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From Wattle-and-Daub Huts to Mud-Brick Houses: The Evolution of Early Dwellings in the Indian Subcontinent (c. 12000–2000 BCE)

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ABSTRACT

This research article explores the evolution of dwelling structures during the Mesolithic to Neolithic-Chalcolithic phases in the Indian subcontinent (c. 12000-2000 BCE). The article will discuss the archaeological evidence for the transition from nomadic hunter-gatherer societies to sedentary village-based societies. Mesolithic sites like Chopani Mando, Bagor, and Baghor show evidence of early Daub and Wattles hut construction made of perishable materials like reeds, mud, and wood, represented by postholes, stone arrangements, and burnt clay impressions with reed impressions. The Neolithic phase represents a major transition towards permanent settlements, as evident in mud-brick architecture, compartmentalized houses, and planned village layouts at sites like Mehrgarh, Kili Gul Mohammad, Damb Sadaat, Mundigak and Balakot. In the Kashmir region and the Northwestern Indian subcontinent, pit dwellings at Burzahom and Gufkral represent regional adaptations to environmental and climatic conditions. The Neolithic-Chalcolithic transition phase also shows architectural diversification, including fortified settlements, multi-roomed houses, and planned structural complexes at sites like Ahar, Gilund, Balathal, Chirand, and Daimabad. These discoveries together demonstrate technological advancements, environmental adaptations, and the gradual development of sedentary lifestyles, which formed the basis for the development of complex societies in South Asia.

Introduction

The shift from mobile hunter-gatherer societies to sedentary village communities is one of the most radical processes in human history. In the Indian subcontinent, this process occurred over a long period from Mesolithic through Neolithic to Neolithic-Chalcolithic (c. 12000-2000 BCE), with profound changes in diet, technology, and settlement patterns. Although tools, ceramics, and diet have been extensively researched, the archaeological record of early dwelling structures offers a remarkably straightforward perspective on habitation patterns, social organization, and human adaptation to different environments. This paper examines the development and evolution of early dwelling types, such as huts, pit houses, and mud-hut architecture, through archaeological data from important sites in the subcontinent.

The Mesolithic phase of the subcontinent shows the first efforts at building shelters other than in caves and rock shelters. Sites such as Chopani Mando, Bagor, and Baghor offer tangible archaeological evidence of semi-permanent settlements in the form of postholes, hut floors, and wattle-and-daub structures. The Neolithic phase is a critical phase in this process, with agricultural subsistence and permanent village life. The site of Mehrgarh is one of the earliest known village settlements in South Asia, with evidence of planned and organized mud-brick architecture. Similar processes are evident at Kili Gul Mohammad, Mahagara, and Lahuradeva, where archaeological evidence shows a growing permanence of architectural structures and technological advancements.

Regional variations came to the fore during the Neolithic-Chalcolithic era. In Kashmir, Burzahom and Gufkral show characteristic pit house types that suit the climatic and environmental settings. Simultaneously, Chalcolithic sites like Ahar, Gilund, Balathal, Daimabad, and Chirand show the development of fortified settlements, multi-roomed houses, and planned architectural complexes. These architectural advancements not only mark technological progress but also the growing social complexity, planning, and management of resources.

The significance of this research study is its emphasis on the importance of domestic architecture as a key indicator of cultural evolution. The early houses were not just simple dwellings but also production, storage, ritual, and socializing spaces. By analyzing the architectural evidence from different regions and periods, this paper attempts to respond to the following key research questions: How did early architectural types reflect the changing subsistence patterns? What were the regional and environmental factors that affected architectural designs? To what extent did technological developments influence

architectural patterns? And finally, how did the gradual process of sedentism lead to the development of organized village communities?

Methodologically, this research uses archaeological excavation reports, structural evidence, and regional comparisons. By integrating information from various excavation sites, this research paper seeks to offer a holistic perspective on early dwelling patterns in the Indian subcontinent. Finally, this research work seeks to emphasize that the evolution of domestic architecture is a very important step in the larger process of social and economic evolution, which laid the groundwork for the rise of urban civilizations in South Asia.

Mesolithic Period (12000-7000 BCE)

During the Palaeolithic period, humans lived primarily in caves and rock shelters. It was in the Mesolithic period that humans began constructing house-like structures for themselves for the first time. The Mesolithic period marked the beginning of varying degrees of sedentariness, as evidenced by structures such as huts that indicate permanent or semi-permanent settlements. In the context of the Indian subcontinent, several archaeological sites provide evidence of early hut structures.

Chopani Mando, located in the Belan Valley of Uttar Pradesh, was excavated by G.R. Sharma in the 1970s. This site provides evidence of the transition from hunting and gathering to the early stages of settled agriculture. During the excavation, Sharma discovered several pieces of burnt clay bearing reed impressions, indicating that the inhabitants lived in wattle-and-daub huts. Further excavation revealed the outlines of two round huts belonging to Period II A and five round huts belonging to Period II B. Period III yielded evidence of thirteen round and oval huts clustered closely together. The round huts had an average diameter of 3.3 meters, while the oval huts measured approximately 4.7 × 3.3 meters. Bagor, located on a sand dune in the Bhilwara district of Rajasthan near the Kothari River, was excavated by V.N. Mishra. Excavations revealed house floors paved with stone slabs and roughly circular arrangements of stones marking the outlines of shelters. Another important site is Baghor, located in the Son Valley of Madhya Pradesh and excavated by G.R. Sharma and J.D. Clark. Excavations revealed five to six large shelters identified through the presence of postholes.

Thus, during the Mesolithic period, people constructed shelters such as huts made of reeds, mud, and other perishable materials. Because these materials were fragile and biodegradable, only limited archaeological evidence of such structures survives.

Neolithic Period (7000-3000 BCE)

During the Neolithic period, the domestication of plants and animals led to more permanent settlements. Consequently, the Indian subcontinent witnessed the emergence of agricultural villages around 7000 BCE.

Mehrgarh is the earliest and best-documented site providing evidence of the first village settlement in the Indian subcontinent. It is located in the Bolan Valley of the Kachi Plains in Baluchistan. In 1968, Sardar Ghaus Baksh Raisani informed archaeologists about a mound near his winter residence. Subsequently, J.F. Jarrige and C. Jarrige of the French Archaeological Mission, in collaboration with the Department of Archaeology, Government of Pakistan, excavated the site. The settlement extends over approximately 20 hectares and comprises seven occupational levels. During Period I, people lived in houses made of handmade mud bricks with small rectangular rooms. One such room measured 2 × 1.8 meters. The floors show reed impressions and grinding stones. The bricks at Mehrgarh are notable for their standardized size, rounded ends, and finger impressions on the upper surface. In Period II at Mehrgarh, the settlement expanded and mud-brick structures were divided into small cell-like compartments, some of which were used as houses. This pattern continued into Period III. In later phases, particularly Period VI, rooms were separated by thick walls and doorways fitted with wooden lintels. Archaeologists estimate that some doorways measured approximately 1.10 meters in height.

Kili Gul Mohammad, another Neolithic site in Baluchistan located in Quetta on the bank of the Hanna River, was excavated by Walter A. Fairservis in 1950. He found that the inhabitants were initially nomadic pastoralists, but by the end of Period I they began living in houses made of mud or wattle-and-daub. By Period III, they constructed mud-brick houses with stone foundations. Damb Sadaat, also located in the Quetta Valley and excavated by Walter A. Fairservis, yielded evidence that in Period II people built multi-roomed mud-brick structures with limestone block foundations.

On the Kalat Plateau of Baluchistan, two sites — Anjira and Siah Damb — were excavated by Beatrice de Cardi in 1948 and 1957. She found that during Period II, people constructed mud structures on stone-boulder foundations. In Period III, square stone blocks were used in foundations, and by Period IV, properly cut square stone blocks were used for house construction. Mundigak, located in southeastern Afghanistan and excavated by J.M. Casal in the 1950s, shows Neolithic occupation in Period I. In the fourth phase, Casal identified small oblong cells, while in the fifth phase he discovered larger houses consisting of oblong rooms constructed from sun-dried bricks.

In the Anambar Valley of the Zhob-Loralai region of Baluchistan, several early village sites have been identified. Sur Jangal provides evidence of small mud houses in its early phase. Rana Ghundai, excavated by Brigadier Ross in the 1930s, revealed traces of living surfaces but no well-defined structural remains. Sheri Khan Tarakai, located in the Bannu Basin and excavated by the Bannu Archaeological Project in 1986, yielded evidence that in the earliest level many houses were made of mud bricks laid over stone foundations. Nal, located in the Khuzdar area and excavated by Harold Hargreaves in 1925, revealed structures made of boulders as well as quarried stone. Kulli, a 12-hectare site in the Kolwa tract, has yielded evidence of multi-roomed stone structures. Balakot, located on the Makran coast of South Baluchistan and excavated by George F. Dales in 1973, yielded evidence of mud-brick houses in Period I.

Harappa represents an early village settlement associated with the Hakra Ware culture. Located on the bank of the Ravi River, it was excavated by D.R. Sahni in 1921, Madho Sarup Vats in the 1920s, and Mortimer Wheeler in 1946. The early period (3500–2800 BCE) yielded remains of small village settlements with huts supported by wooden posts and walls made of plastered reeds, but there is no evidence of mud-brick structures from this phase. Another Hakra Ware site is Kunal, located in Fatehabad district of Haryana and excavated by J.S. Khatri and M. Acharya in 1985 and later by B.R. Mani. In Period I, people constructed houses on artificially raised platforms. Floors were made by digging pits below ground level, and walls were plastered with mud. Postholes around the houses indicate wooden posts supporting wattle-and-daub superstructures. Bhirrana, another Hakra Ware site in Fatehabad district excavated by L.S. Rao in 2003, yielded evidence of shallow mud-plastered pit dwellings measuring 34–58 cm in depth and 230–340 cm in diameter.

Mahagara, located on the right bank of the Belan River and excavated by G.R. Sharma (1975–79), is an important Neolithic site of Uttar Pradesh. Sharma identified twenty huts from floors and postholes. Reed or bamboo impressions on mud clumps indicate that hut walls were constructed using wattle and daub. Lahuradeva, located in Sant Kabir Nagar, is another early agricultural settlement of Uttar Pradesh. Period I is Neolithic, and people lived in wattle-and-daub houses, identified through small burnt clay fragments bearing reed impressions.

Neolithic – Chalcolithic Period (3000-2000 BCE)

In Kashmir, several Neolithic sites have been discovered, one of which is Burzahom, located near the Jhelum River, around 16 km northeast of Srinagar. It was initially discovered by H. de Terra and T.T.

Paterson in 1935 and later excavated by T.N. Khazanchi between 1960 and 1971. The Neolithic period of Burzahom is dated to around 2920 BCE. T.N. Khazanchi found evidence of mud-plastered pit dwellings in Period I. The pits were round or oval in shape, becoming narrower at the top and widening outward at the base. The largest pit dwelling was 3.96 meters deep, with a diameter of 2.74 meters at the top and 4.57 meters at the bottom. He also discovered post-holes around the circumference of the pits at ground level, indicating that wooden poles supported roofs made of pinewood thatched with birch. Khazanchi further concluded that the people of Burzahom must have used ladders to climb in and out of the pits, as there were very few steps. Another interesting feature of Burzahom is the presence of square and rectangular pit chambers, found only in the central part of the settlement, while round or oval pits were located in the peripheral areas. The rectangular and square pits were about 1 meter deep and measured approximately 6.4 × 7 meters. During Period II of Burzahom, which is also identified as Neolithic, evidence suggests that people moved out of the pits and built houses at ground level. The old pits were filled with soil and plastered with mud and thin layers of red ochre, which formed the floors of the houses.

Another important site is Gufkral, located in Tral near Srinagar. It was excavated by A.K. Sharma in 1981–82. Here, Period I is Neolithic and is further divided into three sub-phases, dated to around 3000 BCE. The inhabitants also practiced pit dwellings similar in shape to those found at Burzahom. However, the largest dwelling pits here were only 20–30 cm deep. Evidence of post-holes was also found around them. The bases of the houses were plastered with mud to prevent water leakage. In Period IA, archaeologists found that floors were plastered with red ochre, and two-chambered dwelling pits were also discovered. In Period IB, pit dwellings disappeared. Excavations revealed a 5–7 cm thick compact clay floor mixed with lime, along with mud and rubble walls. In the Swat Valley, sites such as Loebanr (Period III) and Kalako-deray have yielded evidence of pit dwellings dated to around 3000 BCE.

There are some regions in India where the beginning of settled life is associated with the Chalcolithic rather than the Neolithic, such as Rajasthan, Malwa, and the Northern Deccan. Some sites even show a direct transition from the Mesolithic to the Chalcolithic phase. The Ganeshwar–Jodhpura culture is identified as Chalcolithic, and the site of Ganeshwar shows evidence of circular huts with pebble and rock-fragment floors in Period II (2800 BCE).

Another important Chalcolithic site belongs to the Ahar culture, located on the bank of the Banas River in southeastern Rajasthan. The site of Ahar is situated on the outskirts of Udaipur and was excavated by H.D. Sankalia. Here, the Chalcolithic phase is identified as Period I, which is further divided into three

phases. Around fifteen building phases were identified. Houses were generally made of mud and rested on stone foundations. The walls had bamboo screens for reinforcement, and the roofs were sloping. The floors were made of black clay mixed with yellow silt. Although no complete house plan has been found, vestiges of a structure about 10.31 meters long have been discovered. Another important site of the Ahar culture is Gilund, located on the bank of the Banas River. It was initially excavated by B.B. Lal in 1959 and later by Vasant Shinde along with G.L. Possehl between 1999 and 2005. Excavations revealed structural remains of a mud-brick complex measuring 30.48 × 24.38 meters. The walls were made of burnt bricks with stone-rubble foundations. Another significant site is Balathal, located in Udaipur and excavated by V.N. Mishra between 1994 and 2000. In the early phase of Period I, remains of small circular wattle-and-daub huts with mud-plastered floors were found. In a later phase of Period I, a massive mud fortification wall was discovered, reinforced in places with stone and showing clear evidence of bastions. The walls measured between 4.80 and over 5 meters in width and enclosed an area of about 500 square meters. In the southern phase of Period I, several rectangular houses made of mud, mud bricks, and stone with stone foundations were found. Additionally, three multi-roomed structural complexes were discovered. The calibrated dates of Balathal go back to the late 4th millennium BCE.

The Malwa region also yields evidence of the Chalcolithic period. Here, the Chalcolithi culture began with Kayatha, followed by the Ahar culture, and later by the Malwa culture. However, during the excavation of the site of Kayatha, no complete house plan was uncovered; the houses were made of mud and reed with mud-plastered floors.

Further south, in the Western Deccan of India, the Savalda culture is dated to around 3000 BCE and is found between the Tapi and Godavari rivers in Maharashtra. Kaothe is a site belonging to the Savalda culture, excavated by M.K. Dhavalikar, Vasant Shinde, and S. Atre in 1984–85. During excavation, they found that the houses were round in shape and had sloping roofs. Another Savalda site is Daimabad. It was excavated by M.N. Deshpande in 1958 and later by S.R. Rao and S.A. Sali in 1974. They found mud houses here with multiple rooms, which sometimes had courtyards.

In Bihar, during this period, both Neolithic and Neolithic–Chalcolithic sites emerged. Chirand is located at the confluence of the Sarayu and Ganga rivers in Saran district of Bihar. It was excavated by B.S. Verma between 1961 and 1970. He found that the people of Chirand lived in circular wattle-and-daub huts with rammed floors. The mud boundary walls of houses were also traced here. Another site, Chechar in Kutubpur, also shows that people lived in circular wattle-and-daub huts with mud floors. Senuar is another important site located on the bank of the Kudra River in Rohtas district, excavated by Birendra

Pratap Singh in 1986. Here, Period I was identified as Neolithic and Period II as Chalcolithic. During excavation, Period IA yielded evidence of wattle-and-daub houses, while Period IB shows that rammed earth mixed with kankar and potsherds was used to make house floors, and there were also marks of post-holes.

Conclusion

The archaeological record of the Mesolithic to Chalcolithic period in the Indian subcontinent shows a progressive change in the domestic architecture of the region, which is inextricably linked to the subsistence patterns and settlement systems. The Mesolithic sites of Chopani Mando, Bagor, and Baghor represent the first evidence of built shelters in the form of circular houses made of reeds, wood, and mud. These houses, which are identified by postholes, stone settings, and burnt clay impressions of reeds, show evidence of semi-permanent occupation and the beginning of sedentary life. The Neolithic period represents a major milestone in the transition to permanent settlement, which is brought about by the domestication of plants and animals. The sites in Baluchistan, especially Mehrgarh, show major architectural advancements in the form of mud brick houses with standardized construction, compartmentalization, and stone foundations. The same trend is seen in the Belan Valley sites of Mahagara and Lahuradeva, where wattle and daub houses show the expansion of agricultural communities and permanent occupation. In the Neolithic-Chalcolithic phase, there is greater regional variation in house architecture. In Kashmir, the sites of Burzahom and Gufkral represent the characteristic pit house tradition, which later gave way to ground-level houses, suggesting technological adaptation and cultural evolution. The Chalcolithic cultures of Rajasthan, Malwa, Deccan, and Bihar, such as Ahar, Kayatha, Savalda, Chirand, and Senuar, show a growing complexity of architecture with stone bases, rammed floors, multi-roomed houses, and fortified settlements. Thus, the transition from temporary hutments to more permanent and planned settlements marks the beginning of the consolidation of sedentary life and the emergence of social organization. This architectural shift marks the beginning of the evolution of organized settlements, which would provide the cultural and spatial foundation for the development of complex societies in the Indian subcontinent

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