

Exploration of the architectural form of early nomadic dwellings in China from the perspective of archaeology

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Abstract. Nomadic architecture has gradually developed a unique architectural appearance and trajectory due to the mobile production and lifestyle of nomadic peoples. This study focuses on the early residential architecture of nomadic communities in the northern grasslands of China. By tracing the morphological evolution of tent-type dwellings and analyzing archaeological remains of nomadic settlements—exemplified by the Dongheigou site—the paper summarizes the seasonal, mobile, clustered, and diverse characteristics of early nomadic architecture.

Keywords: nomadism, early nomadic architecture, settlement archaeology

1. Introduction

Architecture comprises all activities and outcomes by which humans shape their environment to live, take shelter, and perform rituals. It emerged at the dawn of humanity in so-called “primitive” forms embedded in the natural world [1]. To explore the original forms of early Chinese architecture, one must also trace the production patterns and dwelling concepts of that period. The early nomadic architecture discussed herein represents the nascent stage of nomadic architecture. This paper takes as its entry point the earliest known distribution zones of nomadic culture in China—namely the northern grasslands (mainly including Xinjiang, Gansu, and Inner Mongolia)—and analyzes architectural forms both at the individual and settlement levels. Drawing on prior research as well as relevant archaeological and ethnographic materials, this paper seeks to clarify key developmental stages and summarize the features of early nomadic architectural culture during this period.

2. Overview of Relevant Research

For a long time, the notion that ancient nomads “moved with the water and grass” and “had no fixed residence” [2] has become a stereotypical expression of their dwelling characteristics. However, this does not fully reflect the reality of nomadic life. Whether they had regular places of residence, what architectural forms they used, how these forms initially developed, and what specific features they exhibited—all of these issues require further in-depth research.

Globally, the origins and modes of formation of nomadic societies remain a subject of debate. The major theories include: population pressure theory, nomadism evolving from hunting, domestication geography theory, coexistence of nomadism and agriculture, separation of nomadism from agriculture, and climate change theory. At present, the most widely accepted view is that the earliest nomadic people were the Scythians, who migrated from the Siberian hunting civilizations into the steppes and transitioned to nomadism [3]. In the Chinese context, similar problems exist. Some scholars, using the Zhukaigou Culture as primary material, believe that a steppe Bronze Age culture emerged in northern China during the Xia and Shang periods, which then gave rise to nomadic culture [4]. Scholar Zhang Zhongpei argued that horses were a key cultural element in the formation of nomadic societies. From the discovery of horses and chariots at the Yinxu site in Anyang, it can be inferred that nomadic groups had appeared by the late Shang dynasty and were interacting with Shang culture [5]. In terms of literature, early nomadic peoples left almost no written records of their own. The earliest references in Han Chinese historical records appear in Records of the Grand Historian (Shiji), which mentions northern nomadic groups in the pre-Qin and early Han periods, such as the Yuezhi, Donghu, and Xiongnu [6]. These records have two main problems: First, there are chronological gaps that leave early stages of nomadic life unclear. Second, the authors mostly lived in sedentary agricultural societies and lacked firsthand experience with nomadic life, leading to potentially biased or one-sided portrayals. Archaeologically, influenced by historical narratives, scholars long assumed that ancient nomads lacked fixed residences, making habitation remains difficult to preserve. As a result, research

mostly focused on burial materials, with very little attention paid to settlement archaeology. This stands in sharp contrast to the abundant archaeological findings of agricultural settlements in the Yellow and Yangtze River basins [7]. It was not until over a decade ago that Professor Wang Jianxin of Northwest University and his team conducted effective archaeological investigations and excavations of early nomadic cultural sites in the eastern Tianshan region of Xinjiang [8]. They laid the epistemological and methodological foundations for subsequent research on early nomadic settlements in northwestern China. Today, the difficulties facing related archaeological work include: The inherent challenges of site preservation, especially given the overlap between ancient nomadic sites and modern camps due to the mobile nature of nomadic life. The difficulty in identifying and distinguishing the nature of remains—many sites display both nomadic and settled agricultural features, indicating a mixed agro-pastoral economy. Currently, the earliest known nomadic architectural sites are located in the northern grasslands and date back to the Warring States period to early Han dynasty.

Although the climate of the northern grasslands has fluctuated over the past several millennia in response to global climate changes, the fundamental environmental elements—such as high latitude and high altitude—have determined the persistence of a continental, semi-arid climate in this region. The area remains characterized by dry conditions, with most precipitation concentrated in the summer and autumn seasons. Winters are long and cold, with significant diurnal and monthly temperature differences. The region is widely covered by cold-resistant herbaceous plants and shrubs, and inhabited mainly by hooved mammals, making it unsuitable for cereal cultivation [9]. Under such environmental conditions, nomadism emerged as an adaptive response to nature and a transformation in production methods. It became the basic lifestyle in the early northern grassland regions. The movement of herders in pursuit of pasture and livestock became the most distinctive feature and core of nomadic culture, eventually giving rise to the tradition of seasonal rotational grazing and the formation of relatively stable summer and winter camps. Summer camps served as the primary residences during the summer grazing season. Since nomadic life mainly took place in the summer months, dwellings such as felt tents and yurts were used during the continuous migration. The brief duration of stays at each site, coupled with the open and wind-eroded grasslands, made it difficult to leave behind significant accumulations or visible archaeological remains. Winter camps, in contrast, were relatively fixed settlements used during the harsh winters when grazing was not possible. These sites, used year-round, were typically sheltered from the wind, faced the sun, and had abundant water and pasture. They were home to the elderly, women, and children, and featured pens and enclosures, with residential remains commonly found. Both types of camps were generally distributed along mountain ranges, often situated on the slopes or at the base of hills [7].

Due to the aforementioned lack of textual and archaeological evidence, research on early nomadic architecture remains relatively limited. Some scholars, based on the mid-range theory of ethnology, have attempted to reconstruct early nomadic dwellings by examining the architectural forms of later ethnic minorities—especially in remote areas where primitive nomadic lifestyles have been preserved [10]. Others have focused on translating and analyzing documents produced by later nomadic peoples, incorporating findings from linguistics to develop a phylogenetic and typological study of nomadic architecture [11]. However, much of this research has been constrained by an overemphasis on the covering and support structures of nomadic dwellings—components that are least likely to be preserved in the archaeological record. Additionally, these phylogenetic and typological frameworks often lack direct observation of archaeological remains, leading to potential shortcomings in their arguments.

3. The Diversity of Early Nomadic Architectural Forms and the Primitive Stage of Tents

When people think of nomadic architecture, they often associate it simply with felt yurts or tent-like structures. In reality, however, early nomadic architecture was far more diverse in form. As human subsistence strategies evolved from hunting to herding to settlement, architectural forms also transitioned through stages such as cave dwellings, lean-tos, and tents. These structures incorporated a wide range of materials and construction methods, including stone, earth and timber, and felt. Moreover, the architectural styles of nomadic peoples varied by region and by seasonal campsite.

There are five major nomadic zones in the world: the tropical savannas of East Africa stretching from the sub-Saharan region to the East African Rift Valley; the Sahara and Arabian deserts; the zone extending from the Mediterranean coast through the Anatolian and Iranian plateaus into the Central Asian highlands; the Eurasian Steppe from the Black Sea to Mongolia; and the Tibetan Plateau and its surrounding mountainous regions [3]. The northern grasslands of China, which are the focus of this paper, belong to the Eurasian Steppe. Within this region, the tent represents the most typical form of nomadic architecture.

The research material on the primitive stage of tents in this paper primarily derives from *A Brief History of Tent-Dwelling Sites*, with *The Phylogeny and Typology of Mongolian Architecture* also covering relevant content. However, the author holds differing views on certain elements in the evolutionary process presented in prior research and therefore undertakes a new analysis based on these foundational works.

According to Da Matar, the origins of tent structures can be traced back to the Paleolithic period—approximately 5,000 years ago—and can be divided into three main stages: the Early Period (before 40,000 years ago), the Middle Period (40,000–13,000 years ago), and the Late Period (13,000–5,000 years ago) [12]. The early and middle stages roughly correspond to the

Paleolithic era, while the late stage enters the Neolithic era. Corresponding to these periods, the architectural forms also evolved: cave dwellings in the early and middle stages, and more fully developed architectural forms such as lean-tos and domed shelters in the late Neolithic stage. Tent architecture evolved from cave dwellings during this time. Lean-tos could be categorized into two main types: conical and hemispherical. The conical type consisted of several wooden poles—thicker at the bottom and thinner at the top—slanted and inserted into the ground in a circular pattern, with their upper ends tied together above the center to form a conical living space. The exterior was covered with woven leaves, bark, or similar materials. The hemispherical type involved inserting poles into the ground at equal distances along a circular base, then bending their free ends toward the center and binding them together at the top, forming a dome-shaped space. The surrounding walls were often constructed from woven reeds or cattails. Some scholars believe that these two types represent successive stages of temporal development [11]. However, the author argues that although the conical type may have appeared slightly earlier than the hemispherical type, the primary difference lies in regional variation. In areas where surrounding trees had harder and less flexible wood, conical structures were more common; in areas where more flexible woods such as tamarisk were abundant, the hemispherical form was preferred due to its higher spatial efficiency. Subsequent developments in lean-to construction included the addition of circular reinforcements to the roof structure for enhanced stability. The base walls were elevated, utilizing leg-frame walls, vertical posts, or lattice frameworks to expand interior space—gradually forming the domed yurts. By the stage of the dome, the basic prototype of modern tents had essentially been established. While this form represents the mainstream evolution of tents, in the primitive stage, various forms emerged influenced by cultural, technological, and environmental factors, leading to differentiated developments with distinct ethnic characteristics. New forms such as mobile carts with shelters (chelu), collapsible yurts (fulu), and black tents (heizhangpeng) also appeared.

4. Analysis of Early Nomadic Cultural Settlement Architectural Sites

At present, early nomadic cultural settlements containing architectural remains in the northern grassland regions are mainly distributed in eastern Xinjiang, northern Gansu, and western Inner Mongolia. These areas generally lie within the grasslands flanking the Tianshan Mountains, the Beishan Range, and the foothills of the Yinshan Mountains[13]. In Xinjiang, the sites can be categorized into large-to-medium-sized and small-sized settlements. The large and medium-sized sites typically feature multiple stone-built high platforms, dozens to hundreds of stone-enclosed dwelling foundations, hundreds of tombs, and several hundred to over a thousand rock paintings. These sites are usually located in gently sloping foothill areas, characterized by large size, favorable living conditions, relatively flat and open terrain, proximity to mountains and water sources, rich pastures, and convenient transportation. So far, four such sites have been surveyed: Dongheigou, the Yuegongtai–Xiheigou site complex, Wulatai, and Hongshankou. In contrast, small-sized sites usually include a few to a dozen tombs, one or two stone-enclosed dwelling foundations, and a few to a dozen rock paintings. These are generally located on the southeastern slopes of mountains or in deep mountain valleys that are sheltered from the wind and receive ample sunlight. These sites are smaller in scale and typically have limited water sources. Representative examples include the Taiyanggou site and the Shangmayan site in Hami. In the Mazongshan area of Subei County, Gansu Province, within a region approximately 130 km north to south (extending north to the China–Mongolia border) and about 135 km east to west (reaching west to Mingshui at the Gansu–Xinjiang border), twelve relic distribution zones have been identified. These include 301 engraved rocks with petroglyphs, 53 tombs, and 20 stone-enclosed residential sites (19 of which are square and one circular)[14]. In Inner Mongolia, at the northern foot of Longshoushan in northern Gansu, archaeological surveys in Alxa Right Banner (Alashan Youqi) revealed coexisting petroglyphs and stone-enclosed architecture, although the exact site area remains unclear. In the central and rear Urat Banners, several stone-cairn tombs, double-sheep petroglyphs, and two dwelling remains have also been discovered[15].

A detailed case study of the Dongheigou site follows.

The Dongheigou site is located in Shirenzi Village, Barkol County, Xinjiang, on the northern slopes of the Eastern Tianshan Mountains (also known as Barkol Mountains). The site stretches approximately 5 km from north to south and about 3.5 km from east to west, covering an area of roughly 8.75 square kilometers. Archaeological remains are mainly distributed across the narrow Dongheigou and Zhigou valleys and the adjacent piedmont slopes. Discoveries include three stone-built high platforms, 140 stone-enclosed dwelling foundations, 1,666 tombs, and 2,485 rocks bearing pictographs, making this a large-scale, content-rich, and representative early nomadic cultural settlement[16].

The three high platforms are arranged in an isosceles triangle pattern. The excavated platform GT1 is the southernmost and is situated alongside surrounding stone-enclosed dwellings on the northern slope of the Eastern Tianshan Mountains, at a relatively high and open location. The other two platforms and their associated dwellings are located on the flat river terrace areas to the east and west in the northern section. GT1 comprises two stratified occupational layers; this study focuses on the earlier, lower layer to investigate the primary phase of nomadic residential architecture. The lower occupational layer spans the entire interior of GT1, measuring 18 meters in length and 9.4 meters in width, with a total building area of approximately 166 square meters. Excavation results indicate this was likely the floor of a residential structure. Originally, the structure was surrounded by a stone wall, within which a timber-frame building was constructed. The timber structure was divided into southern and northern sections. The southern section, comprising about two-thirds of the total area, preserved 20 upright wooden posts and remnants of

transverse timber walls. The posts were regularly arranged, most serving as load-bearing or supporting columns. Four posts located at the base of the wooden wall may have served as retaining pillars. Although the timber walls themselves no longer survive, impressions left by round timbers were found in the mud plaster between the stone and wooden walls. Some timber remnants still remain in the lowest grooves. Within the building, large hearths and ash pits were found. The northern section was smaller, about one-third of the total area, containing ten upright wooden posts arranged in an orderly fashion. However, no wooden walls or other features were discovered in this area. The author infers that this structure may have been a winter residential dwelling. The walls were built from cobblestones and plastered with mud on the interior. Horizontal timbers were then fixed onto the mud layer for reinforcement. The exterior stone walls were reinforced with a mixture of earth and stones as embankments. The roof was likely supported by beams and covered with materials such as thatch or felt. Judging by the condition of the wooden post remains, the roof covering was probably not very heavy. The resulting interior space likely resembled a tent in form. Functionally, the southern section containing the hearth was likely the main living area, while the northern section may have served as a storage space.(Figure 1. Floor Plan and Post-Hole Cross-Section of GT1)

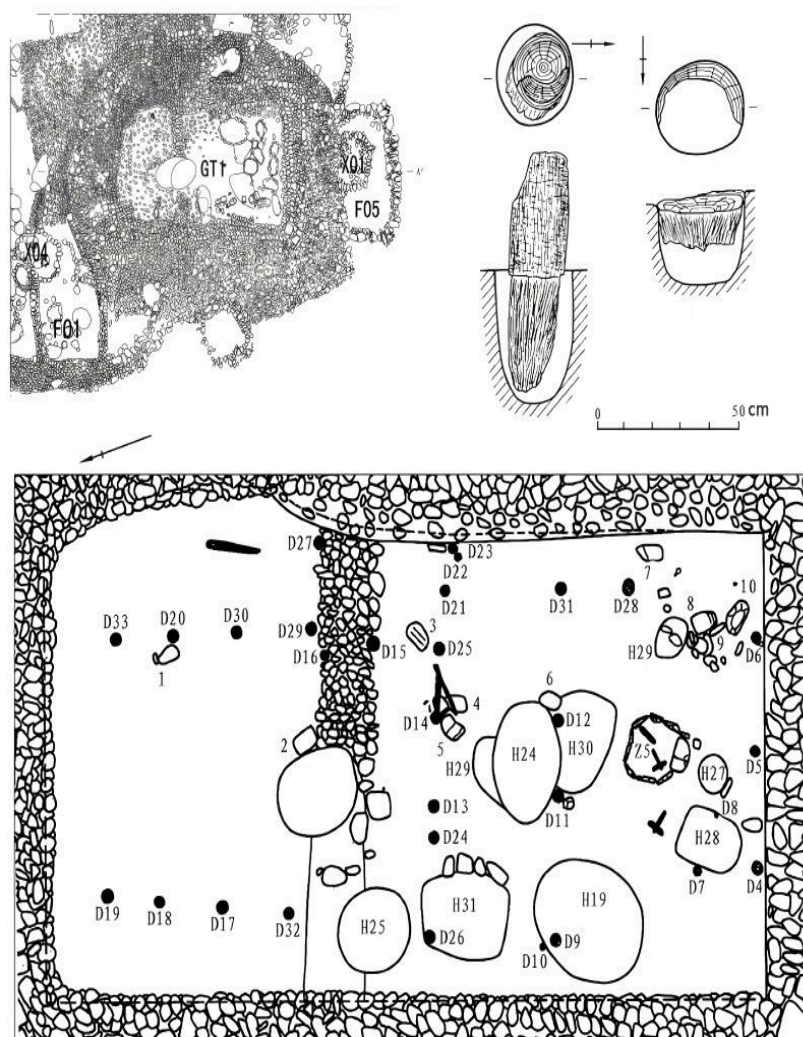


Figure 1. Plan of GT1 and Section of column holes. Brief Report on the Excavation of the Dongheigou Site, 2009.

Another architectural type found at Dongheigou is the stone-enclosed residence. These are roughly rectangular in shape, though generally not as well-preserved or intensively used as the high platforms. Inside these enclosures, hearths, ash pits, pits filled with sheep bones, post holes, and various artifacts such as pottery jars, pottery basins, stone grinding slabs, and pestles have been discovered. It is speculated that the walls were also built with stacked stones, the roofs covered with materials like felt and grass, and supported by wooden pillars. Internal room divisions are unclear, and no distinct entrances have been identified, though the general orientation is assumed to face east to maximize sun exposure and avoid prevailing winds. Several of these dwellings are closely clustered and neatly arranged, indicating a strong sense of community and tightly knit organizational structure among the site's inhabitants. Similar clusters of tightly arranged stone enclosures have also been found at the Yuegongtai–Xiheigou site complex[17], suggesting collective construction behavior.

Scholars have proposed various theories regarding the origin of nomadic culture in the northern grasslands, including the "Western origin theory," the "derivation from Central Plains culture theory," the "agricultural tribe-to-nomadic tribe transformation theory," and the "pastoral-hunting transition theory"[18]. The author tends to support the view that it was influenced both by the nomadic cultures of the western Eurasian steppes and the agrarian culture of the Central Plains. In particular, the relatively primitive nomadic tribal dwellings still found today in the Iran–Turkey mountain regions of the western Eurasian steppe preserve many early nomadic architectural features, offering valuable insight into the possible prototypes of Dongheigou structures. For instance, the tent structures of the Beritan tribe in eastern Turkey—which include both living quarters and livestock pens—bear a strong resemblance to the stone-enclosed dwellings at Dongheigou. (Figure 2. Stone-Enclosed Tents and Huts)

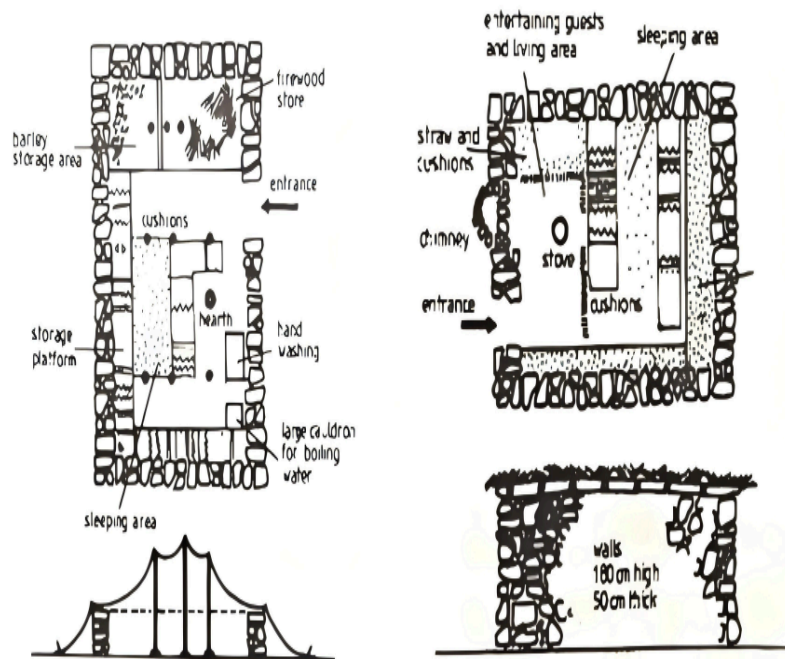


Figure 2. Stone-enclosed tents and huts in the Beritan tribe. Roger, 1991.

In addition to high platforms and stone-enclosed dwellings, the Dongheigou settlement also contains tombs and petroglyphs, which together constitute an integrated representation of the nomadic culture of the period[7]. The tombs are distributed across river terraces and mountain slopes on both sides of Dongheigou and Zhigou, and can be categorized into four types: circular stone mounds, dome-shaped stone mounds, conical stone mounds, and square stone-structured tombs. These different types are concentrated in distinct zones, suggesting that even early nomadic settlements had a clear spatial organization concept. As for the petroglyphs, they primarily depict animals and humans, rendered in bold-line, silhouette, or outline styles. Human figures often portray scenes from nomadic life, such as horseback riding, hunting, herding, carts, and yurts, as well as rituals or dances.

5. Conclusion

The early nomadic dwellings in the northern grasslands of China exhibit flexible, diverse forms adapted to environmental conditions. Different construction strategies were employed depending on the seasonal encampment: winter camps featured permanent, long-term buildings with solid earthen and wooden structures, often retaining spatial characteristics similar to tents in their interior roof form. Camps for other seasons were mostly temporary and used mobile, tent-like structures made from grasses, wood, and felt. Because nomadic migration followed fixed routes, some stone enclosures were often left behind or arranged in specific shapes for reuse and as spatial markers. The typical single architectural form—the "tent"—was the result of a dynamic evolutionary process, passing through three key stages: cave dwelling-hut -yurt, all sharing a consistent spatial concept. At the settlement level, early nomadic life also demonstrated relative sedentism and a well-structured social organization. Residential remains, tombs, and petroglyphs form the fundamental components of early nomadic cultural sites. These dwellings were located in ecologically favorable environments, met the practical needs of pastoral production, and reflected a worldview rooted in reverence for nature and the concept of mobile space.

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