3. Architecture of Neolithics in the Fertile Crescent
<table>
<thead>
<tr>
<th>PERIOD:</th>
<th>PALEOLITHICS</th>
<th>NEOLITHICS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BASIS OF EXISTENCE:</strong></td>
<td><strong>HUNTING GATHERING</strong></td>
<td><strong>ANIMAL HUSBANDRY (NOMADIC)</strong></td>
</tr>
<tr>
<td><strong>TYPICAL FEATURE OF WAY OF LIFE:</strong></td>
<td><strong>PERMANENT AND LONG-DISTANCE MIGRATION</strong> - need to follow the migration of games</td>
<td><strong>REGULATED AND SHORT-DISTANCE MIGRATION</strong> - need to follow the animals on the pasture</td>
</tr>
<tr>
<td><strong>PROBLEMS:</strong></td>
<td><strong>NO PERMANENT SETTLEMENTS</strong></td>
<td><strong>THE SUCCESS OF LIVING DEPENDS ON THE CLIMATE AND WEATHER</strong></td>
</tr>
<tr>
<td><strong>ADVANTAGES:</strong></td>
<td><strong>EASY TO ESCAPE</strong> everything is movable</td>
<td><strong>REGULATED ABILITY TO ESCAPE</strong> the main properties (animals) are movable (on it’s legs)</td>
</tr>
<tr>
<td><strong>DIMENSION OF TERRITORY:</strong></td>
<td><strong>LARGE</strong> - boundless - every member has to move</td>
<td><strong>SMALLER</strong> - limited - how big the territory (pasture) of tribe - one part of tribe may live in fixed settlements</td>
</tr>
<tr>
<td><strong>DENSITY OF POPULATION:</strong></td>
<td><strong>LOW</strong></td>
<td><strong>HIGHER</strong></td>
</tr>
<tr>
<td><strong>TYPE OF SETLEMENTS:</strong></td>
<td><strong>PERIODIC AND DISPOSABLE</strong> with frequent moving</td>
<td><strong>PERIODIC BUT REMOVABLE</strong> with regulated moving on the territory of tribe</td>
</tr>
<tr>
<td><strong>TYPE OF SHELTERS:</strong></td>
<td><strong>DISPOSABLE</strong>: CAVES, HUTS <strong>REMOVABLE</strong>: TENTS</td>
<td><strong>REMOVABLE</strong>: HUTS, TENTS, JURTS</td>
</tr>
<tr>
<td><strong>TIPICAL USED MATERIALS OR STRUCTURES FOR BUILDING:</strong></td>
<td><strong>BRANCHES, LEAVES, SKINS, BONES, TEETH</strong></td>
<td><strong>SPECIAL MOBILE STRUCTURES (SEE JURTS), SKINS, FELT</strong></td>
</tr>
<tr>
<td>****</td>
<td><strong>STONE, BRICK, WOOD, CANE</strong></td>
<td><strong>FIXED HOUSES</strong></td>
</tr>
</tbody>
</table>
NOMADS (ANIMAL HUSBANDRY)

REGULATED AND SHORT-DISTANCE MIGRATION

- follow the animals on the pasture
- but previously: domestication of animals
  sheeps, goats, horses, cattles, pigs, camels, donkies

THERES IS NOT (ENOUGH) AGRICULTURAL PRODUCTS
answer: TO ROB agricultural settlements of it’s products

REGULATED ABILITY TO ESCAPE
the main properties (animals) are movable

THE SETTLEMENTS ARE PERIODIC BUT THE SHELTERS ARE REMOVABLE

SUMMER SETTLEMENTS – WINTER SETTLEMENTS
(PERIODIC) (FIXED)

with regulated moving on the territory of tribe
REMOVABLE HUTS, TENTS, JURTS
SPECIAL MOVABLE STRUCTURES (see jurts on right),
MATERIALS: SKINS, FELT

NOMAD NATIONS ARE KNOWN IN THE HISTORY:
Scythians
Turks
Mongolians (Tartars)
Hungarians (name of Huns, Turks and Hungars were used in memoires)
Berbers

TODAY:
Peoples in Central Asia (Turkmenistan, Uzbekistan, Tajikistan),
Iran (Qashqai, Bakhtiari), Mongolia, Sahara and Arabian peninsula
AGRICULTURE (CULTIVATION OF PLANTS)

What is necessary for the agriculture:

- **seed** grain of eatable plants: barley, wheat, rye, corn

- **agricultural land**

- favourable weather or climatic **conditions**

- **water:**
  - natural sources: rain, snow
  - secondary sources: lake, river, creek, channel
  - artificial sources: canal, well, cistern, reservoir
  structures of watering:
    (digging well, building canal)
  pumps, elevators of water

- **organized human work**

  - tools: plough, sickle

THE PRODUCTS OF AGRICULTURE ARE NOT MOVABLE BEFORE GATHERING
(the plants sit in the land) / THE TRANSPORTATION OF GATHERED GRAINS IS DIFFICULT
(large dimension, heavy weight, wrong conditions of transporting)

SPECIALIZED BUILDINGS (storing, processing):

- **barns** (to store gathered grain on stem of plant = straw)

- **granaries** (to store trashed grain)
  - buildings
  - furnitures (chest, box)
  - pit

- **cornloft**

- **mills** wind, water and dry mill (= mill powered by animals)
IRRIGATION / ARTIFICIAL WATER SUPPLY

Natural sources: river, lake, spring / Artificial sources: well / transportation of water: ditch, canal / water-raising structures
To raise water, the Noria (wheels of pots) in Hama, Syria, is the oldest known water wheel structure, having been in use since the 5th century AD.
KAREEZ or **QANAT** / SPECIAL (UNDERGROUND) IRRIGATION SYSTEM / OLDEST KNOWN: IRAN

From an aquifer area on the lower part of mountain / digged **underground canal with vertical air shaft (molehill)** / water reservoirs

First date: from the reign of **Sargon II. akkadian king (721-705 BC)** / oldest known: **Zavareh Kadi (ca. 3000 BC)** / longest: 71 km / research: **Nasser Arzani, University of Payame Nour, Esfahan / Gonabad** (2700 years, 45 km)
KAREEZ or QANAT

Abarkoh (Abarkuh) basin / Iran
RESERVOIR OF WATER / AB ANBAR / Iran

It makes the water fresh and cold by ventilation / wind towers
AB ANBAR

Sardar-e Bozorg / Qazvin / 1812 / largest single domed Ab Anbar
WIND-TOWER / WINDCATCHER / Badgir / Iran

Natural ventilation of buildings, water reservoirs and qanats / it built with 1, 4 or 8 openings / it (and direction of openings) depends on the direction of airflow: wind catchers were built facing away from the wind / to extract used and warm air from inside.
THE FIRST SETTLEMENTS / CONNECTION BETWEEN ECONOMY AND SETTLING

The cultivation of plants (mostly cereals: barley, rye and wheat) demands to create first fixed settlements
## THE FERTILE CRESCENT / WHERE THE AGRICULTURAL REVOLUTION WAS STARTED

<table>
<thead>
<tr>
<th>CULTURE</th>
<th>PERIOD (BC)</th>
<th>AREA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kebara</td>
<td>18 000 – 11 000</td>
<td>Palestine</td>
</tr>
<tr>
<td>Natuf</td>
<td>11 000 – 9 300</td>
<td>Palestine, Phoenicia, Syria</td>
</tr>
<tr>
<td>PPNA</td>
<td>9 300 – 7 300</td>
<td>Levant, Syria, North Iraq</td>
</tr>
<tr>
<td>PPNB</td>
<td>7 300 – 5 900</td>
<td>North Levant, South Anatolia</td>
</tr>
<tr>
<td>Hasuna</td>
<td>6 000 – 5 500</td>
<td>North Iraq</td>
</tr>
<tr>
<td>Jarmo</td>
<td>7. évezred eleje</td>
<td>Zagros, East of Kirkuk</td>
</tr>
<tr>
<td>Samarra</td>
<td>5 600 – 5 000</td>
<td>Central Iraq</td>
</tr>
<tr>
<td>Halaf</td>
<td>5 500 – 4 300</td>
<td>North Iraq, Syria, East Anatolia</td>
</tr>
<tr>
<td>Ubaid</td>
<td>5 900 – 4 300</td>
<td>South Iraq</td>
</tr>
<tr>
<td>Gavra</td>
<td>4 300 – 3 100(?)</td>
<td>North Mesopotamia</td>
</tr>
<tr>
<td>Uruk</td>
<td>4 300 – 3 100</td>
<td>South Iraq</td>
</tr>
<tr>
<td>Jemdet Nasr</td>
<td>3 100 – 2 900</td>
<td>South Iraq</td>
</tr>
</tbody>
</table>

**PPN** = Pre Pottery Neolithic

**PPNB** = remains of one-grained wheat can be found
Einkom (it is a misprint) = Einkorn = single grained or one grained wheat (a number of PPNB farming villages have been found)

Alakor* (Triticum Monococcum, one-grained wheat) / Tönke* (Triticum Dicoccum, two-grained wheat)

* hungarian name ☹ / wild einkorn from Karadağ, Turkey
THE EXPANSION OF AGRICULTURE

8000 BC: the appearance of first neolithic farmers in Europe
5000 BC: the expansion of agriculture in Sicily
THE DEVELOPMENT OF NEOLITHIC HOUSES

From the single-room-house to the multi-celled-house

FIRST GROUP: Beidha, Cayönü Tepesi, Jeitun
It preserved archaic (paleolithic hunters) features. It settled on the hillside facing to hunting or agricultural fields, riversides.

SECOND GROUP: Jericho, Catal Hüyük, Tell es-Sawwan
These settlements were independent trade, economic and cultic centres. Consequences: population more thousands, remains for centuries or thousand years.

THIRD GROUP: Hacilar
Fortified settlements (mainly villages)


Single-room-house: A-L
Multi-celled-house: M-R
BUILDINGS STRUCTURES OF AGRICULTURAL SETTLEMENTS

A. Wall made of stone with mud (=glue), Çayönü Tepesi
B. Foundation made of stone under wattle (=mud) wall
C. Wattle wall strengthened by timber posts and beams, Çatal Hüyük
D. Wattle wall strengthened by wall-pillars
E. Timber lintel supported by post
F. Sun-dried brick was innovated to replace block of stones
G. Bred-formed brick, Jericho 7.000 BC
H. Different measures of brick
I. The flat roof came from a slab made of closely-lied timber beams
J. The house with cylindrical walls (circular plan) covered with reed (thatched roof)
K. The conical or parabolical dome made of wattle or little pieces of stone was the typical (common) structure of arid (dry) territories

Foundation of tower in Tsoga-Mami  Sun-dried brick from Jericho
Beida (Beidha) / Jordan / 8000 – 6600 BC / PPNB / hunting, gathering, cultivation of barley

1. small round-shaped houses with conical roof
2. large rectangular house with flat roof (6-8 m long) / firepit on the centre / in each building-complex completed (surrounded) by bunches of very small rooms (1 x 2 m) (workplaces) / The inner surface of walls were covered with plaster and paintings (decoration).
Çayönü Tepesi / Turkey / 7500 – 6250 BC / Robert J. Brainwood / tepe = artificial hill, tell

(PPNA= Pre pottery!)
Cultivation of one grained (alakor) and two grained (tönke) wheat / no barley
Domestication of dogs, sheeps and goats / use of copper found in nature
Çayönü Tepesi / Turkey / 7250 – 6250 BC

Evolution of plans: from simple through complex to simple

The village settled on the hillside facing a creek
A. First period: oval planned huts made of wattle
B. Period of grating-planned houses (grating-planned houses were use as granary) c: sanctuary
C. Intermediate period: house of skull
D. Period of multi-celled houses (the very small rooms made use of granary)
E. Period of houses with large space (house consisted of one big (4x7 m) room)
Aşıklı Höyük / East to Aksaray / Aşıklı Höyük Aksaray’ın doğusundadır © / Cappadocia / Kappadokya / 10th millennium BC / PPNB / one of the earliest site of neolithics settlements
There aren’t any remains of cultivation of plants! / sun dried bricks and limewashed floor in red colour / 400 rooms / 70 graves were excavated / riverside settlement
Çatal Höyük / Turkey / Plain of Konya / riverside settlement / 6500 – 5650 BC / 2 hills (tells) / 12 Ha / 1(!) Ha is excavated / district of temples(?) / height of hill 17,5 m, neolithic layers: 15 m, unexcavated 4+ m / 12+ layers / before written history / PPNB / XII.: 7th millennium / VIII-II.: first part of 6th millennium / it was depopulated in the end of 6th millennium / new settlement on the other side of river / James Malaart (1958) / excavations: between 1961-1963 and 1965 / figurine of „enthroned“ woman (VI. layer, 5500 BC)

From the X. layer: **husbandry of cattles** (90 % of animal bones) / VI. layer: **wool** / remains of cultivation of plants with irrigation / **smelting of lead and copper**
Çatal Höyük / Turkey / Plain of Konya / riverside settlement / 6500 – 5650 BC / 2 hills (tells) / 12 Ha / 1(l) Ha is excavated / district of temples(?) / height of hill 17.5 m, neolithic layers: 15 m, unexcavated 4+ m / 12+ layers / before written history / PPNB / XII.: 7th millennium / VIII-ll.: first part of 6th millennium / it was depopulated in the end of 6th millennium / new settlement on the other side of river / James Malaart (1958) / excavations: between 1961-1963 and 1965 / figurine of „enthroned“ woman (VI. layer, 5500 BC)

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HOUSES OF ÇATAL HÜYÜK

There are lot of houses were built side by side.
There was no door, the entrance was a hole on the flat roof.
This hole was used as door, window and air-vent hole (chimney).
The getting into the house was possible with ladder (inside)

Special defensive strategy

There was no ramparts around the settlement

A. 8th layer: houses with oven
B. 4th layer: houses rebuilt several times (probably cultic function)
C. Wall painting shows the map of settlement with a vulcano
Haçilar / Turkey / close to Burdur / fortified settlement / late neolithics / 6000 BC / A: VI. layer 5600 BC / B: II. layer 5400 BC (after the fire, ramparts were built, megaron-shape long houses) / C: I. layer 5200 BC (new population, multi-storey buildings, there is entrance on the top floor, pottery) / 3000-5000 inhabitants
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HOUSES OF HAÇILAR

Village with a lot of layers
The settlement was surrounded by walls
Different layer – different builders (tribe, nation) – different building.

A. 6th layer (oldest known, 5600 BC) with single-room-houses. On the middle of house stands the row of timber posts. The village of this layer was destroyed by the builders of next settlement (5th layer)

B. 2nd layer (5400 BC) fortified village. The most important structure was the wall (rampart) around the settlement. The plan of settlement was rectangle. There was a market-square in the centre of village.

C. 1st layer (youngest, 5200 BC) wit multi-storey buildings leaned against the wall
JEITUN, TURKMENISTAN  6000 BC

There’s one large single-room-house surrounded by farm-buildings (granary, cowshed)

open fire-place without chimney

There’s a anctuary opposite to fire-place

Pitched roof covered with reed (thached)

The structure of settlement wasn’t planned (it is confused)
TELL ES-SAWWAN, IRAQ 6000 BC

Anthropomorphic dishes and figure from Tell es-Sawwan
HOUSES OF SAWWAN

Fortified town.
The wall was strengthened by wall-pillars (=buttresses).
The buildings stanced without order.
Each house has „T“ shaped plan.
Some house built through the wall or outside.
MEGALITHIC STRUCTURES / CULTIC OBJECTS

Göbekli Tepe (Fat Hill, Belly Hill) / close to Şanlıurfa (Urfa, ancient city of Ur) cultic object / it was used: 12000 – 8200 BC!

It was built earlier than the first well known settlements were founded / there were no settlements near by this sanctuary / it was used as cultic center of hunter-gatherer people lived in this area / well organized community / there were some periods: new ring – new period / it was lost at 8200 BC
Göbekli Tepe (Fat Hill, Belly Hill) / cultic object / sanctuary / 12000 – 8200 BC

Stone rings made of huge (5 m, 15 t) stone slabs / anthropomorphic T-shaped vertical slabs / scales are same (thickness/width = 1/5) / the slabs are looking on to the center / there are a lot of trimmings and reliefs in the surface of stone slabs
Klaus Schmidt (archeologist, German Archeological Institute)