

# The 'Silk Roads' Concept Reconsidered: About Transfers, Transportation and Transcontinental Interactions in Prehistory

**Hermann Parzinger**

*Stiftung Preußischer Kulturbesitz  
Berlin*

Today's widely used designation, the "Silk Road," goes back to the German scholar Ferdinand von Richthofen, who travelled extensively in China during the second half of the 19<sup>th</sup> century. He formulated the term "the silk roads" (Höllmann 2004, 37; Waugh 2007). In doing so, he chose the plural form, being quite cognisant that not just one single track was involved, but a widely branching and ancient transcontinental network of transportation and communication. Yet, now, at the beginning of the 21<sup>st</sup> century the plural form is nearly forgotten; instead, the singular form, the Silk Road, is commonly used to designate what Richthofen meant. In fact, the plural is more correct and reflects more precisely what this transcontinental travel and communication network really was. This system of travel and trade routes is indeed ancient and developed over millennia. Archaeological evidence, which is our focus here, has greatly extended our knowledge of the cultural exchange across Eurasia from prehistoric times and demonstrates the antiquity of this network.

## The geographical setting of the silk roads: barriers and routes

The natural environment of the regions through which the silk roads proceeded is exceedingly varied. High, precipitous mountains covered with snow and seemingly endless deserts were obstacles along the silk roads. These natural barriers often

dictated the route to be taken. Therefore a knowledge of the geographical framework is essential for understanding the distribution of cultures and their contacts since earliest times.

The eastern terminus of the classical, major route of the silk roads was the old imperial city Chang'an (Xi'an) in northern China (Höllmann 2004; Debaine-Francfort and Idriss 2000; Baumer 2002). The track ran westward and crossed the Huangho (Yellow River) in the province of Gansu, whence it then led further to the northwest [Fig. 1]. At the southwestern reaches of the Gobi desert the main road forked into a southern and a northern route. The southern route ran parallel to the Kunlun mountain range along the southern fringe of the Taklamakan in the region now known as Xinjiang. The northern track first crossed the Gobi desert, then circumvented the northern rim of the Taklamakan, following the Tian Shan mountains. A

branch left the northern route at Turfan and continued in a northwesterly direction towards southeastern Kazakhstan (Semi-rechye).

Northern and southern routes converged in Kashgar in western Xinjiang, whence the main connection to the west crossed the western fringes of the Tian Shan as well as the Pamir range to attain the Ferghana basin. Despite low precipitation, the fruitfulness of the Ferghana basin is ensured by rivers that are fed by the melted snow and ice from the surrounding mountains. The most important east-west route left the Ferghana basin, passing through the Tashkent oasis to Sogdia, where it traversed the Zeravshan valley, bridged the Amu Darya river, and, after crossing the Karakum desert, progressed across the northern Iranian highlands ultimately to reach Mesopotamia and the Mediterranean Sea. There was undoubtedly also a route that circumvented the Caspian Sea to the north and then advanced across the Eurasian steppe.

The development of this complex and widely branching



Copyright © 2008 Hermann Parzinger

Fig. 1. The "Silk Roads" and other trading routes crossing Central Asia.

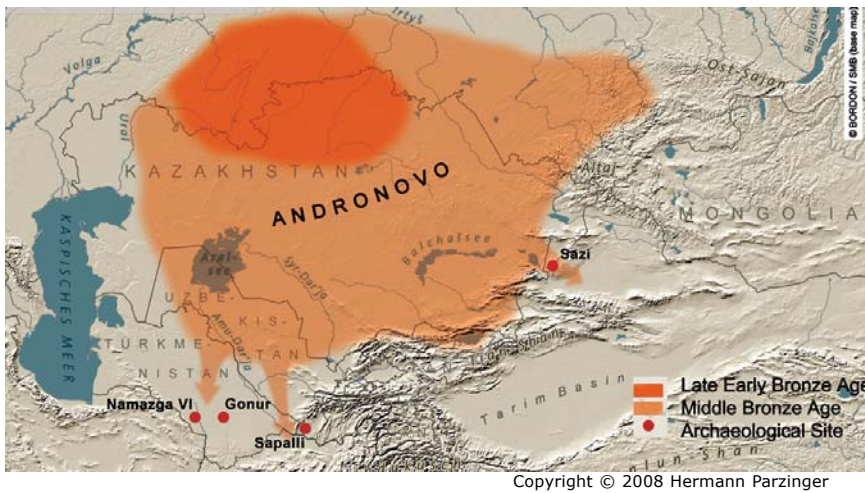


Fig. 2. Map of the Andronovo culture and its diffusion south- and eastwards during the Late Early and Middle Bronze Age (first half of the 2<sup>nd</sup> millennium BCE).

transportation network – that is, the emergence of the silk roads – cannot be dated with certainty. Historical sources scarcely aid in reconstructing this wearisome process. For example, in China Zhang Qian is considered the “progenitor” of the silk roads. He was an imperial envoy who journeyed twice to the west in the late 2<sup>nd</sup> century BCE. During his travels he was in Ferghana and reached the upper Amu Darya (Höllmann 2004). The information which Zhang Qian gathered about these distant trans-Pamir regions drew close attention at the Chinese imperial court. Yet it is rather improbable that Zhang Qian was really the first Chinese who ever reached these areas; more likely, his report is the first that has been preserved.

The travel and communication networks across Central Asia which were described later as the “silk roads” were neither an achievement of the ancient world nor even the medieval world. Their beginnings lie long before the millennium in which Buddhism emerged. The fact that comparatively little is known today about these early times is primarily due to an insufficient amount of research, which however has been expanding year by year. The more knowledge gained about the early cultures of Central Asia, the older the

communication network that linked them appears, a network that in their beginnings as well as much later enabled migrations of population groups as well as the transfer of goods and knowledge.

### **Between north and south: the role of Andronovo herdsmen and metallurgists**

Looking back into the depths of prehistory – and that we must do, if we wish to study the emergence of the silk roads – we depend exclusively upon archaeological sources. Long-distance relations in the area of the later silk roads had always been present, perceptible to varying degrees of clarity in archaeological contexts. The migration of certain groups of peoples along natural trails, later utilized for the silk roads, can be delineated with increasing confidence in the first half of the 2<sup>nd</sup> millennium BCE. During this period diverse regional groups of the Andronovo culture had spread into distant parts of Eurasia. From their origins in present-day western Siberia and northern Kazakhstan, they expanded their territory to the east as far as the Yenisei River [Fig. 2].

The Andronovo culture is a widely spread cultural complex, representing the Middle Bronze Age in a great part of the eastern Eurasian steppe belt (Chernykh

1992; Parzinger 2006). As many other prehistoric cultures, it is mainly defined by its material remains, especially a rather specific pottery with different S-shaped vessels and incised geometric ornaments [Fig. 3, facing page]. Bronze metallurgy and stock breeding are typical features of this culture, although their roots date back to the 3<sup>rd</sup> millennium BCE. Tin bronzes had been invented even before the Middle Bronze Age, but the Andronovo culture is connected with the first large scale production of jewellery, weapons and instruments made of tin bronze (Chernykh 1992; Parzinger 2006) [Fig. 3]. Sheep, goats, cattle and horses were widespread, and stock breeding was the economic basis of the Andronovo population. Not only the horse, but also the camel was of crucial importance for the mobility of this culture, and the camel even enabled the Andronovo population to cross large and extremely dry areas. From the steppe and forest-steppe regions between the Ural and the Yenisei rivers we know a lot about settlements of this period, some of them rather large. Clearly, sedentary life was quite developed, but the question of the degree to which agriculture was known is still open. Part of the Andronovo population was not concentrated in villages but lived as mobile herdsmen.

During the first half of the 2<sup>nd</sup> millennium BCE mobile groups of this Andronovo culture wandered to the south. They survived the dry steppes and deserts of Middle Asia, some groups ultimately reaching the area of the Namazga VI culture in southern Turkmenistan and others the territory of the Sapalli culture in Bactria. Both the Namazga VI and the Sapalli cultures are fundamentally different from Andronovo. In southern Turkmenistan (Namazga VI) as well as in southwestern Uzbekistan (Sapalli) quite a large number of tell settlements have been investigated. Both cultures

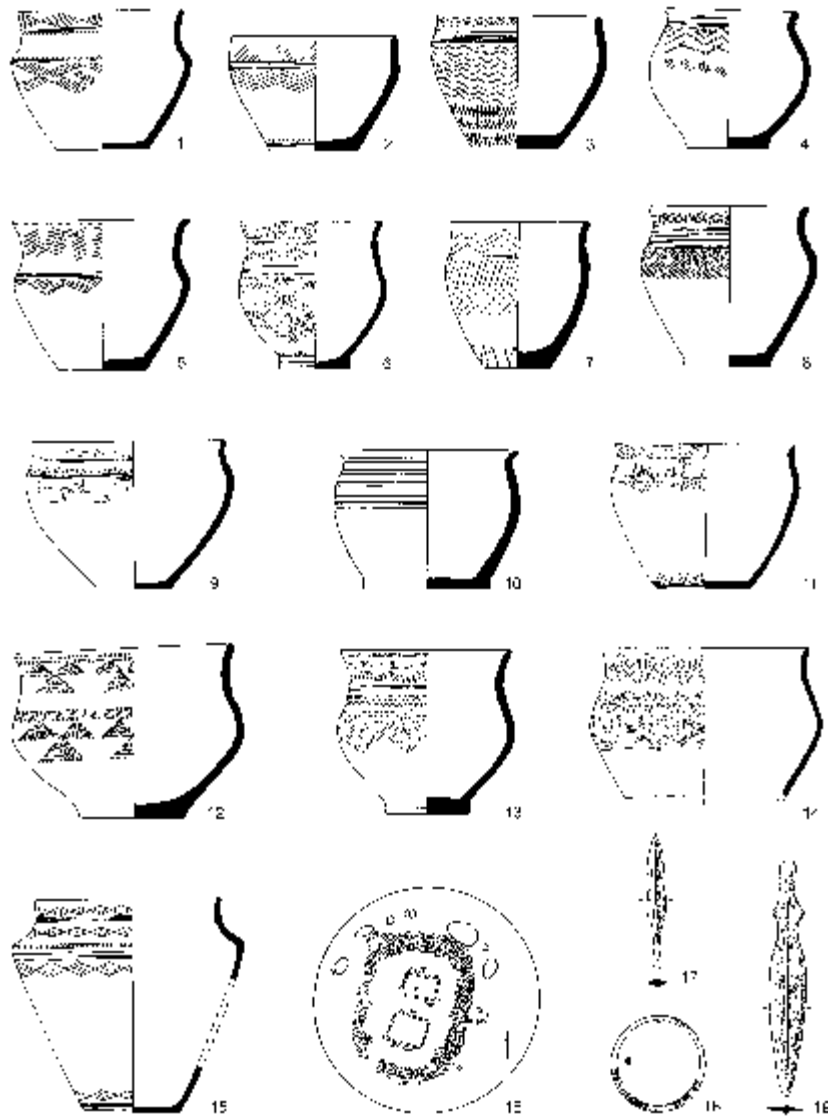


Fig. 3. Typical pottery and bronze objects of the Andronovo culture in Siberia and Kazakhstan. After Parzinger 2006.

are characterized by complex societies, living in early urban centres with public buildings, sanctuaries, workshop areas, living quarters and even fortifications (Kohl 1984, 1992). Irrigation enabled their populations to develop agriculture with field crops and even garden products. The centers of these cultures concentrate in the oases of the large Central Asian river valleys, surrounded by dry steppe or desert. Although there was as yet no writing, Namazga VI and Sapalli cultures are part of the northeastern periphery of the Ancient Near East.

At the protourban center of Gonur in Margiana, one of the most important sites of Namazga VI culture in southeastern Turkmenistan, a temporary camp of mobile Andronovo herdsman existed in the immediate vicinity of this large, coeval tell settlement (Hiebert 1994). This shows that individual Andronovo groups lived near these central communities of the south, yet without causing any change in these more advanced cultures. Areas in the north of Middle Asia, by contrast, were broadly settled by Andronovo groups. At that time Khwarezm on the lower Amu Darya river, the

Zeravshan valley in Sogdia, the Ferghana basin, the Tashkent oasis and Semirechye in southeastern Kazakhstan were integrated into the sphere of the Andronovo cultural community, and thenceforth they followed the development in the steppe farther north rather than that in areas of oases to the south.

The reasons for the southern expansion of the Andronovo culture, with some of its groups moving even farther south to the borders of Iran and Afghanistan, are unknown. Nonetheless, it is remarkable that the appearance of the Andronovo culture in Middle Asia was always associated with metallurgical activities (Chernykh 1992; Parzinger 2006). Numerous artifacts and other evidence point towards mining as well as the processing of ores. Prehistoric mines and settlements in which ores were extracted and processed, ascribable to the Andronovo culture, are known in areas in the modern states of Kazakhstan, Uzbekistan and Tajikistan.

Moreover, not only copper ores were mined, but also tin – that indispensable component for the production of bronze. Whereas copper ores were available farther north in the region of the Ural mountains and elsewhere, the much coveted tin was found only in Middle Asia. The exploitation of tin in the Zeravshan valley and in eastern Kazakhstan by the Andronovo culture has been confirmed (Parzinger and Boroffka 2003). Although objects made of tin bronze are already known prior to this time, they were first produced on a large scale by craftsmen of the Andronovo culture and thence became widespread in all of western Siberia and Middle Asia. The peoples of the Andronovo culture were not only herdsman, but they were also highly experienced miners and adept metalworkers. Possibly it was the abundance of ores in those particular mountain ranges in Middle Asia that

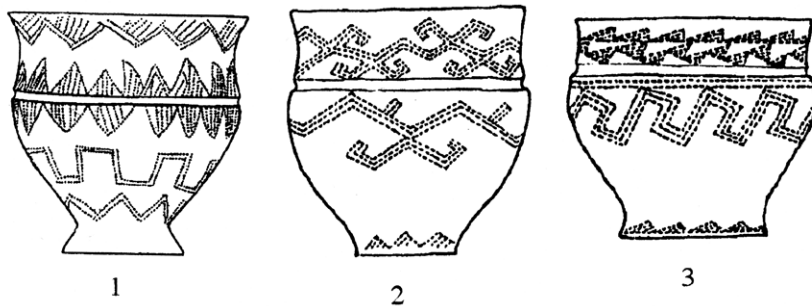


Fig. 4. Andronovo pottery from Sazi in Xinjiang. After Mei 2000.

attracted the Andronovo culture to the south.

Farther south in Xinjiang, during the period of the Afanasevo and Okunev cultures of the 3<sup>rd</sup> and beginning of the 2<sup>nd</sup> millennium BCE, there are signs of contact with the steppe cultures of the north. The latter extended as far east as Gansu, as evidenced by certain bronze objects of the Sejma-Turbino type from the Qijia culture (Debaine-Francfort 1995). Yet it was not until the first half of the 2<sup>nd</sup> millennium BCE that Andronovo groups from southeastern Kazakhstan slowly penetrated the Dzungarian basin by means of the Ili River valley, thereby making use of a route that later was one of the northern branches of the silk roads (Mei 2000). This passageway through the mountains made it easy to reach China from Middle Asia without overcoming high passes or impenetrable deserts. Dzungarian cemeteries such as Sazi have revealed typical Andronovo pottery [Fig. 4], while bronze objects of the Andronovo type are known in the entire region. So it seems that Dzungaria was a part of the large Andronovo cultural sphere during the first half of the 2<sup>nd</sup> millennium BCE.

The Andronovo culture played a central role in the dissemination of the knowledge of bronze metallurgy in wide parts of Eurasia. Therefore, it seems reasonable to assume that the culture's penetration into Xinjiang exerted considerable influence upon the beginnings of metallurgy there and possibly in neighbouring Gansu, through which its effects were felt even farther in central areas of China. However, more research must be conducted first in order better to comprehend and explain these connections.

#### Between east and west: the emergence of new cultures

During the following centuries, from the mid 2<sup>nd</sup> to the start of the 1<sup>st</sup> millennium BCE, ties between the north and the south, especially between northwestern

China and southeastern Kazakhstan continued. Necropolises in Dzungaria yield pottery that displays little recognisable similarity to that of cultures in central and southern Xinjiang and in Gansu; instead it can be assigned to the sphere of the Late Bronze Age Karasuk and in particular Begazy-Dandybay cultures in southern Siberia and Kazakhstan (Mei 2000). So these populations of the late 2<sup>nd</sup> millennium BCE followed the same routes to the south as had the Andronovo groups previously. Yet movements of these northern cultures farther south cannot be detected, the archaeological evidence thus suggesting that migrations from the north to the south started becoming less intensive. This is one of the basic changes connected with the transition from the Middle (Andronovo) to the Late Bronze Age (Karasuk, Begazy-Dandybay) in Middle Asia around the middle of the 2<sup>nd</sup> millennium BCE.

Meanwhile a large part of the regions of the so-called silk roads was less influenced from the north. Cultures of the more southerly parts of Central Asia became dominant and changed the cultural picture of the whole area [Fig. 5]. At that time there was a characteristic handmade,

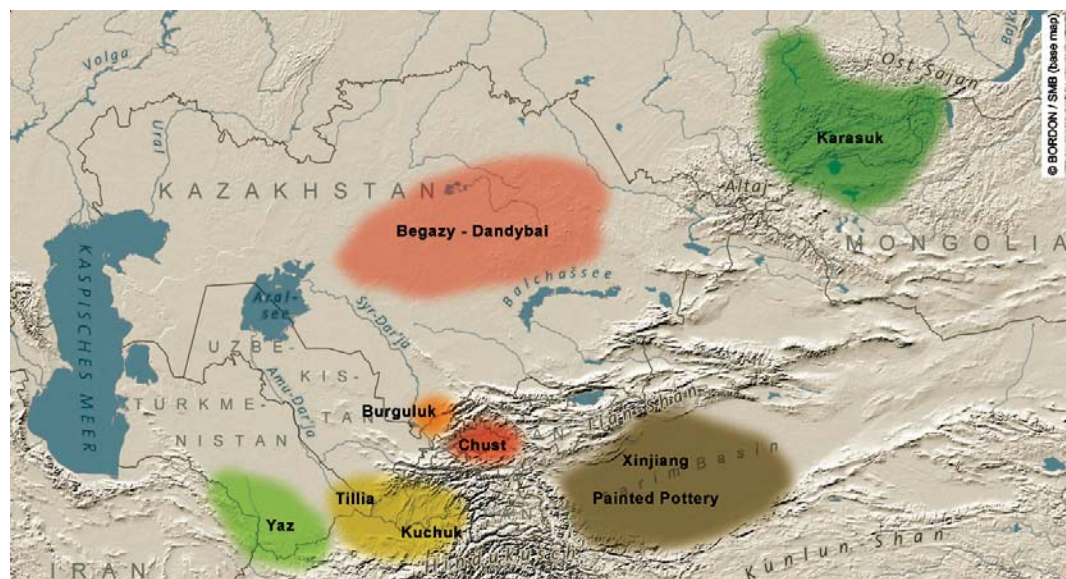


Fig. 5. Late Bronze Age cultures in Central Asia in late 2<sup>nd</sup> and early 1<sup>st</sup> millennium BCE.

Copyright © 2008 Hermann Parzinger

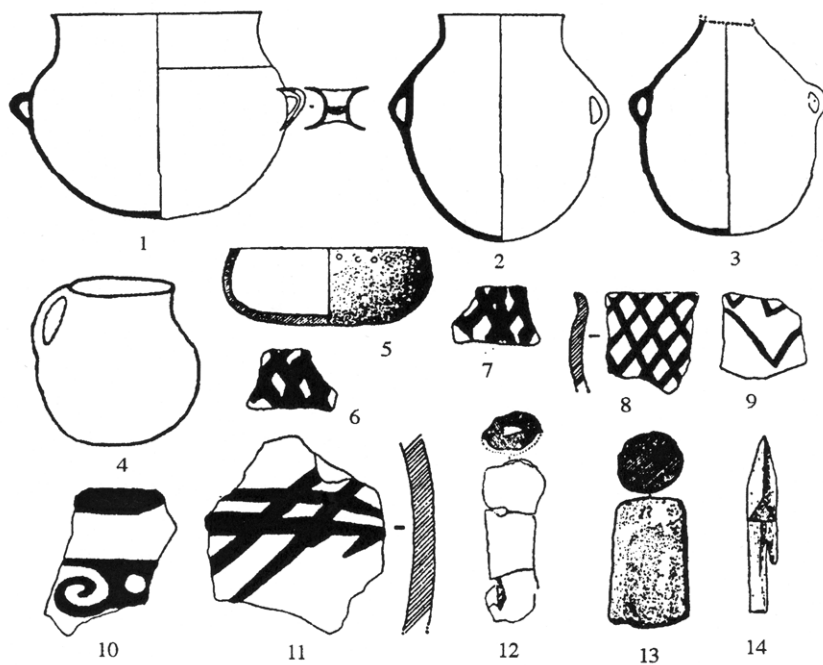


Fig. 6. Handmade painted pottery from Xinjiang. After Mei 2000.

Painted pottery, widespread between the Caspian Sea and China [Fig. 6]. Hence it has become of considerable interest to study the patterns of distribution and directions of dissemination, especially since the cultures in question occupied areas through which the silk roads later passed. Debates about the evidence intensified when in recent years improved research in Xinjiang discovered cultures connected with this handmade, painted pottery. The question is not simply where was the new pottery produced first and how it spread. What is far more crucial is the question as to whether the spread of this pottery can be connected with other cultural developments and population groups.

Research has recently linked cultures with handmade, painted wares found in western Central Asia with an "Iron Age Oxus culture," which includes the groups Jaz in southern Turkmenistan, Tillia in northern Afghanistan and Kuchuk in southeastern Uzbekistan [Fig. 7] (Francfort 2001; Shaidullaev 2002; Parzinger 2006). Since previously these

areas had used exclusively monochrome wheelmade wares,

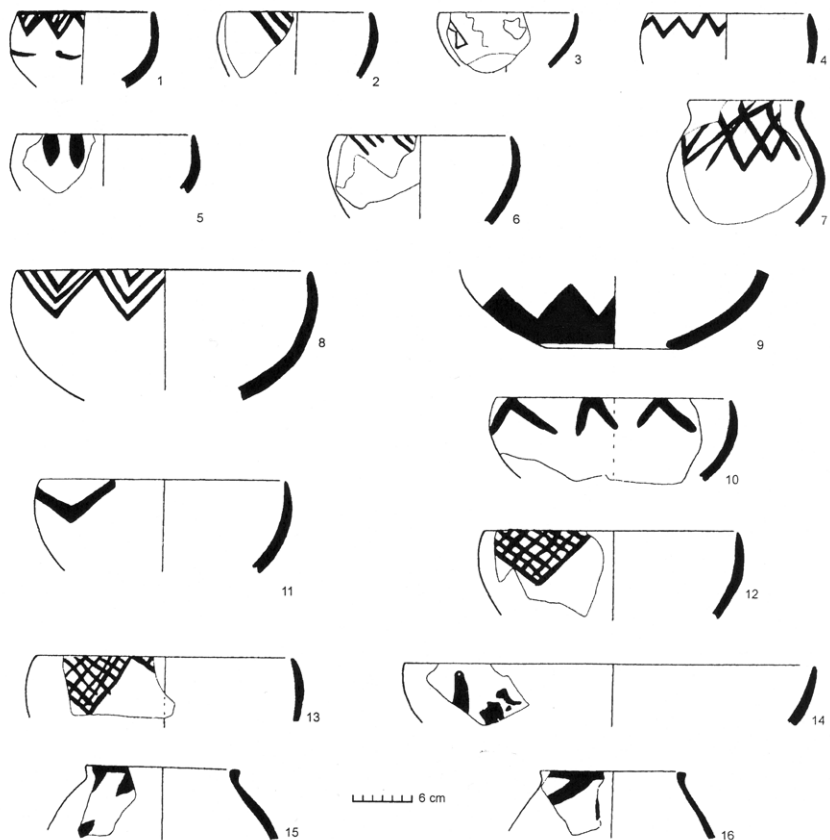


Fig. 7. Handmade painted pottery from Kuchuk in Uzbekistan. After Shaidullaev 2002.

the immigration of foreign peoples was presumed to be the cause of this break in ceramic development. Yet their origin cannot be determined with certainty. Further, because cultures with similar material possessions were present in the Tashkent oasis (Burgulyuk) and in the Ferghana basin (Chust) [Fig. 5], with comparable material reported from Xinjiang as well, one is inclined to presume that these groups advanced from east to west through the Ferghana valley. In other words, the movement was in the opposite direction to that of the spread of metalworking a few centuries before.

Comparison of the structures of these cultures demonstrates that the urban-like oasis settlements with mudbrick architecture and irrigated agriculture are the primary characteristics of the Iron Age Oxus culture, which is based

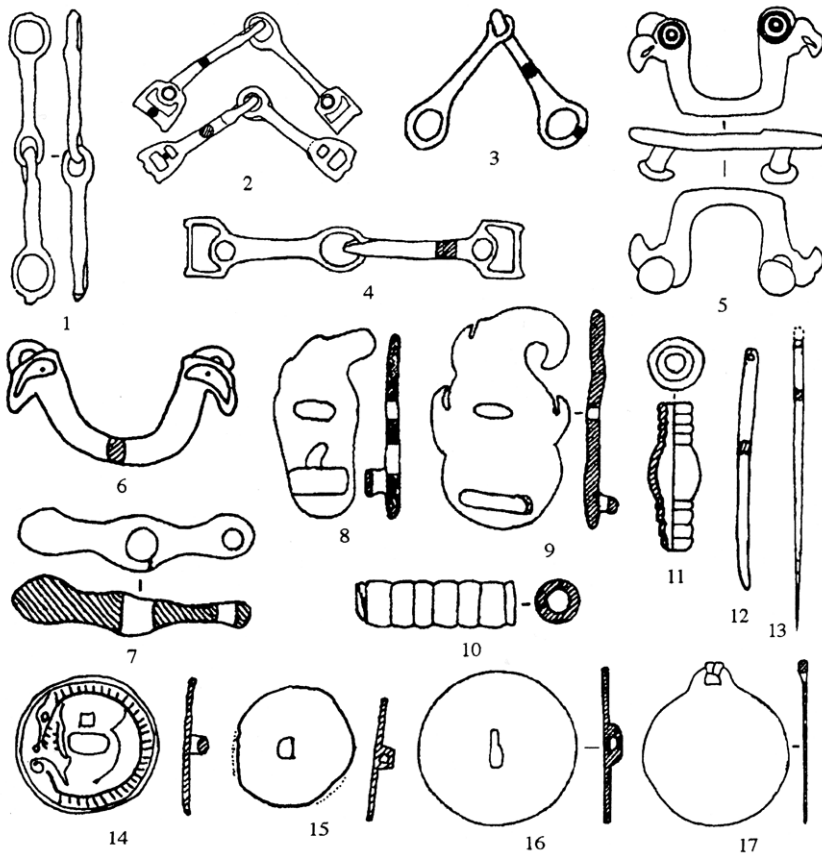


Fig. 8. Objects of "Scythian" character from Xinjiang. After Mei 2000.

upon an uninterrupted tradition from the Bronze Age. By contrast, only elements of this cultural system are found in cultures farther east. This does not refute the presumed immigration of new groups to Bactria and further westwards to southern Turkmenistan (Margiana), who might have brought handmade, painted vessels. However, the achievements of the Iron Age Oxus culture in the first instance emerged from indigenous older traditions and not primarily as a result of influences coming by way of Xinjiang and Ferghana.

Be that as it may, it is noteworthy that the change which the Iron Age Oxus culture and the other groups with handmade, painted pottery illustrate was complete at about the same time – after the middle of the 2<sup>nd</sup> millennium BCE – in almost all of Central Asia. This result certainly would not have been possible if a comprehensive and widely

branching network of long-distance travel and communication routes had not already been present. It is surely no coincidence that this network already foreshadows the underlying features of the later silk roads.

**The first mounted nomads: a new dimension in mobility**

The first millennium BCE saw the emergence in the Eurasian steppe of mounted nomadism and a concomitant greater mobility (Parzinger 2004; Lebedynsky 2006). In large areas of Central Asia – e.g. in Turkmenistan, Bactria, Sogdia, Khwarezm, Ferghana and

other regions – the coexistence and symbiotic relationship of peoples living in urban centers and farming irrigated fields together with nomadic stock-raisers in the environs of the oases are well-attested. Mounted nomads appeared in other parts of Central Asia as well (Parzinger 2006). There are convincing parallels between bronze objects found in many areas of Xinjiang [Fig. 8] and those in southern Siberia and even in the Ordos region – in particular, specific types of knives, daggers, arrowheads, horse-gear, mirrors and decorative fittings. The last often display the so called animal-style ornament (Tierstil), that is so typical of the nomad horsemen of the older Iron Age (Mei 2000; Parzinger 2006). Such evidence also appears along a branch of the later silk roads that leads from the western Taklamakan over the Karakorum range to the upper course of the Indus River and ultimately to the broad Indus plain in the south.

In recent years increasing numbers of finds from cemeteries of nomadic riders of the 1<sup>st</sup> millennium BCE in the Karakorum area show a clear connection to material from Xinjiang as well as southern Siberia. The famous golden necklace from Pattan in northern Pakistan, decorated all over with the typical animal style images (Rahman 1990), seems to be a close parallel to the golden necklace which we found in 2001 in the Scythian elite burial at Arzhan in Tuva [Fig. 9], not too

Copyright © V. Terebenin, State Hermitage Museum, St. Petersburg.



Fig. 9. The golden necklace from Arzhan 2 in Tuva, a masterpiece of Siberian animal style.

far from the present Russian-Mongolian border (Chugunov, Parzinger and Nagler 2003; 2006). Many other similar examples can be adduced, all of which confirm that during the 1<sup>st</sup> millennium BCE the mobility of people and the network of cultural interactions gained a new dimension.

Likewise, during this period and in the following centuries, but above all in the Christian era, the Upper Indus area was traversed in both directions by countless merchants and pilgrims. This is evident from large numbers of rock inscriptions written in Sogdian, Brahmi, Kharosthi, Persian, Hebrew, Tibetan, Chinese and other languages and scripts, as well as petroglyphs and stupas from the Buddhist period (Höllmann 2004). Bronze objects typical of nomad horsemen, which belong to the greater sphere of material culture of the older Iron Age attributed to the Scythians, are indicative of the many influences from the Eurasian steppe. These spread rapidly within Central Asia precisely via the long-distance network for travel and communication, itself rooted in Bronze Age and even older traditions.

In addition to the aforementioned bronzes a further source of material from Xinjiang must be emphasized, which illuminates the culture of that time in a special manner. In the cemeteries there the deceased were buried in tree coffins, in containers made of reed or simply in shallow pits. The favourable conditions in the dry desert sand of the Taklamakan resulted in the excellent preservation of the dead as well as their whole attire and funerary gifts of organic material (Debaine-Francfort & Idriss 2000). As these desiccated mummies exhibit unmistakable European features, the theory has frequently been asserted that these were Proto-Tocharians, ancestors of the later Indo-Germanic Tocharians, whom some believe could be localised in



*Fig. 10. The mummy of a mounted warrior, preserved in the permafrost of the Mongolian Altai at Olon-Kurin-Gol 10.*

Xinjiang in the 6<sup>th</sup>–8<sup>th</sup> century CE. However, the problem of the Tocharians is thus far surrounded by too many speculations and too little clear evidence. The fact remains that in almost the whole of the Eurasian steppe belt the majority of the older Iron Age mounted nomads was a European population, supplemented by merely a few Mongolian individuals, who only later, above all in the Christian era, came to be a dominant element in the population of Central Asia. Thus, the discovery of European mummies in Xinjiang is by no means surprising.

Yet, even more decisive than the anthropological characterization of the mummies is the fact that due to the excellent preservation of the clothing and accessories, it is possible to make a detailed reconstruction of their attire. And here there are surprisingly close similarities to finds of the Scythian period recovered from the frozen kurgans of the Pazyryk culture in the Altai Mountains (Polos'mak 2001). The coincidence relates to the type of clothing as well as to its ornamentation, color and technique of production. Thus,

aside from fur, felt, wool and other materials, silk played a prominent role. The nearly complete wardrobe of trousers, skirts, blouses, jackets and coats includes as well socks and boots, and hood-, hat- or helm-like head apparel (Polos'mak & Barkova 2005; Polos'mak et al. 2006). The last includes peculiar pillar-like hats found in graves of females. Recent discoveries in the Mongolian Altai from a permafrost grave at Olon-Kurin-Gol [Fig. 10], excavated by a joint German-Russian-Mongolian expedition (Heinken 2007), confirmed these close relations between north and south and showed that the Pazyryk culture extended much farther to the southeast than was previously known [Fig. 11, next page].

It is astounding that these examples of costume, which usually are never preserved, manifest many more and closer similarities between Xinjiang and southern Siberia than do other categories of finds. Hence, we are confronted with a conspicuous uniformity in clothing that extends over a large area. Occasionally these findings correlate with a general Indo-Iranian substratum



© 2008 Deutsches Archäologisches Institut, Berlin

Fig. 11. Typical wooden carvings of the Pazyryk culture, found at Olon-Kurin-Gol 10 in the Mongolian Altai.

in the region. But textiles and furs were always important commodities of trade in Central Asia. Written sources verify this in later periods in a compelling manner, and the situation was probably no different during the pre-Christian era. Fabrics were often traded in the form of complete garments too. Thus, the question arises as to whether the similarities in costume found between Xinjiang and southern Siberia are to be connected with members of one and the same group of languages or people, or may not rather reflect an increasingly intensive exchange of goods and information along the silk roads, where the mobility of people reached a new dimension.

## Conclusions

The evidence of archaeology alone is sufficient to demonstrate the existence of a widely branching network of travel and communication in Eurasia starting as early as the 2<sup>nd</sup> millennium BCE. This can be seen in the penetration of Andronovo groups into Dzungaria and the ensuing spread of bronze metallurgy into northwestern and northern China, a transfer of technical knowledge from the northwest to the southeast. A few centuries later handmade, painted pottery appears relatively suddenly and almost at the same time throughout the vast area extending from southern

Turkmenistan to northwestern China. This new ware reflects a cultural change, which could hardly have been achieved so rapidly and uniformly without a well-functioning and broadly branching network of communication. A web of intersecting relations between north and south and in particular with a

n o r t h e a s t - southwest orientation can be recognised through the finds left by mounted nomads of the 1<sup>st</sup> millennium BCE. The astonishing similarities in attire, observable in general and even in details and found in distantly separated areas do not necessarily point to ethnic relationships, but rather to an intensive exchange of furs, textiles and even garments. And it was at this time that silk first played an important role.

The examples presented here illustrate three main points. Firstly, the roots of this network of long-distance travel and communication routes that spanned all of Central Asia reach back into the pre-Buddhist past. The network developed continuously throughout the millennia before attaining the form in which it is known in Antiquity and the Middle Ages as the "silk roads." Secondly, whereas in later historical periods gun powder, book printing, the manufacture of porcelain and many other things were transported via the silk roads mainly from the East to the West, the spread of knowledge and products during Prehistory seems to have been much more complex, using the same routes, but in different and continuously changing directions. And thirdly, it becomes evident that this network does not concern just one road or even a few main tracks, but – as in the sense of the original definition by Ferdinand von Richthofen – an expansive

network with many branches and countless trails, all of which contributed in the same manner to the spread of groups of peoples and the transmission of knowledge, techniques, wares, religious ideas and forms of artistic expression. Again and again changes took place among the cultures involved in this web, whereby the manner, direction and intensity of change were dependent upon the most diverse factors, which cannot always be reconstructed today.

During recent centuries the significance of this travel and communication network has diminished greatly. In the late 19<sup>th</sup> century Russian and British territorial interests collided in the area. For a lengthy part of the 20<sup>th</sup> century the millennia-old routes were cut off through the confrontation between the eastern and western political blocs and to no lesser a degree by the Iron Curtain between the former Soviet Union and China. Only in recent years has a serious opportunity to revivify the silk roads emerged: as a fascinating subject of further research, and, in its original, millennia-long function, as a medium for the exchange of goods and ideas and the peaceful encounter between people of different nationality, skin colour and religion.

*Note:* This essay is based on a keynote address delivered on 7 October 2005 to the Ferdinand von Richthofen Symposium 2005 at Humboldt-Universität zu Berlin.

## About the author

**Hermann Parzinger** studied Prehistory in Munich, Saarbrücken and Ljubljana (Slovenia). As Director at the German Archaeological Institute he founded its Eurasian Department and directed research projects in Turkey, Iran, Kazakhstan, Uzbekistan, Tajikistan, Siberia and Mongolia. Since 1996 he has taught Prehistory at the Free University in Berlin, and in 1998



he was the first archaeologist to receive the Leibniz Prize, the highest scientific award in Germany. In 2003 he was elected President of the German Archaeological Institute, and in March 2008 he became President of the Prussian Cultural Heritage Foundation, which is one of the largest cultural complexes worldwide. His main scientific interests are the phenomena of cultural contacts in Prehistory, the beginning of sedentary life and agriculture in Europe and Anatolia, the early history of metals and metallurgy and the emergence of mounted nomadism in Eurasia. He is member of several Academies of Sciences and author of more than 12 books and 200 articles.

## References

- Baumer 2002  
Christoph Baumer. *Die südliche Seidenstraße. Inseln im Sandmeer. Versunkene Kulturen der Wüste Taklamakan*. Zaberns Bildbände der Archäologie. Sonderbände der Antiken Welt. Mainz: Philipp von Zabern, 2002.
- Chernykh 1992  
Evgenii Nikolaevich Chernykh. *Ancient Metallurgy in the USSR. The Early Metal Age*. Tr. Sarah Wright. New York: Cambridge University Press, 1992.
- Chugunov, Parzinger and Nagler 2003  
Konstantin V. Chugunov, Hermann Parzinger and Anatoli Nagler. "Der skythische Fürstengrabhügel von Arzhan 2 in Tuva." *Eurasia Antiqua* 9 (2003): 113-162.
- Chugunov, Parzinger and Nagler 2006  
Konstantin V. Chugunov, Hermann Parzinger and Anatoli Nagler. *Der Goldschatz von Arzhan. Ein Fürstengrab der Skythenzeit in der südsibirischen Steppe*. München: Schirmer/Mosel, 2006.
- Debaine-Francfort 1995  
Corinne Debaine-Francfort. *Du Néolithique à l'âge du Bronze en Chine du Nord-Ouest: la culture de Qijia et ses connexions*. Mémoires de la Mission Archéologique Française en Asie Centrale 6. Paris: Editions Recherche sur les civilisations, 1995.
- Debaine-Francfort and Idriss 2000  
Corinne Debaine-Francfort and Abduressul Idriss. *Kériya, mémoires d'un fleuve. Archéologie et civilisation des oasis du Taklamakan*. Paris, 2000.
- Francfort 2001  
Henri-Paul Francfort. "The Cultures with Painted Ceramics of South Central Asia and Their Relations with the Northeastern Steppe Zone (Late 2<sup>nd</sup> – Early 1<sup>st</sup> Millennium BC)." In: Ricardo Eichmann and Hermann Parzinger, eds. *Migration und Kulturtransfer. Der Wandel vorder- und zentralasiatischer Kulturverhältnisse im Umbruch vom 2. zum 1. vorchristlichen Jahrtausend*. Kolloquien zur Vor- und Frühgeschichte 6. Bonn: Habelt, 2001, pp. 231-236.
- Hiebert 1994  
Fredrik T. Hiebert. *Origins of the Bronze Age Oasis Civilization in Central Asia*. Cambridge, Mass.: Peabody Museum of Archaeology and Ethnology, Harvard University, 1994.
- Heinken 2007  
Siebo Heinken. "Der Krieger vom Altai. Was eine Mumie aus der Skythenzeit über die Geschichte eines antiken Steppenvolks erzählt." *National Geographic* (Deutschland) 2007, no. 6 (Juni): 116-129.
- Höllmann 2004  
Thomas O. Höllmann. *Die Seidenstraße*. München: C. H. Beck, 2004.
- Kohl 1984  
Philip L. Kohl. *Central Asia. Palaeolithic Beginnings to the Iron Age*. Paris: Editions Recherche sur les Civilisations, 1984.
- Kohl 1992  
Philip Kohl. "Central Asia (Western Turkestan): Neolithic to Early Iron Age." In: Robert W. Ehrich, ed. *Chronologies in Old World Archaeology*. Chicago; London: University of Chicago Press, 1992, pp. 179-195.
- Lebedynsky 2006  
Iaroslav Lebedynsky. *Les Saces. Les "Scythes" d'Asie, VIIIe siècle av. J.-C. – IVe siècle apr. J.-C.* Paris: Editions Errance, 2006.
- Mei 2000  
Jianjun Mei. *Copper and Bronze Metallurgy in Late Prehistoric Xinjiang: Its Cultural Context and Relationship with Neighbouring Regions*. BAR International Series 865. Oxford: Archaeopress, 2000.
- Parzinger 2004  
Hermann Parzinger. *Die Skythen*. München: C. H. Beck, 2004.
- Parzinger 2006  
Hermann Parzinger. *Die frühen Völker Eurasiens. Vom Neolithikum bis zum Mittelalter*. München: C. H. Beck, 2006.
- Parzinger and Boroffka 2003  
Hermann Parzinger and Nikolaus G.O. Boroffka. *Das Zinn der Bronzezeit in Mittelasien I. Die siedlungsarchäologischen Forschungen im Umland der Zinnlagerstätten*. Archäologie in Iran und Turan 5. Mainz: Philipp von Zabern, 2003.
- Polos'mak 2001  
Nataliia V. Polos'mak. *Vsadniki Ukoka* (The Horsemen of the Ukok). Novosibirsk: Infolio-press, 2001.
- Polos'mak and Barkova 2005  
Nataliia V. Polos'mak and L. L. Barkova. *Kostium i tekstil' pazyryktsev Altaia (IV-III vv. do n. e.)* (Costume and Textiles of the Altai Pazyryks [4<sup>th</sup>-3<sup>rd</sup> centuries BCE]). Novosibirsk: Infolio-press, 2005.
- Polos'mak et al. 2006  
Nataliia V. Polos'mak et al., *Tekstil' iz 'zamerzshikh' mogil Gornogo Altaia IV-III vv. do n. e. (opyt mezhdistsiplinarnogo issledovaniia)* (Textiles from the "frozen" tombs of the Mountain Altai 4<sup>th</sup>-3<sup>rd</sup> centuries BCE [an experiment in interdisciplinary research]). Novosibirsk: Izd-vo Sibirskogo otdeleniia RAN, 2006.
- Rahman 1990  
S. Rahman. "Unique Find of Gold Ornaments from Pattan/Kohistan." *Journal of Central Asia* 12 (1990): 5-35.
- Shaidullaev 2002  
Sh. Shaidullaev. "Die früheisenzeitlichen Siedlungslandschaften in Nordbaktrien." *Archäologie in Iran und Turan* 34 (2002): 243-340.
- Waugh 2007  
Daniel C. Waugh. "Richthofen's 'Silk Roads': Toward the Archaeology of a Concept." *The Silk Road* 5/1 (2007): 1-10. On-line at: <[http://www.silkroadfoundation.org/newsletter/vol5num1/srjournal\\_v5n1.pdf](http://www.silkroadfoundation.org/newsletter/vol5num1/srjournal_v5n1.pdf)>.