

HISTORY OF ARCHITECTURE

LECTURE 2

Prehistoric Architecture

– Lecture 2-B

–NEW STONE AGE ARCHITECTURE

- **Architectural Characteristics:**

- Buildings and other architectural elements
- Building materials, construction and technologies
- Principles of Architectural Organization

Learning Outcome

- Learning outcome from the civilization:
 - Ways of life and dwellings in the earliest period of human civilization.
 - The evolution of early buildings and settlements.
 - The evolution of monumental construction in relation to religion and ritual activities.

PREHISTORIC AGES



PALEOLITHIC

- Early Stone Age
- 2 million years ago



MESOLITHIC

- Middle Stone Age
- 20000 BC to 9500 BC



NEOLITHIC

- New Stone Age
- 9000 BC – 4500 BC

Historical Background

New Stone Age

(9000- 3000BC)

- People stopped wandering and settled down in **permanent settlements**.
- Discovered art of **farming and animal husbandry**.
- Neolithic people acquired confidence in **ability to tame and control nature**.
- Period saw interest in **natural cycles** such as of weather and heavenly bodies e.g. that of the sun and moon

New Stone Age

(9000- 3000BC)

- Learnt to domesticate animals, farm and grow crops, make **pottery and weave cloth**.
- **Skills were developed**, marking start of civilization.
- **Villages were established** and grew, protected by walls.
- **Introduction** of basic **social organization of society**.

New Stone Age

(9000- 3000BC)

- Sought to understand the heavenly bodies and weather cycles.
- Sought to control nature through rituals and magic.
- Gradually introduced the idea of religion.
- Confusion about death and life after death led to introduction of tombs.
- Tombs are evidence of social differences in the society.

Architecture of the Civilization

Outline of Lecture

- New Stone Age architecture
- Architectural Characteristics
 - Buildings and other architectural elements
 - Building materials, construction and technologies
 - Principles of Architectural Organization

New Stone Age Architecture

- Architecture evolved when early Stone Age man became settled.
- Once settled, he learned to build permanent structures.
- Early dwellings were round beehive huts.
- Mud was popular material, though construction system varied by location and availability of construction materials.

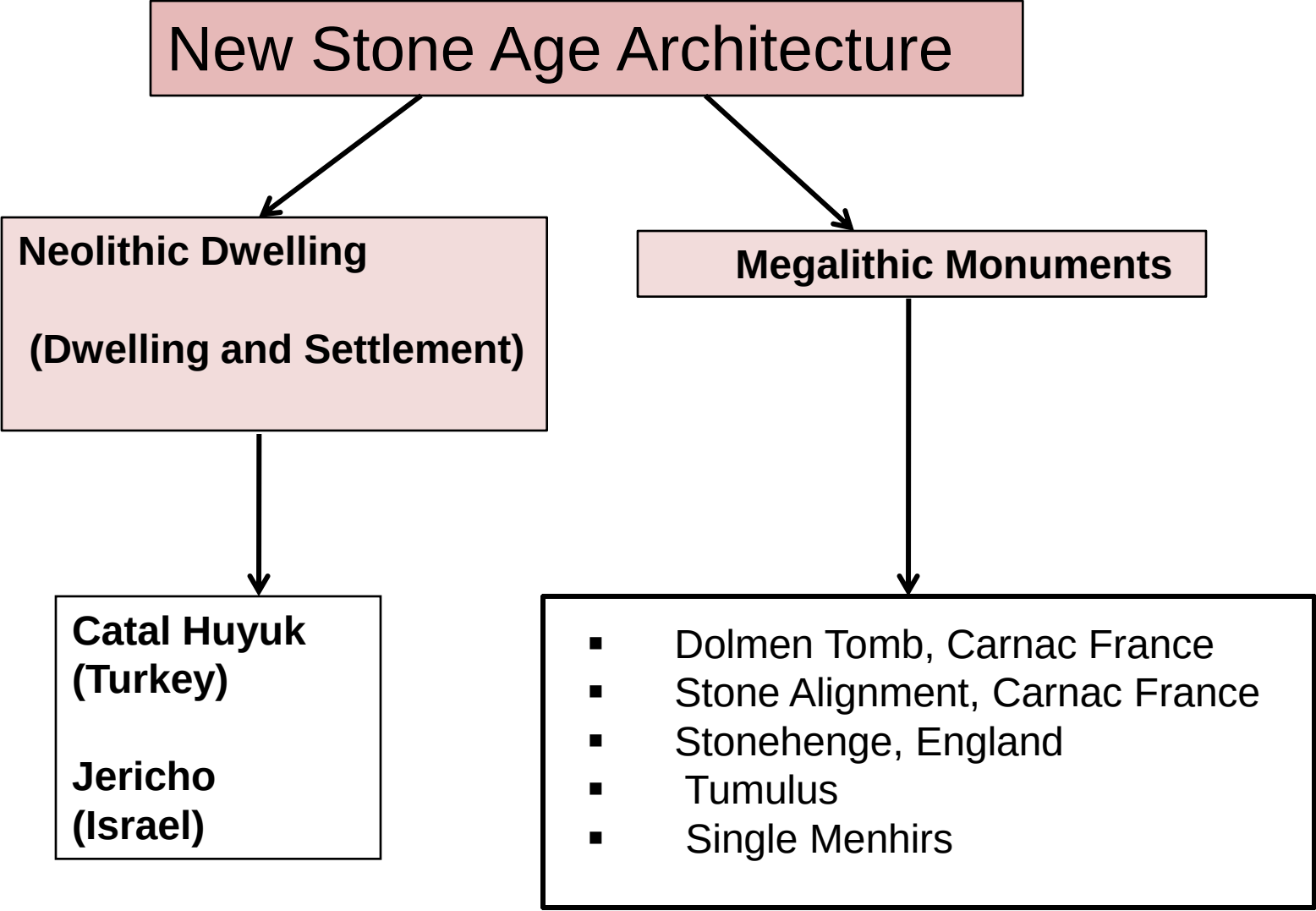
New Stone Age Architecture

- Round huts evolved to rectangular form around 9000 to 7000 BC.
- Early villages were simple with no palaces, rich houses or non-residential buildings.
- Once settled Neolithic man sought to satisfy his spiritual needs.
- This led to the construction of monuments.

New Stone Age Architecture

- Examples
 - **Neolithic Dwelling and Settlement-**
 - Catal Huyuk
 - Jericho
 - **Megalithic Monuments**
 - Dolmen Tomb, Carnac France
 - Stone Alignment, Carnac France
 - Stonehenge, England

New Stone Age Architecture



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graph TD; A[New Stone Age Architecture] --> B[Neolithic Dwelling  
(Dwelling and Settlement)]; A --> C[Megalithic Monuments]; B --> D[Catal Huyuk  
(Turkey)  
  
Jericho  
(Israel)]; C --> E["▪ Dolmen Tomb, Carnac France  
▪ Stone Alignment, Carnac France  
▪ Stonehenge, England  
▪ Tumulus  
▪ Single Menhirs"];
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Neolithic Dwelling (Dwelling and Settlement)

**Catal Huyuk
(Turkey)**

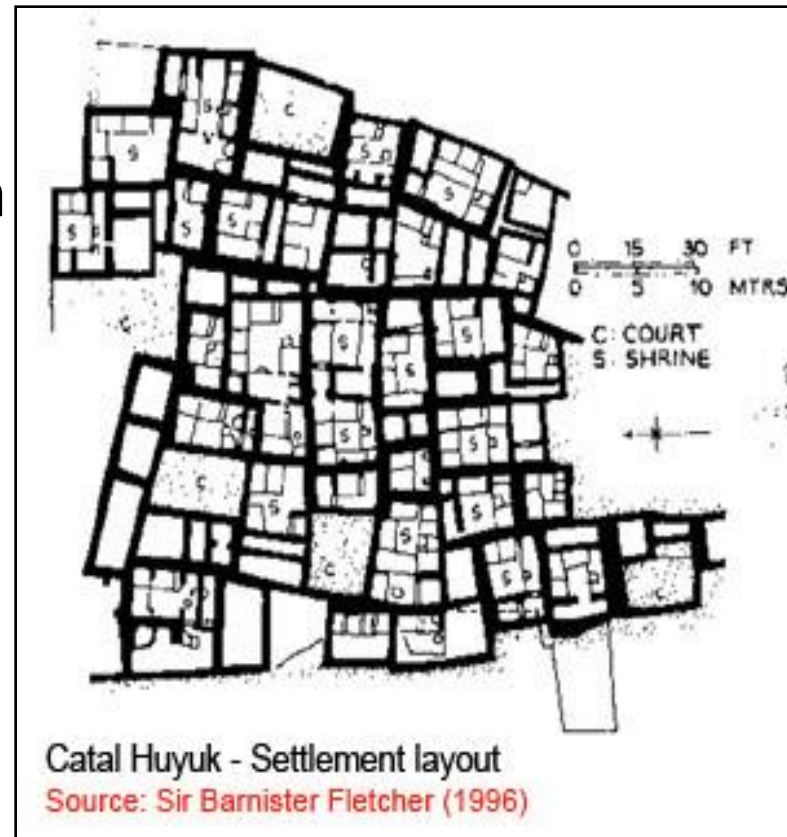
**Jericho
(Israel)**

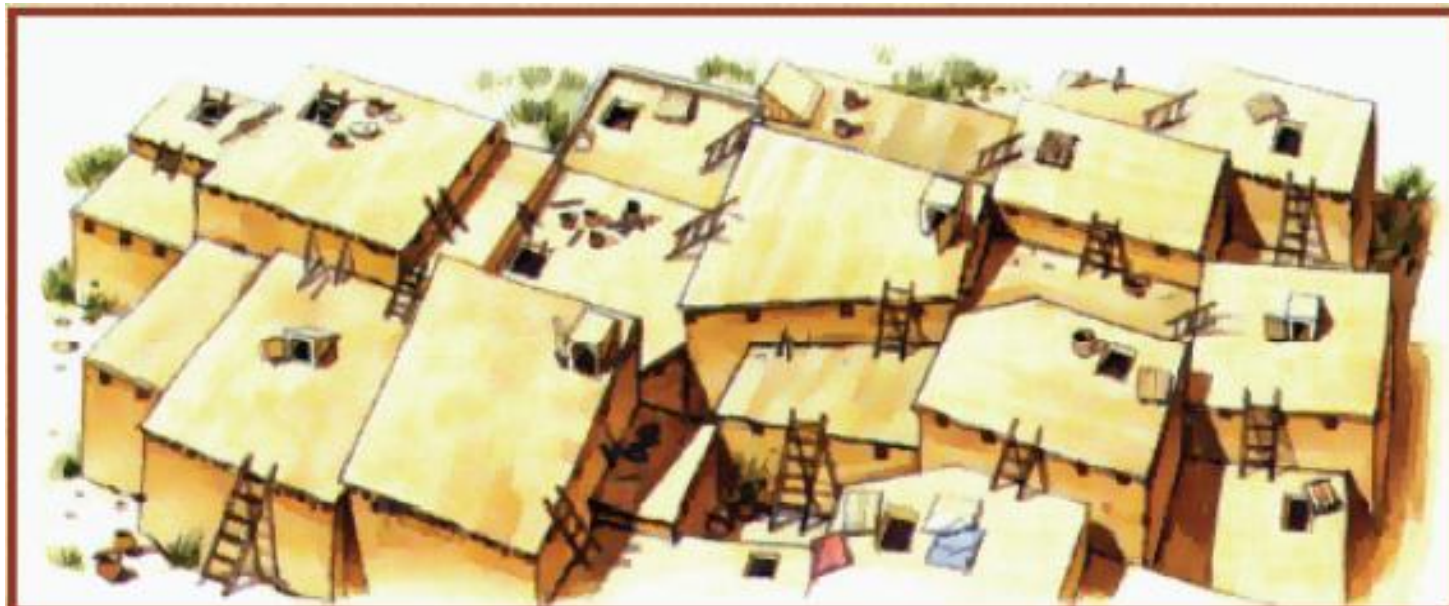
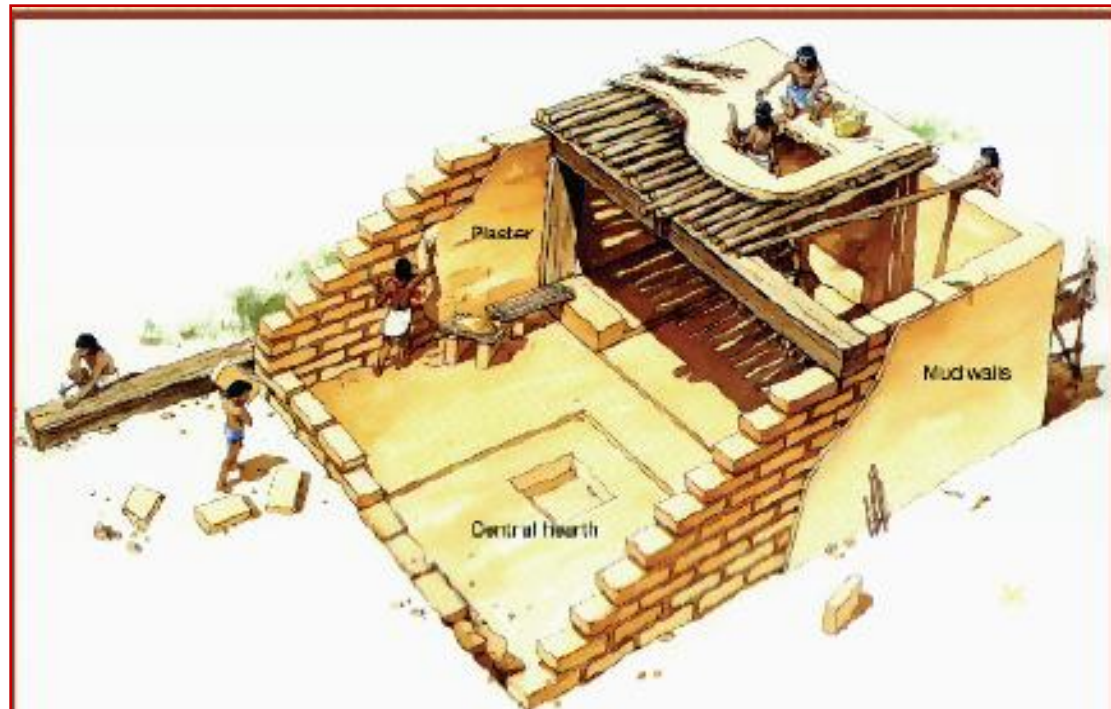
Megalithic Monuments

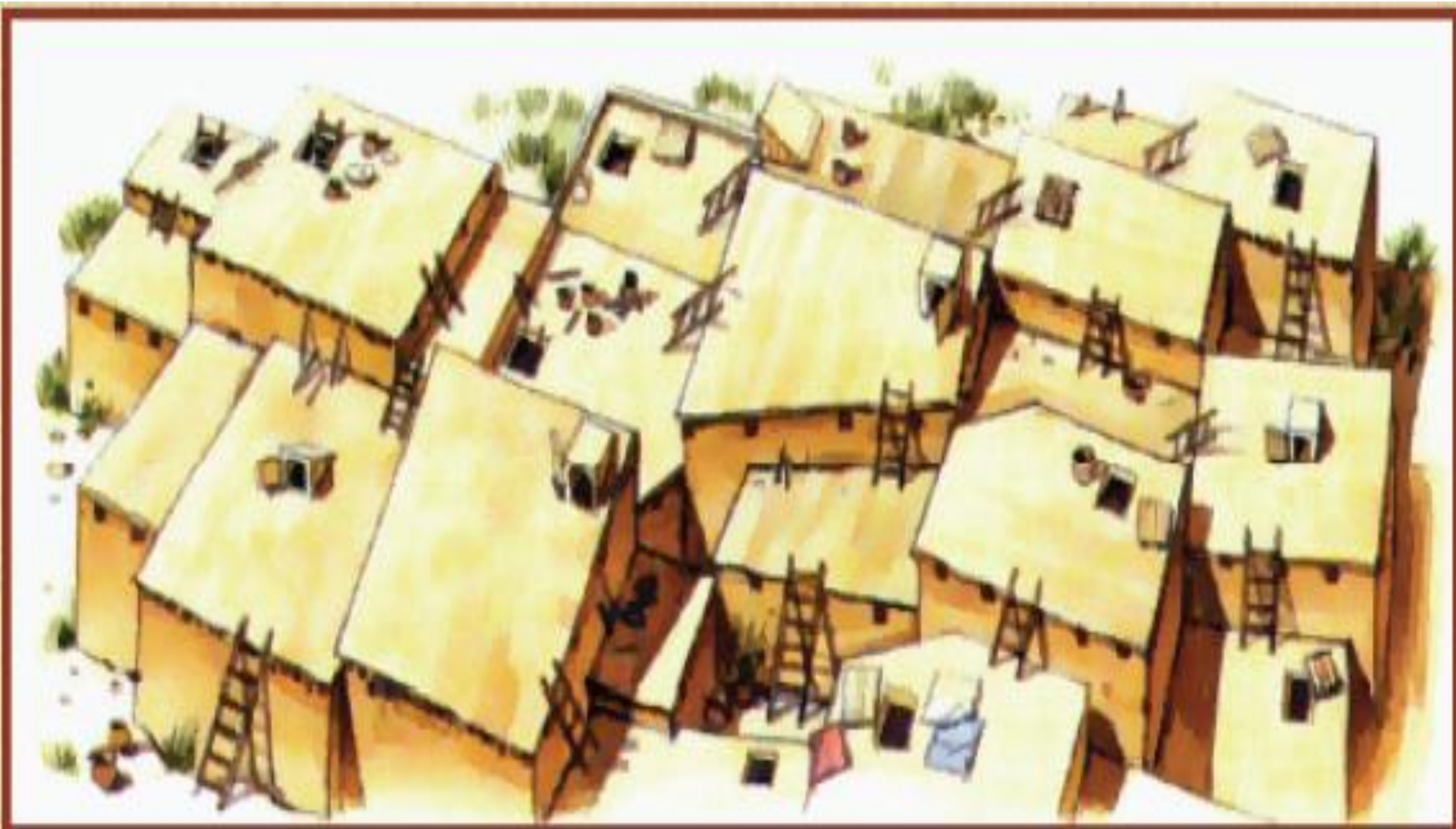
- Dolmen Tomb, Carnac France
- Stone Alignment, Carnac France
- Stonehenge, England
- Tumulus
- Single Menhirs

Neolithic Dwelling & Settlement- Catal Huyuk

- **LOCATION-** Neolithic monument in present day **Turkey**.
- **TIME PERIOD-** Occupied between 6300 BC to 5400 BC.
- **POPULATION-** Supported a population of up to 6000 people.
- It was the largest and most cosmopolitan city of its time.







CATAL HUYUK

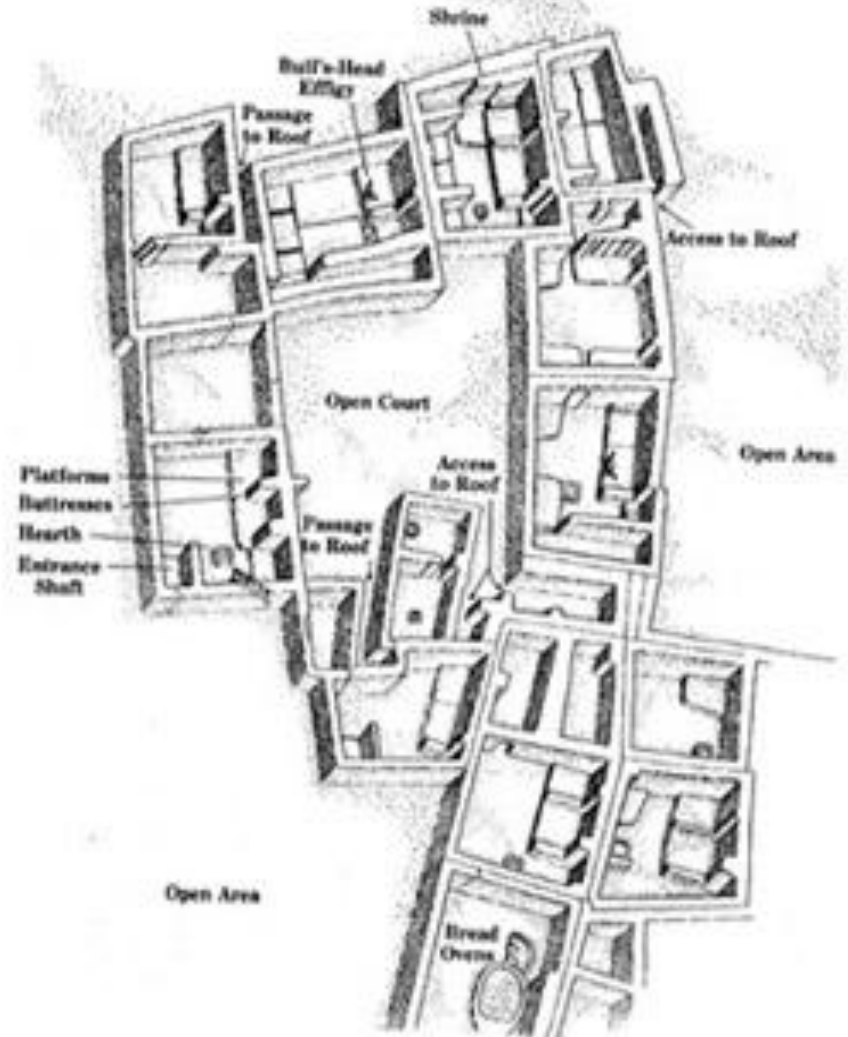
Neolithic Dwelling & Settlement-

Catal Huyuk

- It had an extensive economy based on **specialized craft and commerce.**
- The city was a trading center.
- The size of the city and its wealth are a product of its status as a trading center.

Neolithic Dwelling & Settlement- Catal Huyuk

- **COURTYARDS-** Houses were packed in one continuous block punctuated by courtyards.
- **MATERIAL-** Houses were of one story mud construction.
- **STREETS-** No streets in settlement.
- **ACCESS-** Access to houses was through the roof.

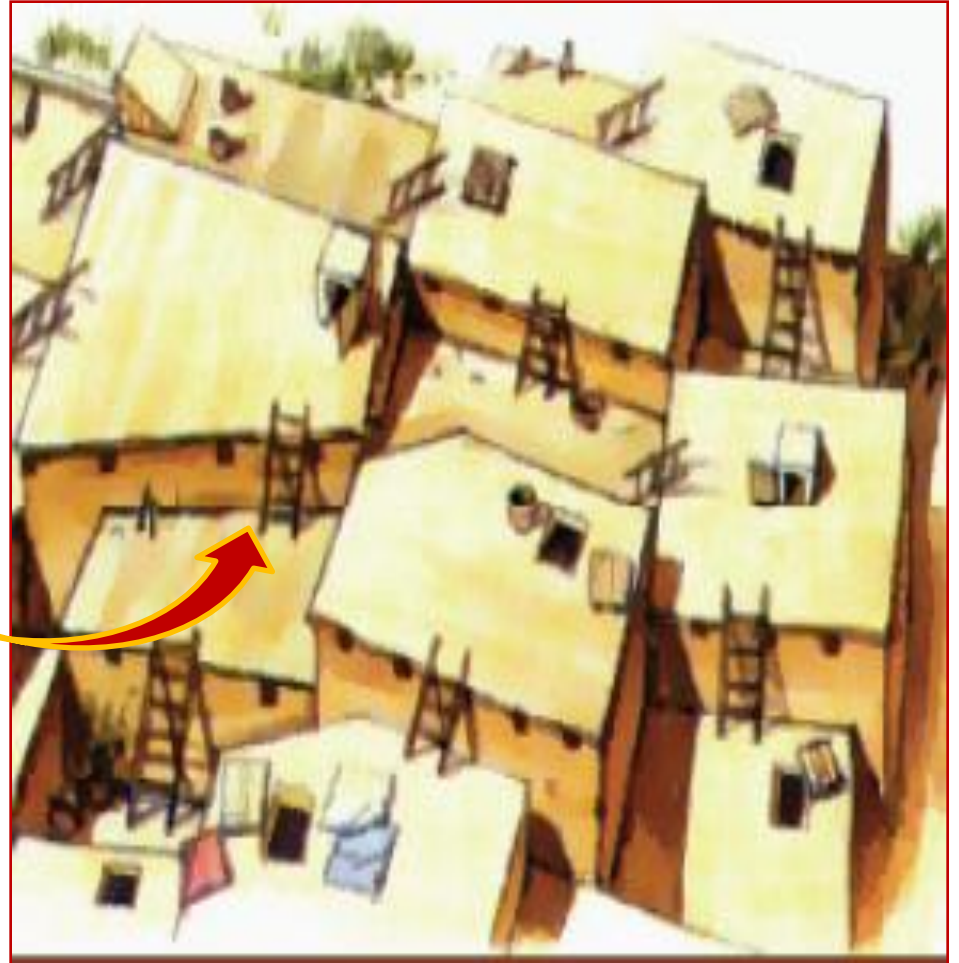


Catal Huyuk - settlement detail

Source: Trachtenberg & Hyman

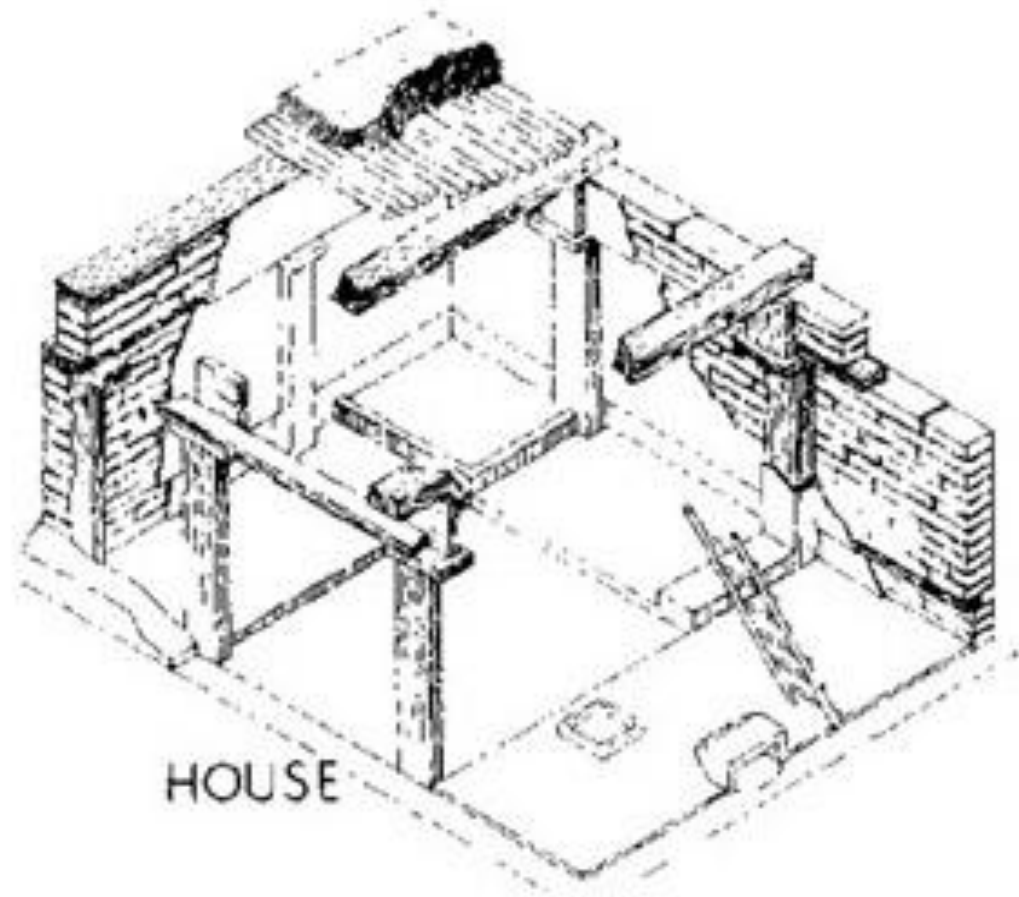
Neolithic Dwelling & Settlement- Catal Huyuk

Movement from house to house through the roof.



Neolithic Dwelling & Settlement- Catal Huyuk

- Houses had main **rooms** with **in-built clay furniture**, fire places and ladder to the roof.

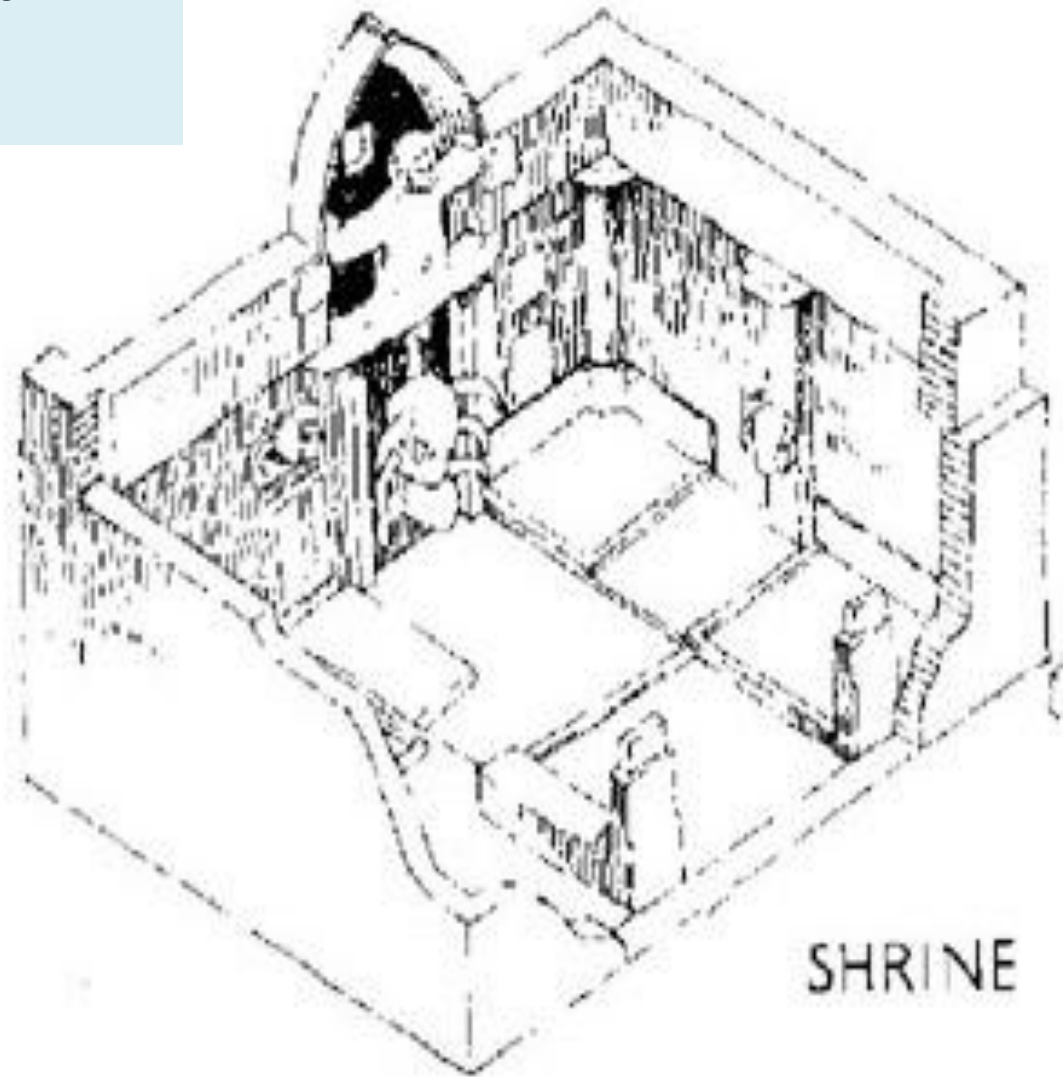


Catal Huyuk - detail of residential unit

Source: Sir Barnister Fletcher (1996)

Neolithic Dwelling & Settlement- Catal Huyuk

- Many houses have **cult rooms** decorated with bull heads.
- Some houses appear to be **shrines for worship**.

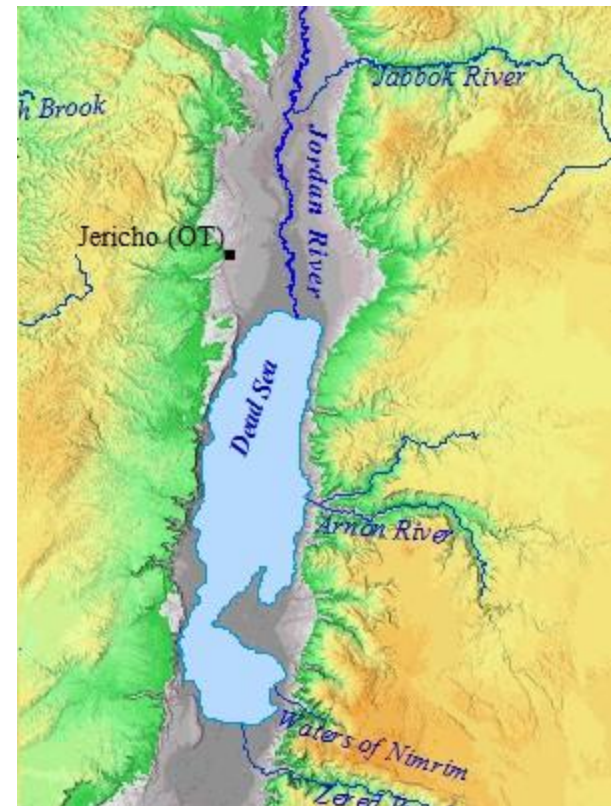


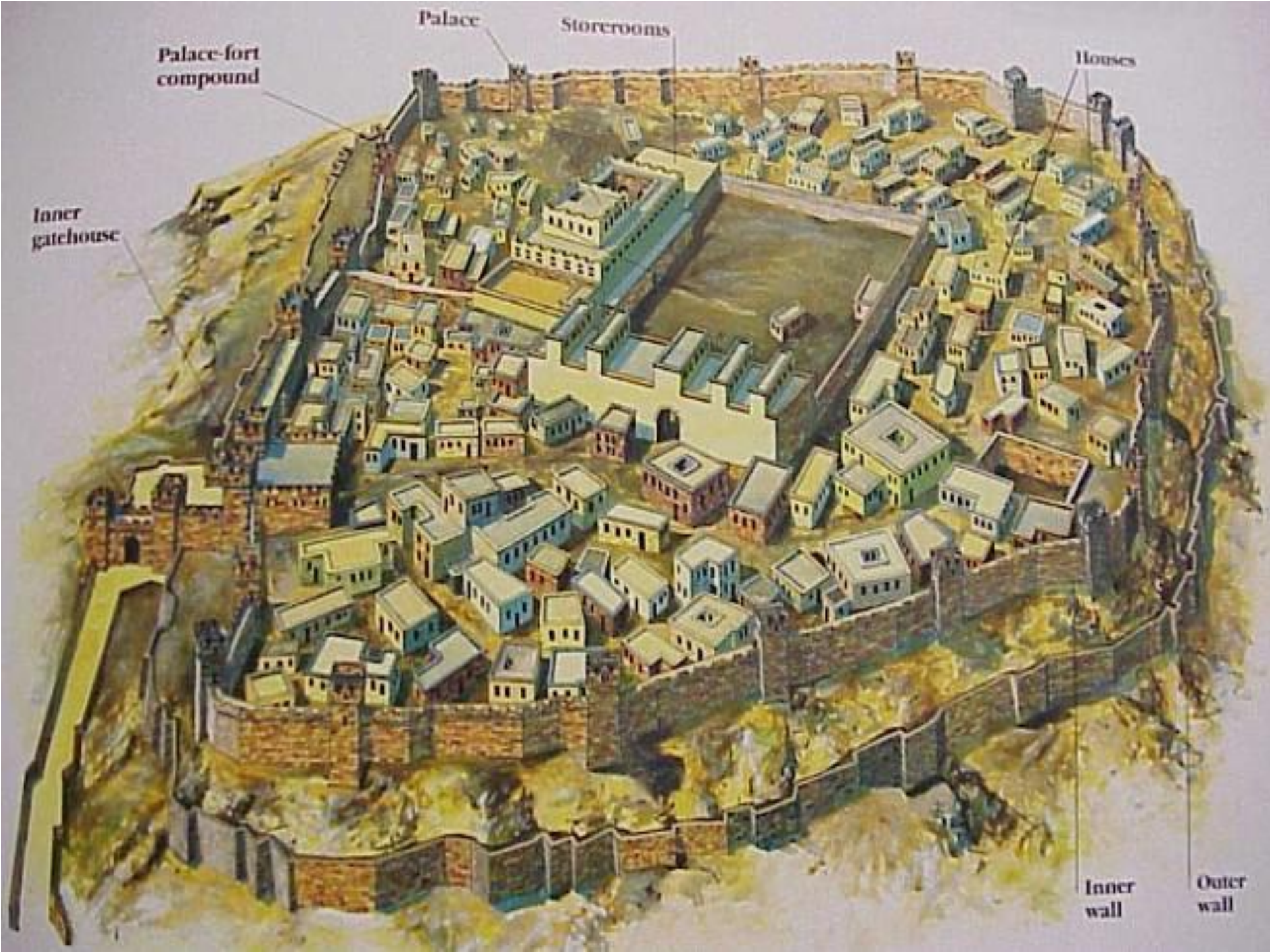
Catal Huyuk - detail of shrine

Source: Sir Barnister Fletcher (1996)

JERICHO

- TIME PERIOD
- LOCATION
- HISTORY BACK GROUND IN BRIEF-IMPORTANCE
- GEOGRAPHICAL BACKGROUND- RIVER
- ARCHITECTURAL CHARACTERISTICS:
 - Buildings and other architectural elements
 - Building materials, construction and technologies.
 - Principles of Architectural Organization





Palace-fort compound

Palace

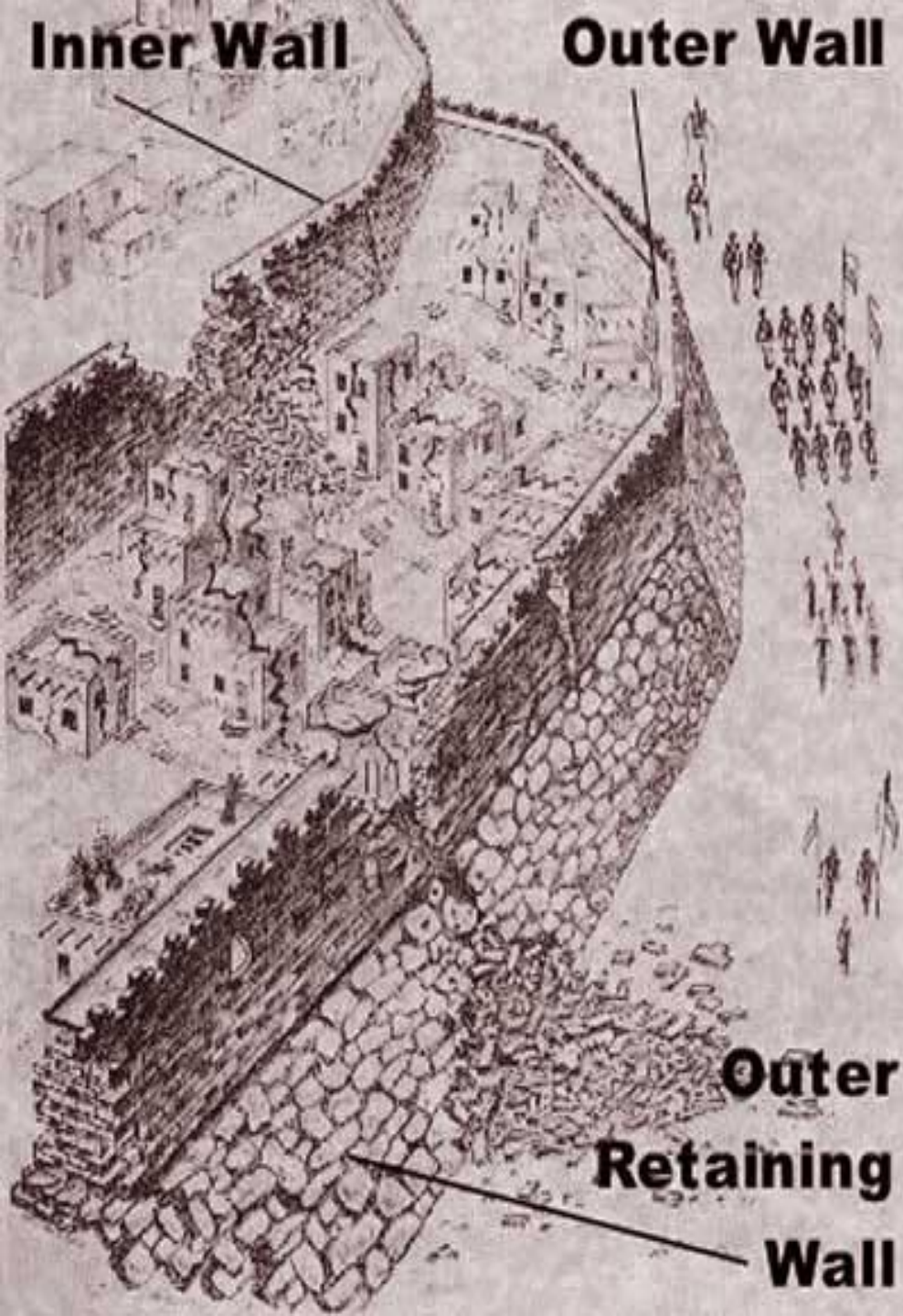
Storerooms

Houses

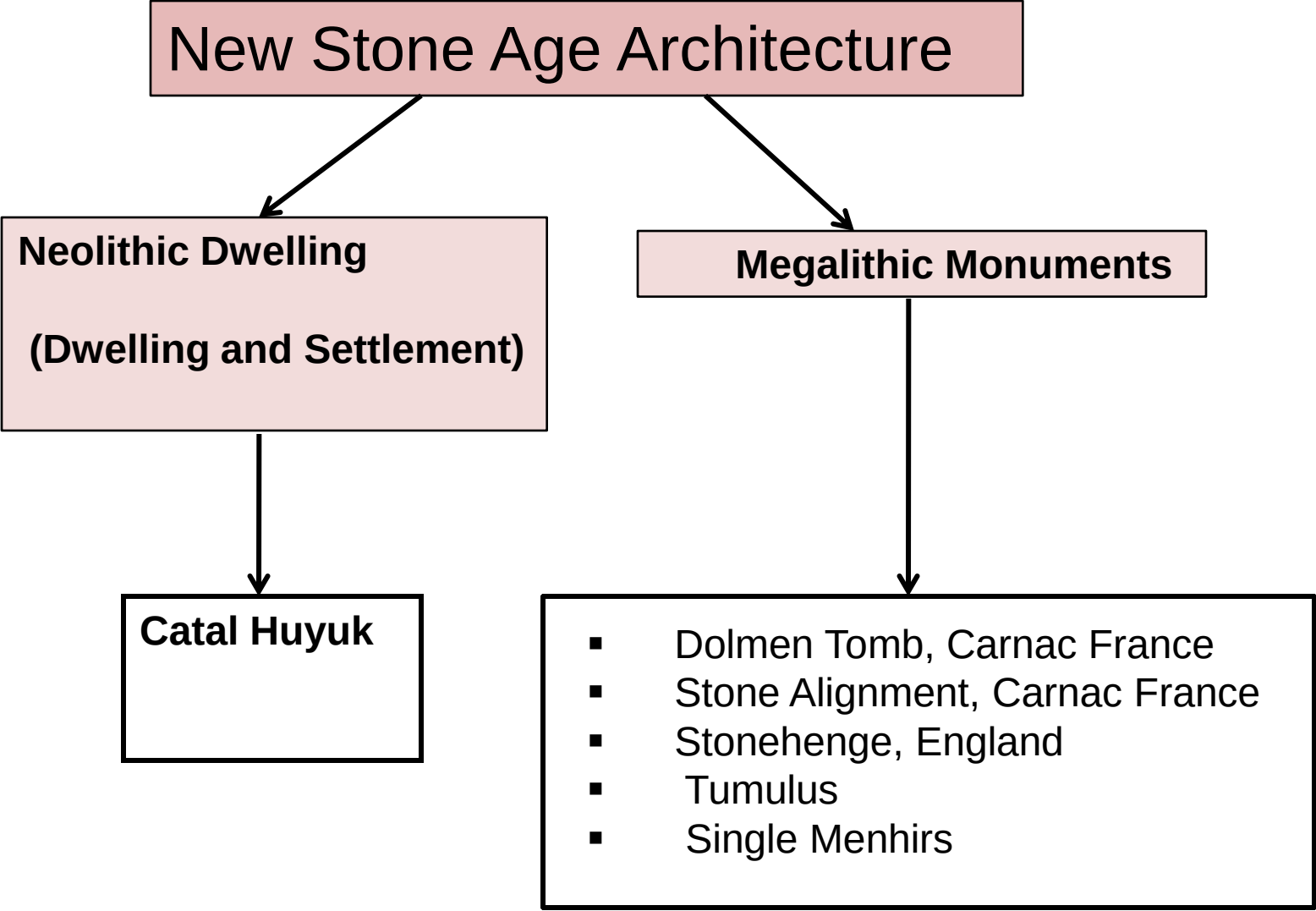
Inner gatehouse

Inner wall

Outer wall



New Stone Age Architecture



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graph TD; A[New Stone Age Architecture] --> B[Neolithic Dwelling  
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▪ Stone Alignment, Carnac France  
▪ Stonehenge, England  
▪ Tumulus  
▪ Single Menhirs"];
```

The diagram is a hierarchical flowchart. At the top is a pink box labeled 'New Stone Age Architecture'. Two arrows point down from this box to two separate pink boxes: 'Neolithic Dwelling (Dwelling and Settlement)' on the left and 'Megalithic Monuments' on the right. From the 'Neolithic Dwelling' box, an arrow points down to a white box labeled 'Catal Huyuk'. From the 'Megalithic Monuments' box, an arrow points down to a large white box containing a bulleted list of five examples: Dolmen Tomb, Carnac France; Stone Alignment, Carnac France; Stonehenge, England; Tumulus; and Single Menhirs.

Neolithic Dwelling
(Dwelling and Settlement)

Catal Huyuk

Megalithic Monuments

- Dolmen Tomb, Carnac France
- Stone Alignment, Carnac France
- Stonehenge, England
- Tumulus
- Single Menhirs

Megalithic Monuments

- **Monumental construction** by Neolithic man particularly in Europe took the form of **megalithic monument**.
- **Megalithic** means **large stone**.
- **Megalithic construction** involves setting up **large stone blocks** alone or **leaning against** each other.
- Sometimes **post and lintel construction** is used.



Method of Megalithic Const.

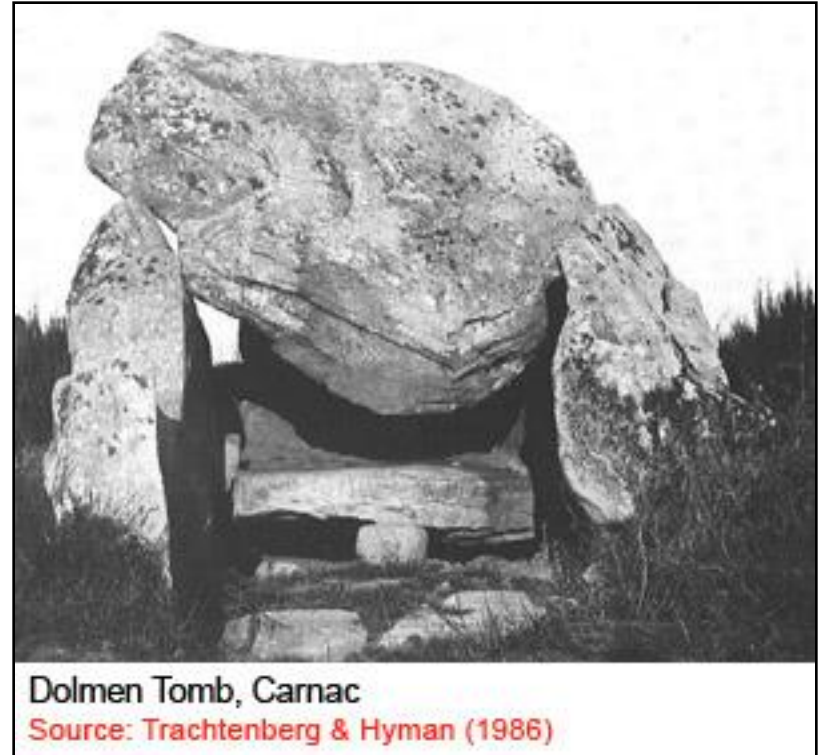
- Very similar to the Egyptian pyramids.
- Stone is **quarried from rocks**, transported by rollers pulled by people.
- **Lever action** is used to lift and place stone in position.
- The secret of the construction lies in **abundance of labor**, endurance of **effort** and **availability of unlimited time**.

CATEGORIZATION OF MEG. MONUMENTS

- **Tombs** – also called Dolmen
- **Non funereal structures:**
 - Single stones – Menhirs
 - Stones composed in groups – Henge Monuments

1. Dolmen Tomb, Carnac France

- Dolmen Tomb Carnac is a **burial structure**.
- Consist of **two upright stones slabs** supporting a **horizontal cap stone**.
- All are **held together** by their **weight**.



- The entire structure is covered with a mound of earth.
- Stone age people **built tombs** because of the **belief that dead people needed shelter.**

Portal tombs are what most people wrongly refer to as **dolmens**. They are, to me at least, the most strikingly designed of the megalithic **tombs**.

They are called **portal tombs** because they have **two large upright stones**, usually very well matched, in front of the chamber that **seem to form a doorway**.



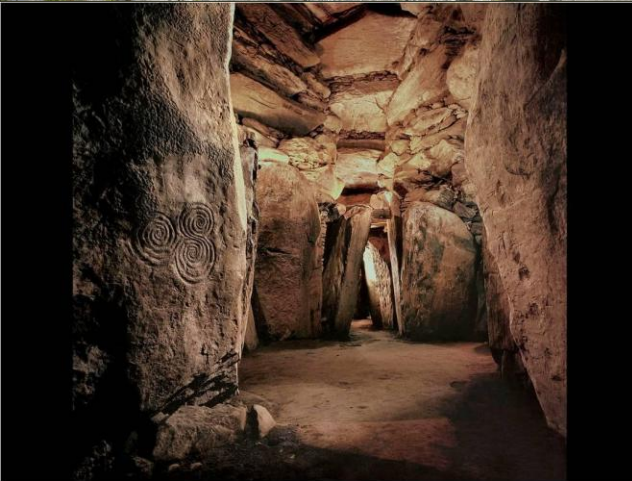
Dolmen Tomb

EVOLUTION OF TOMBS IN NEOLITHIC

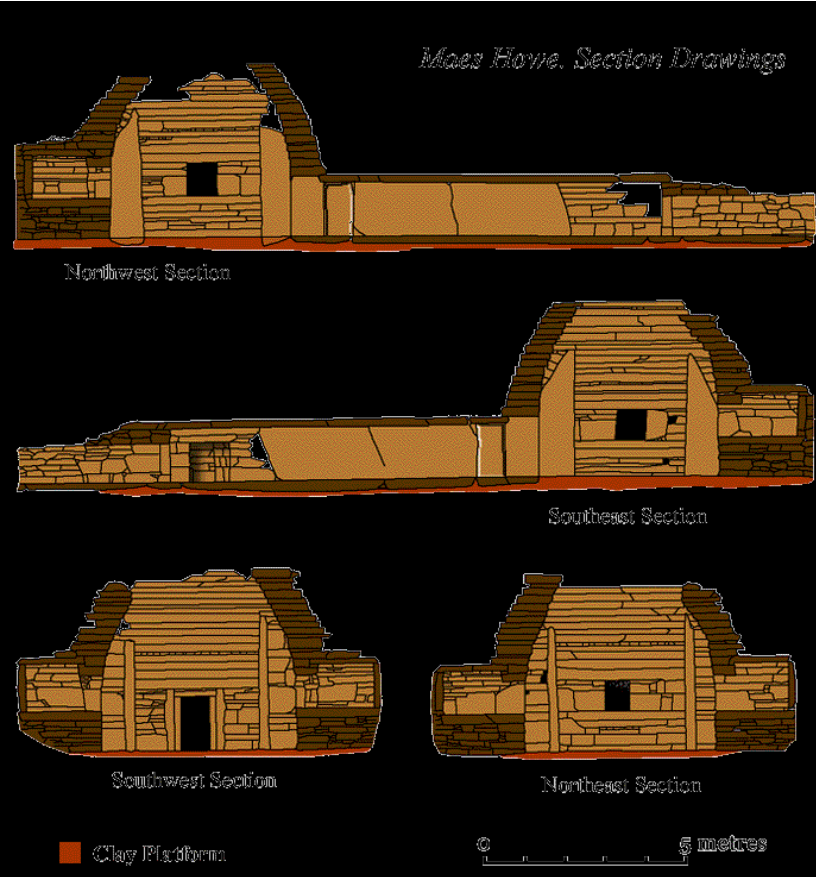


DOLMENS are Two or more stones supporting a large one at the top.

- Burial features.
- Also called cromlechs (brythonic origin).
- Settlements lead to building of monumental stone architecture.
- These were mainly collective tombs.
 - PASSAGE GRAVES
 - GALLERY GRAVES



Maes Howe. Section Drawings

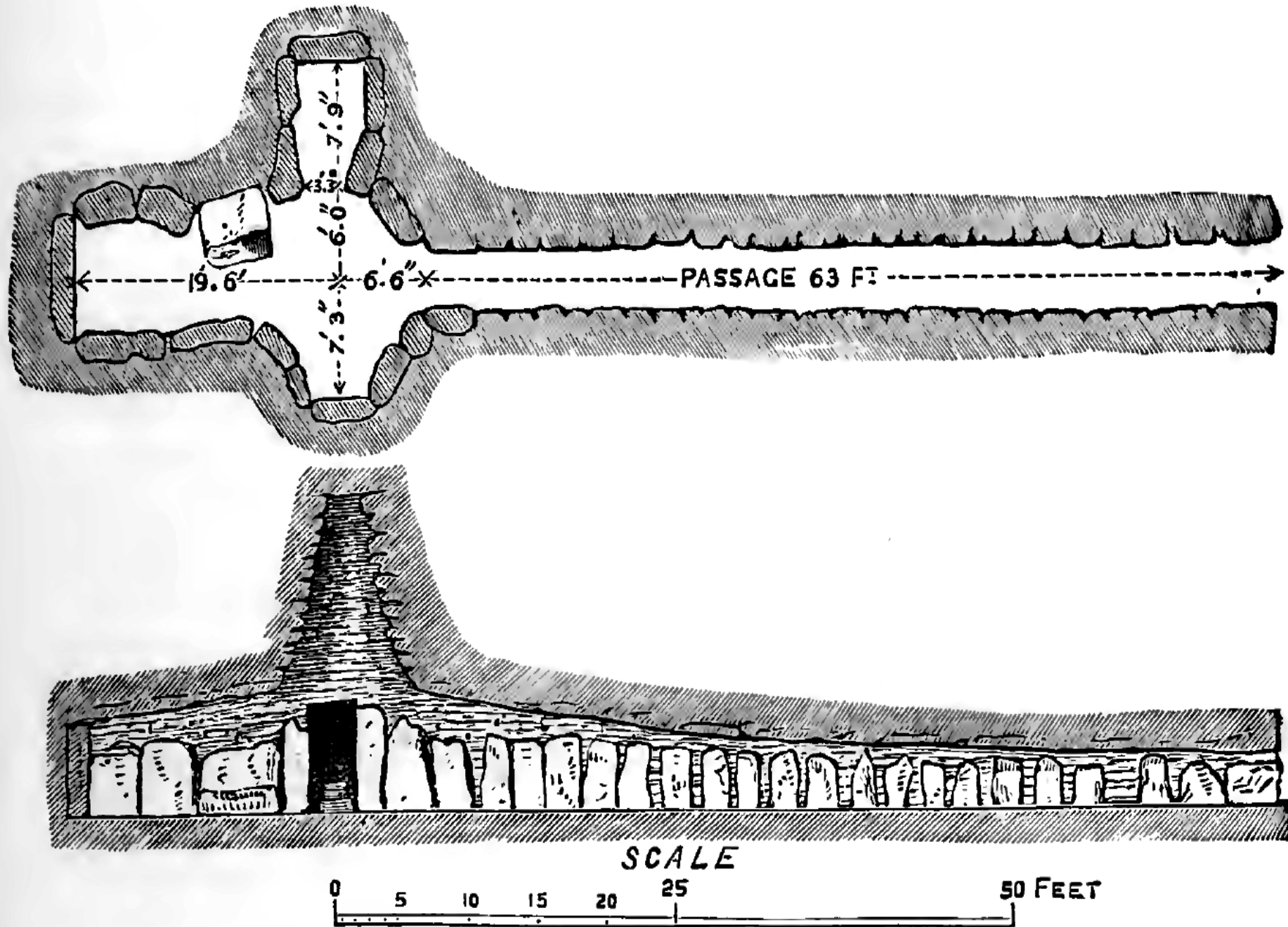


PASSAGE GRAVES

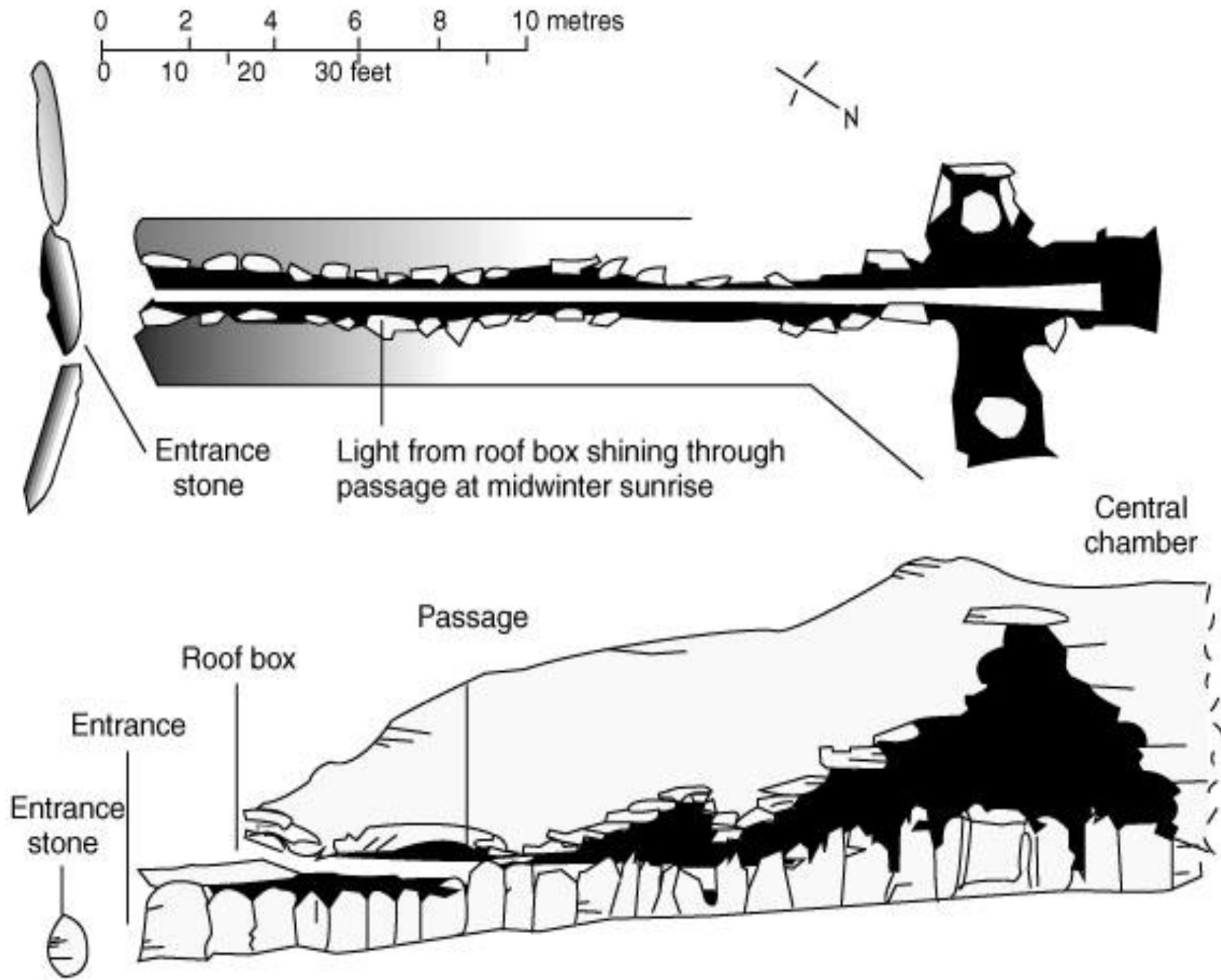
Covering mound (38m x32m) surrounded by wide space with wide ditch beyond.

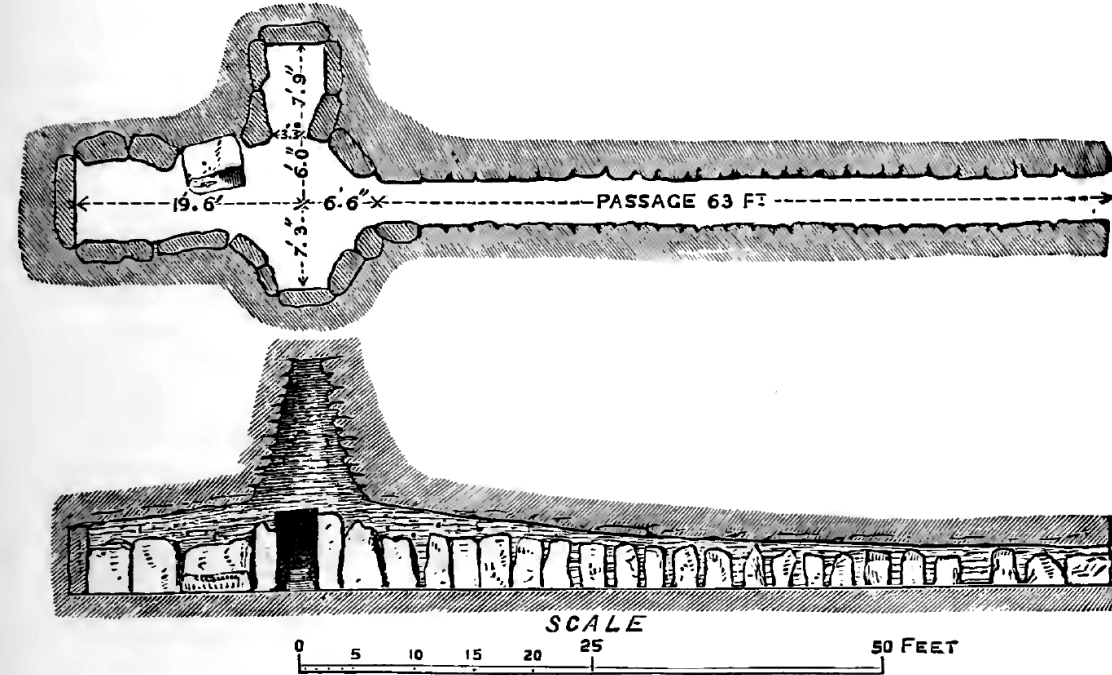
- **Entrance** passage 1m wide and 1.5m high. burial chamber(5sqm)
- Smooth walls built with rectangular blocks and fine joints.
- Three cells at three sides of the chamber. Built mainly with masoned **walls** and corbelled **roof**.



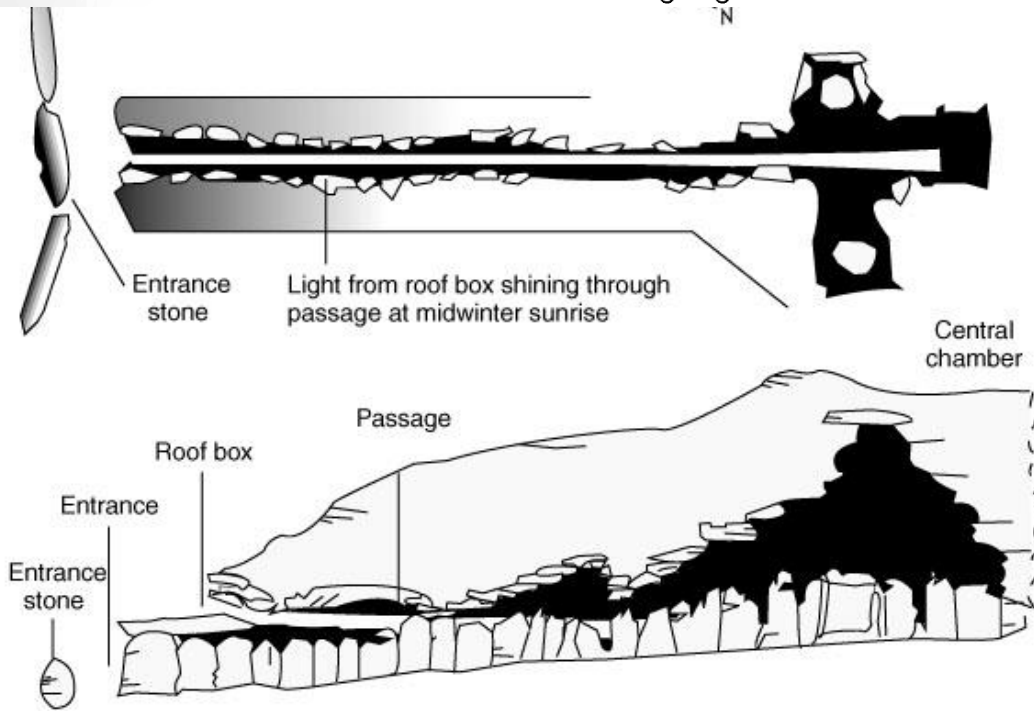


Plan and Section of Chamber in Newgrange Tumulus.





Plan and Section of Chamber in Newgrange Tumulus.



Corbeled vault of the main chamber in the passage grave, Newgrange, Ireland, ca. 3200-2500 BCE.

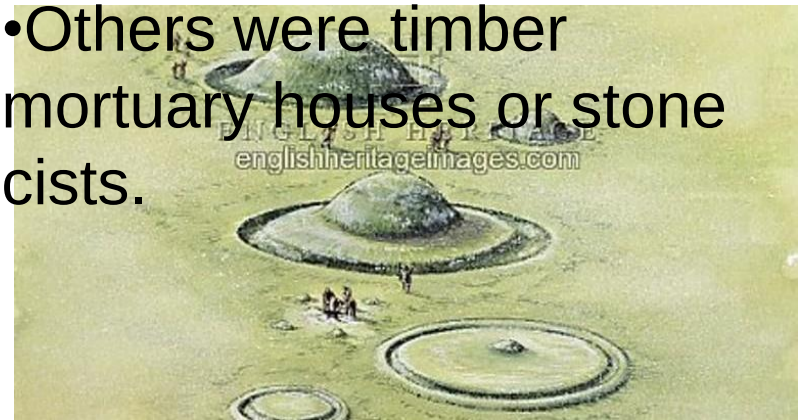
BURIAL MOUND

Single grave burials.

- Variable forms in **exterior** and **interior forms** and arrangements and groupings.

- In their simplest form, **barrows consisted of earth or stone.**

- Others were timber mortuary houses or stone cists.



EARTHEN LONG BARROWS

A **long barrow** is a prehistoric monument usually dating to the early Neolithic period.

- They are **rectangular or trapezoidal tumuli** or earth mounds traditionally interpreted as collective tombs.
- Long barrows are also typical for several Celtic, Slavic, and Baltic cultures of Northern Europe of the 1st millennium AD.

Gussage Down in the Cranborne Chase area of Dorset, U.K.



2. Stone Alignment, Carnac France

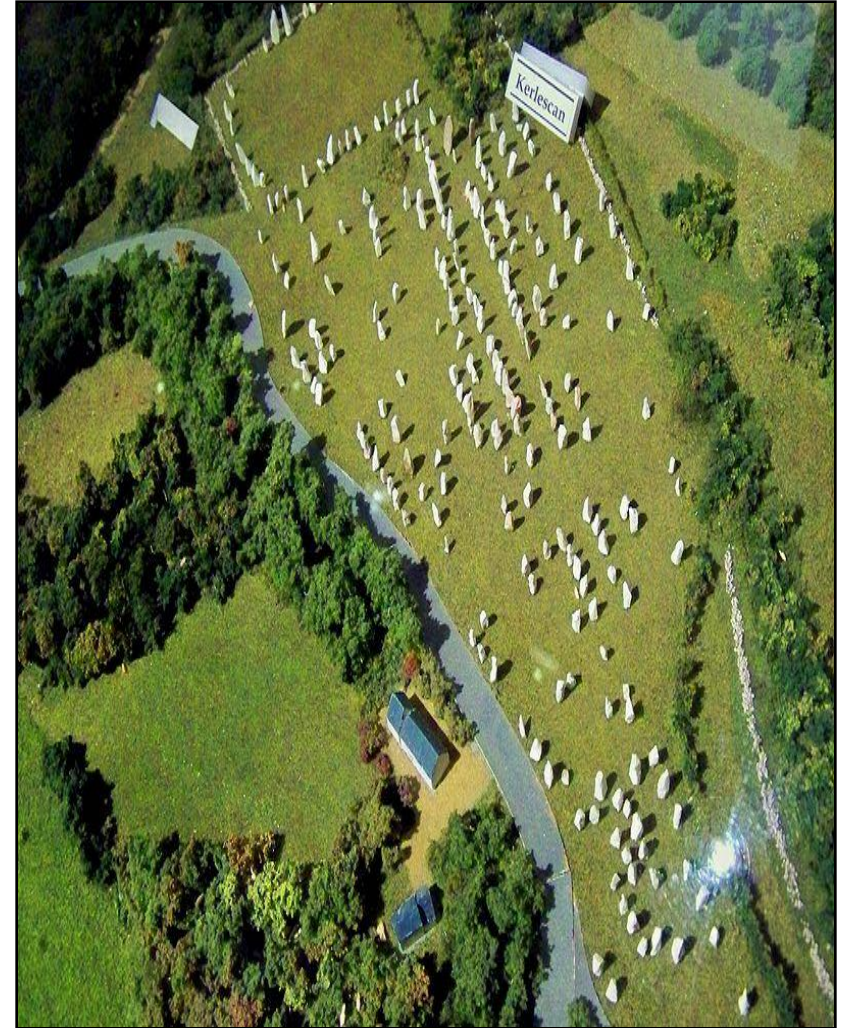
The **Carnac stones** are an exceptionally dense collection of megalithic sites around the village of **Carnac in Brittany**, consisting of :

- Alignments
- Dolmens
- Tumuli/Tumulus
- Single Menhirs.

Neolithic period, probably around **3300 BCE**.

2. Stone Alignment, Carnac France

- In Carnac is found a unique **stone monument-** the stone alignment.
- The structure consist of more than **3000 large stones** of local **granite lime** lined up for several kilometers.
- The structure runs east by north east in 10 to 13 rows towards a circle.



Stone Alignment, Carnac France

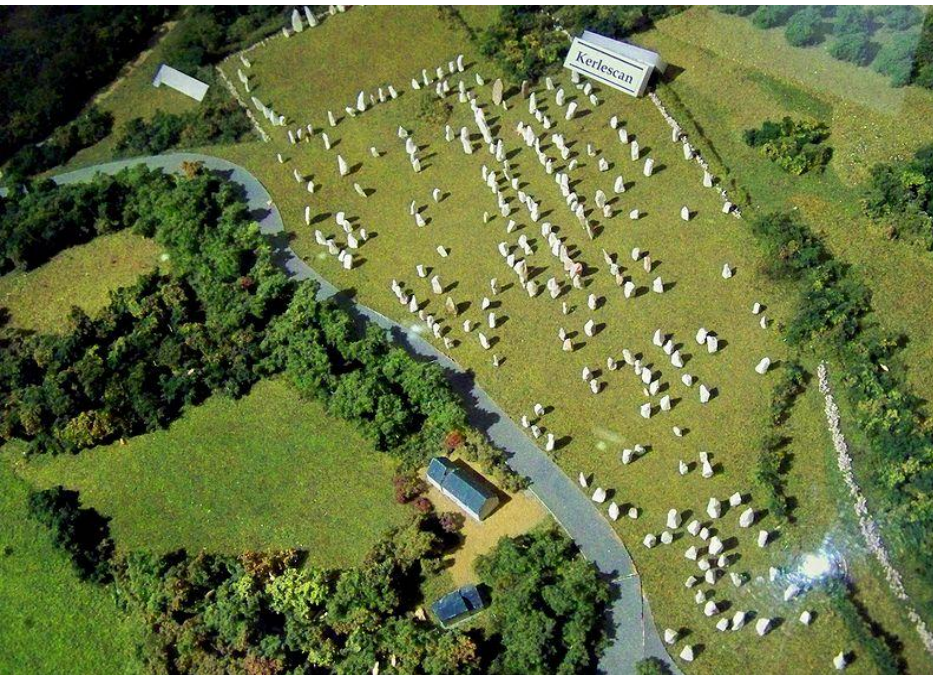
- IDEA - As objects in space, the **height and mass of the stones** made them visible from a distance and **encourage movement towards them.**
- The structure affords an **intermediate experience between openness and enclosure**, between boundless space and a wall .
- The structure represents the **first instance of a principle of organizing space.**



Ménéec alignments



Kerlescan alignments



Kermario alignment

Stonehenge, Salisbury, England







Stonehenge, Salisbury, England

- **LOCATION-** Neolithic ritual monument located in Salisbury England.
- Most important prehistoric structure in Europe.



Stonehenge

Megalithic Monument

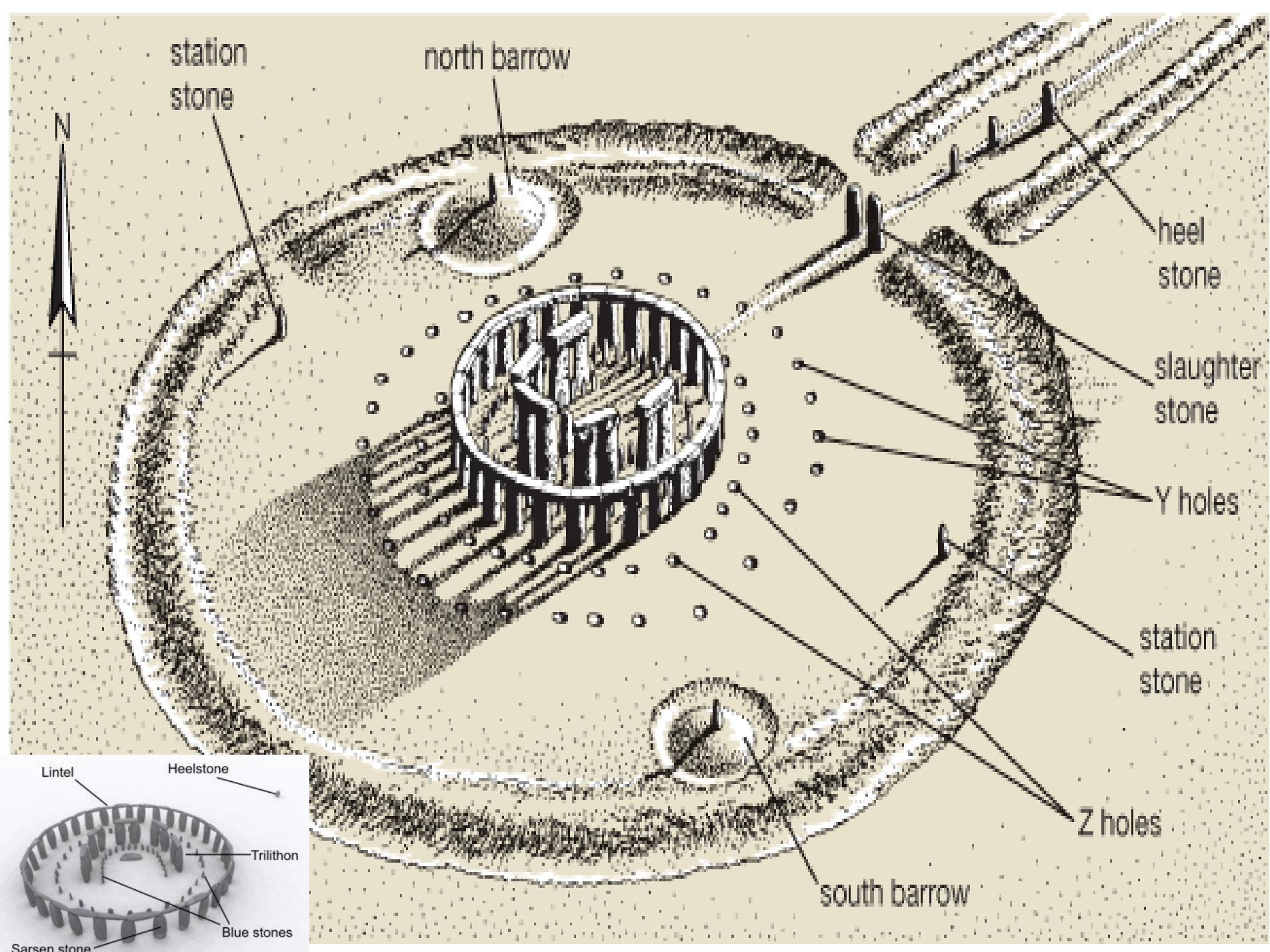
- Lintels
- Standing stones
- A-E Stone gates
- Fallen Stones
- Missing stones
- 1-30 Sarsen circle

Heelstone

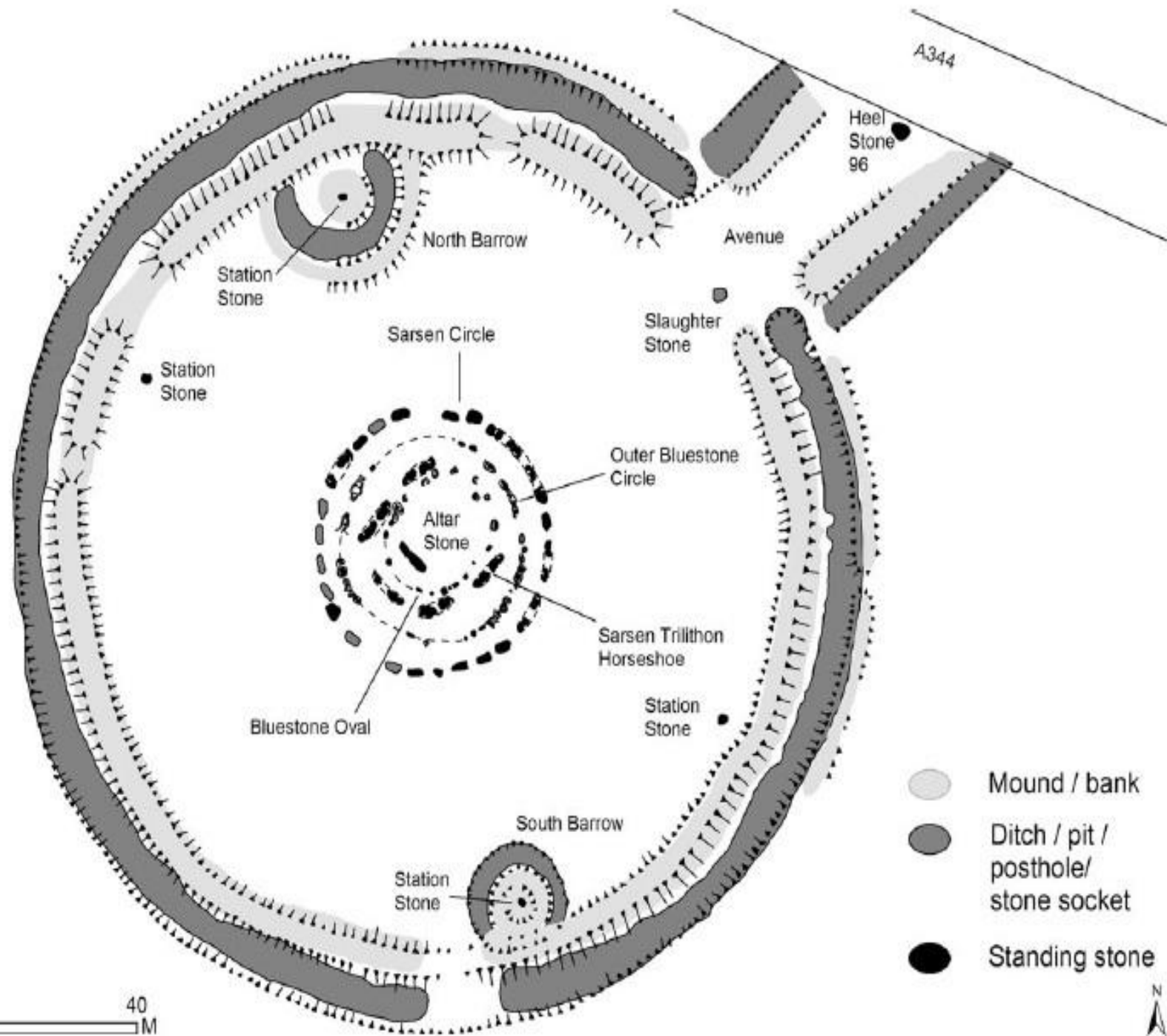
Circle of
Bluestones
Altar Stone
Horseshoe

Position of the sun
at sunset at the
winter solstice



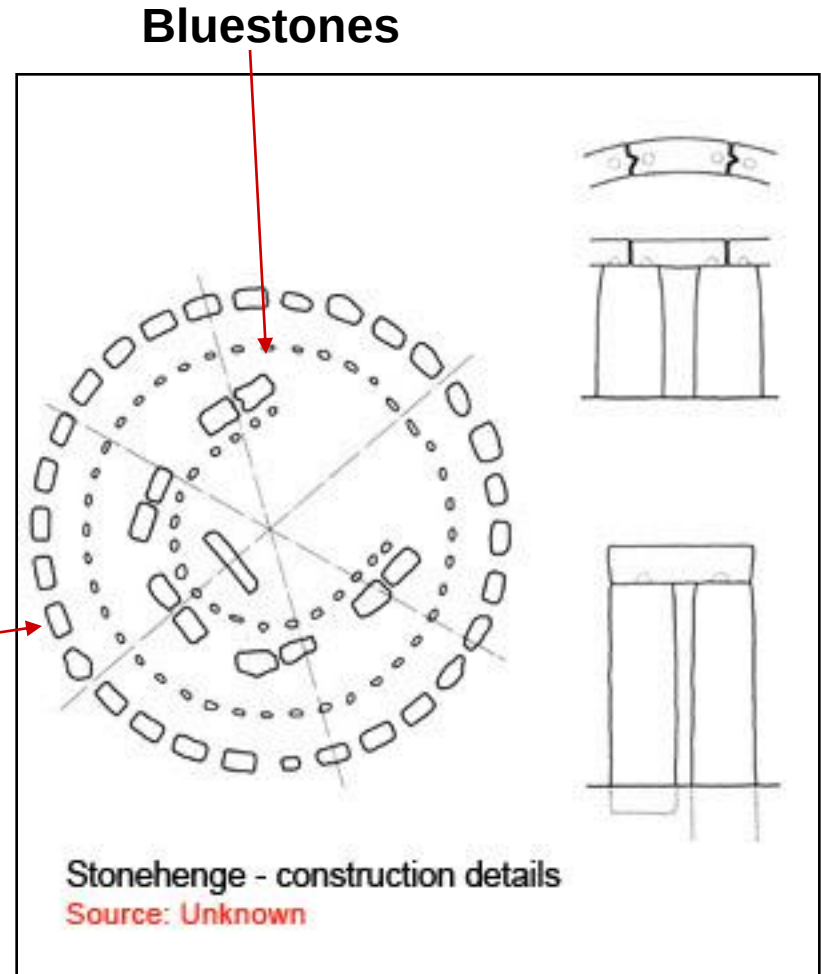


Stage 4



Stonehenge, Salisbury, England

- **Beyond trilithons** a circle of **blue stones** from Wales, 200km away.
- Beyond blue stones, an outer **monumental circle of large rectangular blocks** capped by **continuous lintel**.

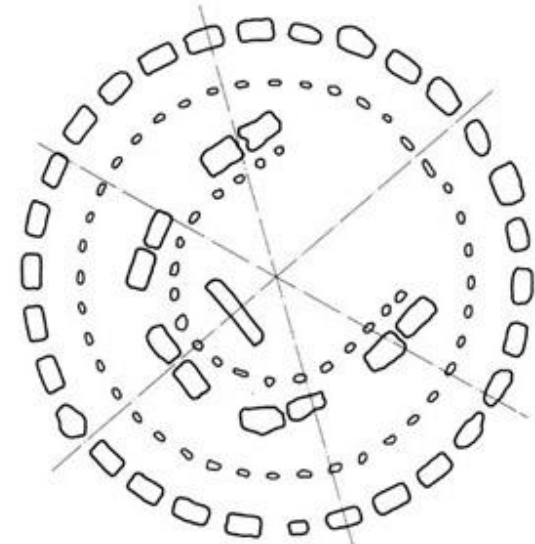


Stonehenge, Salisbury, England

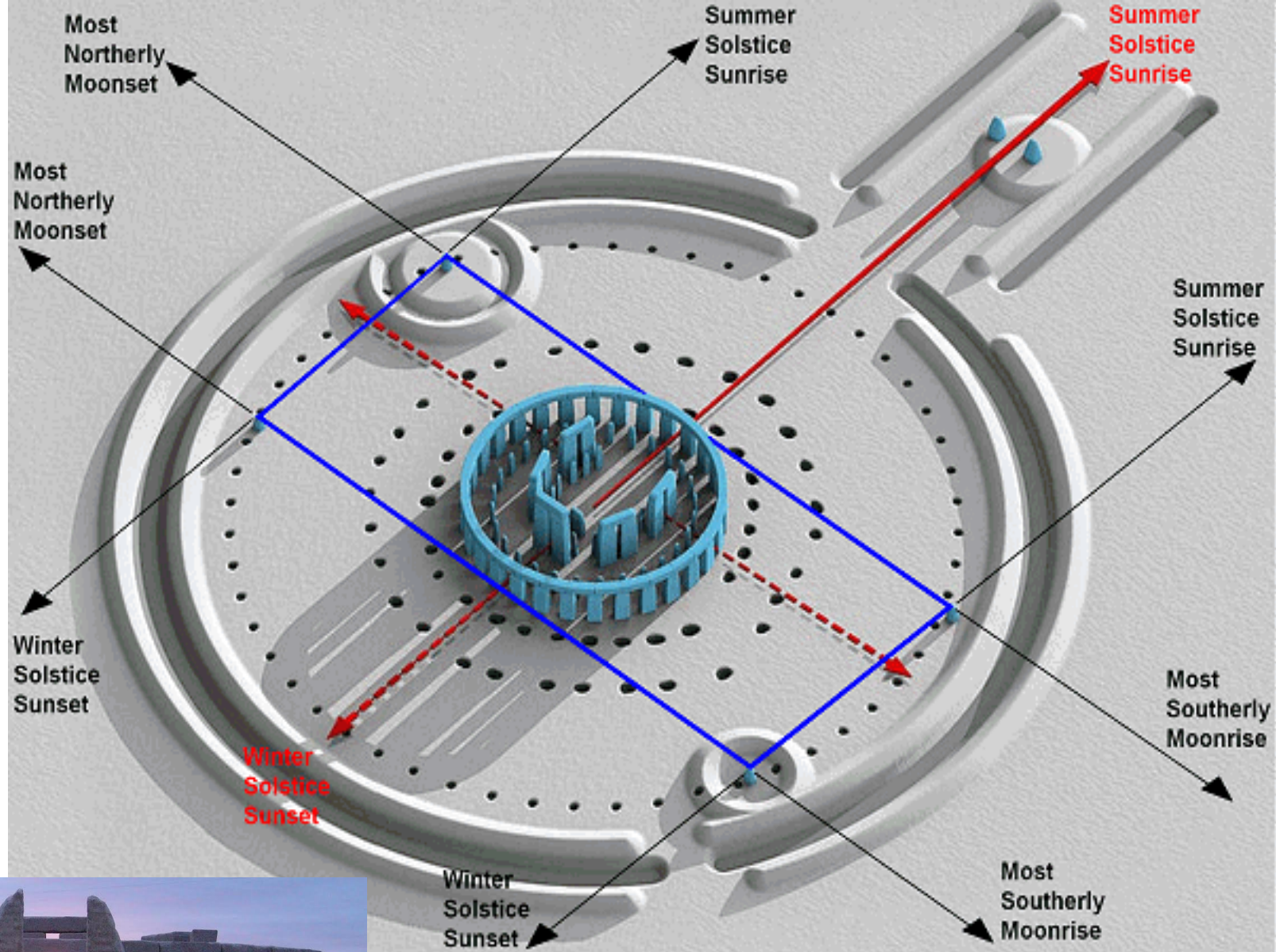
- Beyond the monumental circle are 56 movable marker stones in the **Aubrey holes**.
- The whole monument is isolated from the **landscape by a trench**.
- A long avenue cut through trench to trilithons.



Stonehenge - aerial view of monument
Source: Trachtenber & Hyman (1986)



Stonehenge - Organization of the plan
Source: unknown



Stonehenge - Function

- There are two viable theories:
 - Structure mirrors **cosmic eye of lunar goddess** and **OUTER CIRCLE** is an elevated walkway for rituals.
 - An Astronomical computer for the prediction of the eclipse of the sun and moon.
- Whatever the case, function is in someway connected with the cosmos

Stonehenge - Uniqueness

- Why is the Stonehenge a remarkable monument?
- Three possible reasons:
 - It was not constructed to meet any practical need of the people.
 - The level of accuracy in its construction.
 - The uniqueness of its geometry and form.

Architectural Characteristics

Bldg Mat., Const & Technologies

- We have explored prehistoric architecture
- It is now time to review and extract the unique characteristics of prehistoric architecture
- Characteristics will be examined under three headings:
 - Buildings and other architectural elements
 - Building materials, construction and technologies
 - Principles of architectural organization

Build. and other Arch Elements

- Prehistoric buildings can be categorized into three groups
 - Dwellings and settlements
 - Funereal and Religious buildings
 - Ritual structures

Architecture of the Civilization

- Residential building and settlements varied between early and new Stone Age periods.
- Early Stone Age:
 - Always on the move
 - Used temporary structures
 - Provided basic shelter and protection for short periods of time

Dwellings and Settlements

- New Stone Age
 - Established permanent dwellings and settlements- Catal Huyuk, Jericho
 - Improvement in house form including change to rectangular rooms
 - Introduction of multi-room houses
 - Introduction of non-residential buildings- for work, storage & rituals
 - Open village layouts with streets
 - Increase in number and size of villages

Funereal and Religious Buildings

- Funereal and religious buildings were introduced during new Stone Age
- Funereal Buildings
 - Were structures such as tombs used for rituals and burial for the dead
 - Example we studied is the Dolmen Tomb
- Religious Buildings
 - Evidence of the first practices of religion
 - buildings used for rituals related to worship and religion
 - Example is found in the shrines that we saw embedded within Catal Huyuk.

Ritual Buildings

- Buildings whose functions are not entirely certain
- Usually associated with ritual ceremonial activities
- Activities may be related to religion
- Examples are the Stone alignment Carnac and the Stonehenge, England

Materials, Const Syst & Tech

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

Materials, Const Syst & Tech

- Early Stone Age
 - Used simple easily **available materials**.
 - Usually of plant and animal materials such as wooden poles, grasses, leaves, and animal skins.
 - **Construction system** was also **simple**.
 - Usually involves digging holes, putting wooden poles in holes and burying them.
 - The poles are tied together to create the shell of the building.
 - The shell is covered with grasses, leaves or animal skins.
 - There is no evidence of the use of technologies to modify the interior of the hut.

Materials, Const Syst & Tech

- New Stone Age
 - More diversified construction materials.
 - Adobe and Stone most popular materials for houses.
 - Large stone was used for monuments.
 - Construction method also improved over time
 - Significant improvement in Adobe construction with time.
 - In Stonehenge is also evidence of ability to quarry, shape, transport and join large stones to create monuments.
 - No evidence of the technology to modify interior conditions .

Principles of Arch. Organization

- Possible to categorize principles that give form to architecture of period into two:
 - Principles and forces that determine **form of dwellings and settlements.**
 - Principles and forces that determine the **form of monuments.**

Principles of Arch. Org.

Dwellings and Settlements

- Two forces shaped the form of Dwellings and settlements- functional need and available construction materials and technology.
- **Early Stone Age**
 - Primary requirement is for temporary structure.
 - No desire to invest in construction of dwellings.
 - Constructed dwellings using available materials with form directly reflecting natural objects.

Principles of Arch. Org.

Dwellings and Settlements

- New Stone Age
 - Became settled requiring permanent dwellings
 - Also required **durable construction**.
 - Desire to improve dwellings and settlements **to meet needs**.
 - Desire resulted in change in form of house, **introduction of furniture** and **differentiation of space**.
 - Also account for **improvement in village** form including introduction of **streets**.
 - And to improvement in construction technology .

Principles of Arch. Org. - Monuments

- **Function** was not an important issue in monuments.
- Product of desire to achieve higher emotional and spiritual needs.
- Also a symbol of the achievement of society.
- Understanding monument requires understanding meaning to its creators.

Principles of Arch. Org. - Monuments

Monuments also display an understanding of architectural principles including:

- **Role of geometry** in organizing architectural form.
- The **differentiation of space** for different activities and uses.
- Principles of locating objects in space and of channeling movement.
- Principles of space enclosure, including difference between boundless space and full enclosure.
- Monuments represent the first instance of a principle of organizing space.

CLASS ASSIGNMENT (on the basis of today's class lecture)

Topic: Prehistoric Architecture- UNIT-1

1. Explain Megalithic Monuments with the help of sketches (Plan, elevation & section)
 - a) Dolmen b) Tumulus c) Stone henge
2. Explain the characteristic features of various settlements that evolved in Mesolithic phase covering the following parameters:
 - a) Historical background - Location, Time, Population
 & Geographical background
 - c) Principles of Architecture organization(Plan & sketches)
 - d) Material & construction technology

Note :

Reference Book- Sir Banister Fletcher's a History of Architecture

Submission on- A3 Sketch file

For **sketches** use soft pencil.