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The Effects of Mammoths on Humanity's Faith and Building Activities

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Abstract
It is highly likely that early humans, who generally lived in open nature, emptied large animal carcasses and used them as temporary shelters. This is because there are clear similarities between the mammoth skeletal system and the structural systems of constructions built by humans since prehistoric times. Early humans, who utilized deceased mammoth bodies as temporary shelters outside caves, might have later attempted to construct more permanent, taller, and wider-span huts using same materials. Many mammoth bone huts have been discovered across the Ukrainian and Russian Steppes, dating back to the Upper Paleolithic period, and these structures may be the result of such efforts. The construction method of this huts involves stacking large mammoth bones and covering them with mammoth skins. The potential impact of mammoths, which held great significance in the survival of early humans, on early belief systems and construction activities cannot be overlooked. This study aims to formulate "scientific opinions" on these issues by interpreting existing data in a relational manner. The "speculative thesis" proposed in this study suggests that even before the existence of mammoth bone huts (pre-Upper Paleolithic), individuals utilized mammoth rib cages as single-person shelters. Accordingly, early humans may have commenced constructing these huts using mammoth large bones in later periods. Thus, in later periods, even after the mammoths had disappeared, the forms of both the mammoth body, the mammoth ribcage, and the huts made of mammoth bone may have been reflected in the architectural geometry of huts, tents, and houses.

Keywords: Prehistoric architecture, Woolly mammoth, History of religions, Scientific opinion.

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INTRODUCTION

In this study, the possible effects of mammoth skeletal structure on hu-man construction activities are discussed. The first fundamental study con-ducted in this direction emphasizes the similarities between construction activities in the old and new world and the mammoth ribcage structure (Koç, 2022). There are clear analogy-based relationships between builds in the Old and New World and the mammoth body and skeletal structure. For instance, a clear analogy exists between the Mammoth bone Mezhrich hut and Apache tents, as well as Modern Native American huts. The ridge projections of the roofs of Viking Longhouses, and especially Roman-Romulus huts, are analogously very similar to the upper projections of woolly mammoth rib cages. Viking Longhouses, traditional kapar huts seen in Iran, Afghanistan, and Pakistan, Mohawk Iroquois Longhouses, show analogies both in form and skeletal system with both the mammoth body and rib cage. Kyrgyz Yurt tents include analogies with both the mammoth body and mammoth huts. Traditional tent huts in Afghanistan, winter homes of American Indians, huts of Navajo Indians living in Southwest America, shelters of Nebraska Indians, and tents of Virginia Indians are all formally within an open analogy with the mammoth body structure and form. The frame system of Apache tents and the earth lodges of Nebraska's Omaha Native Americans exhibit analogical and structural resemblances with the mammoth rib cage system. These effects are manifested in structures of a relatively late period in the Old World, due to the fact that parts of the early structures made of organic substances have not survived to the present day. Especially in the Northern New World, there is more striking evidence, since no structural development similar to that in the Old World has been experienced until the discovery of America. Architectural remains have always served as the

backbone of archaeological studies. Ne-vertheless, the interpretation of architectural remains and the understanding of the ideological background regarding the social behavior of man remain somewhat problematic. However, architectural remains also reflect the social customs and ideologies of the respective communities (Goring-Morris and & Belfer-Cohen, 2008). In relation to this, the possible effects of mammoths on the belief system of humanity were also examined in this study.

However, first of all, at the risk of being boring, it would be appropriate to start the introduction by clarifying the purpose of the article, starting from simple, basic and classical information. As it is known, man has 2 vital needs: food and shelter (Wright 1968). Of course, these needs were even more important in early humans due to the harsh climatic conditions and lack of agriculture and animal husbandry. Shelter originally meant protection from extreme climatic conditions. For this purpose, mainly natural caves were used as shelters. Protecting the body with animal skins was originally a small-scale and practical act of shelter. In other words, early humans had a relational integrity with living things that could meet these two vital needs: animals. So animals were a source of both food and shelter for early humans from the very beginning. It wasn't just because the hides were used as clothing that animals were a source of human shelter. Even though this behavior of humans alone is proof that animals are looked after as shelter as well as feeding, we think there was much more to it. In our opinion, the use of hides as clothing was a result of the earlier use of animal carcasses as shelters. In other words, the idea and practice of sheltering directly in animal carcasses must have emerged first. To suggest that the first known human being to use animal skins for clothing, even before this activity, used animal corpses as shelter... This suggestion is one that fully fits the behavioral characteristics of the human being.

In addition, there were other organic structures in nature that could be used, such as caves.

The most predictable of these are large trees. Therefore, it has been sug-gested that the hollows of large trees were also a kind of small organic caves for early humans (Buchner 1894, Iyer 1936). Trees, like animals, were structures that could meet these two needs for early humans, who had to move away from their shelters which are secondary need in order to provide their primary need for nutrition during the Ice Age. However, especially in regions with weak vegetation, the most important elements to meet these two basic needs were large mammals. Among them, it can be argued that mammoths are the most striking element in the landscape with its sound and image. Mammoths, which looked like walking mountain ranges, must have been used not only for food but also for shelter for the first human being who sheltered the hollows of the mountains and used animal skins as small shelters (to dress). This thesis is perfectly suited to human nature. In fact, it can easily be said that it is more difficult to think that this did not happen.

There was something else that man originally developed for his basic needs: belief systems. Early humans needed faith to protect himself from fears and hold on to hope in a way that would support survival (Swanson 1960, Lévy-Bruhl and Clare 2018). Therefore, belief must have originally emerged as a motivating force for the satisfaction of basic needs. For these reasons, caves, trees and animals have become important figures in Shamanism, which is the first religion as the subject of belief, and Animism, which we think is its extension (not vice versa), in terms of responding to basic needs. Animals and large mammals in general, and the mammoth in particular, were a source of fear for their frightening sound and appearance and the potential for harm they could inflict on humans. But they

were also a source of hope in terms of their potential to meet basic needs. As the source of these two extreme emotional states, they must have played an important role in humanity's belief systems. If we pay attention, a common denominator has been formed in the fulfillment of basic needs with the formation of belief systems. As one of the most important elements of this common denominator, the existence of mammoths can be suggested in terms of their possible effects on both systems. It would be logical, then, to consider and examine the influence of mammoths on people's belief and building activities together, as they are two factors that feed and support each other. Our method is based on developing an inferential analysis by looking at the data seen all over the world since the early times on these two issues from this perspective. Of course, this method will carry the danger of appearing as a constrained method due to the effort to deal with the ele-ments that are thought to be irrelevant in a common denominator. It will include a cyclical repetition handicap by stringing together the elements that are thought to be taken out of context. However, the intended subject has an objective impossibility arising from the difficulty of direct physical evidence to reach the present day. The use of available data with purposeful interpretations will increase the number of relevant evidence. Increasing the number of evidence will make the thesis stronger. But what is more important than the number is, of course, the quality of the evidence. Our aim is to put forward a coherent thesis by making use of reason, logic and science as much as possible in our efforts to establish relationships and make inferences. Our effort is to try to demonstrate the qualitative adequacy of the evidence. Because we think that this thesis has the potential to go towards a synthesis by rasping its possible excesses and discussing it with anti-thesis in the literature. Because of all this, it would be appropriate to briefly recall some archaeological data showing that early humans made use of mammoths:

Throughout the Amazon Basin, representations of animals are deeply rooted in the culture and history of many hunter-gatherer groups, with animals playing a critical role in sustaining livelihoods (Fernandez-Llamazares, Díaz-Reviriego, and Reyes-Garcia Tue 2017). Similarly, in northern Eurasia and the Americas, it was of unique importance to early humans, especially mammoths. In 2012, the partial carcass of a woolly mammoth was removed from the frozen sediment on the eastern shore of the Yenesei Bay in Arctic Siberia. It has been dated to about 40,000 BP. Investigations showed that the mammoth died as a result of hunting (Pitulko, et al. 2017). For early humans, the mammoth didn't just provide calories. In the north, it was also the only source of raw materials. For example, bones and teeth were used for tool making, house building and decoration. Wool was used for ropes and traps. All parts were useful, including by-products such as oil and bones used as fuel in horticultural, treeless landscapes, as well as fertilizers (Boschian and Saccà 2015).

At the same time, in Siberia, in the Berelekh collection (Pitulko 2011) and on the embankment of Lake Nikita, there are tools made of mammoth teeth and bones, such as a mammoth ivory rod from 22,000 years ago (Vereschagin 1977). The ivory technology that produces such tools has spread widely in the region, starting at at least 30,000 BP (Pitulko et al. 2015) and has remained very stable over time as long as mammoths have been in the area. In particular, this time period coincides with the northern belt formation of the mammoth distribution that occurred after the Last Glacial Maximum (LGM) in Northeast Asia due to climate change (Pitulko and Nikolskiy 2012). Among other research findings, these studies contributed to preliminary data showing that the Arctic regions of Western Siberia were habitable during LGM.

In the Old World, there is substantial evidence that humans have colonized the proboscis since the Lower Paleolithic (Barkai and Gopher 2013; Ben-Dor et al. 2011; Steele 2010) and continued into the Middle Paleolithic (Churchill 2014). Mammoth exploitation is documented in Europe during the Upper Paleolithic (Bosch 2012; Germonpré et al. 2008; Wojtal et al. 2019), in Western and Southern Siberia during the Upper Paleolithic (Graf 2014) and Ethnographic time (Agam 2018). The current general idea about the Upper Paleolithic remains in Europe is that they were both hunted and disposed of (Germonpré et al. 2008) and that they are used both for food and fuel (bone burning on January stoves) (Bosch 2012).

There is convincing evidence that the first people to enter the Americas came from northeast Asia. This opinion, supported by various datasets obtained from linguistic (Nichols2015), genetic (Moreno-Mayar et al. 2018; Pinotti et al. 2019; Scheib et al. 2018) and archaeological (Graf 2014; Potter et al. 2017) studies. An initial arrival date of 16,000 cal years BP, seems reasonable to allow time for humans to move until far south like Monte Verde in Chile up to 14,500 cal year BP (Sutton 2021). While there is conclusive evidence of pre-Clovis human settlement in the Americas, Clovis is uniquely focused on mammoths. Clovis appears suddenly in the archaeological record all over North America, around 13,050 cal years BP, and lasts only a few hundred years; sometimes about 12,750 cal year BP is lost (Waters, et al. 2020; Haynes et al. 2007; Madsen 2015; Waters ve Stafford 2007). Discovery of sites with earlier dated material indicates a pre-Clovis human presence in western North America. Several possible pre-Clovis sites include proboscis remains (Sutton 2021). Notable among these are the Hebior and Schaefer sites in Wisconsin.

The Hebior site contained mammoth remains discovered clearly associated with several chipped stone tools and were dated to around 14,500 years BP (Grayson and Meltzer 2015). Dating to about 14,800 years BP, the nearby Schaefer site contained a mammoth with two associated stone tools (Joyce 2014). It is also possible that later humans may have taken ivory and bone from lower fossil skeletons (Sutton 2021).

2. THE IMPORTANCE AND EFFECTS OF MAMMOTHS İN THE LİFE OF EARLY HUMANS

Mammoths hunting, using in food and tool making were of great im-portance to early humans.

It has been widely stated that migratory animal hunting, practiced by early human populations throughout Europe, requires a high degree of logistical planning and cooperation (Mellars 1998, Nitecki & Nitecki 1987). Studies carried out in the Ust-Aquarius region in Siberia, show that a complex set of technological methods and collaborations made were used to produce personal ornaments and sculptures from ivory. The advanced cooperation of early humans is of great importance in hunting mammoths. Similarly, cooperation may have enabled heavy mammoth carcasses, which will be discussed in the next section, to be flipped vertically so that they can be used as shelters. Also, some technical connections between paleoart objects and the stone tools used to manufacture them have been demonstrated (Lbova at al., 2020). Some evidence of human activity dating to LGM about 15,000 years ago has been reported in the form of mammoth remains exhibiting possible signs of tool cutting (Hoffecker at al., 2020).

Bone and ivory tools are typical of the late Paleolithic cultures of Northern Siberia. These tools were so unique and ubiquitous that this era was called the 'Bone Age', similar to the Bronze and Iron Ages (Halfon and Barkai

2020). The importance of bone and ivory tools stems from their use as hunting gear that allowed Upper Paleolithic humans to survive and rapidly colonize these lands (Sinitsyn et al. 2019). The tool kit of Arctic hunters consisted only of ivory and mammoth bones. In a barren wasteland devoid of any vegetation, a tooth served as a kind of portable flint, tuber, or tree trunk necessary for tool making. The importance of ivory as a material for hunting weapons is extremely important for human survival in these regions (Pitulko, Pavlova, and Nikolskiy 2017). That is, mammoths were hunted both for food and to provide weapons for future hunting of all kinds of animals, including mammoths (Halfon and Barkai 2020).

In eastern Beringia (Alaska), mammoth remains were found at four sites in the Tanana River Valley: Each of these sites has cultural sites that predate Clovis (Potter et al. 2014; Wygal et al. 2018), and in all four the mammoth remains contain sub-fossil ivory with some bone. There are commonalities between the Dyuktai culture of Siberia and the Beringian culture of Alaska in terms of processing mammoth bones obtained from subfossils (Lanoë and Holmes 2016). In general, the use of animal resources is similar. There is also some evidence that baby mammoths may have been actively hunted at Swan Point in North America (Largent 2004; Potter et al. 2014). The bones were probably used as fuel in the furnaces (Kedrowski et al. 2009). However, pre-Clovis humans in Beringia or Northwestern North America did not exploit mammoths by more than a small amount. But the Clovis people seem to have done this on a much larger scale. (Sutton 2021). 17 precisely defined Clovis sites where megafauna were killed, as well as six additional sites with questionable relationships are known (Sutton 2021). Each of the 17 sites often contains proboscis fauna. Such areas tend to be found in wetland habitats (Grayson 1991; Haynes 2002a; Stanford 1999). Surovell and Waguespack (2008) argue that the Clovis groups not only hunt for the proboscis, but also do it quite intensively (Haynes and Hutson 2014). Possible reasons for this situation will be discussed in the following sections.

The importance of mammoths in interactions of human habitats with each other was great also. The Aurignacian culture is the earliest upper Paleolithic cultural phase in Europe and begins about 40,000 years ago. In this culture also, following mammoths provided important opportunities for people. Mammoth routes supported hunter-gatherer mobility and served as scenic routes, helping people explore the landscape (Hussain and Floss 2015). For in Europe in the Upper Paleolithic, game-rich valleys and steppes between the tundra and forest zones began to appear. These park areas, seasonally crossed by Decaying herds of deer, bison and mammoths, were unevenly distributed between the Western Mediterranean and the south Russian Plain (Hewitt 2000). As the ice sheets moved over the continent, they served as shelters for both human and non-human populations (Stewart & Stringer 2012). Mammoths and elephants were easy to track by prehistoric hunter-gatherers, who were skilled scouts, as they left marks and remains on the field, such as large dung piles and footprints (Haynes 2002b). The roads opened by mega-mammals encouraged human travels. Evaluating this situation created a cost and risk-reducing tactic for rapid exploration of regions unknown to humans. Many animal populations would also follow these tracks. These pathways linked fruit trees and optimal areas where ungulates also feed (Guhtrie 1984). Mega-mammals knocked down woody plants in meadows and grasslands, leaving the vegetation open for other living things (Owen-Simith 1987, 1999).

The extinction of mammoths, whose existences are of great importance for human livelihood, also seems to

have deeply affected human culture. The final stage of the extinction of mammoths in Northern Eurasia occurred about 15,000 years ago, when sharp climate change began in Arctic Siberia. Temperatures rose and the number of mammoths dwindled rapidly. Most mammoth bone deposits found in Arctic Siberian regions are roughly contemporary with this climate change, which formed between 12,600 and 11,900 cal BP (Nikolskiy et al. 2010). The mammoth hunt continued as long as it was available, and thus humans made the final contribution to the extinction of the mammoths in the region (Pitulko, Pavlova, and Nikolskiy 2017). Mammoths have preserved their influence after their extinction, leaving deep traces in human life and culture. There is archaeological evidence that mammoth remains were used thousands of years after their last extinction (Pitulko and Nikolskiy 2012). The ancient inhabitants of the Yana region must have known what they were doing when they searched for mammoth carcasses decades after the last sighting of a mammoth (Pitulko and Nikolskiy 2012). They knew why they had dug deep into the ground for what no longer existed on it. A similar effect applies to whales, which are of great importance in Eskimo culture. With the extinction of the whales in that area, the Eskimos' livelihoods, which revolved around one important prey on which they depended, had to change. 'It can no longer be the sole source of food, fuel, housing and sledge supplies that Eskimos need' (Wenzel 2009). As a result of the disappearance of this food source, different forms of settlement also emerged: Relatively large villages revolving around bowhead whaling have been replaced by small, temporary family camps. A familiar image of contemporary Inuit, icy igloo structures have replaced more permanent structures (Halfon and Barkai 2020).

The Zhokhov site in the Siberian Arctic is one of the world's northernmost archaeological sites and offers the earliest traces of humankind at high latitudes. Archaeological records show that early humans discovered this area as early as the Holocene, about 8,000 years ago (Makeyev and Pitulko 1991). The Zhokhov collection includes tens of thousands of objects made of ivory and bone, including more than 300 modified objects made of mammoth (Pitulko et al. 2015). At least some of the animal bones on this list are not contemporary with ancient human activities on the island and come from sediments containing trace levels. For mammoth remains that disappeared from the modern-day New Siberian Islands region 10,000 years ago, this is certainly true (Nikolskiy et al. 2011; Nikoloskiy and Pitulko 2013).

Mammoths appear in many cave drawings in Upper Paleolithic Europe. 10 percent of cave drawings of animals are devoted to mammoths (Paillet and Wolf 2018). A comprehensive study of 150 caves with cave drawings in France and Spain revealed that of the 4,000 artistic representations of animals, about 350 were mammoths (Sauvet and Wlodarczyk 2001). In the Upper Paleolithic Magdalene culture (17,000-12,000 years ago), artistic representations of mammoths exceeded that of other animals, including horses and bison. Excavations in the Upper Paleolithic Magdalenian region, discovered in the village of Gönnersdorf in the heart of the Rhine Valley in Germany, had also uncovered 61 mammoth engravings identified on 46 different stone plates. What is interesting, however, is that apart from a few pieces of ivory and bone, there is little evidence of actual mammoth remains at Magdalenian sites. According to faunal records, in fact, the woolly mammoth was already extinct (Bosinski and Fischer 1974) or no longer available in the region where artistic representations were most common (Paillet and Wolf 2018). It is suggested that the mammoth remains were probably collected as fossils by the residents (Joris, Street and Turner 2011). Then, based on these examples, how can we explain the frequent depiction of the mammoth in the parietal and mobile art of this period? (Halfon and Barkai 2020). Possible answers to this question will also become

clearer as you read the following chapters.

3. EFFECTS OF MAMMOTHS ON SPİRİTUAL CULTURAL EVOLUTİON

In this article, we propose to name the moral and spiritual develop-ment of humanity as spiritual cultural evolution, and we would like to introduce the subject as follows:

Living in different parts of the African continent, large antelope, the eland, the hunter-gatherer groups, mainly about nutrition, but also played a role symbolically important (Lewis-Williams and Dowson 1990). Attributed to the San groups, eland's shadow rock drawings were of exceptional quality and were described in the literature as modern tribal art (Campbell 1987). More eland paintings were made than any other animal using complex and time-consuming multicolor techniques (Lewis-Williams and Dowson 1990). The paint was mixed with eland blood, suggesting that these images were powerful things in themselves, objects that influenced people's beliefs and behavior (Lewis-Williams and Challis 2011). It has been suggested that the rock faces bearing Eland depictions acted as reservoirs of power, providing spiritual nourishment and reassurance for the people who saw them, as San believed that these animals possessed great power. The same may be true of mammoths, whose rock drawings were made by early humans long after they were destroyed. For contemporary hunter-gatherers see large mammals (such as elephants and whales) not merely as beings of equal status, but as part of their identity. Elephants, and possibly mammoths, exhibit a number of traits that may be considered familiar by human hunters (de Silva and Wittemyer 2012). Elephants have a distinct hierarchical social organization (Hamilton ve ark. 2007), specific mates (similar to marriage), family groups (similar to kinship system; Douglas-Hamilton 1972), considerable intelligence, cooperative action, communication, careful guarding behavior towards young elephants. There are group zones, and even funerary and commemorative behaviors such as paying special attention to the carcasses, skulls, and ivory of family groups are observed (McComb, Baker, and Moss 2006). The physiological, social and cognitive similarity of the elephant to humans is a common concept shared by many indigenous groups (Lev and Barkai 2016). For example, the Samburu people in the Republic of Kenya compare the elephant trunk to a human arm, its breasts to that of a woman, and its skin to human skin (Kuriyan 2002). The Baka pygmies of Cameroon explain the elephant's human resemblance both to by the food they eat (edible wild yam) and by the woodland they share. Bakas follow wide, clear forest trails that are usually maintained by elephants (Joiris 1993). The Nayaka of South India regards elephants as superpersons and ancient relatives of humans, with a human-like understanding of the world (Bird-David and Naveh 2008). In fact, all these modern examples may also be related to the past (Zutovski and Barkai 2016). For example, when all these examples are considered together, it can be said that the deep root of the belief in the god Ganesha in Hinduism may have resulted from the importance of mammoths in human life. Elephant-headed Ganesha, one of the most well-known and respected gods in Hinduism, is the first son of the great and important gods Shiva and Parvati.

He is the master of knowledge and wisdom, the Lord of beginnings and the guardian of Drachma (Grewal, 2009). Symbolically, it is the divinity in one's essence waiting to be discovered. The sacred text of ancient Hinduism is the reflection of Brahman, the main creator of everything in the Upanishads, including the Gods. Ganesha wrote one of the oldest epics, the Mahabharatta, including the famous ancient Indian religious text Bhagavad Gitta (Kumar, et al. 2008). His physical appearance is the representation of Hinduism's sacred word, Aum. In Hinduism, qualities not given to any other god are attributed to Ganesha (Krishnaswami, 2006).

In Yukaghir culture it is believed that humans and animals undergo constant rebirth, restoring the same character traits they displayed in previous lives. The death of an animal such as a deer, which is vital to the Yukagir economy, actually means that it is mixed with a fixed soul pool to which it will definitely return (Halfon and Barkai 2020). The Cree in the inner Arctic of Canada believe that animals killed by hunters continue to exist as spirits that will later be reborn (Brightman 1993). For this reason, many indigenous groups view hunting and killing animals as part of the regeneration process, not necessarily a destructive act. The disappearance of animals is not seen as a state of absolute extinction, but as a temporary natural stage in a sacred cosmic cycle. According to this view, hunting and fishing cannot lead to the decline of a particular animal species. On the contrary, these human actions ensure the continue animals existence (Halfon and Barkai 2020). As mentioned, mammoths relatively in the Old World but especially in the New World under era of Clovis, were hunted even when they were on the verge of extinction and humans made the final and important contribution to the extinction of the mammoths. Based on this informations, this situation could be an indicator to perhaps that early humans acted in line with a belief similar to that described here.

In fact, as mentioned and will be mentioned, the fact that mammoths are ritualistic idols and the use of mammoth elements in the construction of sheds may have contributed to this situation.

Early humans formed personal relationships with trees and forest animals in the landscape as resources and totems (Paphitis 2021). Relations-hips between humans and animals included the use of animals as totems, sometimes and usually in the south of the Northern hemisphere, to which humans ascribed special power (Willis 1990). Rock arts were sometimes devoted to forests and hunting (Paphitis 2021), with sexual and hunting images in mind. It is even suggested to replace concepts such as symbolism and ideology with concepts that emphasize ontology and cosmology (De Castro,1998). For the San groups, for example, the landscape – mountains and valleys – is a living dimension. The first eland drawing was created in this landscape, this rock canvas. The rock was much more than a drawing field. It was an interface between them and this world and the realm of spirits, and therefore a meaningful context that semantically Dec the images placed on it (Lewis-Williams and Challis 2011). This is a different worldview from the Western ethnocentric worldview and should be taken into account in early human studies (Halfon and Barkai 2020).

In Shamanism, humanity's first religion, it is a ritualistic rule to enlist the support of animals to carry souls and change ego souls. Concentric circles, birds, snakes, scorpions and human figures were standardized from the earliest times and they symbolized the shaman's journey to the spiritual world (Benz and Bauer 2015). According to Pagan Pantheist worldviews, which are an extension of Shamanism and Animism, the natural, supernatural and human social worlds are not separate from each other; they form an indivisible sacred world (Durkheim, 1915). Pagans, in terms of their beliefs and practices, give a spiritual orientation to the natural world (Rountree 2012). Graham Harvey (2005) defines contemporary Paganism as: 'nature-centered spiritualities'. According to these fundamentally animistic beliefs, the entire world itself is conscious and alive. Especially in connection with the distant past and ancient religious practices, natural elements built or arranged such as stone rings, standing stones, temple ruins are also used in today's pagan beliefs (Rountree 2012).

In some cases, there is concern that humans and animals may exchange bodies and pose a danger to each other when hunting (Willerslev 2004). Such reciprocal ontological human-prey relations can be found in any society

that sees animals as partners (Mithen 1999). Many examples include fish along the Northwest Coast of North America (Losey 2010), animals of all sizes in the Subarctic (Brightman 1993; Smith 1998), marine mammals in the Torres Strait of Australia (McNiven 2010). Baffinland Eskimos (Sabo and Sabo 1985) and whales in the Arctic (Lantis 1938), reindeer in Scandinavia (Helander-Renvall 2010), and elk in North America (Harrod 2000) can be presented as examples of this relationship.

The belief that humans and animals can exchange their bodies may have developed since the first people who began to dress up in animal pelts against the cold in the early stages and adopted a spiritual pattern. Note that among the bodies that can be exchanged are the bodies of animals that are close to the size of a human body. It is possible to wear the hides of these animals almost directly. However, humans have also identified themselves with animals much larger than human body volume. The possible reason for this may lie in the fact that the elements left over from the mammoth and whale bodies were used directly as shelter - again, in a way that could create accommodation points against the cold. In this case, just like wearing animal pelt, one enters the body of that animal and becomes that animal. All these physically experienced situations may have been effective in the evolution of belief systems with a spiritual pattern in later periods. These situations may be some of the main reasons why Shamanism and Animism began to take shape in Northern geographies, which are cold regions and where large mammals are found.

Since their arrival, pre-Clovis societies in western North America seem to have been operating successfully for at least a millennium, with a generalized subsistence system and little use of hosing. So humans and mammoths apparently coexisted in North America for a millennium or more before Clovis appeared, and there is little evidence that mammoths were exploited by pre-Clovis humans even in Beringia (Sutton 2021). However, the later Western Clovis phenomenon seems to have some sort of focus on proboscis (Surovell and Waguespack 2008). While pre-Clovis humans in North America hunted large animals such as bison and deer, they may have lacked the organizational capacity to hunt animals as large as proboscis. However, the existence of mammoth hunting organization in the Old World even in earlier periods weakens this possibility. Another possibility is that proboscis were not exploited because people saw them as ontological subjects, that is, non-human “persons and elements of myth and ritual” (Hill 2011; Zedeño 2014). In other words, it can be said that pre-Clovis humans and mammoths coexisted in a kind of ontological relationship in which mammoths did not hunt. Then, about 13,050 BP years ago (Waters et al. 2020), there was a dramatic change in this relationship because appeared to humans be exploiting mammoths quite extensively (Surovell and Waguespack 2008). Where this new relationship originated in North America is unclear (Sutton 2021). Although the ontological relations-hip between mammoths and humans probably continues again, it may be that hunting mammoths in this relationship has become acceptable in some way. The development of arrowhead making techniques that can easily hunt mammoths is an important factor in this. In other words, while people use the opportunities offered by technological development, they may have reshaped their belief systems by stretching them accordingly. This may have led to the development of a belief system, as discussed above, that hunting animals does not mean exterminating them. As a result, towards the end of Clovis, the presence of mammoths decreased and there was a transition to bison (Bement and Carter 2015).

It could be argued that the archaeological record of Clovis in Western North America reflects a ritual system focused on mammoths. In this model, mammoths had a special status, and with the help of a ritual organization,

mustard-colored and special tool stones were used. This allowed ritual interaction with ontological mammoth beings. This ritual system existed in a number of societies, each with its own settlement and livelihood systems, much like a religion existing in different societies today (Sutton 2021). But ritual hunting of mammoths may not be the only reason why Clovis went so far in hunting mammoths. They may also have used mammoth tusks, legs, and rib cages, as well as mammoth hides, to construct simple temporary huts. Because, as will be mentioned, the carrier systems and forms of the shelters of the American Indians coincide with the mammoth skeletal system and body form. Also, as will be discussed in the following section, existing mammoth shelters have been found in the North of the Old World. Mammoth body and skeletal system elements may have been used in the construction of small temporary shelters long before such shelters in the Old World. So early humans may have taken this knowledge with them when they migrated to North America. Thanks to the pointed arrow-making techniques discovered during the Clovis era that can pierce even the thick skin of a mammoth, they may have had much more convenient access to the raw materials needed to apply this knowledge. Because there are studies showing that the meat of mammoths hunted during the Clovis period was not utilized sufficiently. This is an indication that mammoths were not hunted solely for food. There may even be a close relationship between the mammoth's acceptance as a ritualistic idol and the use of its elements in shelter construction. Because in early humans, situations where belief and building activities fed each other and in-tertwined were frequently observed.

4. USE OF MAMMOTH BONES AND SKİNS FOR HUTS

The Epigravet sites on the Russian Plain are characterized by a well-defined spatial organization and in situ cultural layers. The large sites contain a variety of objects, including pits and bone-earth structures. The material culture of these areas is characterized by a large number of stone industries, bone and ivory tools, as well as portable arts (Gavrilov, 2021). The Epigravettian Mezin in the area is famous for its circular mammoth bone dwelling. There are also four mammoth bone dwellings in Epigravettian Mezherich (Pidoplichko 1998). The presence of residential buildings made of mammoth bone was also investigated for the Moravian regions (Soffer, 1993; Soffer at al., 2003) and Gontsy (Iakovleva at al., 2012). Barkai (2019) says that dwellings made of mammoth means "living inside a mammoth". These dwellings, in fact, seem to be a way to strengthen the resilience of the bond between the two species. In other words, skeletal remains and teeth show that there are purposes beyond the need to hunt mammoths (Barkai 2019). The most important of these purposes may be the use of mammoth elements in housing construction. Similarly, interestingly marked ribs and other bones from the Lake Nikita site surface collection contain evidence that perhaps these animals were hunted or their carcasses were cut (Pitulko et al. 2016). In our opinion, the mammoth thorax, which has the potential to create a shelter with a cylindrical shell, must have been used for shelter by humans long before the mammoth huts mentioned above, which were made of mammoth bones and have survived to the present day (see Figure 1.).

Previously, the internal organs of the lying mammoth corpses must have been emptied and used as food. The volume under the rib cage in the form of a warm small shelter under against the climate shield may have been evaluated. Then, the part of the torso, free of appendages such as legs and head, may be cooperatively turned into a vertical position. In this position, it is likely that the same volume continued to be used as a more comfortable shelter. The cage carcass, which can be released by the decay of the muscles, may be stabilized by tying it with wool fibers

and with stone, snow or soil supports from the ground. The weight of the hide that may be laid on the carcass or that has not already been separated from the carcass and the possible snow load that will accumulate above should have given this stability an additional rigidity with the effect of compression. Thus, the system may have the capacity to be used for shelter for a period of time beyond being temporary. In fact, the cylindrical structure of the mammoth thorax, as we discussed in this study, was evident in later Native American huts. The reason why there is no definitive material evidence that the mammoth rib cage was used as a shelter today, we think, is that these shelters were used temporarily. In later times, rib cage bones may have been used for various purposes, from making fire to creating weapons. Because, as discussed above, early humans searched for mammoth bones after the mammoths disappeared and even found and evaluated bones from ancient times. However, the structure of the rib cage system may have remained archetypically in the human subconscious and inspired the carrier system of structures built with other materials (see Figure 2.). Or, to put it more simply, the knowledge accumulated and transmitted in the culture for practical purposes may have been used continuously in human structures. In fact, it is in this way that archetypes are placed in the human subconscious.

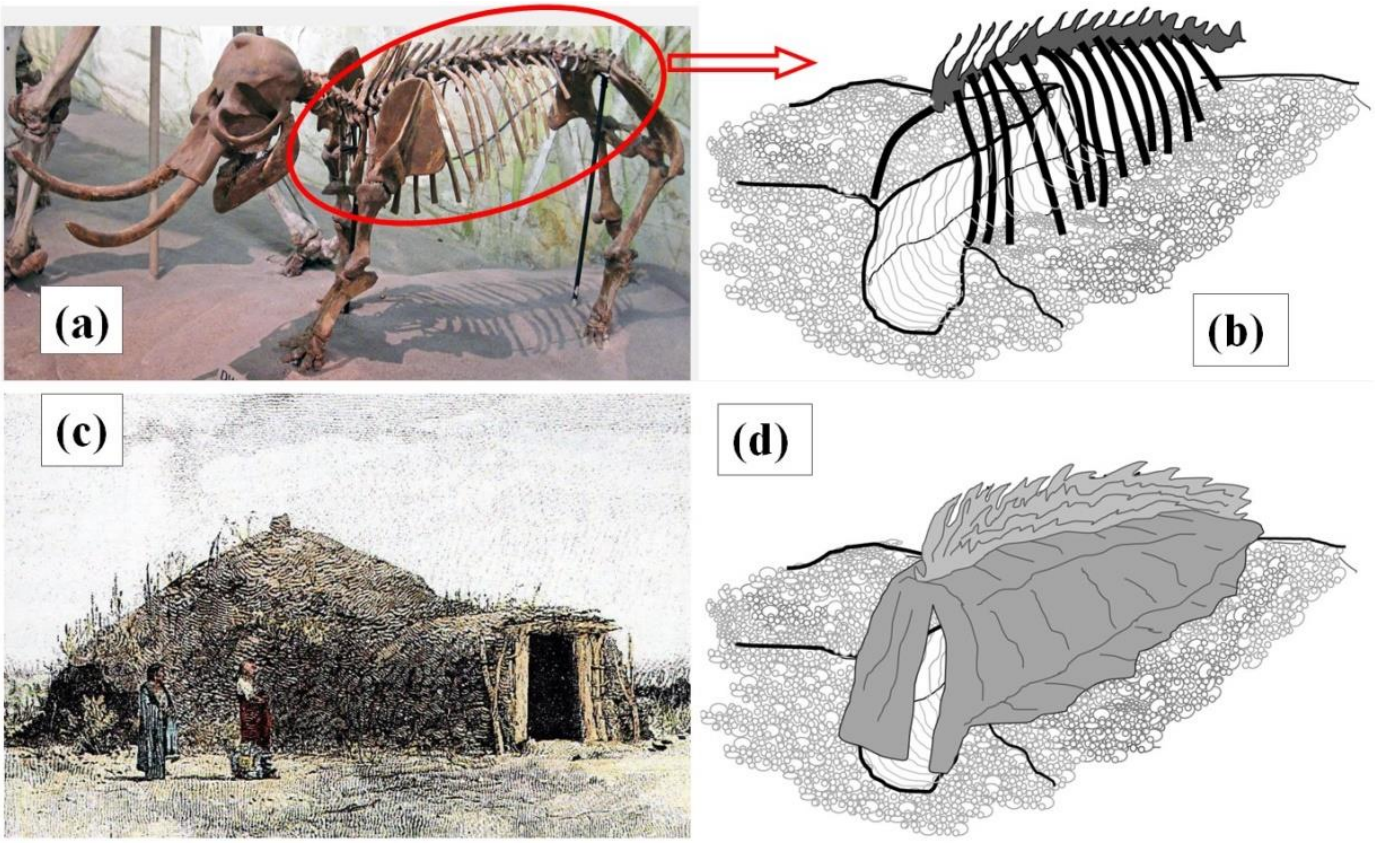

Figure 1. (a) Woolly mammoth skeleton system (CC BY-NC-ND 2.0) (b) Carrier system of woolly mammoth thorax hut, likely to have been used on soil or snowy ground (illustrated by author) (c) An Omaha earth lodge (Nebrasca Public Media) (d) Woolly mammoth rib cage hut (illustrated by author)

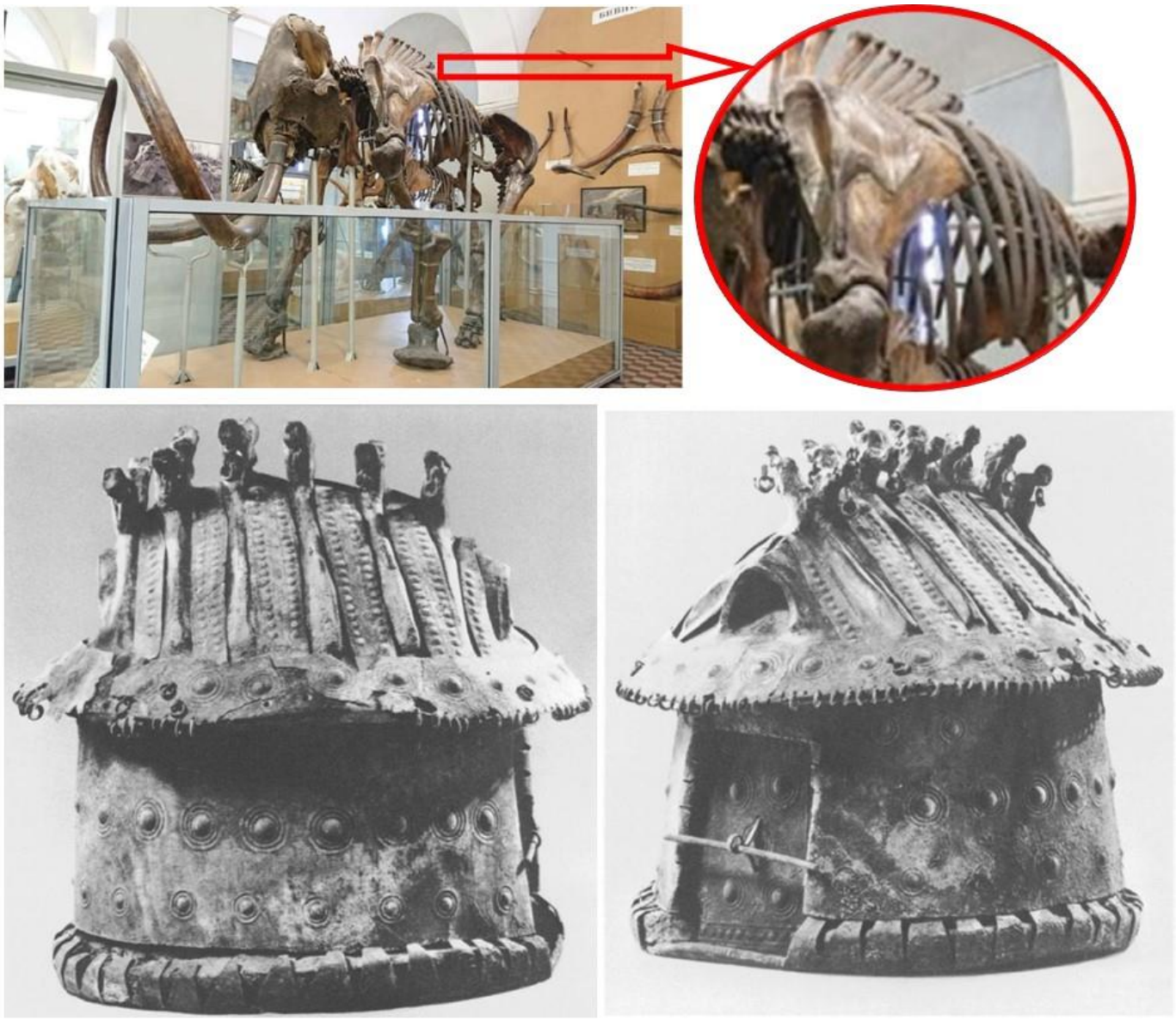

Figure 2. Mammoth skeletal system (CC BY 4.0) and a small bronze-covered vase model of the Roman-Romulus hut (Buranelli, 1986).

Since such systems that make up the upper parts of these structures may be made of organic materials, such as branches of trees, their initial application may not have reached our days. However, it is well known that such geometric forms were used in the construction of shelters even in the late periods of the Old World.

Presented in Figure 2. the bronze urn model of an Etruscan hut which has an oval plan was offered in its 1976 catalogue by the firm of Palla- dion in Basel. (Buranelli, 1986). The object is one of the latest known examples of an Etrusco-Latial hut (Tarquinia - in Italy BC 900's). As can be seen in Figure 2, the roof joint of the hut coincides with the upper joint of the mammoth rib cage. The building material of Roman-Romulus huts is mud and straw (adobe). Therefore, the huts themselves have not survived.

The cylindrical structure of the mammoth thorax may also have had an effect on the oval and circular bases of the earliest human structures that have survived to the present day. In addition, the huts, which can be made by cracking mammoth teeth at a peak point, may have again led people to a circular-based construction (see Figure 3.).

We see these hut forms especially in Indian tents. These tents are called Native American Tips. The Tips carrier system, formed with wooden bar elements, is covered with layered animal skins. The first European travelers to see tips in the 1540s describe them as “two sticks holding up some hides” in the form of small one-man tents, oval-shaped (Flint & Flint, 2012). But moreover, it is possible to catch traces of this form in the pointed dome structures that have survived to the present day in the Old World, and even built until recently.

As shown in Figure 4, residential areas of the Virginia Indians were depicted by John White in 1590 (Hancock 2020). The clear analogy of these structures with mammoth bodies is impressive. Perhaps the origin of these settlements was the direct use of mammoth corpses, which were found in packs and hunted in ice age, in close proximity to each other as shelters. Longhouses, the traditional dwellings of the Northeast American Indians, bear clear resemblances to possible mammoth thorax huts. They were const-ructed by fixing sapling sticks of approximately 5 cm thick to the ground and bending them mutually and connecting them with each other (Britannica 1998). This construction style is based on the same construction logic as the Tips construction described above, which can be created by cracking mammoth tusks at the top. The predecessors of these structures may have been huts made of mammoth tusks, which were built during the ice age and are also sketched in Figure 4. The main carrier, which was formed by fixing and connecting two mammoth tusks, may have been repeated at certain intervals in the same way and mammoth skins may have been put on it. The pressure effect of the weight of the hides and possible snow-ice accumulations can make the system more stable. The building form allowed by mammoth tusks may have been re-derived using sapling sticks in later periods. According to archaeological studies, longhouses began to be built in the New World from 11,000 CE (Sultzman 2011). Longhouses were temporary structures used for nomadic Indians for a maximum of 10 years, according to social and environmental factors (NWE 2011). This usage is also suitable with temporary shelters that we think are made of mammoth materials. The peoples of the Pacific coast of North America (Suttles and Sturtevant 1990), the people of Colombia in South America, and the Tocana people of northwest Brazil (Jackson, 1972) had similar traditions of building longhouses (NWE, 2011). William Byrd II wrote in 1728 that the Nottoway Indians looked like arbors for their huts made of sapling sticks covered with arches and weatherproof bark (Han-cock 2020). This arch form of the roof, as we have discussed, is compatible with the upper form of the mammoth rib cage. In addition, as we have also discussed, the upper part of the volume to be created by the mammoth teeth cracking on the top provides the same form.

A modern version of these houses is also shown in Figure 4. Figure 4 also presents a drawing of a shelter commonly used by American Indians as a winter house, taken from F.Starr (1898). These structures are also similar to mammoth forms. It is possible to multiply such examples from the new and old world. In our view, the structures of most of them are extensions of a common ancient culture: Making shelters from mammoth elements, similar to mammoth forms.

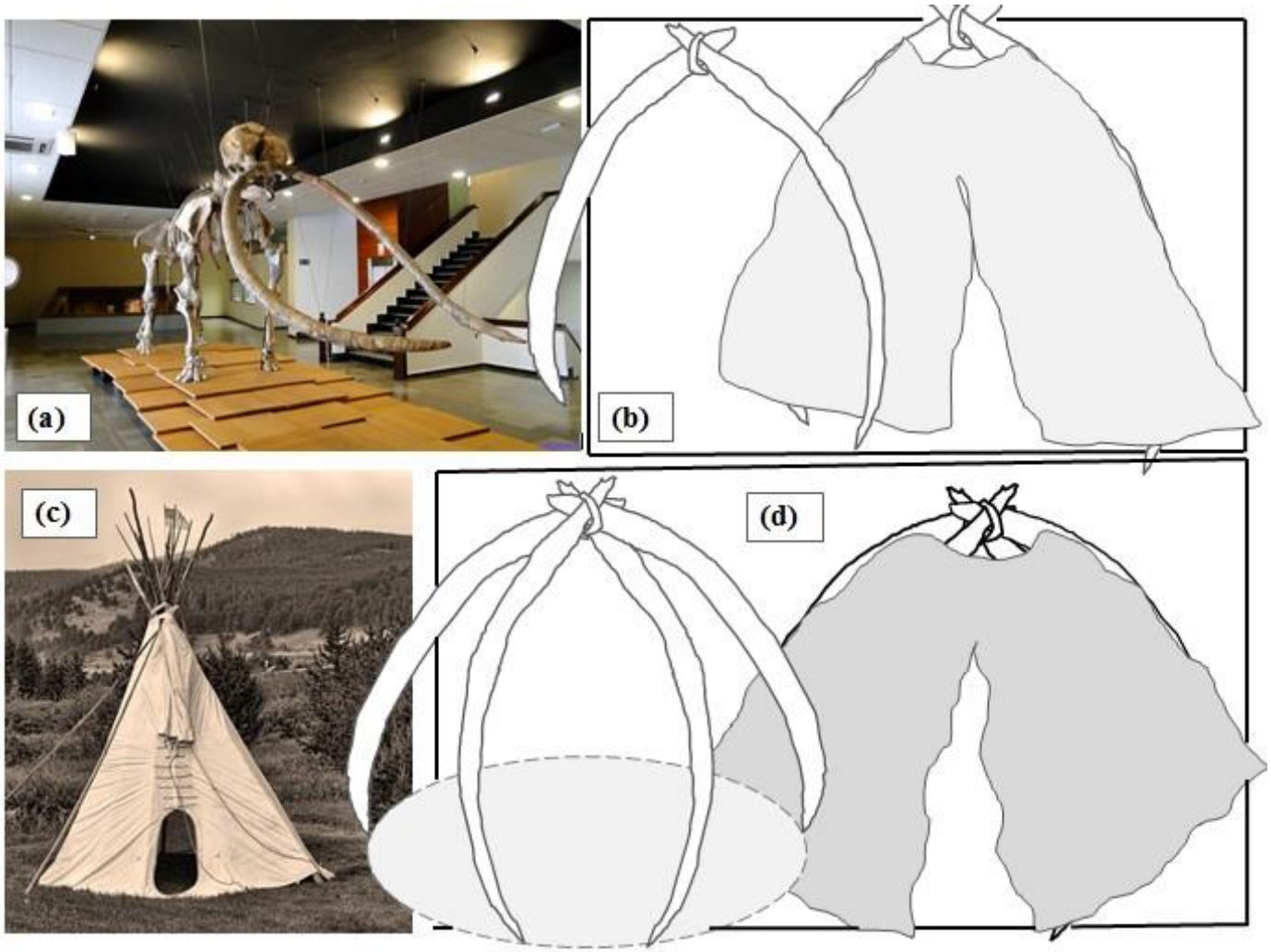

Figure 3. (a) Skeleton of a mammoth with long teeth (CC BY 2.0) (b) Tent hut carrier system made of 2 mammoth tusks and covered with mam-moth skin (illustrated by author) (c) Native American tips (d) Tent hut carrier system made of 4 mammoth tusks and circular plan projection; cove-red with mammoth skin (illustrated by author)

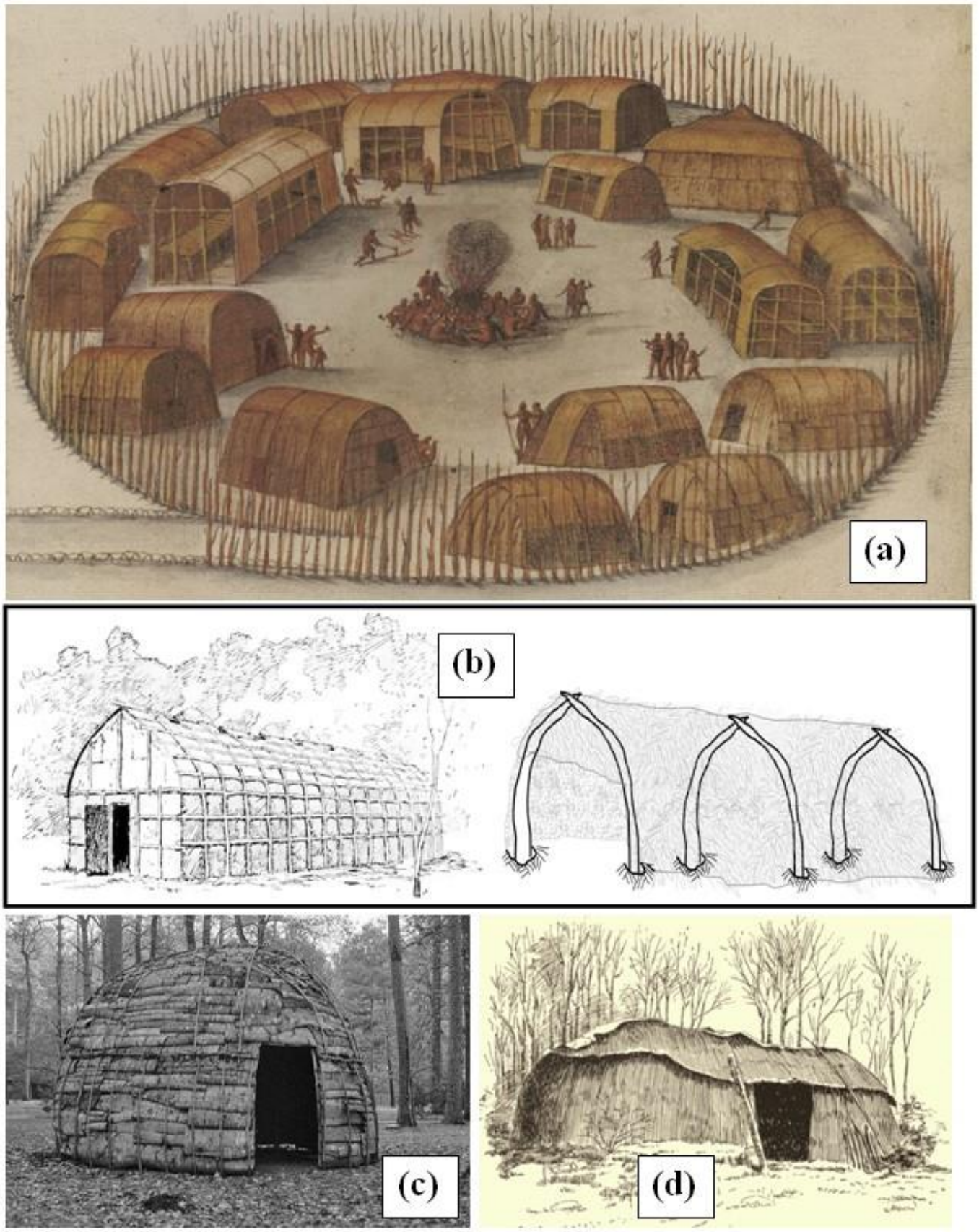

Figure 4. (a) Residential areas of Virginia Indians illustrated by John White (Hancock 2020, cc.) (b) Native American longhouse (NWE 2011, cc.) and possibly a prototype made with mammoth tusks and hides (illustrated by author) (c) Modern Indian hut (Hancock 2020, cc.) (d) Illustration of American Indian winter homes (Starr 1898, cc.)

The wooden pole holes we see in the oldest structures show that the pole supports were used to carry the roofs of these structures. A mammoth body is supported by mammoth legs just as the pillar supports carry the roof. In the construction techniques that early people developed using the elements of nature, they may have most likely taken the mammoth body as an example. Of course, this also applies to the body structure of other 4-legged mammals. But none of them may have been effective in human inferences, such as legs bearing a trunk as large as that of a mammoth. Below, brief overviews of the primordial construction activities of humanity, which support these views, are presented:

The housing issue, which has great difficulties in solving even in to-day's conditions, has been one of the important issues to be solved in the Paleolithic and Mesolithic Ages. Human groups have lived in caves that have been natural shelters for hundreds of thousands of years.

Fire is a very important factor in clearing and protecting caves from wild animals. The caves, which took shelter and were heated by fire, created a safe living space in the difficult living conditions of the Paleolithic period. The continuous use of caves as dwelling-shelter has formed one of the important stages of the humanization process (Arslantaş, 2014). However, in Geological periods when climatic conditions are more favorable in the same region, it is also observed that people leave these natural shelters and settle in open-air areas (Osborn 1916). It is estimated that the first houses developed inside the caves (Yıldırım 2012) and as shelters created near the caves. One of the first open-air shelters created right next to the cave walls was found in Terra-Amata, near the city of Nice in Southern France about 400,000 years ago. (Arslantaş, 2014). The settlements in the same region, near the Lazeret Cave (about 150,000 years ago), are the oldest and best-known examples of such structures (Marjorie and Quennel 1921). Especially since the climate got colder in the Middle Paleolithic period, human groups could only be protected by sheltering in caves and closed places. In other words, the need to dress well and to look for safe and secure places must have been felt strongly in this period (Arslantaş, 2014). It is possible that mammoth bodies were used as shelter to meet the temporary shelter needs in the open field during such periods. The woolly mammoth skin and hide is of such a thickness and structure that it can perfectly protect the interior volume against the cold of the external environment. The mammoth thorax is also in the form of a cylindrical hut, creating sufficient volume to house a person. This area of the body of a mammoth, whose internal organs are emptied and used, can easily serve as a good shelter for protection from the cold. There is even a chance to add height to this shelter by digging the ground where the body was found (see Figure 1.). Perhaps one of the primary reasons early human constructions were always made of stones set around excavated earth was these simple temporary mammoth thorax shelters. The first people built very simple shelters with tree branches and various materials they collected from the environment, sometimes in areas close to water sources. In the northern regions, where trees are difficult to find, but access to mammoth bones is easy, simple mammoth shelters may have been used. The existence of the above-mentioned advanced mammoth huts of later periods is also an element that supports this view we put forward.

First, in the 7100s BC., pottery in the world sediments, began to accumulate in Neolithic C. Before this period, in Eastern Turkey, Cafer mound structures were arranged by digging a cylindrical pit from the inside and creating post holes in 8000 BC. Housing plans are generally 2 m. diameter and was arranged at a depth of 1.2 m (Cauvin 1989). There are also post hole bases in the settlements in the valley of Jerf el Ahmar on the Euphrates coast

in Manbij, Syria, which was used between 9600 and 8500 BC (Stordeur, 2000a and 2000b). The structures at the Ohalo II site, which houses hunter-gatherer shelters of about 23,000 years old found on the shores of the Sea of Galilee in Israel, are also usually round or oval. It is made of stones (for wall foundations), large bones, or local materials such as wood and reeds. Although no remains have been preserved, it is likely that hides were also used (Nadel et al. 2004). As discussed above, round dwellings made of heavy mammoth bones were common in many regions of Eastern Europe, particularly on the Russian Plain (Soffer and Praslov 1993). They had an inner diameter of 2-5 m and storage pits were placed outside. Interestingly, the Ohalo II huts are similar in size and shape to most of these northern huts.

Körliktepe, which was used as a settlement between 11,000 BC and 9,000 BC, is located in the South East of Turkey, near the point where Batman Creek enters the Tigris River. It is a small mound only 5 m high. In this area too, post holes show the use of wooden posts for a roof or shelter. The structures in the layers belonging to the first settlements were mostly made of organic materials. Clay material, which was renewed many times, was used for structures in later settlements. There are also stone wall remains (Benz et al. 2012). The discovery of graves on the floors and in the immediate vicinity of the round designed houses with large-diameter (2,3-3 m.) floor areas suggests that the region and the houses also had a sacred function. Although it belongs to the hunter-gatherer period, many silo structures where food is stored and stone floor coverings for silo structures were found (Özkaya et al. 2016). Silo structures have also circular (1.1- 2 m.diameter) base areas. The diameters of the 3rd group structures with compacted soil bases, which are the largest structures in the area, ranging from 3.4 to 3.8 meters. The discovery of different types of tombs and ritual findings under the ground of these structures suggests that these are sacred places belonging to common use (Özkaya and Coşkun, 2009).

Wooden and organic floor coverings were rarely preserved in the first structures. Polished items from Gesher Benot Ya'aqov, a 780,000-year-old settlement in the Jordan Valley, and various wooden objects containing carefully sharpened long wooden spears were found in Shoningen, a 400,000-year-old settlement in Germany (Thieme, 1997). Evidence of earlier woodworking, and possibly even the preparation of wooden tools with bifacial stone tools, was recently provided by the presentation of artifacts from Peninj, Tanzania, 1.7 to 1.5 million years old (Dominguez-Rodrigo at al. 2001). Yet these are all infrequent examples; wood has, in rare cases, been preserved as early as the Lower Paleolithic period (Goren-Inbar et al. 1992; Goren-Inbar, et al. 2002) . In these early times, it is likely that most of the wooden items produced were used for hunting, rooting and other practical purposes (Bamford and Henderson 2003). Even at much later Upper Paleolithic sites, well-preserved wooden objects are still extremely rare; however, a few have been found at Ohalo II. Soft plant fibers associated with human use have a lower survival and conservation rate. Their chances of surviving against the effects of time are even lower than wood (Nadel et al. 2004). Indeed, direct indications for the use of fibers are found in the archaeological record, in extremely small numbers, and often in a very fragmentary state. It begins to appear in Moravia only 26,000 years ago (Soffer, at al. 2000). Inferences about perishable clothing that may contain plant fibers have been made by the discovery of European Upper Paleolithic female figurines, some of which appear clothed (Adovasio, at al. 2001). Other remains have also been found, such as charred fragments of a thick rope from Lascaux Cave, dating to 17,000 BP (Leroi-Gourhan 1982). In larger quantities and in a wider variety, basketry, networking and textile residues are found in the Mediterranean Levant (Kenyon 1981; Bar-Yosef and Alon1988) and in South-North America (Adovasio 1997;

Fowler et al. 2000) have been found in some areas.

Weaving headdresses have also been found at Upper Paleolithic European settlements and other European sites (Adovasio, at al. 2001). Small clay fragments with traces of rope, weaving and basketry were found in Moravian settlements (Soffer, at al. 2000). As all this proves, plant fibers were used in the manufacture of various products.

As can be understood from this chapter, the barracks that early hu-mans could have built using wooden elements inspired by the mammoth thorax and skeletal system have not survived. Organic fibrous materials may have also served as ropes in these shed constructions and tied the wooden elements, and animal skins and hides may have formed the building shell. Of course, all these organic materials have not reached the present day also. These inferences can be made thanks to the fact that the Native American barracks, which were built and used until recently, and the dwellings of modern hunter-gatherer groups, usually located in Africa and Australia, have survived to the present day. It is also mentioned that it is likely that it was built in the form of Native American pointed tents with binding elements acting as organic fibrous rope, with mammoth teeth being clipped and tied at the top point, in the form of Native American pointed tents (see Figure 3.). In later periods, wooden elements may have replaced the mammoth tusks used for these structures. However, construction coverings were still made with animal skins and hides. It's just that these skins and hides no longer belonged to mammoths. Until recently, roofs formed by superimposing wooden flat elements on wooden forked elements and connecting them with fibers were made in Anatolia in Turkey. The construction technique of these roofs may have been inspired by the lattice bones that protrude at the top of the mammoth's thorax (see Figure 1.). Types of roofs created by the combination of such elements with overlays have been widely used since ancient times. For this reason, it is widely used in the reconstruction of primary shelters.

5. RESULTS, CONCLUSION AND DISCUSSION

From about 40,000 BP onwards, tools, weapons, works of art and huts made of mammoth bones and tusks have been widely identified, especially in North settlements both Eurasian and American. Moreover mammoth routes supported hunter-gatherer mobility and served as scenic routes, helping people explore the landscape (Hussain and Floss 2015). The roads opened by mega-mammals encouraged human travels. This created a tactic that reduces the cost and risk for the rapid discovery of territories unknown to humans. Mammoth exploitation is documented in the Old and New Worlds. In fact, it is thought that the hunting habits of the early humans together with the climatic changes had an important effect on the extinction of the mammoths. After the extinction of the mammoths, its influence on human culture and technology continued. For example, there is evidence that early humans used mammoth bones and teeth from earlier periods by extracting and processing them from lower fossil sources.

In this article, it is proposed to name the moral and spiritual develop-ment of humanity as spiritual cultural evolution. The influence of mammoths can also be observed as an element in the development of spiritual cultural evolution in early humans. Elephants have human-like characteristics such as mourning for dead elephants. This situation has developed a belief among modern hunter-gatherers that elephants are both ancient relatives of humans and animal persons. The fact that similar beliefs were present in early humans can be suggested by looking at behaviors such as the fact that mammoth drawings are still made in cave paintings long after the mammoths disappeared. It is possible that mammoths were ritualistic idols in early humans. For example, the deep root of belief

in the god Ganesha in Hinduism may also have stemmed from the importance of mammoths in human life. In animism, the first religious shamanism of humanity and its extension, relational inferences can be made between the animal skin that shamans decked out in and turned into that animal, as well as the possibility that early humans entered mammoth corpses for shelter. For example, it can be thought that making tent-style huts from mammoth elements contributed to the spiritual relations of people towards mammoths in the future. The belief that humans and animals can exchange their bodies may have developed into a spiritual mold since early humans began to wear animal skins against the cold. Among the bodies that can be exchanged in shamanism are the bodies of animals with a size close to the human body volume, but also with animals much larger than the human body volume, man has identified himself. The possible reason for this may lie in the fact that the elements left over from the mammoth and whale bodies were used directly as shelter - again, in a way that could create accommodation points against the cold. It is possible to wear the hides of relatively small animals almost directly. However, wearing the bodies of large animals is possible by using their corpses as primitive tent huts. It is perfectly reasonable to think that the person who discovered wearing the skins of small animals discovered this too. In this case, just like wearing animal pelt, one enters the body of that animal and becomes that animal. All these physically experienced situations may have been effective in the evolution of belief systems with a spiritual pattern in later periods. Some of the main reasons why Shamanism and Animism began to take shape in the northern geographies, which are cold regions and where there are large mammals, may also be these situations that I am trying to explain.

At the heart of archeology is the process of inference, that is coming to a conclusion based on some basis. This process relies on the observation of the archaeological record through the application of analogy and/or uniformity. There are clear analogy-based relationships between buılds in the Old and New World and the mammoth body and skeletal structure. These effects are manifested in structures of a relatively late period in the Old World, due to the fact that parts of the early structures made of organic substances have not survived to the present day. Especially in the Northern New World, there is more striking evidence, since no structural development similar to that in the Old World has been experienced until the discovery of America. Humanity may have long used mammoth bodies directly as shelter before the mammoth bones and mammoth skin huts found in Ukraine. Perhaps, in the following periods, he started to build huts with wider spans for himself with the same natural resource and for the same purpose. Because by emptying the fullness, only a certain limited volume can be reached. Whereas rebuilding can create a large nest. In the past for long periods, mammoth corpses may have been emptied and their skins and carcasses used as shelters. Could early man have done a different tunneling activity by scraping the bodies of the mammoths he was hunting from the inside and eating the discharged material? A warm home against the cold and possible external threats. A good decoy for hunting small predators that the corpse will attract. As you empty its inner fullness and eat it, a house that grows. Because it is possible to say that enlarging space with internal scrapings, a kind of tunneling, is the oldest construction activity of humanity. The main goal is to increase the clearance for the comfort area. Historically, the first humans dug tunnels and caves for shelter or to store food that was killed or gathered. There is evidence that Stone Age people dug shafts and dug tunnels to obtain flint for bladed tools. It is very usual for the first person to carry out all these familiar activities outside, far from his cave, this time on the bodies of mammoths, which are soft from the inside. Because when we think of the long ice age that preceded the Neolithic period, tunneling must have been a building activity even older than stacking stones or building shelter with

trees. That's why, almost everywhere on earth, from primitive to advanced, from ancient to new, underground cities, rooms, tunnels, etc. structures can be found. In other words, man may have exhibited a kind of open-conscious mole behavior for many millennia and used his knowledge in the Neolithic era and beyond.

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CONFLICT OF INTEREST DECLARATION

There is no conflict of interest with any institution or person within the scope of the study.

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