



1ST LECTURE HISTORY OF BUILDING MATERIALS

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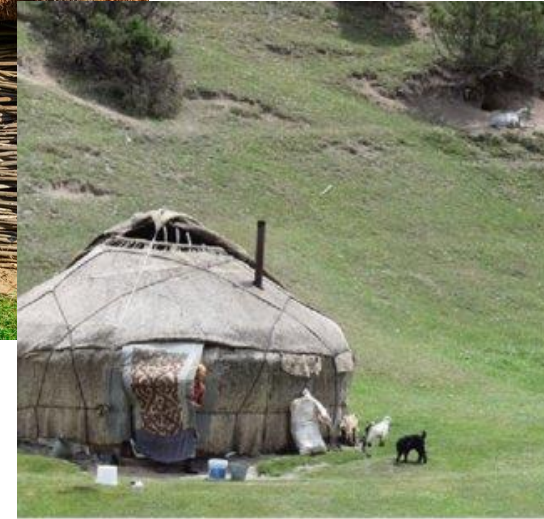
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HISTORY OF BUILDING CONSTRUCTION

- Assembling and constructing buildings, mainly those used for shelter, falls under the umbrella of building construction.
- Humans have been building structures for years. It started out as a practical necessity to mitigate the impact of climate change.
- Humans became a global species in part because of their ability to adapt to many climates through the use of built-in shelter.
- In the beginning, human shelters were relatively basic and lasted just a few days or months. Even impermanent constructions, such as the igloo, then developed into more complex shapes over time.
- As humans began to settle down for extended periods of time due to the introduction of agriculture, more lasting constructions began to form.





- As time went on, shelters became more than just places to sleep; they also served other purposes, such as food storage and ceremonial purposes.
- Numerous developments in design may be seen in the field of construction. **Leaves, twigs, and animal skins** were common early building materials.
- **Clay, stone, and wood**, which are more long-lasting, came into use later.
- Finally, man-made materials like **brick, concrete, metals**, and plastics are included. As a result of their development for use in building construction,



Primitive Buildings and its materials

1- HUT:-PRE HISTORICAL

Early stone people constructed temporary shelters using **available materials**.

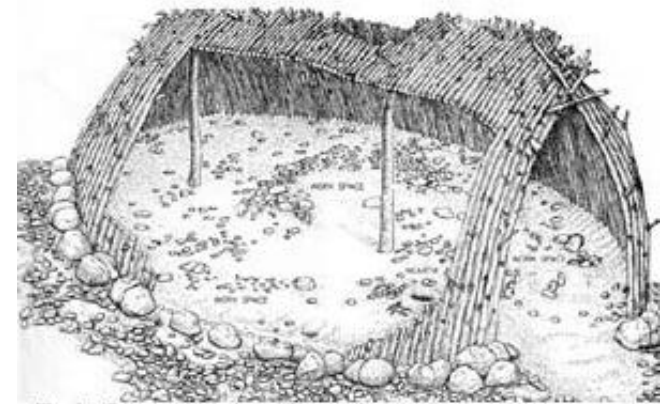
One of earliest known example discovered in 1966 at Terra Amata **France (400000) years ago**.

Oval in shape & constructed of tree branches circular & Longitudinal.

Hut walls made by stakes set in sand & braced by ring of stones

Space inside is organized for different uses with a **central hearth**.

The hut was used by a band of people for limited hunting days.



Early Stone Age hut, Terra Amata
Source: Spiro Kostof (1995)



Primitive Buildings and its materials

2-TENT:-

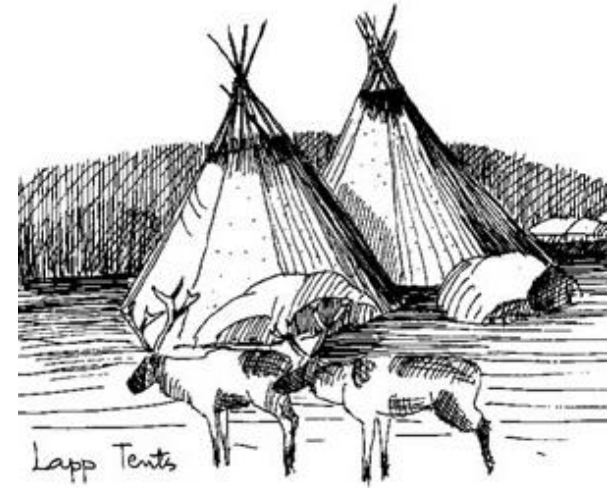
It have been extremely common in late Europe first discovered in 13000B.c. in Germany & France, a tent with an area of

(3 x 3)m.

As a materials they used wooden posts driven in to the earth covered with (animal skin).

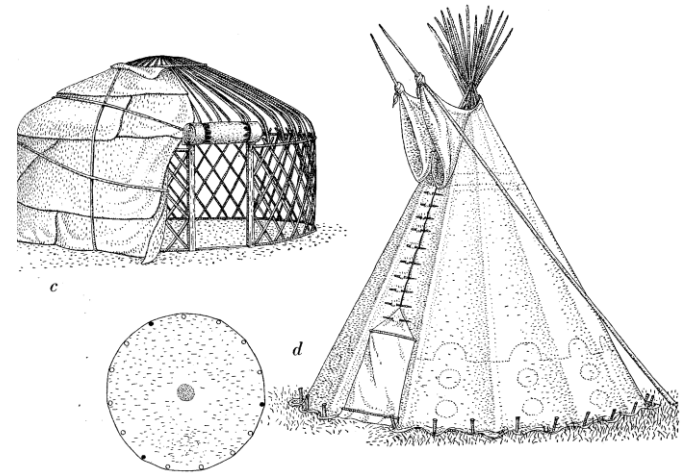
The **skirts of the tent** were weighed down with (small stones).

Part of its ground was paved area.



Lapp tent

Source: S. Norbert, 6000 years of Housing



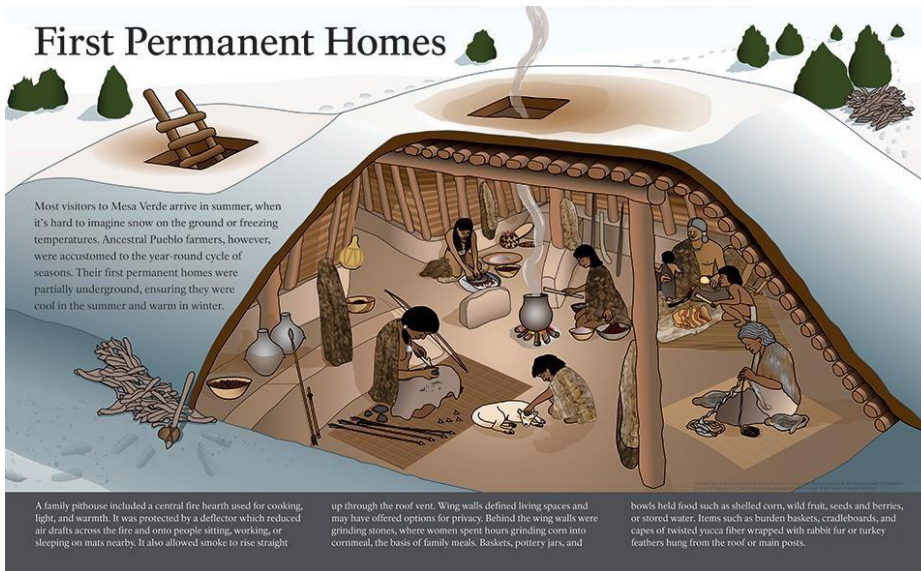
Primitive Buildings and its materials

3- PIT-HOUSE:-

It is more common in **Eastern Europe** where the **climate** was **severe (cold)**.

Shapes are differs from oval, pear-shaped, regular cross & H shaped with different activities in different parts of the pits.

On the River Don in **Russia** (22000B.c.) more houses were **constructed by making shallows in the ground & surrounded by a ring of massive bones** ,some of them were **large houses** (35×15)m with nine hearths on the long axis ,maybe several families my have passed the winter together.



4 -Ritual Buildings

Buildings whose functions are not **entirely certain** connected with **Ritual Ceremonial activities** related to religion.

As in the Stone alignment Carnac & the Stonehenge in England.



❖ Materials, Construction System:-

- Most popular construction materials were wood ,tree saplings, leaves, grasses, adobe, animal skins & stones.
- Availability of material & construction technology varied between locations.
- Materials & construction technology varied between the early & new stone age.

❖ materials & construction system in early stone age:-

used **simple easily available** materials usually of **plant & animal materials** such as wooden poles, grasses, leaves & animal skins

❖ Materials & Construction System in New Stone Age:-

More **varied construction materials**.

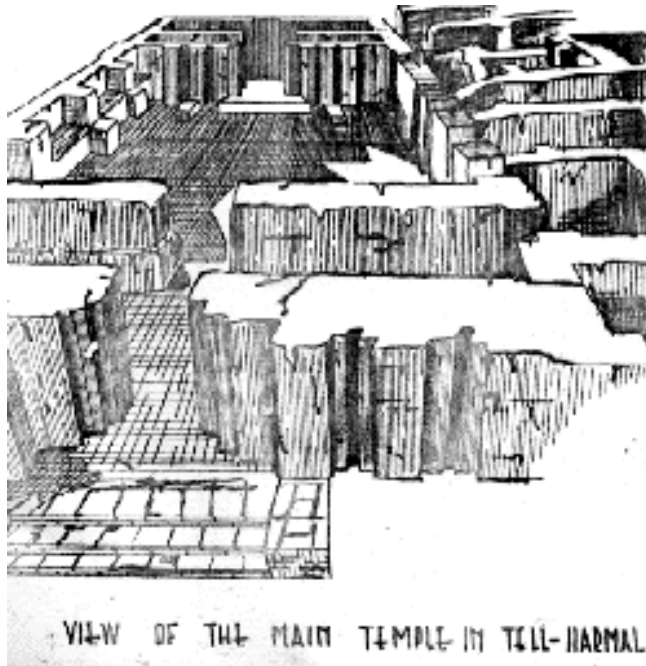
Adobe & Stone most popular materials for **houses**.

Large stone was used **for monuments**.

Basic material in Mesopotamian Architecture

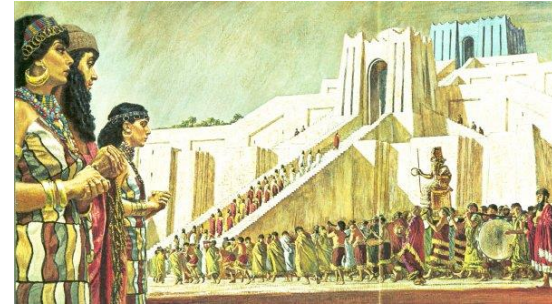
❖ 1- Sumerian Building Materials:-

Mud was their building material, was formed into **brick**, sun dried & built into massive walls... . Walls were **thick** To **replace the weakness** of mud.



❖ THE ZIGGURAT & ZONE OF UR:-

- Ur was a Sumerian city located near the Euphrates river.
- It was constructed of **mud bricks reinforced with thin layers of matting & cables of twisted reeds.**



❖ 2- Akkadian building Materials

Two famous heads of Akkadian statues have survived: one in **bronze** & the other of **stone**, which indicates the first using of bronze material.



❖ 3- ASSYRIAN BUILDING MATERIALS

- **Materials:** building were built with **sun-dried bricks** then it **painted** or it **faced** with hard brick or stone.
- **Walls:**
 - **Thick walls** were necessary both for **stability & protection** from the burning heat of the climate.



4- BABYLONIAN BUILDING MATERIALS

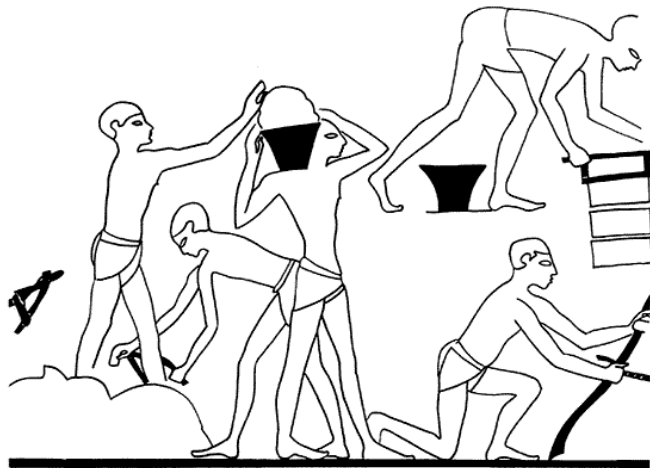
There was a large **quantity of clay** and a **little amount of stone** which was a result of the use of '**mud brick**.'

The **temples** are **very large** and built of **simple brick** and **supported by buttresses**.



BASIC MATERIALS IN NILE ARCHITECTURE

- There are **three common materials** of construction in Egypt; **Plant materials, clay & stone.**
- **Plants** consist of available material like **reeds, papyrus & palm branch plastered over with clay.**
- **Timber** was available; **used for roofing.**
- **Clay** was used for construction either as for frame construction or as **sun dried brick .**
- Even **palaces** made of **Nile mud** & mixed with chopped straw or sand & exposure to sun.



Stone was **not much used** during the **early period** of ancient Egyptian, It became popular after **the 3rd dynasty** of the Early Kingdom & was used for **Temples** and as a **foundation**.





- ❖ The famous Egyptian **limestone** in the north.
- ❖ Then came the **sandstone** in the central districts.
- ❖ Then **red granite** in the south.
- ❖ **Because of the hard & durable nature of these materials that so many monuments still exist.**

Thanks

