with many definitions. The classical definition connects style with information exchange, while anthropologists and archaeologists use the term style primarily within the context of decoration (Rice 1987: 245).

Three elements of pottery ornamentation, decoration, design, and style have been discerned which enable the informative role of ceramics to be identified (Pavlu 1996: 95). He suggested that decorative style complements the preceding ones and result in pottery ornamentation. These elements parallel the material, social, and psychological components of a culture. With references to the Transuralian ceramics, we are dealing with the style of a single group as opposed to an individual. Therefore, the definition for the style of ancient ceramics that we are using is “style that is a form of non-verbal communication, a certain aggregate of specific features as a result of human activity.” It is possible to assume that there were two basic ceramic cores primarily associated with the geographical zones of the Ural Mountains—the forest-mountains and the forest-steppe zones. These cores determined the ceramic traditions of the ancient populations. A variability of decoration and its classification in time and space are the basic elements of stylistic development. A study of the Iron Age ceramics recovered from a number of different sites excavated by the Transuralian (Urals) archaeological expedition during the 1960s to the 1990s was undertaken. Statistical data was obtained from eight archaeological sites, although the majority came from the type-site. The overall sample comprised 1908 vessels of different types.

Comparison of the collection under study was undertaken using a calculation of the factor of difference “r”:

\[
\rho (Y) = \frac{\sum_{i=1}^{k} Y_i}{\sum_{i=1}^{k} \sum_{l=1}^{D_i} Y_i l_i}
\]

where \( r \) - factor of difference, \( i \) - # of signs, \( k, l, D \) - # of collections, \( Y_i \), \( Y_i l \) - frequency of \( i \) in collections \( k, D \), \( \text{dispersion} \) of distribution of \( i \) (Koryakova 1988: 109).

The factor of difference was computed according to the differences apparent in the pottery decoration and decorative patterns (Fig. 5), and was undertaken in two sections. The first part assumes the analysis of all types of ceramics within themselves, while the second assumption is based on the analysis of the specific types of pottery that were recovered from different archaeological sites. In addition, a relative frequency of each element of ornamentation and its combination was analyzed, and all decorative patterns were combined into 20 groups of relative elements. In total, 45 elements of decoration and 81 combinations were processed within one system of analysis. This method enabled an objective characterization of the pottery to be undertaken (Fig. 6).

**Results of the analysis**

So that all types of Transuralian Iron Age pottery mentioned above could be included in the analysis, a coefficient of correlation of two parameters—rxy—was calculated. A certain similarity in the basic decorative patterns of the ceramics under study, including horizontal corner lines, sloping lines, and columns, various combination of the so-called “pit and pearl” decoration, angle impressions, and pricked ornamentation was identified. The majority of these characteristics form the basis of the ornamentation apparent in all of the different pottery types. The conclusions indicate that ceramic types are more related through decorative techniques as opposed to decorative patterns. A number of decorative techniques may be indicative of style.

Taking into account strong decorative and technological traditions, as well as the stratigraphic position of ceramic types, the following basic decorative styles were noted—pit-pricked, comb/comb-cord-stamped, and incised. These styles predominantly determine the character of Transuralian Iron Age ceramics. Each of the styles included different pottery types and lines of development that were apparent among the cultural groups, such as the Nosilovo-Baitovo, Iktul-Kashino-Prygovo and Gorokhovo-Sargat. Decorative style could not be isolated, but a deep intercommunication and certain constancy within the cultures has been inferred. Various traditions, which are reflected in archaeological ceramic types, were integrated by style. Decorative style reflects the component of each culture’s cognitive symbolism, and is a source of information about the culture’s principal features. “Style, like types, are merely descriptive classification” (Washburn and Crowe 1988: 38) within particular cultures, such as among those of the Iron Age Transuralian populations.

The results obtained from the technological analyses supported a number of the previous findings. The chemical composition and temper was found to be consistent for those ceramic types that had a small amount of \( r \). It is evident, therefore, that a single source of clay was used to make the pottery from a given culture. Using the results obtained from the pottery analysis, in conjunction with information derived from radiocarbon dating, it is possible to discuss the relative chronology of the ceramic types included in the study (Fig. 7). A number of specific local features were included to support the findings. It is important to remember, however, that this is not a strict evaluation based only upon the archaeological sites and their ceramic types, but also their technical development as noted above.

Ceramic collections recovered from sites of the more western areas are clearly characterized by the consistency of comb-stamped and predominantly incised decoration. Pottery associated with settlements from the eastern area differs to that of the western region since incised and pit-pricked ornamentation prevails. This tendency for a predominance of pit-pricked ornamentation was first noticed in Sargat ceramics by Koryakova (1988: 110), whereas comb-stamped decoration increases in the Iset River basin as well as a predominance of pit-pricked decoration in the Tobol River basin. The pit-pricked
decoration is considered to be the earliest form of decoration and descended from Bronze Age traditions. Pit ornamentation disappeared and was replaced by predominantly incised decoration in both the Tobol and Iset River basins. At a later stage incised decoration combined with cord-stamped types became the basis for a new comb-cord-stamped group. Ornamental development also occurred as a linear process, and this is revealed in the ceramics of the Kashino and Prygovo Types. The Sargat tradition of ornamentation coupled with the local stable comb-stamped techniques (mainly of Itkul ceramics) became a particular feature of the Kashino Type (Victorova 1967; Koryakova 1988). The Prygovo pottery, which has the same genetic link, was the latest modification of these ceramics.

Conclusions
In conclusion, it is necessary to note that we have only traced a number of the tendencies found in stylistic development. As mentioned above, various ornamental traditions apparent in the ceramic types have been integrated into decorative styles, and these styles then reflect the main components of each culture. Style does not negate type, but by tracing the development of ceramics through time and space and noting their principal local features it is possible to understand why and how they occurred, as well as the foundations for such occurrences.

Endnote
1. See map in publication of Kozakova et al. in this volume.

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Iron Age Ceramics of the Transurals

Fig. 1. Pottery types. Nosilovo (1, 4, 5, 8) and Baitovo (2, 3, 6, 7, 9).

Fig. 2. Pottery types. Vorobievo (1–4) and Irkul’ (5–11).

Fig. 3. Pottery. Gorokhovo (1–4) and Sargat (5–7) types.

Fig. 4. Pottery types. Prygovo (1–5) and Kashino (6–8).
Fig. 5. Factors of differences according to technique of pottery decoration (A) and decorative patterns (B).
Fig. 6. Basic decorative patterns found on Transuralian ceramics.
Fig. 7. A relative chronology of ceramic types that were studied.
Looted Graves or Burials Without Bodies?

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Abstract
The investigation of Iron Age kurgans is invaluable to the study of the archaeology of the Russian Transurals due to the mobile nature of the cultures that inhabited the forest-steppe. Within their burial mounds, the Sargat purposefully placed objects and persons that reflect not only the intricate nature of their social relations, but also allow insight into their ritual lives. This paper examines the assumption that an empty kurgan has been looted, and introduces a new category of burial mound to the Sargat Culture—the cenotaph.

Keywords
cenotaph, Transurals, Sargat Culture

Introduction
By the time modern archaeology (scientific recovery methods) had reached western Siberia, a vast number of the kurgans of the region had already been robbed or totally destroyed. Curiosity seekers both in antiquity and during modern times have targeted these noticeable alterations of the natural landscape. Peter the Great, Russia’s most famous antiquarian, can be credited as the first ruler to organize efforts to mine the riches of the nomadic steppe cultures. The tzar decreed that the contents of the burial mounds belonged to him, and individuals who retrieved his possessions were rewarded. During the early part of the 18th century, museum collections of Europe, especially the Hermitage in St. Petersburg, benefited from the artifacts extracted from burial contexts across Siberia (Rudenko 1962). Archaeologists, however, have suffered from the situation of having rich assemblages without provenience.

Although agriculture has become the most prevalent method of destruction in the 20th century, often completely eliminating the above-ground mound construction, it is the long history of looting kurgans that has left an indelible mark on the archaeological consciousness. The level of sanctioned and later illegal robbing of kurgans has been so pervasive that archaeologists working in the Transurals of Western Siberia have come to automatically expect that the context under excavation has been plundered. Often it is only a question of the degree of disturbance or destruction. This expectation of robbery, however, may produce a false interpretation of the mortuary record. When archaeologists do not recover any human skeletal material this does not mean that the grave was looted since the kurgan may have been purposefully left empty as a cenotaph.

A cenotaph is an empty tomb or memorial, most often erected when an individual dies at some distance or time from burial. Cenotaphs can also be erected as a tribute to the deceased, while the actual remains of that person are hidden from potential robbers. In one example, Pharaoh Akhenaten, Tutankhamun’s father, was honored by the construction of a royal tomb, yet his physical remains were reportedly placed in a secret as yet undiscovered location. These memorials need not be dedicated to a single individual. One of the world’s most powerful cenotaphs, and the most visited monument in Washington DC, is the Vietnam War Veterans’ Memorial. Under this granite wall, empty coffins continue to be laid, nearly three decades after the conflict ceased.

Pharaohs’ tombs, veterans’ memorials, the Taj Mahal, the Peace Memorial Park (Hiroshima, Japan), as well as specific markers and headstones, such as at Market Bosworth in England, are examples of cenotaphs created over the past several thousand years. Cross-culturally cenotaphs represent powerful symbols of fallen warriors, leaders and cultural icons. We immortalize the dead in this ritual display that is separated spatially and temporally from the individual’s true resting-place. Cenotaphs represent a cultural inability to part with our missing heroes; we need to erect lasting monuments to venerate them.

Monuments
Burial mounds, or kurgans, are a form of monumental architecture found throughout Siberia. Monuments act to solidify collective memory (Bradley 1993) in that they were not created by an individual, but rather by a social group for a few select individuals. If a group wishes to disassociate themselves from their ancestors it is much more common to dispose of the dead quickly and with little ceremony (Criado 1989). When labor is harnessed in a cooperative effort to create a significant monument that will resist natural processes, then this expresses the realization of power dynamics at work among the living as well as their relationship to the dead. Kurgan burial has a long history on the steppe stretching from the Eneolithic through to the Medieval period. During the late Bronze Age the graves of twenty or more individuals can be found in one mound; but during the Iron Age there is a definite trend toward fewer and fewer individuals being placed within kurgans which are of more variable size (Kroll 1998). This trend may suggest a movement towards a more socially differentiated society, if not true ranking.

The Sargat Culture, a northern variant of the semi-nomadic Eurasian steppe peoples, occupies a large territory of the forest-steppe between the Ural Mountains and the Irtysh River.
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(Fig. 1), and dates from the 5th century BC to the 5th century AD. It is represented by various settlements, both fortified and open, and by numerous kurgans that cluster in cemetery complexes. While travelers described these sites during the 18th and 19th centuries, it was not until the middle of the 20th century that they were united under the cultural designation of the Sargat Culture. They then received more thorough examinations from the Russian students of Stoyanov in the form of a number of doctoral theses in the period from the 1960s to the 1980s (Dr. Ludmila Koryakova, pers. comm.). Few individuals have studied entire cemeteries and, due to the restricted military zone that covered much of the Transurals during the Soviet period, only a small number of researchers either outside or inside Russia were able to gain access to this information.

Koryakova (1996) hypothesized that the Sargat Culture can be divided into two distinctive levels of rank. Rank refers to inherited social status and the recognition of ascribed status indicators. The first level of social distinction is based on the controlled access to trade goods and an individual’s inclusion into restricted burial contexts. The mounds acted as spatially segregated disposal areas. While a diverse demographic sample (males, females, adults and subadults) is represented, few individuals warranted an elaborate kurgan burial, and the majority of the population was disposed of in some other way elsewhere.

Within the kurgans, two separate elite groups can be recognized based on the degree of wealth apparent in the artifact assemblages. The “royal” or ruling elite are represented by artifacts interpreted as those indicative of political power—most likely symbolic items with restricted rights of access and use, such as scepters, maces and staffs. The warrior elite had weaponry in their graves—bows, arrows and daggers etc. Koryakova’s hypothesis of increasing social differentiation in the Sargat Culture was independently tested using mound size and number of individuals per mound (Kroll 1998), and the results suggest that at least two tiers do exist.

Decisions regarding the placement of formal, bounded disposal areas such as cemeteries are not random. They can act as overt territorial markers, forming boundaries between plots of privately owned land, as is the case with agriculturists who use them to designate individual or corporate cropland (Chapman 1981). Using cross-cultural data sets Saxe (1970), and later Goldstein (1981), examined the degree to which corporate group’s right to use and/or to control crucial but restricted resources (usually land) are attained and/or legitimized by means of lineal descent from the dead. Such groups may maintain bounded formal disposal areas for the exclusive disposal of their dead, illuminating social differentiation of the corporate group, and affirming lineal rights. Since burial treatment reflects social position in life (Binford 1971; Goldstein 1981; O’Shea 1984; Saxe 1970; Tainter 1978), a distinctive mortuary treatment for a single population implies a socially differentiated society. Spatially segregated disposal areas generalize the distinction between social levels—individuals of higher status are buried separately from the remainder of the population. Within the Sargat Culture there is one very large distinction within society—those who warrant kurgan burial, and those who do not.

It is important for the living to dispose of the dead in a manner befitting not only the status of the dead but also that of their descendants (real or fictitious). While mounds act as segregating devices by restricting access to only certain members of a society, they can also be used to draw the community together through “conspicuous display…one which celebrates the cohesion of the agricultural workforce” (Bradley 1993: 16). During the Transuralian Iron Age, the “workforce” of record was not agricultural in nature, yet the principles of Bradley’s statement may apply to any collective labor force. To suggest that variability in a culture’s burials is the sole function of social differentiation is problematic, however, and ignores the symbolic realm of mortuary behavior (Morris 1994). As Morris states in an earlier work (1991: 147–148) it is not “legitimate to argue that the functions of cemeteries in easing inter-generational transfers of control over vital resources exist independently from the beliefs and ideas of prehistoric actors.” Archaeologists must step beyond the relationship between mortuary ritual and social relationships to view other aspects of social life.

One piece of the archaeological record that amplifies the dilemma of burials purely functioning as a means of social differentiation is the cenotaph. When the dead are not present as an immediate disposal issue, what is the impetus to harness the labor and build a kurgan? If there is no member of the elite to place within a kurgan, why would the Sargat go to the trouble and expense of building a mound to transfer wealth and power to the living? I argue that in these cases, the mortuary behavior is structured into the social matrix in such a way as to necessitate the symbolic gesture of burial. In order for the power and prestige to pass from the dead to the living there is a need for ceremonial closure. The ideological manipulation of material culture patterning plays as active a role in the maintenance of social reproduction (Tilley 1984), as does the concrete manipulation of labor. There is a need for the survivors—the inheritors of status—to exhibit or display the relationship to the deceased, even when there is no body to bury. In one sense the power of the deceased is omnipresent, even if their body is not.

The Data Set

The Transurals comprises an area of approximately 600,000 km2 that stretches from the Ural Mountains eastwards to the Ishim River, from the taiga south to the steppe (Fig. 1). This forest-steppe region is characterized by low-lying marshland and a litany of small lakes and rivers that see drought-like conditions cycling every decade. The climate is dry continental, and has been relatively static since the Iron Age (Khotinsky 1984: 199). During the warm seasons, desert winds come up from Central Asia, while in the cold seasons the wind returns from the frozen Arctic. Without the moderating effect of a large body of water nearby, any season in the Transurals can be severe.

A list of 39 excavated Iron Age cemetery sites located in the Transurals is displayed in Table 1. Information was collected from many published Russian sources, placed into a database by Dr. Ludmila Koryakova of the Ural State University, and made available to the author. The number of kurgans excavated...
at each individual site is listed in the second column and totals 105. The excavator recorded one or more grave features within each mound, and the information regarding the presence of skeletal remains was used for the purposes of this paper. Of the 193 grave features, 16 graves contained no reference to the placement of the remains (extended, flexed, etc.) within the grave feature. In these 16 instances I assume that no skeletal material was present, or not enough to determine proper positioning of the body. Six of this latter category of grave comprises lone grave features within individual kurgans and they are, therefore, potential cenotaphs. One such mound was excavated under the auspices of a Franco-Russian project, in which the author participated during the summer of 1997.

The cemetery complex of Bolshe Kazakbaevo II is located in the southern Urals, south-southeast of Ekaterinburg, Russia, in the Kynashak Rayon of the Chelyabinsk Oblast (shown as a star in Fig. 1). An archaeological survey undertaken in 1949 recorded the existence of an Iron Age cemetery and mound complex and both were named after the nearest village. Approximately 2 km to the north of the community, on the eastern banks of the Karabolka River, lies the cemetery complex, approximately 6 m above the river level. Since the first survey, two additional surveys have been performed, one by Chelyabinsk State University in 1992 and the other by the Ural State University in 1998. The grand total of burial mounds in this complex is now over thirty, although not all belong to the Iron Age.

There is little doubt that the Bolshe Kazakbaevo II structure was a kurgan since the mound fell within the design specifications seen in hundreds of other Iron Age kurgans. The cemetery complex occupies a ridge above the floodplain, a position distinct from the primarily lowland locations of Bronze Age kurgans in the Transurals. The early stage of construction of an Iron Age kurgan involves the preparation of the ground surface by removing the sod and topsoil to expose the subsoil. To determine if this were the case for Kurgan 1, and following the regulations established by the Russian Academy of Sciences Institute of Archaeology, four test trenches, each approximately 1 m in length, were placed on the north-south and east-west axes of the mound beyond the assumed limits of the mound fill (Fig. 2). As expected, they revealed the presence of a thin topsoil layer that became significantly deeper as the trenches moved towards the center of mound (Fig. 3).

In the next stage of mound construction, one or more subterranean features had been dug into the ancient soil, and in some cases grave goods and individuals were placed in the graves and the pits were then filled. The elaboration of interior mound construction varies spatially and temporally even within the confines of the Iron Age (sometimes a wooden structure was erected over the grave), sometimes a moat was dug around the limits of the mound itself. During the final stage of construction turf blocks were cut and stacked over the top of the grave area.

The size of Kurgan 1, 16 m in diameter, is slightly larger than the mean kurgan size for the Transuranian Iron Age of 10 m (Kroll 1998), but within one standard deviation. The excavation of Kurgan 1 revealed the existence of two prehistoric features and two historic intrusions into the mound. Feature 1 occurred in the central burial position and Feature 2, which was located to the west of Feature 1, was considered to be an auxiliary grave.

The two 20th century intrusions present in Kurgan 1 were not related to looting activities. The first, which comprised a pair of cement posts, was positioned 1 m north-northwest of the central burial position. The second intrusion consisted of a bulldozer swath that began just over the southeast corner of the central feature and ran nearly due south, achieving greater depth as it progressed across the mound. As can be seen in plan (Fig. 2) and profile (Fig. 3) the bulldozer did not actually reach the limits of the central grave, but simply removed a wedge of soil from the mound fill above Feature 1.

Excavation of the mound fill recovered little of archaeological significance—a few net sinkers, an iron key and half of a spindle whorl. Only a few small ceramic sherds were recovered from Feature 1 (Fig. 4). Since Feature 1 was assumed to be the location of the main burial of the mound, it was excavated with painstaking care in order to retrieve any human remains or artifacts, but no human skeletal material was recovered. Conversely, Feature 2 produced a plethora of artifacts (Fig. 5) including two silver rings, three pieces of a glass bead of Black Sea origin (when conjoined in the laboratory the pieces formed a complete bead), the remains of a felt quiver that contained 53 bronze and iron arrow heads, and two iron hooks from the quiver. A number of the projectile points displayed the long basal tines common in the designs of the taiga cultures to the north. A bronze cauldron and a small poorly preserved iron dagger were recovered from the base of Feature 2, although the majority of iron objects retrieved from this feature were in a poor state of preservation.

A medium-sized cauldron (26 cm in diameter, 17 cm in height, with 7 cm long stirrup-shaped handles) recovered from the kurgan was of particular interest. While numerous cauldrons are known to exist in museum collections, few have been recovered in situ. A small repair had been applied near the base of the cauldron, which is a strong indication of a long use-life. The cauldron had been manufactured from very high quality bronze, which may indicate that foreign tin had been used when it was forged. The closest metallurgical centers possible for its production include areas of Kazakhstan, the Black Sea, or the Altai Mountains. It is possible, but unlikely, that the tin had been traded into the area and that the cauldron had then been produced locally. The cultures of this area and time period are known to have traded animal and forest products for specialty items, such as refined metal objects (Koryakova 1996: 266). The cauldron was decorated in the “Animal Style” (Rostovtsev 1929). This style of artifact can be found across the vast expanse of the steppe at this time and it is, therefore, very difficult to trace the precise origins of the vessel.

Herodotus refers to cauldrons in his Histories (IV). The Greek historian also wrote about the warrior nomads who lived near
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the Black Sea (the Scythians) and the rituals associated with similar bronze and wooden vessels. He records that a ruler would collect a bronze arrowhead from each of his principal warriors and then have them melted down to form a cauldron. Herodotus referred to a cauldron that held 5,400 gallons (IV: 81), which was created using such methods. The vessel was used for ceremonial meals—after a successful campaign a feast of animal and human flesh was prepared using the cauldron, or served from it, and consumed by the victors (IV: 61). The direct use of this historical analogy should be undertaken with caution, but it still evokes a powerful image of the value and importance of a rare object such as the cauldron. It also provides insights as to the diverse role of cauldrons during prehistory.

Kurgan 1 contained a wide range of artifacts with origins as diverse as the Black Sea, Central Asia, the taiga, and the steppe, and provides a clear indication of the extensive trade connections of these people. The large degree of outside influence has led to the designation of the Transurals as the northern periphery of the Silk Road (Koryakova 1996: 267), and illustrates the ability of the elite to gain access to precious materials and artifacts not seen in other archaeological contexts.

Conclusions

On the basis of the material remains and the physical size of Kurgan 1, it may be stated that this cenotaph was built to represent the symbolic burial of a member of the Sargat warrior elite. Had this mound at Bolshe Kazakbaevo II been added to the list of looted kurgans in Western Siberia, it would have simply been one of the thousands. When it is regarded as a cenotaph, however, it implies that the Sargat people did not merely bury their dead in an effort to maintain social differentiation, and transfer wealth and power to the next generation. Mortuary ritual is not a “passive reflection of other aspects of life” (Hodder 1982: 141), but rather an interaction of social, political, economic, and religious systems. In order to look for other explanations for kurgan burial, it is necessary to keep multiple interpretations open for discussion, and not eliminate entire categories from our data. In the data set presented here, six of 103 kurgans have the potential to be cenotaphs; a category of mortuary behavior that is currently not studied in this region. By referring to original excavation material (as I have done here using my notes from the excavations at Bolshe Kazakbaevo II) it may be possible to delve more deeply into the Sargat Culture’s ritual and symbolic existence. In addition, the potential exists for us to test our assumptions concerning the extent of social differentiation that would have existed within their society.

References


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**Table 1. Iron Age Sargat kurgans of the Transurals.** (from a database prepared by L. N. Koryakova, Ural State University)

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**Totals**           | **105** | **193** | **16**

These sites have kurgans that may qualify as cenotaphs.
Fig. 1. Transurals of Western Siberia. The star designates the location of the Bolshe Kazakbaevo II).

Fig. 2. Plan view of Kurgan 1.
Fig. 3. West wall and North wall profiles, Kurgan 1. 1) dark grey-brown soil, increasing in compaction with depth; 2) bulldozer swath; 3) and 5) mixture of subsoil and ancient topsoil ("vykid" in Russian); 4) yellow gravel inclusion; 6) rodent burrow.

Fig. 4. Plan view of Feature 1.
Fig. 5. Plan view of Feature 2.
Evidence of Ritual at Tillya Tepe (Northern Afghanistan)

Enarees and Women of High Status
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Abstract
In the second millennium BC, two nomadic confederacies clashed. The defeated tribes, the Ta Yüeh-shih, migrated across the Tien Shan Mountains into Central Asia, sweeping up the Kang Chüi nomads. After joining the Ta Yüeh-shih, they all moved westward into Bactria where they subjugated the remnants of the Seluccid Empire. Excavations at Tillya Tepe in Bactria revealed descendants of these nomadic intruders in burials of high status with a rich assortment of artifacts that were cultically orientated, semantically loaded, and with iconography that relates the deceased to elements in Kazakhstan, Iran, Syria, Anatolia, Greece, Thrace, and Rome. This paper examines some major influences that were revealed in the mortuary offerings, and discusses the status of these personages.

Prologue
Cybele, the great mother goddess of Anatolia, appeared by the 7th century BC in Lydia. She was a goddess of fertility, cured or disseminated diseases, pronounced oracles, and protected her people in war. As goddess of the mountains, she was mistress of the wild nature, symbolized by her attendant lions. Known in Greece by the 5th century; she officially was brought to Rome from Asia Minor ca AD 205 where eastern priests served her. Cybele is generally represented enthroned in a naïskos (shrine), wearing a mural crown or a calathos (basket), carrying a libation bowl and drum, and flanked by lions or holding one on her lap. Religious eunuchs, although found in Cybelene cults but not specifically limited to them, were characteristic of several Anatolian female deity cults. Two statuses of cultic eunuchs (as distinguished from administrative or political) are noted: (1) the high priest of a temple such as Megabyzius of Artemis at Ephesus (Strabo 14.1.23), or the high priests of Cybele at Pessinus, Attis and Battaeces and, (2) itinerant servants of the goddess that included galli. The members of these cults were ecstatic, they engaged in prophetic rapture, and were insensitive to pain; transvestitism (cross-dressing) and whitening the face were outward indications of the eunuch status (Grailloit 1912).

Introduction
The 18th–17th centuries BC, metallurgical centers in Bactria (northern Afghanistan) and eastern Iran manufactured a great number of stone and cast bronze antiquities including “compartamentalized bronze seals.” These latter artifacts were most likely amulets as their configuration does not functionally lend them to sealing. Among the rare anthropomorphic motifs on the seals, as they continue to be called, is the image of a female riding a feline. Ironically, the exact image reappears in the 1st century BC, again in northern Afghanistan, in a high status male burial that has been attributed to the descendants of the Ta Yüeh-shih, nomads from the Tien Shan Mountains who had become sedentary, and who would become founders of the Kushan Empire. This paper traces the tortuous journey of “the woman seated on a lion” to Syria and thence to Anatolia, where in the 7th–6th centuries BC, it became associated with the orgiastic cult of Cybele, and other goddesses who entertained transvestite priests. The Thracians, noted for their Anatolian connections, also engaged in orgiastic rituals, and Herodotus comments that a Scythian brought a cult similar to that of Cybele to his homeland. The female riding a lion was only one of the revealing motifs found among the ca 20,000 mortuary offerings from the tombs of six personages—one male and five females—excavated from the ancient holy mound known as Tillya Tepe. Using the iconography and methodology previously developed, the statues of these Indo-Iranians are explored.
Significant groups of Bronze Age antiquities that included the compartmentalized seals became known after their worldwide dispersal following enormous clandestine excavations. After subsequent years of research on private and museum collections, scholars concluded that a similarity existed in luxury goods and religious items from the vast region known as Outer Iran. Some artifacts have Elamite affinities (Amiet 1988:159), some from Marghab relate to Indus Valley material (ibid.: 173, fig. 17), while others provide links to southeastern Iran (ibid.). The metallurgical center in Bactria produced the largest number of the compartmentalized seals that were lost wax cast and apparently amuletic in nature. The seal designs vary: geometric and floral; rosettes dominate although zoomorphic images of a scorpion, goat, or eagle with spread wings are predominant. Some images appear mythological, having human attributes but with for birds feet (Ligabue and Salvatori 1988, pl. 51). Several anthropomorphic representations including, (most probably) a female riding a snake-necked quadruped (ibid., fig. 16c), or riding a lion (ibid.), pl. 58–59, or a feline (Fig. 2) relate most closely to divinities who control fantastic animals. Such representations were found in Syria and Syrian Anatolia during the reign of the 18th–17th century BC Amorite kings (ibid. 171); similar motifs are also found on Hurrian and Mitanni cylinder seals (Bas-Relief Imaginaires de L’Ancien Orient 1991., Nos. 424 and 427). The Bactrian compartmentalized seals, therefore, demonstrate significant contacts and exchanges of ritual elements with the Levant at the precise moment in time when the Bactrian seals were manufactured.

Some of the exotic iconography from the Levant becomes the hallmark of ritual and sumptuary artifacts belonging to a small group of 1st century BC high status Bactrian Indo-Iranians whose lifestyle and cultural affinity had been nomadic before being buried at Tillya Tepe. Finding this iconography in a region so far to the east is intriguing. What were the connections between the second millennium BC Bactrian and Levantine cultures? How did the 1st century BC nomads acquire these icons? Do the icons have special significances or provide an indication of status? To look for answers to these questions, it is necessary to turn to regions and cultures much further to the west in the first millennium BC.

Anatolia and Syria

First millennium BC (Iron Age) Anatolian cult and religious representational sculpture has its roots in the Bronze Age, receiving elements from the Hittites, Mitanni, and Hurrians. The Mitanni, who established a kingdom in northern Syria and Mesopotamia ca. 1450–1360 BC, became a noble class, the maryannu, and ruled over the local Hurrians. The Hurrians (1430–1360 BC) apparently originated east of the Tigris River, in the Zagros Mountains and Armenia. They spread westward, and under the domination of the Mitanni, overthrew Assyria, controlled northern Mesopotamia, Syria, and eastern Anatolia where their influence on the Hittite Culture, particularly religious and cultic beliefs, was very strong. Puduhepa, wife and mother of two Hittite kings, and co-regent with both, was of a Hurrian priestly family. She introduced many Hurrian deities into the Hittite pantheon and may have been responsible for the rock carvings at Yazilikaya (Frankfort 1970). Virtually nothing is known of Mitanni major arts, although expressive cylinder seals, the principal extant Mitanni art form, reveal iconographic motifs including The Sacred Tree, griffin, and the goddess riding on an animal in association with the Mistress of Animals (Fig. 3a-b). In Anatolia in the first millennium BC, the major Phrygian divinity was Matar (Mother); her name appears in ten inscription in the Paleo-Phrygian language, the epithet kubyleya is added twice (Roller 1988: 45).

After the Cimmerians destroyed Phrygia ca 676 BC, Lydia in southwestern Anatolia began to expand, established a dynasty, and exerted influence over the Ionian Greeks. Under Alyattes (ca. 619-560 BC), the dynasty reached its zenith. Its last king, Croesus (560-546 BC), Alyattes’ son, contributed to the reconstruction of the Artemision at Ephesus in Ionia, and made offerings to Greek gods. The wealthy Lydian Dynasty crumbled under the onslaught of the Achaemenid, Cyrus.

Seventh century BC Lydian votive sculpture reveals Hittite (old Anatolian) stylistic influence. Lydian votive statuettes are also comparable to small sculptures from the Artemision at Ephesus (Özgen and Öztük 1996:26). The extant statuettes are gold or ivory representations of women and beardless eunuch priests, the latter wearing a long robe, a staged headdresses, and heavy beads (Fig. 4).

Other ex-voto sculptures come from Lycia, a maritime district along the Mediterranean coast in southwestern Anatolia. In the Hittite annals the people were recorded during the 14th and 13th centuries BC as the Lukka, and the country served as a wedge between the Hittites and the Aegean Greeks on the coast. The Lycians reappeared in the 8th century BC. Their territory is noted for the large tumuli remarkably similar to Phrygian tumuli at Gordium; the Phrygians are supposed to have European origins and were known for orgiastic worship.

Recent excavations of tumuli Bayındır C and D in northern Lycia have yielded artifacts revealing strong cultic links with the Hittites and Phrygians. An ivory figure of a woman wearing a long-skirted gown holds a child on her shoulder, and the hand of a second, slightly older child, stands near her skirt (Fig. 5) (Özgen and Öztük 1996:26). This statuette is stylistically interchangeable with one from Bogazköy that depicts a bare-breasted female wearing an elaborate headdress and holding a bowl; two small male figures are at her skirts (Roller 1988, fig. 2). Two other ex-votos from Tumulus D reveal affinity with Lydia and the Artemision sculpture as well as with the orgiastic facet of the Cybelean cult. Two beardless eunuch priests wear long belted robes, elaborate headdresses and large strings of beads, and revealing the affinities with the Lydian sculptures, have broad faces, wide and well-defined eyes, and insipid ‘Mona Lisa’ smiles. One priest is distinguished by his coiffure that features a long, heavy ringlet in front of his ear (Fig. 6).

In western Phrygia, reliefs of Matar place her within an architectural facade. She holds a small lion and is flanked by large
lions that place their paws on her head; at Arslan Kaya two lions also guard the facade. With these attributes Matar is also Mistress of Animals, a role perhaps acquired from Mitanni influence via the Hittites. By 550 BC, as the cult developed in Magna Graecia, Matar became an Artemis Mistress of Animals, retaining Cybele’s lions as her attributes (Fig. 7).

In her incarnation as Matar Kybelyiye, in addition to the lion icon, but before taking on orgiastic and ecstatic attributes, she may have been associated with streams of water (Gasparro 1985: 3). The streams of water characteristic is found in northern Mesopotamian, specifically illustrated at the city of Mari where the water goddess is key to the investiture of the king (Moortgat 1969, p. 70). Megalithic Hittite water goddesses still may be found on the Turkish Konya plains.7

Elam

The cult surrounding water goddesses and snakes is not confined to Syria and northern Mesopotamia. Chthonic images from Tchoga Zanbil, one from the ziggurat and another on a cylinder seal (Porada 1962: 64) stylistically have many of the same attributes as the Lydian eunuch priests: a headdress, beads, a ringlet in front of the ear, and a ‘Mona Lisa’ smile (Fig. 8), and they are also water goddesses. Suggesting western influences prevailed in the royal house, the tombs at Tchoga Zanbil, the Middle Elamite ziggurat dating to ca. 1250 BC, yielded cremated corpses. Although no inscriptions identify these as burials of the kings, “one is reminded here of the cremation of Hittite kings and of one of the kings of Mitanni.” (Porada 1962: 60).

Thrace

From southern Europe, Thracians migrating into Anatolia around 1000 BC may have introduced orgiastic rituals into the previously non-orgiastic cult of Matar (Gasparra 1985:3). According to the ancients, Dionysus was a Thracian god who came into Greece from the north (Fol and Marazov 1977:25). Herodotus comments, “They (the Thracians) worship no gods but Ares, Dionysus, and Artemis” (V:7) (giving Greek names to Thracian gods), and it is “they who possess the place of divinity sacred to Dionysus” . . . “the Bessi . . . are the prophets of the shrine, and it is a priestess that utters the oracle, as at Delphi” (VII:11).

The syncretism of the belief systems of the Phrygian Matar, that later becomes Kybele—the Cybele associated with Attis, apparently occurred between the 12th and the 6th (or 7th) centuries BC. Interaction between southern Thrace (southern Bulgaria),8 Mycenae, and Anatolia are archaeologically noted from the middle of the second millennium BC. When Thracian art forms appear they are semantically loaded with two major visual languages: that of (1) the ancient Near East and (2) of Anatolia, as seen in the carytids from the Sveshtari Tomb northeast of Varna (Fig. 9). From the 10th to the 6th centuries BC (Early Iron Age) Thracian art, conforming to the Geometric Style found parallels from Austria to the Caucasus to the Iranian Plateau (Marazov 1997: 34). Textual as well as archaeological evidence indicates that, in alliance with the Trojans, the Thracians controlled trade passing from the Aegean to the Black Sea (Hoddinott 1881:56:60). From the many magnificent gold hordes recovered in Thracian territory, it is apparent that nobility was able to amass more than significant wealth.9

In Thrace, the major female deity was Bendis who, with a variety of epithets, enjoyed a multiplicity of functions. As the Bendis cult was adopted in Athens in 429–428 BC many inscriptions, dedications, and reliefs provide information. Iconographically, in southwestern Thrace as early as the 7th century BC, she appears holding a spear and twig; a ceramic fragment of the same dating from Lemnos has her carrying two spears (Fol and Marazov 1977: 22). Two Attic reliefs have been judged the best portrayals of the Thracian goddess: She is dressed in chiton, an animal skin over her shoulders, wearing a pointed cap (Phrygian or nomadic), and clasping two spears (Fol and Marazov 1977: 22).

The Mistress of Animals semantics may have been especially dominant in the Bendis cult. In the 5th century BC, she (or as Artemis) was the subject for the handle of a mirror (Fol and Marazov 1977: 23). Robed, she wears a veiled headdress; two winged zoomorphs stand heraldically on her shoulders supporting, above her head two lions are attacking prey. Several representations of the great goddess appeared in the iconography of the Rogozen Treasure. As Mistress of Animals she holds two dogs by their front paws11 and is further flanked by winged centaurs (Fig. 10). In the lower register two lions attack a bull. This well-known and typical Animal Style combat theme is unusual only in the representation of the species; a bull is rarely found in the nomadic repertoire and lions are usually leopard-like felines. The incorporation of the lions on the mirror handle points to Cybelene iconography. On a 4th century BC silver vase (Marazov 1997, pl. 84), two near-identical scenes reveal two images in a chariot. A young female charioteer drives winged horses and a matronly woman seated in the chariot holds a bowl and a branch with seven flowers (Tree of Life?). The second passenger holds a bow in one hand and arrow in the other. Although the icons held by these two personage could represent two aspects of the goddess, the unbarbed face of the one who holds the bow and arrow is framed by unruly curls and has the aspect of a male. If a male, he probably represents the eunuch priest in the service of the goddess. This iconography, and most probably its underlying belief system, is recorded as being in the Greco-Bactrian world as revealed by a disk excavated from Ai Khanum (Afghanistan). Dating to the 4th or 3rd centuries BC, it reveals a personage in a chariot, sheltered by an umbrella-shaped canopy, and driven by a charioteer who controls a team of lions. Its religious nature is revealed by the icons in the field: a human bust crowned with rays along with the moon and sun motifs (Fig. 11) (Tsuchiya 1979).

A later Thracian portrayal reveals the bust of the fertility goddess with braids falling in front of her shoulders (reminiscent of the curl in front of the ears), laden with multiple torques, and two birds perched on her shoulder (Fig. 12). Revealing Thracian symbiotic relationship with the Sarmatians, a similar image appeared on a phalera dating to the 2nd–1st centuries BC.

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from the Yanchokrak Treasure excavated in the north Black Sea region (Smirnov 1982:101-102). A Thracian greave (shin guard) in the form of an extremely stylized female has attributes relating her to the Scythian snake-goddess (Fig. 13). Serpents forming her arms or legs reveal her authchthonicity and indig-enousness. A dove perches near her waist, and a vine grows around her forehead. Snakes were particularly important to the Thracian royal family, as they bestowed territorial rights as well as represented hearth and home. The chthonic serpent, a particularly important icon in Elamite art, is associated with the water goddess relief (Fig. 8). The vine finds its parallel in The Tree of Life diadem excavated in the Rostov-na Don region from a high-status female burial (Davis-Kimball 1997/98), in representations of the Tree of Life with birds on the Issyk headdress (Fig. 14), (Davis-Kimball 1997b), as well as a Thracian wreath from the Mogilanska Mogila (Marazov 1997, pl. 141). The wide distribution of this icon, a Tree of Life represented as a vine that can metamorphize into a serpent, reveals its magni-tude in cultic affairs of the times.

One of the more intriguing images in Thracian art is found on one of several horse harness accouterments in silver-gilt that was included in a treasure trove buried in a bronze cauldron (Fig. 15), the nomadic ritual accouterments for ritual feasting. A beardless figure, face in profile and torso displayed frontally, holds a mirror in the right hand and interacts with a three-headed serpent. Although this could be a representation of the dragon-fighter myth (protecting the virgin offered as a sacrifice), the defender/fighter aspect is completely missing as the protagonist calmly and peacefully relates to the serpent. The iconography falls into the realm of the eunuch priest, mirror for divinations; the snake as the feminine aspect defines authchthonic territorial rights for the possessor of the plaque.

A gilded female represented on both sides of a silver vase holds a bow and arrow in one hand and the neck of a lion in the other as she rides side saddle (Fig. 15). Between the two images is the familiar Eastern nomadic motif, the combat of lion attacking a stag. In one context, the female is ambiguous, combining the attributes of both Cybele–in her pose on the lion– and Artemis–with bow and arrows. She is, however, the Mistress of Animals, controlling the beast she rides. Thus, several aspects of the goddess are represented, combined into one iconic scene.

The Scythian Connection
According to Herodotus (IV: 76), an orgiastic cult similar to that of Cybele was brought to Scythia by Anacharsis who had encountered her rituals while travelling in Anatolia, and vowed if his journey home were safe, he would perform nocturnal rites to her. Although, it is reported that later he was killed for engaging in such performances, Scythian orgiastic rituals appear to be recorded in pendants and plaques from 4th century BC burials. They feature women clenching heads of beasts and weapons engaged in frenetic dancing (Ustanova 1999: 79) but it is not known if the dancers were women or transvestites, on both. A status of Scythian soothsayers and diviners, the Enarees, was noted twice by Herodotus. But the Scythians who pillaged the temple (of the Heavenly Aphrodite at Ascalon in Syria), and all their descendants after them, were afflicted by the goddess with the “female” sickness

There are among the Scythian many diviners, who div-ine by means of many willow wands . . . The Enarees (sic), who are epicene, say that Aphrodite gave them the art of divination . . . (Herodotus IV:67)

In the pseudo-hippocratic treatise De aere (22), Enarees were eunuchs who “belonged to the most powerful nobility, wore women’s dress, performed women’s jobs, spoke like women, and enjoyed special respect because of the fear they inspired” (Ustanova, 1999: 77) Scythian Enarees probably were affiliated with the orgiastic cult of a Near Eastern fertility goddess, Aphrodite Ourania-Astarte, frequently indistinct from Cybele and Meter.” (Ustanova, 1999:80).

Personages in the Tillya Tepe burials
In ancient Bactria a mound known as Tillya Tepe, the remains of a then ancient (second millennium BC) fortified fire temple were excavated. Although rebuilt during the reign of the 6th–4th centuries BC Achaemenids, when Alexander came through in the 4th century BC, the temple lay in ruins, destroyed by fire. Some centuries later in the early 1st century BC, the temple mound became the burial site for a group of individuals belonging to a pre-Kushan principality (Sarianidi 1985; Rosenfeld 1967). Six burials were excavated, a seventh uncovered but due to lack of time, was unexcavated. That winter, however, storms revealed gold objects at an eighth location and later the same year, a mirror and other artifacts similar to those excavated, were encountered in Kabul bazaars. As the Afghan/Soviet war raged, no further research was possible. The burials that were excavated were incredibly rich; approximately 20,000 gold and polychromia (encrusted) artifacts were excavated along with many other mortuary offerings. The iconography on the artifacts was not only extraordinary, it stylistically had six different cultural associations: the second millennium BC is represented by Bronze Age Bactrian, Greco-Bactrian, Greco-Roman; The Iron Age is reflected by the local Bactrian traditions, the Siberian-Altaic (Saka) Animal Style, and Scytho-Sarmatian Animal Style (Sarianidi 1985: 53). Of the six burials excavated, five contained the skeletons of females, all young women, whose ages at the time of death were: Burial 1, age 25-35; Burial 2, age 30-40; Burial 3, age 18-25; Burial 5, age 15-20; and, Burial 6, age 25-30.

Space permits only a brief summary of the artifacts that would identify statuses of the females:

(a) Colored minerals: (Females 1, 3, and 6).

(b) Mirrors: one mirror (Female 2), two mirrors, a Chinese import and one with an ivory handle (Female 3), and a mirror similar to one from Pazyryk kurgan 2 (Female 5).

(c) Fertility rituals: Iconography on other artifacts emphasized a dedication to fertility rituals, i.e., cupids or Venus-like images (Females 1 and 3); the ‘Kushan’ (Bactrian) Aphrodite (Females 2 and 6) (Fig. 17).
Belts were an extremely important element of nomadic costume as they signify clan, tribal, and status identification (Davis-Kimball and Yablonsky 1995/96, pls. 7, 10; Davis-Kimball 1997b); still today male and female nomadic traditional costume is a heavy coat secured with a silver encrusted belt (pers. research). Both belt ornaments worn by Female 3 and Male 4 are semantically loaded. The Female 3 belt plaques illustrate a beardless male, a eunuch, with long curly hair in feminized warrior attire. He stands between The Tree of Life where birds are perched, while controlling fantastic creatures at the base of the Tree. Although the stylization of the human image on the plaques is Greco-Roman, the iconography, specifically the Tree of Life, birds, and the stylistic elements (teardrop shapes and others) on the fantastic creatures, indicate an incorporation of eastern Eurasian steppe belief systems. In contrast, the nine belt medallions on the male’s costume—a Cybelene motif—may also be interpreted as the Mistress of Animals controlling a lion. These are later-dated renditions of the motif that appeared in Thrace several centuries earlier (Fig. 16) and iconography relating to orgiastic rituals found in the Anatolian Greek World.

As noted above, the personages entombed at Tillya Tepe were pre-Kushan. The female riding a feline, as a symbolic motif, resurfaced in the Kushan Empire where she is identified as the goddess Nana or Nanaia. Kanishka, the third Kushan ruler and one of the greatest sovereigns in Upper India, probably ruled during the first two decades of the 2nd century AD. The most important deity depicted on Kanishka’s coinage was Nana; in one manifestation on a coin and another on a seal, she holds a bowl while seated frontally on a lion (Rosenfield 1967: 84, 102, fig. 10, Seal 4, Coin 142). Again the female on a lion appears in medallion format, one that perhaps should be considered integral to her underlying symbolism.

**Discussion**

Throughout Eurasia, India, Korea, Africa, and North America diviners and shamans wear women’s clothing and practice women’s customs. Known as ‘soft men’ (i.e., men who are similar to women), they undergo ritual sex change or ritual androgynyization and ‘feminization’ (cf. Eliade 1974: 168, 257); they practice ritual transvestitism, but cohabit with women either in response to divine command or to gain women’s magical prestige (Eliade 1974: 351-352, fn. 48; Halliday 1910/11). Many diviners and seers, practicing rituals that utilized shamanistic elements were employed by Scythian kings (probably chieftains) for matters of State or illness (Herodotus IV: 67). It is known from archaeological evidence that the Pazyryk Saka inhaled hallucinogenic smoke during rituals (Rudenko 1970), and hallucinogenic seeds were excavated from a Sarmatian burial at Pokrovka (Yablonsky et al. 1995: 62–65).

Indo-Europeans preserve vestiges of shamanic ideology (Eliade 1974: 376). The Ossets, descendants of Scythians and Sarmatians, as well as other Caucasus peoples, have maintained many mythological and religious traditions of the early nomads. The most important diviners and seers in the Caucasus are to be found among the Ossetians. These were the messalethie, young women and girls who fall into a trance to escort the dead to the netherworld, incarnate them, and allow the spirits
to speak through their mouth (Eliade 1974: 394).

**Conclusions**

Although it is relatively easy to imagine how an orgiastic cult associated with Cybele (or similar cult) could have arrived in Bactria from the Greco-Bactrian, Thracian or Roman-Bactrian World, it is surprising to find the stylistically fully-developed “Cybele motif” (the female riding a feline) on 18th–17th centuries BC Bactrian ‘compartmentalized seals.’ This leads to the conclusion that the belief system underlying the female riding a feline either originated (a) in Anatolia with the Mitanni and was carried to Bactria or, (b) originated in Bactria and was transmitted to northern Mesopotamia and Syria where it became integrated with Thracian-Phrygian orgiastic rituals before being disseminated into subsequent cultures.

Was the burial ground in the ancient Tillya Tepe fire temple devoted to ‘nobility’ as has been previously noted? Most probably not, for it appears to have been reserved for the highest-positioned, cultically orientated personages: the three or four priestesses, the two warrior-priestess, and a eunuch warrior-priest.

The Thracian Bendis iconography indicates she was associated with warrior-priestesses while far to the east in the Kazak steppes, Sarmatian and Saka warrior-priestesses were excavated from kurgans. These were actual women, not goddesses; they were buried with armament, but they also had accoutrements belonging to priestesses.

These Bactrian Indo-Iranians were of statuses that represented a syncretism of East and West belief systems. In their practices they probably combined elements of orgiastic rituals from Anatolian, Greek, and Roman cultures with some cultic components assimilated from Altai and Tien Shan Saka (including some shamanistic factors) as well as the other traditional rituals practiced by southern Ural and lower Don River Sauromatian and Sarmatian priestesses and warrior-priestesses. Their syncretic cultic belief system should not surprise us; the Tillya Tepe people were the recent descendants of a nomadic confederation driven westward into Bactria; there they had encountered and assimilated the still-living remnants of Alexander’s Seleucid Empire, and we see many of their traditions continued with the Kushans.

**Endnotes**

1. This is the archaeological sequence attributed to Namazga V and VI in southern Turkmenistan. The Russians surveyed the Mungah and Tedjen River basins and excavated the important sites of Kelleli, Gonur, and Togolok. East, in northern Afghanistan, they excavated three sites at Dashly Oasis, and the type site of Sapallitepa in southern Uzbekistan (Lambberg-Karlovsky 1988: 15).
2. These are the attributes of Līthīs as depicted on reliefs placed in Mesopotamian temples and small shrines around 2000 BC (Frankfort 1970).
3. This and all other figures have been electronically edited, cropped, resized, and/or enhanced, and otherwise revised from the original.
4. Earlier literature noted that the Mitanni were Indo-Iranian. Current research, however, indicates that the Indo-Aryan words attested in northern Syria were loan words assimilated into the non-Indo-European Hurrian language spoken by the Mitanni (Mallory and Adams 1997: 306). Neither Indo-European nor Semitic, the Hurrian language was spoken from the third millennium BC until the later years of the Hittite Empire ca. 1200 BC.
5. The Cimmerians also destroyed the lower level of Sardis ca. 644.
6. Also see Corsen 1991 on the Persian goddess cult of Anahita in Lydia where she is associated with Aphrodite “Matar” and with Kybele.
8. For a geographic definition of Thracian territory as known by the Greeks during the Homeric era through the Roman Period, see Fol and Marazov 1977: 9–13.
9. Pottery and stone anchors off the Sozopol area, and an “oxhide ingot” off the north Black Sea coast north of Varna in Thracian territory.
10. Details of the recent Rogozen Treasure as well as the other gold Thracian hoards are found in Marazov 1997.
11. The word “dog” is uncontroversially ascribed to Proto-Indo-European (Mallory 1991: 119). In Greek mythology, the dog had a chthonic association.
12. According to Martin Schwartz, University of California, Berkeley, the interpretation of Enarees is “effeminate” (pers. comm.). A somewhat different view is given by Martin Huld, California State University, Los Angeles, who says that the Greek and other variants of the word seem to point to an adaptation of an Old Iranian root from which the words ‘man’ and ‘woman’ were derived. The meaning would have been something like ‘un-manly’; whether that narrowly meant ‘effeminate’ or ‘castrated’ cannot be determined. He also notes that the proper spelling of the word is “Enarees” (pers. comm.).
14. Based upon the mirror that appeared in the Kabul market, one of the unexcavated burials probably also contained a priestess.
15. Using the criteria developed from the Pokrovka excavations (Davis-Kimball 1997c).
16. The caftan is a typical nomadic jacket worn by both males and females; nomadic warrior males did not wear kilts or skirts. The Achaemenid court garment for Persians was a long robe with pleats in the skirt. The Medes (or the riding habit of Medes and Persians) was the traditional nomadic costume, caftan and trousers. Achaemenid Persian females are not portrayed in court sculpture but many examples in minor arts (cylinder seals, rings, textiles, etc.) reveal they wore a costume similar to that of Persian males. Achaemenids are illustrated on the reliefs at Perseopolis. See Davis-Kimball 1989 for drawings of all Persians figs. 10, 13, 14, 19; for all Medes, figs. 26–28. For a female Achaemenid costumes, Orzsek and Özlük: 1996, fig. 163; Rudenko 1970, pl. 154. For male Seythian costumes, Rolle, figs. 32a–b, 33; Seythian female costumes, ibid., figs. 34–35. For interpretations of female costumes, Davis-Kimball 1997/1998; also Polostmak 1994 for an illustration of a frozen Saka priestess dressed in skirt and caftan.
References


Kurgans, Ritual Sites, and Settlements: Eurasian Bronze and Iron Age


Table 1. Correlation of Females from Tillya Tepe with artifacts and iconography.

<table>
<thead>
<tr>
<th>ARTIFACT</th>
<th>P1</th>
<th>W-P 2</th>
<th>W-P 3</th>
<th>P5</th>
<th>P6</th>
<th>P7 (?)</th>
</tr>
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<tbody>
<tr>
<td>Colored minerals</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Mirror</td>
<td>x</td>
<td>x</td>
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<td>x</td>
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<tr>
<td>Chinese import mirror</td>
<td></td>
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<tr>
<td>Mirror similar to Pazyryk, Kurgan 2</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
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<tr>
<td>WEAPONRY</td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Siberian-style daggers</td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Iron pickaxe</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Iron dagger with lapis/gold/turquoise</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
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<tr>
<td>Fertility ritual iconography</td>
<td></td>
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<td></td>
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<tr>
<td>Cupids or Venus-like images</td>
<td>x</td>
<td>x</td>
<td></td>
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<tr>
<td>Kushan Aphrodite</td>
<td>x</td>
<td></td>
<td>x</td>
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<tr>
<td>Mistress of Animals</td>
<td>x</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Tree of Life</td>
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<td></td>
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<td>x</td>
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<tr>
<td>ARTS IF WAR ICONOGRAPHY</td>
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<tr>
<td>Medallion with standing Athena</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
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<tr>
<td>Ring with seated Athena</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
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<td></td>
</tr>
<tr>
<td>Belt buckles with eunuch and Tree of Life</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL INDICATING STATUS RANK*</td>
<td>2</td>
<td>7</td>
<td>7</td>
<td>1</td>
<td>3</td>
<td>1(?)</td>
</tr>
</tbody>
</table>

P = priestess; W-P = warrior priestess; *higher number = higher rank
Fig. 1. Ancient Near East, Anatolia, Thrace and southern Russia noting locations of Scythian, Sarmatian, and Saka nomads.
Fig. 2. “Compartmentalized stamp seal.” Female riding sidesaddle on a feline. Bronze, ca. 1800 BC, Bactria. (after Ligabue and Salvatori 1988)

Fig. 3. Cylinder seals. a - Goddess wearing a large headdress riding sidesaddle on an animal; to the right a Mistress of Animals. Excavated from Ras Shamra, Syria; b - Mistress of animals controlling lions. Both seals Mitanni, ca. 1450-1360 BC. (after Bas-Reliefs Imaginaires du L’Ancient Orient 1973)
Fig. 4 (top right). Statuette. Eunuch priest. Ivory, ca. 7th century BC. From the Artemision at Ephesus, Anatolia. (after Özgen and Özük 1996)

Fig. 5 (top center). Statuette. Woman with two children. Ivory, ca. 7th century BC. Bayındır Tumulus, Anatolia. (after Özgen and Özük 1996)

Fig. 6. Statuette. Eunuch priest. Silver, ca. 7th century BC. Bayındır Tumulus D, Anatolia (left). (after Özgen and Özük 1996)

Fig. 7. Relief. Artemis as Mistress of Animals. Stone, carved, ca. 550 BC, Anatolia. (Louvre; slide courtesy of Miriam Robbins Dexter)

Fig. 8. Detail from the stele of Untashgal. Water goddess, controlling snakes that also form steams of water. Middle Elamite Period, 13th century BC. Tchoga Zanbil (Iran). (after Parrot 1960)
Fig. 9. Caryatids. Sveshtari Tomb. Carved stone, ca. 5th century BC., northeast of Varna (modern Odessos), Thrace (Bulgaria). (after Marazov (ed.) 1997)

Fig. 10. Mistress of Animals holding dogs, flanked by winged centaurs. Vase, silver, 4th century BC. Rogozen Treasure, Vratsa district, Thrace. (After Marazov (Ed.) 1997)

Fig. 11 (above). Disc. Personage in a chariot with an umbrella-shaped canopy, driven by a lion; a human bust crowned with rays; moon and sun motifs in the field. Bronze gilt, Ai Khanun (Afghanistan), 4th-3rd centuries BC. (after Tsuchiya 1979)

Fig. 12 (right). Phalera. Bust of a female with a bird on each shoulder. Silver gilt, 2nd century BC. Galiche, Montana district, Thrace (Bulgaria). (after Marazov (ed.) 1997)
Fig. 13 (left). Greave. Female with serpent arms and legs; a diadem vine around her forehead. Silver gilt, mid-4th century BC. Mogilanska Mogila, Vratsa, Thrace (Bulgaria). (After Marazov 1997).

Fig. 14. Attachment on the Warrior Priestess headdress (formerly identified as the ‘Gold Man.’). Birds perched on the Tree of Life. Gold foil, ca. 400 BC. Issyk, southern Kazakhstan. (After Akishev 1978).

Fig. 15. Horse harness accoutrement. Eunuch with mirror and three-headed serpent. Silver gilt, mid-4th century BC. Letnitsa, Lovech district, Thrace (Bulgaria). (After Marazov 1997).

Fig. 16. Vase. Female riding side saddle on a lion, holding bow and arrows. On the opposite side, the motif is repeated with an animal combat scene. Silver gilt, 4th century BC. Rogozen Treasure, Vratsa district, Thrace (Bulgaria). (After Marazov 1997).
Fig. 17. Amulet. 'Bactrian Aphrodite,' three loops on the back for suspension. Gold, hollow cast, 1st century BC, Female Burial 6, Tillya Tepe, Bactria (Afghanistan). (after Sarianidi 1985)

Fig. 18. Temple pendants. Mistress of Animals controlling two mythological creatures. The central image, possibly an Eunuch, is dressed in caftan and skirt. The cast mark in the center of the forehead may be compared with that of the 'Bactrian Aphrodite' (Pl. 17). Stylistically, the pendants relate to the Pazyryk Altai and Kazakhstan Saka Animal Style, as well as Greco-Bactrian art. Gold cast, inset with turquoise, 1st century BC. Female Burial 2, Tillya Tepe, Bactria (Afghanistan). (after Sarianidi 1985)

Fig. 19. Diadem. Multiple representations of The Tree of Life. Gold foil, 1st century BC, Female burial 6, Tillya Tepe, Bactria (Afghanistan). (After Sarianidi 1985)

Fig. 20. Amulet. Athena wearing a Bactrian helmet and holding a long spear; four loops for attachment. Gold cast, 1st century BC, Female Burial 3, Tillya Tepe, Bactria (Afghanistan). (After Sarianidi 1985)
Kurgans, Ritual Sites, and Settlements: Eurasian Bronze and Iron Age

Fig. 21 (above). One of two belt fasteners. An unbearded warrior, probably a eunuch, with long, wavy hair falling below a Bactrian helmet, wears a flounced kilt, holds a spear or lance in the right hand and a shield in the left; a dagger is strapped to his left side. He stands between Trees of Life; symbolically controlling fantastic creatures seen below the Trees and birds perched above. Gold cast, 1st century BC, Female Burial 3, Tillya Tepe, Bactria (Afghanistan). (after Sarianidi 1985)

Fig. 22 (right). Diadem element. Tree of Life associated in the burial with a gold ram; elements of a diadem similar to one worn by the Sarmatian female in Khokhlach Kurgan in the Rostov-na Donu region, north of the Black Sea. 1st century BC, gold foil, wire, pearls, Male Burial 4, Tillya Tepe, Bactria (Afghanistan). (after Sarianidi 1985)
Enaees and Women of High Status: Evidence of Ritual at Tillya Tepe

Fig. 23 (left). Belt medallion (one of nine). Female riding sidesaddle on a lion. Gold, cast, 1st century BC., Male Burial 4, Tillya Tepe, Bactria (Afghanistan). (after Sarianidi 1985)

Figs. 24 and 24a (center) and Fig 25 and 25a (bottom). Pair of shoe buckles. In each scene a eunuch in a mushroomed-canopied chariot is drawn by winged, leonine-like creatures. The personage depicted in Fig. 25 wears a headdress with rams’ horns. The closest analogies to the canopy are from Afghanistan (Fig. 11), which predates the Chinese examples, although the Tillya Tepe buckles are closer in time to Han Dynasty examples. Gold cast; fabric imprint on the reverse, inset with turquoise, 1st century BC., Male Burial 4, Tillya Tepe, Bactria (Afghanistan). (After Sarianidi 1985)
Abstract
The authors theorize that the transition to nomadism was caused by a number of factors, the main one being the change in economic organization due to climatic aridization. The change followed different scenarios depending on various conditions, i.e., the degree of forestation of the territory, the availability of water resources, the cultural environment, or the location with reference to metal production centers. The population of the Sargary Culture, for instance, is an example where some features of a settled way of life were retained to the beginning of the Early Iron Age, although this was coupled with a diminishing population. Intermediate stages could have comprised re-grouping of the population within the territory, and the transition to nomadism by part of the population, while the remaining population stayed in settlements and adhered to the old traditions. The process of changing societal mobility was not linear and homogeneous. With the influx of the bearers of nomadic traditions from central Kazakhstan at the intersection of the Bronze Age and Early Iron Age, the turning point was achieved.

Key Words
aridization, cattlebreeding, nomadism, sedentary lifestyle, Transurals

Introduction
For many years, the authors have dealt primarily with the problems of the Bronze Age in the Urals and do not consider themselves experts in the field of nomadism for several reasons. Firstly, outside Russia “nomadism” is treated as a very general term, often comprising all the archaeological cultures of the Eurasian steppes and forest-steppes, beginning as early as the Bronze Age. This might be the result of the unjustified extension, from a historical point of view, of the Early and Middle Bronze Age of Eastern Europe to the entirety of the steppe territory, equating it to the entire Bronze Age. It is true that in Yamnaya and Catacomb sites, the people are almost exclusively buried in kurgans (burial mounds) with just a few settlements in the southern or, to be more exact, southwestern periphery of the given communities. From the end of the Middle Bronze Age through the Late Bronze Age to the beginning of the Early Iron Age, the existence of their sedentary settlements, including those with strong fortification systems, has been reliably proven.

Secondly, we have had the opportunity of becoming thoroughly acquainted with virtually all the materials from the end of the Bronze Age in the Transural steppes and forest-steppes (Fig. 1). We are of the opinion, therefore, that either the commonly expressed views on the mechanism of transition to nomadism are somewhat unrelated to reality, or the available data leaves room for other interpretations.

Thirdly, up to the present time priority has always been given to the chronological aspect of analysis to the detriment of spatial ones. Hence a simplified scheme of transition to nomadism—either suggesting that migrational distances gradually increased, or implying that there was a sudden leap from a settled way of life to universal mobility—was the mode. We are aware of the fact that the variant suggested in this paper for treating this process, may have its restrictions; nonetheless, this is a model capable of explaining the available data without giving rise to too many contradictions. In the following discussion we will provide a brief overview of this data.

Review of the Archaeological Data
Chronologically, our work is limited to the post-Seima Horizon, dated to the 12th–11th centuries BC. The final date indicates the transition to the Early Iron Age (8th century BC). Further on we will refer to the facts associated primarily with the steppes of the Transural zone between the Ural and the Tobol rivers. To date, there is no reliable specific chronology for the closing period of the Transural Bronze Age although, outside the specified zone, some materials have been found that immediately precede the early nomadic cultural formation that is manifest in the Early Iron Age. These include the Nursky Type in the Povolzhje region and the Dongal Type in Kazakhstan. Further on we will refer to the facts associated primarily with the steppes of the Transural zone between the Ural and the Tobol rivers.1. To date, there is no reliable specific chronology for the closing period of the Transural Bronze Age although, outside the specified zone, some materials have been found that immediately precede the early nomadic cultural formation that is manifest in the Early Iron Age. These include the Nursky Type in the Povolzhje region and the Dongal Type in Kazakhstan. Even in these cases, however, the finds—these are mainly ceramics—originating from the beginning of the first millennium BC are scarce. It is equally difficult to single out the chronologically later group from the closing period by examining the Bronze Age burials.

In the southern Transurals, the final stages of the Bronze Age is represented by the Surgery Culture, that has a much wider distribution that includes the southern Tobol-Ishym forest-
steppes, and northern and central Kazakhstan (Potomkina 1979).  
Whereas in the latter area, excavations that occurred in the mid-
1970s produced materials that identified this culture (Zdanovich 1983) and “purely” comprised Sargary settlement and burial 
complexes; in the Transursals settlements, not only Sargary ce-
eramics but also those belonging to other cultures—mostly from 
the forest-steppe Mezhovka Culture—are found. In contrast, 
Surgery inclusions are often found among assemblages retrieved 
from Mezhovka settlements. The Sargary Culture, in turn, be-
longs to a group of cultures dating to the end of the Bronze Age 
that had characteristic ceramics with the so-called “valiks,” i.e., 
chick clay bands (“rolls”) attached to the side of the vessel. 
These cultures constituted the Valikovy chronological horizon, 
so named after this type of ceramic (Chernykh 1983).

Prior to the review of the materials, one has to admit that ex-
remely few sites dating to the end of the Bronze Age have been 
evacuated. At the same time in the southern Transursals field re-
connaissance has found quite a number of settlements that may 
also provide food for thought. None of these sites have, however, 
been evacuated. It is very important to point out that there is a 
disproportion between the number of settlements and burial sites 
that exist, with the latter being extremely scarce.

Antiquities from the Surgery Culture comprise settlements, a 
few burial complexes, and occasional finds. The settlements 
are of two types; it has not yet been determined if they were 
synchronous or not. The first type of settlements were large 
and had buildings that cut deep into the subsoil. The total area 
of such settlements sometimes exceeds 20,000 square meters. 
Paradoxically, the thickness of the archaeological layer and its 
saturation—the number of finds—are not significant, and there 
are essentially no finds outside the foundation pits. The second 
type is represented by much smaller settlements, 1,000–2,500 
square meters; frequently no traces of dwelling pits are found. 
For the quantity and diversity of the finds, the second type 
does not differ appreciably from the first.

One might be tempted to assume that the presence of two types 
of settlements proves that during the final stages of the Bronze 
Age, settlement size gradually diminished. This assumption, 
however, is contrary to the facts. At the Kinzhitai settlement 
(Vinogradov 1991), one of the few excavated sites, ceramics 
were found that were replicas of those from the Kujusay Cul-
ture of the southern Aral region, and are not earlier than the 7th 
century BC (Fig. 2). The context of this find leaves no room 
for doubt of the co-existence of imported and local ceramics. 
The features of the settlement—covering 9,000 square meters, 
with nine spacious pits designed in such a way that they are 
indicative of permanent dwellings that were up to 0.9 meters 
deep and 130 x 350 square meters in size—indicate that the settle-
ment was a comparatively large site as well as being chrono-
logically advanced. We think this fact rules out the possibility 
that the area was uninhabited at the brink of the Early Bronze 
Age.

The layout of the settlements do not follow any definite scheme. 
The buildings are normally erected in one line along the 
riverbank abutting the water and dense building is not typical. 
Part of the settlement is situated on high flood plains in areas 
that are close to the water, and are today sometimes flooded. 
Large sites contained up to 15 buildings, and the dwellings were 
built with the help of ‘skeleton’ constructions. The floors were 
0.7–1.0 meters deeper than the ancient land surface level. Two 
types of roofs can be distinguished; those with two pitches 
(gabled roofs) supported by longitudinal posts and rafters; and 
those with four pitches (hip roofs), resting on four supporting 
posts in the center. Household finds mainly consist of ceramics 
and the bones of domestic animals.

Metal artifacts are typical for both the steppes and forest-
steppes and south forests zones in this time period, and in-
clude single-bladed knives, dagger-like knives with ring 
stops, cutters, Sosnovaya Maza-type daggers, Derben type 
sickles, sleeve and wedge-like chisels, and flat adzes. Un-
fortunately, the metalwork collection is, to a great extent, 
composed of occasional finds. As regards the non-metal 
artifacts, it is worth mentioning an impressive, although 
rare, category, i.e., pivot-like cheekpieces that are evidence 
for the existence of horseback riding. These complexes pro-
vide only a minimal number of artifacts that can be identi-
fied as weapons; these are mainly arrowheads—a few bronze, 
double-bladed sleeve-like arrowheads, and some shafted bone 
arrowheads.

Burial sites comprise small burials of up to three mounds, and 
single kurgans (barrows). Unlike those of the previous period, 
they were often situated on prominences near the main river 
bank, but a great distance from the riverbed. Stone and soil 
mounds are a maximum of 10–12 meters in diameter. A kurgan 
contained one to two inhumations, and in some cases there are 
traces of fire. The deceased were flexed and the orientation 
was sporadic. It is commonly assumed that the high occurrence 
of skeletons in the flexed position was characteristic of later 
burials, but this is not always confirmed by other data. Grave 
goods are very scarce; most of the finds comprise ceramic ves-
sels and only rarely were ornaments, such as spherical bronze 
belt buckles with a loop on the reverse side and wire pendants, 
recovered. It is therefore impossible to chronologically differ-
entiate between the materials within the final stages of the 
Bronze Age.

Summarizing the review, one has to admit there is an obvious 
imbalance between the number of settlements and burial 
grounds. According to the most weighed estimations based on 
dwelling floor space, the inhabitants of the large settlements 
must have numbered some several hundred people. The erec-
tion of large buildings was also labour consuming. The number 
of finds, including animal bones, in the settlements dating 
to the end of the Bronze Age is so small that it can in no way be 
compared to that of the previous Bronze Age periods. One can 
hardly believe that a comparatively large—from a demographic 
point of view—group of people inhabiting one location over 
decades should not have left an archaeological layer between 
the dwellings. It would appear that the inhabitants did not stay 
within the settlement boundaries for long periods of time.
This assertion is further supported by the small number of burials associated with the period under consideration. Their scarcity might tempt one to think that in the southern Transural region inhumation and kurgan ceremonies were reserved for a very limited number of people. The criteria for post-mortem selection, however, are not quite clear. Such criteria could well be related to ideological matters, since it is known that some cultures had rather complicated ideas about the transition to the Otherworld.

A good example of this type of burial ground may be found at Beloklucheva-7 (Kostukov 1999) where one of the kurgans was excavated. A small stone mound was erected over two rather shallow grave pits that were covered by stone slabs. One of the graves contained the remains of a male with a minimum of grave goods. The shape of the stone ceiling of the pit, however, can be interpreted as either a schematic model of a vehicle or, to a similar degree, a schematic portrayal of a man (Fig. 3). Either variant is indicative of a distinguished social status for the individual and leaves a wide semantic field for reconstruction.

**Variants of Reconstruction**

When searching for the possible reasons for the transition to nomadism, one should consider various factors, i.e., ecological, economical, and ethnocultural. We are aware of interconditionality, but do not intend to solve the problem of “What came first, the egg or the chicken?”

There are practically no materials that enable the reconstruction of the basis for social life in the southern Transurals at the end of the Bronze Age. The available data provide grounds for stating that the size of a group decreased. Settlement complexes contain a minimum of artifacts that can be interpreted as weapons or treasures; in burial complexes no such finds are encountered. The latter circumstance might reflect, however, an ideological prohibition from using certain types of equipment in funeral rituals. Perhaps social factors may be excluded from those affecting the formation of nomadism as a principally new life style.

In contrast to the previous period, natural borders no longer presented any serious obstacle to the dissemination of cultural traditions (primarily metalwork and the peculiar “Valikovy” ceramics, after which the community was named) that preconditioned the movement of groups of people. This might have been partially associated with the growing climatic aridization at the end of the second and the beginning of the first millennium BC, a theory unanimously stated by paleographers (Khabdulina and Zdanovich 1984). Some additional evidence for this occurrence has also been obtained; from a number of soil analyses as well as the discovery of settlements on essentially unflooded riverbanks. The general decrease in precipitation is apparent by the change in landscape border zones, and also in the forms of economic organization, and the implementation of cultural processes.

Of utmost importance is the manner in which the main branch of economic activity was organized. The economic life of the Surgery Culture may have been different in diverse climatic conditions and environments. One fact, however, is certain—cattlebreeding was the principle economy. In addition, it is during this time period that the first real evidence for agricultural development is seen (Krivtsova-Grakova 1948), although its role in the life of the population remains doubtful, especially in light of the climatic aridization.

Data on other spheres of activity are fragmentary, although there are traces of metalworking, i.e., remains of ovens and finds of moulds (Krivtsova-Grakova 1948; Evdokimov 1975). It seems likely that the main centers of metal production had moved to central Kazakhstan where very large settlements appeared, covering up to 30 square hectares (e.g., Atasu, Kent, etc.). The archaeologists who conducted these excavations sometimes draw rather daring conclusions, and suggest that these settlements were proto-towns. We do not share this point of view due to the lack of features characteristic of an urbanization process.

Returning to the question of the main economy, we should mention the change in ratio of the different kinds of animals maintained in the herd relative to the situation during the Late Bronze Age period (Kosintsev and Varov 1995). Paleozoologists note an increase in the proportion of horses maintained in the herd, at the expense of the number of cattle. It is possible that floodland pastures were used during the previous period and when these grew scarce, the inevitable solution was to search for new food sources. This theory may suggest that the increase in horses occurred because it was possible to herd these animals over longer distances. Nevertheless, in various territories, the scenarios must have been considerably different.

The most probable first reaction may have been the redistribution of population groups within the territorial boundaries but, at this stage, there would not necessarily have been mass migrations. Areas with reservoirs—small rivers and steppes lakes—that were drying up were the first to become desolate. The most densely populated areas were the large river valleys, such as the Tobol and the Ural that had vast flood plains and foothills. Unfortunately, we do not have complete information at our disposal, but we can state that there were settlements with indications of long term occupation in the Tobol River valley (e.g., Alekseevskoye). It is quite probable that new types of pastures, e.g., those near springs or large tracts of forest, came to be used. The second redistribution of the population was northwards into the forest-steppe zone. At the end of the Bronze Age, large-scale penetrations into the steppes took place as indicated by Surgary, and into the forest-steppes as revealed by Mezhovka.

As previously mentioned, the material culture of the Transural population clearly indicates extensive traces of external influences from all directions—the north, the steppes, and the rather remote territories of Central Asia. Eastern Kazakhstan and the Altai, where Karasuk traditions prevailed, were on the verge of the end of the Bronze Age and the beginning of the Early Iron Age. Connections between these areas and the Transurals were no less important, and can be traced through occasional finds.
of characteristic weapon types (Fig. 4). In general, high receptivity of innovations from other cultures, especially noticeable in the ceramic assemblages, is observed in the Transurals.

An Hypothesis
We believe that the research outlined in this paper is sufficient to present the following hypothesis. With a high degree of reliability it can be stated that in the forest-steppe and southern taiga zones, where a sedentary way of life was well preserved, the transition from the Bronze Age to the Early Iron Age can be observed. In the northern steppe, such a transition has not yet been identified. It is generally supposed, nevertheless, that the Surygaya population was the principal component in the formation of the early nomadic culture. It is rather difficult to prove or disprove this hypothesis. First of all, as previously noted, there are problems defining the chronological end of the Bronze Age in the Transuran steppes. Therefore, a lesser possibility of a fine definition of the general picture emerges. Secondly, the advocates of this hypothesis (Kuzmina 1994: 206-210) state that an abrupt change of economic managerial methods must unavoidably have led to the transformation of the material culture. Thirdly, the earliest sites of the Early Iron Age in the southern Transurals have features that are equivalent to those of the cultural traditions of central Kazakhstan that were formed by a population not connected with the Transurals.

There is some truth in this point. We theorize, however, that the genuine scheme of transition was not equal for the entire Surygaya population in the Ural-Kazakhstan steppes. The general diminishment of the number of sites, deficiency of finds in the archaeological layers of the steppes settlements, and other factors that are similar to those in the Transurals and northern Kazakhstan, may be explained not only by the diminishment in population density but also by the seasonal economic management in this territory. It is also possible that only a comparatively small segment of the inhabitants remained within the settlements continuing a sedentary mode of life, and the neighboring pastures were used for less mobile livestock. It is worth while pointing out, moreover, that the reconstruction of herd composition based on osteological finds may misrepresent the ratio of animal types. Perhaps we are dealing with a sample that represents a herd held near the house, and only to a lesser degree does this sample reflect the movable component of the herd.

The remainder of the population traveled together with the livestock. Depending on ecological and other conditions, the ratio of movable to settled components of the socium was subject to change. Migrations must have provided conditions for the dissemination of cultural stereotypes and artifacts over wide areas that can be clearly seen in the materials under analysis. Today it is difficult to estimate the length and direction of some specific routes, but we are sure that nomadic cattle breeding in the central European steppes took longer. The duration of this period cannot be stated definitely now due to the above-mentioned chronological problems with reference to the materials. Without doubt, increased mobility was not a linear process, and was preconditioned by the territory. The advantages of the new methods of economic management are not easy to recognize for in the borderlands the traditions of settled life must have been preserved for very long time, and this fact must be taken into account when the materials are being analyzed. This hypothesis does not give the only possible explanation of the transformation of cultural appearance at the fulcrum of the Bronze Age and the Early Iron Age and, in any case, the complexity of possible scenarios cannot be confined to a single phenomenon. Moreover, another variant also may be suggested. The inhabitants of the Transuran northern steppes retained a sedentary life style at the beginning of the Iron Age, although the community demographics were considerably reduced due to the deterioration of the ecological conditions. A nomadic cattle-breeding population flowed in from the outside, perhaps from central Kazakhstan, and this incursion leads to an abrupt change of the economic system. Facilitated by the fact that an ethnic proximity existed, the newcomers were assimilated into the local population, Moreover, over time numerous contacts between the two communities probably simplified this process.

Conclusions
While comparing the suggested variants one has to admit that they do not exclude one another. But we think that the proposed spatial-chronological model permits the possibility that the nomadic formation was a prolonged process during which the economic system underwent a transformation. This system, on the one hand, was quick to react to the ecological environmental changes and, as a result the cultures were reconfigured; on the other hand, there were considerable differences in various territories.

The analysis undertaken by the authors convinces one that the transition to the nomadic organization of economy and the corresponding transformation way of life cannot be represented as a linear process, nor was it identical throughout the entire Great Steppes area. It seems probable that in central Kazakhstan and the lower Volga region the possibilities to retain a sedentary way of life was exhausted much earlier than in the Transurals where some of the population was able to maintain elements of a sedentary lifestyle up to the beginning of the
Early Iron Age. Thus, the transition process was not synchronous. Populations in some territories continued to search for methods that would allow them to retain their way of life, incorporating some innovative measures, such as population distribution within habitual ecological niches, developing mobile groups within the community, and population migrations.

Endnotes
1. Geographically this territory is located at a longitude of 58–66 degrees E and 52–54 degrees N, corresponding to the southern Transursals Plate and the northern Tungai Plate.

2. It is not surprising because up to present time, radio carbon dating has not been applied. For the closing period of the Bronze Age period we have no radiocarbon dates; concerning typological constructions, certain drawbacks have been encountered at this stage.

3. This date lies outside the Bronze Age, but we believe it is due to chronological problems for both the Transursals and Central Asia.

4. During the entire Bronze Age, with the exception of the final period, necropoleis were situated along low level adjacent to the settlements.

5. The authors are grateful to V. P. Kostyukov for allowing us to publish his excavation materials, and also for helpful critical advice while preparing the present article.

6. In the light of numerous connections stated for the Sargary people, one cannot rule out the possibility that agricultural products were imported.

7. It is worth mentioning that rather a small part of the area has been researched and one cannot rule out the possibility that the areas were occupied on a step-by-step basis. This view is also supported by the non-homogeneity of excavation materials and perhaps also by differences, not only in the size, but also in the construction of the buildings (Kadyrbaev and Kurmankulov 1992).

8. For instance, in the Kinzhitai settlement, the bone ratio is as follows: horse, 40%; sheep and goats, 34%; cattle, 26% (estimation by P. A. Kosintzev). This can be compared with the respective 11%, 39%, and 50% in the Alakul herd of the earlier Late Bronze Age period.

9. The number of areas occupied in the closing period of the Bronze Age might have been even less, but food resources in neighboring pastures grew scarce so quickly that the same mobility in changing residential areas was required.

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Fig. 1. Map of the South Trans-Urals.

Fig. 2. Kinzhitai settlement. a - plan; b - excavated buildings; c - ceramic vessels.
Fig. 3. Belokluchevka-7. Necropolis.

Fig. 4. Metal goods of the Final Bronze Age.
The Cimmerian Traditions of the Gordion Tumuli (Phrygia)
Found in the Altai Barrows (Bashadar, Pazyryk)

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Abstract
A break of the cultural traditions between monuments dating to the 8th–7th and the 6th–4th centuries BC may be observed in the Altai. The American researchers, E. Kohler and E. Simpson, compared the tumulus constructions of Gordion with the Pazyryk barrows. It should be mentioned that construction details found in the five greatest Pazyryk kurgans, erected between 455–406 BC go back to an earlier time—to the great barrows at Bashadar and Tuekta that were built between 590–570 BC. In our opinion, we must consider the possibility that there was a migration of some nomadic tribes, probably the descendants of the Cimmerians, from the Near East to the Altai Mountains where they assumed sovereignty over the indigenous Pazyryk in the Altai at some time between the 6th–4th centuries BC. It should be noted that anthropologists also point out the presence of Europoid people of both the Near Eastern and Central Asian type. The sudden appearance of a new ritual in the Altai region may be explained by changes in the Near Eastern political situation. At the beginning of the 6th century BC Median and Lydian tribes were driven out following the events of 610–585 BC; at this time they may have gone to the eastern European steppes, Central Asia, and the Altai.

Keywords
archaeology, Gordion, Pazyryk, Kimmerians, Cimmerians, Bashadar

Introduction
In 1950, excavations took place of barrows in two mountain–steppe regions situated more than 4,000 kilometers distance apart (Fig. 1). In the east, at Bashadar in the Altai they were headed by S. I. Rudenko, while in the west, in Turkey at Gordion southwest of Ankara, R. S. Young and G. R. Edwards from the University of Pennsylvania led the expedition. Many unique objects were found in those barrows. The explorers obviously were not aware of the excavation of the other, nonetheless over the years they paid great attention to detailed analyses and publication of the excavation materials (Rudenko 1960; Young 1981; Kohler 1995).

After the archaeological research of the Hermitage Museum expedition in Altai between 1980–1995 (Marsadolov 1996: 42), it seems possible to compare these two sites. In 1985–1986, two barrows (NN 9 and 10, Figs. 4–6), a funerary fence, and a stone-stele were excavated (Marsadolov 1997). The diameter of the barrows was c. 14 m and the height c. 0.5 m. In each barrow a male had been placed on his right side with the head oriented east. Research of the barrows in Bashadar was undertaken with the objective of identifying the earliest barrows of the Pazyryk Culture. These were dated to the 6th century BC.

The phenomenon of the Pazyryk Culture
The problems involved in explaining the transition from one archaeological culture to another is the most complex of archaeological studies. Absolute dates and archaeological materials testify to large qualitative and quantitative changes in the Altai region. These include the “great Pazyryk advancements” in all areas of vital societal activity; and in political policy that included expansion of territorial borders to the east and north, and in the social sphere found in the sharp differentiation of public structures. These changes are even reflected in the funeral ritual by the greater, middle, and small barrows. Economic and demographic changes occurred; the high level of nomadic economy resulted in a dramatic increase in population and their changing world view. The old ritual centers ceased to function and the tradition of erecting “deer stones” (olennye kamni) disappeared; thus rock art became less important.

The breakup of cultural traditions can be observed in Altai region when comparing the monuments of the 8th–7th and 6th–4th centuries BC. The Maiemir tribes (8th–7th centuries BC), heterogeneous within their ethnic structure, generally buried their dead on the ancient ground level or in rather shallow graves, orientating their heads to the northwest. They included clay vessels in the tomb and a horse was buried separately from a human. During this time, stable contacts had been established between the Altai tribes and the peoples of Central Asia and the Near East (illustrated in barrows such as Chilikta, Karban 1, Barrow No. 5 types).

During the first half of the 6th century BC, a new burial ritual became established in the Altai, illustrated by the Bashadar–Tuekta great and small barrows. The nomads that arrived—the
ancestors of the Pazyryk people—brought their traditional rituals to the Altai. These traditions and customs included the eastern orientation of the deceased; burials with armament; burial of a human and a horse in the same pit; wooden constructions within the barrow (framework); vessels with high necks; bridle bits which had cheekpieces with two holes and large round bit ends; Near Eastern images of the Animal Style (griffin, lion, etc.). It should be noted that anthropologists have pointed out the presence of Europoids of both the Near Eastern and Central Asian type in this region.

All the indications mentioned above do not have any cultural or genetic roots in the earliest Altai monuments or in the Eurasian steppes, but they are found at the earlier dated Gordion tumuli (barrows) in Turkey.

Comparison of Altai and Gordion barrows

In 1950–1969, 21 tumuli of different dimensions, construction types, and burial rituals were excavated at Gordion (Young 1981; Kohler 1995). The orientation of the deceased to the west was dominant among the earliest tumuli dating to 750–710 BC (NN – W, Q, K–III, etc.). Orientation of the deceased to east—with a small deviation to north, explained by orientation toward the greatest tumulus labeled MM—was dominant in another tumulus group (NN – MM, KY dated c. 696 BC; N dated 680–650 BC; H dated 650 BC; B dated 630 BC; and J dated 620–600 BC). This latter tumulus group has the most parallels with the Altai barrows of the 6th century BC. In the great tumulus MM— the Midas Mound—the deceased male was placed in a hollowed out wooden log—a sarcophagus—in the supine position with the head oriented to the east. The dimensions of this barrow are grandiose with a diameter of 300 m and a height of 53 m (Young 1981). The diameter of the tumuli (NN, KY, B, and Z) was c. 60 m with a height of c. 3.5–7.5 m. These dimensions are similar to those of Bashadar–2 and Tuekta–1. The orientation of the deceased in the Gordion tumuli is unknown because the tumuli had been badly pillaged. The latest tumulus group dates to 600–540 BC (NN, S–3, S–2, K–II, C), and is distinguished by the small dimensions of the barrows.

The American researchers compared the tumulus constructions at Gordion, particularly Tumulus Z, with the Pazyryk barrows (Figs. 2–3) (Kohler 1995). It should be noted that construction details found in the five greatest Pazyryk barrows, erected between 455–406 BC, are also found in the great barrows from Bashadar and Tuekta that were constructed between 585–570 BC (Marsadolov 1984; 1996). The parallel tumulus traditions at Gordion (750–600 BC) that are also found in the great Altai barrows (585–500 BC) (Fig. 2) are noted here.

1) Construction characteristics of the tombs

A rectangular burial pit positioned deep in the ground is frequently in the center of the barrow and has a wooden framework floor and ceiling. Stones were placed in the bottom of the pit and between the walls of the pit and the framework. Vertical poles were sometimes placed at the corners and in the center of the pit to support the framework ceiling. An earthen and stone mound was constructed over the burial. The American archaeologists consider the use of reeds mats in Tumulus Z and others, placed on the ceiling and lining the framework walls, to be analogous to the birch bark and bush cover used in the Pazyryk barrows (Kohler 1995: 155), and also found in the earlier Tuekta and Bashadar barrows.

2) The burial

A male in a log sarcophagus was placed near the framework along the south wall, or a male without a sarcophagus was buried near the framework along the northern wall. One of the principal indications is the orientation of the deceased toward the east (Fig. 2: 5, 13, 14).

3) Horses

Horses were buried in the same tomb with the deceased within a framework wall and subsequently covered with stones (Fig. 2: 10, 11, 13, 14).

4) Clay vessels

Clay vessels with a tall neck and a spherical body were found in the Gordion tumuli (W, G, H, B, J, S–2), and at Bashadar (NN 10, 1; Figs. 2: 15; 7). Cimmerian vessels from the Vysokaya cemetery (Terénozhkin 1976) and others are also of this configuration.

5) Bronze nails and bridle bits

Bronze nails were found in Tumulus X and others (Figs. 2: 8, 17). In Tumulus J, dating between 620–600 BC, fragments of ring–bit ends were found that were made of iron and bronze. Analogous bits were discovered in the Altai barrows dating to the 6th century BC at Bashadar 2, 10; Tuekta 1; and Aragol (Fig. 2: 9, 18).

6) Animal style

Wooden objects executed in the Animal Style, such as images of deer, lion, griffin, and geometrical figures were found both at Gordion and in the Altai (Young 1981; Rudenko 1960).

7) Small wooden tables

Small wooden tables from the Altai, dating to the 6th–4th centuries BC, have no prototypes in the earlier Altai sites, while they are found in the Gordion barrows (compare Rudenko 1960: tab. LV: Young 1981: 68, fig. 38; 182, fig. 108; Simpson 1995: 1669) (Fig. 2: 7, 16).

These parallels attest to profound connections between the Altai and Gordion populations.

Short Note Concerning the Cimmerians in the Near East

During the 8th–7th centuries BC in Asia Minor and the Near East, several independent states were formed that included Assyria, Babylonia, Urartu, Phrygia, Lydia, Syria, Palestine, Mana, and Media. These states constantly waged war with each other and the pivotal position was occupied by Assyria, the mightiest superstate.

In addition to the indigenous peoples of these regions, a great role was played by the relatively small troops of mobile Eurasian nomads during the 8th–7th centuries BC: first the Cimmerians and then in the seventh decade of the 7th century.
BC, the Scythians came to the fore (Elnitsky 1977; Alekseev 1992; Chochorowski 1993; Ivanchik 1996). The Kimmerians and Scythians, as independent ethnic groups, were confirmed by Assyrian (Ivanchik 1996: 92) and Greek (Herodotus IV: 11, 12) written sources. Additionally, Herodotus wrote that the Kimmerians and the Scythians waged war against each other and displaced each other.

These nomads became professional and brave mercenaries who were employed by ancient Near Eastern sovereigns—and later by the Greeks—as the bodyguard troops for the various rulers, providing law and order. They also served as frontier troops, as allies of the small states, as well as for other purposes. Without doubt, the Kimmerians and the Scythians had their own motives for their mercenary role—they were able to enrich themselves at the expense of the wealthy eastern sovereigns.

In 714 BC, Rusa I, king of Urartu, suffered a defeat at the hands of the Kimmerians in Gamir(ra), a country situated in Transcaucasia. The Kimmerians did not destroy the Urartian state but they managed for a short time to become an awesome power in eastern Asia Minor. From written sources and archaeological materials, it is known that the Kimmerians were active participants in the wars with the Phrygian Kingdom. The earliest group of burial mounds at Gordium–Tumuli NN, W, Q, K–III and others—were erected between 750–710 BC (Kohler 1995). The funerary ritual and design of the wooden sepulchers in these tumuli are similar to such monuments dating to the 7th century BC and located in the same cemetery that the American archaeologists date to the Cimmerian period. Not to be excluded as supporting evidence for the Kimmerians was their encampment near Gordium, and it is possible that this base was used by several generations of the nomadic tribes. In all likelihood after having settled in the Gordium suburbs, the Kimmerians, wanting to show equal status to the Phrygian rulers, began to bury their own chieftains in great mounds—that is tumuli—and included Phrygian, Ionian, and Assyrian objects in the burials. They may have even contracted Phrygian master builders to erect the funerary constructions (Tumuli KY, B, Z, and J).

The first events known to us in the history of Lydia were invasions of the Cimmerian and Thracian tribes at the beginning of the 7th century BC, possibly because a new dynasty had come to power. The first king of the new dynasty, Gygges (Guggu), ascended the throne at approximately 692 BC after a stubborn and violent struggle against the Kimmerians, and after receiving assistance from Ashurbanipal, the Assyrian king. The Lydians sent the Assyrian king two captured Kimmerians as a gift.

In the middle of the 7th century BC, the Kimmerians and the Scythians occupied different regions of Asia Minor, but conflicts continued between them. The Kimmerians lived primarily in the western regions of Phrygia (modern Turkey). In 679 BC they struggled against their enemies—in the east against Assyria, and in the west against Lydia. The Scythians were based further east than the Kimmerians in the region of Lake Urmia (modern Iran) and frequently entered into agreements with other Near Eastern states such as Mana and Media. In some situations they also supported Assyria.

Between 650–640 BC, the Kimmerians invaded Lydia twice. King Gygges was killed on the battlefield and, at times, the Kimmerians controlled a large part of the country as well as the Lydian capital, Sardis, and Ephesus. During the reign of the new Lydian king, Ardis son of Gygges, the nomads again seized Sardis, with the exception of the town fortress (c. 644 BC). It is possibly because of the Cimmerian influence in this region that objects exhibiting the nomadic art style have been found at Sardis and Ephesus.

In 626 BC Babylonia was liberated from Assyrian control, and by 616 BC the Babylonians had come to the fore under the leadership of King Nabopolasars. With variable success the Babylonian king was involved in a war with Assyria. In 615 BC the Medians led by King Kiazar appeared near the Assyrian border, and in 614 BC they had entered Assyrian provinces. In 605 BC Assyrian troops were finally defeated on the upper Euphrates near Carchemish, and for several years the Assyrians lay in defeat. From around the end of the 7th to the beginning of the 6th centuries BC, history is best characterized by the formation of new superstates in Asia Minor and the Near East. Media in the east and Lydia in the west seized the Assyrian territories. These new powers, Media and Lydia, considered themselves strong enough to maintain the new order and made an effort not to disturb the militant Kimmerians or Scythians, tribes that had been both their former allies and enemies. Thus, the Medians formed an alliance with the Scythians and Lydians against the Kimmerians.

At the end of the 7th or the beginning of the 6th century BC, King Alyattes of Lydia “exiled the Kimmerians from Asia” (Herodotus I: 16). The word “exiled” does not indicate that the Kimmerians were annihilated, but rather that they were driven out of Asia Minor to some other territory.

The Cimmerian complexes of the type such as at Gordion, Vysokaya Mogila Tomb No. 5 in the Ukraine, and those in the Altai are similar in the following ways: the eastern orientation of the deceased; the occurrence of wooden constructions in the tomb; the form and ornamentation of clay vessels; the burial of the deceased with armaments such as a dagger, a quiver with arrows, or bone arrowheads (of an elongated type, tetrahedral in the section, with a triangular hole near the base); the presence of a diadem on the head; the occurrence of walls covered with clay, and other significant indications (at Bashadar, Burial Mound No. 9, the walls of a pit were covered with clay and fired; for arrowheads from Bashadar-1, see Terenozhkin 1976: 31–33, 187, 200; Marsadolov 1997: 5; Rudenko 1960: 37, fig. 17).

Thus, gradually by power and trick the nomadic tribes were driven out of Asia Minor and, as some researchers believe, into Transcaucasia, the northern Black Sea region, and the steppe area of Eastern Europe. The first quarter of the 4th century BC was a “dark” time in Scythian history, as indicated by the reduction in the number of archaeological monuments from this period (Alekseev 1992).

One of the principal characteristics of the Cimmerian warrior was the high pointed headdress, sometimes slightly bent to the
front. On a renowned Greek vessel there is an inscription KIMERIOS (Fig. 3: 3), and two warriors are shown on horseback, turned to the rear and shooting bow and arrow on an Etruscan vase (Fig. 3: 1). Both vases are dated to the first half of the 4th century BC, but the possibility exists that they could be copies of earlier images.

Felt headdresses were discovered during excavations of burial mounds on the Ukok Plateau (Polosmak 1994) (Figs. 3 and 6–8). They comprised extended forms with slightly bent upper ends, decorated with bird head images, and mountain ram or deer figurines. In written sources, the Kimmerians are mentioned with the Amazons. In the mound N1 of Ak–Alakha 1, armed men and a woman (an Amazon?), wear similar pointed headdresses. Probably the Ukok headdresses are the nearest in style to the headdresses mentioned above. Saka wearing pointed headdresses are depicted on Behistun rock reliefs (Fig. 3: 4) which date to the 6th century BC, and on those at Persepolis that are of 5th century BC date (Fig. 3: 2).

A pointed kulakh recovered from the Issyk Kurgan (Aakishev 1978), is similar in appearance to the Ukok and Cimmerian headdresses, and together with the semantically complex composition of four symbolic arrows with leaf–shaped arrowheads, are characteristic of the Cimmerian and the early Scythian period (Fig. 3: 5). It is quite probable that the “Issyk Gold Man” was in fact a female amazon (Davis-Kimball 1997/98).

The great distances between monuments—from Turkey to the Altai is about 4,000 km—should not be considered to have been an impenetrable barrier and was already a functioning trade route at the time in question. The nomads could cover this distance within one to two years. Historically, more distant marches of up to 5,000 to 6,000 km are known. During the 4th century BC Alexander, the Great Macedonian, marched from Greece to India. The Mongolians, or the Tatars, as they were known in Russian history during the 13th century AD, are known to have marched from Mongolia to Hungary.

Conclusions

During the 8th–7th centuries BC the populations of the Altai, Tuva, and northwestern Mongolia are considered to have been a united cultural-political unit. In the first half of the 6th century BC profound changes took place in these regions that caused a population redistribution. The southern areas of Altai became a single unit with the central and northeastern regions of Altai, and were defined by monuments of the Tuekta–Bashadar–Pazyryk type. During the 4th century BC Alexander, the Great Macedonian, marched from Greece to India. The Mongolians, or the Tatars, as they were known in Russian history during the 13th century AD, are known to have marched from Mongolia to Hungary.

The sudden appearance in the Altai region of the many innovations mentioned above may be explained by the arrival of a new militant nomadic group from Asia Minor at the end of 7th or at the beginning of 6th century BC. In my opinion, the composite parallels mentioned above indicate a profound relationship between the Altai and Gordian populations. Nomadic chief-


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Fig. 1. Map of Eurasia.
Fig. 2. Comparison of the materials from tumuli in Turkey - 1–9; and the Altai - 10–18). 1–4 - tumulus (abb. -t.) KY; 2–5- tum. B; 3 – tum. Z; 6 - tum. W; 7 - tum. P; 8- tum. X; 9 - tum. J. 10, 17, 18 - Bashadar 2; 11, 14 - Bashadar 1; 12, 17 - Tuekta 2; 13, 18 - Aragol, barrow 5; 15, 18 - Bashadar 10; 16 - Pazyryk 4. horses. (different scales from materials of R. S. Young, G. R. Edwards, E. A. Kohler, S. I. Rudenko, V. S. Adrianov, L. S. Marsadolov)
Fig. 3. Pointed headdresses of Eurasian nomads in the 6th–4th century BC: 1 - Cimmerians (?) on an Etruscan vase, 6th century BC; 2 - Saka on the Persepolis Relief, 5th century BC; 3 - Cimmerian on a Greek vase, 6th century BC; 4 - Saka chieftain on the Behistun Relief, 6th century BC. 5–8 reconstructions of headdress: 5 - Issyk kurgan, 6th–4th century BC (after Akishev); 6 - Ak Alakha 1, Kurgan I, 5th century BC (after Polosmak); 7 - Verkh-Kaldzin 11, Kurgan 1, 5th century BC (after V. I. Molodin); 8 - Ak Alakha 1, kurgan 2, 5th century BC, (after Polosmak).
Fig. 4. Bashadar, Barrow No. 10, Altai: 1 - burial; 2 - pot.
Fig. 5. Artifacts from Bashadar, Barrow No. 10, Altai.
Fig. 6. Artifacts from Bashadar Barrow No. 9 Altai.
Fig. 7. Clay vessels from Altaic kurgans.
Fig. 8. Images from Pazyryk felts (after Rudenko)
Abstract
The Scythian Animal Style cannot be considered to be a barbarian derivative of antique art, but rather it was a later offshoot of northern Asian “art to survive,” i.e., the art of shamanism. This artistic style was the expression of a warrior nobility that can be paralleled to the art of the Bactrian Bronze Age or Luristan art. Some of the representative decorations of the upper social strata have been preserved, while a larger group of much richer artistic objects carved from wood or fashioned from leather and other materials have only been recovered in exceptional cases. Influences in nomadic art come from the southern Eurasian states and were brought by nomads, and it is therefore an intrusive art style from such locales as the Achaemenid Empire. The ornateness of Scythian art came about as the result of the availability of Siberian gold. The supply of gold came to an end with the intrusion of Turkish tribes who formed centralized tribal federations, and introduced discrete burial rituals while migrating westwards.

Keywords
Animal Style, not barbarized Classical Greek, art to survive, shamanism

Introduction
Established concepts, having gained influence in scientific traditions, in turn, complicate the interpretation of reality. The concept of “Animal Style” was coined by Michael Rostovtzeff in 1922 as a designation for a secondary art style derived from Graeco-Roman art. The term is also used to describe the art of the cultures of the Eurasian steppe belt during the first millennium BC.

The local cultures were variable in their artistic forms and, as a whole, could not be assimilated into the Mediterranean World. The concept of one Animal Style has been used to define the art of many cultures that incorporate zoomorphic forms into their art. In addition, the developmental phases of art in Classical Antiquity has prevented the art of the steppe cultures from being thought of as independent developments—developments that must be divided into many local and temporal styles. Moreover, it separates the art of the steppes from the millennia-long traditions of Eurasian art that had incorporated an Animal Style, such as that from the Bactrian Bronze Age, Luristan, and the Mitanni and Hittite Cultures. Moreover, nearly all groups using animals in their art use the animal as a symbol with a specific significance.

Religion and art
The historical analysis of Eurasian Animal Style has been guided by the concept of analogous formations based upon a more or less uniform foundation—one that cannot be understood by the usual analytical methodologies that use stylistical comparisons or typological seriations. Thus, the character of a local art can be grasped only by a comparative analysis with the ruling concept of world or religion within this culture. Using this method of analysis to understand the different animal styles means that we must go back to shamanism, a view of the world described by Alfoldi (1931) as “theriomorphe Weltbetrachtung,” i.e., the theriomorph contemplation of the world. This again is a single-sided view and, in fact, is characterized by a transfer of self-knowledge to an environment that attributes human consciousness to all phenomena. The term “animation” will be used here for the lack of a better term because the Christian concept of an immortal soul does not explain this concept. Animation may be explained in quite a different manner. A number of “souls” are believed to exist in an individuum and the functions of these souls may be described in various manners. The animation attributed to each element in nature is a special force and it is believed, therefore, that each has its own power. The balance between such external forces and the human community will be arranged by the shaman, a specialist who is thought to have the extraordinary power necessary to be able to communicate with external forces such as “ghosts,” “ancestors,” or “souls.” Moreover, the shaman must defend his/her own community against the external forces.

The active forces in an environment were generally thought to have been—or could realize themselves as—a zoomorph; as superior powers they were described as having the combined shape and quality of several animals. To meet these external forces the shaman required the assistance of ghosts which he/she called upon; usually these appeared in the form of animals, or the combined attributes of several animals. Representations of these assistants were applied to the costume, the skin of the shaman, or to their implements by tattooing, painting, carving, embroidering, etc. They, therefore, became an “art to survive” or an “art of reality,” not one of representation. In the ages before the invention of metals, these forms were only rarely made from durable materials such as stone or bone. The majority did not survive beyond the duration of shamanic use. Such pieces, nevertheless, have been found dating to the Aurignacian period (Leroi-Gourhan 1971).
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The introduction of metallurgy
These basic (shamanic) beliefs were changed with the appearance of settled communities and the social differentiation that occurred during the metal-using periods. Particularly in the “earlier” transitional period of the warrior aristocracies; these early societies, having made a profit by trade or war, could now display their splendid wealth as durable symbols of power crafted in copper, bronze, gold, and iron when they interacted with the previous class societies.

The producers of the Bactrian Bronze Age Culture (Sarianidi 1986: 219 ff; pl. 82) were in contact with the Indus Culture; Luristan tribes traded with the Assyro-Babylorian states (Orthman 1975: pl. 318, 319 a.o.) as did the Saka and the Scythians with China and Greece. Each transferred the traditional zoomorphic symbols of their Stone Age past into representational art depicting predators, stags, eagles, owls, and other animals; they displayed these images on costumes, armaments and jewellery. The wealth of “princely” burials from the Rhine to the Pacific could be deceptive if viewed in terms of the reality. Although some pieces were worked in gold or silver, they reflected a limited portion of the total cultural possessions. Some objects were reused; melted down thereby losing their antique form. By far the largest majority of the artistic works were produced in perishable materials; these have vanished through age or destruction with only rare exceptions. Thus, we possess only a tiny fraction of the art and motifs that reflect the taste of war-like aristocracies, the upper states of tribal communities.

Animal Style motifs
During the Bactrian Bronze Age, the bronzes depicted tigers, leopards, camels, horses, eagles or vultures, birds in a sacred tree, dragons, snakes, frogs, and other animals as well as humans and domesticated animals. Grotesque masks, lions, leopards, eagles, dragons, monsters, and the “master (and mistress) of animals” were motifs of Luristan art (Fig. 1).

Animal Style motifs used by the Scythians and the Saka (Artamanov 1973), although having common trends, are discrete in each region. East of the Altai (Kessler 1993: 54) the tiger was the main symbol of power, while west of these mountains it was the wolf; in the region north of the Black Sea, the lion was replicated from the art of Greece or the Middle Eastern countries. In the East, the camel, bear, yak, and chamois appear, while in western regions the stag, elk, and sheep were dominant. Common motives are those of the horse and eagle, often represented as a demonized griffin. Saigas and hedgehogs, groups of animals, and larger scenes depicting various animals were rarely shown. The latter motives seem to express victories or triumphs, although their exact significances are not perceptible. Some of these motifs could be clan or tribal traditions. The big bird as victor subduing a camel (Bespaly 1992: 175-191) (Fig. 2 compare with Fig. 17) may have taken the tiger’s place; the mythical predator—sometimes winged—attacking an animal (Jettelmar 1964: 154-155) could represent a hunting or battle scene (Artamanov 1973: pl. 184–185).

Groups, as well as single animals, reflect the distribution of related motifs that express myths or fairytales. The stag with bent legs and antlers lying across the back seems to have originated in Mongolia and was transmitted westwards to the Danube River region (Artamanov 1973: pls. 39, 72 a.o.) (Fig. 3). The coiled animal also came from the East (ibid. pl. 174) and could represent a wolf (Fig. 4) feared as an evil ghost even today. Coiled into a near-circle, this form seems to be derived from the Chinese concept of rotating time. During the fourth millennium BC, the dragon—still worshipped today in China as a symbol of force—was represented as a coiled animal in the Hongshan Culture of Mongolia and Manchuria (Kessler 1993: fig. 9) (Fig. 5). This symbol of worldly supreme power has reappeared since then in many variations, e.g., as a sign in pictorial writing or on reliefs or sculptures (Hentze 1937; 1941) (Fig. 6). The Sakas copied the Chinese version and adapted it to their own traditional art (Rudenko 1953: pl. LXXX, 3; Kubarev 1991: pl. XXXVIII, 25) (Fig. 7).

Even more unusual is the adoption and modification of the powerful eastern Asiatic motifs found in Saka art that were incorporated during the reign of Shi Huangti, and became the symbol of a dynasty or war with the “Black Warrior from the North” (Willets 1970: 188) (Fig. 8). The Chinese version combined a turtle with a snake or dragon. This image was incorporated into popular myths which claimed that only female turtles existed, and in order to propagate they must copulate with a snake. In nomadic art, this motif was changed to the combination of a snake and a hedgehog, because hedgehogs eat snakes. Nomads also incorporated the snake and the wolf (Artamanov 1973: pls. 186-187) (Fig. 9). This version of the symbol was carried west together with the triumphal scene of the tiger above the camel (Kessler 1993: 56); the giant bird carrying a human skyward found its way as far west as Sicily, where it appears in Norman art (Fig. 17 1–1a).

The oldest known version of a bird with a man or woman is dated to the tenth and ninth millennium BC sites of Gbekli Tepe and Nevali Chori in southeastern Turkey. The scene illustrates a giant bird holding a human head in its claws. A second variation is known as the Etana motif in Sumerian art, illustrated in third millennium BC seals; the myth notes that Etana, the king of Kish tried to fly on an eagle to the star of Ishtar (Brentjes 1983: 92). This image reappears in relief on a golden vessel from Hasanlu, northwestern Iran, dated to approximately 1000 BC (Brentjes 1978: pl. 21). The same form represents the Garuda in India (Bongard-Levin and Grantovsky 1974). The motif was used in China during the Chou period (Hentze 1937: fig. 34) (Fig. 10), and in Greece where it illustrates the abduction of Ganymed by the eagle of Zeus. In the Chinese version the bird appears to have “ears” so that it can also be interpreted as an “eagle owl,” a motif that plays an important role in Siberean shamanism. The same bird appears on earrings made in the steppes (Skobelev 1994), on Seljuk silks (Fig. 11) as well as in the “Ascension of Christ” painted in the Cappella Palatina at Palermo (Ettinghausen 1962: 46) (Fig. 12). A derived form of this image depicts the personnage reduced to a mask carried by the owl (Chernezev 1953). The shamanistic tradition has
the same significance as the Christian painting: the ascension into the upper world (Fig. 13).

Prototypes for this image could have been taken from the Hongshan Culture found in Mongolia and Manchuria; they have been described as falcons with cat-like heads (Childs-Johnson 1991: 82-95) (Fig. 14). This image is accompanied by another: the bird with a long “feather” at the posterior of its head. This motif can be seen on graves from Xiabaogou in southern Mongolia dating into the fourth millennium BC (Brentjes 1996: fig. 25) (Fig. 15), on Hittite reliefs from Alaca Hüyük dating from 1500 BC; and on Thracian silver work of the 4th to the 3rd centuries BC. It could be that the same was the foundation for this motif. The “rolled” feather found at Bashkard in the Altai, became transferred to the griffin with a high crest known from Pazyryk (Brentjes and Vasilievsky 1989: pls. 20-21). The latter motif resembles the eagle-headed demon of Assyrian art and is similar to the peacock-demon incised on Mitanni seals. The northern Syrian and the Greek griffons have two curls that hang behind their heads; this represents a type not found in actual zoomorphisms.

Conclusions
The grave ceramics from Xiabaogou force us to rethink previous interpretations—this author must also do. These friezes are very similar to the Scythian Animal Style and combine protomes of mammals, stags and antelopes or birds’ heads, with fish tails similar to those found in the Animal Style dating to the first millennium BC (Fig. 16), yet they are older by about three millenia. It appears difficult to place both groups into one artistic tradition, yet perhaps the anomaly may be explained by noting that both had the same ideological base. Creatures with zoomorphic juncture (mixed creatures) were, and are, the shamanic assistants still found in eastern Siberia in the present day.

Another factor exacerbating the study of the Animal Style is its disappearance in the steppes during the 2nd and 3rd centuries AD after having reached its climax in the polychrome style of the Alans, the Saka, and the Sakaraukes as represented at Tellija-Teppe (Sarianidi 1985), Azov, and as seen in the “Siberian Gold.” Its disappearance could be attributed to several reasons: Turkic tribes invading the west may have introduced discrete burials rituals; great treasures were no longer added to the burials, rather they became royal treasures as indicated in the Avar and Western Turkic literary traditions. Such treasures were taken as bounty and given to the new ruler when the original owners were defeated. When the gold and silver works were melted or remelted or stolen, they became lost forever.1 It is possible, also, that the westward movement of Turkish tribes cut off the old trade routes that had originally brought the Siberian gold westwards.

The great hoards of western Turkish khans described by Byzantine ambassadors seem to have been lost except for some “post-Sasanian” silver plates (Lukonin 1967: pl. 203), and the poor remains of the famous Avar treasure—the decorated gold jug from St. Agaune (Alfoldi 1948-1949: 1-27). The golden jugs from Nagy Szent Miklos provide evidence for traditional continuity as seen in the ascension scenes that were combined with the new theme of royal victory. The forest areas of Eurasia preserved the funeral ritual in which the Animal Style decorated the deceased; however these burials lacked the richness and splendour found in the earlier burials of the nomadic chieftains. The art of the Seljuks included a new dimension to the art of empires by adding the double-headed eagle incorporated into ancient motifs, such as the Ascension scene—a symbol used until the 12th and 13th centuries AD. The Mongolian expansion brought new eastern and northern Asiatic elements to the west, particularly to Iran and the Middle East; these elements had forms that were connected to shamanism (Brentjes 1982: pl. 48-53) and became adapted to express aspects of Islamic mystical art, and western and southern European feudal symbolism.

Endnote
1. A similar event may be recalled in the case of the discovery in two sacks, the two gold sets of royal crockery known as the treasure of Nagy Szent Miklos (Laszlo and Race 1977).

References


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Seemann ("The crown of the shaman and the tree of life - Art of the nomads of Northern Asia").


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Fig. 1. Idol. Luristan, ca. 1000 BC.

Fig. 2. The bird of victory attacks a camel. Decoration on a dagger found near Azov, Russia, AD 2nd century.
Fig. 3. Deer stone (оленьи камни). Mongolia, early first millennium BC.

Fig. 4. Coiled animal. Saka, Siberian Gold Collection, Hermitage, St. Petersburg.

Fig. 5. “Dragon,” Hongshan Culture, fourth millennium BC.

Fig. 6. “Dragon” on a bronze dish. Yin Dynasty, late second millennium BC.
Fig. 7. “Dragon.” Saka carving. Yustid, Altai, 5th-4th centuries BC.

Fig. 8. “The Black Warrior from the North.” Relief, Han Dynasty.

Fig. 9 (above). Gold plaque, snake and feline. Saka, Hermitage Museum, St. Petersburg.

Fig. 10 (right). Eagle-owl holds a man. Bronze, Chou Dynasty.
Fig. 11. Eagle owl lifts a “soul.” Silk, Seljuk, Quedlinburg.

Fig. 12. Ascension of Christ.” Capella Palatina, Palermo.

Fig. 13. “Ascension” scene. Sasanian silver plate, AD 6th-7th centuries.
Fig. 14. Falcon with a head of a cat. Jade, Hongshan Culture, fourth millennium BC.

Fig. 15. Decoration on two grave vessels: 1- found at Xiabaogou, Manchuria; compare with 2 - Chilitka gold ornaments, Kazakhstan, 6th century BC.
Fig. 16. Comparison of details. 1a–b - Xiabaogou with Saka ornaments; 2 a–c - Chilikta 6th century BC; 2 d–e - Pazyryk 4th century BC; 2f - Issyk Kurgan; 3 - "Assistant ghost" of a shaman from the Lena River region, AD 17th century.
Fig. 17. Compare: 1. Norman coat of arms: 1a – detail, Palermo, AD 13th century; 2a, 2b: two bronze plaques, Silca, Central Asia, 2nd century BC.
Abstract
According to the classification of trepanations used by modern palaeopathologists, one group includes ritual operations. In prehistoric Europe *trepanatio postmortem sive posthuma* was accomplished to create amulets from the bones of human skulls, while in Central Asia postmortem operations were connected within funerary traditions, including embalming and mummification. Craniological materials in this study are dated to the end of the Early Iron Age, and originated from the Minusinsk Basin in Southern Siberia. From three series, numbering 270 Tagar skulls, 46 trepanned skulls were recognized in which this procedure was performed on crania before the soft tissue had disappeared. Lesions, classified according to location and size, revealed five basic types. Analyses were also conducted on crania from northwestern Mongolia, Tuva, Kazakhstan, and the Altai, indicating that skull trepanation had a wide distribution throughout many different nomadic societies.

Keywords
Central Asia, burial rites, trepanation, nomads

Introduction
Trepanation may be defined as the removal of a disk of bone from the skull. This type of surgery was practiced widely throughout the ancient world, and still is important in some modern ethnic groups. Currently, it is unclear as to which science was involved in this phenomenon. Research on trepanation was originally in the realm of physicians and anthropologists. Many famous scientists such as P. Broca in France, D. Anuchin (1895) in Russia, and J. Matiegka (1928) in the Czech Republic, who developed different branches of study within physical anthropology, did not avoid including the provocative theme of trepanation in their research. Subsequently, with the differentiation of sciences, palaeopathology has entered the sphere of research on human trepanation (Ruffer 1918). In this study, rhetorical questions may be asked: Is it sufficient to limit the study of this science to descriptions and interpretations of such a complex phenomenon using only the medical aspects? Is it not equally important to incorporate the social aspects of trepanning?

Palaeopathologists frequently provide analyses of apertures that show traces of healing; they also describe various traumatic conditions. Unfortunately, many of the studies have not included the historical context of the skeletal remains since only the geographical location of the finds and the approximate date were of interest to traditional palaeopathologists. Undoubtedly, defining other details pertaining to the skeletal material would also be useful, and therefore, it should be considered absolutely necessary to include the features surrounding the burial rites in the study of trepanation.

Archaeologists must describe the consequences of postmortem manipulations. Historical sciences have recorded valuable information pertaining to the ancient cults of various parts of a body. Of primary importance are cults of the skull related to ancestors cults, distribution of postmortem masks, embalming and mummification traditions, manipulations of the defeated enemy, neutralization of buried spirits, decapitation, and scalping. In addition to the skill required to describe apertures in human skulls that came about as a result of external influences, the studies should include issues such as: How did the people whose skeletal finds are under study interact within the ancient cultures? Were migrations of the peoples involved? What was the distribution of the religions and cultic concepts, wars, and colonization in other territories? What will be the result of analyzing the two discrete approaches as they come together?

Methods of Trepanation
The common methods for trepanation are (a) scraping; (b) grooving; (c) boring-and-cutting and (d) rectangular intersecting incisions (Lisowski 1967). The scraping technique was probably one of the most common methods and was distributed chronologically from ancient Egypt to the Renaissance period in Italy. The grooving technique was also frequently used in many parts of the world and is currently still performed in Kenya. The boring-and-cutting method was used in Peru. It was also described by Celsus in Roman times, then adopted by the Arabs, and became standard in the Middle Ages. A method in which four straight incisions were made was commonly adopted in Peru, but is also known in Neolithic France, Iron Age Palestine, and modern Africa.

The classification of trepanations currently in use today includes: (1) real or surgical trepanation (*trepanatio ante mortem*), defined as any opening of the skull on a living person; (2) ritual trepanation (*trepanatio post mortem sive post huma*), any posthumous opening with the aim of obtaining a part of the skull vault to be use as an amulet or other use (Broca 1877); (3)
symbolic trepanation, an operation on the skull roof of a living person that does not affect the inner compact layer of the bone (Bartucz 1950; Nemeskery et al 1960).

Using the current system of classification of trepanation procedures, a group of undoubtedly ritual postmortem operations may be described. In prehistoric Europe, the majority of cases were performed in order to obtain amuletic material from human skull bones. In Central Asia, however, the postmortem operations were performed in connection with the funerary traditions of embalming and mumification.

In Russian Central Asia, the Altai-Sayan highland and Minusinsk Basin belongs to the Eurasian steppe belt that has been inhabited by ancient tribes for millennia. The plains landscape, strong continental climate, and rich natural resources created favorable conditions for the development of a cattle-breeding economy. From the beginning of the Early Iron Age the inhabitants of the region were nomads and, without a written language, information about these cultures has been mainly deduced from archaeological investigations. The end of the first millennium BC is the most complex period to interpret burial rites because of the strong variability evidenced in the cultures of this time. According to archaeological and anthropological data, this was a period of cultural and ethnic changes. Migration to the Middle Yenisei steppes introduced new types of clothing, adornments, and tools that became distributed over the Hsiung-nu territory. It is possible that a new population infiltrated from the south, from Tuva or beyond (Vadezkaya 1986). Collective burials are noted for this time period. A late Tagar grave may contain more than 100 skeletons, many of which are incomplete, but all were buried simultaneously. Burials have been excavated, for example, in which artificially separated parts of the cadavers were exposed (Kuzmin 1983).

Goroshenko (1899), the first investigator of the palaeo-anthropological materials from the Minusinsk Basin, reported to the Empire Archaeological Commission on the nature of the artificial damage to the human remains found in late Tagar mounds. He described large perforations in the parietal bones, and classified this manipulation as an after-death event in which the brain was evacuated in connection with some variant of the death mask ritual. Goroshenko also noted that some “trepanned” skulls were coated with clay that, in turn, were covered with gypsum. It is possible that the skulls had lost their soft tissue at the time the gypsum masks were created.

The goal of this study is to provide a more detailed description of the lesions on skulls from Early Iron Age Minusinsk Basin burials, and to find the nearest analogies to these types of lesions.

**Cranial Material**

Cranio logical materials from the Minusinsk Basin in Southern Siberia, dating to the end of the Early Iron Age, were studied. Among 270 skulls in three series, 46 trepanned skulls were identified. The majority of trepanned individuals were buried during the last period of the Tagar Culture in the 3rd and 2nd centuries BC. An absence of trepanned skulls is noted in the earlier periods of the Tagar culture. Three cases that were also investigated belonged to the later dated Tashtyk Culture that began in the 2nd century BC.

About 100 years ago the Siberian archaeologist, A. Adrianov, excavated the sites of Tagarski Ostrov (Tagar Island), Samokhval, and Kyzyl-Kul. According to the tradition of the time, only crania were collected; these were carefully preserved in the Minusinsk Museum. In Kurgan Numbers 2, 3, 6, 8 at Kyzyl-Kul, excavated between 1895-1897, ceramics, iron knives, bone arrowhead, fragmented gold plates, and fragments of masks were excavated (Adrianov, field diaries; Vadezkaya 1986). From these graves the author has identified 42 trepanned skulls; 22 were from male skeletons; 19 from female skeletons, and one from a child of 2-4 years of age at the time of death.

Mound Number 9, Burial 7, at the Samokhval site, excavated in 1898, held only one example of an artificial lesion; this was on the skull of a child that was between 7 years 6 months and 8 years 6 months at the time of death.

The Tagarski Ostrov series consists of the remains of 59 individuals from different time periods. Three trepanned skulls from Kurgan 8 belonged to two women and a child of about 5 years at the time of death. They were excavated in 1883, along with grave goods that included ceramics, bone arrows, amulets, fragmented masks, and horse astralagi.

**Methodology**

The method of testing used in the current study was visual and by palpation. Comparative study of various diagnostic techniques (Chege et al 1996) demonstrates that such simple methods can clearly differentiate crania with bone regeneration and those without, i.e., intravital or postmortem trepanations. The largest outer and inner diameters of the perforations were recorded. Three areas on the trepanation margins were described: the outer margin, the inner margin, and the surface between the margins. To reconstruct the technique of intervention, the relation of the trepanned surface plane to the horizontal plane was determined (Nemeskery et al 1965).

**Results of the Study**

To summarize the principal results, the technique involved in the trepanation was to cut the fresh skulls using sharp, flat-bladed instruments. Traces of healing or inflammatory reactions were not present. The margins were sharp and there were no indications of vital reaction. The outer margins of the openings were larger than the inner ones; this finding indicates a differentiation of the damage from traumatic lesions. In the case of an injury caused by a battle weapon, the exit area of the weapon seen inside the skull is larger than the external hole. This indicates that trepanations appear in the opposite manner (Berrymann and Jones 1996). In most cases, the difference in size between the perforations of external and the inner compact skull layers was not so clear as when a typical scraping procedure was used (Lisowski 1967). It is apparent that the trepanners were not especially careful and had no fear of de-
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The Altai can, undoubtedly, be interpreted as a sequence in the Pit Grave Culture (N. Shishlina pers. comm.).

The preliminary technological analysis of the plaster samples indicates the absence of any special additives in the clay, such as fragmented shells.

Type 2. Skulls with extensive bilateral destruction. The facial skeleton and cranial base are absent and, as a rule, the parietal bones were completely removed (Fig. 3).

Type 3. The skulls have large single perforations on the parietal regions (Fig. 4).

Type 4. The skulls demonstrate both large perforations in the parietal bones and small oval or round lesions in the occipital area (Fig. 5).

Type 5. The skulls have large lesions on the occipital bones and/or small holes on the temporal bones (Fig. 6). Small openings were made using the traditional scraping technique.

It is noteworthy that Goroshenko (1899) was correct in his evaluation that the human remains were deliberately destroyed, and the skulls of the Tagar and the Tashyk personages were trepanned after death. Moreover, the artificial apertures were more varied in form and location than was previously suspected.

Other areas of study

For comparative analyses, northwestern Mongolia, Tuva, Kazakhstan, and Altai were also included in this study. The data collected by different authors indicate the sporadic appearance of trepanned skulls in these territories (Fig. 8). Trepanations in the Saglenskaya Culture in Tuva and the Pazyrk Culture in the Altai can, undoubtedly, be interpreted as a sequence in the embalming procedure. The Mongolian Ulaangom trepanned skulls and the single example from Central Kazakhstan was either intravital or postmortem (Bazarsad and Tumen 1998, 122-129). The location of the trepanations and, probably the techniques used in opening the skulls, however, appear to be similar to those used in southern Siberia. This is especially the case for the Type 5 procedure, with small oval apertures. The trepanned skulls in Mongolia seems to illustrate an intermediate position by combining the locations of apertures: found on temporal bones in Tuva, and in the Kazakhstan example, the perforation is located on the border of the temporal and occipital bones. In addition, cases from Tuva are more similar to some variations of the apertures found in the Minusinsk basin.

Ritual trepanation was probably also distributed in western Siberia. Dating to the Early Iron Age, artificial skull destruction was reported at the Bystrovka 2 burial site in the Upper Ob River region (Shpakova and Borodovski 1998). These Type 2 damages appear similar to the openings and damage found on the crania of the late Tagar Culture population at Kysyl-Kul.

We can assume that the area of ritual post mortem trepanation in Central Asia may cover a broader geographical area. Perhaps, common spiritual beliefs and religions were characteristic for the populations at the end of the first millennium BC. It seems probable that the populations that practiced such rites may have had common genetic origins. It is noteworthy that among the other Tagarians, the people buried in Kurgan Numbers 1-3 at Kysyl-Kul had the most cranimetal similarities with the Scythian period inhabitants of Tuva, and the Saka from central Kazakhstan (Kosintsev 1977). The cultural and ethnic relationships between populations from Tuva and northern Mongolia are, no doubt, very close since they were essentially one large population (Novgorodova et al 1982; Grach 1980). The results of the study of the trepanations, therefore, generally support the hypothesis that populations moved from the south through Tuva into the Minusinsk Basin. During these migrations the nomadic populations introduced new funerary traditions and techniques of trepanation. The earliest method of trepanation was typically performed during the later period of the Tagar Culture and is reflected in Types 1–4. The later technique, Type 5, is seen in the Tashyk Culture.

The plastering of skulls is also another funerary ceremony that needs to be further studied since this practice is known in archaic and geographically distant cultures as noted below.

(1) In the Ancient Near East: Jericho, Ain Ghazal, Beisanoun, Tell Ramad I and II, the later Pre-pottery Neolithic, Phase b 9f, PPNB Culture (Kenyon 1957; 1979; Strohalh 1973; Bienert 1991).

(2) In the Ukraine: Dnepropetrovsk, Zaporozie, Kherson, Nikolaev, Donezk provinces, and the Chirmean steppes. During the Middle Bronze Age, a local variant of the Cacaomb Grave Culture of the second millennium BC (Oroshenko and Putovaiov 1991).

(3) In the Russian Federation: Kalmykia, the Early Bronze Age Pit Grave Culture (N. Shishlina pers. comm.);

The funerary tradition specifically found in the later Tagar Culture may have very ancient roots, at least as early as the Bronze Age in the Eurasian steppes, in which specific ritual behavior frequently included simultaneous skull trepanning, plastering and masking, and the separation of body parts.

Conclusions
Post-mortem trepanation should be considered as a perspective approach to be included in the study of Central Asian nomadic archaeology. It is possible that common tendencies of spirit life and funeral traditions in the steppes of southern and western Siberia, northwestern Mongolia and Kazakhstan in the Early Iron Age will be discovered. Southern Siberian archaeological studies may well have a positive role in the discovery of these relationships, since the Minusinsk Basin was a unique rendezvous point which combined discrete funerary techniques that including embalming, trepanation, and skull plastering.

Acknowledgements
I would like to thank Dr. Yuri Tsetlin, the Group for the Studies of Ceramics History, Institute of Archaeology, Moscow, for the analyses of the clay and gypsum patterns, and Dr. Nikolai Leontyev, Minusinsk Museum, for useful consultations and help while working with archival data.

Endnote
1. Adrianov’s diaries are located in the Institute of History of Material Culture. St. Petersburg, 2a, Naran B, Tumen D

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Fig. 1 (left). Type 1 cranial trepanation.

Fig. 2 (above). Type 1 skulls with large symmetrical perforations in the parietal and temporal bones. The facial skeleton was not destroyed. Some skulls were plastered and red-colored clay filled the orbital cavities. Southern Siberia. Burial site, Kyzyl-Kul.
Fig. 3. Type 2 crania with wide bilateral destruction. The facial skeleton and cranial base are absent. As a rule, parietal bones were completely removed.
Fig. 4. Type 3 crania with a single large hole in the parietal regions.

Fig. 5. Type 4 crania demonstrating both large trepanations on the parietals and small oval or round lesions in the occipital area.
Fig. 6. Crania illustrating Type 4 trepanations.
Fig. 7. The total percentage of distribution of trepanation types in adult males and females, juveniles (females), and infants in the crania groups from the Kyzyl-Kul series.
Fig. 8. The location of trepanations on nomadic crania: A. Mongolia (after Bazarsadand Tumen 1998); B. Tuva (after Grach 1980); C. Kazakhstan (after Boev and Ismagulov 1962); D. western Siberia (after Shpakova and Borodovski 1998).
Mummification and Body Processing: Evidence from the Iron Age in Southern Siberia

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Abstract
The cemetery complex of Aymyrlyg is located in the Ulug-Khemski region of the Autonomous Republic of Tuva in southern Siberia. Recent osteological analysis of a corpus of Scythian period skeletons (3rd to 2nd centuries BC) from the cemetery has revealed evidence of cutmarks on the remains of a number of individuals. It is probable that the cutmarks were produced during the defleshing and disarticulation of the cadavers, which appears to have been undertaken during secondary burial practices. The processing and mummification of the dead appears to have been a common phenomenon in the south Siberian region during late prehistory. Mummified bodies have been retrieved from burials of the Pazyryk Culture of the High Altai. In addition, evidence for the physical processing of the dead has been identified in burials of the final stage of the Tagar Culture in the Minusinsk Basin. The different forms of mummification and practices of secondary burial in the south Siberian region during the later stages of the Scythian period will be presented, and the possible motivational factors for these practices will be discussed.

Keywords
Aymyrlyg, Siberia, Scythian period, mummification, secondary burial

Introduction
The objective of this paper is to present evidence for secondary burial practices among the Scythian period population group buried in the cemetery of Aymyrlyg, Tuva, southern Siberia. An overview of the different forms of mummification and secondary burial practices in operation in southern Siberia during the Iron Age will be provided, and the motivational forces which may have been responsible for these funerary customs will also be discussed.

The term Scythian World is applied to a group of archaeological cultures dating from approximately the 7th to the 2nd centuries BC and located in the steppes, forest-steppes, foothills and mountains of the Ukraine, Russia, Kazakhstan, Mongolia and the northern part of China (Clenova 1994: 499). The cultures covered by the term Scythian World are, therefore, geographically wide ranging. The culture of the Scythian World in Tuva is called the Uyuk Culture, a name that is derived from the Uyuk river basin, where the first scientific excavations of monuments of this culture occurred (Mannai-Ool 1970: 8). The Uyuk Culture was bordered by two other Scythian period cultures, the Pazyryk Culture to the west and the Tagar Culture to the north (Mandelshtam 1992: 179).

The material culture of the Eurasian steppe nomads and semi-nomads was markedly similar, as too were the political and economic practices which they each followed (Abetekov and Yusopov 1994: 23). The common material culture of the Scythian World is known as the Scythian Triad and consists of weapons, horse harnesses, and objects decorated in the Animal Style of artwork (Moshkova 1994: 231). Other components of the Scythian World (such as dwellings, burial customs, ceramics and adornments) differ considerably, however, between the various cultures. Consequently, it is not possible to envisage a single Scythian Culture but rather a variety of cultures of the Scythian World (Clenova 1994: 500-501). In addition, the Scythian World was not a centralized state, but rather a confederation of powerful nomadic clans (Vernadsky 1943: 51). Artefacts discovered in Tuva’s Scythian period funerary monuments indicate that the economy of these highland-steppe peoples was based upon semi-nomadic pastoralism augmented with land-cultivation, hunting and gathering. The important role that warfare played in society is betrayed by the great variety of weaponry contained in the tombs of the Uyuk Culture.

The Aymyrlyg Cemetery
Situated in the Ulug-Khemski region of the Autonomous Republic of Tuva in southern Siberia (Fig. 1), the cemetery complex of Aymyrlyg was excavated between 1968 and 1984 by archaeologists from the Sayano-Tuvinyskaya Expedition Team of the Institute for the History of Material Culture in St. Petersburg. The excavations were directed by Dr. A. M. Mandelshtam during the period between 1968 and 1978, and the research programme then continued under Dr. E. U. Stambulnik until the mid-1980s. The burial ground was in use for a considerable period of time; the earliest burials date to the Bronze Age while the latest burials date to at least the 18th century AD (Mandelshtam 1983: 26). The majority of the burials excavated by Mandelshtam proved to belong to the Scythian period (7th – 2nd century BC), the greatest proportion dating to between the 3rd–2nd centuries BC. Most of the burials excavated under the directorship of Stambulnik date to the Hunno-Sarmatian period (1st century BC–AD 2nd century).
The interior structure of the Scythian period tombs most frequently encountered in the cemetery were rectangular log house tombs. Invariably, a considerable number of individuals could be buried within an Aymyrlyg log house tomb, with as many as 15 skeletons being recovered from individual examples. Stone cists of Scythian period date were also commonly encountered at Aymyrlyg (ibid.). The burial rite was generally uniform, with the majority of individuals lying on their left sides with their legs flexed, though in some cases skeletons were encountered where the individual had been buried on his or her right side. The arms were generally extended anterior to the body, but in several instances they were flexed (ibid.). The majority of the Scythian period individuals at Aymyrlyg were orientated to the west, with some deviations to the north and the south, although other orientation were also encountered (ibid. 33). Several of the log house tombs contained rows of individuals and, in some cases, the individuals present in a single row displayed a variety of orientations.

**Osteological Evidence for Disarticulation and Defleshing at Aymyrlyg**

Some 1000 human skeletons were recovered from the Aymyrlyg cemetery and the skeletal remains are now stored in the Department of Physical Anthropology of the Peter the Great Museum of Anthropology and Ethnography (The Kunstkammer) in St. Petersburg. A recent osteological and palaeopathological examination of 607 Scythian period skeletons identified post-mortem cutmarks on the remains of 29 individuals (Murphy 1998).

The presence of cutmarks on bone is accepted as evidence for human-induced modification (White 1992: 325). While it is impossible to definitely determine the motivational factors behind a particular cutmark, the characteristics of each mark on the bone—its size, morphology, location, frequency and orientation—can help to deduce the activities which led to its formation. Taken in conjunction with the evidence present in the archaeological context, the skeletal completeness and cultural affiliation this information can assist in efforts to interpret the modifications (Olsen and Shipman 1994: 379). The majority of archaeological research on cutmarks has focused on faunal remains in which the occurrence of marks on bones is considered as evidence for the butchering of animals (Lyman 1987: 260). In those cases where human remains have been studied the occurrence of cutmarks has been interpreted as evidence for cannibalism among some populations (e.g. White 1992). Turner and Turner (1999: 24) have presented six taphonomic criteria which they believe are necessary for the recognition of cannibalism in a human bone assemblage. These characteristics include extensive peri-mortem cranial and post-cranial bone breakage, the presence of cutmarks, the occurrence of avul-hammerstone abrasions, burning, a large proportion of missing vertebras and fragment end-polishing. These characteristics were not apparent in the remains of the individuals from Aymyrlyg where the cutmarks occurred in the absence of bone breakage or burning and widespread commingling of the bodies. Consequently, cannibalism can be excluded as a probable aetiology for the occurrence of cutmarks in the remains of the Aymyrlyg skeletons (Murphy and Mallory 2000).

Cutmarks produced during the defleshing and dismemberment of the body are commonly concentrated at specific anatomical features, such as the points of attachment of tendons and ligaments (Ubelaker 1989: 105; Buikstra and Ubelaker 1994: 98). Defleshing cutmarks are generally represented by the occurrence of short, fine marks or the occurrence of broader scraping marks over the surfaces of the bone. The marks would have been made when a sharp tool was used to remove any soft tissue adhering to the bone (Olsen and Shipman 1994: 380-381), and the evidence for disarticulation consists of the occurrence of fine cutmarks located on, or adjacent to, the articular surfaces. The cutmarks are indicative of the use of a sharp tool to sever the skin, tendons and ligaments at a joint which then enabled the body to be divided into smaller segments (ibid. 381).

It is therefore probable that the cutmarks apparent in the skeletal remains from Aymyrlyg were produced as a result of a mortuary practice, which was probably unrelated to consumption, and involved the defleshing and dismemberment of the remains of some individuals within the society.

Details of the cutmarks apparent in the Scythian period individuals from Aymyrlyg are provided in Table 1. All of the affected individuals were adults with 36% (10/28) having an age-at-death of 25-35 years, 28% (8/28) having died at the age of 35-45 years, 18% (5/28) having an age-at-death of 17-25 years, and 18% (5/28) having died at the age of 45+ years. The lack of subadult remains with defleshing cutmarks may suggest that these individuals were exempt from the mortuary process. Perhaps those subadults who had died at a time when it was not possible to bury their corpses in the tombs at Aymyrlyg were buried elsewhere. Alternatively, because subadults are generally smaller and have less body-mass than adults it may have been possible to store them without defleshing being required. A total of 62% (18/29) of the individuals with defleshing or disarticulation cutmarks were male and 38% (11/29) were female.

Among the individuals a total of 62 discrete skeletal regions were affected, with approximately 161 cutmarks observed altogether. Skeleton VII. 5. Sk. 4 displayed some ten cutmarks associated with the individual’s right hip. This finding represented the greatest concentration of cutmarks observed at a single region of the skeleton from the population under study. In general, the cutmarks were small with a sharp v-shaped profile, although several individuals displayed large crude cutmarks. If a cutmark displays a v-shaped cross section it would seem probable that it had been produced using a stone flake or metal knife (Buikstra and Ubelaker 1994: 98). A total of 74% (46/62) of the cutmarks, or groups of cutmarks, were concentrated in the vicinity of a joint which suggests that they had been attained during the removal of the muscles, tendons and ligaments which maintained the integrity of the joint, probably during disarticulation. Twenty-six percent (16/62) of the cutmarks appeared to have been associated with the deliberate removal, or scraping, of tissue from the bone surface, probably during defleshing.

It is impossible to calculate the overall proportion of individuals in the population group which displayed defleshing and/or
disarticulation cutmarks due to the differential preservation of the remains of the population. The frequencies for the occurrence of cutmarks at the main joints of the body as a proportion of the observable adult joints in the population are provided in Table 2. It is evident that in the entire population group the knee (3.6%) and the hip (3.2%) were the joints most frequently associated with disarticulation cutmarks. A summary of the frequencies with which cutmarks were associated with the different joints of the affected individuals is presented in Table 3 and Figure 2.

The knee (26.1%) and the hip (23.9%) (Fig. 3) were the joints most frequently associated with disarticulation cutmarks in the affected individuals. This finding may indicate that in many instances the objective of the mortuary practice had been to sever the legs from the trunk and to detach the lower legs from the upper legs. The shoulder joint (13%) was the next most frequent joint to be associated with cutmarks, and this finding would suggest that in many cases the arms were detached from the trunk during the mortuary process. In addition, the lower arms (10.9%) were quite frequently severed from the upper limbs. The presence of cutmarks on the superior and inferior surfaces of thoracic (2.2%) and lumbar vertebrae (8.7%) and at the lumbosacral junction (6.5%) may be indicative that the trunk was also dismembered, probably in a transverse manner. This process appears to have been undertaken most frequently in the region of the lumbar spine. Only rarely were the hands (2.2%) and feet (2.2%) found to have been severed from the limbs. In addition, the cranium was probably detached from the mandible at the temporomandibular joint in a proportion of individuals (4.3%) (Fig. 4).

The frequencies for the occurrence of cutmarks indicative of defleshing as a proportion of the observable adult bones in the population are provided in Table 4. The sternum appears to have been the bone most frequently marked by cuts attained during the defleshing process. Since very few sternal bodies were observable, however, this result cannot be considered as a true indication of the frequency with which the sternal bodies were affected. As a result, the femur (1.5%) and the bones of the pelvic girdle (1.4%) displayed the greatest overall prevalence for cutmarks.

Details of the frequencies of the various bones displaying cutmarks indicative of defleshing in the affected individuals are presented in Table 5 and Figure 5. The scapula, sternum, humerus and tibia all displayed evidence of having had the musculature deliberately scraped from their cortical surfaces. The femur (31.3%) and the bones of the pelvic girdle (31.3%), however, displayed a notably greater frequency of cutmarks indicative of defleshing (see Fig. 3). It is probable that the cutmarks on the femora were produced in an attempt to remove the bulk of musculature associated with the thigh, while those located on the bones of the pelvic girdle may have been attained during disembowelling and the removal of the musculature of the abdominal region. One individual displayed a cutmark on the neural arch of a thoracic vertebra which may be indicative of the detachment of the posterior spinal ligaments.

In several cases a number of individuals from a single communal tomb displayed cutmarks on one or more bones (Table 6). Information contained in the excavation archive reports pertaining to the location of the bodies within these tombs would indicate that the individuals had been buried in a partly dismembered state in only six of the 29 cases (Skeleton G. 5. Sk. 3, Skeleton II. 4. Sk. 11, Skeleton II. 5. Sk. 6 (i), Skeleton VII. 1. Sk. 4, Skeleton XXV. 16. Sk. 1 and Skeleton XXV. 16. Sk. 3) and that the burials had been normal inhumations of unprocessed bodies in five cases (Skeleton III. 22 (i), Skeleton XX. 7. Sk. 1, Skeleton XX. 7. Sk. 4, Skeleton XX. 8. Sk. 2 and Skeleton XX. 10. Sk. 2). The information available in the archive reports was, however, either lacking or too vague to enable a determination to be made on whether the corpses of 18 of the individuals with cutmarks had been complete or dismembered before burial.

To summarise, the majority of cutmarks apparent on the human remains from Aymyrlyg were indicative of disarticulation. To summarise, the majority of cutmarks apparent on the human remains from Aymyrlyg were indicative of disarticulation. The principal objective of the disarticulation process appeared to have been the detachment of the upper and lower limbs from the trunk. In addition, the lower legs were severed from the upper legs and the forearms were separated from the upper arms. Although observed infrequently, evidence that some cadavers had also been defleshed was recorded, with the upper leg bones, the bones of the pelvic girdle and the shoulder blades displaying the greatest prevalence of defleshing cutmarks. It is probable that these cutmarks were related to the removal of the heavy musculature of the thigh and the shoulder. The cutmarks on the pelvic bones may have been attained during disembowelling and removal of the abdominal muscles. The combination of cutmarks indicative of defleshing and disarticulation suggests that a proportion of the Aymyrlyg bodies were deliberately cleaned and processed prior to their final interment.

Mummification and Secondary Burial Practices in South Siberia

The processing and mummification of the dead appears to have been a common phenomenon in the south Siberian region during prehistory. Mummified bodies have been retrieved from burials of the Pazyryk Culture of the High Altai. The first embalmed corpses identified from Altaian burials were those recovered from Gryaznov’s excavations in the 1920s at Shibe in the Ural Valley. The bodies of two men were discovered, both of whom had been defleshed, disembowelled and had had their brains extracted through perforations in the crania (Rudenko 1970: 279-280). The individuals discovered in the royal kurgans at Pazyryk also displayed clear evidence for mummification. The remains were generally well preserved and the system of embalming has been described in great detail by Rudenko (1970: 280-282). In general, the crania were trepanned to enable the extraction of the brain tissue. Once the brain had been removed the endocranium was filled with soil, pine needles and larch cones.
Removal of the intestines of the Pazyryk individuals had been undertaken by means of a slit which extended from the inferior aspect of the thorax to the naval. Once disembowelling had been completed the slit was sewn with sinews. In addition to the extraction of the brain and disembowelling, the embalming procedures employed at Pazyryk displayed a number of variations. In Kurgan 2, for example, cuts on the arms and legs of the male mummy appear to have facilitated the introduction of a preservative fluid. In the female mummy from this tomb, however, cuts on the buttocks, thighs and calves had been used to enable the removal of body tissue from these areas. Once the flesh had been detached from the corpse it was replaced with a sedge-like grass and the slits were sewn with horsehair (ibid. 280-281). Body tissue also appears to have been removed from the bodies in Kurgan 5 at Pazyryk (ibid. 281-282).

Rudenko (1970: 279) has suggested that only members of the nobility were embalmed. While post-mortem trepanation was generally the rule among the remains of the individuals buried in large barrows, it had never been recorded among the burials of the ordinary classes. The remains of mummified burials have commonly been recovered in burials dating to the final stage (2nd–1st century BC) of the Tagar Culture in the Minusinsk Basin (Bokovenko 1995a: 302). It is thought that the custom was related to the new tradition of building permanent burial vaults, with mummification being required to preserve the body during the construction of the vault (Vadetskaya 1986 as quoted in Bokovenko 1995a: 302).

A developmental sequence has been constructed on the basis of evidence from a number of archaeological sites to account for the various secondary burial and mummification practices observed among the Tagar burials. The earliest examples are considered to be those where the cadaver was buried in the tomb but the remains were not always positioned in anatomical order because they had been maintained outside the tomb for a period of time prior to burial. This practice was succeeded by an attempt to bury the disarticulated bones in their correct anatomical order, although the bones are commonly found in erroneous positions due to the intererrer’s lack of anatomical knowledge. The next stage in the developmental sequence involved efforts to prevent the disarticulation of the skeleton by fastening the body together with thin twigs. Holes were bored in the vertebrae for the attachment of the twigs, and the twigs were also used to fasten the arms and legs to the body’s trunk. This was followed by attempts to preserve the facial features of the deceased. This practice was complicated and would have involved the removal of the flesh from the skeleton, the creation of a death mask from clay which preserved the facial features, the fastening together of the bones of the skeleton to maintain its integrity and form a ‘body,’ the attachment of a clay head to the skeleton and, finally, the painting of the head and dressing of the skeleton body (Kuzmin and Varlamov 1988 as quoted in Bokovenko 1995a: 302). Similar complex mummification procedures have been recorded from burials in Tuva and in the Altaian Mountains (Bokovenko 1995a: 302), although the dates for these burials were not provided in the text.

In the first centuries AD mummies were gradually replaced by mannequins which were stuffed with grass and clothed. In some cases the mannequins were embroidered with Chinese silk. The head was made from leather and a death mask was painted on its surface. The cremated remains of the deceased were placed inside the mannequin (Okladnikov 1956: 69). Descriptions of mummified corpses and grass mannequins are provided in the account of the 1903 excavations undertaken by Adrianov at the Oglakty cemetery (100 BC–AD 100) in the Minusinsk Basin (Tallgren 1936: 69). The remains of mummified individuals which had their faces covered with silk and overlain with death masks of plaster were recovered. Some of the masks also covered the neck as well as the face. Although the majority of the masks were red, some were white, while others displayed artistic designs. In several cases complete impressions of the faces of the deceased were apparent on the inner surface of the masks, indicating that they had been placed on the corpses when they still possessed flesh (ibid. 77-78). Other cases were retrieved; however, where the face of the skull had been restored using a layer of clay on top of which the death mask was placed (ibid. 78). The remains of mummified individuals and grass mannequins (some of which were dressed in red Chinese silk) were both discovered at Oglakty (ibid. 80).

Ethnographic studies of early 20th century Siberian tribes appear to reveal a continuity of this practise. Czaplicka (1914: 151) reported that the Siberian Maritime Siberian tribes formed an effigy of the dead individual from dried grass which took the place of the deceased in the house. The objective of this practise was so that the kala (a malevolent spirit) would not believe that it had been successful in obtaining the soul of the dead. A similar custom existed among the Samoyed and Ostyak Siberian tribes where the wife of a dead man made a figure that represented her husband from sections of boats, skis, branches etc. The figure was then dressed and adorned like the deceased, and treated as the husband for six months after his death (ibid. 164).

The secondary burial processes in operation at Aymyrlyg appear to have more in common with the practises employed by the Tagar Culture than those of the Altaian royal burials. Mandelshtam (1983: 27; 1992: 181), the director of the Scythian period excavations at Aymyrlyg, recorded the presence of compact accumulations of bones in approximate anatomical order in many of the tombs (Fig. 6). He interpreted these accumulations as representing the burials of semi-decomposed corpses or defleshed bodies, and stated that the remains of leather bags or cloth sacks were associated in some cases with the cadavers (Fig. 7). When we look at the evidence for the Hunno-Sarmatian period at Aymyrlyg, however, we find that the practice of secondary burial is not suggested in the excavation archive, and this may indicate that the practice had died out by Hunno-Sarmatian times. The description of the Scythian period burials having been buried in approximate anatomical order has direct parallels with the early phase of the developmental sequence for mummification in the Minusinsk Basin. It is probable, therefore, that the practice of secondary burial and mummification was common to all semi-nomadic tribes of the southern Siberian region, at least during the Scythian period.
Motivational forces behind secondary burial at Aymyrlyg

What motives might explain the practice of secondary burial in the Aymyrlyg cemetery? Mandelshtam (1983: 27) proposed that burial of partially decomposed corpses may have been due to the death of the individuals during the winter when the ground would have been frozen, making it difficult to gain access to the subterranean tombs. Rudenko (1970: 28) was of the opinion that the burials in the kurgans at Pazyryk had occurred during particular seasons. He also concluded that it would have been extremely difficult to bury the dead during the winter or early spring since the ground would have been frozen to a considerable depth. In addition, a number of findings obtained from the Pazyryk kurgans support the theory that the individuals were interred during the early summer and autumn. First, the majority of horses displayed hair that did not have the appearance of a winter coat. Second, most of the horses had an emaciated appearance characteristic of spring and early summer, a time of the year when they would have been recovering from having been left outside to feed during the preceding winter. In addition, the plant material associated with the burials also yielded clues regarding seasonality. In Kurgan 3 moss packing located between the strips of larch bark which covered the burial chamber was found to contain flowers of white-yellow scabious. The stage of development of the plant indicated that it had been gathered during the early summer (in late June or early July). In addition, shoots of *Hylocomium splendens* also present in the moss were indicative of early growth and a spring or summer season for burial. The nature of the bark blanket which covered the chamber also supported a spring or summer season for burial. The conservation of decomposed bodies and bones prior to burial also infers the importance of being buried in one's ancestral tomb (Mandelshtam 1992, 193). Presumably, herds would have been pastured in the mountains during the summer and in the more low-lying land during the winter (Bokovenko 1995b: 255). Consequently, since Aymyrlyg is located in the valley of the Ulug-Khemski River, it is probable that the Scythian period population would have been living in relatively close proximity to the cemetery during the winter months, the very season when burial would have been most difficult because the ground was frozen.

Mandelshtam’s (1983: 27) theory that the burial of partially decomposed corpses may have been due to the death of the individuals during the winter is possible, but it does not fully account for the practice. If the ground were too frozen to enable the interment of the bodies, one would imagine that the weather conditions would have been conducive for their natural preservation.

If Rudenko’s (1970) model of seasonal interment is applied to the Aymyrlyg cemetery, it is possible that burials would have occurred in autumn immediately before the ground became frozen, or in spring as soon as the ground had sufficiently thawed. The corpses of individuals who had died during the winter period may have been temporarily preserved in the snow without need of artificial processing until the spring, when they could have been buried in a relatively undecomposed and intact condition. Some processing, however, would have been required for the cadavers of those who died during the later spring to early autumn months in the mountain areas. It would have been both unhygienic and unpleasant for the remainder of the population if the corpses had been allowed to naturally decompose in the summer heat. It would, therefore, have been extremely practical for the bodies to have been defleshed and disarticulated and stored safely in a cloth sack or leather bag until the group returned to the main tribal cemetery at Aymyrlyg during the autumn.

The conservation of decomposed bodies and bones prior to burial also infers the importance of being buried in one’s ancestral tomb (Mandelshtam 1992: 196). Jettmann (1951: 203) has postulated that perhaps a religious tradition was common in Siberia during the Scythian period, which encouraged the preservation of the human form for survival after death. He related ethnographic accounts of tribes in the eastern Taiga region of Siberia where it was believed that the soul was preserved in the skeleton, and suggested that the different burial practices discussed above may have been related to attempts to preserve the soul of the deceased.

Conclusion

The osteological analysis of the remains from Aymyrlyg has been important since it has highlighted that, in at least a proportion of cases, the bodies were defleshed and disarticulated rather than left to decay naturally. Although it is possible that the tribes repeatedly moved between the mountains and river valleys throughout the year to bury their dead this seems im-
probable and does not satisfactorily account for the burial of bodies in different states of decomposition. In addition, the explanation that decomposed bodies were those of individuals who had died in the winter when the ground was frozen is considered too simplistic, and Rudenko’s (1970) model of seasonal burial is considered the most satisfactory explanation for the practice of secondary burial. This policy may have been linked to religious or ritual rites which we are unaware of today, or it may simply have occurred for practical reasons, with the tribes congregating together at their permanent camp in close proximity to the central tribal cemetery of Aymyrlyg as winter approached, and then moving off into the highlands as winter waned.

Acknowledgements
I would like to thank Professors Yuri Chistov and Ilya Gokhman, Department of Physical Anthropology, Peter the Great Museum of Anthropology and Ethnography, St. Petersburg, for granting me permission to examine the Aymyrlyg human remains. I am also grateful to the staff of the Photographic Archive of the Institute for the History of Material Culture, St. Petersburg, for providing me with Figures 6 and 7. I would also like to thank Professor Jim Mallory, School of Archaeology and Palaeoecology, the Queen’s University of Belfast, for supervising my doctorate research and Dr. Colm Donnelly, of the aforementioned School, for his comments on the text.

References


Fig. 1. Map showing the location of Aymyrlyg.
Table 1. Overall summary of the defleshing and disarticulation cutmarks apparent among the population.

<table>
<thead>
<tr>
<th>Context</th>
<th>Age</th>
<th>Sex</th>
<th>No. cutmarks</th>
<th>Bone</th>
<th>Joint/muscle</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>B. 4</td>
<td>35-45</td>
<td>M</td>
<td>4</td>
<td>R scapula - spine</td>
<td>long head of biceps</td>
<td>defleshing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>R scapula - acromion</td>
<td>acromioclavicular</td>
<td></td>
</tr>
<tr>
<td>B. 7, disturbed</td>
<td>adult</td>
<td>M</td>
<td>2</td>
<td>L tibia - proximal condyles</td>
<td>knee</td>
<td>disarticulation</td>
</tr>
<tr>
<td>B. 8, Sk. 1</td>
<td>35-45</td>
<td>M</td>
<td>3</td>
<td>L clavicle - acromial end</td>
<td>acromioclavicular</td>
<td>disarticulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>L humerus - distal artic. surface</td>
<td>elbow</td>
<td>disarticulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>R humerus - lat. epicondyle</td>
<td>elbow</td>
<td>disarticulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>L ulna - distal artic. surface</td>
<td>wrist</td>
<td>disarticulation</td>
</tr>
<tr>
<td>D. 4, Sk. 3</td>
<td>17-25</td>
<td>M</td>
<td>1</td>
<td>S1 - superior body surface</td>
<td>lumboSacral</td>
<td>disarticulation</td>
</tr>
<tr>
<td>G. 5, Sk. 3</td>
<td>45+</td>
<td>M</td>
<td>3</td>
<td>LV5 - superior body surface</td>
<td>LV4-LV5 articulation</td>
<td>disarticulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>LV5 - inferior body surface</td>
<td>lumboSacral</td>
<td>disarticulation</td>
</tr>
<tr>
<td>II. 4, Sk. 9 (Figure 7)</td>
<td>17-25</td>
<td>c. 5</td>
<td>1</td>
<td>R zygomatic + zygomatic arch</td>
<td>temporomandibular</td>
<td>disarticulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>R mandible - condyle</td>
<td>temporomandibular</td>
<td>disarticulation</td>
</tr>
<tr>
<td>II. 4, Sk. 11</td>
<td>45+</td>
<td>M</td>
<td>2</td>
<td>L mandible - ramus</td>
<td>temporomandibular</td>
<td>disarticulation</td>
</tr>
<tr>
<td>II. 5, Sk. 6 (i)</td>
<td>25-35</td>
<td>F</td>
<td>1</td>
<td>R sacrum - ala</td>
<td>? iliaceus</td>
<td>defleshing</td>
</tr>
<tr>
<td>III. 22 (i)</td>
<td>45+</td>
<td>F</td>
<td>1</td>
<td>R femur - head</td>
<td>hip</td>
<td>disarticulation</td>
</tr>
<tr>
<td>VII. 1, Sk. 4</td>
<td>25-35</td>
<td>F</td>
<td>5</td>
<td>R femur - head, neck + trochanters</td>
<td>hip</td>
<td>disarticulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5</td>
<td>R femur - medial shaft + linea aspera</td>
<td>vastus medialis, vastus lateralis, adductor brevis, adductor longus, short head of biceps etc.</td>
<td>defleshing</td>
</tr>
<tr>
<td>VII. 5, Sk. 4</td>
<td>25-35</td>
<td>M</td>
<td>4</td>
<td>L humerus - anterior surface distal shaft</td>
<td>brachialis</td>
<td>defleshing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5</td>
<td>L humerus - distal artic. surface</td>
<td>elbow</td>
<td>disarticulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>R ilium - iliac crest</td>
<td>external oblique</td>
<td>defleshing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>L tibia - fibular notch</td>
<td>tibiofibular joint</td>
<td>disarticulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>L femur - head, neck, greater trochanter</td>
<td>hip</td>
<td>disarticulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>R femur - midshaft medial surface</td>
<td>vastus medialis</td>
<td>defleshing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>R femur - distal artic. surface</td>
<td>knee</td>
<td>disarticulation</td>
</tr>
</tbody>
</table>
Table 1 continued. Overall summary of the defleshing and disarticulation cutmarks apparent among the population.

<table>
<thead>
<tr>
<th>Context</th>
<th>Age</th>
<th>Sex</th>
<th>No. cutmarks</th>
<th>Bone</th>
<th>Joint/muscle</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>VII. 5. Sk. 5 (Figure 6)</td>
<td>25-35</td>
<td>F</td>
<td>1</td>
<td>L femur - head</td>
<td>hip</td>
<td>disarticulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>c. 5</td>
<td>R femur - head, neck, trochanters</td>
<td>hip</td>
<td>disarticulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>c. 5</td>
<td>R femur - posterior surface midshaft</td>
<td>vastus medialis, vastus lateralis, adductor brevis, adductor longus, short head of biceps etc.</td>
<td>disarticulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>R femur - distal artic. surface</td>
<td>knee</td>
<td>disarticulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>R tibia - prox. metaphysis</td>
<td>knee</td>
<td>disarticulation</td>
</tr>
<tr>
<td>VII. 8. Sk. 1</td>
<td>35-45</td>
<td>?F</td>
<td>3</td>
<td>R femur - head</td>
<td>hip</td>
<td>disarticulation</td>
</tr>
<tr>
<td>VII. 8. Sk. 2</td>
<td>25-35</td>
<td>M</td>
<td>1</td>
<td>L radius - head</td>
<td>elbow</td>
<td>disarticulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>R radius - head</td>
<td>elbow</td>
<td>disarticulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>R ulna - olecranon process</td>
<td>elbow</td>
<td>disarticulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>L humerus - head</td>
<td>glenohumeral</td>
<td>disarticulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td>R scapula - lateral margin blade</td>
<td>subscapularis, serratus anterior</td>
<td>disarticulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>L scapula - acromion</td>
<td>acromioclavicular</td>
<td>disarticulation</td>
</tr>
<tr>
<td>VIII. 17. Sk. 2</td>
<td>35-45</td>
<td>F</td>
<td>5</td>
<td>S1 - superior body surface</td>
<td>lumbosacral</td>
<td>disarticulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4</td>
<td>LV2 - inferior body surface</td>
<td>LV2-LV3 articulation</td>
<td>disarticulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4</td>
<td>LV4 - inferior body surface</td>
<td>LV4-LV5 articulation</td>
<td>disarticulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>LV5 - superior body surface</td>
<td>LV4-LV5 articulation</td>
<td>disarticulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>R femur - greater trochanter</td>
<td>hip</td>
<td>disarticulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>c. 7</td>
<td>R femur - prox. half anterior surface</td>
<td>vastus intermedius</td>
<td>disarticulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>R tibia - midshaft posterior surface</td>
<td>soleus, flexor digitorum longus</td>
<td>disarticulation</td>
</tr>
<tr>
<td>VIII. 28</td>
<td>35-45</td>
<td>M</td>
<td>1</td>
<td>L femur - distal artic. surface</td>
<td>knee</td>
<td>disarticulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>R femur - distal artic. surface</td>
<td>knee</td>
<td>disarticulation</td>
</tr>
<tr>
<td>IX. 3. Sk. 4</td>
<td>25-35</td>
<td>F</td>
<td>1</td>
<td>R tibia - proximal artic. surface</td>
<td>hip</td>
<td>disarticulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>R tibia - distal artic. surface</td>
<td>knee</td>
<td>disarticulation</td>
</tr>
<tr>
<td>IX. 3. Sk. 5</td>
<td>17-25</td>
<td>M</td>
<td>2</td>
<td>L femur - distal artic. surface</td>
<td>knee</td>
<td>disarticulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>R tibia - proximal third lateral surface</td>
<td>knee</td>
<td>disarticulation</td>
</tr>
<tr>
<td>IX. 3. Sk. 6</td>
<td>25-35</td>
<td>F</td>
<td>2</td>
<td>R femur - distal artic. surface</td>
<td>knee</td>
<td>disarticulation</td>
</tr>
<tr>
<td>IX. 3. Sk. 7</td>
<td>17-25</td>
<td>M</td>
<td>c. 5</td>
<td>L femur - proximal shaft medial surface</td>
<td>vastus medialis</td>
<td>disarticulation</td>
</tr>
</tbody>
</table>

The ter muscle is used to denote muscles, tendons and ligaments.
R = right, L = left, LV = lumbar vertebra, S = sacral vertebra.
Table 1 continued. Overall summary of the defleshing and disarticulation cutmarks apparent among the population.

<table>
<thead>
<tr>
<th>Context</th>
<th>Age</th>
<th>Sex</th>
<th>No. cutmarks</th>
<th>Bone</th>
<th>Joint/muscle</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>IX. 10</td>
<td>35-45</td>
<td>M</td>
<td>1</td>
<td>R humerus - proximal third lateral surface</td>
<td>shoulder</td>
<td>disarticulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>L femur - distal articular surface</td>
<td>knee</td>
<td>disarticulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>L tibia - distal end posterior surface</td>
<td>knee</td>
<td>disarticulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>R tibia - proximal end antero-medial surface</td>
<td>knee</td>
<td>disarticulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3</td>
<td>R ilium - posterior surface iliac crest</td>
<td>erector spinae</td>
<td>disarticulation</td>
</tr>
<tr>
<td>X. 5. Sk. 7</td>
<td>35-45</td>
<td>F</td>
<td>2</td>
<td>TV8 - inferior body surface</td>
<td>TV8-TV9 articulation</td>
<td>disarticulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>LV1 - inferior body surface</td>
<td>LV1-LV2 articulation</td>
<td>disarticulation</td>
</tr>
<tr>
<td>XII. 5. Sk. 2</td>
<td>35-45</td>
<td>F</td>
<td>1</td>
<td>L ilium - anterior surface</td>
<td>iliacus</td>
<td>disarticulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1</td>
<td>L pubis - ramus</td>
<td>obturator internus</td>
<td>disarticulation</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td>R clavicle - acromial end</td>
<td>acromioclavicular joint</td>
<td>disarticulation</td>
</tr>
<tr>
<td>XX. 7. Sk. 1</td>
<td>25-35</td>
<td>F</td>
<td>1</td>
<td>L femur - distal articular surface</td>
<td>knee</td>
<td>disarticulation</td>
</tr>
<tr>
<td>XX. 7. Sk. 4</td>
<td>17-25</td>
<td>M</td>
<td>1</td>
<td>TV11 - neural arch</td>
<td>spinal ligaments</td>
<td>defleshing/disarticulation</td>
</tr>
<tr>
<td>XX. 8. Sk. 2</td>
<td>45+</td>
<td>M</td>
<td>1</td>
<td>R femur - head</td>
<td>hip</td>
<td>disarticulation</td>
</tr>
<tr>
<td>XX. 10. Sk. 2</td>
<td>25-35</td>
<td>M</td>
<td>1</td>
<td>Sternum - distal body anterior surface</td>
<td>pectoralis major</td>
<td>defleshing/disarticulation</td>
</tr>
<tr>
<td>XXV. 16. Sk. 1</td>
<td>25-35</td>
<td>M</td>
<td>2</td>
<td>R femur - head</td>
<td>hip</td>
<td>disarticulation</td>
</tr>
<tr>
<td>XXV. 16. Sk. 3</td>
<td>45+</td>
<td>F</td>
<td>c. 5</td>
<td>L femur - head, trochanters</td>
<td>hip</td>
<td>disarticulation</td>
</tr>
</tbody>
</table>

R = right, L = left, LV = lumbar vertebra, S = sacral vertebra

The term muscle is used to denote muscles, tendons and ligaments.
Table 2. The frequencies for the occurrence of cutmarks at the main joints of the body as a proportion of the observable adult joints present in the population group.

<table>
<thead>
<tr>
<th>Joint</th>
<th>No. observable</th>
<th>No. observable</th>
<th>% observable</th>
</tr>
</thead>
<tbody>
<tr>
<td>temporomandibular</td>
<td>639</td>
<td>2</td>
<td>0.3</td>
</tr>
<tr>
<td>shoulder</td>
<td>517</td>
<td>6</td>
<td>1.2</td>
</tr>
<tr>
<td>elbow</td>
<td>304</td>
<td>5</td>
<td>1.6</td>
</tr>
<tr>
<td>wrist</td>
<td>268</td>
<td>1</td>
<td>0.4</td>
</tr>
<tr>
<td>hip</td>
<td>344</td>
<td>11</td>
<td>3.2</td>
</tr>
<tr>
<td>knee</td>
<td>335</td>
<td>12</td>
<td>3.6</td>
</tr>
<tr>
<td>ankle</td>
<td>330</td>
<td>1</td>
<td>0.3</td>
</tr>
</tbody>
</table>

Table 3. A summary of the frequencies with which cutmarks were associated with the different joints of the affected individuals.

<table>
<thead>
<tr>
<th>Joint</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>temporomandibular</td>
<td>2</td>
<td>4.3</td>
</tr>
<tr>
<td>shoulder</td>
<td>6</td>
<td>13</td>
</tr>
<tr>
<td>elbow</td>
<td>5</td>
<td>10.9</td>
</tr>
<tr>
<td>wrist</td>
<td>1</td>
<td>2.2</td>
</tr>
<tr>
<td>thoracic spine</td>
<td>1</td>
<td>2.2</td>
</tr>
<tr>
<td>lumbar spine</td>
<td>4</td>
<td>8.7</td>
</tr>
<tr>
<td>lumbosacral border</td>
<td>3</td>
<td>6.5</td>
</tr>
<tr>
<td>hip</td>
<td>11</td>
<td>23.9</td>
</tr>
<tr>
<td>knee</td>
<td>12</td>
<td>26.1</td>
</tr>
<tr>
<td>ankle</td>
<td>1</td>
<td>2.2</td>
</tr>
</tbody>
</table>

Table 4. Frequencies for the occurrences of cutmarks indicative of defleshing as a proportion of the observable adult bones.

<table>
<thead>
<tr>
<th>Bone</th>
<th>No. observable</th>
<th>No.</th>
<th>% observable</th>
</tr>
</thead>
<tbody>
<tr>
<td>scapula</td>
<td>225</td>
<td>2</td>
<td>0.9</td>
</tr>
<tr>
<td>sternum</td>
<td>40</td>
<td>1</td>
<td>2.5</td>
</tr>
<tr>
<td>humerus</td>
<td>283</td>
<td>1</td>
<td>0.4</td>
</tr>
<tr>
<td>thoracic vertebrae</td>
<td>1042</td>
<td>1</td>
<td>0.1</td>
</tr>
<tr>
<td>pelvic girdle</td>
<td>368</td>
<td>5</td>
<td>1.4</td>
</tr>
<tr>
<td>femur</td>
<td>333</td>
<td>5</td>
<td>1.5</td>
</tr>
<tr>
<td>tibia</td>
<td>326</td>
<td>1</td>
<td>0.3</td>
</tr>
</tbody>
</table>

Table 5. Frequencies of bones displaying cutmarks indicative of defleshing.

<table>
<thead>
<tr>
<th>Bone</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>scapula</td>
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<td>12.6</td>
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<td>6.2</td>
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<tr>
<td>humerus</td>
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<td>6.2</td>
</tr>
<tr>
<td>vertebrae</td>
<td>1</td>
<td>6.2</td>
</tr>
<tr>
<td>pelvic girdle</td>
<td>5</td>
<td>31.3</td>
</tr>
<tr>
<td>femur</td>
<td>5</td>
<td>31.3</td>
</tr>
<tr>
<td>tibia</td>
<td>1</td>
<td>6.2</td>
</tr>
</tbody>
</table>

Table 6. Details of communal tombs in which more than one individual displayed evidence of defleshing and/or disarticulation.

<table>
<thead>
<tr>
<th>Tomb</th>
<th>No. individuals with cutmarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>II. 4</td>
<td>2</td>
</tr>
<tr>
<td>VII. 5</td>
<td>2</td>
</tr>
<tr>
<td>VII. 8</td>
<td>2</td>
</tr>
<tr>
<td>IX. 3</td>
<td>4</td>
</tr>
<tr>
<td>XX. 7</td>
<td>2</td>
</tr>
<tr>
<td>XXV. 16</td>
<td>2</td>
</tr>
</tbody>
</table>
Fig. 2. Graph illustrating the frequencies with which cutmarks indicative of disarticulation were associated with the different joints of the affected individuals.

Fig. 3. Cutmarks on the posterior surface of the proximal half of the right femur of Skeleton VII. Sk. 5 which are indicative of both defleshing and disarticulation.
Fig. 4. Cutmarks on the right zygomatic and zygomatic arch of Skeleton II. Sk. 9 which are probably indicative of disarticulation of the mandible from the cranium.

Fig. 5. Graph illustrating the frequencies with which cutmarks indicative of defleshing were associated with the different joints of the affected individuals.
Fig. 6. Log House Tomb XX which contained a mixture of articulated and disarticulated individuals. (Photographic Archive of the Institute for the History of Material Culture, St. Petersburg)

Fig. 7. A group of disarticulated bones contained in Log House Tomb III. 2 associated with either preserved soft-tissue of a leather sack. (Photographic Archive of the Institute for the History of Material Culture, St. Petersburg)
The Origins of the “Geometric Style” in Hsiung nu Art

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Abstract
Pieces of Hsiung nu geometric artwork are examined in the following paper. A detailed analysis of these artifacts has identified an evolutionary sequence that sees their origin in the zoomorphic “Scytho-Siberian” representations, and was strongly influenced by Near Eastern art. The “Scytho-Siberian” images underwent a transformation by the Hsiung nu following their conquest of Central Asia. The rapid transformation of the artistic scenes demonstrates that within the framework of Hsiung nu tribal union the Near Eastern artistic and mythological traditions were exposed to a different ethnic, cultural, and possibly linguistic environment (Proto-Mongolian?). This new environment utilized different mythological and epic scenes and images. Some of the prototypical compositions may have been retained possibly due the existence of a certain degree of ideological overlap, but others images became stylized and transformed by the Hsiung nu to conform to their own aesthetic norms.

Keywords
art, Hsiung nu, Central Asia, Ordos bronzes

Introduction

The so-called zoomorphic bronzes (plaques and buckles of various forms, buttons, etc.) that display illustrations of various animals can be considered to be among the most impressive examples of Hsiung nu art. Examples of this artwork have been encountered in the Hsiung nu sites of Transbaikalia, south Siberia, Mongolia, and northern China. As a whole, there is no doubt that many of the images of Hsiung nu art, including the decorative bronzes, have parallels with the “Scytho-Siberian Animal Style.” Consequently, scholars have considered Hsiung nu art to be one of the developmental stages of this style. At the same time, however, a number of other Hsiung nu bronzes can be described using terms derived from a geometric style. These designs include “lattice-work” or “open-work” that is found on belt plaques, in addition to smaller artifacts including points and buttons. The origins of the geometric component of the art of the Hsiung nu are not entirely clear, since these objects do not find direct analogies among the Scythian cultures of Siberia and Central Asia. A detailed analysis of the artifacts has identified an evolutionary sequence that sees their origin in the zoomorphic “Scytho-Siberian” representations, most of which were strongly influenced by Near Eastern art. The objective of the following paper is to illustrate this origin through an examination of a number of pieces of Hsiung nu geometric art.

Buckle plaques for the upper belt of a costume

It is possible to most clearly demonstrate the origins of “lattice-work” buckle plaques. One of the most famous compositions of this style is a scene displayed on a gold plaque from the Peter the Great Collection, which displays fantastic animals standing beside a symbolic tree (Fig. 1d). The piece is encompassed by a rectangular frame, positioned on which are leaf-shaped pits for the inlay. The tree and the animals are well modeled, and the animal heads are quite realistic. It is probable that plaques of this type were the prototypes for the manufacture of Hsiung nu bronze plaques, but during the course of repeated copying and re-casting many original details have been lost. The heads of animals, rendered in the same manner as those on gold plaques from the Peter the Great Collection, are preserved in the frames of a number of bronze plaques; probably the earliest examples of such objects. The composition as a whole at this stage, however, does not yet display evidence for a geometric interpretation. The frames of the plaques become smoother, the branches of the tree disappear and it is transformed into broken zigzag lines combined with animal paws. These zigzags tie the frame of the plaque to a direct line in the center of the piece that may depict the trunk of the initial symbolical tree in an extremely stylized manner (Fig. 1d). As a result of repeated reproduction, a stylization of the initial zoomorphic scene is apparent; the animal heads are now depicted by several pits, but eventually these pits also disappear. Consequently, the original scene depicting animals stranding beside a tree has developed into a geometric composition. The latest buckle plaques have the appearance of trapeziums with zigzag edges and have little, if anything, in common with the original composition (Fig. 1e). The later craftspeople who molded the buckles added a number of different details to the compositions, including in some cases “foliage” on the framework of buckles which display zigzags (Fig. 1f). It is probable, however, that by this stage the semantics and images of the initial scene were not clearly understood.

The same simplification of an initial scene with a gradual disappearance of zoomorphic details is apparent on a number of examples of other rectangular plaques. Another variant of “lattice-form” plaques, which depicts lattice-work emanating from
a small rhombus, can be regarded as a result of the reproduction of plaques that originally displayed two pairs of snakes. The earliest items are quite realistically designed; even the eyes of the snakes are represented in detail. Later the image gradually becomes less sharp, and eventually it is transformed into lattice-work, and no longer resembles the initial scene (Fig. 2).

Such a gradual simplification of zoomorphic scenes followed by their stylization can be demonstrated for the majority, if not all, scenes on Hsiung nu buckle plaques. This process may be clearly illustrated, for example, through an examination of buckle plaques that display images of struggling horses—the most frequent image encountered in Hsiung nu art. The composition is quite realistic on the earliest plaques; the animal’s hooves are depicted by small cells; the spaces over, or in some cases under, the horses are also filled with such cells, and cells are frequently encountered on the buckle frame. Hereinafter the cells either become less sharp, or disappear entirely. In addition, the animal figures are represented in fewer details with the overall composition becoming simpler. The same scene of struggling horses represented on the latest plaques, however, reveals a marked reduction in the size of the plaques, and their weight decreases from 100–110 g to 18–20 g (Andersson 1932, pl. XXX1-1; Samolin and Drew 1965, pl. 17d).

The same process of simplification of an initial scene with the gradual disappearance of tree and animal body parts is very marked on some examples from the Ordos that depicts three mountain goats (Artamonov 1973: 163). A similar developmental sequence has also been observed on belt buckles of other forms, with the exception of rectangular-shaped plaques. Three circles that contain depictions of animal heads, for example, have been identified on a pair of buckles from the Ivolga cemetery (Davydova 1996, tab. 36: 3–4). In the next stage of buckle stylization the form and size of the objects are preserved, but the animal heads have disappeared. As time progresses the size of buckles eventually decreases in size, and the quantity of inner circles (a basic component of a buckle) is reduced from three to one (Fig. 3).

Round open-work buckles on an upper belt
Among round open-work buckles of the upper belt the original “Scytho-Siberian” composition may be seen on a ring from the Peter the Great Collection which depicts a number of birds walking in a row (Fig. 4a). Initially the birds were depicted in a realistic manner but, as was the case for the buckle plaques, the images have eventually become schematized. Firstly, only the heads situated along the edge of the plaque are left while the bodies of the birds have been lost (Fig. 4b). In the following stage, the bird heads are transformed into cells situated on the frame of the ring (Fig. 4c); eventually the heads also disappear. The initial composition with representations of birds has been transformed into a geometric pattern comprising two concentric circles (external and internal), which are connected by several radii whose number also diminishes with time (Fig. 4 d–f).

The rectangular plaques and open-work rings demonstrate a degree of regularity in the process of schematization; in the initial zoomorphic scenes during the first stage of the development the animal and bird heads were retained. Eventually, the images become transformed into cells on a framework, and finally the frame of the object becomes smooth and zoomorphic depictions have completely disappeared.

Buttons
The gold collection of Peter the Great contains a number of buttons that depict a variety of zoomorphic scenes on their surfaces. Similar and identical scenes have also been identified on bronze Hsiung nu buttons. Again these images are initially depicted in great detail, but eventually the representations become transformed into geometric designs. A number of stages in the transformation process may be seen in buttons that display images of Sitting bears (Fig. 5 i–l). Eventually the image became increasingly stylized, and the ears and muzzle of the animal were depicted as cells, until it is finally transformed into a geometric composition consisting of a central circle surrounded by small rings (Fig. 5 i–l).

“Spoon-shaped” fastenings
A depiction of the head of an ungulate (possibly saigak) is most commonly present on “spoon-shaped” fastenings. The most detailed initial zoomorphic compositions can be found in a gold fastening from the Witzen Collection (Fig. 5a). The animal head depiction is converted into a geometrical ornament that can be observed in reasonable detail. The realistic image of the animal head gradually loses its expressiveness, and as a result the horns, eyes, and muzzle are transformed into a series of rectangles and triangles. In addition, the quantity of elements depicted in each shape also decreases (Fig. 5 b–d).

Another scene presented on “spoon-shaped” fastenings depicts a wolf tormenting an ibex. The most detailed initial zoomorphic compositions are to be found in the collection of Peter the Great (Fig. 5e), and on a horn fastening recovered from Sagly-Bazhy (Grach 1980, tab. 39:11). The transformation of the scene cannot be restored in detail because of a lack of data. It is possible, however, that one of the stages in this process of transformation is reflected in two bronze points recovered from south Siberia. One of these objects was retrieved from the Kosogol Treasure (Nachekin 1967), while the origin of the other piece is not known (it is currently curated in the Krasnojarsk Museum, #122-669). In these cases the picture of the animal has lost its horn to the uppermost boundary of the object and the head of a beast of prey has been transformed into a central ring (Figs. 5 e, f).

Strap buckles
Convincing prototypes of strap buckles are found among the collections of Siberian gold as well as in early examples of Hsiung nu bronzes. Four griffin heads are represented on a buckle from the Peter the Great Collection. The heads are paired so that the bottom heads are a reflection of the upper pair. The two pairs are connected by a crosspiece with a prong, and a hedgehog is positioned between the heads of the bottom pair of griffin heads (Fig. 5g). The buckles from Hsiung nu sites with analogous scenes generally display very little detail and
the figure of the hedgehog has disappeared. Concomitantly, the remaining images on such buckles were gradually transformed into geometric designs (Fig. 5b).

**Discussion**

The gold objects recovered from Scythian period royal kurgans in Siberia, assembled in the collections of Peter the Great and Witzen, and more recently those recovered from undisturbed burials during archaeological excavations, have been used for comparison. As the analysis has demonstrated it would appear that various geometric compositions represented among Hsiung nu decorative bronzes have developed as a result of the stylization and repeated copying of the original zoomorphic depictions related to the “Scytho-Siberian Zoomorphic Style.” Much research has been concerned with the origins and development of major components of both the spiritual and material culture of the Hsiung nu with artwork being the most characteristic of the material complexes. These artistic pieces relate the Hsiung nu to the Scythians of the Sayan-Altai mountains and southern Siberia where the widely spread zoomorphic images are considered to be the inspiration for Hsiung nu art. The Hsiung nu representations did not arise from the evolution of true Scythian art, however, since a number of examples clearly display parallels with Near Eastern artistic traditions. The influence that Near Eastern traditions had on Scythian art has been the subject of much debate for many years, but the extent of this contribution has been confirmed in recent years. A scene of a wild boar hunt depicted on the Chalcedony Seal from Iran (Pittman and Aruz 1987: 74), for example, displays notable parallels with a similar but slightly more dynamic scene found on a belt plaque in the Peter the Great Collection (Artamonov 1973: 136).

The composition that depicts a number of animals standing adjacent to a symbolic tree, discussed earlier in the paper, can be regarded as a clear example where the relationship between Scythian and Near Eastern art may be examined. This imagery has been used in Near Eastern art from the beginning, with the earliest known examples represented on cylindrical seals dating to Susa, Period C (Fig. 1a). It is believed that the scene has a religious meaning, and that it was a symbol of power and fertility (Porada 1963: 214). Minor modifications disregarded, this scene continued to be popular in the Near East period because of fertility (Porada 1963: 214). Minor modifications disregarded, this scene continued to be popular in the Near East period because of its religious significance, and it was a symbol of fertility. Further examination has confirmed that this scene has been a common motif in Near Eastern art, with examples found on seals from Susa and elsewhere.

The comprehensive similarity, however, between all of these compositions is doubtless; in all cases a beast of prey and a man (or a deer) are tearing an ungulate. In addition, the image of the bird on the Khafajah cup has been executed in a style essentially identical to that on Scythian plaque. It is evident from this and other examples that gold objects from the Scythian period may act as a link between the scenes depicted on Hsiung nu bronzes and those from the Near East.

The second scene on the Khafajah cup depicts two lions (or panthers), their heads turned in opposition. A man (or a deity), holding two snakes, stands between the lions (Fig. 7a). Direct analogies to this scene are not present in either Scythian or Hsiung nu art; the closest parallel to the scene may be found on a bronze plaque recovered from the Ivolga cemetery (Davydova 1996, tab. 39:2). The position of the animals (also feline beasts of prey) depicted on the plaque are similar to those on the Khafajah cup (Fig. 7b). A series of wavy lines present at the top of the plaque are unusual for both Hsiung nu and zoomorphic compositions, and may be considered vestiges of the bent hands and muscles of the deity on the Khafajah.
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cup. In addition, the feline beasts of prey with heads in opposition (Fig. 7c) have stylistic analogies with bronze plaque frequently recovered from Hsiung nu sites (Fig. 7d) (cf. Minyaev 1998, tab. 6).

The third scene on the Khafajah cup depicts two bulls facing outward. A man (or perhaps the same deity depicted in Scene 2) is positioned on the rump of one bull while holding an object that appears as wavy lines. The lines pass between the bulls’ horns to the ground and terminate depicting a symbolical tree (Fig. 8a). Porada (1963: 28) is of the opinion that the lines represent a jet of water, and that the deity depicted in the scene was a god of nature. No direct analogy of this scene can be found in either Scythian or Hsiung nu art, having been too extensively transformed, but it is still possible to assume that fundamental details of the scene are preserved in Hsiung nu art, represented as bulls (yak?) (Fig. 8b) on a plaque. Although initially, this motif appears to have little in common with the Khafajah cup, remnants of the same wavy lines are positioned between the horns of the bulls on the plaque (Fig. 8 c, d).

In addition to the three main scenes, we should also note a series of other essential details apparent on the Khafajah cup. Firstly, a portrayal of two fantastic animals standing beside a tree is positioned between Scene 1 and Scene 3 (Fig. 6, far right). This image is similar to the scene discussed earlier apparent on a gold plaque from the Peter the Great Collection (Fig. 1c). In addition, the depictions of the animals (Fig. 11e) are very similar to zoomorphic figures displayed on a number of Hsiung nu bronze plaques considered to have been depicted in the “Ordos Style” (Fig. 11f). The facial features of the anthropomorphs (human or deities) represented on the Khafajah cup are important. The characteristic anthropological attributes of a long straight nose (Fig. 11 a, b), are evident on human figurines depicted in Scythian artwork (Fig. 11c); a gold saddle ornament from Gunovka, southern Ukraine (UNESCO Courier 1976, tab. 19) and on Hsiung nu bronzes from the Ordos (Fig. 4d) (Salmony 1953, pl. XX1-4; fig. 11).

A further interesting detail, providing insight to possible sources of the scenes depicted in Hsiung nu art and adding support to the theories discussed in the current paper, may be found in a set of plaques that would have been added to have an upper belt. Examples of such bronze plaques are found in the Minusinsk Museum. A pair of bulls; a common motif on Hsiung nu bronzes, is depicted on these plaques. This particular design, however, displays a number of features that do not have parallels in Hsiung nu plaques: a pair of bird heads are positioned between the bulls’ horns and they have seized each bull’s back with their beaks (Fig. 9b, d). One could assume that the initial scene inspiring this design might have originated from several discrete depictions, such as ungulates and two large birds, or ungulates and a fantastic two-headed bird-monster. Possible prototypes include a composition displayed on an electrum cup recovered from Iran (Fig. 9a) (Porada 1963: 88), or a scene on a sacrificial axe recovered from northern Afghanistan dated to the second millennium BC (Pittman and Aruz 1987: 35). Both of these objects reproduce a fantastic monster with bird feet, human hands, and two bird heads. On the cup the monster holds two ungulates in its hands, while on the axe it is struggling against the other animals. The composition and style of this scene as a whole have no parallels in Hsiung nu bronze plaques.

In the context of a process of artistic transformation, however, it is possible to assume that the Hsiung nu motif depicting two bird heads positioned over bulls is all that has remained of the original scene after the bird-monster has been simplified.

Conclusion
The analysis of examples of Hsiung nu decorative bronzes has demonstrated that both zoomorphic and geometrical compositions are the result of a multi-stage process in which the older design was transformed. On the one hand, it would appear that these scenes were formed under the obvious influence of Near Eastern artistic traditions (Rostovtzeff 1929; Artamonov 1973; Raevsky 1985). Scythian craftspeople also were influenced by Near Eastern artistic traditions, but the images were subjected to a certain degree of stylistic processing. Artistic scenes characteristic of Near Eastern art penetrated the various regions of the steppe zone, including Siberia and Central Asia, through Scythian cultures as well as through the cultures of earlier periods; thus, the artistic works have a widespread distribution.

During the late 3rd and early 2nd centuries BC, the Hsiung nu led a powerful alliance of stock-raising tribes, and conquered a number of the provinces in the Central Asian and Siberian Scythian World. At some time the Hsiung nu came into contact with Near Eastern art, and images were adapted to nomadic art. In some cases, the scenes were mechanically copied, while in others they were stylized to form geometrical compositions. The rapid transformation of a number of initial zoomorphic scenes into geometric compositions may indicate that the Hsiung nu craftspeople did not understand the content and meaning of the scenes. Consequently, they simplified the images and eliminated many of the details that were unfamiliar, while retaining or enriching the scenes more easily understood, specifically those depicting animals. It would seem, therefore, that Scytho-Siberian artistic traditions were radically altered by the Hsiung nu. Thus, we may assume that the aesthetic criteria of a major phenomenon of spiritual culture—fine art—originally were formed in the Hsiung nu society, but outside the basic zone of the Scytho-Siberian World, as in Hsiung nu environment the basic art images of the World undergo very fast changes.

Many scenes of the “Scytho-Siberian Animal Style” underwent major transformations when they were introduced into the Hsiung nu environment. We should stress that artistic compositions that were transformed by the Central Asian Hsiung nu had long existed in the Near East where they originated. Such pieces were known in this area until the Middle Ages; the scene of the two animals standing adjacent to the sacred tree discussed earlier in this paper, for example, is presented almost identically in Bronze Age as well as in Medieval Near Eastern art (Porada 1963). Other examples may be found in representations of belt plaques that depict a ram’s head generally styl-
ized in Hsiung nu art (Fig. 10 a–c), yet at the same time they preserve all the original details in the regions under the influence of Near Eastern art (Fig. 10d; see Seyrig 1952).

It is quite probable that Hsiung nu art did not originally include scenes characteristic of the “Scytho-Siberian Animal Style.” A number of researchers are of the opinion that scenes reproducing struggling horses (very typical of Hsiung nu art), for example, are illustrating an Indo-Iranian mythological story that may relate to the ancient period of Indo-Iranian unity (Belenizky 1978: 37; Kuzmina 1978: 108). Possibly, during the early developmental stages of art, Hsiung nu art was very different, both technically and stylistically, to its later form. The images may have been applied more frequently to organic materials such as bone, horn, and minerals. Such representations—on sharp contrast to the “Scytho-Siberian”—genre have been recovered from numerous Hsiung nu sites (Davydova 1995, tab. 183:2; Davydova and Minyaev 1975: 198).

I have deliberately excluded the discussion of the images’ semantics in this article as this comprises a separate research topic. I have only noted that the majority of researchers consider these images to be scenes of the heroic epos. A number of different theories have been proposed relating to the ethnic environment in which these episodes were created (Rostovtzeff 1930, 1932; Gryaznov 1961; Artamonov 1973; Belenizky 1978; Kuzmina 1978). It is my opinion that the majority of the early scenes discussed above are reflections of Near Eastern myths or epic legends. The long-standing preservation of these scenes in Scythian art (including “Scytho-Siberian”), may be explained as the result of one aspect of the ethno-cultural and linguistic unity of the Scythians and other Indo-Iranian speaking peoples. This unity has been previously noted by a number of researchers (Bongard-Levin and Grantovsky 1983: 177).

Before the Hsiung nu conquest of Central Asia, the artistic traditions remained generally stable over several millennia. The rapid transformation of artistic scenes demonstrates that within such a framework of Hsiung nu tribal union, the Near Eastern artistic and mythological traditions were subjected to a singular ethnic, cultural, and possibly linguistic environment (Proto-Mongolian?). The new environment utilized different mythological and epic scenes, and images. Some of the prototypical compositions may have been retained possibly due to the existence of a certain degree of ideological overlap, but others images became stylized and transformed by the Hsiung nu to conform to their own aesthetic norms.

References


UNESCO Courier 1976.
Fig. 1. Scenes depicting animals standing beside a sacred tree and possible transformations of this scene in Hsiung nu bronzes: a - imprint of a cylindrical seal from Susa; b - fragment of a pectoral from Zwiye; c - plaque from the Peter the Great Collection; d–f - bronze plaques from Siberia and the Ordos.

Fig. 2. Possible transformations of the scene with four snakes apparent on Hsiung nu plaques.
Fig. 3. Possible transformations of belt buckle plaques with rectangular protrusions.

Fig. 4. An assumed transformation of a composition on round open-work rings: a - gold ring from the Peter the Great Collection; b - bronze ring from the Ordos Plateau; c-f - bronze rings from the Minusinsk Museum.
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Fig. 5 (left top). An assumed transformation of a composition on: a–f - “spoon-shaped” clasps; g, h - belt buckles; i–l - buttons.

Fig. 6 (left bottom). Comparative details: a - composition on the Khafajah cup; b - detail of the composition (clawing scene); c - a similar composition on a Hsiung nu bronze; d - bird of prey on the Khafajah cup; e - bird of prey from the Kulakovsky Kurgan, Ukraine; f - image of a bird recovered from the Thilikta Cemetery.

Fig. 7 - (a) Detail of the image depicted on the cup from Khafajah; (b) An assumed transformation of this scene apparent in Hsiung nu bronzes; (c) Detail of the composition on the Khafajah cup (lion or panther); (d) A bronze plaque recovered from the Derestuj cemetery.

Fig. 8. Comparisons: a - detail of the images on the Khafajah cup; b - Hsiung nu bronze plaque from Ordos; c–d - details of the images on the Khafajah cup and the Ordos plaques.
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Fig. 9 (opposite top). Comparisons: a - electrum cup from Iran; b - a Hsiung nu bronze plaque from southern Siberia; c–d - details of compositions on the Iranian cup and the Hsiungnu bronze plaque.

Fig. 10 (opposite bottom). Assumed stages of evolution: a–c - on Hsiung-nu bronze plaques with rectangular protrusions; d - a gold plaque recovered from the Emecz Cemetery.

Fig. 11. Comparisons: a–b - heads of the deities displayed on the Khafajahcup; c - detail of the saddle from Hunovka displaying the head of a horseman; d - hero’s head depicted on a Hsiung nu bronze plaque from the Ordos; e - an animal on the Khafajah cup; f - an animal (dog?) depicted on a Hsiung nu bronze plaque.
The Origins of Horse riding and the Development of Ancient Central Asian Nomadic Riding Harnesses

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Abstract
The article is devoted to the origin of horse riding and the developmental stages of the riding harness used by the ancient nomads in Central Asia. Three stages stand out in the domestication of the horse as determined by archaeological materials. The Early Stage, (middle to the end of the second millennium BC) is the development of the chariot harness. The second, the Arzhan Stage (11th–7th centuries BC) is the Early Scythian period in which bridle bits and cheekpieces, manufactured in bronze became varied. During this time the funeral rite includes horse burials. During the third stage, the Pazyryk (7th–4th centuries BC), the saddle and harness become richer and more complex. Images carved in rock (petroglyphs) reflects the main stages of harness development.

Keywords
Early Nomads, origin, horse riding, riding harnesses, Central Asia

Introduction
The snowy steppes of Eastern Europe required that animals be kept in stalls and given fodder during the winter (Rudenko 1961). In contrast, the most favorable geographical conditions for the development of mobile forms of cattlebreeding (i.e., year-round pasturing) lay in the territory which stretched from the Ural Mountains eastward to Mongolia. Attempts by some scientists (Anthony 1986; Zaibert, et al. 1990, etc.) to interpret bone articles from Eneolithic sites in Eastern Europe and northern Kazakhstan (i.e., Derievka, Tjubek, Botai, etc.) as cheekpieces, and accordingly, to extrapolate the development of horseback riding from this information, is not absolutely convincing for a number of archaeological reasons (Bokovenko 1997). In addition, their theories have been developed in the absence of reliable osteological data (Kosintsev 1999; Levine 1999).

It was only at the end of the Bronze Age that a sporadic development in the steppe cultures occurred in which horseback riding was mastered—and this was probably by shepherds. It is during this time that finds of bone and rod-shaped cheekpieces with various modifications are noted, as well as being illustrated in numerous rock drawings (Bokovenko 1979; 1986). It was only at the beginning of the first millennium BC—in connection with significant progress in horsebreeding and the development of a more reliable type of bronze bridle—that for the first time an early Scythian-type nomadic society depicted a horse rider in the form of a centaur.

Development of horse harnessing
The lifestyles of the many nomadic cultures were varied. They had generically evolved from the earlier Bronze Age cultures in which vehicles and battle-chariots existed. The optimum lifestyle involved vertical, or year-round migrations of complex herds, capable of extracting fodder during the winter from beneath the snow. Convenient and easily portable dwellings and utensils were also invented. Thus, for the first time, a specialized horse rider with armaments came into being. Units, comprising this new cultural type, rapidly became assimilated into steppe cultures from the Ural Mountains to Mongolia. In these locales, the breeding of various types of horses and sheep (Witt 1952; Tsalkin 1952) fostered the further development and integration of three cultural blocks, i.e., cattlebreeding, agriculture and craftworking. In addition, leaders, a military-priestly aristocracy, and other social strata were developed. Nomadic societies, in turn, required complex religious systems that substantiated and solidified these statuses; this was achieved through funeral rites, definitive signs that became symbolic of the horse rider, arms, and art—such as the examples discovered during excavations at Arzhan, Besshatyr, Pazyryk, Salbyk, Issyk, etc.

Analyses of the archaeological materials provides evidence for the creation of Central Asian nomadic riding bridles that further stimulated the development of various armaments and costumes. The armed horse rider was created from this system. Some stages of this process are illustrated in Figures 1 and 2 and listed below.

(1) The earliest stage of the development of horse riding equipment occurred during the Bronze Age (middle to the end of the second millennium BC). At first, the primitive horse bridle consisted of a plaque cheekpiece with prongs on one side; this was followed by the development of bar cheekpieces, carved from horn, with three holes and strap bits that were not firmly fixed. These types of bridles were not particularly reliable for controlling a horse, and probably were used only on draught animals. It is possible, however, that they may have been used...
incidentally for riding purposes, for example, by shepherds. This bridle type was widespread in the Eurasian steppes from Hungary to Mongolia. Chariots burials and the formation of a nomadic aristocracy are known from this period.

(2) The initial stage of the Early Nomads (Scythian-type Culture) at Arzhan, 9th–7th centuries BC, is characterized by the mass manufacturing in bronze of the basic elements of the bridle. At this time there is a significant qualitative change. At first, bronze cheekpieces simulate the types that were made in horn, then metal allowed artisans to create essentially new forms. The greatest variation of bronze bits (seven types), and cheekpieces (eleven types) for all periods of nomadic life, may be observed during this time. The basic bridle bit form and the quantity of external terminals became modified (Fig. 2), and stirrup-shaped bits prevailed in Kazakhstan and the Sayan-Altai region (Akishev 1973; Vishnevskaya 1973; Gryaznov 1984; Bokovenko 1986; Itina and Yablonsky 1997; Kirushin and Tishkin 1997). Cheekpieces, generally with up to three holes, were of the most different and difficult types, and were designed to be fastened to the bits with special small straps.

In the Sayan-Altai, among the available materials from early Scythian sites that have been radiocarbon dated (Marsadolov 1997), no less than 37 bridle variants have been recorded; this finding testifies to the intensive quest by the nomads for the most reliable and convenient forms of horse equipment (Bokovenko 1986). The improvement of all the harnessing is combined with the localization of specific types of bits and cheekpieces, such as the types from the Minusinsk Basin, Tuva, and the Altai. The most favored forms were replicated, while others become obsolete.

Phalera, breast ornamentation for horses, is found manufactured in primitive horn (as plaques) as well as being fashioned from bronze into magnificent plaques with beautiful bas relief of a coiled predator—the snow leopard—such as the example recovered from the Arzhan Kurgan (Figs. 3, 4). Due to the mobility of the nomads, and the dynamics of intercultural contacts, new types of horse harnesses were quickly distributed, while the most imperfect gradually “disappeared” or entered into a “struggle,” with traditional local forms.

(3) Beginning at the end of the 7th century BC, the new Pazyryk Style is identified with a wide distribution from Mongolia to Hungary. At this time an essentially new bridle design came to the fore, in which cheekpieces were no longer snugly fastened to bits with straps as had been the case in previous times; straps were now inserted into extended ring-shaped terminals. From this time onwards, cheekpieces varied little in form although there was an evolution in the style of terminals which saw an increased use of those with two holes. Cheekpieces with ring terminals obviously improved the manageability of the horse, and other types of bits and cheekpieces were essentially not used since this bridle design continued until the Middle Ages. Thus, an efficient bridle was developed, saddles were simple as illustrated at Pazyryk, and although metal stirrups had not yet been invented, stirrups were probably made from leather straps.

**Iconography and semantics of horses in burials**

At Pazyryk I, the remains of ten gold-colored horses were discovered. The highest quality of these, based on the judgement of Gryaznov (1950: 167), belonged to the Central Asian breed that was glorified in antiquity; today the descendants of these horses are the famous modern Turkmen horses (Gryaznov 1950: 167). The remaining horses represented crossbreeding of the Central Asian breed with local small, but strong and hardy horses. It is interesting to note, that each horse at Pazyryk had a different mark on its ear that probably represented different ownership and, the horses most likely represented “gifts of grief” from subordinate patrimonial elders to the buried chieftain.

The horses found in all of the kurgans were buried with magnificent harnesses; their manes and even eyebrows had been carefully trimmed. Usually two horses were decorated with particularly rich finery, and it would seem probable that these animals had belonged specifically to the chieftain. The head of each horse was decorated with a mask representing a horned tiger, while the tail was dressed with a cover. One horse wore a tiger mask with huge stag horns made from heavy leather. The saddles were decorated with hanging images of fish (Fig. 5).

Semantically, the analyses of these magnificent horse harnesses are complex and are connected to the creation at this time of Indo-Iranian mythology and the introduction of shamanism. It is clear that the ancient shamans created harness compositions on the basis of definite mythologies, which are reflected in the position of the sacrificed horses within the burials of the military aristocracy. Images correspond to the Animal Style and also are represented in a wide range of colors. Herewith, we can conditionally track, using iconography, the three worlds of the nomads:

1. The Upper World–head and neck of a horse (stag’s mask, birds).
2. The Regular World–chest of a horse; pommel; and saddle pillow (where the person sat), covered with the struggle of non-predators being attacked by predators (ungulates and felines as a signature stamp).
3. The Lower World–fish portrayed hanging down from a saddle and defeated animals.

The combat scenes are interpreted in different manners by some scholars: (a) tribal struggles (Gryaznov 1950); (b) forces of goods and evil, life and death (Artamonov 1973) and; (c) bright sky contrasted with darkness, earth, change of seasons, etc. As a whole, the images testify to the existence of elements within the local religious belief systems that subsequently rendered significant influences on the spiritual development of many Asian peoples.

**Conclusions**

The developments apparent among the horse equipment of Central Asia reveal a clear continuity of the bridle components of the Bronze Age through to the Early Scythian period. This is illustrated, for instance, in rock art (Fig. 6). The search for the
optimal solutions resulted in harnessing that became a canonical type of extreme significance to the nomads. Moreover, a specific type of horse harnessing, as noted in the royal mounds at Arzhan where horses were decorated with boar’s tusks, displayed solar symbols and snow leopards as predators, etc.

The main cult-historical value may therefore be obtained when analyzing the morphological characteristics of Central Asian horse harnessing at the beginning of the first millennium BC. A local funeral tradition surfaced in which the appearance of a horse cult was brilliantly exhibited in the nomadic art of the Sayan-Altaï region. A dominant role was played by stag and sun images that generally correspond to written sources relating to the Saka and Massagetae. Therefore, it is apparent that this style originated in an area that was much further to the east than previously has been recognized.

Thanks to the horse, nomadic activity was increased considerably and allowed comprehensive trade relations to come to develop. Cultural communications became diversified, interacting with the tribes of the taiga (forest) on the north; and in the south with the civilizations of Central Asia, India, and urban China. Nevertheless, cultural impulses and migrations to the west were in force in the late second-first millennium BC (Jettmar 1964; Terenozhkin 1976; Ilinskaya and Terenozhkin 1983; Klochkov and Murzin 1987; Kossak 1987; Bokovenko 1989a; 1989b). Typological analyses of the basic components of nomadic culture indicate that there were difficult processes and areas of progress in migrations as well as with concepts and artifacts. At first, the movements of the Scythians, the Saka, the Massagetae, and the Sarmatians, largely changed the ethnic and cultural situation in Asia and Europe. Later the Hsiung nu and the Huns became responsible for these changes. These movements also created the necessary preconditions for the development of trade routes between the various regions.

References


The Origins of Horse riding and the Development of Ancient Central Asian Nomadic Riding Harnesses


Fig. 1. Developmental stages for Central Asian horse bridles: 1 - end of the Bronze Age; 2 - Arzhan Stage; 3 - Pazyryk Stage.
Fig. 2. Stages of development and bridle bit typology of 11th-7th centuries BC in Central Asia.

Fig. 3. Horse bridles with solar symbology: 1 - end of the Bronze Age; 2 - Arzhan Stage; 3 - Pazyryk Stage.
Fig. 4. Reconstruction of horse harnesses from Arzhan. (reconstruction by the author)

Fig. 5. Reconstruction of horse harnesses from Pazyryk I. (reconstruction by M. P. Gryaznov)

Fig. 6. The development of the horse bridle revealed in Central Asian petroglyphs: 1 - Neolithic (Obryj); 2 - Early Bronze Age (Lebjazhe); 3 - Early Scythian period (Ust’-Tuba); 4 - Scythian period (Kavkazskaja).
Abstract
Traditionally, petroglyphs have been perceived as passive images adorning rock surfaces. Newer perspectives can be gained by considering the rock surfaces where the petroglyphs were carved, and the locations of the images in the landscape, as important informing contexts towards their uses and meanings. This can be explored by the examination of the images from Terekty Aulie, central Kazakhstan. Terekty Aulie is a sacred space where different members of a society can encounter different experiences. In the past, the images were the visions of the ancient baksy (shamans) and their interactions with the spirit world. In the present, local Islamic pilgrims visit a shrine, erected above the petroglyphs, as a part of their religious practices. Contemporary interactions uphold the sacredness of the space and demonstrate the persistence of the liminal qualities of Terekty Aulie since prehistoric times. Thus, the petroglyphs demarcated a special location in the landscape, and they, and their setting, were–and still are–an active part of the experiences and practices through which social realities are generated and constituted.

Keywords
Central Asia, Kazakhstan, petroglyphs, shamanism, Islam

Introduction
The traditional approach in the study of rock art has been to conceive it in a passive role. It has been noted by several commentators (Lewis-Williams 1987; Dowson 1994; Crook 1999) that petroglyphs can be treated as reflections of ancient societies or as frozen tableaux which silently depict the myths of ancient peoples. These researchers have advocated for a change in the way we think about rock art; the images are not outdoor art galleries but, rather, a special form of material culture that played an active part in the societies that produced and used them.

Significant to this rethinking is the context of the rock art. The art gallery conception of petroglyphs sees the images simply adorning rock surfaces. In such a view, the setting of the rock art is not usually considered in the interpretation of images (Dowson 1998: 70). The nature of the cliffs, hillsides and local landscape are in fact an important informing factor in the understanding of context and related social relationships. Petroglyphs and their settings are a part of the experiences and practices through which social realities are generated and constituted. Reality is experienced in different ways within a single society and the petroglyphs and the spaces around them were an active part of these multi-faceted experiences.

Ancient visionary realities
Terekty Aulie is an area of hills and grass fields found in the Ulutau region, near the city of Zhezkazghan, in central Kazakhstan. The hills are exposed granite outcroppings that rise above the flatness of the steppe. Their low and gentle slopes have been weathered smooth by the elements. There are cracks, crevices, and gullies in the granite with occasional natural grottoes and small holes that are large enough for a child to crawl into.

Amongst the many possible granite outcroppings in the area, the petroglyphs were mainly concentrated in three adjoining hills. One reason for this could be related to the importance of water, as the Terekty Aulie area has several natural springs which flow to the surface. Water holes were an essential part in the movements of nomadic herders. The Türkmen nomads, for example, would split into smaller groups that followed their cattle as they grazed around rainwater holes in the springtime (Zeranska-Kominek 1997: 30). In the summer, the waterholes dried up and the Türkmen gathered into larger groups around a well or more permanent water sources.

These water resources are but one aspect of the specialness of Terekty Aulie. Another aspect is indicated by the archaeologica record at Terekty Aulie; it was also a place for religious and liminal encounters since prehistory. The oldest evidence comes from Middle Bronze Age graves that were constructed within the vicinity of the petroglyph-covered hills (Samashev et al. 1999: 4). In the 19th century AD, Kazak groups belonging to the Bagnaly and Baltaly tribal subdivisions erected tombs beside the main granite outcropping (Samashev et al. 1999: 3). These mausoleums were built of unbaked mudbrick and had domed roofs. The Kazak cemetery continues to be used today for there are several recent constructions using modern materials amongst the older, crumbling mudbrick mausoleums. Not far from the cemetery, an Islamic shrine had been erected atop of the main hill that looks down onto the mausoleums. The shrine is simply an upright slab nestled between the crack of two rocks. The rocks are on the highest part of the hill and they are covered with petroglyphs (Fig. 1). The shrine itself is a rock wrapped with numerous layers of rags torn into thin strips.
The contemporary practices conducted at the shrine will be discussed in the second part of this paper as we now turn our attention to the exploration of the significances of the petroglyphs in Terekty Aulie’s landscape.

The petroglyphs were executed by cutting a deep contour into the granite. The images are dominated by horses (as seen in Fig. 1) but there are also some bulls, camels, caprids and rare images of humans and feline-like predators. There are also other images of horse hooves (Fig. 4), human footprints (Fig. 5), dots and a gigantic grid (Fig. 6). A tentative dating to the Bronze Age has been suggested for most of the images by affiliations of the horses with the animal figures adorning Seimino-Turbino knife handles (Samashhev and Zhumabekova 1996). The possibility of some of the images dating to other later periods, however, should not be ruled out.

The greatest concentration of petroglyphs occurs on the main hill next to the cemetery. Two adjacent hills also have many petroglyphs and, in the summer of 1999, a new discovery was made of a few horses on a more distant hill in the north. The petroglyphs were mainly carved into flat, exposed surfaces of the granite, but some were placed onto the walls and carvings of the natural grottoes and on the floors of small holes.

The petroglyph images themselves, their great concentration within the area, their placement on particular surfaces, and the local environmental setting near natural springs all indicate that Terekty Aulie was an ancient place of power. We can explore the importance of this power through aspects relating to the practices and experiences of the ‘baksy.’

‘Baksy’ is a term used by the Kirghiz, Uighurs, Uzbekis, Karakalpaks, Türkmen and Kazaks which referred to shamanic practitioners outside of the Islamic tradition, who were concerned with the everyday problems of tribal members (Chadwick 1969: 234-35; Zeranska-Kominek 1997: 44). The role of the baksy is diverse in time and space, and each Central Asian group defined it in a variety of ways. In general, one researcher described them as “singers, poets, musicians, diviners, priests and doctors, the guardians of popular religious traditions and the preservers of ancient legend” (Castagné 1930: 59). In many ways the baksy was similar to the kam (shaman) of the Mongols, Buryats and Uighurs: a sorcerer and medicine person who drove the illness causing spirits out of the patient’s body by going into trance (Chadwick 1969: 235; Zeranska-Kominek 1997: 33; Tursunov 1998: 60). The spirits called the kam to their role usually after a period of intense illness (Zeranska-Kominek 1997: 34). Like the kam, the baksy read the future and healed people with the assistance of helper spirits. Some baksy went into trance assisted by music played on a string instrument (Zeranska-Kominek 1997: 34). The instrument held magical powers that scared away harmful spirits and brought protection from harm to the owner. The baksy of the Kazaks and Karakalpaks primarily played music on the kobyz (a two-stringed violin-like instrument) which called their helping spirits (Basilov 1989: 156). When summoning their spirit helpers, the baksy also sang magical incantations accompanied by music (Basilov 1989: 153). Some baksy of the Türkmen and Kazaks were accomplished singers and storytellers who play stringed instruments. Like the kam, who was chosen by the spirits to heal, these baksy were chosen by the spirits to perform a bardic role within their communities (Zeranska-Kominek 1997: 50-51).

The realm of the ancient baksy can be demonstrated by the large petroglyph scene that looks like it has two ‘antenna’ (Fig. 2). In the center of the circle there is a camel, while outside it there is the contorted figure of a human with an arching leg. Two lines run from the circle: one goes straight upward while the second line bends back on itself and is associated with a goat and other smaller animals including a snake.

The ‘antenna scene’ holds a similarity with a drawing (Fig. 3) made by an Altaic shaman (Harva 1938: 557-558). There is a long thin line in the drawing that was explained by Harva as the path of the shaman journeying to the heavens. At the end of the path is the great spirit Ulgen who is depicted with radiating lines. At the lower part of the path there is a pole with the hide of a sacrificed horse. After the horse sacrifice, the Altaic shaman moved from his encampment into the Otherworld. This drawing documents how the shaman passed through various trials and encountered other spirits (in human form) along the path to heaven and Ulgen.

The lines extending from the central circle of the Terekty Aulie petroglyph scene (Fig. 2) also marks the journey of the ancient baksy. The petroglyph images of camel, goat, snake, and other little animals were spirit helpers employed by the baksy. Camels are important animals in contemporary Central Asian societies and they have connections to liminal powers. Pre-Islamic beliefs amongst the Kirghiz involved the veneration of ‘spirit masters’ in particular localities alongside the worship of Islamic saints (Basilov 1987: 13). These ‘spirit masters’ can take the form of animals including camels. Basilov also tells us that the Kirghiz acknowledged a spirit in the form of a young white camel that was the ‘master’ of sacred springs and trees. The Kazak baksy’s kobyz was also known as nar-qobïz (whereas nar means ‘camel’) and according to a Kazak legend, the first baksy made the first kobyz from the hide of a camel (Basilov 1989: 158). The baksy also used the assistance of snakes and other small animals in their healing rituals. Spirit snakes, for example, were summoned with invocations by Kazak and Karakalpaks baksy (Basilov 1994: 279). Goats are important sacrificial animals among Turkic speaking peoples, and among the Altaians they are sacrificed to powerful spirits (e.g. Alekseev 1990: 67). Taking all these elements into consideration, the ‘antenna’ scene was the vision of the spirit world of an ancient baksy. The petroglyph camel in the circle assisted the baksy with the power to traverse into the other world. The other spirit animals were dispatched by the baksy in order to catch the soul of a sick person. The lines coming from the circle were the paths to other worlds where the ancient baksy journeyed and encountered other spirits.

Other petroglyphs at Terekty Aulie, associated with activities in the invisible world, are horse hooves (Fig. 4) and human...
footprints (Fig. 5). In the various oral epics of the Central Asian peoples, the horse was the important method of transport for the hero or shaman to enter into the Otherworld (Chadwick 1969: 126). The horse-hoof petroglyphs could mark the passage of spirit horses who carried the ancient baksy into the Otherworld. Similarly, the petroglyphs of human footprints could have been the footprints of a baksy. As part of their initiation, the Kazak baksy must endure the trials of walking in the snow barefoot and lick red-hot iron objects with the tongue (Basilov 1990: 26). This was done to prove that the Kazak baksy had strong spirits that protected them from harm during these and other trials. The petroglyph footprints indicated the power of the baksy who endured these trials as they walked into the spirit world.

The most enigmatic image found at Terekty Aulie is a gigantic grid carved into a part of the main hill (Fig. 6). One of the problems that faces rock art researchers, time and time again, is the interpretation of geometric images. The figurative images of animals and humans are usually believed to be easier to understand because they depict subjects which are more identifiable, but their function and meanings can be as complex and ambiguous as non-figurative images.

A different perspective on the image of the grid can be contemplated by considering it as an aspect of visionary practices. The explicit link between particular geometric forms found in rock art and visions has been noted by some researchers (Reichel-Dolmatoff 1967; Wellmann 1981) but the most rigorous argument was put forth under the rubric of the ‘Neuropsychological Model’ developed by Lewis-Williams and Dowson (1988). Since its debut, the ‘Neuropsychological Model’ has been refined (e.g., Lewis-Williams 1988; Lewis-Williams 1991; Dronfield 1993; Lewis-Williams and Dowson 1994; Lewis-Williams 1995; Dronfield 1996a, 1996b; Dowson 1999), as is the case of all working theories, but its main tenets have still remained substantiated. Basically, it argues that there are particular visual forms and experiences derived from the various types of altered states of consciousness that can be recognized in art. This is attested by the comparison of clinical research with ethnographic field observations (for full details see Lewis-Williams and Dowson 1988). These visual forms and experiences are not random delusions but socially situated visions that are culturally meaningful. It is the job of the researcher to explore these socio-cultural facets and locate these visions within the context of the community who produced and utilized them.

The large grid is unique at the site of Terekty Aulie, but other examples can be found at the Kazakhstan petroglyph sites of Arpauzen and Tamgaly (Lymer 1999: 148-151; Lymer forthcoming). At the site of Arpauzen, in the Karatau Mountains of southern Kazakhstan, there are a couple of scenes with grids: a deer has a honeycomb embedded in its back (Fig. 7a) and there is a scene with two smaller animals on a grid (Fig. 7b). At the famous site of Tamgaly there is a deer with a grid on its back (Fig. 8a) and another grid on a nearby surface (Fig. 8b).

Grids, honeycombs, and lattices have been clinically demonstrated to appear in a wide variety of hallucinatory conditions (Klüver 1942: 177; Horowitz 1975: 178-9; Siegel and Jarvik 1975: 113; Siegel 1977: 138). In one stage of the trance process, a person could experience geometric forms like dots, zigzags, grids and wavy lines which change in color, brightness, and symmetrical configuration (Siegel 1977: 132). In another stage these forms can combine with realistic images from the person’s memory. The honeycomb and grid are an intrinsic part of the deer images from Arpauzen and Tamgaly. These images were the result of the effect of integration whereby, during trance visualization, the images seamlessly mixed with one and other (Klüver 1942: 177). In the case of the scene with two animals at Arpauzen, they were superimposed onto a grid, which has also been reported to occur in independent clinical observations (Fig. 9).

The neuropsychological aspects of the cobwebs and grids explain the nature of these unusual images as derived from the imagery of trance. The selection of specific geometric forms was specifically sought by ancient people during trance. The importance of the imagery was influenced by their relevance to the expectations and negotiations of meaning within the society. The grid and cobwebs, attached to the Tamgaly and Arpauzen deer, indicate the lattice was associated with the power of the spirits. The large grid at Terekty Aulie was also a physical manifestation of this power derived from invisible forces. These petroglyphs were powerful visions of the world of the spirits and they were the visible manifestations of the power in the landscape that the ancient baksy utilized.

Like the grid, the animal petroglyphs of Terekty Aulie indicated the spots where the boundaries between this world and the Otherworld were more permeable. In the tiny natural hollows of the granite at Terekty Aulie, singular animals were engraved onto the floor surfaces. Animals also were carved on the walls and floors of the grottoes. These hollows, and grottoes could also been places were the baksy or spirits crossed the boundaries through this world into the next.

Waterholes are another kind of permeable boundary. The San peoples of southern Africa considered the waterhole as a special place; this is where the animals gathered for water and where shamanic practices were conducted. Animals known as rain-bulls lived in the water and had to be captured by the San shaman in order to make rain (Deacon 1988: 132). When the San needed to summon rain from the clouds they would go to a spring and the shamanic practitioners would conduct actions towards the capture of the rain-bulls.

At Terekty Aulie there is a scene of animals circulating around natural holes in the surface of the granite (Fig. 10). When it rained these small holes filled with water. Like the nomad’s cattle which came to the natural springs around Terekty Aulie, the spirit animals also came to the water retained within natural holes in the rock. The baksy, like the San shaman, could have entered into the hole in order to persuade or coerce the spirits to bring rain. In Tartar tales, water was the nether-region
where the souls of dead resided and when the dead arose, they could take on the form of horses (Riordan 1978: 170). The horse petroglyphs could represent the loose souls of the dead or the stolen souls of sick persons which the baksy had to capture. The boundaries of the rock surface are perhaps the most permeable at this point, and this is where the baksy can effectively connect with their spirit animal protector.

Another important aspect of the water symbolism could also be related to the summoning of storms. During the Middle Ages, Turkish and Mongol shamans were noted to have exercised control over rain, wind, and blizzards with the aid of special stones (Boyle 1972: 184-185). One incident even mentions a Turkish soothsayer (kahin) who produced clouds of hail and snow in order to attack others (Boyle 1972: 188). Among the Türkmen, not only were there porhan (baksy) but also yatçı (fortune tellers) who forecasted the weather for the tribal leaders and commanded rain, wind, and hail with the assistance of magical stones (Zeranska-Kominek 1997: 33). Instead of using a special stone, the rock surface was a powerful force in itself, and it added to the powers of the petroglyphs. Not only could the baksy go into the surface of the rock but they also used the power of the rock to directly change weather patterns in order to provide water for their cattle or to bring ill-weather upon rival shamans or tribes.

Contemporary social realities
The baksy is a part of society. Their personal experiences are but one of many encountered by the various other members of the same society. Other experiences can be explored by considering the contemporary Kazakhstani religious practices conducted at Terekty Aulie.

While we were recording the petroglyphs in the summer of 1999, local pilgrims came to pray at the shrine erected above the petroglyphs. They were mainly women who set up rugs near the shrine and prayed to Mecca. If it rained, the pilgrims would sit on their rugs in the grotto directly beneath the shrine and continued to keep their vigils during adverse weather conditions. The grotto walls and floors were covered with petroglyphs of camels and horses. Below, in a space by a natural spring near the cemetery, their menfolk would prepare a fire and bring out a goat from the car. After their devotions, the women would tie a rag around the shrine and join their family below. The goat was sacrificed and eaten by all. Prayer rags were also tied onto nearby branches or the cemetery fence. A gift of money was tied within the rag; this gift would assist in the blessing they sought.

The petroglyphs also add power to the place for the local people to experience the healing properties of Terekty Aulie that is reputed to cure colds, barrenness, nerve disorders, and other illnesses (Samashev, et al. 1999: 5). The petroglyphs also contributed magical properties to the shrine and according to local pilgrims, they were the result of a visit by a travelling Muslim prophet (Samashev, et al. 1999: 5). One Kazak woman, we talked to, was impressed by the animal petroglyphs and believed, in particular, the image of one bull was related to ancient cosmology. The ethnographer, Basilov (1987: 15), had noted that it was still possible to meet older Central Asians who still believed the world was flat and it was supported on the horns of a bull.

The contemporary practices found at Terekty Aulie provide us with information that can lead us to think about new ways in which the petroglyphs would have been interacted with in past. I am not claiming that contemporary Kazakhstani religious practices are fossil relics of a distant past, but instead it is a re-consideration of the role of petroglyphs in society. The petroglyphs are not inert pretty pictures that passively document ancient cultures, but they are objects that are not only a part of society but do things within that society. The petroglyphs are a material reality that exerts a real influence on social life. The power of the animal petroglyphs acted upon the real world and brought healing to the local Kazakhstani pilgrims afflicted with illness. The petroglyphs influenced social phenomena and they are now an important part of local Islamic religious practices.

Conclusion
Terekty Aulie is a sacred space where different members of the society can encounter different experiences. The petroglyphs were a part of an ancient society’s interactions with the world around them and demarcated special spots in the landscape where encounters took place with the invisible world. In particular, the petroglyph images were symbols of the power of the spirits and were an active part of the ancient baksy’s engagement with the forces of the natural world and the invisible realms. The continual act of carving images into the stone within the vicinity also testifies to the constant renewal of the specialness of the place, time and time again, by the various peoples of the past. Thus, the site of Terekty Aulie and its environmental setting is in an ever-continuing process of ongoing interaction with people and individuals through their stories, practices, events, deaths and personal encounters with non-human entities. The contemporary religious practices, being conducted today at Terekty Aulie, still acknowledge and uphold the sacredness of the place and clearly demonstrate the persistence of these special qualities since distant times.

Acknowledgements
I would like to thank Dr. Z. Samashev and Dr. Zh. Kurmankulov for making available their tracings of Terekty Aulie. I also thank Renate Dolmen for her translation of the Harva 1938 extract from German.

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Fig. 1. Petroglyph scene below an Islamic shrine at the top of the main Terekty Aulie hill.
Fig. 2. The “antenna” scene at Terekty Aulie. Note the contorted human figure above the circle with a camel. (after Samashev, et al. 2000, fig. 5)

Fig. 3 (right). A drawing of an Altaic shaman’s visionary journey: a - sacrificed horse on a pole; b - the spirits of Bogdygan and his attendant, Bobyrigan; c - White Ulgen surrounded by white light and his messenger. (after Harva 1938: 557)
Fig. 4. Horse-hoof petroglyph from Terekty Aulie.

Fig. 5. Human footprints at Terekty Aulie.

Fig. 6. The giant grid at Terekty Aulie.
Fig. 7. Grid petroglyphs at Arpauzen: a - deer with honeycomb (after Lymer forthcoming, fig. 1); b - two animals and a grid.
Fig. 8. Tamgaly grid petroglyphs: a - deer with grid; b - grid near a deer.
Fig. 9. Image experiences based on hallucinations in a controlled clinical environment. The image of two birds overlaying a lattice occurred during an early stage of hallucination. (after Siegel and Jarvik 1975, fig. 13)

Fig. 10. Animal petroglyphs around natural small holes in the granite at Terekty Aulie.