Natufian Culture & "Neolithic Revolution"

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To better understand the ancient environment with regards to its population, first development of settlements and evolving agriculture the various cultural periods need to be looked at.

It really all started with the first developed culture in the Jordan Valley about 15,000 years ago.

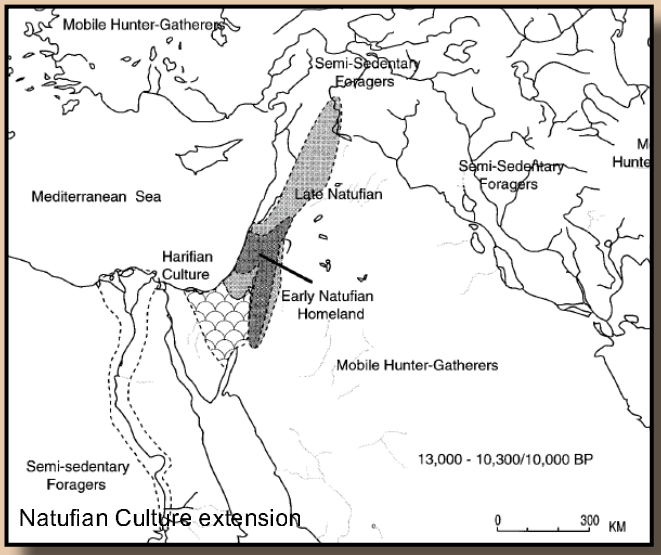
This culture emerged surprisingly out of nowhere and was rather unusual for the fully nomadic semi-sedentary hunter gatherer societies at the time.

The Natufian people were at first semi-sedentary and quickly became a fully settled culture and the interesting point here is that this actually happened before the introduction of orgamized farming activities.

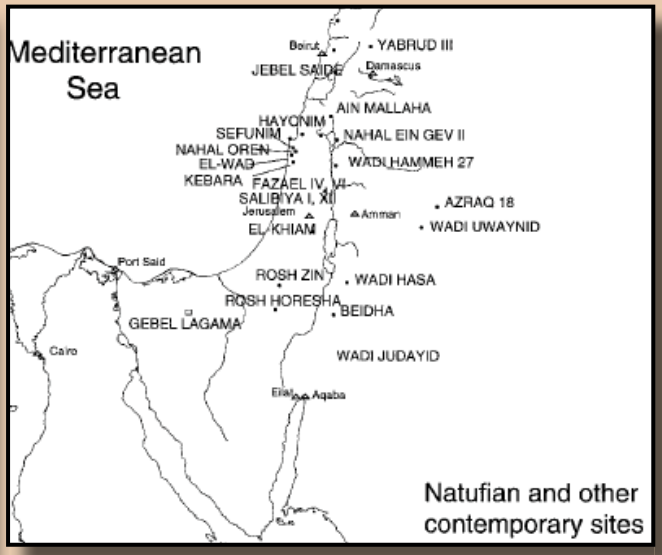
They erected permanent settlements and these possibly were the first Neolithic settlements built worldwide.

After taking this step Natufians were also the first to start organized agricultural domestication of wild grains called the "Neolithic Revolution".

The Natufian culture consisted of two phases, the Early Natufian Phase between 12,500-10,800BC in Wadi an-Natuf in Jordan, which gave this early civilization its name,



Natufian Culture extension



and the Late Natufian Phase between 10,800-9,500BC, which was spreading out into the Negev, parts of Syria, northeast Iraq and even into southeast Anatolia.

This culture started to develop in the same area as the early Kebaran and Mushabian Cultures and experts assume that the step by step interchange between both cultures actually started the Natufian Culture.

Two Different Neolithic Lifestyles

But let's have a look at the different lifestyles using various foraging and subsistence strategies with annual schedules at the time in the region. The big picture is rather mixed with small groups of semi-sedentary foragers permanently on the move in Egypt, Libya, Mesopotamia and eastern Anatolia and mobile hunter-gatherer societies roaming the Arabian Peninsula, Persia and western Anatolia.

The necessary territory for hunter-gatherer societies to survive was about 300-500km², but steppe foragers needed a much bigger sustainable territory of 500-2,000km². The Early Natufian Phase was still based on a hunter-gatherer lifestyle living in caves and rock shelters.

lance head

The first permanent settlements were villages of different sizes, small 15-100m², medium 400-500m² and large settlements expanding over 1,000m² with 300-500 and more inhabitants. But the larger settlements were only established in the steppic belt during the Late Natufian Phase with semi-subterranean round huts with a 3-6m diameter with one or more round or square fire places.

Along the walls and in the center wooden poles would carry a leave roof structure. Later elaborate houses with paved floors and different areas for work and living, fire places, bins and underground storage pits were erected.

First protective perimeter walling up to one meter thick was encountered at Hayonim surrounding a small complex of six round and oval houses, which each had a diameter of 2.5m. Further traces of re-building are pointing to often relocation of still semi-sedentary clans.

Early Burial Customs

Natufian burials were at the early stages done in residential quarters of settlements in shallow to deep pits in abandoned huts or outside huts, as well as in close by natural caves.

Here no under-floor burials in occupied houses were found as in other cultures and there was no social differentiation in Natufian burials either. Decorated burials were mainly encountered in the Early Natufian Phase. The burial pits were simply backfilled with settlement refuse and some covered with stone slabs.

The next step in the development of burial practices happened rather quickly when the first cemetery with a large organized burial ground was established at Hilazon Tachtit with over 500 single burials found, which surprisingly was used by various clans. Collective burials were more common in the Early Natufian Phase until 13,000 years ago.

The dead were buried stretched out, or in a crouched position on their side with stones used as head rests. There was no social differentiation yet in

burial practices. Archaeologists noticed a high child mortality rate of 30% and the first burial ritual with broken mortars buried with the adult corpses.

Dogs were the first domesticated animals trained and used for hunting purposes. So it is not surprising to find here the first burials with dogs buried side by side with humans some 12,000 years ago at two sites in Ain Mallaha and Hayonim.

Standing stone slabs were used as grave markers as well as huge mortars. The reason to use deep mortars in burials at sites such as Erq el-Ahmar and Nahal Oren has not been established yet, they must have had an important meaning for a yet undefined ritual. Another interesting find was a large fire place surrounded by lime stone slabs and a cluster of burials.

A new funerary custom was established in the Late Natufian Phase with the removing of the deceased skull, which were buried separately. These skulls were often decorated with shell beads as found at Hayonim, Nahal Oren, Ain Mallaha and this ritual was maintained into Neolithic times.

Natufian burial

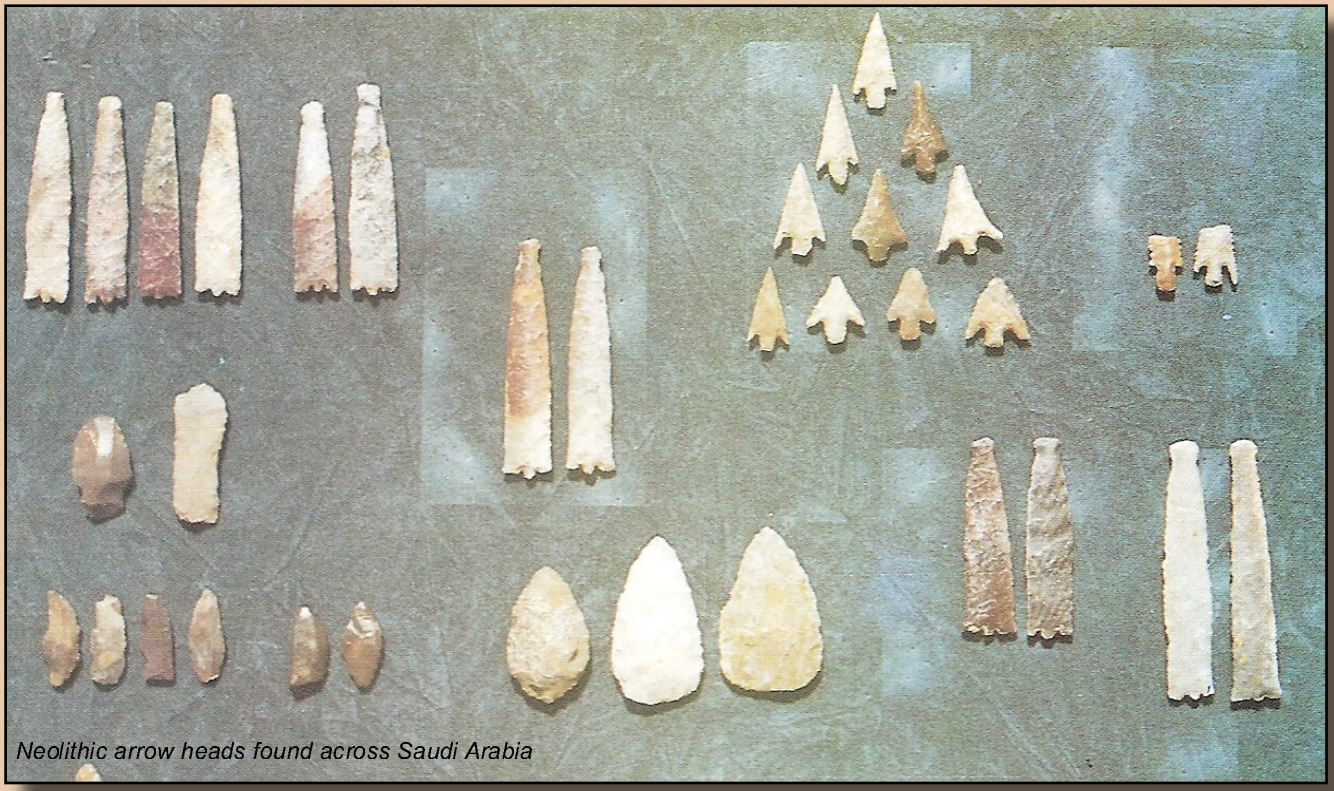
Recently a tomb of a Natufian priestess or shaman was found with 50 complete tortoise shells which give some insight into Natufian beliefs. The small cupholes pecked in stone at Nahal Oren and Hayonim are seen as grave markers by some experts, but those found in Saudi Arabia together with rock art were identified being used for rituals such as libation sacrifice.

Population growth again led to the simple solution of secondary burials which were started in the Late Natufian Phase. The sophistication of a culture often can be assessed by its burial customs, no different with the Natufians.

Grave gifts discovered included head decorations, personal ornaments, shell beads, red deer teeth, bone and stone tools, pendants made from marine shell, bone, teeth, and beads, plus bracelets, necklaces, earrings, belt ornaments, bone dagger, bone figurine of gazelle and a small lime stone model of human head, possibly representing a skull of an important ancestor.

Sophisticated Stone & Bone Tools

The easiest way to judge the sophistication of an ancient civilization is to look at the tools they produced and used as well as the art they created. The Natufian Culture was Neolithic


Neolithic arrow heads found across Saudi Arabia

Elaborately pressure flaked flint stone knife with decorated ivory handle ca. 3.000 years old

to the core and stone and bone tools dominated.

Their production of geometric flint microliths included small lunates, trapezes and triangles. For some tools black and green obsidian was used. But also drills, scrapers, tanged and side-notched arrowheads plus finely denticulated sickle blades were created.

Microliths represented about 40% of the assemblage found including: small defined, backed and retouched bladelets, plus short, wide bladelets and flakes. They also used the "microburin" technique a special blade snapping method and were the first to produce flint sickle blade tools for harvesting crops.

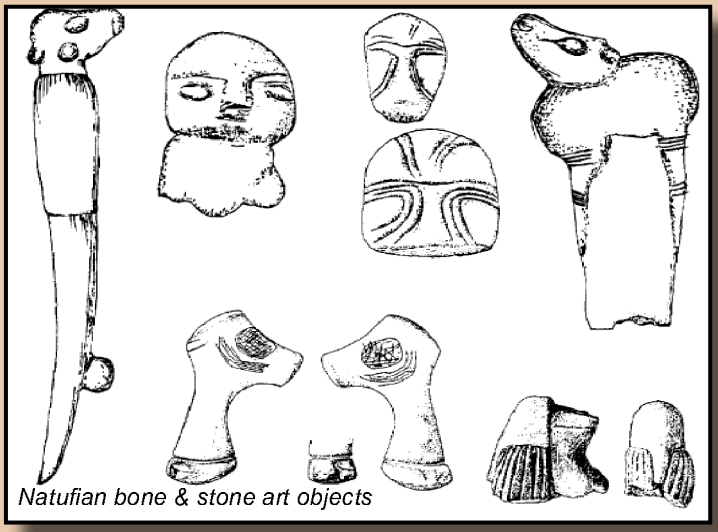
Gloss on the blades shows that they were used to cut silica rich stems of cereals, some blades were fixed to bone or wooden handles for easier use.

The Early Natufians used the Helwan retouch technique producing geometrics, backed lunates, trapeze-rectangle and triangle shaped flint tools. The Late Natufian Phase was dominated by backed lunates.

During this pahse they improved their hunting technique and produced special arrowheads called "Harif points" made from a rectangular blade. Therefore their producers and users are defined by some archaeologists as Harifian Culture.

They populated an area of between 8,000-50,000km² in the Negev desert, but did not survive the arid conditions.

The Natufian Culture is also well known for its rich bone industry both for tools and art. This was a high quantity production with varied morphologies to create tools used for hide preparation and basketry production.



Natufian bone & stone art objects

For this the full spectrum of bone shafts, teeth and horn cores of gazelle, wolves, fallow and roe deer and even birds were used. Bones were converted into handles to hold sickle blades, as hooks and gorgets for fishing.

Barbed items used for hunting with spears and arrows. No later culture in the region ever produced such elaborate bone tools and art with many objects bearing fine decorations.

For the hard work different ground stone tools were produced like limestone dishes and bowls, stone spindle whorls, loom weights, mortars, cupholes, mullers, pestles made from limestone, sandstone and basalt, the latter traded over long distances.

Other tools were created for pounding, mixing, milling and grinding such as tranchet axes, querns, hammer stones as well as ground stone axes. Mortars were used for food processing as well as burned lime stone crushing and red ochre milling, including also portable mortars.

Huge boulder mortars called stone pipes (80cm deep, 100-150kg) were produced and when broken they were used as grave markers. Stone made servicing bowls, small bowls, plates decorated with geometric patterns, were well cared for as they were personal items of value. Ground stone shaft straighteners confirm the use of

bows and larger arrowheads the use of spears for hunting.

Elaborate Natufian Art

First figurines of humans and animals were made of bone and stone. Animal figurines were crafted elaborately and rather naturalistic, but human figurines were more schematic and found at various sites Mt. Carmel, el-Wad, Ain Mallaha, Ain Sakhri, Nahal Oren.

The zoomorphic figurines depict mostly young animals and mainly gazelle, some tortoise and baboon, human depictions are actually rare. The high level of artistic expression at the time is demonstrated by various special objects found such as a limestone figurine with an owl head at one end and a dog head at other.

Similar is a horn core with a man's head at one end and a cattle head at other, or the limestone figurine of a mating couple. Various almost life-size anthropomorphic plaster figures, anthropomorphic and theriomorphic clay figurines, together with a rather corpulent figurine of a fertility goddess, plus counting tokens used as trading good labels complete the picture of a highly developed art production.

Art objects also include: green and lime stone, bone and shells used for pendants and amulets, as well as jewelry comprising of beads used in headgear, necklaces, belts, bracelets and earrings. Ostrich shell containers were used for liquids in the Negev.

The origins of sea shells used are proof for already established long distance trade ties. Most shells come from the Mediterranean, but also some from the Red Sea and a rare tusk shell even originating from the Atlantic Ocean and certain freshwater bivalve shells found come from the Nile River.

The greenstone and malachite were imported from as yet unknown sources. If we look at artistic patterns, Natufians used simple designs such as net, zigzag and meander. These appear most on spatulas, stone bowls, bow shaft straigtheners and ostrich eggshells. But variations did exist from site to site and point to various specific Natufian sub-groups, such as the Harifian Culture.

Available High Biomass Food Supplies

To understand the first steps of Natufians into agriculture we need to examine the geographical flora and fauna at the time. The Levant was the core area of Natufian development reaching from Sinai to the foot of the Taurus mountain range.

This was an open park and woodland landscape with grass and many wild grain plants dominated by oak and pistachio trees. The area actually presented the highest biomass food supply for humans, with wet and cold winter, hot and dry summers with 400-1,200mm yearly rainfall.

Before the Natufian Period during the Late Glacial Maximum 18,000-12,500BC the climate was different and cold and dry with rainfall only in the mountain ranges. But with higher rainfalls a rise in sea levels happened and led to the disappearance of the Levant coastal plains, which were 5-20km wide on a 500km costal stretch.

With the start of the Natufian Culture in 12,500BC the climate became much wetter with the highest level of rainfalls around 9,500BC in the southern Levant area. The wetter climate was really the kick off for the rapid Natufian development.

Rich Hunting Grounds

The early Natufians hunted to 80% gazelle and in some areas like at Hatoula only gazelle were hunted. Later hunting reduced to 50-80% because sheep and goats at the time were already

Natufian house at el-Beidha

Neolithic round & square houses in south Jordan

domesticated and made up the difference in the Natufian diet.

The mountain gazelle species gazella gazella is a stationary animal with a small home range maximum 25km² and was roaming in the central Levant area. The steppe gazelle gazelle sub-gutturosa in contrast is the dominant species in the Syro-Arabian steppe with a wider home range in the steppic belt.

Other animals hunted included: ibex cabra ibex, wild cattle bos primigenius with regional variances depending on each site, fallow deer dama mesopotmaica roe deer capreolus capreolus, wild boar sus scrofa and the rare wild goat capra aegagrus in the Taurus and Zagros mountains, plus onager an extinct wild donkey species, fox, hare, tortoise, reptiles and water fowl.

Fresh water fishing in the Jordan River supplemented the Natufian diet. Interestingly there is also proof of group hunts using nets at Salibiya. Next to hunting activities Natufians already had domesticated dogs for hunting purpose, as well as sheep, goat and even some gazelle.

The Start of the Neolithic Revolution

Natufian agriculture really developed with the sudden change in climate during the Younger Dryas Event 10,800-9,500BC forcing this change. Natufians were the first to start organized agricultural domestication and cultivations of grains, this step is called “Neolithic Revolution”.

At this point the change from semi-sedentary hunter-gatherer society to fully sedentary agriculture based settlements happened. The overall Neolithic diet was much richer than most can imagine, as over 100 edible fruits, seeds, leaves and tubers were available in the Levant area at the time.

This included: einkorn, emmer, wheat, rye (two varieties), barley, pluses, lentil, pea, bitter vetch, pistachio, almond, acorns, hackberry, pear, fig and many other grains, fruits and nuts. The first deliberate cultivation of cereals such as rye experts believe happened at Tell Abu Hureyra and was possibly the first organized grain agriculture worldwide.

Therefore it is no surprise that wine and oil presses were found, which again may be the first such finds worldwide. Kilns to burn limestone and installations to produce charcoal were discovered as well. And at one specific site the first basic pottery items were produced as early as 7,300 years ago.