

Beyond subsistence at the Neolithic transition: Jericho and Göbekli Tepe

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- You will notice that the dates I give you today differ from those in the readings
 - Recall that radiocarbon dates do not correspond exactly to calendar years unless they are adjusted according to tree-ring measurements, a process called “calibration”
 - the older the site, the greater the correction required
 - so this becomes less of a problem with more recent periods
 - for the Neolithic, calibrated dates are up to 1500 years older than raw dates
 - I try to give you only calibrated dates in this class, so that everything fits on a single time scale that corresponds to calendar years
 - However, many people use raw, uncalibrated radiocarbon dates for the early Neolithic
 - Mostly because some early, important excavations were published before we understood the need to calibrate dates
 - in particular, the dates commonly cited for Jericho (including by me in previous semesters) are apparently uncalibrated
 - I have calibrated the Jericho dates here, to make them fit correctly with the calibrated dates from more recently excavated sites, recent synthetic studies of the region, and later periods
 - try to use the dates presented here, rather than different ones you may find in the readings
 - but don’t worry; I won’t ask test questions that hold you responsible for knowing which dates to trust.
- As we saw last time, farming made it possible for people in many environments (not just particularly favored ones) to live in settlements that ranged from just a few families to sizable towns (not just small villages of settled foragers): an important step towards civilization
 - this Neolithic village lifestyle was widespread
 - and persisted for 4000 to 6000 years or so – longer in many places – before the first clear changes towards “civilization” took hold
- But the beginning and early stages of the Neolithic were not a simple, smooth development
 - instead, people in some places settled,
 - while others nearby remained mobile
 - some settled people depended mostly on foraging, with little or no farming,
 - while others began to farm a good portion of their diet
 - even among farmers, some farmed intensively enough to begin domesticating local wild plants
 - while others had less of an impact on the local plants, which remained essentially in their wild forms
 - probably because these farmers were less numerous or foraged more
 - while others adopted already-domesticated plant varieties from nearby groups, rather than encouraging the wild plants they had previously depended on and causing domestication themselves
- This period of diverse and changing adaptations also saw the first large permanent settlements and big group construction projects, with the coordination and leadership they imply

- but again, highly variable from place to place
- we will look at two well-known examples, but there are other cases of “anomalous” activities during this long transitional period
- It is almost certain that we don't know of all of them
 - some probably remain to be found
 - others probably existed but have been buried, eroded away, or destroyed by later people living in the same place
- That is, towns and group organization probably developed in a number of places, in different ways, at various times during those thousands of years of relatively stable Neolithic farming life
- Jericho
 - First, let's go to the “Fertile Crescent”, about 12,500 – 10,500 BC:
 - as we saw before, throughout the “fertile crescent”, there were many small, semi-permanent or seasonal settlements of specialized foragers: Natufians
 - One of these Natufian settlements is now called Jericho.
 - Jericho is located on the western edge of the Jordan valley in the Levant
 - in a sub-region of the Levant that some readings refer to as Palestine
 - this is an old geographic sense of Palestine that does not correspond exactly to the modern political Palestine
 - Jericho is in the area now called the “West Bank” (of the Jordan river), which you hear mentioned often in the news.
 - The archaeological site and modern town of Jericho is located next to a spring that waters a moderate-sized oasis
 - Excavated in the 1950s by Kathleen Kenyon
 - The first people known to have lived by this spring were a typical band of Natufians
 - probably 150 to 250 people
 - round semi-subterranean pit houses with stone wall bases, probably pole and thatch superstructures
 - they left a lot of grinding stones (“querns”)
 - grinding stones indicate heavy use of grains
 - stone blades set in bone handles have “sickle gloss” from silica particles in grass stalks
 - indicates cutting lots of grass stalks, presumably for harvesting grain
 - also possibly collected thatch for roofing, but that would not account for the quantities or elaboration of the tools
 - substantial houses, storage bins, heavy grinding stones, etc. suggest settled lifestyle
 - but without farming
 - like other Natufians, they were specialized grain foragers
 - animal bones indicate gazelle hunting seasonally
 - taking advantage of big herds that would migrate past them every year
 - burials show surprising variability in richness
 - some have no grave goods, others have stone bowls and *dentalium* shells
 - suggesting some social ranking
 - some of the richer burials are of children

- suggesting that social rank may have been acquired by birth (ascribed status), rather than achieved
- that is, that certain family lineages were richer or more prestigious than others
- this development of economic differences is to be expected when people settle and can begin accumulating wealth
- one structure was unlike the other houses
 - it was smaller, lacked storage bins and firepits, and had a plastered floor surrounded by stones
 - probably foundation stones for a mudbrick or wattle-and-daub wall
 - some stones had holes that Kenyon thought could have held up carved posts, figurines, etc.
 - but now they are thought just to have been old grinding stones that wore through the bottom from use, and were then used together with other rocks for the wall base
 - this odd structure was probably for some special function
 - maybe rituals?
 - hence it has been called a “shrine”, although with little real evidence
 - since only one was found, maybe that function served multiple households
- this was already a pretty complex society to be based on foraging
 - thanks to the especially favorable environment
 - but the Natufians apparently eventually abandoned Jericho, maybe due to the same climate changes that led people at some other sites to start cultivating plants
- Around 10,000 BC, early incipient farmers reoccupied Jericho
 - this begins the Pre-Pottery Neolithic A, or PPNA, at Jericho
 - known because of impressions of wheat and barley in clay
 - By the way, you may read other descriptions of Jericho that differ in various ways from what I present here
 - such as giving a much larger size of the site
 - this is because some authors do not distinguish between the PPNA remains, the later PPNB remains, and still later, larger occupations at the same site
- PPNA at Jericho: 10,000 - 8500 BC
 - The early farming village at Jericho was one of many similar ones in the PPNA, but it grew rapidly and became unusually large
 - Estimates range from 400 to 2000 inhabitants in the PPNA
 - the lower end of this range is currently most widely accepted
 - more on this later
 - it was a dense cluster of houses with no streets or organized plan
 - the houses were circular or oval, 4-5 m (13-16 feet) across
 - sunken floors plastered with mud
 - probably domed roof of interlaced branches plastered with mud (wattle and daub), probably supported by some wooden beams
 - Grain storage bins associated with individual houses
 - each household still seems to have supplied most or all of its own needs
 - one family was pretty much like the next

- that is, no families that specialized in making certain goods, trading, etc., unless it was very small scale and very part time.
- so there was not much interdependence between families
- Then, after several centuries of settled farming life (say, very roughly 9600 cal BC?), the people at Jericho did something that was absolutely unprecedented: they built a wall around part or all of the town
 - as far as we know, no people on earth had ever built anything like this before
 - the first wall was at least 4 m (13 feet) high, 1.8 m (6 feet) thick at the base, built of stacked stones
 - it was actually higher than this, since the top has been eroded away. We don't know how much is missing
 - just inside the wall, they built a circular stone tower, 9 m (30 feet) diameter, 8.2 m (27 feet) high (plus an unknown amount not preserved)
 - a doorway at the base leads to an internal corridor and a stairway of 20 steps that led towards the top of the tower (the top is no longer there)
 - the step stones and roof stones of the passage are up to a meter long (about 3 feet) and almost as wide, hammered to shape
 - the interior was roughly plastered with mud; the outside might originally have been plastered, too
 - the original wall and tower would have taken an estimated 100 men 104 days to build
 - if the population of the site was 400 people, they might have had 100 adult men available
 - so it would have taken the entire adult male population over three months to build the wall and tower
 - or a smaller group even longer
 - maybe spread out over several years? or...?
 - later, a large ditch or moat was cut into the bedrock outside the wall, 9 m (30 feet) wide, 3 m (almost 10 feet) deep
 - maybe to make the wall next to it effectively higher?
 - maybe to channel floodwater?
- Purpose of the wall and tower
 - probably defense
 - tower may have had some ceremonial/religious function?
 - some have suggested that it was a place for leaving bodies to be defleshed by vultures
 - based on historical and ethnographic analogies, not any hard evidence
 - possibly flood control
 - but then, why so tall? why the tower?
 - flooding *was* a problem, though
 - one excavation trench that was not near the wall found a 1.5 m deep gully from a stream that had flowed through the site
 - this channel silted up, later eroded down again, then silted up and eroded down a third time: at least three flooding events
- Implications of the town wall and tower
 - This construction was absolutely unprecedented

- there could be earlier examples that have not been found yet
- but as far as we know, no humans had ever built such a thing before, ever, anywhere
- why did they do it? what does it mean?
- if the wall was for defense, it implies a serious fear of attack by a large, powerful force
 - implies serious warfare and probably war leaders with considerable powers
- regardless of the purpose, it implies the power to mobilize a great deal of labor
 - and implies project managers/directors/designers with power over others, even if that power was based only on charisma or persuasiveness
 - that is, implies some social status hierarchy
- also implies a lot of surplus wealth to support all the labor to build the walls
 - suggesting that some people may have had control of this surplus, while others did not, i.e. wealth and power differences
- but even the richest PPNA burials contain relatively few, simple goods; no burials of people with lots of wealth have been found
 - so were there higher-status leaders, or not?
 - maybe they just haven't been found yet?
 - maybe burials in this culture did not reflect a person's wealth or power?
 - or maybe the early leadership required to build the wall and tower did not fit our modern assumptions about social status
- As household debris accumulated and the houses inside were abandoned, leveled, and rebuilt with new mud plaster, the inside surface rose
 - so the freestanding wall eventually came to be a retaining wall around an artificial mound
 - at various times in the PPNA, they added on to the wall and tower
- This continued for maybe seven hundred years, until the site was abandoned probably a few centuries before 8500 BC.
 - no known reason for abandonment
 - no evidence of destruction or other catastrophe
 - some argue that the climate dried a bit and made the region unattractive to live in
 - So there was a PPNA town at Jericho for maybe 1300 years, walled for more than half that time
 - That is a very long time, but London has been occupied longer
- Jericho was reoccupied a few centuries later by people of a different culture, called PPNB, and people lived there at many other times after that, but we won't follow the rest of that history here
 - The famous plastered heads from Jericho are from the PPNB occupation of Jericho
- “Fall of the walls of Jericho”?
 - the biblical story refers to the town of Jericho around 1200 BC, over 7000 years (!) after the PPNA wall was abandoned
 - the story might be based on an earthquake, since the region is tectonically active
 - but the known parts of the PPNA wall and tower show no signs of earthquake damage
 - and they were completely underground and presumably long forgotten by biblical times
- The total area within the PPNA walls is not known exactly, since the wall was exposed in only a few places and one side of the mound had been destroyed by a road cut

- but the PPNA wall probably enclosed between 0.8 and 1.6 hectares (2.0 to 4.0 acres)
 - about the same size of the open area of the SSU main quad
 - PPNA population estimates range from 400 to over 2000 people
 - don't know the exact original size of the site
 - don't know if entire area was occupied, or if some spaces were open for public use, animals, etc., or if some people lived outside the walls
 - don't know if entire area was occupied at the same time
 - towns in the region in the 1950s of that size range held about 750 to 1500 people
 - but current expert opinions seem to favor just a few hundred
 - Some hints of religious ritual and complex ideas about the dead
 - greenstone amulets (or charms, or votive offerings, or ??)
 - special treatment of heads of some dead
 - bodies buried in pits below the floors of houses
 - sometimes with the head removed
 - skulls were collected and left in carefully arranged groups placed in holes in walls, buried below house floors, or buried below structures that might be storage bins
 - one example has several skulls in a circle, all looking inward
 - another has three groups of three, all looking in the same direction
 - below one possible storage bin was the burial of a complete infant, plus several infant skulls with the neck vertebrae
 - the neck vertebrae indicate that the heads were removed while there was still soft tissue on the body, rather than being taken from old burials where the bones would no longer be attached to each other.
 - all this special treatment of human remains could have many meanings
 - the heads might imply reverence for ancestors
 - which suggests the possibility of inherited, family status
 - maybe chiefly or aristocratic families with prestige or social standing that gave them some power over others
 - maybe the power to organize projects such as building the wall...
- What led to Jericho's precocious development of the PPNA?
 - Jericho was probably not the only town of its kind at this time
 - Jericho's early development was not due to special farming potential; although it is a good spot, it is nothing extraordinary
 - Maybe trade?
 - suggested because some minerals and shells from distant sources were found there, possibly imported for use in Jericho, or for trade to other places
 - obsidian and various green stones from Anatolia
 - turquoise from Sinai
 - cowry shells from Red Sea
 - but not in great quantities, nor as manufactured goods
 - and since Jericho is near Dead Sea sources of special resources that could have been traded for products from distant places
 - salt

- bitumen (a tar-like material useful for sticking things together like small stone blades in their handles, and for waterproofing things like basketry)
- sulfur (a bright yellow mineral useful as a pigment and possibly for medicinal or ritual purposes)
- but others argue that these materials are available in many places, so Jericho was not particularly favored in this regard, either
- Was PPNA Jericho a city?
- Was the society at PPNA Jericho a civilization?
- Göbekli Tepe
 - Contemporary with the PPNA (10,000-8500 BC) of the Levant, some people there and virtually all people in other regions were still mobile foragers
 - But for some reason, some also started to do things we don't normally associate with mobile foragers
 - The earliest and most dramatic example known so far: Göbekli Tepe
 - located a bit to the north of the Natufian area
 - at the foot of the Taurus mountains of southernmost Anatolia
 - around 9200 – 8800 cal BC, the people had not yet settled down or started significant farming
 - as far as we know now...
 - plant and animal remains from the site are said to include only wild varieties
 - but from a possibly fairly wide region, some of them converged on a prominent hilltop called Göbekli Tepe
 - to build and use some dramatic, non-domestic stone structures
 - they carved T-shaped slabs out of the nearby exposed bedrock
 - and stood them up in circular arrangements, so that that the above-ground part was about twice as tall as a person
 - some of these had carved reliefs, or even 3 dimensional attached sculptures, showing animals and geometric figures
 - the slabs may have held up a wood and thatch roof, although that is speculative
 - around the slabs, the ground was packed into a smooth clay floor
 - later, they stacked smaller stones to build thick walls that connected and encircled the slabs, forming circular spaces or large rooms
 - there is no sign of any significant number of people living at the site
 - although we can easily imagine a small group of permanent ritual specialists, caretakers, etc.
 - the structures were clearly not for any practical purpose; they must have had some sort of supernatural uses
 - bones of many different wild species have been found there, suggesting that some may have been left at the site as offerings
 - nor is there any evidence yet that they were burial sites, although the excavator, Klaus Schmidt, suspects that some will ultimately be found in the earliest levels
 - these are very well preserved, because after a probably long period of use, the structures were intentionally filled in and buried

- so the monoliths were not exposed to weathering for the following almost 11,000 years
- the early dating of the structures is based on just two radiocarbon samples of burned wild plants on the floor of one structure with carved monoliths (structure A)
 - both samples are probably from a single burning event
 - the dates are 9559 ± 53 , 9452 ± 73 bp, or about 9200 – 8800 cal BC
 - for the moment, there is no reason not to accept these dates
 - other than that they imply that the structures were built prior to the spread of farming in this region
 - but it would be wise to reserve some doubts until more evidence confirms them
- implications:
 - some sort of religious or ideological change that motivated some serious organization and expenditure of effort was occurring prior to the adoption of agriculture
 - if not because of a shift to farming, then why?
 - these foragers were able to accumulate enough surplus to maintain at least a modest number of workers, for a modest span of time, probably at occasional intervals, to carve and place the monoliths, and later to build the fieldstone walls
 - the labor cost of the structures suggests that the site was probably able to draw devotees from a fairly large area
 - bringing together people from multiple foraging bands in a common purpose
 - maybe encouraging more complex social arrangements
 - they evidently had sufficient leadership to organize and execute the projects
 - again, if not because of a shift to farming, then how and why?
 - archaeologists used to attribute major changes in economic and social organization to materialist causes, like shifting to farming
 - now, many are looking at ideological, cognitive, or cultural explanations for these early group projects and large settlements
 - as Schmidt says of Göbekli Tepe, “temples first”
 - these theories will be much harder to assess archaeologically
 - are they going to be supported in the coming years?
 - or will evidence supporting more materialist explanations turn up and swing the intellectual tide back?