

# GRAPHIC REPRESENTATIONS AS A SOURCE FOR RESEARCH ON WHEELED TRANSPORT OF THE BRONZE AGE

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Eurasian steppe area is one of the richest in the finds, which are a good source for recognition of the development of wheeled transport. A few hundred graves, containing remains of real vehicles or their elements, were discovered here and connected with diverse Bronze Age communities. To complete this analysis, it is worth to look closer at additional sources, like some data from research of the wagon and chariot motifs, which were a part of a complex Bronze Age rock art of this region. This study gives information about usage, constructional details, and symbolism.

**Keywords:** *Bronze Age, rock art, wagons, chariot.*

Wheeled vehicles are among one of the themes of rock art and ceramic vessel decoration in the steppe area of Eurasia starting with the 3<sup>rd</sup> millennium BC (Lazaretov 2019, p. 42) and become a common topic until the very late Bronze Age, almost to the start of the 1<sup>st</sup> millennium BC. There are a couple of zones where findings are concentrated, like southern Central Asia (Alatau Mountains, today's southern Kazakhstan), Altai Mountains, Yenisei basin, Caucasus and in the Eastern European Steppe zone.

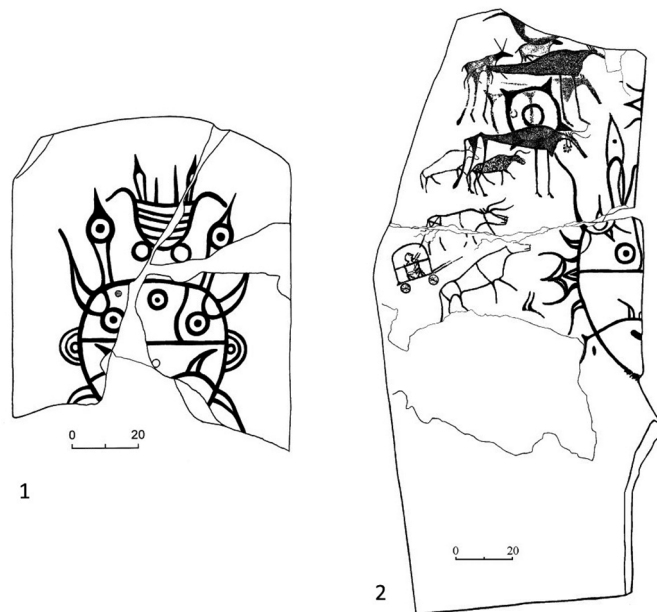
The great Eurasian Steppe is one of the few areas where multiple types of sources to recognize early wheeled transport are found. The main category here is burial findings and with the early Bronze Age, a new burial rite appears, containing real wagons or their elements, placed within graves or used as a grave cover. This new type of ritual starts with the early Yamna culture (elements like anthropomorphic stelae) (Ivanova 2013, p. 233) and is present until the Petrovka/early Andronovo period (Nikolaevka II) (Epimakhov 2004, p. 110). The types of wagons, placed in graves, evolved through centuries with changes in constructional solutions, related mostly to a transition in the wagons function. Yamna wagons were probably mostly four-wheeled heavy wagons. More developed in their shape and construction vehicles were found in Catacomb Culture graves, like two-wheeled carts or wheels with two, three or four vents,

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placed around the nave in a disk. In the last stage, connected to the Sintashta-Petrovka complex, horse-drawn carts with two spoked wheels appeared (Anthony 2007, pp. 371, 397). These vehicles can be qualified as “chariots”, their structure fits the definition exactly (Epimakhov, Chchushkov 2008, p. 481). The grave findings are some of the best sources for understanding the development history of wheeled transport, especially due to the long existence of this type of burial rite and the fact that at least a dozen or more of these findings were made in each period. Despite this, there are always a few pieces of information missing and that is mostly because of the character of this specific burial rite. Very rarely the wagons are placed as one piece together. Usually, there are always a few elements missing: wheels, or the wagon’s body, axes, roofs and other details. Vehicles of the “chariot” type get defined as such, where parts of wheels, axes and naves are found in special contexts, where the placement of every element of the burial together is indicative of a full horse-drawn carriage. Rock art and vessels decorated in “wagon” motifs make a good source for supplementing the data gathered from archaeological digs of cemeteries or settlements. The most common problem with rock art interpretation is the dating of the images. In some cases however, scenes in rock can be chronologically determined by the wagon, cart or chariot type that is depicted.

All these depictions are an important source for the technological and constructional details of wagons and carts of multiple types throughout the Bronze Age. The second aspect is context: wheeled vehicles do not belong to the most common subjects that had been depicted during this era. Sometimes wagons or carts are portrayed as a single figure but much more commonly they are placed between scenes, containing figures of animals, people, solar motifs. Sometimes artists created simple compositions, containing 2–3 motifs, for example “warrior on a chariot with horses”. In some cases wheeled vehicles are also a part of a big scene, sometimes seemingly characterised by a narrative character or get included as part of some other figure, like on some of the Okunevo culture stelae in Khakassia. The depiction from Tepsey mountain presents both, wagon and face of a masked anthropomorphic being, typical for the art of this area (Novozhenov 2014a, p. 91). With the development of technology and constructional traits, the way the vehicles are depicted also changes and the new types of vehicles are easy to recognize. Usually wagons are only presented in one way, from a bird’s eye view and only rarely are there profile presentations.

A small number of vehicle depictions are made of four-wheeled wagons. Most of these images are connected to specific stages of development of Okunevo culture of the Minusinsk Basin. Oldest images are dated back to late 23<sup>rd</sup> century BC (Lazaretov 2019, p. 42). That means, they are a few hundred years younger than the oldest Yamna findings of real vehicles, but there is a close connection in technology. The one visibly comparable image comes



**Fig. 1.** Ust'-Byur (1), Znamenka (2) (Esin 2012, p. 16, fig. 1-2).

from Znamenka (Khakassiya) (Esin 2012, p. 16, fig. 2). The depiction was left on a typical for Okunevo culture ecumene stela with a main image portraying a masked anthropomorphical entity. The depiction presents a four-wheeled wagon, shown in profile, drawn by two bulls or oxen. The most significant traits in this depiction are the arched roof of the wagon, the two-pieced wheels, side-railings and thill, possibly double-rodged. A mark placed on the shoulders of the animals can most likely be interpreted as a depiction of a yoke. The driver sits inside of the wagon's body with his legs bent at the knees. These details can be compared to findings like the wagon from Lukyanivka kurgan 1, grave 1 from Ukraine, the only Yamna grave where traces of an original, arched roof was found (Melnyk, Serdyukova 1988, p. 119). In some of the graves also the railings are preserved (Pysarivka k. 6 g. 2, Vinnitsa region) (Potupchyk 1993, p. 98). The position of the driver is also significant. At the archaeological site of Sharakhalsun II (k. 6, g. 18) in the Stavropol region a few wagon graves were found, one of them contained human remains of a person who was placed in a sitting position on the wagons body (Tucker et al. 2017, p. 4). Wheels made by two or three segments were also a common form during this era (Gudkova, Chernyakov 1981, p. 39).

Wagons and carts of the Okunevo culture can be depicted on the side, as one of many symbols surrounding a main stele figure. In a few cases vehicles are integrated into an anthropomorphic entity. One example, at Tepsey mountain, was already mentioned above. In this case, the wagon

was literally a part of the main figure's face. Another stela, found in the cemetery of Ust'-Byur' in Khakassiya, portrays the same type of character (Esin 2012, p. 16, fig. 1). A depiction that is reminiscent of a wagon is placed between their horns, but its form is unusual and could also be interpreted as a vessel. The most close form to the one portrayed on the stela is a so-called brazier, a vessel typical especially for the Afanasyevo, Okunevo and Catacomb grave cultures. This example is a good showcase for a wagon that gets depicted in a very metaphoric form, symbolising a "transportation" or even "transfer". Braziers are a very specific form of vessel, connected to ritual fire (Fribus 2014, p. 49).

The tradition of depicting four-wheeled vehicles survives until the late Bronze Age, but depictions from this late stage of the era are rare. Very few were discovered in southern Kazakhstan, at the rock art sites like Tamgaly or Kul'zhabasy. The former is located in the plains, the latter was found on the foothills of the Tien-Shan mountains. Some researchers try to connect them with the Andronovo community (Rogozhinsky 2011, p. 220). However the type of wheels here are not definable. They are depicted as circles, empty or filled with irregular lines. In both presented cases, the thills are probably doubled and triangular-shaped. In Tamgaly two drawn animals are portrayed, bulls or oxen with a yoke on their back. One depiction from Karatau also portrays a wagon drawn by camels (Novozhenov 2012, p. 40, fig. 8). There is also an important detail, visible in two depictions. The bottom of the wagon's body is portrayed as if it was made of crossbars, arranged in a form of a trellis. Similar constructions are found in many Yamna or Catacomb culture graves (Etulia k. 1 g. 14 in Moldova, Kholmske k. 1 g. 7, Odessa region; Kamyanka Dniprovskya region, k. 11 g. 9, Zaporizhzhya region) (Gey 2004, p. 185; Novitskiy 1985, p. 233; Chernykh 1991, p. 145). From all of the parts of the vehicle's body, usually only the bottom part is placed in the grave. This is a surprising analogy, because rock art has the possibility to show more details of the wagon's upper body. For some reason, the artist usually did not depict more details. These images are also important because of their chronology. At the time of their creation, the practice of placing full four-wheeled wagons in graves disappears. But there are still a lot of similarities of the constructional details between the rock art figures and early Bronze Age grave findings. This can prove that the construction of four wheeled wagons was conservative, even though the transport technology was continuously developing.

During the late Bronze Age four-wheeled vehicles were not a popular theme in rock art. The most commonly depicted vehicle is a chariot, in a form that resembles the findings from Sintashta-Petrovka cemeteries. Depictions from a birds-eye view also occur. There are many similarities in the way the vehicles get portrayed between different areas of rock art concentration. Drawn animals are presented in profile. The differences between the shape of the chariot's body can be as big between vehicles depicted at one site, as between those depicted in different geographical areas. The shapes that they are usually given are round, square with round corners, and D-shaped. The filling of the chariot's body differs, it can appear empty, divided into two halves by a line, dotted or with a chequered pattern, which might resemble a light vehicle body with a floor made of wattle. Wheels usually have spokes, in some cases only four, in some more (even up to 28) (Mar'yashev, Goryachev 1998, fig. 115). Some vehicles are not depicted with spoked wheels and this type is not always considered to be a chariot by some researchers (Novozhenov 2012, p. 102). In some images a yoke is depicted for harnessing and sometimes a thill, supported by ropes or thongs (Kashchey, Nedashkovsky 2018, p. 7). There are also very simplified depictions that can be interpreted as chariots, probably more in a symbolic than a practical way, like at depictions in Kamyana Mohyla in Ukraine (Mikhailov 2005, p. 123), some very close to even solar symbols.

As a source, chariot images are extremely important, since there are a lot of missing elements in chariot graves from the steppe, usually regarding the details of the chariot's body. In some cases also drivers are depicted, which can indicate how the chariots were driven. Except some unusual cases, like few figures from the Mongolian Altai area where chariots are drawn by a goat or deer (Novogrodova 1984, pp. 66, 79), some examples from southern Kazakhstan, where the draft animal is a camel (Novozhenov 1994, p. 27, fig. 12:3; Koybagar II, stone 22), bulls and goats (Tashbaeva 2019, p. 253), almost all draft animals portrayed with chariots can be interpreted as horses, with a slim shape and small ears sticking out. Only in the Mongolian Altai depictions, more than two draft animals are portrayed (Novogrodova, 1984, p. 65, 70).

The chariot images are usually thought to be connected with the Andronovo community or Karasuk culture of the late Bronze Age (Novogrodova, 1984, p. 77). Since almost all chariot graves belong to the Sintashta-Petrovka culture of the Urals and Northern Kazakhstan area, the images come from different territories and are likely a little younger than



the findings of real vehicles. The spread of this theme in rock art can be connected to both the inception of the invention and also to the moment when chariots started to be important as a symbol for a specific community. Images of chariots are found in all the mentioned areas, but they never are a main motif.

The context of the placement of these depictions shows mostly the way the chariots were seen by people who made this art (artist) and those who used it as a symbol and understood the intentions and content of these images. A very important character of these depictions is the charioteer. In some cases, there are two drivers, which can lead to the assumption that sometimes early chariots used in the Bronze Age are also controlled by two people, or one was the charioteer and the other was a fighter or hunter. What is of note is the fact that there are weapons of many types visible in their hands: bows and arrows, spears, probably daggers shown in a very simple way, just as one straight, short line next to the driver's hand. Some of these characters also have an attribute in the shape of a disc. It is uncertain how this element should be interpreted – but some research hypothesises that this element depicts a macehead with a handle. This detail is widespread as an attribute of warriors/hunters, visible with the iconography of the Altai (Okladnikov et al. 1979, fig. 41:2) southern Kazakhstan, like on Saymaly-Tash (Tashbaeva 2019, p. 254, fig. 6, 7, 8), or the Minusinsk Basin (Devlet 2001, p. 32). Besides this element, the only other personal details depicted are headgear or hairstyles: the drivers from Saimaly-Tash and Kul'zhabasy from southern Kazakhstan wear

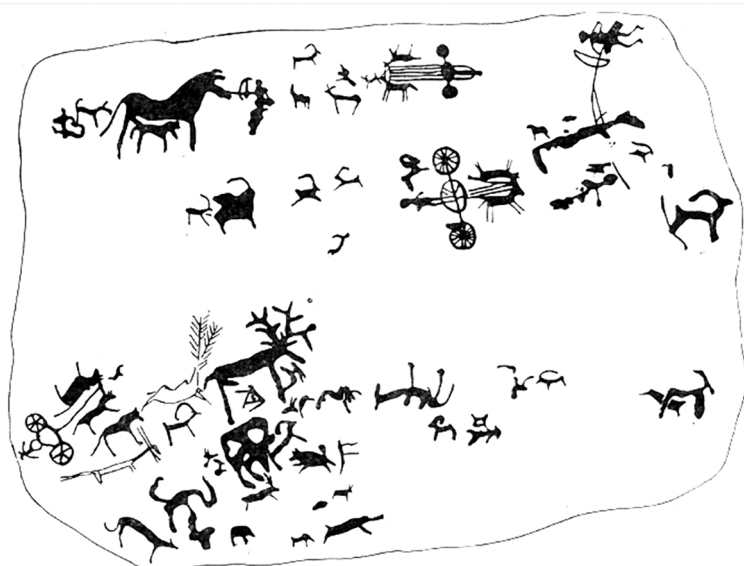


Fig. 2. Elangash, sector 3 (Okladnikov et al. 1979, fig. 35, p. 76)

long braids (Tashbaeva 2019, p. 254, fig. 6, 7, 8; Baypakov, Mar'yashev 2004, p. 9), in Elangash some small horns are visible (Okladnikov et al. 1979, fig. 33) or a mushroom-shaped headgear (Kubarev 2011, fig. 45:4). This attribute is widely spread among the art of the Yenisei basin and the Altai, usually portrayed with a weapon. Those are details that can be

seen in many examples. For now, there is only one image of a driver who is characterised by rays around his head. This depiction comes from Eshkol'mes, located in Dzhungarsky Alatau (Mar'yashev, Goryachev 1998, p. 22, fig. 95).



Fig. 3. Saymaly-Tash, chariots (Tashbaeva 2019, p. 254, fig. 6)

The figures of ray-headed people, sometimes also described as “gods”, are a common theme in Eurasian rock art dated to the Bronze Age. Some of the Okunevo culture masked entities have rays around their head. They are also found in Karakol culture graves of the early Bronze Age in the Altai area (Kubarev 1988, pp. 45, 49, 50, 59, 69) but most of these characteristic images come from Central Asia, especially from today’s southern Kazakhstan, also from famous sites, like Tamgaly. This figure is usually bigger than any other in the composition, which makes them a “main character”. It is very hard to say if these scenes, including other anthropomorphic figures, are depictions of some kind of rite or “dance”. Sometimes smaller figures also have a disk handled by their waist (Tashbaeva 2019, p. 253, fig. 4). According to V. A. Novozhenov, they are among the oldest Bronze Age motifs in Central Asia (2014b, s. 465). This would definitely fit with the chronology of the Okunevo stelae and Karakol grave paintings, even though the rock art of this area dated to the Bronze Age could be a little bit younger in general. These figures are mostly interpreted as gods (Rozwadowski 2019, s. 893) or shamans during trance (Rozwadowski 2017, p. 171).

Chariots are in general part of bigger compositions. In these scenes, there are usually figures like “warriors” involved, some also leading animals on a leash or very rarely, like in some cases in the Altai (Kubarev 2011, fig. 46:1), there are characters in skirts. In some scenes a couple of chariots are involved, sometimes even dominating the composition (Okladnikov et al. 1979, fig. 34). The most common motif in the early Bronze Age is still animals, both domesticated and wild. Bulls and horses, goats, deer, dogs or wolves, kulans, camels, boars and other types (Mar'yashev, Goryachev 1998, p. 15). The appearance of the horse can be used as chronological dating because of the known, late domestication of this animal, which occurred first in the Eurasian steppe area

(Miklashevich 2006, p. 191). In some cases it also looks like the chariot was involved in a hunting scene. However, most strikingly, chariots are almost never depicted to be in battle. In some rare cases there are a few chariots depicted in a line, which is sometimes interpreted as a “leading into battle” scene, especially when they follow an anthropomorphic figure with weapons, like in Ust'-Mozaga in Tuva (Devlet 2001, p. 52). Another “caravan” was depicted in Baga-Oygur III in Mongolia. These scenes sometimes contain a figure interpreted as a woman and also animals in a line. However, the word “caravan” doesn't fit this kind of scene (Jakobson-Tepfer 2012, s. 6), because chariots were never used in history as a vehicle to transport goods. The word “procession” would likely be more accurate, if there are a lot of different characters depicted moving in the same direction together.

There are a few problems with the interpretation of rock art for the purpose of analysing the history of the development and usage of wheeled vehicles. Firstly, the art seems to react with a delay to the development of the technology itself. The Yamna four-wheeled wagons are older than any Okunevo culture depictions, the oldest Sintashta chariots are older than any of the images, because most of them are connected to Andronovo and Karasuk cultures and dated to 15<sup>th</sup>-10<sup>th</sup> centuries BC (Baypakov, Mar'yashev 2004, p. 10; Kubarev, Tseveenordzh, Jakobson 2005, p. 90). The technology could have also slightly changed during this time gap. Secondly, this kind of iconography should never be understood like photography. What is shown here is mostly the intentions of the author, his worldview, and symbolism which was understood by him and the people around him. Every Bronze Age picture that modern people can view through discoveries was made with the filter of Bronze Age people's perception, which might not be fully understood by us anymore. This art is a very rich source that shows details that could never be found in any wagon grave though. And most importantly, it shows the wagons and chariots in usage, as an object used by the living. So the comparison is very important to get a full picture of wheeled vehicles in the Bronze Age of the Eurasian Steppe area.

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