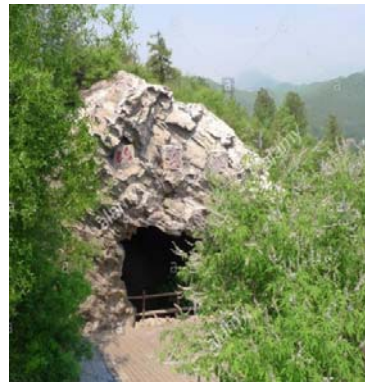


Topic: Traditional rural house types: Origin, evolution & characteristics, roof and building materials

Origin

The earliest dwelling of Homo erectus was the cavesite in Africa, most probably “at *Choukoutien*. But caves and rock shelters were not the only places for human habitations. Most of the settlement site were in the open. The earliest evidence of housing reflects on pit dwellings, dug into the ground, oval-to-near-rectangular in shape. Thus there is allusion in the phrase ‘*Caveman era*’ to the caves as *the first human habitation*”. The pit dwellings took several evolutionary forms.



‘Choukoutien’ Cave

Pit House:

- Pit house is a large house in ground used for shelter from the most extreme of weather conditions.
- Also be used to store food and for cultural activities like telling of stories, dancing, singing and celebrations.
- Pit house as a Dug out and has similarities to a half dugout.
- Through dwellings man could easily adopt the environment, and his occupance spread in varied ecological conditions.
- Dwellings are varied in the raw materials used, in the climatic conditions (winds, temperatures, precipitation, Seasonalities)



Rural Buildings:

The rural houses form one of the essential facts of unproductive occupation of the rural landscape, with the complex relations between man and his environment; represent the cultural heritage of the past and the survival of tradition and reflection of the social state.

The buildings are distinguished in three group:

- **Primitive building:** Produced by societies defined as primitive by anthropologists, people have very few building types, a model with few individual variations.
- **Pre-industrial Vernacular:** A greater, though, still limited number of building types, more individual variations of the model, build by the tradesmen.
- **High style and Modern:** Many specialized building types, each building being an original creation, designed and build by team of specialists.

The factors Affecting the Distribution of Rural Dwellings

1. **Physical Factors:** in the selection of the settlement site man always considers the physical factors. Resources builds house out of local materials. Physiography, drainage, climate, vegetation have effects on the rural house types.

2. Climate:

Rainfall Distribution.

Rainfall higher - Sloping, thatched roof

Medium and low rainfall- Flat roofs with mud and wood.

3. Physiography

River basin area has large no. of rural settlement compare to hill foot and plateau areas.

4. Water Supply

Abundant supply of water is necessary.

The wells, river banks, percolation tanks etc.

5. Cultural Factors:

The religion seems to give a distinction in the construction of houses.

6. Socio- economic factors:

The economic diversity of the people also affects the distribution.

- Economically poor, backward people can afford poor huts build with thatch or burnt or unburnt bricks, mud and thatch roofs or tin sheets.
- Houses situated fringe of village, with small clusters.
- Low roofs, less than two and half metres in height.
- Each house contains only one room.
- Rich and middle class people have better residential buildings.
- Build of burnt bricks walls with cement and roof of tiles.
- House consist of two to five rooms.
- General height 3 to 5 metres.

those beams are placed closely. Sometimes, these beams are extended in the verandah and these extensions are used for keeping household articles. The inner *Kotha* is approachable through wooden stair cases, being often used as store or sleeping room. The non agriculturists, like businessman and other high caste people, have such '*Kothas*' of multi-functional types.

Only a few old type big houses or '*Garhis*' (in Malwa) have separate plans, varying in the arrangement of additional rooms for catalyzed and kitchen. It is noteworthy, that a separate *Baithak* or *Dalan* (guest house), wholly used by males is common in northern Indian settlements. The common dimensions of big houses, having middle type courtyard, are 16m × 12m but in a few dwellings 20m × 16m are also seen.

It is remarkable that, in layout, mostly groups of adjacent houses, either cluster round one common inner yard or form double rooms of houses, the backwalls of which form straight lines. In such layouts the dwellings, standing back to back, have one common and straight back wall, but the front walls form an irregular line, reflected by zig-zag lanes. These back wall lines can best be explained by the need for protection, on the one hand, and by development phases, indicating later additions during successive periods of village settlements. Such a layout, having common back and side walls, is fully demarcated in community wise sectors, usually found in the rural villages, which provide definite market pattern. The protection measures, taken into consideration and adopted since long, over balance the directional aspects as well as auspicious aspects in the general layout of dwellings in the southern Indian parts and no particular directions carry more weight. While wells are not dug in the south side of dwellings in Northern Indian Plain, in southern part, they have no directional relations. Similarly, other attachments occupy the available space irrespective of auspicious considerations. But, separate houses, generally, have easterly and northerly doors. In Northern Indian plains, in particular, houses have courtyards oblong in shape from north to south, best suited to get winter sunshine. Observations reveal the fact that, the influence of *Brahmanization* and *Aryanization* is more visible around religious centers like Varanasi, Ujjain, Ayodhya, Mathura, etc., where people, avoid southerly aspect of the houses, invariably follow '*Udyapan*' inauguration or entrance ceremony. Along sacred rivers, people avoid sleeping with their feet towards them. The further away one goes the less attention is paid to these auspicious considerations, varying in degree as well as quantity. But the aboriginals follow the directions of their priests.

Now, we may discuss the structural features of dwellings.

(a) Foundation and Floors of Dwellings

Geological background and building materials play major role in determining the foundation because the common one storeyed, low walled houses require foundations a few feet deep, varying from one-third meter, both in mud and stone walled houses, to 1 meter for wooden post dwellings. It is notable that upper caste people, in particular, lay foundations according to '*pind*' or '*Garbh*' the size of which is fixed by priests on the basis of astrological calculations. Wooden posts, in tribal dwellings, are invariably fixed with murrum and boulders. The floor of the house is, generally, '*Kachcha*', which is levelled, after being rammed with hard murrum and plastered with clay and cow dung. Plastering by cow dung or clay mud (*Lipan*) keeps the house clean, good looking, free from germs and rat holes. The level of the main rooms is about one-sixth meter higher than the verandah level or courtyard which are also kept higher than the door level in front of the house. This front side too is kept higher, varying from one-sixth to 1 meter from the field

or lane level. The courtyard slopes towards the main drain, which opens in one convenient side of the house, following its situation and site. The front side of the house has a gentle slope towards lane or open space or hedge, except in market villages, where the front wall or fence forms street limit.

(b) Walls and Roofs

Mudwalls predominate the dwellings, in most of the rural country area and, irrespective of size and plan, their construction remains the same, everywhere. After foundation being laid, walls are run up with damp mud, prepared out of local soil muddled with water, sometimes by the buffaloes, applied in successive layers of 25 to 30 cm in height, with a time gap, required to get the damp layer hardened enough to support another layer. Sometimes, they use sandstone and wooden planks (after 3 m height) to make the wall durable and other successive layers are put to required limit and form. These walls are plastered with cow dung mixed with grass, straw and dust and thick coating is provided to save them from rain showers. It is common practice to repair the walls after rains, i.e., just before 'Deepawali' (the light festival) in most of Indian houses. Mention here must be made of the practice of protecting house walls from rains. At the base they provide 'otali', raised ground, about half meter high throughout the outer wall. Similarly, pegs are fixed in outside walls. From hemp, a sort of mat, about 15m thick, is made just sufficient in size to cover the exterior of the walls, which has to take the pressure of rain showers. The mat is hung on pegs and removed after the monsoon is over. In some areas pulse (Tuar), Arhar stalks (*Cajanus indicus*) are used for such protection. The stone walled houses, are still lower in height, and constructed by boulders of basalt, sand stone etc., arranged one after another, sometimes, having mortar in between.

The common single tenements of tribals are built out of the materials locally available, no cement, brick or lime is used in such constructions; it has a *Kachcha* floor and there is no sink in the house, no bathroom, washing or bathing place, inside or attached to the house. Wooden posts (ballis) of about 16cm diameter are fixed at a distance of 1.5 to 2m. from one another in five rows, the rows on both the extremes are used for fixing the bamboo mats to serve as walls. The height of the posts, in other 3 rows varies from 2m to 2.3m. A horizontal beam (a wooden balli of 16 cm diameter) is fixed joining the posts in each of the three middle row. On the beams are fixed small posts to serve as the members of the truss, on this scaffolding, *purlins* (wooden ballis 10 cm to 12 cm in diameter) are fastened by wire, nails, etc., and rafter (Sagtis of 7.5m diameter in Malwa) are then fixed on the *purlins* by means of wire, nails. The distance between one rafter and another is about 22 cm. Now, the frame of the roof is prepared, which is covered by '*sarali*' weeds or leaves or grasses, etc. Country made flat or semicircular tiles are laid on the roofs. The walls are made of, either bamboo mats, which are fastened to the exterior row of wooden posts and later plastered with clay and cow dung, or wooden rafters and leave serve as wall materials. The door frame is made of the straight wooden rafters of bamboo splinters, interwoven with nails, and removable on hinge (Fig. 8.1/2B, 3C).

Thatching process is more or less the same in both types of roofs, be it tiled or thatched, though varying in materials used and height they achieve. If one compares, one dwelling with another on regional basis, it becomes clear that "climate expresses itself through the form of its roofs".³⁸ Gables on walls support *mangari* or ridgepole on two sides, which is supported in the middle by a number of thicker beams, fixed transversely in the walls, sometimes, direct in touch

and sometimes, through 'Bel', another wooden supporter, fixed between beam and the ridge pole. The latter is available from local woods. The space, between ridge pole and pot of the wall, is covered by transversely fixed rafters, bamboo pieces or thinly split tree trunks. They project beyond the wall, half meter in other parts, and up to 1m in Eastern Utter Pradesh upto eaves, where wooden 'Dasa' is fixed transversely, along the eaves, to make it symmetrical. The whole framework is then covered with bamboo splinters, 'tuar' stalks, thin rafters, fastened with strings and nails, and made smooth with grass, *palash* leaves (*Butea monosperma*) and mud, ready to support tiles of both types, the flat and semi-cylindrical which form ridge and channel, combinedly or severally, to run off the rain water. It is remarkable that higher walled dwellings of the Ganga Valley, have separate single or double secondary supporters (Ghoria) to eaves. Stone walled houses, when thatched with stone slabs or tins, have less steep slopes and strong supporters resulting into narrow rooms.

The wattle and daub dwellings, supported by rafters, are thatched with grass and plant leaves, fastened with strings with the wooden or bamboo framework.

(c) Other Features

'Dagla' (tanda) is a common feature lying by the side of a tribal dwelling in Madhya Pradesh (India). It is a raised structure of wooden 'ballis' at a height of 2m to 3m, thatched with wooden rafters, put transversely; open on all sides, where fodder is stored and cattle staked, or is sometimes, used as sleeping place (Fig. 8.1/3C).

Similarly, 'Bittha' 'Upraur' (a heap of cow dung cakes) is made by piling up cakes and covering it with leaves thatch, in all parts of rural countryside, varying in size and form as well as season.

(d) Architectural Features and Internal Arrangement

Some of the low caste people have distinctive fancy pattern on the exterior of the walls generally painted by 'geru' (red chalk) or white clay (Kharia mitti) which give picturesque view. Designed 'Dasa' (supporter), locally called 'Sobawati' in Malwa, adds beauty to the symmetrical eaves in most of the well-to-do houses. In eastern Utter Pradesh, eaves, supported below by double 'Ghoria' and 'Dasa', look more symmetrical and attractive and exhibit status of the owner. Similarly, carving on pillars, doors and wooden wings, create distinction between houses, especially, those lying in market villages. Beautifully carved teak pillars of Chettiars (Tamil Nadu) and Haveli's *otlo*, *parsal* and *ordo* (Gujarat) present the grandeur of wooden carved mansions and lofty pillars. Well carved and tar coloured black pillars are, mostly, used in verandahs. Pillars and doors in 'Baithak' of northern Indian houses are, invariably, designed and carved.

In tribal or poor houses one finds all culinary articles, earthen bins or 'Kothis' or 'Kadgi' of wood or grass, for storing grains, and cots etc., the clay oven (Chulha), cooking utensils (tapelas), 'thalis', iron sauce pan (kadhai = kadahi), a 'karhachi' (a big spoon), 'tawa' pitchers, 'musal', 'gatti', 'okhali' (husking and grinding device) and 'topla' (basket) etc., are other articles. A net of grass fibre, called 'sinka', is suspended from roof. 'Matka', water place of wooden structure, is common. Bows & arrows find their separate place. In other dwellings of a well-to-do or medium class occupants, one finds a few cots, boxes, 'Jhoola', grain bins, a few wooden furnitures, almirahs, agricultural implements, utensils, 'Lipan' and other house-hold articles, arranged or scattered at several places.

House Types

Variations occur in dwellings according to the building materials, available and used, which are mostly determined by natural environment. Similarly, *genrede vie* determines the size, form and function, and both the factors (i.e., physical and cultural environment) combinedly, give a regional characteristic to the dwellings. House types are classified on the following basis.

- (1) Building material applied
- (2) Size and shape
- (3) Socio-culturo-economic status. Let us see one by one.

1. House Types Based on Building Materials

- (A) Walls: (i) mud (ii) stone (iii) brick (iv) timber (v) Wattle
- (i) *Mud* is the most common material, available from all type of soils, varying in texture and colour. It is also the widespread oldest material used in houses of old civilizations. The vernacular buildings, involving family labour and neighbours cooperation, are, everywhere, available with mud walls. Even, the ordinary dweller runs up wall out of his own labour. It is also convenient to repair and build, when required, without any extra payment to mason, by giving periodical coating, plastering and thatching. Mud walled houses also are cool during summer. But, the disadvantages are also many-effects of dampness, white ants, dirty nooks and corners, time and labour consuming, space consuming, less durability are negative aspects.
 - (ii) *Stone* or basalt boulders or rock cut pieces are widely used in such areas, where proximity/nearness, availability in greater amount and portability are favourable factors. Sandstone providing hilly zones, volcanic plateau zones exhibit examples of such houses in abundance.
 - (iii) *Brick* walls are now covering the country side with the increased use of coal as baking material. It's role in construction cost, durability, space saving and maneuverability is obvious. The oldest evidences of houses are available in brickwalls of archaeological finds. It has other form of uses too (a) Mud mortar, as cementing material, is widely used in country side (b) various other cementing materials as mortar are used since ancient times. Now cement is covering the market in rural country side too. (c) Unbaked kachcha brick is also used for low height walls, but, popular in poor class owners.
 - (iv) *Timber or wooden* wall houses were, and are, common in forest areas of the world. In many a hilly parts of the world, where rocks are available in abundance, the labour cost, required to cut them of precise size, and in transporting them, is outbalanced by the easily gathered wood just near the dwelling, to which the tribals are well accustomed. Examples abound in Bhil areas in Central India and rural country side in Sweden, North America (folk log houses of Mexico), Italy and Brazil etc.
 - (v) *Wattle* wall is the product of terrain, forest cover, i.e., availability of material almost without cost and long earned skill among the owners, of mostly, aboriginal occupied areas, particularly, Vindhya and Satpuras in India. Gonds and Bhils, mostly, reside in such houses. Their small dwellings occupy even the slopes and summits of the hills. Almost scattered in home steads, such '*tapro*' may, easily, be run up with the forest wood logs, bamboo and reed, available in profusion, first near the site, wherever, they make clearing to settle.
- (B) *Roofs* may be of (i) tile (ii) thatch (iii) mud+other material (iv) Tin (v) Stone slab (vi) Wood

- (vii) brick+others.
- (i) Tiled roofs are common throughout the world. Two types of tiles, semi-cylindrical and flat are used for covering houses with varied sizes and forms. By and large, the size is larger in Northern India Plain and shorter in other plateau and hilly areas.
 - (ii) Thatching is original shelter making skill, still prevalent, in most of the poor class settlers. All sorts of walls are covered by thatch, be it stone walled houses of Portugal, or timber walled dwellings of Brazil, South East Asia and North America and mudwalled houses of India. Even conical houses of Africa, show a variety of thatching skills, particularly, in Abyssinian Highlands. Date palm leaves also serve thatching along with other grasses, leaves, twigs etc.
 - (iii) Mud thatching often mixed with cow dung, is common in Western part of India. In western part of Utter Pradesh, such houses mark the horizon in each settlement. Its occasional plastering is enough to provide safety from rains.
 - (iv) Tin roofed houses are increasing in number, according to innovation diffusion, in climatically suitable areas; countries lacking in storm or strong speedy winds, are using tins in rural as well as urban areas. Ethiopian market centres exemplify it well. Tin sheds are easy in construction, and slops in rural areas, are switching over to its use, everywhere.
 - (v) Stone slabs or flakes are being used since ancient times in mountain, hill and plateau areas. Sandstone, lime stone and slate-slabs make durable roofs after being cut and designed according to need. Temple, mosques and churches, invariably, show its *in toto* presence.
 - (vi) Wood as roof material is common in temperate forest zone, where wooden slabs, carefully superimposed and joined with rounded corners, protect house from snow water.³⁹ In tropical part too, wooden strips form roofs covered with tin or water proof materials.
 - (vii) Bricks make flat and smooth roof in the form of lingers mixed with iron rods and cement, a practice in vogue, in modern type rural houses, particularly, in rural market centres.

2. Size and Shape as Basis for Classification

The author here presents empirical study conducted in Malwa Region in India. Houses are grouped in five categories having various size, shape and accommodation, ranging from one room to more than five rooms. (i) The predominant group of one room dwelling shares 66.1 per cent of the region's total, occupied by 69.4 per cent persons, per household occupation number being 4.4, slightly less than the regional average of 4.87. The tribals, *balai, chamar*, most of the service class and small cultivator-cum-agricultural labour class people have such dwellings, lying mostly in hilly parts and marginal areas of the villages elsewhere. (ii) The poor and slightly well off people occupy two room dwellings, which cover 23 per cent of the regional total and accommodate 25.9 per cent population, having 5.5 persons per household. Here again one meets the tribals, agricultural labours, small cultivators and a few artisans and business class people having one main room, a verandah or a side attachment for catalyzed or other sheds required by the occupant. (iii) The lower middle class people comprising the peasants, carpenters, potters, business class, and a few of higher castes, occupy such dwellings, mostly of L-shape, having 6.6 per cent of the regional total and providing shelter to 8.6 per cent persons, who form a household of 6.2. (iv) Such dwellings, which have four rooms, cover only 2.2 per cent of the total and have 3.1 per cent population, the average household being 6.9. The middle class cultivators of upper caste, a few institutions come under this group. The houses having five or more than five rooms belong

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