Donkeys, Domestication and Early Bronze Age Society

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Dogs are traditionally called man’s best friend. But the real best friend may be the more humble donkey.

Fig 1A. Photograph of *Equus africans* (Photo 79784, (c) Valerie, some rights reserved [CC BY-NC-ND]). ([https://www.inaturalist.org/photos/79784](https://www.inaturalist.org/photos/79784))

The domestication of animals in the Near East during the Neolithic (8-6th millennia BCE) and the subsequent “Secondary Products Revolution” which took place in the Chalcolithic (mid-5th to mid-4th millennia BCE), had a profound impact not only on food production but also on all aspects of human lifestyle. This entailed new uses for domestic animals, manifest in the exploitation of products such as dairy, wool and hair, and traction and labor. These innovations, staggered over several centuries, highlight the intensification and shifting relations between people and domestic animals.
In the Southern Levant, domestic sheep, goats, pigs and cattle are the most common livestock by the Chalcolithic, but neither the horse nor the camel were domesticated at that time. Regarding the first domestic donkeys (*Equus asinus*), there is still no consensus. Some researchers believe its introduction from North Africa (Egypt) occurred at the very end of the Chalcolithic period, around 3,800 BCE, while others suggest this occurred in the Early Bronze Age (ca. 3,700-2,500 BCE) when donkeys form a major component of the economy, and may even have been locally domesticated.

To elucidate this, we examined donkey remains from archaeological sites dating to the Early Bronze Age (EBA) and preceding periods, to highlight the timing and the location of donkey domestication, as well as iconographic representations of equids spanning this time period. Together, these data help assess the role of donkeys in the economy and ideology of the late prehistoric periods in the Southern Levant.

Identifying the ancestor of the domestic donkey has relied on both genetic and biometric criteria. Results of DNA analyses of modern donkeys has shown that the wild progenitor of the domestic donkey was the Nubian wild ass, *Equus africans africanus* and not the Somali wild ass (*Equus africanus somaliensis*) or the Asiatic onager (*Equus hemionus*).

Fig 1B. Map showing distribution of wild *E. africans* spp. in East Africa (shaded red areas). (https://he.m.wikipedia.org/wiki/%D7%A7%D7%95%D7%A5:%Equus_africanus_distribution.svg)
Recent genetic analyses have identified three potential centers of domestication: Northeast Africa (including Egypt), the Near East and the Arabian peninsula (Yemen). Notably, it appears that following their domestication, domestic donkeys dispersed out from their nuclear area/s quickly, attesting to their successful integration in local economies.

Determining when and where donkeys were first domesticated based on osteological remains is extremely problematic. In part, this is due to the paucity of suitable remains within the biogeographic range of the suggested wild progenitors, partly a consequence of poor bone preservation in open air sites from these arid regions. There are also inherent methodological problems distinguishing between domestic and wild equids as well as between the bones and teeth of domestic horses, donkeys and their hybrids.

In their search for domestic equids, researchers have also examined more delicate changes in the boney skeleton, such as the presence of pathologies or evidence for bone remodeling that may be associated with changes in an animal’s function, for example carrying heavy packs. Interpreting these data is problematic given that multiple factors may give rise to the same type of pathology.
To date, the earliest zooarchaeological records for domestic donkeys (based on a mix of the criteria listed above), are from Pre-Dynastic and early Dynastic sites in Egypt, the earliest from the site of el-Omari, dating to ca. 4600-4400 BCE. Sites in Sudan and the Arabian Peninsula with suspected domestic donkeys are later and date to the 3rd millennium BCE. Likewise, in the Northern Levant and Mesopotamia, the earliest faunal evidence for domestic donkeys dates to the late Uruk period (ca. 3600-3100 BCE).

Equids, most of them wild species, were uncommon during the Neolithic and Chalcolithic periods; the highest frequency was only 4% at Pre-Pottery Neolithic B Basta (Jordan) but most quantities were only <1% to 2% of identified faunal remains.

Equids appeared in this region during the Neolithic and even before. Some researchers believe they were already present in the region from the Ghassulian Chalcolithic period (ca. 4,500-3,800 BCE). However, based on the significant increase of morphometrically identified donkey remains at the very beginning of the EBA, we have suggested that this point marked the advent of the earliest domestic donkeys.

Equid remains in EBA sites reach an average high of ca. 10% of the total number of animal bones, with donkey remains clearly responsible.
The exceptionally large numbers of equid remains at Bab edh-Dhra and Khirbet al-Batrawy in Jordan suggest these sites may have been associated with industries requiring extensive amounts of raw materials to be moved such as metal working, and/or were way-stations associated with exchange networks. These data support the idea that donkey-based transportation in the Southern Levant was conducted in the form of caravans, as attested in texts and inscriptions from Mesopotamia and probably also Egypt.
In sum, the EBA donkeys from the Southern Levantine sites exhibit two key features of domestic animals lacking in the Pottery Neolithic and Chalcolithic assemblages; they are markedly smaller than earlier equid specimens and their remains are far more numerous. These parameters indicate they were probably living in an anthropogenic environment – with humans dictating their food supply and movement (reduced size) and also were fully integrated in the local economy (increased numbers).

We propose that this may reflect local domestication. Though it is not clear whether this process began at the end of the Chalcolithic or at the very beginning of the EBA I, clearly the domestic status of donkeys was fully expressed by the second part of the EB I or EB IB.

In several Southern Levantine EBA sites, such as Tell es-Sakan, Nahal Habesor Site H, Afridar, Lod, Tel es-Safi/Gath, Tel Jenin and Tel Azeka, complete or partially articulated equid skeletons were excavated.

Complete skeletons are the most reliable records for biometric and morphological analyses, which enabled them to be identified as donkeys with confidence.

Most researchers have suggested these complete, buried EBA donkey skeletons represent a ritual burial practice. This is primarily based upon later texts from Mari and Ugarit as well as Biblical parallels, which relate that donkey sacrifice was used to validate agreements, as well as similar interments in numerous ancient Near Eastern sites. These donkeys are generally found as isolated interments in intentionally dug pits, without evidence of architecture or other built installations. Most occur in open areas away from habitations, or in abandoned habitations. Notably, these interments contain no offerings nor are they located in close proximity to special ritual areas such as temples or mortuary facilities. Aside from ritual, other possible explanations range from dietary taboos to meat preferences.

We suggest an alternative interpretation. In contrast to the ‘anonymous’ herd animals that were exploited daily for food, we argue that certain donkeys enjoyed an especially close connection to EBA people since they worked, travelled and generally lived alongside a particular owner. They were “known” individually to their owners, maybe were named, and so had a privileged status such that when they died they were not consumed and buried intact.
We propose that isolated and dispersed donkey bones and teeth recovered in EBA Southern Levantine contexts probably represent animals that were consumed, while the intact, so called “donkey burials” represent select equids that were related to in a special manner by their owners/caravaneers, reflecting the emotional tie that existed between people and the animal.

Other data support this interpretation. Equid figurines have been found in a number of EBA contexts, mainly in burials.
Fig. 6. Donkey figurines from Azor (1), Barqai (2), Tel Dan (4), K. Mahruq (5), Jericho (6), K. Zeraqon (7), a sherd depicting a donkey from Megiddo (3), and the Beni Hassan mural representing a Canaanite caravan arriving in Egypt (8). Adapted from Milevski and Horwitz 2019: Fig. 4.3.

They appear during the EBA IB (around 3,300 BCE) and continue through EBA II and EBA III. Notably, to date, no donkey figurines have been found in secure Chalcolithic contexts. One of clear attributes of these equid figurines is their ear size, which is typically longer than horses. Another element is the presence of stiff and upright manes and short tails, also typical of donkeys.
In general figurines are shown carrying two containers, most of them bag-shaped EB I-II-like vessels, suggesting exploitation of donkeys as a beast of burden (Fig. 6:1). During the EBA II some figurines depict saddles with clear belting and saddle. Some figurines are made of a special ceramic fabric called metallic ware (Fig. 6:2), characteristic of pottery production in the Upper Galilee. This alludes to a connection between donkeys, the ‘users’ of the figurines and their ‘producers’.

In EB II-III, there are also figurines portraying humans riding donkeys, such as from Khirbet ez-Zeraqon that may originate from a cultic context (Fig. 6:4). One figurine from Jericho, dated to the EBA III, lacks containers and its back is represented by a wide, slightly concave surface that could be interpreted as a saddle that could have been used to support a rider (Fig. 6:3). EB II-III figurines from Serabit el-Khadem in south Sinai show Egyptians riding donkeys. Donkey caravans associated with ‘Asiatics’ are depicted in the Beni Hasan tomb (Egypt) dated to around 1900 BCE (Figure 6:5).

The figurines may reflect the transformation of the donkey from a beast of burden to one also used for riding in EB II-III. The presence of bit wear – localized beveling of the anterior surface of the second premolar tooth, caused by grinding or chewing a bit - that was identified on a donkey skeleton from EBA III Tel es-Safi/Gath, may denote the use of these animals for riding, though bridles may also have been used to control working animals.

We regard the figurines as not representing the personification of a specific donkey, but rather a totem, that is a natural object or an animate being, such as an animal or bird, that assumes the role of clan/family/group emblem. In essence, the EBA figurines represent an example of animalization of people, or what we perceive as the social character of donkey figurines. The figurines represent social groups, such as caravaneers or merchants, and as such are the emblem not of individuals, but of a social group as a whole. Their discovery primarily in contexts associated with human burials, corroborates this interpretation.

The changing economic and social role of the donkey marks the transition from subsistence agro-pastoralism in the Chalcolithic, to an international economy in the EBA II-III, engaged in long distance trade. This was facilitated by the appearance of the domesticated donkey. An adult donkey can carry a load up to 20 percent of its body weight, which is proportionately greater and for a longer period of time, than a horse or cow. They require less food and water and can be sustained on much coarser food. Donkeys have the additional advantage of being able to navigate over a wide range of topographies, soil types and obstacles without the need for built infrastructure such as paths or roads. In short, they are perfectly adapted for long distance trade and heavy labor.

These unique qualities made the donkey a critical element enabling this economic shift by facilitating large-scale transportation and circulation of commodities, including new and exotic items, throughout the Southern Levant and beyond. The exploitation of the donkey as an agricultural beast of burden extended access to fields that were further afield than walking distance and facilitated ploughing of larger areas. In turn, this contributed to the creation of surplus food stocks, which could be traded.

The donkey may also have been the most significant factor in changing the geo-political relations with other regions, such as Egypt, since caravans permitted transportation of raw materials, products and containers to distant regions. Transportation became a new branch of the economy of Early Bronze societies and donkeys, coinciding with the rise of the first urban entities in the Southern Levant.

Technological changes lead to social changes. All in all, the domestication of the donkey served a multiplicity of essential tasks related to exchange and influenced the development of craft specialization and trade.

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