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Research Article

# THE STRUCTURAL REMAINS OF EARLY HISTORICAL NORTH INDIA
## (An Archaeo-Literary Review)

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**Abstract:**

*The most ancient architectural remains in the subcontinent are the 4500 year-old ruins of the mature Indus Valley civilisation: their planned cities and monumental buildings. This was followed by a period of reduced architectural activity during the Vedic age, possibly because people worshipped in open-air altars, and lived in semi-permanent settlements. The remarkable, reactionary sramana (wandering ascetic) movements that became significant around the 6th century BC, (the most successful sramanas were the Buddha and Mahavira) eventually produced a very rich architectural legacy.*

*The second urbanisation of 6th century BCE in northern India started the second phase of architectural progress and development in Indian history. In this research paper author has tried to make an assessment of architectural growth on the basis of archaeological and literary sources.*

**KEY WORDS:**

Indus valley, Mahavira, Archaeological sources, ring wells, floor, north India.

**INTRODUCTION-**

It is difficult to give a very detailed account of the architecture of the period under study, primarily because no sufficient specimen has survived. It is not unlikely that being made of perishable materials like wood etc. they could not survive the vagaries of nature. It is also likely that some of them might still be lying buried under the soil. But with the help of literary works of this period, we can draw a fairly good picture of the building activities of this phase.

There is little evidence of great material prosperity before c.600 BCE. The size of the settlements, limited in area and irregular in plan, are represented by the two preceding cultures, viz., the black and red ware and the painted grey ware. These have been confirmed by excavations at different sites in northern India. The noteworthy feature of the period under discussion is the origin of urban life and emergence of a number of towns, the remains of some of which have been excavated.

**Walls:** At Sonkh[1], there is evidence of single roomed circular and oval structures of wattle and daub in the pre-Mauryan levels. The evidence of various regular post-holes at different sites viz. Allahapur(Ghaziabad)[2], Atranjikhera[3],Jakhera[4] and Ahichchhatra[5] suggests that generally the houses and residential places were made of wood, reed or bamboo screens and later they were plastered with mud, which is proven by the remains of chunks of clay bearing cane, reed and bamboo impressions. At Erich (Jhansi, U.P)[6],Hastinapura[7], Singh Bhagwanpur (Rupnagar, Punjab),[8]Narhan (Gorakhpur)[9] and Rajghat,10

we have the evidence of cane and reed impressions while at Chirand[11] and Dewas (M.P)[12] we have the impressions of both bamboo and reed. The extensive use of wood for the purpose of building construction is also reported in our literary sources such as Jataka stories[13]. Chapter 5 verse 12 of the Adikhanda of Ramayana mentions that the town of Ayodhya was girt with a belt of salatrees(salamekhala). Probably because sala wood was used on a large scale in the construction of houses, the term sala came to be used for a variety of buildings.[14]

At Bhita and the Bhir mound at Taxila, several large blocks of houses dated to c. 400-200 BCE were recovered. They are more or less square on plan and measure from around 10x10m to 15x15 m. A house consisting of fifteen rooms is found arranged on three sides of an open courtyard, which is paved with bricks. The rooms are roofed with terracotta tiles. According to Erdosy[15] such house plans were already established in the pre-Mauryan times and we consider this relevant to our study.

At Hastinapura rice-husk has been used as binding material in mud-walls. At Atranjikhera too, rice-husk chaff has been used with mud for plaster. Again, at Hastinapura wall plasters have impressions of the plant, probably a variety of wild cane Saccharumspontaneum. They have been used in horizontal and vertical fashion to give strength to the wall, which was further reinforced by plasters of mud mixed with rice husk.[16] Such methods in building kachha houses are still prevalent in the villages in northern India. However, outside India reeds have been used even earlier for the same purpose by the people living along the rivers Nile and Tigris.[17]

Roof: Houses must certainly have been provided with roofs but unfortunately the evidence is scanty. However, we have noted that at Hastinapura, tall thick grasses such as Arundo, Anthistiria, Andropogon and Saccharum were used both for thatching the roof and making the wall. Further, we notice that even now such types of long grasses are abundantly found near Hastinapura.[18] But in order to make a thatched roof water-proof terracotta tiles appear to have been used as reported at Nadner[19] and Dewas. In the Mauryan and post-Mauryan period, these terracotta tiles are documented at Kausambi, Ahichchhatra, Sonkh, Rajghat and Vaisali. Probably tiles were laid on the thatched roof with the help of mud as the binding material, much in the same way as is done even today in villages. Agrawala on the authority of Panini says, "The roof of the house is called chhadis, probably denoting the thatched covering known as chhappar"[20] as we know it today.

Bricks:Generally, most of the people during this time lived in huts, possibly thatched with leaves and grass. Their walls were made of reed, bamboo or wood. This does not mean that structures of bricks relevant to this period are unknown to archaeology and literature. In order to ensure greater durability, people started using more durablematerial that is bricks of clay, and wood. Clay was easily available in plenty in alluvial lands. It could be easily moulded in desired shapes. Cost variation also may not have been much.

We have the evidence of iron plumb-bobs, 3 cm in diameter, from Atranjikhera[21], which helped in making the brick walls vertical. The body is rounded with a small round hook at the top. Different types of bricks, such as sun dried, baked or burnt, have been reported from excavations. Mud bricks have been found at Sonpur,[22]Narhan, Atranjikhara etc. while baked bricks come from Hulaskhera (Lucknow),[23]Moradhwaj (Bijnaur),[24] and ChecharKutubpur (Vaisali).[25] The earliest evidence of the use of burnt bricks, after the decline of the Harappan civilization, has been reported at Hastinapura[26] between c.1100 BCE and c.800 BCE, though the area falls within the eastern limits of the Indus Valley Civilisation. With this, the use of burnt bricks continues up to c.600 BCE at Hastinapura, Ahichchhatra[27] Atranjikhera[28] and Jakhera.[29]During the period of our study the use of burnt brick increased considerably. In c.500 BCE, extensive use of such types of brick is attested at Ujjain,[30] Kausambi,[31] and Jhusi (Allahabad)[32] and between c.500 BCE and c.400 BCE at Chirand[33] and Champa.[34] The use of bricks for the purpose of constructing buildings during the period under discussion is well known to our literature. Panini[35] mentions the word ishtaka-chita, which, according to Agrawala is "something constructed with bricks". Itthakavaddhakior bricklayers has been mentioned in Pali texts[36]. The VinayaPitaka mentions that Buddha permitted his disciples to use bricks for covering the basements and stairs of their halls or sheds.[37] Rhys Davids made a general assumption that in Buddha's times "the superstructure of all dwellings was either of wood-work or brick-work".[38] It appears that brick walls were plastered . At Kausambi we have the evidence of lime plaster. According to Ghosh[39] the ratio of sand and lime varies from 1:1 to 3:1. In the period under study mud was exclusively used as mortar and plaster. Usually the bricks reported in excavations are rectangular in shape but wedge-shaped bricks have also been found used for structures such as barns, ring-wells to pave the circular rim of the wells. Their shapes and sizes were not uniform in appearance. During the period under study their sizes vary from 60x 20x31.75 to 16x10x5 cm.[40]

In the light of the above discussion it may be suggested that after Harappansthe technique of making burn bricks was rediscovered by the people of Hastinapura. It is perhaps from here that the

technique spread further to different parts of India. It may also be postulated that the use of burnt bricks points to economic prosperity and sophistication in the life style attained by the people.

**Floor:** People used different types of flooring in their houses. The floors of the houses were made in two ways:

(a)By mixing clay with river gravel
(b)By using hard burnt clay (possibly from an earlier structure).

The evidence of burnt clay and burnt earth floors are reported at Chirand and Rajghat.[41] Mud rammed floor are noticed at Ahichchhatra, Atranjikhera and Rajghat, while, brick rammed floorings have been found at Atranjikhera and Champa.[42] AtAtranjikhera, we have the evidence of twenty-seven superimposed floors. Most of them are badly damaged. Among them one has been identified with the floor belonging to a kitchen, as noted by Gaur, on the basis of broken pieces of domestic hearth found over it along with some earthen cooking pots.[43]

**Hearths and Ovens:** Houses of this period had their own hearths and ovens. A row of hearths has been discovered at Atranjikhera. A hearth showing one mouth and three openings with burnt patches is also reported from here. Apart from this another 'U' shaped hearth with cooking pots over it has also been reported.[44] Hearths are also reported from Ahichchhatra,[45] Kaseri,[46] Champa[47] and Oriup (Bhagalpur).[48]

**Two types of hearths have been reported during this period:**

(a)Underground (mostly oval and sometime circular in shape).
(b)Above the ground (mainly rectangular in shape)

The hearths reported at Ahichchhatra and Kaseri are oval and underground, while a row of four hearths found at Ahar[49] are rectangular and above the ground. The arms and sides of the hearth at Ahar are straight and high. From the inside there is also evidence of a small knob to support the small pots. Such hearths or ovens made of clay are still prevalent in the countryside. The rows of hearths reported at Ahichchhatra, Ahar and Atranjikhera show that they were probably used for cooking for the community or a large family. Outside India as well, the discovery of a row of nine fire places at Kostienki (Russia), dating back to Palaeolithic times, suggests it was probably used for cooking food for a large family or groups of families.[50]

**Sanitary Arrangement:**

Sanitary arrangements were a part of domestic architecture, a characteristic of advanced urbanism. Most of the habitations were located on the bank of a river or stream or water ways (as at Rajghat and Taxila). So, drinking water might have been obtained from these sources. But for the drainage of water from the kitchen or privies or bathrooms of individual houses, excavations have revealed the existence of sanitary measures for the disposal of sewage. These are in the form of soak-pits, ring-wells and drains.

Privies and Soak-Pits: Artificial pits of greater depth, vertical and circular, are generally known as privies, while an unnatural vertical structure, less deep and circular in shape has been termed by archaeologists as soak-pits. On the basis of the structure of pits at Rajghat, Singh[51] divided it into three types, which were used as privies and soak-pits.

(i)Simple circular pits without lining (i.e., without any terracotta rings)
(ii)Pits with a part of its depth lined with terracotta rings.
(iii)Pits with terracotta rings throughout the depth.

Of these, the first type, i.e., unlined pits, was a common feature of the early historical period. These are the simplest form of pits used as privies. At Rajghat[52] the biggest circular pit is about 60 cm in diameter, sunk to a depth of 7.14 m. In some cases (as in pits 8-13, 15 and 16 at Rajghat), they are situated close to each other. On the basis of the closeness of these pits, it may probably be suggested that when the soakage capacity of one pit was exhausted another one was dug near it or they were used all at the same time by more than one group of families.

To avoid seepage and contamination of the habitation area, the foundation of pits was drug right up

to the sub-soil water. Later on, to prevent the walls from collapsing inside, the pits were filled with rubbish and pottery vessels turned inside out. The presence of a large number of complete vases of dull red ware, resembling a modern lota, inside the pits and greenish moss at the base[53] may suggest that the vases found inside were used as lotas for carrying water by a person who used it as a latrines or privy. At Rajghat[54] a soak-pit of maximum depth of 4.36 m. has been reported. Its diameter varies from 73 cm to 1.03 m. All the soak-pits here are without any lining. These pits were filled with potsherds, bones, loose earth and other waste materials "between which sullage water could percolate and soak into the natural soil."[55] A similar device for the same purpose has also been reported at Kausambi,[56] Sravasti[57] and Taxila.[58]

Evidence from excavations is not enough to form a fair idea about the location and distribution of the privies or soak-pits inside the houses and along the streets, largely because of small-scale excavations, compounded by vertical digging.

If these soak-pits were truly privies or latrines the method of their making gives us to understand that the people during this period had come to attain some sophistication in their life style which certainly betrays an advancement over the preceding period when such privies or soak-pits for such purposes were quite unknown. The method that has gone into the making of these soak-pits shows that the people were technologically well equipped to dig deep and at the same time prevent the walls from collapsing, with the aid of terracotta rings.

**Ring-Wells:** Circular terracotta rings throughout their depth inside a pit, are known as ring wells. Generally, the rings have a uniform diameter from top to bottom. These ring-wells varied in diameter from 0.46 m to 1.37 m.[59] The placing of rings inside the pits was essentially to check the sides from collapsing. At the same time, it enabled the sullage water to percolate and soak into the natural soil.

Shallow ring-wells associated with large sized jars arranged vertically, may safely be identified as soak-pits. In fact, it is mainly the circumstantial evidence, which seems to have been taken by various investigators as the dominant factor in determining their use. Even today, ring-wells are being used in Kutch-Bhuj region as latrines.[60]This is known as khalkuva in Gujarat.[61] According to Pande perhaps vachchakupa is the word used for ring-wells in Buddhist literature.[62]

About the origin of the ring-wells, Sankalia[63] and Ghosh[64] believed that their use started between c.600 BCE and c.500 BCE, although Roy[65] suggests its origin in c. 300 BCE. But the ring-wells reported at Kausambi, Rajghat[66], Nadner[67] and an incomplete structure with a few fragments at Atranjikhera[68] can be identified as ring-wells existing in c.400 BCE. Some ring-wells are reported at Hastinapura[69] with wedge-shaped bricks on the upper portion. At Taxila each house had three such ring-wells, one in the courtyard, second in the bathroom and third in a kitchen,[70]; they all belong to c.500 BCE. The extant evidence suggests that the people of northern India had the knowledge of terracotta ring-wells in the period under study, although their common use is of a later period.

**Drains:** An artificial structure to carry water or sewage away from the habitation area has been reported in excavations. In most of the houses we have the evidence of a definite hygienic arrangement. It is in the shape of kaccha and well built drains for the disposal of rain and dirty water. A well built brick drain up to a length of 4.90 m with a gap of 2.20 m has been reported at Champa.[71]This was plastered with lime, sand and kankar. The width of the drain at the bottom was 25 cm, while, at the lip it was 35 cm. and depth was of 52 cm. Two kachha drains have been reported at Atranjikhera,[72] one of them measures 75 cm in length, 9 cm. in width and 12 cm in depth. A big drain at Nadner[73] with four courses of headers and stretchers has been reported. At Rajghat[74] too, a kachha drain has been reported. It was recovered up to a length of 4.56 m and was 2 m wide at the top. The above recovered drains were probably used to carry refuse water of the adjoining houses.

**Street/ Road:** Settlements of this period show evidence of roads or streets for easy movement of inhabitants of the settlements. A kaccha street is reported from Rajghat. It was built over the occupational debris after giving a soling (rammed earth to harden the surface) of earth of about 10.2 cm in thickness, containing pot-sherds, mud clods and gravel, all thoroughly rammed. It was again covered by another soling of packed earth of almost 10.2 cm in thickness. Thus the section shows a total thickness of 33.1 cm.[75]A road built in c.350 BCE and continued up to c. CE 300 has been reported at Kausambi.[76] At Jakhera, according to Sahi, "The circular layout of the road/ lanes paved with horizontally laid pottery pieces was indeed very unique in itself. Two such road/ lanes, forming a pair of concentric circles, were recovered to a length of 30 m.[77] In period I, c. 700-500 BCE, at Ujjain a road almost 24.4 feet wide, has been reported though its details have not been given.[78] Later in period II, c. 500-200 BCE, people of the settlement seem to have added six more roads. Banerjee pointed out that during this period roads were cobbled and were so

heavily frequented by wheeled wagons that these roads had permanent deep wheel marks.[79]

Interestingly, we have the evidence of terracotta toy carts[80] and wheels[81], decorated with spokes, circlets and floral motifs, for children to play with. So, on the basis of their outer appearance we can make out different designs of the cart used by the people during the period of our research. The 500 carts full of different goods and grains passing through Vaisali, remind us of the commercial importance of the carts in the day-to-day life of the people in those days.

Last but not the least, the structural remains of the period as reported in northern India, is not much impressive. It is, indeed, surprising that a society which used a deluxe ware called NBP and tools made of copper and iron in their daily life as well as for war and production, had no houses appropriate to their sophisticated life style, however modest they may have been. The reason for the poor survival of structures is perhaps ecological.

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