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# Following the Donkey's Trail (Part I): a Linguistic and Archaeological Study on the Introduction of Domestic Donkeys to China

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## Abstract

How and when did domestic donkeys arrive in China? This article sets out to uncover the donkeys' forgotten trail from West Asia across the Iranian plateau to China, using archaeological, art historical, philological, and linguistic evidence. Following Parpola and Janhunen's (2011) contribution to our understanding of the Indian wild ass and Mitchell's (2018) overview of the history of the domestic donkey in West Asia and the

Mediterranean, we will attempt to shed light on the transmission of the beast of burden to Eastern Eurasia.

Due to its length, the paper is published in two instalments: Part I covers archaeological, art historical and textual evidence for the earliest occurrence and popularization of donkeys in China. Part II (in the fall issue) contains three sections: Two sections explore possible etymologies of ancient zoonyms for donkeys or donkey-like animals in Iranian and Chinese languages respectively. In a final discussion, possible ways of transmission for the donkey from the Iranian plateau to the Chinese heartland are evaluated with regard to the cultural, linguistic, and topographic conditions reflected in the previous parts.

### Keywords

*equus asinus* – zoonyms – cross-cultural contact – lexical borrowing – Indo-Iranian – Old and Middle Chinese

## 1 Introduction

The domestic donkey (*Equus asinus asinus*), thanks to its abilities to thrive even with little water supply and inferior food, to navigate in desert regions, and to carry heavy loads over difficult terrain, served as valued working animal and general means of transportation for millennia across the arid regions of Northern Africa and West Asia as well as many parts of Eurasia. When Marco Polo (1254–1324) travelled through Eurasia he marvelled at the enduring stoic beasts:

There are also the most beautiful and largest asses of the world. And they are sold for much more than horses; and this is the reason why: because they eat little, and carry great loads, and go over much road in one day. And neither horses nor mules can do this nor endure so much labour. For when the merchants of those parts go from one province to another they pass through great deserts, to wit places sandy, bare, and dry, yielding no grass or anything which was suitable for food for horses. And also because of the distances of wells and of sweet waters it would be necessary for them to make long marches if they wish the beasts to have a drink. And because horses could not endure this, therefore so much the more willingly do the merchants use those asses only, since they are

more swift and trotting well and are taken with less expense. And for this reason they are sold for more than horses (*qua de causa pluri uenduntur quam equi*).

Codex Z, Cathedral Library at Toledo, Moule & Pelliot ed. & transl. 1938: 2.116–17

Donkeys can go without water for up to three days, which is why they have been extensively used in Ancient Egypt to access the Libyan desert since the third millennium BCE (Förster 2007) and to establish trade relations with the kingdom of Canaan (Arnold et al. 2016). Depending on their own bodyweight, donkeys can carry a load between 50 and 80 kg and walk for up to 20 km a day (Dennis 1999: 151). Their sturdy box-like hooves provide them with good footing and even if they slip or fall, they do not tend to panic (Nibbi 1979: 155). Like all members of the *Equus asinus* species, domestic donkeys have the capacity to adapt to various social strategies, a key feature for successful domestication. Wild asses change their social systems according to the ecology, forming larger herd structures, harem organizations, small temporary groups, or unisex herds (French 1989: 166–167). This fluid social structure without a fixed leader or a rigid hierarchy not only proved highly successful for surviving in the challenging environment of northeast Africa (de Santis et al. 2021: 5), but also allowed for a rather smooth domestication and integration into human life. Donkeys are mainly known for their abilities as pack animals forming impressive caravans, as they are for example reflected in the cuneiform plates from Kanesh, a trade hub in Ancient Anatolia,<sup>1</sup> but they also fulfilled a variety of different purposes after being introduced to West Asia. As Goulder (2018: 83) has shown, donkeys contribute an important work force for agriculture as they allow swift short distance transport between field, storage, and market, which is essential for successful production. When compared to oxen, the primary domesticate serving agricultural purposes in ancient West Asia, donkeys are less prone to disease and more tolerant of drought, they are easier to feed and handle and have a longer working life (Brodie 2008: 302–304). In the third millennium BCE, the newly introduced equid work force probably allowed the women of Ur to enter textile production, where they worked with wool which was also transported on the back of donkeys (Goulder 2016). Pastoralists who were responsible for herding sheep and goats to produce wool, meat, and

1 For a general introduction to the historic documents of this area see Matney (2012: 567–568). For donkey-related studies cf. Barjamovic (2018); Brodie (2008).

horns for the capital<sup>2</sup> most probably also used donkeys to facilitate transport between the city and the pastures (Arbuckle and Hammer 2019: 429). Female donkeys (jennies) further have the ability to serve in herd protection, since they have a natural aggression towards dogs, wolves and other predators (Burnham 2002: 104).

Donkeys were also treasured for their ability to produce hybrid offspring. Such hybrids were greatly valued in Mesopotamia as fast equids, comfortable to ride on in contrast to the donkey (Michel 2004). Ideal mules are larger than their donkey parent, have a broad and strong back as well as a tough skin (Nibbi 1979: 167). Thanks to hybrid vigour, they possess a stronger musculature and bigger build than their donkey parent (Gao Shan et al. 2020). However, the successful breeding of hybrid equids is highly difficult and has even been described as a wasteful activity, since most of the crossbreeds display unwanted features, which made the mule a luxury equid fit for nobility (Nibbi 1979: 167). As we will show below, the mule seems to have played an important role in the introduction of donkeys to the Chinese heartland (see section 2.3 on *kunti*).

While in Egypt and the Southern Levant domestic donkeys appeared before the third millennium BCE (Kowner et al. 2019: 73), the animal seems to have arrived in the regions of Eastern Iran, where Bactrian camels were commonly used to cross mountain passes and arid regions, comparatively late in time. In China, the new kind of equid only gained clearly attestable popularity by the second century BCE, when it acquired paramount importance for the imperial court to cross the Taklamakan desert.

This study will shed further light on different aspects pertaining to the introduction of donkeys and their related hybrid breeds to China. Using archaeological, philological, and linguistic evidence, we sketch the traces of the animal which serves as a reliable companion in caravans through the arid regions of Africa and Eurasia up to the present day. The physical remains of donkeys and asses will be discussed and their influence on Iranian and Chinese culture will be documented, based on excavated and transmitted literature as well as selected art historical evidence. From a linguistic point of view, a trail of borrowed designations and neologisms allows further investigation of the question how the domestic donkey found its way from the southern Levant, i.e. the region where it seems to have been popular since the Early Bronze Age (cf. Milevski and Horwitz 2019: 93–148), across the Iranian plateau and into the dry regions around the Tarim Basin, where it became a precious and popular domestic beast among nomadic and sedentary people, and finally into

2 Most ancient civilizations in Mesopotamia seem to have contained some form of local or sedentary pastoralism (cf. Arbuckle and Hammer 2019).

the North China Plain. While the question when and why donkeys and asses were first introduced to China is of general interest for the cultural history of Eurasia, the study will proceed along four sections which are separated in two larger Parts, also addressing area specific questions:

The second section, which constitutes Part I, contains a compilation of published archaeological and art historical data on wild ass and donkey from across the boundaries of modern China to show their spread in chronological sequence between earliest attestations from the late Pleistocene down to the Táng 唐 dynasty (618–907 CE).<sup>3</sup> An overview of donkey related finds during the late Pleistocene and the Neolithic, further considering contemporary finds from sites in north-eastern Africa and the Middle East, is presented in the beginning. The focus, however, will be placed on later finds that indicate the transmission of the donkey from Inner Asia to East Asia. The archaeological evidence will then be further contextualized against the canvas of the available transmitted and excavated written sources in Chinese, which provide valuable insights into the development of the cultural significance of the donkey from its earliest known mentioning in the third century BCE to the early medieval period prior to the reunification of the Chinese empire under the Suí 隋 dynasty in the late sixth century CE.

Part II (sections 3–5) dives into the obscure origins of the donkey's name(s) in Iranian and Chinese sources and tries to uncover linguistic connections between both language families. Section three sets out to clarify the highly problematic origin of the most prominent Iranian word for donkey, i.e. *xar*. The term in question will be investigated through a manuscript analysis followed by a discussion of multiple scenarios of the possible etymological background of the word for donkey in Old and Middle Iranian. Section four concentrates on the development of Chinese terminologies for the novel equid presumably introduced to China sometime before the third century BCE. The donkey and donkey related terms attested in the oldest extant transmitted and excavated materials will be analysed and their Old Chinese reconstructions clarified.<sup>4</sup> Pinpointing three terms for donkeys, a possible borrowing scenario of the Iranian term for 'donkey' along with the actual animal will be discussed.

3 Obviously, donkeys also played an important role in China *after* the Táng dynasty and their use extends well into the modern period. See e.g. Chen (2011) on the meaning of a donkey's bray in early Medieval China; Sturman (1995) for an art historical insight into the symbolism of donkey riders during the Five Dynasties period (907–960 CE); Shahar (2017) for a discussion of donkeys during the late imperial and modern Northern China; Eli (2010) about donkey trade in modern Kashgar.

4 All Middle Chinese (MC) transcriptions follow the principles outlined in Baxter (1992). Old Chinese (\*OC) reconstructions follow the newer system proposed in Baxter and Sagart

Finally, in section five, the discussion about the eastwards travel of the donkey through Eurasia is opened in a broader context, taking the social, ecological, and cultural differences into account which might have hindered or facilitated the introduction of the domestic donkey.

## 2 Archaeological, Art Historical and Textual Evidence of Donkeys in China

Donkeys played an important role in ancient transport systems of Asia and Africa, since they provided a reliable source of protein and facilitated overland transport of goods and people. The wild ancestor of the domesticated donkey is the African wild ass (*Equus africanus*). New genetic research on mitochondrial DNA (mtDNA) of modern donkeys suggests that they descend from two subspecies of the African wild ass: the Nubian wild ass (*E. africanus africanus*) and the Somali wild ass (*E. africanus somaliensis*) (Rossel et al. 2008; Hu Songmei et al. 2020: 456).

In China, recent studies have been conducted to investigate the genetic diversity and origins of Chinese donkeys. The first genetic study on ancient donkeys was published in 2014 by Han Lu et al. Further studies include mtDNA studies on modern Chinese donkeys (Zeng Lulan et al. 2019; Lei Chuzhao et al. 2007). These studies have shown that the modern Chinese donkey does not descend from the Asian, but from the African wild ass, precisely its Nubian (*E. africanus africanus*) and Somali lineages (*E. africanus somaliensis*). The same studies propose that domestic donkeys in China were first raised in the area of modern Xinjiang, and later spread (1) via Ningxia and Gansu to the Guanzhong Plains (lit. the region 'between the passes', *guān zhōng* 關中), Shǎnxī, (2) to the areas of Inner Mongolia and Yúnnán, and (3) from the Guanzhong Plains to other regions of China (Lei Chuzhao et al. 2007). The first introduction is believed to have taken place before the Hàn 漢 period (202 BCE–220 CE, cf. Han Lu et al. 2014: 7–8). Little, however, is known about whence and when domesticated donkeys expanded into China.

### 2.1 Data and Methods

In order to elaborate on this question, we compiled archaeozoological, archaeological as well as art historical and textual evidence related to the presence of donkeys from across China in chronological order, specifying the site location, remain type, and estimated age (see the Appendix: Table 1). In total, we

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(2014). Middle Chinese transcriptions are always given in *cursive* script while Old Chinese reconstructions are indicated by \*.

found evidence reported from 36 archaeological sites. The time range considered encompasses finds dating from the late first millennium BCE to the Táng dynasty, i.e. the time from the first appearance of domesticated donkeys in northern China until their full integration into Chinese society across modern-day northern and central China as valued beast of burden. The dataset further includes nine sites with donkey-related finds from Central and Western Asia as well as Northeast Africa which are relevant for the discussion on the origin and dispersal of domesticated donkeys. The earliest donkey skeletons so far were found at Abydos in the Egyptian Nile River Delta and dated to approximately 5500 years ago (Table 1, no. 14). These donkeys were used as pack animals (Rossel et al. 2008; Hu Songmei et al. 2020: 456). The domesticated donkey was commonly used before horses in Mesopotamia and Egypt (Clutton-Brock 1992: 65). One of the earliest depictions of what is presumably a kunga<sup>5</sup> pulling wagons into battle is shown on the Standard of Ur from the Royal Cemetery at Ur, modern Iraq, dated to around 2500 BCE (Table 1, no. 16, Greenfield et al. 2018; Mitchell 2018: 90–91, plate 9). These early finds indicate that domesticated donkeys gradually spread from Northeast Africa across Eurasia and eventually reached as far east as China.

The compiled data were mainly extracted from archaeological reports. The archaeozoological finds comprise donkey remains ranging from singular bones to complete skeletons. For most finds listed, there is no detailed description or in-depth analysis in the reports, which makes the identification of an animal as wild or domesticated well-nigh impossible. It is hoped that future studies will reinvestigate these finds and shed new light onto this discussion. The archaeological data suggesting domestication include gear (e.g. bits, saddlebag fastenings, stirrups) related to the use of donkeys as either pack, riding, or draught animals. The art historical evidence comprises depictions on seals, stone reliefs, and mural paintings as well as bronze ornaments and pottery sculptures. It should be noted, however, that this type of evidence is often problematic. Certain features such as long ears may imply that a depicted equine is a donkey rather than a horse. However, given that these depictions are often not very naturalistic, this identification cannot always be taken for granted.

Historical data for the presence of donkeys in China are culled from epigraphic sources as well as transmitted literature. The earliest clear textual evidence can be traced to the late third century BCE (cf. section 2.3). While

5 As recently shown by paleogenetic analysis, kungas – widely used in Mesopotamia before the introduction of horses towards the end of the third millennium BCE – are the offspring of a female domesticated donkey and a male Syrian wild ass or hemippe (*Equus hemionus hemippus*), cf. Benett et al. (2022). The identification as a donkey  $\times$  onager hybrid in the Royal Ur panel, however, is not undisputed (cf. Maekawa 1979: 47–48, n. 13; Sheratt 1983: 96; Way 2011: 148; Grigson 2012: 189, 148).



most of the passages relate to the state of Qín 秦, other border states connected to the northern and north-western regions of modern China seem to have highly valued the foreign equine as well. Concerning the representation of donkeys or wild asses in historical sources, a few problems should be pointed out: First, given that neither the donkey nor the wild ass enjoyed a cultural status comparable to that of the horse in the Chinese realm, it is rarely mentioned in texts. Early Chinese textual sources, epigraphical and transmitted, often have a ritual or religious background: Bronze inscriptions are mostly concerned with investiture, ancestor veneration and sacrifices, gift lists, or other “genres”, more often than not, created to ritually legitimize the political mandate of the Zhōu 周 royal house or one of its sub-lineages. The oldest transmitted literature is dominated by ritual hymns and edited popular songs (e.g. the “Classic of Poetry” *Shījīng* 詩經), legends, myths, and political speeches (e.g. the “Classic of Documents” *Shàngshū* 尚書; cf. Kern, 2009) and by depictions of administrative measures (reflected, e.g., in the Hàn text “Notes on Etiquette” *Lǐjì* 禮記).<sup>6</sup> The donkey, which probably was still a rare sight by the time of the formation of the Zhōu literary canon, did not become part of the official customs. Thus, even if donkeys existed in China already during the early Eastern Zhōu 周 period (eighth c. BCE), they were not likely to be mentioned in texts. Nonetheless, the donkey was probably valued for its strength and tenacity after its introduction; and so, it may have been of certain economic importance in the ‘Central Plains’ (*zhōng yuán* 中原), i.e. the North China Plain around the Middle and Lower reaches of the Yellow River. However, apart from historical accounts about the reign of Hàn Wǔdì 漢武帝 (141–87 BCE), when donkeys were extensively used for the transport of goods through the arid regions in the northwest, the importance of the donkey is rarely stressed in textual sources. Second, although donkeys and mules are occasionally mentioned in texts referring to the Warring States period (ca. 475–221 BCE),<sup>7</sup> most data come from transmitted literature which is fraught with problems of textual layering, precise dating and must be approached with great caution, especially when it comes to distinguishing between different terms for the animal(s) in question. Moreover, it may be assumed that different names for donkeys, wild asses, mules, hinnies etc. existed throughout history, many of which were never fixed in writing. It is a well-established fact in the etymological literature on zoonyms that semantic shifts changed the reference of certain names for equids, donkeys, and their hybrid offspring.

6 For a short introduction to the text as well as bibliographical references, see Riegel 1993.

7 Based on our present knowledge, the only evident pre-Qín manuscript containing a word for donkey is dated to the late third century BCE, i.e. towards the end of the Warring States period.

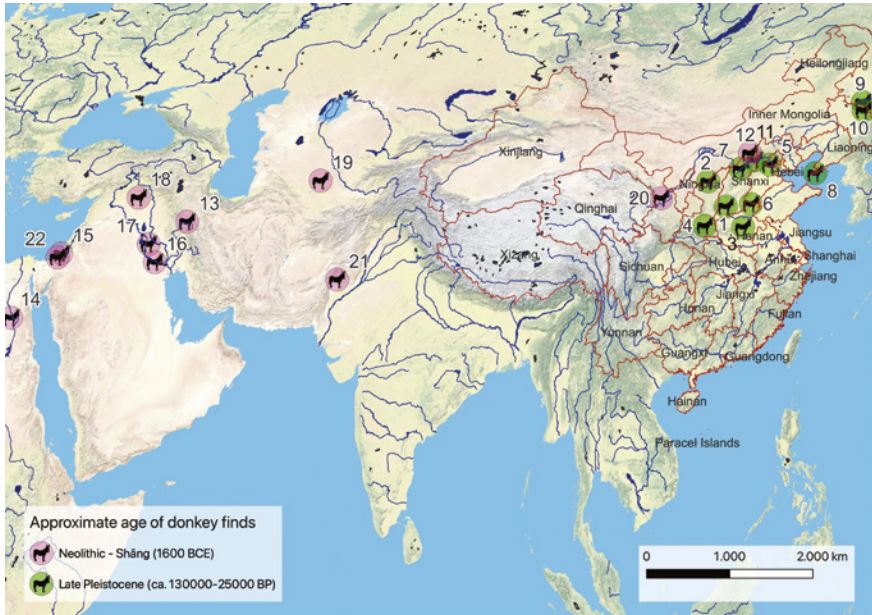


FIGURE 1 Map indicating records of donkey remains from the time of the late Pleistocene to the Neolithic (c.1600 BCE): 1-Dīngcūn 丁村, 2-Sālāwūsū 薩拉烏蘇, 3-Língjīng 靈井, 4-Làochíhé 澇池河, 5-Shāndǐngdòng 山頂洞, 6-Xiǎonánhǎi dòngxué 小南海洞穴, 7-Zhìyù 峙峪, 8-Gǔlóngshān 古龍山, 9-Yánjiāgǎng 閻家崗, 10-Yúshù 榆樹, 11-Xǔjiāyáo 許家窑, 12-Dàbàgōu 大壩溝, 13-Godin Tepe, 14-Abydos, 15-Tell es-Şāfi / Gath, 16-Royal Cemetery at Ur, 17-Kish, 18-Tell-Brak, 19-Gonur Tepe, 20-Qīnwèijiā 秦魏家, 21-Pirak, 22-Tell Haror  
MAP: P. WERTMANN / QGIS

Judging from the extant textual attestations, e.g., a clear distinction between *lú* 驢 and *luó* 羸, referring to ‘donkey’ and to ‘mule’ respectively, appears to be uncertain in Chinese documents predating the Hàn period.

## 2.2 *Wild Donkeys (E. asinus) in China from the Late Pleistocene to the Beginning of the Shāng Period (1600 BCE)*

Biologically, two types of wild donkeys are attested, i.e. the ‘Asian wild donkey’ (*E. hemionus*) and the ‘African wild donkey’ (*E. asinus*). The published fossil finds show that the Asian wild donkey (*E. hemionus*) was widespread across northern China from very early on (see Table 1, Fig. 1). The earliest finds classified as Asian wild donkey date to the late Pleistocene (ca. 130,000–25,000 BP). These finds comprise mainly teeth and singular bones, some of which show signs of burning or chopping, hence indicating the possible use of wild donkeys as a food resource (Olsen 1988: 161; Lǐ Zhànyáng and Dǒng Wèi 2007: 355). As mentioned previously, recent mtDNA-studies on both modern and ancient

donkey remains from China show, however, that the modern Chinese donkey does not descend from the Asian, but from the African wild ass, more precisely from its Nubian and Somali lineage (Lei Chuzhao et al. 2007; Han Lu et al. 2014). The same studies propose that the domesticated donkey was introduced into China sometime before the Hàn period and that the first domestication event took place somewhere in Xīnjiāng, from where the animal spread eastwards to the Guānzhōng Plains via today's Níngxìà and Gānsù provinces (Lei Chuzhao et al. 2007: 651; Han Lu et al. 2014: 7–8). Given the scarcity of actual donkey finds, the lack of detailed descriptions and in-depth analyses, however, it is still difficult to state with certainty when and via which route the descendants of the African wild donkey first reached China.

So far, there are no Neolithic finds of wild donkey remains reported from the Chinese Central Plains. Outside of this area, five bones of one donkey identified as *E. hemionus* and roughly dated to the late Yǎngsháo 仰韶 period (ca. 3800–3000 BCE) were excavated at the Dàbàgōu 大壩溝 site (Table 1, no. 12) in present-day Inner Mongolia (Huáng Yùnpíng 2003: 598–599). These bones were found as kitchen debris in an ash pit. Another find of bones simply described as “donkey” in the excavation report was found at the Qíjiā 齊家 culture (ca. 2000–1600 BCE) site of Qínwèijiā 秦魏家 (Table 1, no. 20) in modern Gānsù (IACAS Gansu Team 1975: 88).

### 2.3 *Shāng* (1600–1046 BCE) – *Warring States* (475–221 BCE) Periods (Fig. 2)

Around the time of the mid-*Shāng* period (1450–1300 BCE), bones ascribed to one *E. hemionus* were found at the Zhāngyíng 張營 site (Table 1, no. 23) close to Běijīng. Signs of chopping observed on the bones indicate that this donkey was eaten (Huáng Yùnpíng 2007: 256, 261; Yuán Jìng 2015: 109). A second find of one singular donkey bone was reported from the Shífó dòng 石佛洞 site (Table 1, no. 24) in Yúnnán (Yunnan Institute of Cultural Relics and Archaeology et al. 2010: 355). So far, however, there is no clear description of this find.

Throughout the first millennium BCE, the only find of actual donkey remains is reported for the Shājǐng 沙井 culture cemetery site of Hámádūn 蛤蟆墩 (Table 1, no. 25) in Yǒngchāng 永昌 county, north-central Gānsù province. This site is dated approximately between the ninth and eighth centuries BCE, i.e. to the late Western Zhōu period in traditional Chinese historiography, and associated with the putatively Indo-European speaking Yuèzhī 月氏 people<sup>8</sup> based on the age and its area of distribution (Gansu Institute of Cultural Relics and Archaeology 1990: 232–233). Apart from bones of sheep,

8 The question regarding the linguistic and ethnic identification of the Yuèzhī people is heavily debated and cannot be further discussed here. For standard overviews of the available

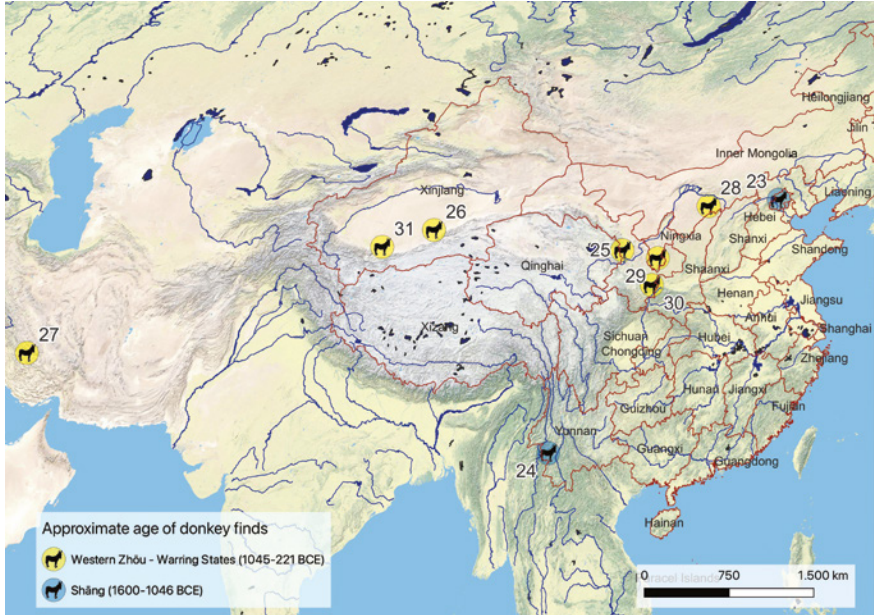


FIGURE 2 Map indicating records of donkey remains from the Shāng period (1600–1046 BCE) to the Warring States period (475–221 BCE): 23-Zhāngyíng 張營, 24-Shífó dòng 石佛洞, 25-Hámádùn 蛤蟆墩, 26-Zāgǔnlúkè 紫滾魯克, 27-Persepolis, 28-È'ěrdūosī 鄂爾多斯, 29-Yángláng 楊郎, 30-Fàngmǎtān 放馬灘, 31-Yuánsā 圓沙古城  
MAP: P. WERTMANN / QGIS

grave 9 revealed the hoof and toe bone of a donkey (Gansu Institute of Cultural Relics and Archaeology 1990: 235). Given that there is no detailed analysis of these bones, it is impossible to state whether they belonged to a wild or domesticated individual. Such caveats notwithstanding, Flad et al. (2007: 194) suggest that this find might indicate the use of domesticated donkeys in the Héxī 河西 Corridor in Northwest China before they appeared in Central China during the later Hàn period.

Art historical evidence on the presence of donkeys comes from the Ordos region of modern Inner Mongolia (Table 1, no. 28) in the form of bronze ornaments dated approximately between the sixth and second centuries BCE. Among the items from the collection of the Ordos Museum is a bronze pendant in the shape of a lying donkey and chariot fittings topped by standing donkeys (e.g. Ordos Museum 2006: 251, 309, 314). Whether the depicted individuals are wild or domesticated is, again, unclear. The mere fact that they are

evidence and theories see for example Haloun (1937), Pulleyblank (1966), Zürcher (1969), Enoki et al. (1994), Liu Xinru (2001), Thierry (2005), and Benjamin (2007).

shown, however, confirms that donkeys were present in this area and must have been of a certain economic or cultural importance. Both the Hámādūn site and the Ordos region were located outside the Chinese core area at that time. Nevertheless, early relations between the peoples from the North and the Northwest and the Chinese in the South, involving, for example, the exchange of beads, had already existed since the beginning of the second millennium BCE (e.g. Janz et al., 2020), may they have been of peaceful or hostile nature. It is possible that northern and north-western areas were among the source regions of the domesticated donkeys referred to in Chinese textual sources.

It is towards the end of the Warring States period (ca. 475–221 BCE) that we find the first written evidence on donkeys in China. There are three textual sources which imply the early presence of donkey-like animals: (1) A 'daybook' (*rìshū* 日書), i.e. a hemerological text from the corpus of the Fàngmǎtān 放馬灘 manuscripts, (2) a passage in the chapter 'Caring for Ministers' ('Àishì' 愛士) of the "Annals of Mr. Lǚ" (*Lǚshì Chūnqiū* 呂氏春秋), and finally (3) the 'Petition against the Expulsion of Guest Advisers' (*Jiàn zhúkè shū* 諫逐客書), a remonstrance document by the famous minister Lǐ Sī 李斯 (284–208 BCE) against the edict of his ruler, the King of Qín, Yíng Zhèng 嬴政 (r. 247–222/222–210 BCE), to expel all advisers originating from other states. This text was transmitted in the *Shǐjì* 史記, the first Chinese narrative history completed by the second century BCE (Hulsewé 1993). Below we will provide some more detail on each of these early attestations.

(1) The oldest Chinese textual evidence of a word which most likely refers to the donkey or alternatively to the wild ass is found in a manuscript from tomb no. 1 at the Fàngmǎtān site (Table 1, no. 30) and dates approximately to the late third century BCE.<sup>9</sup> The manuscript FMTB 80 is a manual which allots different animals to their corresponding period of the day and to a musical pitch in the then prevalent cosmological correlation scheme (cf. Liu Lexian 2017: 67–69). The parallel structure of the daybook, which lists said periods over twelve days with the adequate bell to strike and each corresponding animal,<sup>10</sup> allows to identify the character *lú* 閭 \*C-ra (usually 'gate, entryway') as a transcription of a foreign animal term. Like it is the case for many of the thirty-six animals mentioned in this document, however, it is not entirely clear if *lú* actually corresponds to the later Chinese term for donkey (*lú* 驢 \*ra) (cf. Chéng Shǎoxuān

9 The dating of the manuscripts and the tomb relies on the reference of the 'eighth year' in the resurrection account which is also part of the same corpus of manuscripts as the passage containing the oldest mention of the donkey. The precise date is highly disputed; the tomb could also have been created during the Qín period (Thote 2017: 24).

10 For an overview of the text passage mentioning the 36 animals which correspond to the time intervals from sunrise to noon, noon to sunset and sunset to early morning see Chéng Shǎoxuān (2013: 282–290).

and Jiǎng Wén 2009). Luckily, the passage describes the animal in question as having a very donkey-like appearance: it has a long face, a long forehead, rabbit-like ears, and a whitish-pale (*bái xī* 白皙) colour which could be related to the fur of the animal<sup>11</sup> (Chéng Shǎoxuān 2013: 284):

In the time frame from noon to sunset [of the seventh day], strike into the middle of the *ruí bīn* 蕤賓 bell, corresponding to donkey (*lú* 闕 \*C-ra),<sup>12</sup> i.e. long face, long forehead, rabbit-ears and [...]like gate. White and pale, it is good in case of sick ... [body part<sup>13</sup>]<sup>14</sup>

日中至日入投中蕤賓：闕（驢）毆長面長頤免耳□□=毆。白皙，善病□。

“Huángzhōng”, *Fàngmǎtān* FMTB 80

In the correspondence scheme, the donkey shares the seventh day period with the horse (sunrise to noon) and a possibly equid-like beast with a pointy face and large ears, whose name is unfortunately not transmitted due to damage to the manuscript. Considering the location of the *Fàngmǎtān* site several hundred kilometres west of the Qín capital at Xiányáng 咸陽 and not far from the western border of the empire now located in Gānsù province, it can be assumed that the people in this region were familiar with wild asses and had access to donkeys somewhat earlier than the people in the Central Plains.

(2) The second pre-imperial text referring to donkey-like animals is a passage from the “Annals of Mr. Lǚ” conventionally dated to 239 BCE.<sup>15</sup> Two white *luó* 羸 are described as precious beasts belonging to Zhào Jiǎnzǐ 趙簡子, a high official of the State of Jìn 晉 in and around present-day Shānxī 山西. Despite

11 The corresponding colour of the donkeys mentioned in the *Fàngmǎtān* ms. matches better with wild Asian donkeys which are of a pale brown coloration, than with the domesticated donkey originating from northern Africa.

12 *Yi* 毆 is a dialectal variant of the copula or nominal predication marker *yě* 也 typically seen in pre-dynastic and early dynastic manuscripts from Qín (Ônishi 2001; Liú Bīngqīng 2022). Due to the context and to its semantic dimension ‘to echo, to resound’, the nominal sentences ending in *yì* 毆 seem to strengthen the idea of a correspondance or “resonance” between the bell, the animal and its favourable effects on the human body.

13 Parallel lines of the daybook mention sick organs or body parts which can be cured or at least ameliorated (*shàn* 善) through the animal (spirit?) called forth by striking a specific bell in the right moment.

14 Translations are our own, unless marked otherwise.

15 The textual evidence in the “Annals of Mr. Lǚ” is of special interest since, unlike with most other early Chinese texts, the scholarly consensus that its contents predate the Qín period and the conventional date of its compilation in 239 BCE are rather strong, cf. Carson and Loewe (1993), Páng Huì (2014), Gǔ Liàng (2020: 102–103). For a good philosophical discussion on the dating problem see Sato (2021).

their high value, one is slaughtered in order to obtain its liver to cure a man from a fatal illness:

Zhào Jiǎnzǐ had two white *luó* which he loved a lot. Xūqú from Yángchéng was stationed in the Office of the Broad Gate. One night, someone knocked at [Jiǎnzǐ's] door and brought forth his plea: "Xūqú, a minister of You, my Lord, contracted an acute illness and the healer told him: 'If you obtain the liver of a white *luó* [as medicine], the sickness will then be stopped, (but) if you do not obtain it, you will die.'" The suppliant entered and made himself clear. Dōng Ānyú who stood guard at [Jiǎnzǐ's] side, said angrily: "Ha, this Xūqú! Since the guy expects a *luó* from my Lord, allow me to inflict capital punishment upon him." Jiǎnzǐ said: "Now, wouldn't that be as inhumane to kill a man in order to let a domestic animal live, as it would be inhumane to kill a domestic animal in order to let a man live?" Then, he called the butcher to kill [one of the] white *luó*, take out the liver and bring it to Xūqú from Yángchéng. Not long after that had happened, Zhào raised troops and attacked the *Dí*. The seven hundred men of the left and the seven hundred men of the right flank of the Office of the Broad Gate all rose at the front and took the heads of the armoured soldiers. How could the ruler of the people not be fond of [such] knights?

趙簡子有兩白驪而甚愛之。陽城胥渠處廣門之官，夜款門而謁曰：「主君之臣胥渠有疾，醫教之曰：『得白驪之肝病則止，不得則死。』」謁者入通。董安于御於側，慍曰：「謔！胥渠也，期吾君驪，請即刑焉。」簡子曰：「夫殺人以活畜，不亦不仁乎？殺畜以活人，不亦仁乎？」於是召庖人殺白驪，取肝以與陽城胥渠。處無幾何，趙興兵而攻翟。廣門之官，左七百人，右七百人，皆先登而獲甲首。人主其胡可以不好士？

"Àishì" 愛士, *Lǚshì chūnqiū* 8: 191–193

The passage implies that apart from the state of Qín, the nobility of the state of Jin also appreciated special kinds of equines. While it cannot be entirely asserted whether the *luó* 驪 mentioned in this text were actually designations of donkeys or mules, the later use of the word as well as its phonetic similarity with the word for donkey (cf. Part II section 4.4) seem to imply this. The fact that these animals – whether donkeys or mules – are described as *white* is of interest. They might have had a similar fur colour as the *lú* referred to in the Fàngmǎtān manuscript. There is a possibility that the *lú* or *luó* could also refer to wild Asian asses, which have a light fur colour, when the term was first introduced. Also notice that the similarly named equids in both texts

seem to have had an important medical use.<sup>16</sup> While the Fàngmǎtān manuscript slip could imply a totem-like function of the animal which was conjured up by a healer in order to treat a hurting body part, in the passage from the “Annals of Mr. Lǚ” the liver of the animal had to be eaten.<sup>17</sup> Like the first textual piece of evidence, this text reflects a presence of donkeys or donkey-like animals in peripheral states like Qín and Jìn towards the end of the Warring States period. Both areas were close to the Héxī Corridor which connected the Guānzhōng Plains with the Tarim Basin, from where the donkeys most probably were introduced to China.

(3) The presence of donkeys or its related hybrid breeds in the state of Qín might be implied by another source, a petition written by chancellor Lǐ Sī 李斯 to the ruler of Qín in 237 BCE. The Qín ruler, and later first emperor of China of terracotta army fame, wanted to dismiss all advisers which were not of Qín origin. To illustrate the benefits of importing and employing foreign commodities and talents, the chancellor presented a long list of treasures from outside of the Qín state to change the ruler’s mind. Among other imported luxury products, the text lists ‘noble and fine *juétí*’ (*jùn liáng juétí* 駿良駢), which were precious imports from the North (Wáng Zījīn 2013: 83).

Today Your Highness covets nephrite jade from Mount Kūn, has the treasures of [count] Suí and [Biàn] Hé, hangs bright-moon-pearls [at his hat rim], adorns himself with the sword called *Tàìē*; he harnesses horses like the [legendary] *xiānlí*, installs flags made of green phoenix [i.e. king fisher] feathers, and erects drums made of spirit crocodile skin. Among these numerous treasures, [our] Qín state does not produce even one

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- 16 Pharmaceutical uses of donkeys in China, first described in Europe in 17th century Jesuit sources, especially the production of ‘donkey hide gelatin’ (*ējiāo* 阿膠) in traditional medicine continues unabated. Over recent years, the vast demand in donkey skin as a pharmaceutical ingredient (Johnston 2023a) or as a widely consumed “healthy living” snack bar called *gùyuán gāo* 固元膏 (‘base-solidifying paste’), has lead to a 7.8 billion US dollar donkey trade between Africa and China in 2020 (Johnston 2023b). China now consumes 10% of the world donkey population *per year*, which has seriously endangered some donkey populations, criminalized the trade and dramatically impoverished rural African herders (Peltier et al. 2024). Donkey skin trade was consequently banned at the 37th Ordinary Session of the African Union Assembly (Feb 17–18, 2024) in Addis Ababa (Gil 2024).
- 17 Interestingly, in both cases the “consumption” of the donkey was not considered a *common* activity. Even during the Hàn, when donkeys presumably became more popular in the Central Plains, the consumption of donkey meat was subjected to specific rules and precautions as described in the “Essential Prescriptions from the Golden Cabinet” (*Jīnkù yàolüè* 金匱要略 10: 212). Furthermore, the *Shǐjì* (83: 2471–2472) uses the image of eating *juétí* 駢肉 meat, an animal possibly related to the donkey (see section 2.3), as an allegory for extreme wastefulness.



of them, so what Your Highness is stating – how should it work out? If [the rule] *only allowed if produced by the State of Qín* [is applied], then this luminous jade disk would not adorn the audience hall, the trinkets made from rhino horn and ebony would not serve as toys and favourite gems, the beauties of Zhèng and Wèi would not fill your private palace, and the fine and noble *juétí* would not be present in your outer stables, the tin bronze of *Jiāngnán* would not be used, the cinnabar and cyan-colour from western Shǔ would not serve as colours. Whereby those from the inner palace who fill the terrasses are adorned, what pleasures heart and mind and delights ears and eyes – if they would have to come from Qín to be allowed, this hairpin made with pearls from Wǎn, the earrings made with baroque pearls, the robes manufactured in Dōng'è, and ornaments of brocade embroidery would not come before [You], and those beautiful and graceful girls from Zhào, who have become transformed to the better through our customs, would not stand at [Your] sides.

今陛下致昆山之玉，有隨、和之寶，垂明月之珠，服太阿之劍，乘織離之馬，建翠鳳之旗，樹靈鼉之鼓。此數寶者，秦不生一焉，而陛下說之，何也？必秦國之所生然後可，則是夜光之璧不飾朝廷，犀象之器不為玩好，鄭、衛之女不充後宮，而駿良馱駟不實外廄，江南金錫不為用，西蜀丹青不為采。所以飾後宮充下陳娛心意說耳目者，必出於秦然後可，則是宛珠之簪，傅璣之珥，阿綉之衣，錦繡之飾不進於前，而隨俗雅化佳冶窈窕趙女不立於側也。

“Lǐ Sì lièzhuàn” 李斯列傳, *Shǐjì* 87: 2543

The passage reflects treasures (including desirable humans) from major regions of the Eastern Zhōu realm and beyond: beautiful women from Zhèng and Wèi and competent servant girls from Zhào, as well as robes from Qí. As precious things from regions further south-east, the *bì* jade once found by the Duke of Suí, hairpins adorned with pearls from Wǎn, tin-alloyed bronze from the southern regions beyond the Yangtze, the legendary sword “Tàirē”, made by Gān Jiàng 干將, a skilled sword smith in the half-sinicized south-eastern coastal state of Yuè 越, and the pearl once found by [Biàn] Hé in south-central state of Chǔ 楚 are mentioned. Furthermore, the region of Shǔ 蜀 in present-day Sìchuān, to the southwest of the Qín state, seems to have played a major role in providing precious dyes. Among all these products, only the jade from the Kūnlún 崑崙 Mountains, possibly the *xiānlí* horse, which has been identified with Dǎolí 盜驪,<sup>18</sup> one of the eight legendary horses of King Mù 穆天子 (r. tenth c. BCE),

18 For a discussion of a possible connection between *xiānlí* and *dǎolí* see Frühauf (2006: 29–30).

and the so-called *juéti* equids which were kept in the outer stables of the king are mentioned as treasures from the north. While it is not entirely clear what kind of animals these *juéti* were, the context and parallel passages might help to pinpoint some of their characteristics. A parallel passage in the “Biography of Sū Qín” 蘇秦列傳 in the *Shǐjì* mentions that “the outer stables have to be filled with camels and good horses from the Yān [state] and the Dài [commandery]”,<sup>19</sup> if the ruler of Chǔ would join the alliance against the state of Qín. More parallels are found in the “Stratagems of the Warring States” (*Zhànguó cè* 戰國策), a collection of exemplary stratagems from the Warring States period compiled by Liú Xiàng 劉向 (77–6 BCE) (cf. Tsien 1993), where “dogs and horses fill the outer stables” (*Zhànguó cè* 11: 382), and in the “Discourses on Salt and Iron”<sup>20</sup> (*Yántiě lùn* 鹽鐵論), a text which is based on a court debate on state monopolies and various further controversial issues in 81 BCE (cf. Loewe 1993). The fact that ‘special animals’ (*qí wù* 奇物) like “*táotú* 騊駼 and *juéti* 馱騾 equids reside in the outer stables”<sup>21</sup> is apparently mentioned in this text as a sign of prosperity under the rule of Hàn Wǔdì. The figurative description of a rich and influential ruling house as having palace halls and stables full of foreign treasures may have become an idiomatic expression by the Western Hàn Period (25–220 CE), and Lǐ Sī’s remonstrance was probably not transmitted word by word to the authors of the *Shǐjì*. In any case, it is noteworthy that *juéti* equids are pointed out as treasured animals of the Qín ruler, which is corroborated by a passage from the “Stratagems of the Warring States” which praises the qualities of Qín military horses as follows:

The good qualities of the horses of Qín [entail that] in the hubbub of armed troops, they lounge forward and kick backwards. Since there is a distance of three *xún* [arm spans] between their hooves, they cannot be outnumbered.

秦馬之良，戎兵之眾，探前跌後，蹄間三尋者，不可勝數也。

“The account of how Zhāng Yí persuaded the King of Hán in favour of the alliance with Qín” 張儀為秦連橫說韓王, *Zhànguó cè* 26: 817–818

19 Yān, Dài tuótuó liáng mǎ bì shí wài jù 燕、代橐駝良馬必實外廄 (*Shǐjì* 69: 2261).

20 For a partial English translation (ch. 1–28) of the “Discourses on Salt and Iron” see Gale (1931).

21 *Táotú, juéti, shí yú wài jù* 騊駼馱騾，實於外廄 (*Yántiě lùn* 3: 190).

Although this passage describes horses without specifying their type, the original “Qín designation” for the animal seems to be reflected in a paronomastic gloss: The horse which kicks (*jué* 跌 \*[k]<sup>w</sup>ret-s) backwards, thereby reaching a surprising large distance between its hooves (*tí* 踢 \*[k]lek) is most probably a clever folk etymology to describe and motivate the enigmatic term *juéti* 馱騃 (*kwet-dej* < \*[k]<sup>w</sup>et-[d]<sup>s</sup>e). According to the *Shuōwén jiězì* 說文解字, the first comprehensive list of Chinese characters compiled and presented to the throne around 100 CE, a *juéti* was a “mule” born from a male horse and a female donkey, i.e. a hinny. While it is not entirely clear whether the word already carried this special meaning in the Qín period, the likelihood that the *juéti* was in fact related to the donkey is quite high: In contrast to horses which kick arbitrarily while shying away, donkeys – as well as their hybrid relatives – have the ability to aim their kicks and also control the strength applied. A muscular build which is different from their horse relative allows them to not only kick backwards but in all four directions, even if one hoof is held up (Burnham 2002: 102). Egami (1951: 91–98) thought it was unreasonable to identify the beast in question with a mule mainly because these equids seem to have been considered as especially valuable at the Qín court and they have been described to have amazing jumping abilities. He comes to the conclusion that *juéti* must have been a fine Aryan horse breed. Jensen (1936: 142) mentions August Conrady’s (1864–1925) idea to connect the Chinese word to an Old Indian expression *\*kuṇḍī* which could be related to words like *gunth*, *kunt* (Kashmiri *gunt*) ‘mountain horse’. This word for the special horse breed seems to be present at least since the Mughal period (1526–1761) when they served as primary means of transportation in the mountainous areas. They were found in Kashmir, Ghorghat, and Kumaun in Mughal India (Anjum 2013: 279).<sup>22</sup> The Old Indian form given by Conrady, however, is unfortunately not attested in the literature. There is only a lexicalized term *kuṇḍin* ‘horse’ (lit. ‘furnished with a pitcher’) to be found in Sanskrit dictionaries. It is listed along with the variants *kindhin* and *kilkin* and all of them seem to be of unclear etymology (Monier-Williams 1899: s.vv.). Mayrhofer (1953–1980: 1.226 [#1693]) simply accepts Conrady’s theory and assumes that the term must be a borrowing in Chinese and in Sanskrit from a language spoken in the western Himalayan region. In Pāli, we seem to find a better explanation for the word: *khanti*(-*soraccam*) (‘patience and gentleness’), related to Skt. *kṣānti* (‘patience’), is used to describe a quality of a horse. It is related to P. *khama* (Skt. *kṣam*) ‘patient, enduring’, which has been used to describe the qualities

22 On horse trade in Mughal India cf. Anjum (2012).

of a king's horse (Rhys Davids 1921–25: 263). Interestingly, no one seems to have proposed a connection to Skt. *kunḍa* 'son of a woman by another man than her husband while the husband is alive'. If the *juéti* was not some special mountain horse breed, but in fact the offspring of a mare who had an extra species affair with a donkey jack, the name would fit very well. Frühauf (2006: 15) simply states that the word *juéti* implied all kinds of equids – from wild horse to hinny – in different sources. Accordingly, he did not decide on its specific meaning but only defined it as a hypronym for horses of a special type. Pulleyblank (1962: 2.245–246) on the other hand suspects a northern origin of the word, linking it to the Yeniseian general equid term related to Ket *kus*, Kot *huś*, Pumpokol *kut*, *kus*, which is in line with his theory, inherited from Ligeti (1950) and, more recently supported by Dul'zon (1968) and Vovin (2000), that the Xiōngnú 匈奴 language is related to this ancient Central Siberian language family.

Regardless of the actual meaning of *juéti*, there is good reason to consider its relation to the mule, since many of its characteristics could have made it a superior breed in the eyes of the Qín nobility: For instance, its donkey-like muscular body structure does not only allow for precise kicking, but also enables the animal to jump over high obstacles from a standing position.<sup>23</sup> This trait may be reflected in later exaggerating commentaries which stated that the *juéti* foal is able to jump over its mother three or seven days after its birth (Egami 1951: 90). Furthermore, the hybrid breeds have proven to have higher cognitive abilities than their parent animals, a trait which has been identified as part of their so-called hybrid vigour (cf. Proops et al. 2009). This increased intelligence – along with a hoof form more similar to the donkey's – leads to an exceptional skill to move through difficult terrain like the mountainous regions around the Qín state, as they actually calculate their steps. But the same intellect makes them less submissive than horses and donkeys and highly focused on their owner, whence they are much harder to educate and difficult to handle for someone other than the owner (McLean et al. 2019: 2.5). Even more than donkeys, mules and hinnies can carry heavy loads and are extremely enduring even if they can only get inferior fodder (Nibbi, 1979: 167). In contrast to donkeys, however, the hybrid breeds thrive in colder and especially wetter weather since they seem to mainly inherit the water repellent hair structure

23 While there are not many scientific studies about the mule's jumping ability, it is annually proven in various mule jumping events across the United States of America, where mules were first taught to jump fences to facilitate racoon hunting. Some interesting studies, which are related to the special abilities of mules, were conducted on the topic of hybrid vigour (Hanot et al. 2019) and the fitness of working mules (Silva et al. 2018).

from their horse parent: A study by Osthaus et al. (2018) showed a considerably thicker diameter of hair in mules, although this result must be considered with caution since the number of tested individuals is low ( $n = 8$ ).<sup>24</sup> Considering all these points, the mule could very well have been a desirable equine breed in the late Warring States period. Since the precious beasts could only be bred in areas where donkeys thrived as well, they became known as special beasts of the Xiōngnú during the Hàn.

As to the presence of donkeys or donkey-like animals at the Qín court during the final years of the Warring States period, Hàn textual sources imply that they were delivered from the north. Wáng Zǐjīn (2013: 84) points out a connection between the domesticated animal called *juétí* and the *Wūzhī* 烏氏 (\*qʰa-k.deʔ), a clan of the 'Western Róng' (*Xī Róng* 西戎) settling in the Āndìng 安定 region in today's Gānsù province, thus living between the Qín capital and the Héxī Corridor. The *Wūzhī* were part of the eight Western Róng clans which were subdued by the Qín during the reign of Duke Mù 穆 (683–621 BCE) (see *Shǐjì* 110: 2883–2884). It is therefore well imaginable that they paid their tributes in the form of *juétí* equines to the Qín rulers. According to the "Account on the Multiplication of Commodities"<sup>25</sup> (*Huòzhí lièzhuàn* 貨殖列傳), a collection of biographies of people who were successful in their business in the *Shǐjì*, when Luǒ<sup>26</sup> 儛, a herdsman of the *Wūzhī*, raised a lot of domestic animals and sold them off to the Qín ruler, he attained 'rare silk wares' (*qí zēng wù* 奇繒物), which he in turn gave to the king of the Róng as tribute. The king was very pleased with them and gave him even more domestic animals to raise. Thanks to these, Luǒ received an official position at the court of the First Emperor of Qín (*Shǐjì* 129: 3260–3261).

24 Since donkeys originate from the desert area, they have a weakness against parasites and worms which thrive in wetlands (Gebreab 2004: 51). Thus, it must have been rather difficult to maintain the animal's health in Central and especially southern China after its introduction. For the same reason, donkeys were only introduced in sub-Saharan Africa in the early or even mid-twentieth century (Goulder 2016: 2). Similar to the situation in modern West Africa, it is possible that donkeys were systematically bred in the arid north to be sold to the southern regions where the animal's fertility was much lower and where it suffered from humidity-related diseases, unsuitable foodstuff and cultures unused to donkey management, effectively leading to shorter lifespans (Goulder 2018: 84).

25 The title has been interpreted as "Biographies of Wealthy Merchants" by L' Haridon (2015), but as she points out herself, the term *huò zhí* 貨殖 actually refers more to the activity of accumulating wealth than to the people who were involved in trade.

26 The parallel passage of the "Book of Han" (*Hànshū* 漢書 91: 3685) writes his name as Luó 羸. The reconstructed form of either variants is identical with the reconstruction for the word *luó* 騾 which might have originally been a word for 'donkey' and became the standard expression for 'mule' in the second century BCE (see Part II section 4.4). The person famous for raising *juétí* was thus himself called *Asinus*!

In this context, an essay from the “Drafts in four sections from Yānzhōu” (*Yānzhōu sibù gǎo* 兗州四部稿)<sup>27</sup> by the Míng 明 historian Wáng Shìzhēn 王世貞 (1526–1590) is of interest. He describes a manuscript by the title “Measurements” (*Duǎncháng* 短長) found while ploughing the fields in the Qí region (*Qí zhī yě* 齊之野) in modern northern Shāndōng. By comparing it with the official records, Wáng concluded that the manuscript refers to affairs which took place sometime between the Warring States period and the beginning of the Hàn. Among the passages relating to the time of the First Emperor of Qín additional information about the person called Luǒ can be found:

Luǒ from Wū sent 25<sup>28</sup> *juéti* which he had raised and ten camels<sup>29</sup> as tribute. And the First Emperor gave him some territory (*ōu tuō* 甌脫)<sup>30</sup> of the

27 This text is recorded as *Yānzhōu sibùgǎo* in the “Complete Library of the four treasures” (*Sikù quánshū* 四庫全書), which was compiled between 1773 and 1782. It is also known as *Yānzhōu shānrén sibùgǎo* 兗州山人四部稿.

28 *Bǎi zú* 百足 ‘one hundred feet’, elsewhere an alternative designation of the ‘millipede’ (*mǎlù* 馬陸), is clearly used as a measure word counting *juéti* here, like in *Shǐjì* (129: 3272–3273), where it counts sheep and pigs (cf. Lǐ Zōngchè 2004: 19). This usage has not been confirmed by excavated manuscripts so far (cf. Zhāng Xiànchéng and Lǐ Jiànpíng 2017: 373–383) and it was apparently already superseded in the medieval period (Liú Shirú 1965 does not treat the word). Like *tí* 蹄 ‘hoof’ used as a measure word with the same range of objects as *zú* during the Hàn period and later, *zú* did not get fully desemantized such that the counted objects have to be divided by four (feet, hoofs; see Cáo Fāngyú 2010: 123), whence *juéti bǎizú* 駢駢百足 means ‘25 *juéti*’.

29 Interestingly, the camels are counted in ‘pairs’ (*shuāng* 雙). This does probably not imply that Luo sent twenty camels, but rather points to the camel’s feature of having two humps.

30 The passage describes that an *ōutuō* 甌脫 of the Róng king was enfeoffed to Luǒ, thus it has been translated as ‘territories’ here. However, since the Róng followed a mostly pastoral way of life and Luǒ himself as equid breeder did probably not really require a fixed estate, it is very likely that a foreign, pastoral way of enfeoffment was employed by the first emperor of China. The practice can be recognized as foreign because *ōutuō* 甌脫 is apparently a Xiōngnú word. There are many uncertainties about the exact meaning of *ōutuō* as well as about its etymology, which are discussed among Chinese commentators since Hàn times. While Yán Shīgǔ 顏師古 (581–645 CE) and others interpreted the word as some kind of palace or building, Jìn Zhuó 晉灼 (265–316 CE), one of the major commentators of Hàn dynastic historiographical works, read it as a title for border defence officers among the Xiōngnú (Chén Xiǎowěi 2016: 6). In the 1920s, Shiratori Kurakichi proposed a connection between the uncertain term and various Turkic words which can be related to Proto-Turkic \*otag ‘room’ (lit. ‘a place by the fire’ [Proto-Turkic \*ot]). Chén Zōngzhèn 陳宗振 (1989) tried to link *ōutuō* 甌脫 (*’ow-twat*) with Turkic word *ortu* ‘in between’ and explained it as expression for border regions, i.e. buffer zones *in between* the Xiōngnú and Chinese sphere of influence. For more information about the discussion of *ōutuō* cf. Liú Wénxìng (1985), Zhāng Yún (1987), É’ěrdé Mùtǔ and Gāo Yùhǔ (1988), Hé Xīngliàng (1988), Hú Ālāténgwūlā (1990), Lǐ Huànqīng and Wáng Yǎnhuī (2009), Hóu Píxūn and Shàng Jīfāng (2015).

Róng king as a fief and let him compete against the nobles when reporting to the morning audience.

烏僕以所畜馱驢百足，橐駝十雙獻。而始皇封之戎王之甌脫，使比列侯以朝。

*Yānzhōu sībùgǎo* 142: 21a

Although this passage may well have been altered by Wáng Shìzhēn's own interpretations, it still presents a possible parallel tradition to the passages found in the *Shǐjì* and in the "Book of Han" (*Hànshū* 漢書), the standard historiography of the Western Hàn period completed in 111 CE. Especially the information that Luǒ did not simply provide the First Emperor with 'common domestic animals' like horses and cattle, as it is implied in the official records, but with *juéti* and camels, most probably originated from the "Measurements" manuscript itself. The fact that these *juéti* are classified as 'domesticated' (*suǒ xù juéti* 所畜馱驢) may well imply that there were also wild *juéti* in the border region (Wáng Zījīn 2013: 84) or – in case that *juéti* were in fact mules – that the animals had to be educated for a long time in order to be used, which made them especially expensive.

In summary, the earliest Chinese historical sources mentioning donkey-like animals are all related to the northern regions and closely associated with the state of Qín. According to Wáng Zījīn (2013), it was during the Qín dynasty that donkeys – or donkey-like animals – were first introduced to the Central Plains. Considering the evidence from the "Annals of Mr. Lǚ" and the Fàngmǎtān daybook manuscript, it can be safely assumed that donkeys had already been known *before* the unification under the First Emperor at least in the northern parts of the Zhōu realm. Furthermore, there is ample reason to believe that mules were successively introduced to China before donkeys became popular.

#### 2.4 *Hàn Period (202 BCE–220 CE) (Fig. 3)*

Archaeological and art historical evidence on the presence of donkeys in China from the time of the Hàn period is very limited. So far, the only reported discovery of actual donkeys from this period was made in 2001 inside the auxiliary burial pit no. 2 of the Pínglíng 平陵 Mausoleum (Table 1, no. 33) associated with Emperor Zhào 昭 (*r.* 94–74 BCE), the youngest son of Hàn Wǔdì. This burial pit comprised a total of 54 vaulted chambers, each of which included the remains of one sacrificed animal. Apart from the skeletons of 33 camels and eleven heads of cattle, ten neatly placed skeletons of domesticated donkeys were counted (Yuán Jìng 2007: 94; 2015: 108–109). So far, no special analysis of these bones has been published. The source of domesticated donkeys such as those from the Pínglíng Mausoleum might be found in the area inhabited

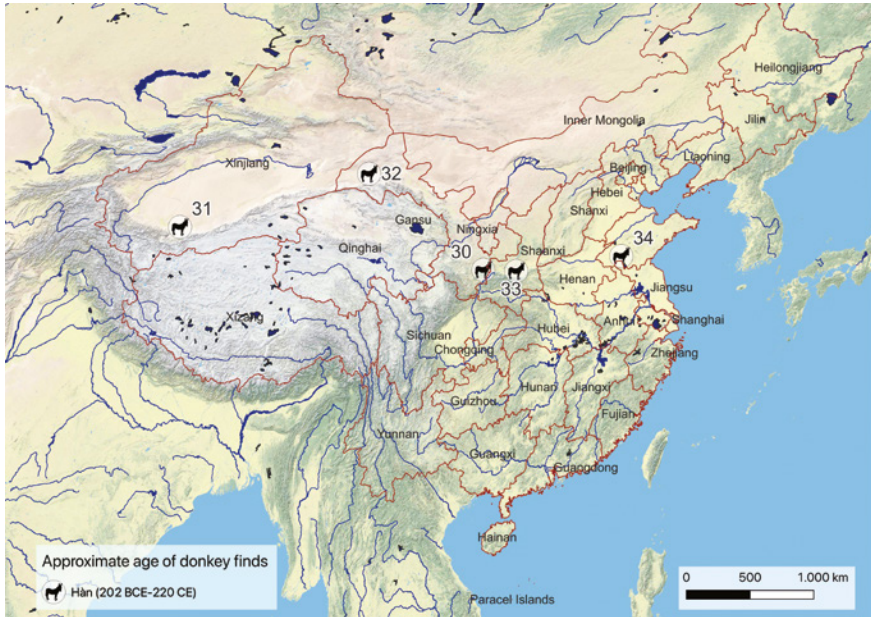


FIGURE 3 Map indicating records of donkey remains from the Hàn period (202 BCE–220 CE): 30-Fāngmǎtān 放馬灘, 31-Yuánshā gǔchéng 圓沙古城, 32-Xuánquán 懸泉, 33-Pínglíng 平陵 Mausoleum, 34-Wángqū 王屈  
MAP: P. WERTMANN / QGIS

by the Xiōngnú people. Art historical evidence on the presence of donkeys from the Western Hàn period appears to be found on a pictorial tomb brick from Zōu 鄒 county in Shāndōng province (Table 1, no. 34). It depicts a fighting scene between an unmistakable tiger and a long-eared animal resembling a donkey (Sūn Jī 2016: 75–76).

In contrast to the scarce archaeological evidence of donkeys, various textual sources reflect that donkeys became an increasingly common sight in China by the beginning of the first century BCE. Both the *Shǐjì* and the “Book of Hàn” often describe them as reliable pack and draught animals, just like camels<sup>31</sup> or cattle. Especially in regions with difficult terrains, such as deserts and steep mountain valleys, donkeys were used for transport (see *Dōngguān Hàn jì* 東觀

31 Different writing variants for a possibly camel-related word appear already in Eastern Zhōu period bronze inscriptions. Many variants of the word for camel are found in transmitted literature, e.g. *tuótuó* 橐他, *tuótuó* 橐駝, *tuótuó* 橐它, *tuótuó* 橐駝, etc. (cf. Huáng Jīnqián 2016), all to be reconstructed as *thak-tha* < \*tʰak-ʃaj. However, possible expressions for the donkey do not seem to be mentioned in a similar fashion.



漢記 9: 287).<sup>32</sup> Following the unsuccessful expedition to Ferghana in 104 BCE, Hàn Wǔdì ordered the dispatchment of several tens of thousands of cattle, horses, 'donkeys and mules' (*lú luó* 驢羸) as well as camels from Dūnhuáng 敦煌 in order to provide the Hàn soldiers and workers with staple food and weapons during the second expedition in 102 BCE (*Shǐjì* 123: 3176). The importance of 'mules and donkeys' (*luó lú* 騾驢<sup>33</sup>) is further mentioned in the "Book of Later Hàn" (*Hòu Hànshū* 後漢書).<sup>34</sup> However, even during the reign of Hàn Wǔdì, donkeys and donkey-like equines were still mainly bred by the northern peoples and regarded as one of the 'exceptional domesticated animals' (*qí chù* 奇畜) raised by the Xiōngnú. Apart from camels this label was used for three further types of equines, including the *juétí* 馱騏, which was most probably a breed related to the donkey as explained in the previous section, the *táotú* 陶塗, and the *diānxí* 驢駝<sup>35</sup> (*Shǐjì* 110: 2879). According to a passage from the "Discourses on Salt and Iron" mules and donkeys were bought in great numbers from the Xiōngnú at a rather cheap price:

Now, with a single bolt (*duān*) of plain silk fabric from the Central States region, we attain commodities from the Xiōngnú which are worth a

- 
- 32 The "Hàn Records of the Eastern Lodge" (*Dōngguān Hàn jì* 東觀漢記) is a highly fragmented account on the history of the Eastern Hàn period, which was compiled over a long time and subsequently recompiled in five instalments between 22 and 220 CE until it reached a length of 143 chapters. Most of the work was lost during the following centuries. The version transmitted until today was reconstructed in the 18th century and only counts 24 chapters (Bielenstein and Loewe 1993). Fortunately, the "Hàn Records of the Eastern Lodge" served as a primary source for the "Book of the Later Hàn" (*Hòu Hànshū* 後漢書) by Fàn Yè 范曄 (398–446) where much of its content is being transmitted; cf. Bielenstein (1954).
- 33 The terms identified as 'donkeys and mules' (*lú luó* 驢羸, *luó lú* 騾驢) may originally have been disyllabic terms meaning 'donkey' or 'donkey-like animal'. The term is further explained in Part II section 4.4.
- 34 The "Book of Later Hàn" has been compiled by Fàn Yè and covers the official history of the Eastern Hàn period. A first comprehensive translation into English is currently being undertaken by Curtis Wright (2022–). The content of and circumstances around Fàn Yè's compilation of the work are the focus of a recent special issue in *Monumenta Serica* 67.1 (2019).
- 35 The *táotú* equid has been described as an animal which has the appearance of a horse and lives in the region north of China (*Shānhaǐjīng* 8: 4913). Egami (1951: 103–111) already discussed the term and related it to the wild horse *Equus Przewalskii Pliyakoff*. He showed its possible connection to the toponym *Táotú* 陶塗, which is in turn related to the 'region on the back', i.e. the North (cf. Sagart 2004), and provided an explanation why the term was confused with the term for wild asses. The meaning of *diānxí* is very vague and its relation to Mongolian *tax* 'wild horse' and/or rGyalrong *terge* 'mule' remains to be clarified. For some preliminary thoughts see Part II section 4.5.

fortune and diminish their use in the enemy kingdoms. This way, mules, donkeys, and camels, entering one after another from beyond the pass (= from the territories in the north-western deserts), *diānxí* and Ferghana horses are completely turned into our domestic animals (...)

夫中國一端之縵，得匈奴累金之物，而損敵國之用。是以騾驢駝駝，銜尾入塞，驛驂驪馬，盡為我畜 [...]

“Li Gēng” 力耕, *Yántièlùn* 1: 28

Donkeys seem to have been extensively bred in the mountainous region to the northwest of China. In the “Book of Hàn” the kingdom of Wūchá 烏秣 (\*q<sup>a</sup>a-d<sup>r</sup>ra<sup>36</sup>) is described as a place where people raise donkeys instead of cattle:<sup>37</sup>

In the kingdom of Wūchá, the king reigns from the city Wūchá; it is 9950 miles away from Cháng’ān. [There are] 490 households, 2733 inhabitants, 740 [of them] are ready to serve as soldiers. Towards the northeast until the [next] administrative centre of the protectorate there is a distance of 4892 miles. To the north it is linked with Zīhé (*tsiX-kop* < \*t<sup>s</sup>aʔ-gop) and Púlí (*bu-lej* < \*b<sup>s</sup>a-[r]ʕ[ij]), to the west it is connected to Nándōu (*nan-tuw* < \*n<sup>f</sup>ar-t<sup>o</sup>). It is a mountainous region for living, between fields and boulders. ‘White grass’ grows there. They construct their houses by piling up stones. The people drink with their hands. They breed horses with a small-stepped gait and keep donkeys, [but] no cattle.

烏秣國，王治烏秣城，去長安九千九百五十里。戶四百九十，口二千七百三十三，勝兵七百四十人。東北至都護治所四千八百九十二里，北與子合、蒲犁，西與難兜接。山居，田石間。有白草。累石為室。民接手飲。出小步馬，有驢無牛。

*Hànshū* 96A: 3882

- 36 The character *chá* 秣 (*drae* < \*d<sup>r</sup>ra) has the alternative reading *dù* (*tuH* < \*t<sup>s</sup>aʔ-s). According to the commentary of the “Comprehensive Institutions” (*Tōngdiǎn* 通典), a historiographical work written by Dù Yòu 杜佑 between 766 CE to 801 CE, the character should be pronounced as *dae* < \*N-traj. Chavannes (1903: 175) assumed that *chá* was most probably the reading closest to the original pronunciation of the place name, as it is also seen in the alternative writing *shā* 緞 (*sreat* < \*sat) by Xuánzàng 玄奘 (602–664 CE).
- 37 Hill (2009: 208–214) argues that the kingdom of Wūchá was probably situated in the Upper Hunza valley and the Tāghdumbāsh Pamir, a high valley located in today’s southern Xinjiang.

Apart from their characterization as domestic animals bred by the northern peoples, donkeys were considered part of the natural fauna of the northern regions alongside other equids, as can be seen in Simǎ Xiāngrú's 司馬相如 (179–117 BCE) “Rhapsody on the Imperial forest” (“Shànglín fù” 上林賦, *Shiji* 117: 3025–3026).<sup>38</sup> During the Hàn dynasty, the use of donkeys had not only expanded beyond the northern regions, but the animal was now promoted as a useful beast of burden as far south as the region of the former Kingdom of Chǔ.<sup>39</sup> The “Songs of Chǔ” (*Chǔcí* 楚辭) depict the donkey as a useful, but rather slow draft animal referred to as *jiǎn lú* 蹇驢, lit. the ‘lame donkey’.<sup>40</sup> Alternatively, the word ‘lame’ (*jiǎn* 蹇 *kjenX* < \*kran?) may simply result from a transliteration of a term related to Tibetan *rkyang* ‘horse, equid; wild ass’, thus the term itself does not necessarily carry a negative connotation. On the contrary, the word *jiǎn*, also written with the classifier ‘to speak’ (*yán* 言) as *jiǎn* 謔 or *jiǎn* 謔 ‘to stutter’, has been interpreted as a local expression for ‘a loyal and steadfast way of speaking’ (Liào Fāng 2019: 117). Following this semantic trajectory, the donkey could be understood as an animal ‘stuttering with its feet’, but in fact, *jiǎnlú* seems to have been the standard designation for the animal in the Chǔ tradition. The only case where *jiǎn* is omitted in the “Songs of Chǔ” happens to be in combination with *luó* 羸 ‘grebe’ (i.e. a water bird belonging to the species *podicedidae*), which clearly has to be read as *luó* 羸 ‘donkey, mule’. It is very likely that the word for ‘(Tibetan) wild ass’ had been introduced to the area of the Chǔ state before domesticated donkeys from the north came into use, which led to a hybrid neologism combining both the Tibetan term (*jiǎn* 蹇) and the designation which had become popular in northern China (*lú* 驢). By the Eastern Hàn (25–220 CE), during the first decades of the common era,

38 The prosimetric poem has been translated into German by von Zach (1958: 108–117) and into English by Knechtges (1987: 73–114).

39 Notice, however, that none of the earlier sections compiled in the *Chǔcí* refers to the donkey. The animal is only mentioned in the *Miùjiàn* 謔諫 and the *Zhūzhào* 株昭 of the *Jiǔhuái* 九懷 chapter as ‘lame donkey’ and in the *Mǐnmìng* 愍命 of the *Jiǔgē* 九歌 chapter it is called *lú* 驢 along with the character *luó* 羸 (*Miùjiàn* 253, *Zhūzhào* 279, *Jiǔhuái* 302). For further information regarding the dating of different songs in the *Chǔcí* cf. Sukhu (2017: Appendix) and Starostin (1989: 447–451).

40 In “The Master embracing simplicity” (*Bàopǔzi* 抱樸子), which was written during the Jin period (300–343 CE) by Gě Hóng 葛洪 (282–343 CE), *jiǎn lú* is clearly mentioned as an animal which is not exceedingly swift (“Jīndān” 金丹, *Bàopǔzi* *Nèipiān* 4: 72). It is not surprising to find this parallel between the *Chǔcí* and the *Bàopǔzi*, since the author originated from the region east-southeast of modern Nánjīng (in Jiāngsū province) and was inspired by Chǔ literature (Campany, 2005: 221). For more on the *Bàopǔzi* 抱樸子 as a text cf. footnote 48).

however, the southern way of calling the donkey was seen as a compound in which the first constituent modifies the second. This can be seen in the “Records of the darkness in the cavern [of Emperor Hàn Wǔdì]” (*Dòngmíngjì* 洞冥記), which is attributed to Guō Xiàn 郭憲 (26 BCE–55 CE). There, a stubborn horse is described as an ‘incompetent and lame donkey’ (*nújiǎn zhī lú* 騫蹇之驢, *Dòngmíngjì* 2: 6a), clearly marking the attributed modifier with the subordination particle *zhī* 之. In the “Songs of Chǔ” as well as in other Hàn literature, the donkey is usually regarded as inferior to the horse. Under the Hàn the image of the donkey and donkey-like animals apparently shifted towards the negative and their former noble image gradually got lost. This development may have been caused by the greater availability of donkeys in China along with their strong association with the Xiōngnú. Another possible influence consists in the influx of Iranian stereotypes which stigmatized the donkey as a “dumb” animal (cf. Part II section 3.6).

However, the use of donkeys as draught animals in front of racing chariots was still a popular leisure activity during the later Hàn dynasty. Emperor Líng 靈 (r. 168–189 CE), for example, was known to have driven his chariot with a team of four white donkeys.<sup>41</sup> This kind of eccentric behaviour is harshly criticized in the first “treatise” (*zhì* 志) of the “Book of Later Hàn”. Although donkeys were known for their ability to carry heavy weights and walk far distances, they were rather slow and therefore considered unworthy of appreciation at court (*Hòu Hànshū* 8: 346). While being very important as transport animals in military affairs and for redistribution of commodities in territories void of paved roads (*Hòu Hànshū* 58: 1869), they were gradually regarded as beasts of the poor and of ‘rustic people’ (*yě rén* 野人) (*Hòu Hànshū* 103: 3272). The association of donkeys with mountainous regions seems to be older, as it is already reflected in the chapter “Foundations of the Way” (*Dào jī* 道基) in the “New Discourses” (*Xīnyǔ* 新語), a text commissioned by Liú Bāng 劉邦 (r. 202–195 BCE), the first emperor of the Western Hàn dynasty, to consolidate his rule.<sup>42</sup> Here, ‘mules’ or ‘donkeys and mules’ (*lú luó* 驢騾) are listed among

41 This narrative was reproduced and expanded during the Early Medieval period. In the chapter on “Advises and Warnings” (*Zhēnjiè* 箴戒) of the “Master of the Golden Tower” (*Jīnlóuzi* 金樓子), which was compiled in 553 by the seventh son of Liáng Emperor Wǔ 梁武帝 (r. 502–549 CE), Xiāo Yì 蕭繹 (508–555 CE), Hàn emperor Líng is rumoured to have been very fond of donkeys, raising several hundreds of them and riding them in the capital. Sometimes he supposedly drove in a chariot drawn by four donkeys to the marketplace (Tian Xiaofei 2006: 478–479).

42 The “New Discourses” have been recently translated into English by Goldin and Sabattini (2020).

the treasures from the mountains, thus they were not yet considered inferior equids (*Xīnyǔ shàng* 1: 23–24).

By the end of the Hàn period, the inferiority of donkeys seems to be deeply manifested as their characteristics were used in similes to allude to stubborn people who burdened the government:

In accordance with the intentions of Heaven, one might say the following: Now, that the state is in great disorder, worthy and stupid are reversed, all those who hold the power of government are like donkeys.

天意若曰：國且大亂，賢愚倒植，凡執政者皆如驢也。

*Hòu Hànsū* 103: 3272

Contrary to the transmitted literature, excavated manuscripts from the Hàn commanderies located in the modern areas of Gānsù and Xīnjiāng draw a completely different picture of donkeys and mules. In these regions, they seem to have been valued as precious beasts used for transportation very similar to horses. Just like horses, donkeys and mules are counted with the numeral classifier *pǐ* 匹 in the Xuánquán manuscripts (Table 1, no. 27) – compare Xuánquán ms. I 90DXT0112(3).12, I 90DXT0110(2).45. Furthermore, the character *lú* 驢 appears in combinations like *yǐn zūn lú* 尹尊驢 ‘donkey of the venerable official, (I 90DXT0116(2).11) and *guān lú* 官驢 ‘official donkey’ (I 90DXT0112(3).12), which reflect the importance of donkeys in state affairs of the north-western regions of the Hàn empire. Based on the inscription on wooden strip I 90DXT0116(2).11, donkeys appear to have received more food than ‘privately owned horses’ (*sī mǎ* 私馬). All this leads to the assumption that at least in the north-western border regions, donkeys enjoyed a similar, if not even higher, status than horses, and received similar veterinary treatments (cf. I 90DXT0116(2).126). There are, however, also differences: Unlike horses, donkeys were recorded in inventory lists in a similar fashion to cows, including only remarks on their age based on the condition of their teeth (I 90DXT0112(3).12), with neither personal names, nor any categorization according to their appearance or sex. An exception can be found on strip I 90DXT0114(1).67+17 featuring the term *zǐ mǔ lú* 子母驢 which may refer to a particular type of donkey:

In Shèběi, ten heads of cattle and two (*pǐ* of) *zǐ mǔ*-donkeys were held on pastures. They were borrowed until the second month of the fourth year of the *jiànpíng* era [3 BCE].

舍北便牧牛十頭子母驢二匹至建平四年二月介

I 90DXT0114(1).67+17

The attribute *zǐmǔ* possibly defines the two donkeys as female donkeys which had already given birth to a foal and therefore were able to produce milk. It is possible that the female donkeys were pastured in order to breed more donkeys or possibly hinnies by pairing them with stallions. A ‘mule’ (*luó* 羸) is mentioned on a wooden tag with a string attached to its indented end (I 90DXT0110(2).45). It is also counted with the numeral classifier commonly used for horses (*pǐ* 匹). Along with the mule, certain ‘*guòzhū* horns’ (*guòzhū jiǎo* 駝騮角; *kwa-tsywǐj kaewk* < \*kw<sup>ʰ</sup>aj-tur C.[k]<sup>ʰ</sup>rok)<sup>43</sup> are mentioned, which were likely procured outside of the border region. The tag might have originally been fixed to the products to be traded for the precious equid and the horns. Since horns belong to typical products of pastoral people who attain them either from hunts or from their herds, the mule was possibly reared by non-Chinese people.

## 2.5 *The Early Medieval Age until the Táng Period (618–907 BCE)* (Figs. 4–5)

Despite the overall scarcity of actual donkey finds for the period following the Hàn up to the Táng (618–907 CE), it seems clear that domesticated donkeys were now widespread across China. Seven donkey bones belonging to two individuals, described as domesticated donkey (*E. asinus*), were discovered at the site of Áodōng 敖東 city (Table 1, no. 35) in Dūnhuà 敦化 county, Jílín province (Zhào Hǎilóng and Chén Quánjiā 2006: 53; Yuán Jìng 2015: 109). This site is dated to the late Jìn 晉 dynasty (ca. 265–420 CE) and believed to be the remains of the first capital of the Bóhǎi 渤海 state. The bones show signs of burning, indicating that these donkeys were eaten.

Most of the evidence indicating the presence of domesticated donkeys during the time from the early medieval period through the Táng period is of art historical nature. In particular, donkeys in the form of pottery sculptures typically equipped with a saddle and at times loaded with bags of unknown goods were excavated from Northern Dynasties (439–589 CE) tombs

43 Unfortunately, the term *guòzhū jiǎo* seems to be a *hapax legomenon* in the extant Chinese corpus. Horns from ‘piebald horses’ (*guāzhū* 駮騮) could have been horns with a special pattern believed to originate from horse-like animals. The idea, that there must be horse-like creatures with horns on top of their heads is well represented in descriptions of various horned beasts found in the “Classic of Mountains and Seas” (*Shānhǎijīng* 山海經). Interestingly, all these creatures carry only one horn. Around the area of Wǔwēi 武威, a neighbouring commandery of Xuánquán 懸泉, statuettes of horned four-hooved creatures have been found. It is possible that the person writing the tally for the products to be exchanged for the mule and the horns assumed the horns to originate from the head of a special kind of equid.

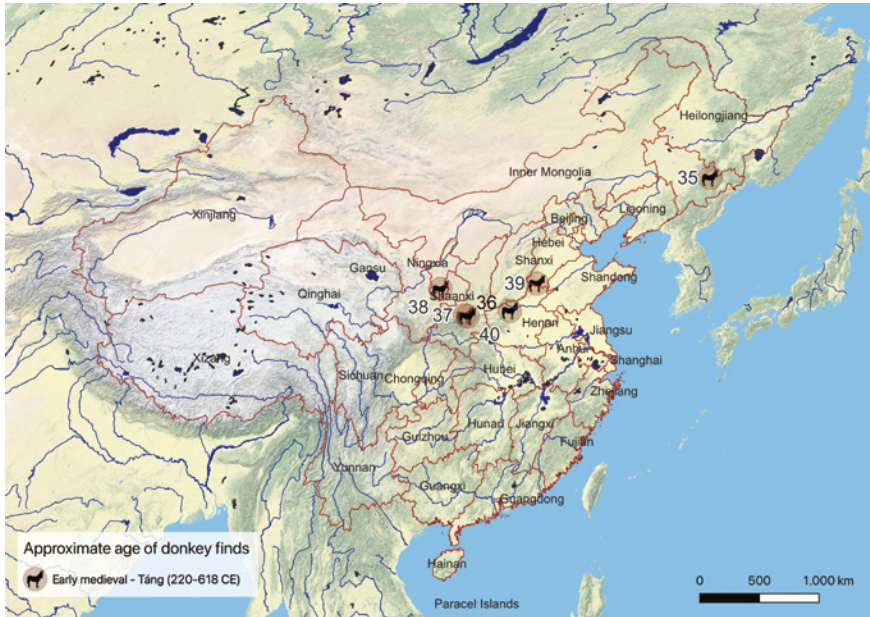


FIGURE 4 Map indicating records of donkey remains from the time of the Early Medieval Age until the Táng period (618–907 BCE): 35-Áodōng 敖東 city, 36-Tomb of Yuán Shào 元邵, 37-Tomb of Hóu Yì 侯義, 38-Joint tomb of Lǐ Xián 李賢 and his wife, 39-Tomb of Gāo Rùn 高潤, 40-Tomb of Ān Jiā 安伽  
MAP: P. WERTMANN / QGIS

distributed across North and Northwest China including Héběi, Hénán, Shǎnxī and Níngxià provinces (Table 1, nos. 36–39). Further evidence includes, for example, a depiction on the funerary couch ascribed to the Sogdian merchant Ān Jiā 安伽 (died 579 CE) discovered in the northern suburbs of Xī'ān (Table 1, no. 40). In all these instances, donkeys are depicted as hardworking pack or riding animals, sometimes alongside merchants, to transport goods and people along the ancient Silk Road network.

Textual sources of this period describe the donkey as an essential part of domestic and political life. This change in the textual evidence may have resulted from the growing influence of northern lifestyle after the fall of the Hàn dynasty, but it was probably also due to the vernacular character of some texts written during the period of the Northern and Southern Dynasties (third–sixth c. CE). The “Records of the Three Kingdoms” (*Sānguó zhì* 三國志) by Chén Shòu 陳壽 (233–297 CE) present donkeys and mules as important assets in times of war where they were used as draft animals along with cattle and horses (*Sānguó zhì* 58: 1348–1349). Chariots and draft animals were among

the most important booties after victorious battles. Donkeys could be easily ridden, used as pack animals, or yoked to chariots for the transportation of heavier loads, and even be rented at lodgings (*Shishuō xīnyǔ* 3A: 864).<sup>44</sup> They still served as valued pack animals in high mountain valleys with steep slopes unreachable for chariots and boats. The use of donkeys for transportation in perilous terrain is well illustrated in a passage from the “Commentary on the Classic of Waterways” (*Shuǐ jīng zhù* 水經註)<sup>45</sup> describing a very dangerous passage leading from Jū 沮 county to Xiàbiàn 下辨 on the route between Cháng’ān and the Sìchuān basin, on which only one out of five pack donkeys and horses would reach its destiny (*Shuǐ jīng zhù* 20: 483).

Literary sources created during the centuries following the fall of the Hàn dynasty mention donkeys as typical domestic animals, the use of which was not restricted by the state in contrast to horses (see Creel 1965).<sup>46</sup> A story in the “Biographies of Deities and Immortals” (*Shénxiān zhuàn* 神仙傳)<sup>47</sup> depicts what might have made up a common Chinese household during early medieval times in the third or fourth century CE: A householder (and his assumed wife and children) possessing a donkey, ten sheep, as well as one male and one female slave (*Shénxiān zhuàn* 2: 50). It can be assumed that donkeys, mules, and hinnies were raised in the Central Plains in the period before the reunification under the Suí dynasty in 581 CE, as reflected, for example, in a passage from “The master embracing simplicity”.<sup>48</sup>

44 The “New Accounts on the Tales of the World” (*Shishuō xīnyǔ* 世說新語) have been translated into English by Richard B. Mather (1976).

45 The “Commentary on the Classics of Waterways”, also simply called “Commentary of the Water Classic”, has been extensively studied in turns of its content, function, and tradition by Hüseemann (2017).

46 A passage from the “Family Instructions for the Yǎn clan” (*Yǎnshì jiāxùn* 顏氏家訓) illustrates that donkeys were a commodity which could be privately traded; it contains the story which led to the modern Chinese idiom ‘writing endlessly without mentioning the key point’ (lit. ‘[writing] three pages without mentioning the donkey’ *sān zhǐ wú lú* 三紙無驢) describing the transaction of a donkey between two households. (*Yǎnshì Jiāxùn* 3: 177).

47 The “Biographies of Deities and Immortals” have been translated into English by Robert Ford Campany (2002). Additional critical deliberations on the original content of the book, which was allegedly first compiled in the fourth century CE, are provided in Barrett (2003).

48 The *Bàopǔzi* 抱朴子 has been transmitted through the ‘Daoist canon’ (*Dàoàng* 道藏) and a copy of a Sòng dynasty version by Lù Shùnzhì 盧舜治 in the Míng period. From an intratextual perspective, the text seems to reflect Gě Hóng’s attitude to life and philosophy. A special element in the text is the early criticism, but also (unconscious) adaption of Buddhism (Sailey 1978: 509–520).



A dull person does therefore not believe that lead oxide and lead carbonate are made from transforming lead. They do also not believe that both the mule (*luó*) and the hinny (*jùxū*) are born from a donkey and a horse.

愚人乃不信黃丹及胡粉，是化鉛所作。又不信騾及駃騠，是驢馬所生。

“Lùnxīān” 論仙, *Bàopǔzǐ Nèipiān* 2.5

There is currently *no* archaeological evidence on the presence of mules or hinnies in China. Considering that they are the offspring of both donkeys and horses, it is, however, likely that they were present in China after the donkey had become widespread. Yuán Jìng (2015: 109–110) concludes that they should have been present at least since the Warring States period as indicated by the passage from the “Annals of Mr. Lǚ” and by the reference in the *Shǐjì* stating that the Xiōngnú people already domesticated mules and used them as riding animals cited above.

Despite its practical function, the reputation of donkeys had not improved significantly since it seems to have lost its esteem during the Hàn period from the second century BCE onward. With a single exception, Gě Hóng describes donkeys as slow equids, inferior to horses. The following passage even depicts its low potential spreading to otherwise noble horses:

Alas, when a fine horse is yoked and bound (to a wagon), then it is by no means different from a lame donkey.

夫龍驥維繫，則無以別乎蹇驢。

“Rènmìng” 任命, *Bàopǔzǐ Wàipiān* 19: 473

Another passage from the ‘Content with Poverty’ (“Ān Pín” 安貧) chapter remarks that even fine horses lose their effectiveness when they are used among a group of donkeys (*Bàopǔzǐ Wàipiān* 36: 212–213). In the increasingly vernacular literature of the Early Medieval period, the donkey became subject of jokes and mainly negative similes. Like in Gě Hóng’s text, donkeys were portrayed as being inferior to horses in metaphors as reflected, for example, in the elegant, but also provocative, answer of Zhūgě Líng to Chancellor Wáng’s question about the way their names used to be called, which is recorded in the *Shìshuō xīnyǔ*:

Zhūgě Líng and Chancellor Wáng were debating on the succession of their clan names. Wáng said: “Why do we not speak of Gě and then Wáng,

but it is always Wáng and then Gě?”. Líng said: “It is the same when we speak of ‘donkeys and horses’, but we do not say ‘horses and donkeys’, how could it be that donkeys surpass horses?”

諸葛令、王丞相共爭姓族先後，王曰：「何不言葛、王，而云王、葛？」令曰：「譬言驢馬，不言馬驢，驢寧勝馬邪？」

*Shishuō xīnyǔ* 3B: 929

This passage seems to play with the way the modifier always precedes the modified. Zhūgě Líng thus chooses to answer by mentioning the collective term *lú mǎ* 驢馬, i.e. ‘donkeys and horses’, which could also be read as ‘horses among which there are donkeys’ to present himself as more powerful.

There are several passages in the transmitted literature which reflect the bad image of the donkey in the Early Medieval period. The term ‘donkey foal’ along with ‘piglet’ appears in the “Family Instructions for the Yǎn Clan” (*Yǎnshì jiāxùn* 顏氏家訓) (cf. Teng 1968) as a typical pejorative term for toddlers used in the ‘northern regions’ (*běi tǔ* 北土), i.e. the regions north of the Yellow River (*Yǎnshì jiāxùn* 2: 67). Furthermore, the donkey was either mentioned as an object of amusement or as a metaphor for dull and voracious officials. Interestingly, there is no passage referring to the most conspicuous body part of the donkey, i.e. its long ears. Rather, it is noted for its strangely elongated face: In the “Records of the Three Kingdoms” a donkey is used to poke fun at the strange facial proportions of Zhūgě Kè’s 諸葛恪 father, Zhūgě Jǐn 諸葛瑾 (174–241 CE), the brother of the (in)famous strategist Zhūgě Liàng 諸葛亮 (181–234 CE) (*Sānguó zhì* 64: 1429). The donkey as a symbol of dullness seems also evident in the “Master of the Golden Tower”. In the ‘Quick retorts’ (“*Jiéduì*” 捷對) chapter, it is used to criticize officials who did not look up from their food when an important guest entered:

When the phoenix comes to the morning audience, the *Qílín* feeds him. But the simple-minded donkey (*chún lú* 純驢) does not realize it, because he bends over his food like before.

鳳凰來朝，麒麟吐哺。鈍驢無知，伏食如故。

*Jīnlóuzǐ* 5: 1121

However, there are also some positive stories about the donkey. It is for example mentioned for its wondrous bray in the “New Accounts on the Tales of the World”. According to this passage, Wáng Zhòngxuān 王仲宣 enjoyed listening

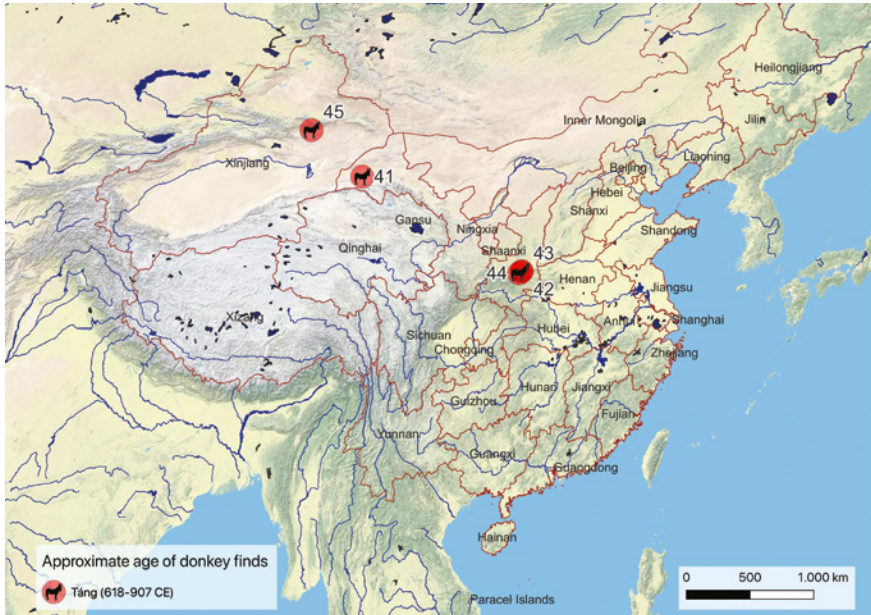


FIGURE 5 Map indicating records of donkey remains from the Táng period (618–907 BCE): 41-Mògāokù 莫高窟, 42-Shílǐpù 十里鋪, 43-Xiǎotǔmén 小土門, 44-Tomb of Lady Cui 崔, 45-Bǎizìkèlìkè 柏孜克里克  
MAP: P. WERTMANN / QGIS

to braying donkeys so much in life that the mourning party imitated them at his funeral to please his spirit (*Shishuō xīnyǔ* 3A: 748). Even Gě Hóng, who commonly describes donkeys as inferior to horses, presents a donkey (*jiǎn lú* 蹇驢) in the most positive way as an analogy for the preciousness of an advice coming from a person who has ‘perceived the four (truths) and reached the eight (goals)’ (*sì tōng bā dá zhě* 四通八達者) (*Bàopǔzǐ Wàipiān* 27: 46).

During the Táng period (Fig. 5), domestic donkeys became widespread across China primarily to meet the demand for the expansion of trade (as pack and draught animals, Han Lu et al. 2014). It is from the time of the late Táng period that we have the best studied ancient remains of domesticated donkeys so far, i.e. from a grave discovered in Qǔjiāng 曲江, Shǎnxī province (Table 1, no. 44) (Xi’an Municipal Institute of Cultural Heritage Conservation and Archaeology 2018; Hu Songmei et al. 2020). Given the presence of an epitaph stone, the tomb could be ascribed to a Lady Cui 崔 (d. 878 CE), wife of Gāo Bǎo 高寶, governor of the Jīngyuán 涇源 and Zhènǎi 鎮海 prefectures. Gāo Bǎo is in fact not an unknown person. He is mentioned in the

“New History of the Táng” (*Xīn Tángshū* 新唐書), which was commissioned by Sòng emperor Rénzōng 仁宗 in 1044 CE, as an excellent polo player esteemed by Emperor Xīzōng 僖宗 (r. 873–888 CE). Found were the bones of three domesticated donkeys (*E. asinus*). The investigation of two teeth revealed the origin of Chinese donkeys from the African wild ass mentioned earlier: one sample could be genetically linked to a Somali lineage, the other to a Nubian lineage (Han Lu et al. 2014: 7). The isotopic analysis further revealed details concerning the diet of the animals, which consisted of millet.

It is known from historical sources that donkeys were used as pack or draught animals during the Táng period, but they also became increasingly popular as mounts for ‘donkey polo’ (*lú jū* 驢鞠), especially among elite women. Diem (1982: 141), quoting Berthold Laufer (1932: 13), states that a large breeding farm for polo donkeys existed in present-day Shāndōng province. The discovery of donkey bones in the tomb of Lady Cūi is unprecedented. While donkeys are usually associated with lower social status, it appears that Lady Cūi was especially fond of her donkeys and the related polo game. The analysis of the donkey bones from the tomb of Lady Cūi showed that these donkeys were rather small animals, they had unusual locomotion patterns, and they were well fed. The donkey’s small stature led the investigators to the suggestion that they were not necessarily used as labour animals. The additional find of a stirrup inside the tomb chamber further indicates that these donkeys were ridden. It stands to reason that Lady Cūi was so fond of her donkeys, and possibly of donkey polo, that they accompanied her to her afterlife.

Apart from this discovery, most of the evidence on the presence of domesticated donkeys in China during the Táng period is again of art historical nature, including pottery figurines (Table 1, no. 42–43) and depictions in mural paintings, for example, inside cave 45 at Mògāo 莫高, Dūnhuáng or in cave 20 at the Bezeklik 柏孜克里克 Thousand Buddha Caves in Turfan (Table 1, no. 41, 45). As in the earlier examples, donkeys are depicted as hardworking pack or riding animals, alongside travellers, to transport goods and people along the ancient Silk Road network.

## 2.6 *Interim Discussion: How the Donkey Fared in China*

As seen in this Part I, there is not enough archaeological data to narrow down the time frame during which domestic donkeys were initially introduced to China. Moreover, the earliest Chinese textual attestations of the donkey are somewhat ambiguous: The Fāngmǎtān manuscript displays the name of an equid which describes a donkey-like animal and is obviously a transcription. It also points out that the beast has pale white fur, a complexion which better

matches the wild Asian ass, than the generally darker domestic donkey. It is of course possible, that the assumed natural fair colouration of the fur was a direct consequence of a regional cultural preference for white-coloured animals.<sup>49</sup> Foreign animals, like donkeys and mules, to be gifted to the northern states during the Eastern Zhōu period were possibly often picked for their whitish fur, as they were considered more valuable. The two white *luó* equids in the stable of Zhào Jiǎnzǐ might have been a precious gift from the areas north to the state of Jīn. In all likelihood, donkeys and their hybrid relatives were introduced multiple times at different places towards the end of the Warring States period, which led to a broad landscape of designations for the foreign equids (cf. Part II section 4). Furthermore, the early occurrence of the mule, called *luó* or *juéti*, must be regarded as an important factor for the introduction of donkeys to China. It was not before the Hàn that donkeys started to become more well-known in the North China Plain and in more southern areas. While donkeys were greatly valued for transportation in arid and desert areas as well as over uneven terrain, in the Central Plains they were increasingly known as poor man horses. In the period from the Jīn to the Táng, the donkey appears in a wider variety of contexts. Even though it is often described as a rather slow and strange equid, its importance as means of transport features clearly in art historical material and transmitted literature. Finally, Lady Cui's grave highlights another aspect of the introduction of donkeys to China: the role it played for women. The question about how donkeys influenced every day and leisure activities of women, such as polo, even before the Táng period is a topic to be examined in the future. Part II along with the total list of references will be published in the JEAL issue 2024(2).

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49 Note that the fondness for *white* animals (and also humans) is already reflected in Shāng oracle bone inscription as it has been shown by Wang Tao (2007a; 2007b).

## Appendix

TABLE 1 Records of early donkey remains from China, North Africa, West and Central Asia

No	Site	Location	Remain type	Estimated age	Reference
1	Dīngcūn 丁村	Shānxī 山西, Xiāngfén 襄汾	Teeth and bones of <i>E. hemionus</i>	Ca. 210,000– 160,000 BP	Pei 1958: 32–33.
2	Sālāwūsū 薩拉烏蘇	Nèiménggǔ 內蒙古, Wūshěn Qí 烏審旗	Remains of <i>E. hemionus</i> (not specified)	Ca. 210,000– 160,000 BP	Qi 1975: 247; Li and Dong 2007: 355.
3	Língjǐng 靈井	Hénán 河南, Xùchāng 許昌	Teeth and bones of <i>E. hemionus</i>	Ca. 210,000– 160,000 BP	Li and Dong 2007: 353–355.
4	Làochíhé 澗池河	Shānxī 陝西, Lántián 藍田	5 upper premolars of <i>E. hemionus</i>	Ca. 129,000– 11,700 BP	Ji 1974: 223.
5	Shāndǐngdòng 山頂洞	Běijīng 北京, Fángshān 房山	Remains of <i>E. hemionus</i> (not specified)	Ca. 34,000– 27,000 BP	Pei 1940; Li and Dong 2007: 355.
6	Xiǎonánhǎi dòngxué 小南海洞穴	Hénán 河南, Ānyáng 安陽	Teeth and fragmentary bones of <i>E. hemionus</i>	Ca. 129,000– 11,700 BP	Zhou 1965: 35–37.
7	Zhìyù 峙峪	Shānxī 山西, Shuò Xiàn 朔縣	Teeth of <i>E. hemionus</i>	Ca. 29,000 BP	Jia et al. 1972: 43; You et al. 1985: 72.
8	Gǔlóngshān 古 龍山	Liáoníng 遼寧, Dàlián 大連	Teeth of <i>E. hemionus</i>	Ca. 130,000– 25,000 BP	You et al. 1985: 71–72.
9	Yánjiāgǎng 閻家崗	Hēilóngjiāng 黑龍江, Hǎ'ěrbīn 哈爾濱	Remains of <i>E. hemionus</i> (not specified)	Ca. 130,000– 25,000 BP	Heilongjiang Cultural Relics Administration Committee et al. 1978; Li and Dong 2007: 355.
10	Yúshù 榆樹	Jílín 吉林, Yúshù 榆樹	Teeth and bones of <i>E. hemionus</i>	Ca. 130,000– 25,000 BP	Higher Vertebrate Group of the Institute of Vertebrate Paleontology 1959: 41–43; Li and Dong 2007: 355.
11	Xǔjiāyáo 許家窑	Shānxī 山西, Yángāo 陽高	Remains of <i>E. hemionus</i> (not specified)	Ca. 125,000– 100,000 BP	Jia and Wei 1979: 284; Li and Dong 2007: 355.

TABLE 1 Records of early donkey remains from China, North Africa, West and Central Asia (cont.)

No	Site	Location	Remain type	Estimated age	Reference
12	Dábàgōu 大壩溝	Nèiménggǔ 內蒙古, Cháyòuqián 齊 察右前旗	5 bones of <i>E. hemionus</i> , min. 1 individual	Ca. 3800– 3000 BCE	Huang 2003: 598–599; Yuan 2015: 109.
13	Godin Tepe	Iran, Central Zagros	Bones and teeth of <i>E. hemionus</i>	Ca. 3200– 2600 BCE (Godin III–IV)	Gilbert 1991: 87, 100.
14	Abydos	Egypt, El-Balyana	10 skeletons of <i>E. asinus</i>	Ca. 3000 BCE	Rossel et al. 2008.
15	Tell eṣ-Ṣāfi / Gath	Israel, Hebron	1 skeleton of <i>E. asinus</i> with earliest well-dated evidence of use of organic bit in domestic donkeys in the ancient Near East	Ca. 2800– 2600 BCE	Greenfield et al. 2018.
16	Standard of Ur, Royal Cemetery	Iraq, Tell el-Muqayyar	PG 779: Depiction of possible kungas pulling wagons in battle	Ca. 2600 BCE	Greenfield et al. 2018.
17	Kish	Iraq / Syria, Baghdad	Akkadian seal impres- sion depicting rider on possible donkey or donkey-onager hybrid	Ca. 2400– 2000 BCE	Bonora 2020: 748.
18	Tell-Brak	Syria, Al-Hasaka city	Remains of 6 <i>E. asinus</i>	Ca. 2200 BCE	Clutton-Brock 1989; Clutton- Brock and Davies 1993; Clutton-Brock 2003.
19	Gonur Tepe, BMAC	Turkmenistan, Mary city	2900, 3310, 3330, 3220, 3334, 3340, 3597, 3900 – Royal Necropolis: Remains of 9 <i>E. asinus</i>	Ca. 2300– 1600 BCE	Sataev and Sataeva 2014; Dubova 2015: 16; Sataev 2020.
20	Qínwèijiā 秦魏家	Gānsù 甘肅, Yǒngjìng 永靖	Donkey bones (not specified)	Ca. 2000–1600 BCE	IAAS Gansu Team 1975: 88.
21	Pirak	Pakistan, Sindh and Swat Valley	Osteological remains and pictorial evidence of <i>E. asinus</i>	Ca. 1750 BCE	Parpola and Janhunen 2011: 73.
22	Tell Haror	Israel, Beersheba	1 sacrificed <i>E. asinus</i> with metal bit and saddlebag fastenings	Ca. 1700/ 1650– 1550 BCE	Bar-Oz et al. 2013.

TABLE 1 Records of early donkey remains from China, North Africa, West and Central Asia (*cont.*)

No	Site	Location	Remain type	Estimated age	Reference
23	Zhǎngyíng 張營	Běijīng 北京, Chāngpíng 昌平	2 bones of <i>E. hemionus</i> bones	Ca. 1450– 1300 BCE	Huang 2007: 256, 261; Yuan 2015: 109.
24	Shífódòng 石佛洞	Yúnnán 雲南, Gěngmǎ 耿馬	1 metacarpal bone of donkey (not specified)	1410–1110 BCE (dating of carbonized rice)	Yunnan Institute of Cultural Relics and Archaeology 2010: 355; Yuan 2015: 109.
25	Hámádūn 蛤蟆墩	Gānsù 甘肅, Yǒngchāng 永昌	Hoof and toe bones of donkey (not specified)	Ca. 9th– 8th c. BCE	Gansu Institute of Cultural Relics and Archaeology 1990: 235.
26	Zāgǔnlǔkè 紮滾魯克	Xīnjiāng 新疆, Qiěmò 且末	M1: Donkey skin	792±60 BCE	Bayingolin 1989: 6; Xinjiang Museum et al. 1998: 50.
27	Persepolis	Iran, Shiraz	Apadana: Depiction of donkey presented by Indian man as tribute to the king	480 BCE	Parpola and Janhunen 2011: 67.
28	È'ěrdūōsī 鄂爾多斯	Nèiménggǔ 內蒙古, È'ěrdūōsī 鄂爾多斯	Donkey-shaped bronzes ornaments	Ca. 475– 221 BCE	Ordos Museum 2013: 93, 94, 157.
29	Yángláng 楊郎	Níngxià 寧夏, Gùyuán 固原	III M5: 4 bronze ornaments in shape of lying donkey	Late Warring States period	Ningxia Institute of Cultural Relics and Archaeology 1993: 40.
30	Fàngmǎtān 放馬灘	Gānsù 甘肅, Tiānshuǐ 天水	M1: Chinese textual evidence referring to donkey or wild ass	Ca. 230– 220 BCE	Gansu Institute of Cultural Relics and Archaeology 1989; Harper 1999: 847.
31	Yuánshā gǔchéng 圓沙古城	Xīnjiāng 新疆, Yútián 於田	69 bones of <i>E. hemionus</i>	Ca. 200 BCE	Huang 2008.
32	Xuánquán 懸泉	Gānsù 甘肅, Dūnhuáng 敦煌	Mentioning of mules and donkeys stationed in the com- manderies, e.g. ms. I 90DXT0112(3).12, I 90DXT0110(2).45	207–9 BCE	<i>Xuánquán Hàn jiǎn</i> 懸泉漢簡



TABLE 1 Records of early donkey remains from China, North Africa, West and Central Asia (*cont.*)

No	Site	Location	Remain type	Estimated age	Reference
33	Pínglíng 平陵 Mausoleum	Shǎnxī 陝西, Xiányáng 咸陽	Auxiliary burial pit no 2: 10 skeletons of domestic donkey with iron chains around necks	94–74 BCE	Yuan 2007: 94; Yuan 2015: 108–110.
34	Wángqū 王屈	Shāndōng 山東, Zōu Xiàn 鄒縣	Pictorial brick with fighting scene between tiger and possible donkey	25–220 CE	Sun 2016: 75–76.
35	Áodōng 敖東	Jílín 吉林, Dūnhuà 敦化	7 bones of <i>E. asinus</i> , min. 2 individuals	Ca. 265–420 CE	Zhao and Chen 2006: 53; Yuan 2015: 109.
36	Tomb of Yuán Shào 元邵	Hénán 河南, Luòyáng 洛陽	Packed pottery donkey	528 CE	Luoyang Museum 1973: 221.
37	Tomb of Hóu Yì 侯義	Shǎnxī 陝西, Xiányáng 咸陽	Packed pottery donkey	544 CE	Xianyang City Cultural Administration Association 1987: 61.
38	Joint tomb of Lǐ Xián 李賢 and his wife	Níngxià 寧夏, Gùyuán 固原	2 packed pottery donkeys	569 CE	Ningxia Hui Autonomous Region Museum 1985: 9.
39	Tomb of Gāo Rùn 高潤	Héběi 河北, Cí Xiàn 磁縣	Packed pottery donkey	577 CE	Cixian Cultural Centre 1979: 240.
40	Tomb of Ān Jiā 安伽	Shǎnxī 陝西, Xī'ān 西安	Depiction of 2 packed donkeys in trade scene on funerary couch	579 CE	Shaanxi 2003: 33, plate 57.
41	Mògāokù 莫高窟	Gānsù 甘肅, Dūnhuáng 敦煌	Cave 45: donkey as pack animal in trade caravan Cave 217: donkey as riding animal	Cave 45: 618–907 CE Cave 217: c.705–780 CE	Duan 1991: plates 26, 64.
42	Shíliǔpù 十里鋪	Shǎnxī 陝西, Xī'ān 西安	M337: Pottery donkey	618–907 CE	Shaanxi Cultural Heritage Administration Committee 1956, 33; National Museum of China 2015: 282.

TABLE 1 Records of early donkey remains from China, North Africa, West and Central Asia (*cont.*)

No	Site	Location	Remain type	Estimated age	Reference
43	Xiǎotǔmén 小土門	Shǎnxī 陝西, Xī'ān 西安	Pottery donkey with bridle, saddle, saddle blanket, crupper	618–907 CE	National Museum of China 2015: 281.
44	Tomb of Lady Cui 崔	Shǎnxī 陝西, Qūjiāng 曲江	Bones of min. 3 <i>E. asinus</i> (M1: D1, D2, D3) and 1 stirrup	878 CE	Han et al. 2014; Xi'an Municipal Institute of Cultural Heritage Conservation and Archaeology 2018; Hu et al. 2020.
45	Bǎizìkèlìkè 柏孜克里克	Xīnjiāng 新疆, Tǔlǔfān 吐魯番	Cave 20: Depiction of donkey and camel as pack animals	Ca. 9th cen- tury CE	Le Coq 1913.