



The Roles of Domesticated *Ovis aries* in Historical Asian Civilizations

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Abstract

Background and Aim: Generally, historians do not give much time or effort to investigating the material importance of non-humans in the creation of historic communities, states, and empires. This paper aims to remedy this situation regarding Asia by outlining the contribution of one particular species of non-human, that is *Ovis aries*; the domestic sheep.

Materials and Methods: The author works with the national and imperial histories of a set of historical states, plus the accepted archaeological knowledge of several prehistoric settlements and cities to tease out why and how *Ovis spp* made significant contributions to the rise of these settlements and states, mainly from an economic perspective.

Results: The resulting narrative indicates that if anybody wants to understand history and prehistory fully, they must at least acknowledge the possibility that non-humans are key players. This is indicated only with one species, but this one species seems important across a long length of human prehistory and history, and other species probably made similar important contributions.

Conclusion: Sheep were essential in the making of the exact pathways of historical development that these few Asian case studies display. It is highly unlikely the world would be the way it is today in these specific geographies without sheep farming and the wool trade.

Keywords: Urban History; *Ovis spp*; Asia; Civilization; Urban Development; Animals

Introduction

In the study of the history of civilizations and the primordial rise of villages, towns, and cities in prehistory, usually non-human animal participants are often neglected (Fagan, 2015). If they do receive attention, it is because the animal in question has by design or accident become something of a cultural or political symbol itself (Timofeeva, 2018). In many other historical treatments, sheep are often relegated behind other animals in their historical importance and often only receive their due when specialist economic historians of the rise of England and Spain as imperial powers (Anderson, 2004; Peden, 2011; De Lasteyrie, 2011; Skabelund, 2016; Bonnell & Kheraj, 2022) and relevance to Asia is considered peripheral. However, in this paper, I present a narrative that posits the centrality of domesticated sheep, *Ovis aries*, in the rise of large-scale human settlements and then the subsequent rise of Asian civilizations and empires, to expose the prevalence of sheep as central characters in long-term history. This is done by outlining five diverse historical cases where sheep forged pathways for change in Asian history.

1. Asia's First Villages Were Maintained by Nascent Sheep Farmers

The genera comprising modern *Ovis spp* first evolved in Asia millions of years before the Ice Age when they diverged from goat-like ancestors (Sánchez-Villagra, 2022). The precise location where these species first emerged is not known but one likely candidate is the Zagros mountain range that strides along the eastern border of modern Iran plus the plains and valleys that connect this range to the Taurus mountains of Asia Minor and the Armenian Highlands further north. Here in Western Asia, as the last Ice Age ended, around 12000 BCE, a wild sheep called the Mouflon (*Ovis orientalis*) was regularly grazing in the grassland zones of these highlands. The Mouflon presents itself as a robust sheep that appears much stockier and taller than modern-day sheep. They are generally draped in a short coat of reddish-brown hair. Upon reaching maturity, the male Mouflon boasts strikingly impressive, spiraled horns that circle outward from the sides of its head.

The Zagros and Taurus ranges, plus the Armenian Highlands, were once prowled by formidable predators such as leopards, lions, lynxes, and smaller wildcats, all stalking the wild Mouflon. Packs of wolves and



wild dogs also trailed them, often singling out lambs and loners as targets. However, the Mouflon's alertness, sharp eyesight, and tendency to flock together allowed them to endure predation and thrive in this ever-changing and often harsh environment. The Mouflon's strong muscular legs, sure-footedness, and speedy navigation over rocky terrain helped them to evade predators, including Stone Age human hunters. Whilst seeking to evade predators, Mouflon also displayed a strong inclination towards sociality. This is often interpreted as an instinctive survival strategy since a group of grazing wild sheep can detect danger more swiftly than isolated grazers (Grandin & Deesing, 2013). Additionally, in adverse weather conditions like snowstorms or rain, a flock can huddle together for warmth and shelter. Such patterns of behavior are, of course, observable in modern-day farm sheep.

Though sociable, the wild sheep of Western Asia were still mightily wary of humans. Yet, sometime in the distant past, a community of prehistoric people called the Natufians endeavored to domesticate the Mouflon. This occurred over centuries in the area where the Taurus mountains transitioned from Asia Minor into the Levant (Valdez, 1982). Before they were sheep farmers or farmers of any sort, the Natufians were setting up both semi-permanent and permanent settlements, most notably near cliffsides and caves in the southern Levant around the sites that would become Jericho and Jerusalem. A typical Natufian village settlement consisted of a population ranging from around 100 to 200 individuals. Their main game animal here was the gazelle and they came to upon it so much that they seem to have tried domesticating it – though they never it was fully successful (Bar-Yosef & Valla, 1991). Probably, the Natufians of the southern Levant kept live individual stocks of gazelle caught whilst out hunting and collecting (Bar-Yosef & Valla, 2013) but the gazelle of prehistoric times were much like the gazelle of today; disinclined to settle down within a human settlement. Despite the absence of comprehensive domestication of their primary economic animal, the Natufians managed to thrive as a society and witnessed the expansion of their cultural practices northwards – also partially driven by climatic changes (Bar-Yosef & Valla, 2013). An increasing number of Natufian settlements were established in northern Levant. Because of this northward movement, the Natufians increasingly came into contact with larger populations of untamed sheep migrating southwards from the valleys and foothills of the Toros mountains. Over time, the Natufians shifted their focus from hunting gazelles to primarily targeting wild sheep as their principal game species.

In the northern Levant region, the Natufian civilization underwent a transition from relying predominantly on a gazelle-centered economy to one that was centered around sheep. (Henry, 1989). The Natufians residing in the northern region then employed their expertise in the management of wild gazelle to the management of wild sheep. It is possible, likely even, that a form of incipient domestication occurred among Natufian hunters, wherein they abducted and confined wild lambs to fatten them for future consumption. (Bar-Yosef & Valla, 1991). By approximately 9000 BC, it appears that the Natufians in the late stage of their development had acquired the skill of "sheep-whispering," which involved luring a herd of sheep to establish a permanent presence in proximity (Barker, 2006; Armstrong 2016). This was achieved, for instance, by deliberately burning old grasslands and shrublands, thereby creating a quick regrowth of lush grass that would attract the sheep. The appealing and pristine nature of these pastures would have been highly enticing to sheep (Albarella & Trentacoste, 2011). The Natufians likely incorporated salted rocks within their villages, a practice that would have appealed to sheep due to their inclination to lick these rocks to obtain necessary minerals (Grandin & Deesing, 2013). If Natufian villagers consistently maintained a non-threatening presence near a mobile flock for an extended period, it is plausible that they could have familiarized wild sheep with human presence, particularly if the villagers actively deterred predators with tame canine hangers-on. (Davis and Valla, 1978).



Fig. 1. The author's rendering of a prehistoric Natufian sheep village

To be recognized as a legitimate sheep farmer, it is insufficient to merely gather animals from their natural habitats and confine them within an enclosure. A real farmer needs to sustain multiple generations of self-reproducing flocks. It is not known for sure whether the Natufians ever managed to do this, but the evidence is not strong that they did. Considering the absence of any prior instances of animal domestication, it is hardly surprising the Natufians took so long to make any progress and were ultimately not fully successful (Henry, 1989). Probably they had to constantly hunt or gather new sheep from the wild every season to replenish their stocks (Grandin & Deesing, 2013). At the very least, though, we must label the Natufians as aspiring sheep farmers. Regardless, their sheep-managing techniques sustained the village culture for millennia and were handed on to succeeding cultures to transform into fully-fledged farming. As we shall see in sections 2 and 3, these succeeding cultures managed to utilize sheep farming to develop Asia's (and the world's) first towns and cities.

2. The First Asian Towns were Established with a Primary Focus on Sheep Farming.

Located in the central plains of Asia Minor near the Turkish city of Konya, one can see the remains of a 9000-year-old settlement known as Catalhoyuk atop a pair of isolated flat-topped mounds that protrude from the surrounding flatlands. The nearby plains are currently rather desolate but during the period of 7000 BCE, the inhabitants of Catalhoyuk were able to observe a vast and fertile grassland that stretched into the Toros mountains, located around fifty miles to the south, and was nourished by a flowing river. Catalhoyuk holds great significance for humanity for it was the world's first town, climbing to a population of approximately ten thousand individuals at its peak. It is particularly relevant for this paper since Catalhoyuk's economic activities revolved around the practice of sheep husbandry. The residents of Catalhoyuk resided in well-maintained dwellings constructed from lime-washed dried clay. The dwellings of Catalhoyuk were clustered tight, resulting in a lack of space for the construction of streets. It seems the inhabitants of the town traversed the rooftops of their residences.

Some archaeologists posit a potential connection between the inhabitants of Catalhoyuk and the preexisting village society Natufians, suggesting that the Natufians may have served as the progenitors of the Catalhoyuk community (Belfer-Cohen, 1988; Hodder, 2013). It appears that there were northward movements from the Levant of pre-pottery neolithic Natufian offshoot cultures at about 9000 BCE. The inhabitants of neolithic settlements like Nevali Cori, another site in Asia Minor, may serve as a candidate intermediary culture between the Natufians of the northern Levant and the sheep farmers of Catalhoyuk (Albarella & Trentacoste, 2011). There may exist an ethnic or cultural connection between the entities in question; they share some common cultural practices, for instance, burying their dead within their homes (Belfer-Cohen;1988). Migration and trading were certainly physically possible within the space of a few months or years. If this is the case, it is possible that the Natufians transmitted their early sheep-farming knowledge, which was subsequently refined and expanded upon in Asia Minor, ultimately leading to the establishment of a comprehensive sheep-farming system. However, it also seems that there were numerous hunter-gatherer communities located in the time and space between -- or nearby -- the Natufians and Catalhoyuk where there was no interest in any kind of farming; faunal or floral. The builders of the well-known prehistoric Gobekli Tepi temple (circa 8500 BCE) might be a case of this. Nevertheless, Catalhoyuk was a "fully-fledged" sheep-farming town by the year 7000 BCE. By then, their flocks had become so widespread that they served as the fundamental cornerstone of the Catalhoyuk economy (Roberts & Rosen, 2009).



Fig. 2. The author's rendering of the prehistoric 'sheep town' Catalhoyuk

The residents of Catalhoyuk likely employed a selective breeding process to choose sheep with amiable and docile traits, potentially favoring individuals with reduced versions of the prominent Mouflon horns (Hodder, ed, 2013). It is also probable that they exhibited a preference for ewes that demonstrated high milk production capabilities. (Martin, 2000). Although lamb and mutton were consumed on occasion,



the everyday consumption of sheep milk products, such as various types of yogurts, cheeses, and butter, was prevalent. The consumption of mutton or lamb by the inhabitants of Catalhoyuk likely involved the procurement of wild sheep through hunting activities conducted in the foothills of the Taurus mountains. The Catalhoyuk townsfolk also captured and selectively bred wild sheep with their domesticated counterparts. This practice served the dual purpose of augmenting their herds and maintaining the vitality and well-being of their farmed sheep. During this period, both wild and domestic sheep have a hairy coat rather than a woolly one. (Arbuckle *et al.*, 2009). It would have taken quite some effort to pluck the hair off a sheep's back or cut it off with a stone blade. With this hair, the Catalhoyuk most probably spun and weaved various textile products, mats, and curtains for their lovely homes, for example, but probably not for bodily clothing (Hodder & Marciniak, 2017). Woven hemp has been unearthed from the site recently so we can guess Catalhoyuk folk were probably weaving hair from their sheep as well. Perhaps, though, sheepskins were just as prevalent -- or more so -- than woven sheep's hair. Archaeologists working on the site suggest that Catalhoyuk folk traded both pelts and fabrics to villages far and wide across Asia Minor and into the Levant (Kuijt, 2000).

Although Catalhoyuk was humanity's initial venture into town living, its homes were remarkably well-constructed and provided a high level of comfort. A further noteworthy feature of Catalhoyuk was the uniformity in size and shape observed across all dwellings. Every household possessed an equal number of domestic products, as well as a similar standard of cookware, plus comparable washing facilities, and similar aesthetic displays (Hodder, 2014). There seems no tangible wealth disparity among its households, with each family maintaining an equivalent social standing. It seems even though they had domesticated sheep, ownership of the flocks was either communal or sheep products were dished out equally amongst the residents. Yet, we can only speculate as to why this was the case.

Although they lived as sheep farmers for five hundred years, the residents of Catalhoyuk abandoned the site around 7000 BC. Either they or at least their sheep farming practices, survived and spread across Asia Minor and into Mesopotamia – as we shall see in the next section.

3. The First Cities in Asia Were Founded as a result of the Wool Trade.

Over centuries and millennia, the sheep farming practices of Catalhoyuk spread from Asia Minor down the fertile plains of Mesopotamia; the elongated region stretched between the Euphrates and the Tigris rivers that extends to the Persian Gulf. Various peoples of these regions refined the practice of animal husbandry, elevating it to the status of a sophisticated art form (Sánchez-Villagra, 2022). This provided an important base for the development of villages and towns along both rivers.

Around 4000 BCE, we have a historically important event occurred: the birth of the first woolly flocks (Barker, 2006). This may have come about via a spontaneous mutation or selective breeding. In any case, the Mesopotamians had been weaving linen from flax for millennia, so they knew exactly what to do with the woolen fibers when they first appeared on the backs of their sheep. Now, sheep were more valuable than ever. Not only did they provide skins and meat and milk, plus guts for making bows and strings, but from around 4000 BCE, they could yield a self-renewing annual harvest of very valuable and long-lasting material. Wool could be spun into yarn and woven or tied for household purposes including rugs and blankets, made into coverings for walls and windows, and sewn into bags and hold-alls, as well as occasionally utilized for actual clothing (Barber, 1994). It could also be packaged for transportation and trade along the Euphrates and Tigris rivers, covering extensive distances (Butler, 2010). As a result of an increasingly reliable surplus of wool each year, a heightened trading network was forged into being, with numerous small sheep farming communities transforming into larger wool cities. This process was ongoing in Mesopotamia starting from around 4000 BCE.



Fig. 3. The author's rendering of an ancient Mesopotamian wool city

The first of these great wool cities were Eridu, Ur, and Uruk, all Sumerian cities very near the coast of the Persian/Arabian Gulf. The designation of Eridu, Ur, and Uruk as a 'city' is justified due to their populations reaching one hundred thousand inhabitants at their height. They also demonstrated numerous characteristics commonly associated with contemporary cities. These included the presence of bustling markets, thriving ports, the growth of well-defined professional groups, distinct residential areas, suburban regions, prominent public structures, extensive international trade connections, and a well-developed governmental system responsible for tax collection, service provision, and judicial administration (Kramer, 2010).

Of further note, the emergence of wool as a significant commodity coincided with the development of writing and mathematics. These innovations were pragmatic tools intended to monitor the burgeoning civic and economic endeavors that were rapidly developing during that period because of the wool trade. For example, proficiency in writing and mathematics was required tallying livestock, allocating grazing territories, and documenting wool profits (Leick, 2002). Furthermore, these tools were employed for tax collection, food distribution, and legal enforcement. Ancient Mesopotamian accountants inscribed wet clay tablets with pictographic and cuneiform notes. When dried, these tablets and their notes were preserved for the Ages. Just about our entire contemporary understanding of ancient Mesopotamian history stems from the reading of extant tablets by present-day archaeologists (Leick, 2002; Kramer, 2010).

The prosperity and growth of the wool trade in Mesopotamia throughout the 4th and 3rd millennia BC facilitated the establishment of enduring credit arrangements spanning the entire span of the two Mesopotamian rivers, as well as traversing mountains and seas to reach distant civilizations. Due to the substantial wool production from several flocks, along with the continuous reproduction of sheep each year, traders and merchants developed a sense of assurance that enabled them to assume the risk associated with extending credit to wool producers and clothmakers. The laws about credit and debtor relations in Mesopotamia have been documented on stone monoliths that date back to around 2000 BC (Kramer, 2010;



Oppenheim, 2013). However, these regulations were likely established even earlier, tracing back to the establishment of the initial towns. During the initial stages of urbanization in Mesopotamia, wool possessed remarkable durability and portability, leading to its utilization as a medium of exchange. Wool bales or finished cloth frequently functioned as a sort of currency, exhibiting a cyclic movement akin to that of precious metals such as silver or gold bullion.

As well as being economically important, sheep farming and wool trading were of cultural import to the Sumerians as well. Inside the archaeological remains of the city of Uruk, there exists an intriguing three-word statement, one of the first known examples of human writing. The initial word of this statement is "Inana", denoting the deity revered within the city, which is succeeded by the indigenous Uruk expression for ovine creatures, and ultimately followed by the Uruk term signifying a place of worship (Kramer, 1972). If this does not explicitly demonstrate the perception of sheep as divine entities, it still suggests their importance within the ancient Sumerian culture. Moreover, the artwork unearthed from the ancient city of Ur frequently portrays sheep as central figures in daily life and the urban economy (Oppenheim, 2013). Here, it is important to note that the economic and spiritual egalitarianism observed in Catalhoyuk, often recognized as the world's inaugural urban settlement, had dissipated by the time of Ur. The great wool cities of Mesopotamia Sumer exhibited a distinct hierarchical structure, characterized by a significant disparity between the privileged upper class and the laboring lower class, resulting in a pronounced socioeconomic divide (Oppenheim, 2013). The elite then exhibited their wealth and social standing by extensively adorning themselves with woollen fabric (Nemet-Nejat, 1998) which encompassed a wide variety of garments such as cloaks, tassels, tufts, and decorative trinkets (Barber, 1994; Butler 2010). At the same time, in the first centuries of the wool trade, shepherds and wool-craft laborers worked inside workshops and outside in the pastures and lived without being clothed at all for the most part. However, as the Mesopotamian settlements and urban centers experienced gradual growth in their annual surpluses over the subsequent centuries, the distribution of woollen cloth eventually expanded to encompass many strata of society (Barber, 1994; Kramer, 2010). Following the adoption of woollen garments by the inhabitants of Ur, they proceeded to embellish the interiors of their dwellings with woollen covers (Barber, 1994). Meanwhile, the civic buildings, temples, fortress walls, watchtowers, riverside infrastructure, and public monuments outside became grander and grander – though many were built from dried mud rather than from stone, so they have decayed over archaeological time.

Curiously, woolly sheep had a significant role not only in the emergence of the world's initial urban settlements but also in their eventual downfall. Due to the substantial accumulation of riches resulting from sheep farming and wool trafficking, the cities emerged as highly attractive targets for foreign attackers. The Martu, a nomadic tribe, launched an attack on the southern Mesopotamian cities from the northern region, while the Ghuti and the Elamites, two other tribes, similarly initiated assaults from the Zagros mountains in the eastern direction. The aforementioned tribes relied on sheep farming as their primary economic activity. Consequently, they harbored feelings of envy toward the prosperous cities due to their abundance of wool and other resources (Leick, 2002). As a result, they made repeated efforts to raid and conquer the towns of Ur and Uruk. On other occasions, they were able to achieve great political success; forcing a takeover of walled cities assuming the role of city governors.

By approximately 2000 BC, more urban settlements propelled by the utilization and trading of sheep emerged in the northern regions along the banks of the Euphrates and Tigris rivers. One notable example among these is the city of Babylon. Babylon earned the moniker "Land of Wool" due to its predominant economic reliance on the wool industry. The Hanging Gardens, which gained significant recognition, were illuminated throughout the evening hours through the utilization of several containers that consumed tallow derived from the remains of fifty thousand sheep (Butler, 2010).

During the period preceding the establishment of Babylon, the urban population of Mesopotamia displayed a growing inclination towards selective breeding of sheep, aiming to cultivate a strain with white wool as opposed to the prevailing brown and grey varieties. White wool was greatly esteemed due to its



ability to showcase vivid colors. When the majority of individuals had access to garments crafted from brown or grey wool, the upper class in Mesopotamia sought to differentiate themselves by adorning woolen attire dyed with costly and vibrant pigments (Barber, 1994). The inclination of the elite to distinguish themselves through the practice of "color-coding" would inadvertently contribute to the expansion of international trade, as the procurement of essential dyes necessitated their importation from distant regions. Additionally, this development led to the emergence of separate sheep breeds, with certain breeds being selectively developed to produce brown or grey wool as well as milk, catering to the needs of the working classes. Conversely, other breeds were specifically produced to yield white wool and meat, satisfying the preferences of the elite.

4. The First Urban Civilization in South Asia Developed a Dependence Upon Sheep.

While the prevailing belief is that sheep domestication involved the transformation of *Ovis orientalis* (the Mouflon) into *Ovis aries* (the domestic sheep), there exists a possibility that the initial domestication of sheep in South Asia can be attributed to a different species altogether, namely *Ovis vignei*; generally known as the Urial. Characterized by its tall stature, robust physique, and sand-colored coat of dense, wiry hair, adorned with prominently ridged horns spiraling from its head, emerges as a potential candidate. The Urial species is related to the Mouflon species but in millennia in the past, numerous groups of Urial sheep separated from groups of Mouflon sheep in an unspecified location on the Persian Plateau, thereafter, embarking on a migration towards the formidable Kirthar mountains.

The Kirthar mountains traverse a significant portion of the western bank of the Indus River, which meanders for almost one thousand miles from the Himalayas, spanning across present-day Pakistan and India until it reaches the Indian Ocean. Around 3000 BC, it is plausible that one could have observed human villages scattered along the river. Several of these settlements consisted of thriving agricultural communities, as the plains situated between the river and the mountains possessed exceptionally good soil. Five centuries later, one would observe not only rural settlements but also the emergence of expansive urban centers characterized by substantial brick fortifications. The urban area was encompassed by vast bodies of water and characterized by a magnificent concentration of clay-brick dwellings. The urban settlement in question corresponds to Mohenjo-daro, which constitutes an integral component of the Indus Valley Civilisation. The Indus River was home to a vast civilization that spanned its entire length, with a population of over five million individuals during its peak. The population was distributed throughout numerous villages and towns, with a limited number of cities accommodating up to forty thousand inhabitants each (Pruthi, 2004).

The ethnic origins of the individuals constituting the Indus Valley Civilisation remain rather enigmatic. The contemporary populations residing near the river in Pakistan and India appear to have no discernible connection to the ancient civilizations that formerly thrived in the region. Furthermore, there is no evidence to suggest any connection between the inhabitants of Mahenjo-daro and the Aryans, a group believed to have migrated from the northern region around 1600 BC (Possehl, 2002). Some historians speculate that the Aryans may have conquered and defeated the city of Mahenjo-daro, but this remains a subject of debate (Pruthi, 2004).

According to several academics (Pruthi, 2004; McIntosh, 2008; Williams, 2016) the emergence of the Indus Valley Civilisation can be traced back to the preexisting Mehrgarh civilization, which was an early agricultural society confined to a limited number of valleys situated between the Kirthar mountains in southern Pakistan and the Hindu Kush mountains in northern Pakistan. Nevertheless, the precise origins of the Mehrgarh culture remain uncertain. It is noteworthy that the Mehrgarh culture perhaps holds the distinction of being the earliest known culture in South Asia to engage in sheep herding activities.



Fig. 4. The author's rendering of a prehistoric Mehrgarh sheep village

As explicated above, the untamed Mouflon is commonly regarded as the progenitor of contemporary domesticated sheep across the globe. Nevertheless, considering the Urial's natural habitat in the mountainous regions next to the Indus River, it is plausible to suggest that the Mehrgarh civilization autonomously engaged in the domestication of the Urial. It is plausible that the Mehrgarh culture engaged in interactions with prehistoric populations residing in the Persian plateau, resulting in the acquisition of domesticated sheep originating from Western Asia. Subsequently, the aforementioned civilization transmitted its expertise in sheep rearing to the subsequent Indus Valley Civilisation, spanning over thousands of years.

The inhabitants of the Indus Valley Civilisation, regardless of their geographical origin, exhibited significant advancements in various technical domains, such as the development of an indigenous writing system, alongside their livestock. Indeed, a substantial number of soapstone stamps adorned with pictographic inscriptions were abandoned by them. In contrast to the decipherable cuneiform tablets utilized by the Mesopotamians, the stamps employed by the Indus Valley Civilization present a considerable challenge for archaeologists due to their largely indecipherable nature. As a result, scholars continue to speculate over the intended meanings conveyed by the pictographic symbols. A considerable number of these individuals exhibit a wide range of animal symbols, among which sheep are included. Several clay seals have been discovered in the archaeological remains of ancient Mesopotamian towns as well as in the ancient ruins of seaports located on both sides of the Arabian Peninsula. Although infrequent, these discoveries suggest that merchants from the Indus Valley were likely engaged in long-distance travel. Several Mesopotamian artifacts originating from the prominent towns of Ur and Uruk have been discovered in the archaeological remains of the ancient cities located in the Indus Valley.

The urban architecture of the Indus Valley civilization also contains remarkable narratives. Initially, the group in question had a deep reverence for the element of water. The city gates were equipped with large ponds, both inside and outside, designed to accumulate fresh water from the Indus River and other adjacent water sources. The town's sewage system was quite impressive, with an extensive network of



enclosed channels that efficiently served every residence. In addition, the ancient civilization constructed grand communal bathing facilities that were accessible to and utilized by the whole populace. The veneration of water in this context foreshadows the subsequent development of Hindu water rites which emerged some millennia thereafter (McIntosh, 2008). Unlike the city-states and empires of Ancient Mesopotamia, a notable absence of substantial data about extensive warfare or rebellion is observed. The construction of the formidable city walls was primarily intended to safeguard against the destructive forces of floods, rather than serving as a defensive measure against hostile armies or marauders. While Mesopotamian city-states frequently encountered conflicts with nomadic raiders from the surrounding hills, the inhabitants of the Indus Valley appeared to maintain amicable relations with their nomadic counterparts (Possehl, 2002). They engaged in trade activities and even utilized nomads as intermediaries for communication purposes between different cities. During the first emergence of the towns within the Indus Valley Civilisation, it appears that sheep farming was merely a component of the broader agro-economic activities, rather than serving as a fundamental pillar as in Sumer of Babylon (McIntosh, 2008; Williams, 2016). The inhabitants placed greater emphasis on the cultivation and commerce of cereals, dates, and legumes, as well as the utilization of water buffalo, rather than prioritizing sheep. Nevertheless, as the city of Mahenjo-daro expanded, its inhabitants progressively became more dependent on domesticated and wild sheep as a significant protein source. The presence of small layers of sheep fat can be observed upon thorough examination of early Indus Valley pottery by archaeologists (Possehl, 2002).

In contrast to their counterparts in Ancient Mesopotamia and Egypt, the shepherds and farmers of the Indus Valley probably possessed a greater degree of ownership and agency in their agricultural pursuits. This is evidenced by their ownership of each sheep within their flock and their ability to operate as independent agents during the transportation process (Possehl, 2002). The shepherds residing in the Indus region were observed engaging in the trade of, as well as consuming, wild sheep species such as the Urial. Although sheep were undoubtedly valuable and significant, the Indus Valley Civilisation mostly thrived on the practice of cow herding. In this region, the domestication of cattle likely preceded that of sheep due to the presence of various types of readily tamed wild water buffalo near the river. There exists a perspective that posits the notion that the subsequent reverence for cows in Hindi culture may have been derived from the practices observed in the Indus Valley Civilisation (Kenoyer, 1998). However, it is important to note that this hypothesis lacks definitive confirmation.

The increasing separation between the inhabitants of the Indus Valley and their sheep can be regarded as regrettable, given that the decline of their civilization coincided with the progressive aridification of the Valley's surroundings. In the given scenario, sheep would have exhibited a higher degree of adaptability towards the arid climatic conditions compared to cattle. Furthermore, the practice of cow grazing would have resulted in a more rapid degradation of the remaining grasslands compared to sheep farming. It is plausible that the presence of sheep could have potentially extended the duration of the Indus Valley Civilisation over a significant period.

5. The Great Nomadic Civilizations of Asia Were Based Upon Shepherding.

In the winter months of 1241 CE, Ogadei Khan, the ruler of the Mongol Empire, died of a heart attack at the relatively young age of 54. This followed a lifelong diet primarily consisting of lamb, mutton, and the milk of ewes and mares – and following one particular night of very heavy alcohol consumption (Morgan & Amitai-Preiss, 2000).

In the Mongol court, it seems unlikely that lamb and mutton were considered potential causes of Ogadei's demise. The consumption of sheep's flesh was believed to possess health benefits and therapeutic properties, primarily due to the practice of encouraging Mongol sheep to graze on medical herbs. The focus of suspicion was mostly on Ogadei's foreign guests, as well as a number of his sixty wives, any of whom may have potentially poisoned his food as a form of vengeance for various misdeeds.

At this same time, clear across the Eurasian landmass on the Hungarian plains, a contingent of formidable Mongol armies had established encampments near several European capitals. The military



forces were under the leadership of General Batu Khan, who held the position as a result of his familial ties as the nephew of Ogadei Khan and the grandson of Genghis Khan. The aforementioned military force had recently achieved resounding triumphs over a substantial Slavic army near the Polish border, as well as a sizable Hungarian army near the Hungarian border (Bold, 2013). Subsequently, Batu Khan dispatched Mongol detachments intending to instill fear in the Germanic urban areas of Miessen and Vienna (Saunders, 2001). These 'scare sorties' created the impression that Batu Khan was preparing his military troops for the conquest of the entirety of Europe. Batu Khan, indeed, expressed his belief that his army's ultimate objective was to reach the Atlantic Ocean, sometimes referred to as 'the ultimate sea' (Onon, 2001). This would imply that the Mongols exerted dominion over the entire expanse of Eurasia, spanning from the Pacific Ocean to the Atlantic Ocean.

During that period, the inhabitants of 13th-century Budapest had valid reasons to be apprehensive about the Mongols. The army led by Batu Khan inflicted extensive devastation upon the Eastern European countryside, resulting in a prolonged period of agricultural infertility and the consequent inability to sustain food production for several years (Morgan, 2007). Furthermore, it is important to note that the Mongol army had already inflicted significant casualties upon the Hungarian population, resulting in the loss of around five hundred thousand lives, with a majority of the victims being non-combatants (Bold, 2013).

Due to the nomadic nature of the Mongol troops, they lacked both the inclination and the capacity to capture prisoners of war. There was an absence of dungeons or strongholds for incarcerating individuals. Nevertheless, a significant number of skilled craftsmen, particularly those involved in weaving and fabric production, were subjected to enslavement, and then transported under duress to Mongol territories in Asia (Morgan & Amitai-Preiss, 2000). Their coerced labor was primarily directed toward the manufacturing of textiles and garments, catering to the needs of either the privileged class or the military.

While the European monarchs fortified their territories against Mongol invasions by replacing wooden fortifications and stockades with robust stone castles and ramparts, the Mongols employed a markedly different material in their quest to establish and expand their Empire: felt. Felt refers to a material composed of crushed sheep's wool. One of the predominant applications of felt historically was its utilization in the construction of yurts and gers, which are traditional Asiatic dwellings characterized by their diverse configurations and potential for mobility or permanence. In addition to catering to sedentary farmers and established monarchs, yurts possessed the practicality of being portable structures that could be easily transported on horseback by nomadic pastoralists and itinerant armies (Endicott, 2012.).

The significance of felt within the Mongol Empire is seen in the nomenclature of its creator, Genghis Khan, whose appellation might be translated as 'the sovereign of those residing in dwellings made of felt'. (Bold, 2013). Individuals who did not reside in portable dwellings and instead adopted a sedentary lifestyle, such as the urban populations of Western Asia and Europe, were frequently perceived as morally and culturally inferior, rendering them vulnerable to conquest.

Thick-felted yurts were a prevalent architectural feature among several Eurasian tribes predating the establishment of the Mongol Empire. The first yurts, in actuality, are believed to have been introduced to Mongolia approximately one millennium later as a result of the migration of nomadic communities that relocated their sheep from Persia to the Eurasian steppes (Morgan & Amitai-Preiss 2000).



Fig. 5. The author's rendering of a semi-nomadic settlement in the Mongol kingdom

In addition to utilizing felt as a construction material for their dwellings, the Mongols also employed woolen felt for the creation of other items like garments, floor coverings, furnishings, mattresses, baggage, and essential pocket bags for storing and conveniently accessing their arrows and arrowheads. Felt, a versatile material, served many purposes such as insulation, protection, and support. (Lane, 2006) It was employed to safeguard and provide warmth to diverse items, including the craniums of Mongol warriors, as well as their buttocks and feet throughout arduous journeys spanning extensive distances amidst harsh climatic conditions. The utilization of sheep's wool in the construction of various structures such as yurts, gers, bags, cloaks, and other items played a crucial role in facilitating the expansion of the Mongol Empire into Europe.

Due to the considerable utility and significance of felt, the Mongols found it necessary to maintain extensive herds of wool-bearing sheep. Similar to the Mongols themselves, sheep exhibit a nomadic nature and possess inherent insulation to withstand the harsh winter conditions of the steppes. The Mongols' reliance on sheep was a significant factor that perpetuated their adherence to a nomadic way of life. This was due to the necessity of regularly relocating their sheep across different terrains to provide access to fresh grazing pastures, typically every few days or weeks (Morgan, 2007).

There is a common perception that nomadic lifestyles represent a primitive and outdated type of human existence, which has been surpassed by the establishment of settled farming communities and urban centers. Nevertheless, amid the vast expanse of the Eurasian steppes, characterized by the abundant growth of grass extending in every direction, it is more economically rational to adopt a strategy wherein the primary economic resource of civilization, namely sheep, is granted the freedom to wander extensively, with the civilization thereafter relocating by their movements.

The Mongolian sheep breeds exhibited notable adaptations to their demanding lifestyle, characterized by their robust build, compact physique, rapid weight gain, and possession of a thick, dark, and coarse fleece. When provided with a broad expanse, these animals can feed on pastures throughout the year,



regardless of their quality, without the need for additional nourishment. This holds even in extreme summer or winter circumstances, as well as in areas where greenery is sporadic.

Sheep were considered a vital component of the Mongol armies as well. During extensive military expeditions, both in proximity and at a distance, sheep herds frequently accompanied the warriors, proceeding in synchrony as they migrated and conquered various pastures across the globe. In addition to serving as a source of wool for felt production, sheep played a crucial role in supporting the Mongolian troops by providing milk and meat for sustenance, lambskins for insulation, bones for tool-making, and dung for fuel, which served the dual purpose of heating the yurts and cooking food (Lane, 2006; Butler, 2010).

The horse is commonly acknowledged as the primary animal that played a significant role in the establishment of the Mongols' expansive Eurasian Empire, as depicted in the majority of historical accounts ((Fagan, 2015). Affluent Mongolian soldiers would maintain a retinue of four to five equines in tandem with their primary steed throughout their military adventures (Peers, 2015; Armstrong; 2016).

However, the soldiers who were the most economically disadvantaged did not possess any horses and therefore had to rely on walking as their primary means of transportation. In light of this particular means of transportation, soldiers were frequently assigned the responsibility of being 'war shepherds' or campaign drovers, tasked with guiding the sheep from behind the expansive nomadic Mongol army. The role in question may not have possessed a significant degree of glamour, yet it remained indispensable for the maintenance and mobility of the army.

The Mongols did not hold the distinction of being the original group of nomadic sheep herders to establish a vast empire across the expansive Eurasian plains. In the 5th century AD, the Huns undertook a comparable endeavor by displacing Slavic and Germanic tribes towards the west, as they expanded their military forces and introduced their pastoral livestock into the European continent. Before the emergence of the Huns, the Scythians embarked on a comparable endeavor during the Classical Ages, extending their influence into the eastern regions of Europe (Frachetti, 2009). There exists a perspective among certain historians suggesting a potential remote relationship between these civilizations, either through cultural connections or ancestral lineage. A common characteristic that unifies them is their pastoral way of life.

Another shared characteristic among them was their proficiency in horsemanship. The Mongolians, Huns, and Scythians were renowned for their exceptional equestrian skills. The utilitarian value of horses in terms of transportation and warfare should not overshadow the importance of sheep in these societies. Undoubtedly, the practice of equestrianism served as a valuable complement to shepherding, as it enabled the Huns and the Mongols to effectively oversee and guide their grazing sheep across vast expanses of pasturelands. The utilization of horse-riding by the Mongols resulted in the ability to corral and herd increasingly larger flocks, leading to a substantial augmentation of their material prosperity (Bold, 2013). Additionally, the Mongols possessed exceptional wool-craft abilities, which allowed them to create specialized riding trousers that offered both comfort and protection throughout extended periods of horseback riding. Additionally, a crucial step in the production of felts intended for yurt building involved the practice of pulling wool fibers across stones while a horse was in motion.

With the aid of their formidable forces consisting of shepherds and horsemen, the Mongols successfully advanced to the vicinity of Budapest, the capital city and symbolic center of the Hungarian monarchy, by the year 1241. Nevertheless, during their preparations for the assault, General Batu Khan was informed of the demise of Ogadei Khan in the Mongol heartland. With the aspiration of securing his position as the prospective Emperor of the Mongols, Batu Khan decided to reverse the course of his army, including the transportation of livestock and embarked on a journey back to Mongolia. Sheep played a significant role in the rise of the Mongol Empire, as they provided crucial support to their army and sustained their men. However, it is worth noting that sheep also inadvertently contributed to the preservation of Europe, as they were indirectly responsible for causing Ogadei Khan to suffer a heart attack.



Batu Khan's return to Mongolia was a protracted process spanning several years, followed by a subsequent extended period before the election of a new Emperor. Ultimately, the one who ascended to the position of Emperor was not Batu Khan, but rather his relative Guyuk Khagan. The mutual animosity between these two factions resulted in a significant amount of internal conflict, which ultimately led to the Mongols abandoning their ambitions of expanding their Empire into Europe.

Historians such as E.N. Anderson and John Masson Smith, Jr. suggest adoption of a high-fat diet by the Mongols not only had a significant impact on Europe, but it potentially contributed to the decline of the Mongolian Empire as a whole (see Smith, 2000 and Anderson, 2004). The Khan dynasty's proclivity for indulging in lamb meat and consuming fermented milk excessively resulted in their much shorter lifespans compared to their contemporaries in the other Chinese kingdoms. In contrast to the Mongols, Chinese emperors and warlords predominantly derived their caloric intake from rice. Therefore, it is observed that Chinese leaders adhered to plant-based diets to maintain longevity, but Mongol Khans, in contrast, experienced relatively shorter reigns before succumbing to cardiovascular ailments. The leaders of the Mongols compelled their Empire to engage in recurrent wars of succession, resulting in internal conflicts characterized by disputes among relatives that ultimately fragmented the Empire. The gradual disintegration of the Mongol Empire occurred over time. Chinese Emperors, in contrast, showed a propensity for extended reigns over highly stable kingdoms and empires. Subsequently, they attained sufficient strength and stability to assume control of the challenging Mongol homeland.

6. Indonesia as the Leading *Ovis spp* Nation in South East Asia

The ancient lands mentioned in previous sections 1 to 4, continue nowadays to flourish as significant nations sheep industry nations. Turkey, for example, ranks as the seventh largest sheep-producing nation globally, boasting a population of 40 million sheep. In comparison, the region encompassing Mesopotamia, which comprises present-day Iraq and Syria, collectively possesses a sheep population of 20 million or more. Likewise, modern-day Pakistan possesses a population of over 30 million sheep, and India has around 70 million. As well, the nations situated in the Asian steppes, including Mongolia, Kyrgyzstan, Uzbekistan, Kazakhstan, Kurdistan, Tajikistan, and Russia, collectively possess around 130 million sheep. China currently holds the distinction of being the largest contemporary sheep nation, boasting a burgeoning sheep population of almost 200 million. This notable achievement can be attributed to the support and encouragement provided by the central government driven by the desire for national self-sufficiency in food production.

However, sheep hold significantly less economic and cultural significance in South East Asia. In the context of Thailand, for example, sheep are regarded as exotic curious creatures, with a limited number of sheep farms mostly focusing on capitalizing on tourist interest in fluffiness rather than engaging in the commercial sale of sheep-related products. However, one Southeast Asian nation is a major sheep country, that is Indonesia with twenty million sheep. The island of Java holds 12 million of these Indonesian sheep and it has experienced continuous growth in its sheep industry over the last two centuries. This sheep's presence is noteworthy considering the absence of extensive grasslands there. In contrast to the large grassland nations of mainland Asia -- and industrialized temperate countries such as the UK, Australia, and New Zealand -- a significant population of sheep in this Indonesian Java serve as subsistence animals for families and villagers rather than being raised on large-scale industrial farms. In addition to their economic significance for small-scale Javanese landholders and villagers, sheep have also acquired cultural importance. This is exemplified by the narrative surrounding the Priangan sports sheep of the Garut regency in Java.



Fig. 6. The author's rendering of a 'traditional' Javanese sheep village

During the Middle Ages, from 1000 CE to 1500 CE, Java acquired a diverse population of sheep introduced by Chinese entrepreneurs, Hindi merchants, and Arab traders. However, the Merino-Cape sheep that were imported from South Africa by Dutch colonists represented a novel addition (De Lasteyrie, 2011). During the 1870s, Dutch settlers residing in West Java gifted several Merino-Cape sheep to various Javanese Regents (Katirci, 2021). The Garut regents, situated in the mountainous area of West Java, were particularly taken with the new sheep and interbred them with long-established Javanese breeds (*OSU-DAFS*, 2021). The Priangan Sheep, a distinctive breed, emerged as a result and its rams fulfilled a distinct objective; becoming a 'sports sheep' or 'fighting sheep' (Katirci, 2021).

During market days in many Garut villages, one may see a boisterous sequence of exuberant applause, vocal performances, and rhythmic movements, all taking place amidst a vibrant atmosphere enhanced by the live performance of traditional music by a gamelan ensemble or occasionally transmitted by loudspeakers positioned on a nearby truck. However, the major focus of attention is not on the peripheral sounds. Javanese shepherds showcase Garut rams within a substantial fighting arena, characterized by a flooring made of straw. The heads, horns, and hides of the animals are embellished with various decorative elements like ribbons, tassels, sashes, and blankets. Subsequently, once set free, these individuals tend to replicate the conduct of their remote untamed Mouflon predecessors, assuming an upright posture on their hind limbs before forcefully colliding their formidable horns. Notwithstanding the cacophonous music and exuberant applause, the auditory perception of the forceful collision between the horns of two rams remains discernible.

According to the shepherds, the rams do not experience any physical harm, except for wounded pride in the event of a loss. The rationale behind this phenomenon is attributed to the presence of air pockets within the horns and skulls of these animals, as well as the protective layer of fat surrounding their brains. Nevertheless, the trainers and owners diligently inspect the complete anatomical structures of their rams after each bout, attending to any abrasions and muscular injuries. According to popular belief, this particular



breed of sheep demonstrates an inherent inclination to engage in repetitive head-banging behavior, often observed against various objects such as trees, gate posts, or even the horns of other sheep.

To achieve victory, a male sheep must accumulate points in multiple categories, including the strength and stability of its posture, the audacity, and assertiveness of its offensive maneuvers, the magnificence and grandeur of its horn structure, as well as the voluminous and intricately curled nature of its woolen coat. Therefore, these competitions can be characterized as a combination of athletic prowess and aesthetic evaluation. The confrontations typically occur within the context of a farmers' market, facilitating the exchange of the Garut Fighting Sheep. Typically, dairy sheep are often outperformed in terms of fetching greater prices. Undoubtedly, a victory will further elevate their worth. Frequently, though, the breeders exhibit hesitancy in parting with their prize-winning specimens. Alternatively, they may opt to lend them only for reproduction.

Certain enthusiasts of Priangan sheep refute the notion that their preferred ovine species has undergone any interbreeding with African or European varieties. There are claims suggesting that the Fighting Sheep had a historical presence in Java that predates the establishment of the Garut Regency. It is plausible that examining certain specimens could yield valuable insights. Numerous individuals possess distinctive physical characteristics, characterized by jet-black facial features and prominently curved horns protruding from their highly attentive countenances. On the other hand, it is worth noting that certain Priangan Sheep possess a dense and high-quality fleece, reminiscent of the characteristics typically associated with Merino sheep. Given the ten-thousand-year journeys of sheep across thousands of miles, it would hardly be surprising if the Prigangan has mile genesis from multiple areas of the world.

1. Asia's First Villages Were Maintained by Nascent Sheep Farmers
2. The First Asian Towns were Established with a Primary Focus on Sheep Farming.
3. The First Cities in Asia Were Founded as a result of the Wool Trade.
4. The First Urban Civilization in South Asia Developed a Dependence Upon Sheep.
5. The Great Nomadic Civilizations of Asia Were Based Upon Shepherding.
6. Indonesia as the Leading *Ovis spp* Nation in Southeast Asia

Conclusion

The significance of animals in global history has been acknowledged by scholars for years (see, for instance, Chaline, 2015; Hobgood-Oster, 2017) as has of sheep in certain classical Europe (Butler, 2010; De Lasteyrie, 2011) and medieval European settings (Johnson, 2006), including the role they played as agents of European imperialism (Anderson, 2004; Peden, 2011; De Lasteyrie, 2011; Skabelund, 2016). The purpose of this historical outline presented above is to highlight the significance of sheep in the extensive historical context of Asia, encompassing urban centralization and the rise of nomadic empires. The civilizations and empires reported upon, namely those of Ancient Mesopotamia, the Indus Valley Civilization in Pakistan and India, and the Mongolian Empire in Central Asia, exerted significant influence on historical developments of just about all humanity, with enduring consequences that persist in contemporary times. This primarily encompassed Asian regions characterized by the prevalence of grassland ecosystems, although exceptions were observed, as evidenced by the case study conducted in Indonesia.



Although the potential of sheep husbandry was recognized by the Natufians just after the end of the Ice Age and developed as the basis of the economy of the world's first town in Asia Minor, the staggering world-changing potential of Asia sheep took off when wool sprouted on the back of sheep around 4000 BC. The prosperity and growth of the wool trade in Mesopotamia throughout the 4th and 3rd millennia BC facilitated the establishment of enduring credit arrangements spanning the entire span of the two Mesopotamian rivers, as well as traversing mountains and seas to reach distant civilizations, from the Indus Valley civilization of Pakistan and India, and then the farming communities of the Eurasian steppes and eventually the villages of China and South East Asia. Though they never took over Southeast Asia; they did make for a forceful and important addition to the subsistence economy of Indonesia, and still do so today.

Though, throughout history, various societies, cultures, tribes, kingdoms, and empires have employed shepherding as a means of expanding their territories or engaging in conflicts over valuable grazing pastures. However, it is important to note that the majority of farmers have traditionally pursued shepherding as a nonviolent means of supporting their households, devoid of causing harm to others. Let us acknowledge the sheep as well. Despite their potential lack of awareness regarding their significant contributions to humanity and limited understanding of their involvement in imperial expansion, these individuals possess a distinct form of agency that is expressed within their geographical context. Sheep exhibit industriousness, demonstrate cleverness, and display resilience. Despite being highly sociable creatures, similar to humans, each animal possesses its unique personality. A significant proportion of individuals exhibit traits characterized by playfulness, curiosity, and determination. Occasionally, this phenomenon gives rise to difficulties; nonetheless, the resultant challenges are confined to the scope of the agricultural domain and the surrounding environment. Sheep do not exhibit arrogant behavior. Sheep are not inclined to engage in acts of warfare. Indeed, as evidenced in multiple chapters, it is plausible that individuals could become unwitting casualties of the circumstances.

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