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Transportation In North East of the Iranian Plateau In Bronze Age

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ABSTRACT

North east of Iran has been of crucial importance compared to other areas due to important routes crossing it. From the perspective of archaeologists, the expansion of regional and trans-regional trade exchanges is an evidence of Bronze Age in Iran. Resistive animals in land trade are of crucial importance. Chariots and wheeled vehicles were important transportation means in Bronze Age. Wheeled chariots became prevalent in north east of Iran and four-wheeled chariots replaced two-wheeled ones over time. At first they were drawn by cow power, but then animals like camels and equids replaced cows. Considering the importance of adequate and appropriate means of transporting goods and trade materials in one hand, and the strategic and special role of the north east of the Iranian Plateau on the other hand, this paper attempts to study and recognize transportation means used in this area in Bronze Age, using archaeological documents and data.

Keywords: Chariots, Wheel, Camel, Cow, Equidae, Transportation, Trade

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INTRODUCTION

In cultural and geographical segmentation of archaeological areas of Iran, its north east part includes a region encompassing large sections of east Gorgan Plain and parts of Khorasan to Kopet Dag mountain slopes in northern part of Ashgabat in Turkmenistan (Malek-Shahmirzadi, 2003). This region is an archaeological area being neglected by archaeologists up to the recent decade, despite its special geographical location and its importance in reconstruction of relationships between The Iranian Plateaus and Central Asia. This neglect has led to lack of scientific activities in the region and consequently lack of library research, such that there is not sufficient and accurate information about pre-Islamic times in the region. Only a nebulous archaeological condition of the region is available. Unfortunately, this lack of information exists both in historical and pre-historical periods of north east of Iran. The main routes connecting Mesopotamia and south west of Iran to Central Asia and China during pre-historical and historical periods passed through the north east of Iran (Majid Zade, 2010). The most important communicative-commercial route in north east region is the Eastern-Western Road (The Great Khorasan Road). This route connects Afghanistan and Central Asia to Asia Minor through Khorasan along southern slopes of Alborz Mountains and by passing through Semnan, Rey Plain, Qazvin and Azerbaijan. This is known as the Silk Road or the Great Khorasan Road (Riyazi, 1995). The importance of Khorasan Road apart from connecting the east to the west is due to the possibility of connecting the north to the south of The Iranian Plateau it offers. Splits are separated from the Great Khorasan Road that passing through natural crossings among Binalud Mountains and Kopet Dag reach settlements in southern Turkmenistan. So Kopet Dag (Anau, Namazga, Altyn-Depe), Tagen (Gioksiur and Khapuz) and Marghab (Kalali, Togolok and Gonur) settlements were connected to the Great Khorasan Road through these passages. Materials and goods such as azure stone, turquoise, onyx, tin, copper and other goods would be transferred by commercial trailers through these roads, meeting the needs of regional

settlements. Means and facilities of transporting goods and materials have played a crucial role in regional and trans-regional commercial developments (Talai, 2010). It is impossible to regularly make business and communicative contacts without sufficient means of transportation, especially goods and material trading (Kirtcho, 2009). Boats and ships in maritime trade and draft and resistive animals in land trade are of crucial importance (Talai, 2010). Since no waterway exists in the north east of Iran, the current paper only studies the transportation vehicles overland. Prior to the domestication of animals and using them for porter age, those with the intention of trading and exchanging goods and materials had to carry them on their own shoulders or their workers'. That would be very costly. Using manpower would make caravans move even slower. Commercial trailers changed to animal power to increase the volume and pace of transporting goods. Therefore, using animals such as cows, camels and equids was made the agenda for commercial trailers.

COWS

In Bronze Age in north east of Iran cow power was used for agricultural purposes, plowing the land, as well as drawing chariots and transporting goods. Using cows to draw chariots is apparent in late fourth millennium and early third millennium B.C, considering the discovery of samples from southern Turkmenistan (ulugDepe and Altyn-Depe). According to the designs on silver cup artifacts from the east, it is also apparent that cows were used for agricultural purposes (plowing the land) and drawing two-wheeled and four-wheeled chariots (Kohl, 2002) (Fig 1).

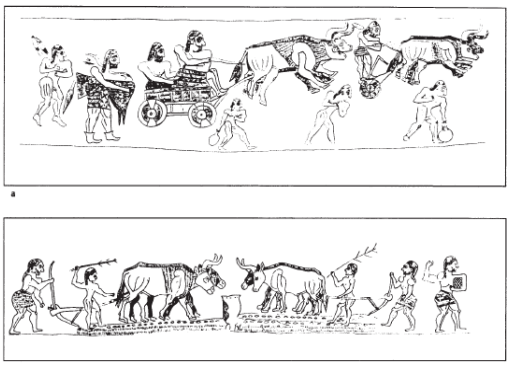

Fig 1. a) Using cow power to draw two-wheeled and four-wheeled chariots and **b)** using cow power in agricultural activities (Kohl, 2002).

Cows are more powerful but slower than camels and horses. This probably was the reason that concurrent with the development of trades at the beginning of the third millennium B.C, using cows for long-distance trades was abandoned and animals such as camels and horses became popular. Documents obtained from skeletal remains studies of Hissartepe shows that after this substitution, cows were used more for agricultural purposes and plowing lands. The documents include cattle slaughtered at older ages, as well as bones density due to yokes placed on their necks.

CAMELS

In the third millennium B.C camels were used beside cows as a means of transportation and in the second half of the third millennium they took cows place in transportation. Some researchers believe the reason lies in climate changes (Kirtcho, 2009), however, the main reason lies in camels' superior features against thirst and they being more suitable to walk through Iran's north east and Turkmenistan's south plains and deserts.

Using camels for transportation in vast expanses of desert has led to an increase in economic trade volumes between separate settlements and oases. Stenkler believes that using camels has facilitated the transportation of commercial goods such as tin from Uzbekistan and Afghanistan to Anshan and Susa. There is little evidence of existence of Bactrian camels in Symashky at the time of the first Ebert's reign (2030 BC.). The reason for overland trade boom during Symashkys might be in Symashky nation's use of Bactrian camels as draft animals. The best way to identify and get information about the existence of draft animals in ancient settlements is to refer to skeletal findings and to analyze them quantitatively and qualitatively (Talai, 2010). Bactrian camels lived in the southern Turkmenistan during the fourth and fifth millenniums B.C. Bactrian camels' bones are found in north AnauDepe, Altyn-Depe, south Gonur Depe, ulugDepe, KhapuzDepe, Harappa and Mohenjo-daro (Hiebert & Lamberg-Karlovsky, 1992; Moore, Miller, Hiebert, & Meadow, 1994; Tosi, 1992). Camel bones were discovered beside human bones in Gonur Depe, which indicates that the camel was also buried in the grave (Kohl, 2007). Camel jaws were also detected in Firuzeh town in Neishabur. In addition to skeletal remains, other archaeological data help us ensure the presence of camels in settlements of the Bronze Age. Camel effigy was discovered in Altyn-Depe and Qaleh Khan (second half of the third millennium B.C) and camel designs were discovered in late third millennium B.C in southern Turkmenistan in which camels were drawing wheeled chariots (Kirtcho, 2009; Tosi, 1992). Bactria camel's embossed designs were also carved on a silver cup in Gonur Depe (Kohl, 2007; Potts, 2008) (Fig 2).

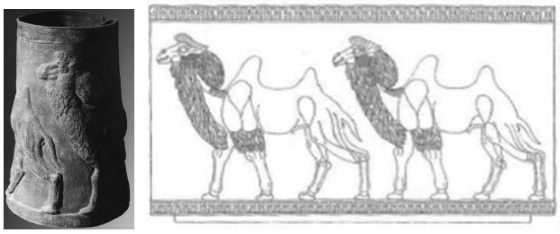

Fig 2. Bactrian camel design on silver cup discovered in Gonur Depe (Potts, 2008)

Extensiveness of documents and evidence on the presence of camels in north east sites of the Iranian Plateau in Bronze Age indicates the importance of this animal in porter age and transportation of goods in Bronze Age communities. In other words, overland trade boom in arid regions like the north east of Iran is due to using camels and their resistance against thirst. Utilization of camels for trading purposes progressed

to the extent that camels now are seen in different climates living a good life. According to archaeological documents and evidence, some of which were mentioned above, we are sure about the presence of camels in sites of Gorgan Plain and northern Khorasan in Bronze Age. It is a green and moist forested area and camels are not native animals of green climates. They are entered this region and used by traders and merchants due to the extension of trade exchanges and also to facilitate goods transportation.

EQUIDS

Equids include animals such as donkeys, asses and horses. Domestic asses or donkeys were used in the third millennium in Iran and Mesopotamia. The presence of animals such as camels, asses and horses are proved in BMAC sites (Hiebert & Lamberg-Karlovsky, 1992; Kohl, 2007). Travelers traveling with donkey caravans were more prone to bandit attacks because they had to pass along water resources depending on the animal's needs. This problem was solved to some extent by using camels that were resistant against thirst (Moore et al., 1994). Horses were probably the last animals to be tamed in the Bronze Age. Utilization of horse power in this Age led to an increase in volume and speed of trade exchanges (Talai, 2010). Buried remains of horses are discovered in Gonur Depe (Masson & Sarianidi, 1972). Remains of horse bones were discovered beside a four-wheeled chariot during a burial in Gonur Depe (Kohl, 2007). Considering this burial it can be inferred that horses were used in Bronze Age to draw chariots. A few equidae bones are found in Damghani Depe in Sabzevar. Although evidence of horses was found in Godin Depe and Eblisdepe, they were bred for their meats and not for trading activities. According to the little evidence of horses in settlements in Bronze Age in Khorasan today, it is probable that horses like camels entered this region from the southern Turkmenistan.

WHEELS AND CHARIOTS

One of the most important transportation vehicles in Bronze Age was chariots and wheeled vehicles drawn by domestic animals like cows, camels, donkeys and asses. Using wheeled vehicles increased the speed and volume of goods transportation. Using chariots for transportation purposes was directly associated with the construction and maintenance of appropriate roads. This required the investment of governing forces in a society. In other words, road construction and utilization of chariots was possible in societies with sufficient human resource and economic strength to construct roads. On the other hand, exchange volume was so high that it required using chariots. Utilization of chariots in Bronze Age was inevitable in the north east of Iran due to high volume of exchanges taking place. On the other hand, regarding broad plains and plateau in this region (north east of the Iranian Plateau), compared to mountainous regions, it was less costly to construct roads appropriate for chariots. Evidence and data obtained about Iran, Mesopotamia, Central Asia and Send Valley show that wheeled chariots are used for porter age and goods transportation. During the evolution process of transportation, wheeled vehicles emerged in western part of Central Asia in late Chalcolithic Age and Bronze Age. According to the fact that chariots and wheels were generally made of wood, unfortunately, they would corrode over time. Therefore, little evidence has remained. One way of getting information about existence of wheels and chariots is referring to clay wheel and chariot models. They were probably made as children toys. The first wheel model of Silk II in Iran was discovered in early fourth millennium B.C and the first evidence of wheeled vehicles in southern Turkmenistan was found in the middle of the fourth millennium B.C (Kirtcho, 2009).

In late fourth millennium and at the beginning of third millennium B.C, circular clay objects were found in south of Turkmenistan, the diameter of which was between 7 to 10 centimeters. There was a big hole at the center of the objects whose diameter was around one third of the wheel's diameter. One or two spines were also seen around the hole. These objects could be called the first models of wheels (Kirtcho, 2009) (Fig 3).

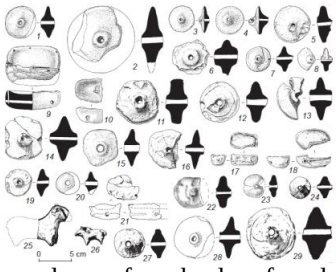

Fig 3. Examples of wheels found in southern Turkmenistan, Namazga IV, number 1 to 23; AltynDepe, numbers 24 to 29, Kara Depe (Kirtcho, 2009).

Recognizing these clay objects, one should not confuse them with clay spindle heads used to spin threads. Stone and clay models of wheels or toy wheels were discovered in AltynDepe (Masson & Masson, 1988): plate XLIII), Anau (III) (Pumpelly, 1908), Namazga (III) and (IV) and Gonur Depe in Turkmenistan, as well as Send Valley in Lutal and Chanhudar, Muhanjudaru, Harappa, Jalilpur (II) and in Iran in Shah Depe (II) and (III) (Arne, 1945): plate LXXI)(Fig 4)

Fig 4. Sample wheels discovered in Shah Depe (Arne, 1945)

and HissarDepe (III) (for more information about wheels in Hissar Depe refer to (Schmidt, 1933). The remains of four big wheels are discovered between graves (number 3225 to 3200) in Gonur Depe. Evidence indicates that the wheels belong to a chariot placed exactly between the graves. Its wooden parts have corroded over time and only a pewter

metal coating is remained around the wheels (Kohl, 2007) (Fig 5).

Fig 5. Grave number 3225 Gonur Depe and the remains of four wheels of a chariot (Kohl, 2007).

The first chariots and transportation vehicles had two wheels (Fig 6). Later on four-wheeled chariots emerged during the evolution of transportation vehicles and also for transportation of more goods and higher security.

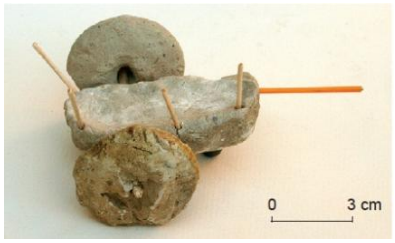

Fig 6. Sample of two-wheeled chariots (toys). AltynDepe 2800 B.C (Kirtcho, 2009:27)

The first four-wheeled chariots were discovered at the beginning of Bronze Age in AltynDepe during Namazga IV from Turkmenistan (Masson, 1981: plate XLIII) (Fig 7).

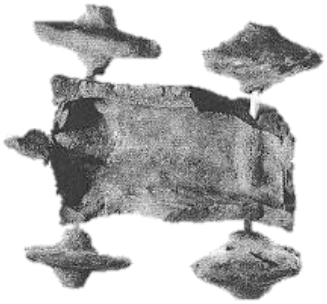

Fig 7. Sample of four-wheeled chariots discovered in AltynDepe (Masson & Masson, 1988)

These models emerged when communicative systems developed and AltynDepe became a big downtown (Kirtcho, 2009). It is obvious that this settlement during this time needed sufficient and equipped transportation vehicles to continuously communicate with other centers to fulfill its economic and commercial needs. Small chariots which are sometimes called toys have holes probably attached to animals' neck by sticks or robes. Some chariots were drawn by one animal and some others by two (figures 8 and 9). Cows, camels, horses, asses and donkeys were used for this purpose.

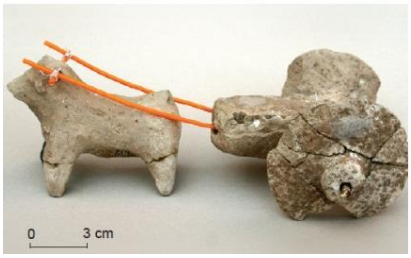

Fig 8. Sample of two-wheeled chariots drawn by cows. AltynDepe 2400 B.C (Kirtcho, 2009)

Fig 9. Sample of four-wheeled chariot drawn by camels. AltynDepe 2200 B.C (Kirtcho, 2009)

One example of using animal power for transportation purposes is migrants. Nomads and migrant tribes put their belongings on the back of their animals in seasonal migration. Nomads have long been importing copper, tin, turquoise, azure and gold to cities and receiving agricultural products and other necessities in return. Probably they began taming animals so that they can use them for transportation of long-distance trade and seasonal migrations.

CONCLUSION

From late fourth millennium B.C we have witnessed increasing trade exchanges between human societies. Human beings began taming animals and using them to facilitate trade exchanges and to meet their requirements. Using animal powers such as cows, asses, donkeys, camels and horses to transport and exchange goods and materials has led to an increase in pace and volume of trade exchanges. Animals such as camels which are not native to Gorgan Plains were probably brought in from Turkmenistan during these trade exchanges. The forest and humid climate of Gorgan Plains are totally different from natural living environment of camels. Concurrent with Bronze Age, increasing volumes of exchange and development of cities in the north east of Iran, the ruling class began constructing and maintaining roads for business boom purposes. This required sufficient human resource and funding. Road construction led to extensive use of chariots for commercial purposes. The first chariots were two-wheeled but later on they were replaced by four-wheeled ones to transport more goods and also to provide higher security. Using four-wheeled chariots became popular as soon as the commercial and communicative systems had developed and trade and goods transportation had begun increasing. According to the designs and evidence remains of the north east of Iran in Bronze Age, the chariots were probably drawn by animals such as cows, camels and horses.

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