

Transfers and Interactions between North and South in Central Asia during the Bronze Age

Based on geographical and ecological data, the occupation of Central Asia during the Bronze Age has long been divided into two areas, located approximately on either side of the Syr-Darya River (Fig. 1).

The southern part of this area was mainly occupied by the Oxus civilisation, also described as the Bactria-Margiana Archaeological Complex, from ca. 2300 to 1500–1400 BCE.¹ Populations were sedentary and agro-pastoral. In the northern area, extending from the Ural Mountains to Siberia and Xinjiang, different cultural entities are known, such as the Afanasievo or Sintashta cultures of the 3rd millennium BCE and the Andronovo Cultural Community of the 2nd millennium BCE.² At the beginning of the 2nd millennium BCE, movements of the so-called ‘steppe’ populations are detected, especially towards the southern area of Central Asia. Groups seemingly related to the “Andronovo” culture have been largely recognised in southern Central Asia. During the first half of the 2nd millennium BCE, southern Central Asia clearly appears as a multicultural society.³ Nonetheless, the ‘steppe’ populations are better identified in their homelands, the northern part of Central Asia from the Ural Mountains to the Yenissei River and China. Just south of Kazakhstan they remain poorly known in Transoxiana (an area located between the Amu-Darya and Syr-Darya rivers) and in the southern part of Central Asia.

The motivations for the migration of ‘steppe’ populations towards the south are still unknown, but the climatic factor (Dirksen *et al.* 2007; Boroffka 2013) and the socio-economic factor (Boroffka *et al.*

2002; Lyonnet 2005) have been taken into account. These movements of northern peoples to the south have also been tentatively connected with the migration of Indo-Aryans or Indo-Iranians (Masson 1999; Kuz'mina 2007), whose origins and spread are currently highly debated thanks to the current research on the knowledge of ancient human genomes (Allentoft *et al.* 2015; Haak *et al.* 2015).

These populations are commonly designated as ‘steppic’—even though not all of them came from the ecologically restricted area of the steppe. They are also described as ‘nomads’—even though some groups were clearly settled in the northern area. Nevertheless, current data do not reveal settlements of the northern groups in the southern area as substantially as in the north of the region. Actually, the few light structures or semi-subterranean dwellings that have been discovered so far indicate a rather mobile way of life.

Lastly, they are broadly referred to as pure ‘pastoralists’—although their economic strategies are still unknown in many areas. Some studies mention the absence of farming.⁴ However, some of them surely engaged in irrigation farming, such as the Tazabagjab communities (Itina 1977). The question is still open in southern Central Asia (Spengler *et al.* 2014a), and evidence of agricultural practices needs to be sought everywhere locally. Indeed, new and important evidence appears whenever further research is carried out.⁵

So we must point out that the classical dichotomous vision between sedentary and nomadic peoples or between pastoralists and

¹ Sarianidi 1990; Hiebert 1994; Kohl 2007; Francfort 2009.

² Avanesova 1991; Parzinger 2006; Kuz'mina 2007.

³ P'jankova 1994; Vinogradova and P'jankova 1996; Luneau 2014.

⁴ Anthony *et al.* 2005; Frachetti and Mar'yashev 2007; Boroffka and Mantu-Lazarovici 2011.

⁵ Spengler *et al.* 2013 for the Iron Age.

farmers is no longer acceptable. We should be thinking in terms of flexibility of the subsistence practices and ways of life. On the one hand, pastoralists may have practised farming to various degrees, at least as a seasonal or supplementary activity (Barnard and Wendrich 2008; Spengler *et al.* 2014a and b). Unlike the previous supposition, pastoralists may have had a subsistence economy that was independent of the sedentary farmers. On the other hand, the mobility could have been rooted in different factors (according to the people and the periods in time). This way of life can vary over time, or it can be a transitional stage in the life span of a culture (Stépanoff *et al.* 2013).

This article aims to review and sum up the issue of the relations and interactions between the Bronze Age communities in southern Central Asia based on evidence of technological and sociocultural transfers. Recent material allows us to go even further regarding this question.

THE DIVERSE POPULATIONS IN SOUTHERN CENTRAL ASIA

During the Middle/Late Bronze Age (ca. 2300–1800 BCE), the Oxus civilization is characterised by an important cultural homogeneity, extending from southern Uzbekistan to northern Khorasan. Despite local variants, the material culture and the burial practices display a high degree of similarity throughout the whole territory, in contrast to the final phase of the Oxus civilization, from 1800 to around 1500–1400 BCE (herein referred to as Final Bronze Age). At that time, cultural heterogeneity formed part of a process of major social transformations.⁶ These mutations coincided with the ethno-cultural diversity of southern Central Asia, where the remains of the ‘steppe’ populations were more abundant than those from previous times. Among the different causes of this evolution,⁷ crucial aspects come into question concerning the increasing infiltration of populations from the north of Central Asia, as well as the interactions between the different communities and their consequences. This multiculturalism could have been a factor of the destabilisation of the sociopolitical system of the Oxus civilization known during the Middle/Late Bronze Age.

The cultural features of the ‘steppe’ populations differ distinctly from those of the Oxus tradition: in the pottery, in the metalwork,

in dwellings and in funerary practices (Luneau 2014: 58–66). The features are clearly related to the communities known in northern Central Asia, especially “Andronovo” groups. However, it is still difficult to link them to precise northern cultures. The first comparative studies on the material in the north and the south of Central Asia⁸ have revealed a great diversity. We are dealing with a real complexity for several reasons: 1) the plurality of cultural variants in the northern part of Central Asia, 2) the apparent mixing of groups in the southern part during their movement and/or their settling, and 3) probable local productions. The ‘steppe’ populations that occupied southern Central Asia seem to be related to numerous groups on the move. They do not represent a unique northern, highly mobile population, but instead different groups, probably herdsmen, interacting with each other possibly during seasonal travels (Hiebert and Moore 2004: 299). Thus numerous and diverse cultural interactions can be assumed through the spread of these populations to the south.

THE FIRST CONTACTS BETWEEN NORTHERN AND SOUTHERN POPULATION GROUPS

The issue of contacts and interactions between ancient human groups of Central Asia has long been intensively investigated. The first interactions were documented in the area of Transoxiana, i.e. on the border between northern and southern Central Asia. Different sites, such as Sarazm (Lyonnet 1996), Zhukov (Avanesova 2008) and Tugai (Avanesova 1996), testify to reciprocal exchanges and relations between different cultural communities during the Late Chalcolithic and the Early Bronze Age. Graves of Sazagan (Avanesova 2002) and Zardcha Khalifa (Bobomulloev 1997) revealed the mixing of the diverse traditions during the Middle/Late Bronze Age.

Then, during the Final Bronze Age, mobile pastoralists were present throughout all of southern Central Asia. Several isolated graves in Transoxiana, such as at Muminabad (Askarov 1970), Gudzhajli, Gus (Avanesova 2002) and Dzham (Avanesova *et al.* 2001), reflect a clear “Andronovo” tradition, whereas the graveyard of Dashti-Kozy revealed burial practices that are uncommon for the ‘steppe’ populations (Isakov and Potemkina 1989). Ore resources were also exploited by these populations, as in Karnab and Mushiston (Parzinger and Boroffka 2003). Other sites are located on the lower Zeravshan River, such as those of the Zamanbaba culture (Gul’jamov *et al.* 1966). In

⁶ Luneau 2012; 2013a; 2014; 2015.

⁷ The different causal factors discussed relate to the climate, economic changes, sociopolitical problems, demographic shifts and the impact of external populations (Luneau 2014: 189–213).

⁸ Kutimov 1999; Shchetenko 1999; Cerasetti 1998; Cattani 2008b; Avanesova 2010.

south-western Tajikistan, several graves and settlements, such as Kirov, Tujun, Tandyrlul, Kumsaj and other sites,⁹ are also dated to the Final Bronze Age. Campsites are numerous in Central Turkmenistan¹⁰ as well, such as Gonur-N, the sites n°1211 and 1219 and Ojakly. Graves were discovered, for example, at Takhirbaj 3 (Cattani 2008b). In the Kopet Dagh piedmonts, the occupation by a 'steppe' population is still under debate, and the chronology is unclear. Some scholars have noted the presence of these populations during the Namazga VI period (i.e. Late/Final Bronze Age), or between the Bronze Age (Namazga VI) and the Early Iron Age (Yaz I) layers.¹¹

In addition, their presence is likely prior to the Final Bronze Age, but this supposition must still be confirmed. All in all, it clearly appears that the occupation of southern Central Asia by the 'steppe' people increased greatly during the first half of the 2nd millennium BCE and might have been not sporadic. Populations probably came into closer contacts over time with the physical presence of 'steppe' populations throughout Central Asia.

THE NATURE OF THE RELATIONS

A close geographical proximity of the sites related to the different groups has been attested to, which challenges us to carry out research on their influences, relations and interactions and, on a large scale, the impact of these populations upon the sociocultural evolution of southern Central Asian cultures (Luneau 2013b).

Previously there was the supposition that warfare appeared in the territory of the Oxus civilisation through the incursions of military groups from northern Central Asia. However, archaeological data does not support the hypothesis of a conquest. Anthropological studies do not mention traces of violence. Furthermore, few weapons have been discovered. In general, the research paradigm on the relations between so-called 'sedentary' and 'mobile' groups has developed from permanent conflict to a more symbiotic relationship between communities. Most researchers now agree on the globally peaceful nature of these relations.

Evidence of contacts and exchanges is mainly documented by

⁹ Litvinskij and Mukhitdinov 1969; Litvinskij and Solov'ev 1972; Jusupov 1975; 1991; Vinogradova 1991; Vinogradova and P'jankova 1990; Vinogradova 1999; P'jankova 1999; Vinogradova 2004: 7; Kutimov 2008; 2013.

¹⁰ Sarianidi 1975; Gubaev *et al.* 1998; Hiebert and Moore 1999; Cattani 2008a; Rouse and Cerasetti 2014.

¹¹ Pumpelly 1908: 142, 143, pl. xv, 7–9; Shchetenko and Kutimov 1999: 109; Kuftin 1954: 25; Marushchenko 1959: 60–62, fig. V; Ganjalın 1956; Shchetenko 1972: 530; 1999: 323–335.

the existence of items or imitations of items of the Oxus civilisation in several sites of the steppe zone, and conversely, by items of the steppe tradition in Oxus civilisation sites.

In northern Central Asia, some pottery described as wheel-turned was discovered in northern Kazakhstan as at Pavlovka, in southern and central Kazakhstan, in Semirech'e, in Altaï and/or in the Zerafshan valley.¹² In addition to ceramics, imported stone beads, notably made of lapis lazuli and turquoise, are known from different sites from the Urals to Siberia.¹³ We can also identify metal plates with designs imitating the iconography on seals of the Oxus civilization, pins with a double spiral head or stone vessels in the northern area.¹⁴

In the southern area, pottery and metal items belonging to 'steppe' cultures are attested in necropolises and settlements of the Oxus civilization.¹⁵ All potsherds discovered in association with Oxus material have not been published, and the initial estimation is likely incorrect in terms of quantity (Luneau 2014: 146). As for the metal items (Luneau 2014: 169), the amount recorded made up a fifth of the complex according to the types of artefacts, or approximately a seventh of the number, and the occurrence increased with time during the Final Bronze Age.

Conversely, pottery associated with the Oxus civilization has been discovered in campsites of the mobile populations,¹⁶ for example, at Gonur-N, Ojakly and others settlements.

Hence, although data are quite limited, exchanges were obviously bidirectional. Perhaps not intense but constant, these relations connected both communities and both areas of Central Asia into a unique economic system during the Bronze Age (Frachetti and Rouse 2012).

The idea of interdependence, particularly of nomadic populations to sedentary people, has often been assumed. Several scholars

¹² Tautary necropolis in southern Kazakhstan, Bien in Semirech'e, and the sites of Kent, Myrzhik and the necropolis of Tasyrbay in Central Kazakhstan; in Altaï at sites attributed to the Alekseev culture (Kalinovka, Kureika 3, Pereezd, Burla 3, Molokovo II and Chekanovskiy Log (Kuz'mina 2007: 284).

¹³ Necropolis of Gurdush ou Makhan-Darya; Alabuga, Ushkatta, Keembay, Ural-saj, Aksayman, Borovoe, Nurtai, Rostovka and Sopka 2 (Kuz'mina 2007: 284).

¹⁴ Plates were discovered at sites related to the Atasu and Kozhumberdy cultures (Kuz'mina 2007: 284). Pins come from the Borovoe graveyard in northern Kazakhstan (Vinogradova and Kuz'mina 1996: 32). In addition to wheelmade ceramics, one stone vessel was discovered in Karnab and Sichkonchi in the Zerafshan valley (Lyonnet 2001: 67; Boroffka *et al.* 2002: 149). Lastly, different items (as earrings, pins with a double spiral head, figurines) and wheelmade ceramics were clearly imported from Oxus civilisation to different Tazabagjab sites in Khorezm, such as Kokcha 15 and 15a (Itina 1977: 69, 72, 193; fig. 18, 8).

¹⁵ Luneau 2014: 145–146 (pottery), 151 (metallic items).

¹⁶ Hiebert and Moore 2004; Kozhin 2012; Rouse and Cerasetti 2014.

emphasise that trade was based upon an economic specialisation, for instance animal products or bronze in exchange for agricultural products or stone beads. However, a systematic specialisation appears very schematic, and it would probably be more precise to refer to different levels of skills. The economic systems of both groups were mixed and complex, and may have combined farming and herding to varying extents. It is supposed, for instance, that the presence at 'steppe' campsites of some domesticated plants, which are not adapted to supplementary farming, was due to exchanges with sedentary populations (Spengler *et al.* 2014), whereas the cultivation of more resistant plants, such as millet, was practised by mobile populations.

Other specific goods, like ores and especially tin, have also been pointed out. Several tin mines were exploited by "Andronovo" populations in the Zerafshan valley and perhaps in central and eastern Kazakhstan.¹⁷ It is likely that these populations exchanged ores and/or finished metal products, particularly in relation to their higher mobility.

The physical presence of "Andronovo" populations in southern Central Asia obviously leads to the question concerning the influence and/or the transfer of artefacts, techniques, styles and ideas of both cultures. Are there visible transfers? Which elements of society are concerned?

SOME CASES OF HYBRIDISATIONS AND TRANSFERS

Different forms of transfers have been identified from the steppe tradition to the Oxus civilization, and conversely. These influences are visible primarily in material culture (pottery production and metallurgy), economy and burial practices.

First Example: Ceramic Production

Pottery of the Oxus population is mainly fine, beige or orange-red-dish, made by coiling and shaped by rotation, whereas the 'steppe' ware is coarse, handmade, and frequently with incised geometrical decoration made with a punch or comb, with impressions or with strips in relief.

Several features may be attributed to the influence of 'steppe' traditions on the productions of potters of the Oxus civilization. At first, incisions, grooves or some decorations by a punch or a comb, on handmade vessels as well as those shaped by rotation, which ap-

pear foremost among Final Bronze Age ceramics, were interpreted by some scholars¹⁸ as signs of the influence of northern populations. Incised decoration is also known from previous periods (Luneau 2014: 311–312), but is scarce.

For instance, at Dzharkutan (Bendezu-Sarmiento and Mustafakulov 2013) new discoveries have revealed the presence of the typical incised decoration in 'steppe' tradition on several wheel-shaped potsherds (Fig. 2), which apparently attest to a stylistic attraction of some potters of the Oxus civilization to the 'steppe' decorations. This stylistic and technical transfer could have occurred as a result of this coexistence of 'steppe' and Oxus populations.

Transfers likewise had an effect upon the methods of production and the *chaîne opératoire*. In Molali (Sverchkov and Boroffka 2015), a great amount of the pottery is coarse, orange or grey-black in colour, with shell temper. This kind of production seems close to the 'steppe' production. However, whereas the northern ceramics are defined as being handmade and coarse (sometimes with shell temper), at Molali this kind of pottery is mainly handmade and shaped by rotation (finishing or during the process of assembling?). In addition, some of these shards display incised decoration, which has never been attested to until now for this kind of production (Fig. 3). Here, a transmission from the 'steppe' populations may also be suggested.

Lastly, the quantitative increase of handmade pottery without rotation during the Final Bronze Age may also be due to closer contacts with people coming from the north. Whereas the phenomenon is still being studied for the Oxus civilization, it concerns above all small local cultural entities, such as the Vakhsh and Bishkent cultures.¹⁹ For instance, about 60 per cent of the ceramic production of the Vakhsh culture is handmade (Luneau *et al.* 2011). However, although this technical feature can be attributed to the influence of 'steppe' populations, we have noticed that the morphological range of the pottery of the Vakhsh and Bishkent cultures is clearly connected with the Oxus civilization. As for the decoration of vessels, the use of the comb for making wavy lines might also be indicative of 'steppe' tradition, although this decorative design and the use of this tool, through with quite different result, are also known by potters of the Oxus civilisation.

¹⁸ Rakhmanov 1982; Rakhmanov and Shajdullaev 1985; Avanesova 2010.

¹⁹ The Bishkent culture was present, as far as we know, in southern Tajikistan and northern Afghanistan, whereas the Vakhsh culture spread throughout the same areas and the south of Uzbekistan as well. Both cultures share common characteristics, such as the type of house, apparently semi-subterranean, living space, probably a way of life based on greater mobility, importance of stock-breeding, or the predominance of handmade pottery.

¹⁷ Parzinger and Boroffka 2002, 2003; Boroffka *et al.* 2002; Stöllner *et al.* 2011.

Parallel to this and from the perspective of the northern tradition, the mixing of traditions and the influence on production techniques of “Andronovo” ceramic by those of the Oxus potters could be discerned. Pottery related to the northern tradition through the shape and/or decoration, whereas the technical fabrication is linked to the southern tradition, is illustrated by one vessel from Kumsaj (Kutimov 2013).

Recent discoveries in central Turkmenistan also suggest new technological adoptions by the ‘steppe’ populations. At the campsite of Ojakly (Rouse and Cerasetti 2014) in Margiana, a complex, double ceramic kiln with spacers to avoid contact of the pottery during firing was discovered for the first time in “Andronovo” settlements. Moulds for jars, whose shapes are known only in the tradition of the Oxus civilization at that time, were also found in this kiln. Moreover, these pieces display marks of rotation. These elements might reveal the introduction of new shapes (moulds for jars) and new technologies (rotation, double furnace) in the ceramic production of populations related to the northern cultures. They signify the first evidence of transfers of technology of urban traditions to non-urban populations.

Second Example: Metallurgy

Influences are also evident in the metallurgy. We already mentioned that a fifth of all types of metal items in the material culture of the Oxus civilization during the Final Bronze Age are connected with the ‘steppe’ tradition. However, the question arises as to whether they are imports or local products.²⁰

This clear infiltration of distinctive features of the northern material culture includes artefacts that reflect technologies, such as casting, forging, annealing and cold-working. The question of the adoption of new technological features through a direct transmission of skills and knowledge between individuals of both communities also arises. The *chaîne opératoire* may also have changed under the impact of the northern groups. The number of metallurgical moulds discovered from the Final Bronze Age is much more outstanding than during the previous period. As part of the “Andronovo” technology, this technological method could have also appeared with the influence of the northern populations.

In addition, we should mention some ‘steppe’ shapes among the

complex of miniature items that are typical for the final phase of the Oxus tradition (Fig. 4). Whereas miniature items are not known in northern Central Asia, the adoption and the adaptation of new shapes in the ‘steppe’ tradition can clearly be viewed as a sign of cultural transfer.

Furthermore, bronze technology (the alloying of copper with tin), which was largely practiced by “Andronovo” populations (Chernykh 1992), probably increased during the Final Bronze Age (Luneau 2014: 171). Thus the question arises: Did the metallurgists change, or did access to the material transform (Luneau in press)? A possible shift in the source of tin might be suggested. Previous analyses (Ruzanov 1999: 39) have demonstrated that tin could have derived from Afghanistan during the Middle/Late Bronze Age. Then, during the Final Bronze Age, the ore may have originated from areas controlled by ‘steppe’ populations, such as the Zerafshan valley and Kazakhstan. However, these older analyses must be confirmed.

Third Example: Socio-Economics

Transfers might also have been involved in the economic system of populations. Whereas millet is known in Oxus settlements of the Middle/Late Bronze Age at the end of the 3rd millennium BCE, an increase in millet cultivation is likely during the Final Bronze Age (Luneau 2014: 164). The presence of this plant has been evidenced in the middle of the 3rd millennium BCE in China and at the end of 3rd millennium in the ‘steppe’ area. The introduction and the development of this plant in the agriculture of the Oxus civilization may be correlated with the presence of “Andronovo” groups in the ‘oasis’ area (Spengler *et al.* 2014).

Fourth Example: Burial Practices, Religion and Ideology

Burial practices constitute another sphere that was affected by the influence of ‘steppe’ traditions. The mixing of elements of the funerary rites from both populations is well known in cemeteries of southern Central Asia. Concerned here are some elements of funerary rituals and the deposition of ‘steppe’ items in inhumations attributed to the Oxus civilization, as in Kumsaj in Tajikistan (Kutimov 2008; 2013).

The presence of cremations has been noted during the Final Bronze Age in southern Central Asia. Although not so frequent, this kind of ritual was practiced by northern populations during the Bronze Age (Bendezu-Sarmiento 2004; 2007). These graves have been discovered in the Oxus cemeteries, such as Bustan 6 in south-

²⁰ In this regard and concerning the origin of tin, new results are expected from the French-German ROXIANA Project (ANR-DFG), under the direction of N. Boroffka (German Archaeological Institute—Eurasia Department) and H.-P. Francfort (CNRS - UMR 7041).

ern Uzbekistan (Avanesova 2013). In view of the presence of Oxus material they are attributed to populations of the Oxus civilisation; however, this attribution has been challenged.

Traces of fire in graves are considered as a sign of the influence of 'steppe' populations. Nevertheless, the precise characterization of this practice is necessary. The dating is particularly uncertain, since fire was also largely used during the previous period (Francfort 2005: 277–281).

Conversely, some elements of funerary rites of the Oxus civilisation (chamber graves) seem to have been borrowed by the Andronovo populations, as at Dashty-Kozy (Isakov and Potemkina 1989).

The appearance of cairns in the burial practices of the Vakhsh culture reflects the direct adoption of cultural features from northern Central Asia. The Vakhsh culture represents the most syncretic cultural entity between traditions of the Oxus civilization, on one hand, and of 'steppe' cultures on the other.

Shifts in burial practices are highly sensitive to sociocultural and ideological changes. The arrival of external groups, bringing new ideologies, is perceived as a motor of mutations. The northern populations may have introduced new cults in association with a minority of the group. For instance, the emergence of old Iranian cults is often affiliated with them when considered as Indo-Aryans/Indo-Iranians. However, correlations between linguistics, archaeology and anthropology are too uncertain (Bryant 2001; Fussman *et al.* 2005) to support any assumptions, and the steppe hypothesis as origin for the Indo-European languages still does not convince (Heggarty 2015).

FROM ISOLATED TRANSFERS TO THE INTEGRATION OF POPULATIONS?

According to the archaeological evidence, a more or less close proximity between individuals related to the different groups should be supposed, which could have been isolated or more collective. Direct individual relationships between masters or possible intermarriages are likely explanations for some adoptions. The influences could have occurred within the framework of exchanges between individuals without regard for the sociocultural identity of the individual who brought the innovation. Indeed, the context of the consumption and the use of artefacts do not necessarily reflect ethno-cultural affinity (Dietler and Hiebrich 1994). Because cultural groups and individuals are not reified and static but constructed by interacting constantly with other groups or individuals, within or across boundaries, considerations beyond social identities may have prevailed in the

borrowing of new features (Gosselain 2000). Furthermore, certain adoptions might have concerned only one group within the community.

Some scholars,²¹ in contrast, suggest a progressive assimilation of northern populations with the populations of the Oxus civilisation.²² Until now there is little evidence that would argue for a general assimilation of people and a massive and general change in favour of the clear adoption of cultural features of one group by another; instead there are more isolated cases. Transfers appear to have been quite limited, and the cultural features of each group did not change considerably, neither in the Oxus civilisation nor the steppe communities; and this situation continued until the end of the Oxus civilisation around 1500/1400 BCE. These populations were clearly intertwined with trade exchange in southern Central Asia, but their interactions as a global phenomenon are still unclear. Allochthonous populations are characterised by a cultural homogeneity. They seemed to have kept their own traditions, with the autochthonous society appearing to have been more permeable and, except for some cases of syncretism (such as the Vakhsh and Bishkent cultures), undergoing major transformations during the Final Bronze Age. In addition, both populations seem to have remained distinct with reference to space and culture. So far indicators do not permit any conclusion about a global cultural assimilation of another cultural community.

However, it is a fact that the material culture does not necessarily reveal sociohistorical events, such as population flows and transformations. On this aspect, current research on ancient human DNA from Central Asia will soon provide answers, but interactions between human groups and individuals cannot be reduced to the biology. Research should be pursued to better understand these processes and the circulation of artefacts, skills, ideas, techniques and cultural features. Sociocultural transfers often concern isolated elements, selected for specific reasons, which are difficult to elucidate. The processes of the acceptance or refusal of new ideas are complex (Perlès 2007: 320). The examples mentioned above, based on the interactions between Bronze Age populations in Central Asia, well illustrates that the adoption of specific new features results from a deliberate and precise choice, according technical, morphological, functional and symbolic factors.

Moreover, acculturation processes can be scaled between com-

²¹ Masson 2002: 554; P'jankova 2002: 569–571; Kohl 2007: 193.

²² Other scholars seek to back this supposition with anthropological material (Isakov and Potemkina 1989: 162; Avanesova *et al.* 2010), but specific analyses of DNA will be more relevant (Potts 2012).

plete assimilation and various forms of syncretism. Acculturation varies according to the circumstances at the time: were contacts free or compulsory, friendly or hostile? It also depends upon the degree of contacts: were they continuous or discontinuous (Brami 2000: 56–57)? These processes are indeed questions about the movements of people. The mobility of “Andronovo” populations and exchange networks in Eurasia are clearly linked with the integration of innovations, such as bronze technology.²³ For all aspects, the identification of the “Andronovo” and related groups in southern Central Asia through their individual or collective mobility, their settlement pattern and activities, their size and their homogeneity would enhance the accuracy of the acceptance or rejection mechanisms, and also the type of techniques, goods or ideas to be borrowed.

CONCLUSION

During the Bronze Age, Central Asia displays a complex situation of relationships between various communities. The techno-cultural transfers that took place between all these groups have been recognised only to a limited extent until now. Furthermore, discerning interaction processes and acculturation is difficult. In this respect, further discoveries and methodological studies will be decisive. The quantification and the processes of transfer must be investigated and detailed. A precise analysis of the hybridisations and crossings of the techno-cultural features in the material culture is necessary to clearly identify these transmissions. The evaluation of the influences and their evolution also requires a fundamental improvement of our knowledge about the different groups, especially the newcomers. Emphasis should be placed on the northern populations in this area in order to reach a proper understanding of their arrival, their development and, then, their interactions with local cultures in southern Central Asia (phenomena of exchange, loan and acculturation between the different groups of peoples).

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²³ Chernykh 1992; Frachetti 2012; Mei and Shell 1999; Potts 2012.

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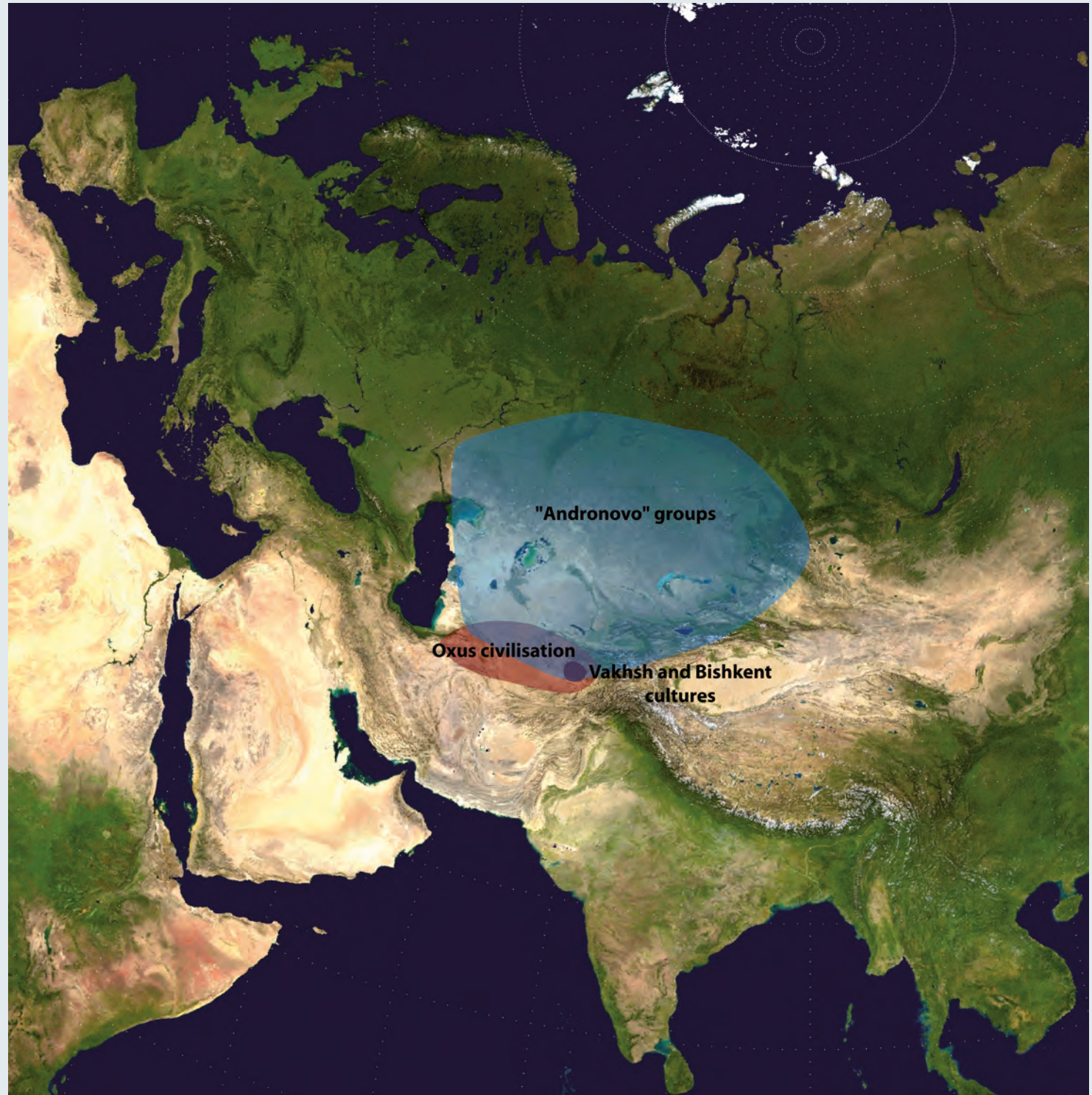
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Fig. 1: Localization of mentioned Bronze Age cultures in Central Asia.



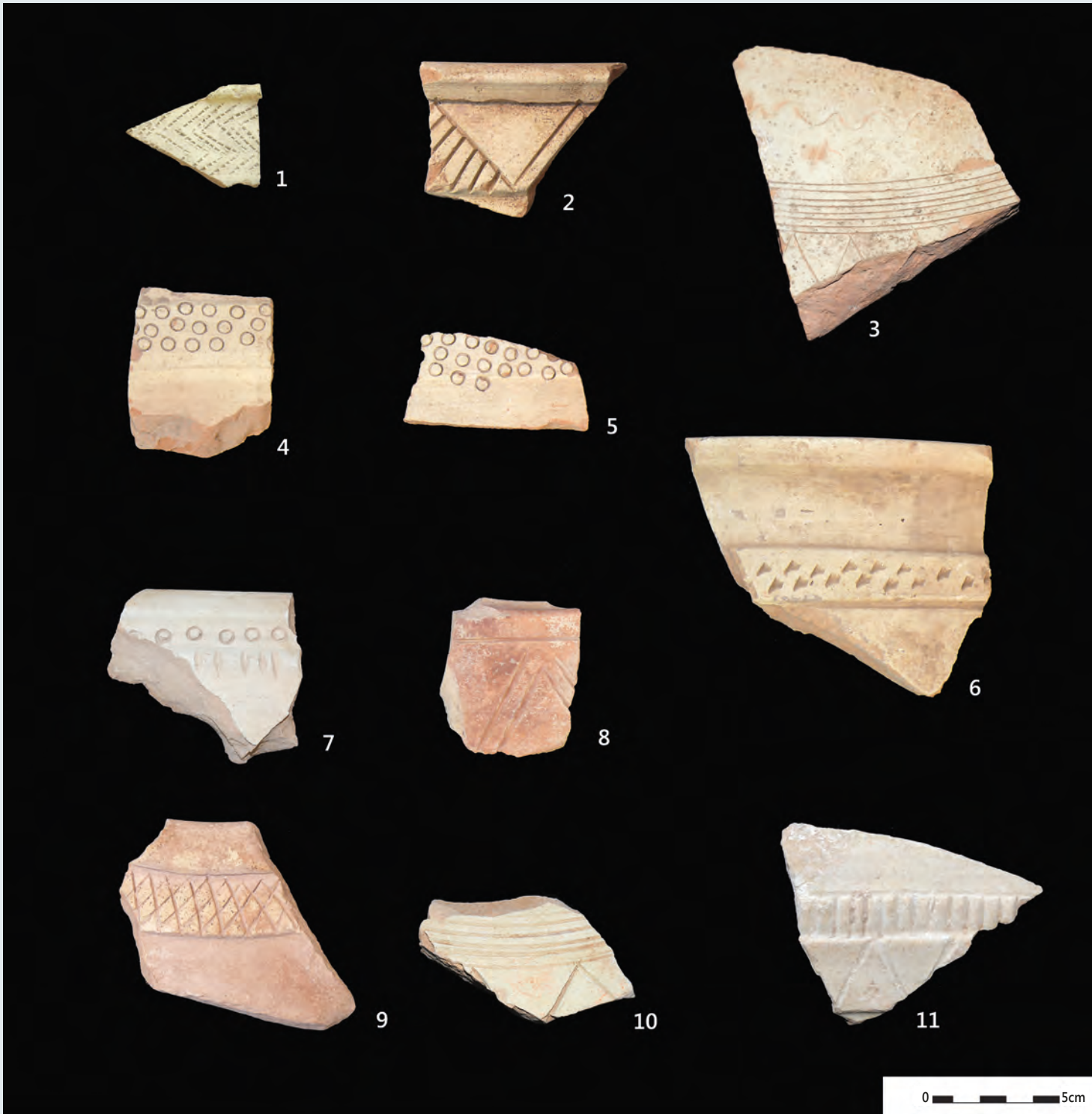


Fig. 2: Potsherds from Dzharkutan. Wheel-shaped ceramic with possible 'steppe' influence in the decoration.

Legend: 1. US 4273-2; 2. US 4223-A; 3. US 4081; 4. US 4224; 5. US 4154; 6. US 7145; 7. US 7169; 8. US 8012; 9. US 4290; 10. US 4138-3; 11. US 4186-2 (photos: É. Luneau – MAFOUZ-Protohistoire).

Fig. 3: Potsherds from Molali. Ceramic with possible 'steppe' influence in the decoration.

Legend: Coarse ceramic made by coiling with rotation in finition: 1–2. Room 302, layer 3; 3. Room 304, layer 3; 4. Room 206/215, layer 2. Wheel-shaped ceramic: 5. Room 211, layer 2; 6. Room 307, layer 3 (photos: É. Luneau – DAI/Eurasien Abteilung).

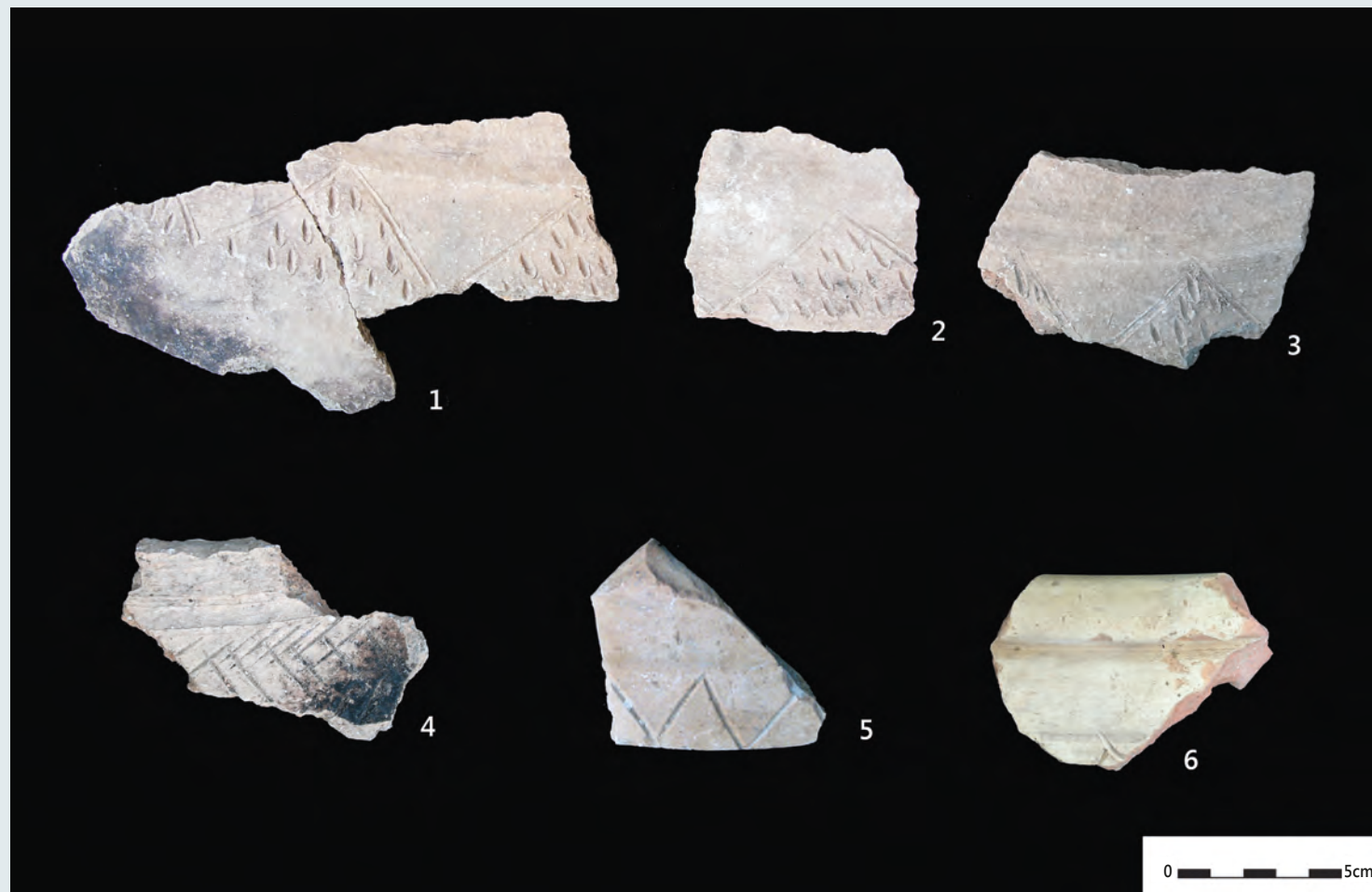


Fig. 4: Miniature items from sites belonging to the Oxus civilization with 'steppe' shapes.

Legend: Miniature knives and daggers. 1. Dzharkutan 4B: after Ionesov 1990: 263, fig. 58, 18; 2–9. Dzharkutan 4B: after Ionesov 1990: 9, fig. 1; 261, fig. 56, 1–2; 262, fig. 57, 1; 262, fig. 57, 2–3, 9; 145, fig. 2, 3; 10–11. Dzharkutan 3: MAFOUZ-Protohistoire; 12–14. Dzharkutan 3: after Kaniuth 2006: 149, n°499–501. Miniature chisels: 15. Dzharkutan 4B: after Ionesov 1990: 261, fig. 56, 15; 16–20. Kangurtut: after Vinogradova et al. 2008: 358, fig. 63, 9–11; 359, fig. 64, 9–11, 23–26, 49.

