

Hunter, gatherer... architect? Civilisation's true dawn

by David Robson

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The discovery of huge temples thousands of years older than agriculture suggests that culture arose from spiritual hunger, not full bellies.

WHEN Steven Mithen's team began to dig through the desert soil, his expectations were low. "We thought it was just a big rubbish dump," he says.

Still, even the prospect of rifling through trash was cause for some satisfaction. Mithen, an archaeologist at the University of Reading, UK, initially raised a few eyebrows when he told colleagues of his plans to dig for Stone Age ruins in south Jordan. "They said we'd never find anything there – it was a backwater," says Mithen. He proved them wrong by finding the remains of a primitive village. By sifting through its rubbish, he hoped to gain a glimpse of day-to-day life more than 11,000 years ago.

But as they dug through the detritus, one of his students came upon a polished, solid floor – hardly the kind of craftsmanship to waste on a communal tip. Then came a series of platforms engraved with wavy symbols. The excitement grew. "We were staggered day by day to find it getting larger, more complex, more peculiar," he says. "I'd never seen anything like it before. It was literally a moment when all your ideas change."



Göbekli Tepe: the world's first temple in southern Anatolia

Mithen now compares the structure to a small amphitheatre. With benches lining one side of a roughly circular building, it looks purpose-built for celebrations or spectacles – perhaps feasting, music, rituals, or something more macabre. Pointing out a series of gullies running down through the floor, Mithen wonders whether sacrificial blood might have once flowed in front of a frenzied crowd.

Whatever happened at the place now known as Wadi Faynan, the site could transform our understanding of the past. At 11,600 years old, it predates farming – which means that people were building amphitheatres before they invented agriculture.



The "amphitheatre" at Wadi Faynan: evidence of monumental architecture 11,600 years ago (Image: Steven Mithen)

It wasn't supposed to be that way. Archaeologists have long been familiar with the idea of a "Neolithic revolution" during which humans abandoned the nomadic lifestyle that had served them so well for millennia and settled in permanent agrarian communities. They domesticated plants and animals and invented a new way of life. ("Neolithic" means "new stone age").

By about 8300 years ago, people in the Levant – modern-day Syria, Lebanon, Jordan, Israel, the Palestinian territories and parts of southern Anatolia – had the full package of Neolithic technologies: settled villages with communal buildings, pottery, domesticated animals, cereals and legumes. Art, politics and astronomy also have their roots this time.

"It's one of the most important shifts in history," says Jens Notroff at the German Archaeological Institute in Berlin.

And yet here was a settlement more than 3000 years older displaying many of those innovations, but lacking the technology that is supposed to have got the whole thing started: farming. The people who built Wadi Faynan were not nomads, but neither were they farmers. They probably relied almost exclusively on hunting and gathering.

Instead of agriculture, then, some very different motivations seem to have drawn these people together – things like religion, culture and feasting. Never mind the practical benefits of a steady food supply; the seeds of civilisation may have been sown by something much more cerebral.

For much of the 20th century our view of the Neolithic was seen through the lens of more recent social upheaval: the industrial revolution. The idea originated, in part, with Marxist archaeologist Vere Gordon Childe. Seeing the urban societies that had coalesced around factory towers and "dark satanic mills", Childe suspected that the first farms could have been similar hotbeds of rapid social and cultural change.

Driven to extremes

He proposed that it began in the Levant around 10,000 years ago. As the ice age ended, the region became more arid, save for smaller patches of lush land by rivers. With these limited areas to forage, nomadic hunter-gathers discovered that it was more efficient to cultivate barley and wheat in one place. A baby boom followed. As Childe put it in his 1936 book *Man Makes Himself*: "If there are more mouths to feed, there will also be more hands to till the fields... quite young toddlers can help in weeding fields and scaring off birds." And as the farmers' crops and families blossomed, so too did their crafts, including carpentry and pottery, along with greater social complexity as the groups began to organise their activities around their work. The growing communities would have also been fertile ground for more organised forms of religion to flourish.

At least, that was the theory. *Man Makes Himself* became a touchstone for many archaeologists – even as cracks began to appear in some of its assumptions. Studies of the climate, for instance, suggest the changes following the ice age were not nearly as radical as Childe believed. Without the environmental spark, there were doubts that agriculture offered any real benefits. Particularly when you only have a few bellies to fill, plundering nature's larder is just as efficient as the back-breaking business of planting, weeding, and harvesting. So why change?

By the 1990s, those cracks had turned to gaping chasms, following digs in Anatolia, Turkey. The region was already attracting attention for a site known as Nevalı Çori, which was around 10,000 years old. Although it seemed to be a simple settlement of proto-farmers, the archaeologists also uncovered signs of more advanced culture, embodied in a series of communal "cult buildings" full of macabre artwork.

The buildings were remarkably large and complex for something so old. And what they contained was even more revealing. In one sculpture, a snake writhes across a man's head; another depicts a bird of prey landing on the heads of entwined twins. The most eye-catching feature was a collection of strange, anthropomorphic T-shaped megaliths with faceless, oblong heads and human arms engraved on their sides. As people sat on benches around the walls of the buildings, these monuments must have loomed over them like sentinels.

Lost society

Sadly, the site was submerged when the Atatürk dam was built across the Euphrates. But one of the archaeologists, Klaus Schmidt, set about scouring the surrounding countryside for further clues to the origins of this lost society. During this tour he found himself on a mound called Göbekli Tepe.



Nevalı Çori now lies below the waters of the Euphrates, flooded by the Ataturk Dam (Image: Ed Kashi/NGS)

The grassy knoll was already popular with locals visiting its magic "wishing tree", but what really caught Schmidt's eye was a large piece of limestone that closely resembled those T-shaped megaliths from Nevalı Çori.

It didn't take him long to realise he had stumbled on something even more extraordinary. Buried beneath the hill, he found three layers of remains. The oldest and most impressive was more than 11,000 years old, with a labyrinth of circular "sanctuaries" measuring up to 30 metres in diameter. Around the inner walls were magnificent, T-shaped monuments encircling two larger pillars, like worshippers surrounding their idol. "They appeared to be everywhere," says Notroff, one of Schmidt's colleagues.

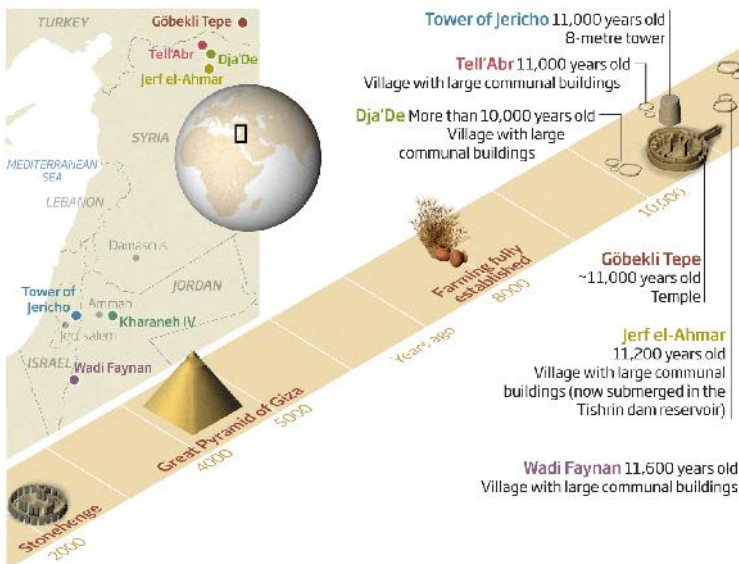
Some were engraved with belts and robes, and given their monumental size – around three times the height of a modern man – and abstract appearance, Schmidt interprets them as representing some kind of god-like figure. Others bear grotesque carvings of wild beasts such as snakes, scorpions and hyenas. To Schmidt, the images bring to mind the horrific scenes in Dante's Inferno.

If Nevalı Çori was a humble parish church, then this was a cathedral. Strangely, each sanctuary seems to have been dismantled and deliberately filled in some time later – perhaps as part of a ritual. Amid the jumble of debris, Schmidt's team have found many bones, including human remains. His team has also found a surprisingly high number of rooks and crows – birds that are known to be drawn to corpses. For this reason, Schmidt's team believe that some of the buildings' functions may have centred on death.

We can never know what happened there, but Schmidt has some suspicions. From the outset, he was fascinated by strange door-like "porthole stones", found within the sanctuaries and often decorated with grisly images of predators and prey. Since the holes in the middle are often the size of a human body, Schmidt imagines that visitors may have crawled through to symbolise the passage into the afterlife.

Monumental discoveries

Recent finds in the Levant suggest that people were living in large settlements and building temples long before they invented agriculture



It is clear that Göbekli Tepe was the creation of a sophisticated society, capable of marshalling the labour of perhaps hundreds of people. "It suggests organisation and cooperation," says Notroff. "That degree of social complexity just wasn't expected in emerging early Neolithic cultures."

Along with the complex artwork and intricate ideology, this kind of development was supposed to come long after agriculture. Yet Schmidt failed to find any signs of farming. Domesticated corn can be distinguished from its wild ancestor by its plumper ears, but there was no trace of it. Stranger still, there is no sure

evidence of any kind of permanent settlement at Göbekli Tepe. Schmidt says it was too far away from water supplies and he has found little evidence of the hearths, fire pits or tools you might expect in a dwelling.

His conclusions were radical. He proposed that Göbekli Tepe was a dedicated site of pilgrimage, perhaps the culmination of a long tradition of gatherings and celebrations. Importantly, it was ideology, rather than farming, that was pulling these people together to form a larger society.

Indeed, it may have been the need to feed people at these kinds of gatherings that eventually led to agriculture – which turns the original idea of the Neolithic revolution on its head. "Rituals and feasts may have been the impetus to motivate people to gather on certain occasions at certain places," says Notroff. "Maybe, new food sources and processing techniques were explored to feed this demand." Tellingly, recent genetic work pinpoints the origin of domestic wheat to a spot very close to Göbekli Tepe.

Alternatively, agriculture could have been an accidental by-product of social gatherings where large quantities of wild food plants were consumed and their seeds dropped, creating a cycle of unintentional cultivation. "My guess is that domesticated plants fall out almost by accident, due to intensive exploitation of wild plants that is demanded by the communal activities," says Mithen. Some researchers now argue that domestication of animals, particularly wild cattle, also has spiritual rather than economic roots (see "Sacred cows").

Schmidt's finds astonished archaeologists and captivated the wider world. The "first temple" soon began attracting a new swarm of pilgrims, with film-makers, archaeologists and tourists flocking to visit. "It was extraordinary," says George Willcox of the Archéorient Laboratory of the French National Centre for Scientific Research in Jalès, who has visited the site. "People just couldn't believe it was Neolithic."

Some researchers are dubious. The original peoples' habit of periodically burying their sanctuaries means there is always the possibility that old remains were dug up to dump on the monuments, rather than contemporary debris. That would shave hundreds or thousands of years off the age of the temple, making it much less revolutionary.

Others doubt Schmidt's claims that Göbekli Tepe was the site of pilgrimage rather than a permanent settlement. "I think the evidence is weak," says Edward Banning at the University of Toronto, Canada. Take the apparent lack of a water supply. Banning points out that rivers and springs that once watered the site may have long since dried up without leaving a trace. The extravagant artwork, meanwhile, could just be house decorations. "It's quite possible to have domestic structures that are heavily invested in symbolism," he says – just look at the way people today hang crucifixes and icons in their kitchens.

Such concerns don't necessarily derail Schmidt's broader theory that culture, rather than farming, propelled our march to civilisation. "I think there is something to be said for social and ideological changes having an important role," says Banning. But it was clear that to expand the theory, archaeologists needed to look further afield.

Ideology before subsistence

Fortunately, they were on the trail almost as soon as Göbekli Tepe was discovered. A little down the Euphrates, across the border into Syria, French researchers have found a trio of early Neolithic villages called Dja'De, Tell'Abr, and Jerf el-Ahmar. Although they are clearly permanent settlements rather than sites of pilgrimage, they all house large, highly decorated communal buildings that seem to have been the product of the same complex, ritualistic culture as Göbekli Tepe.

With Syria's civil war raging, they are now off limits – but Willcox did manage to sift through charred remains of seeds caught in cooking pots and house fires at Jerf el-Ahmar. He found that the first inhabitants were still gathering a wide variety of wild cereals and lentils. Later on, however, in the upper layers, a few species begin to dominate – ones that would later be domesticated. You also find evidence of imported crops that wouldn't naturally grow in the region. So the people of Jerf el-Ahmar were probably cultivating plants by the latter stages of its occupation. The killer point, though, is that they had begun to build their complex society long before they had domestic crops.

The "amphitheatre" at Wadi Faynan, Jordan, which Mithen first excavated in 2010, tells a similar story much further south. With a floor area of nearly 400 square metres – about the same as two tennis courts – it is one of the largest ancient structures to have been found after the Göbekli Tepe. It was also surrounded by a "honeycomb" of other rooms, which Mithen suspects may have been workshops.

Importantly, the remains are neatly layered, allowing the archaeologists to pin a firm date on the site – 11,600 years ago, right at the dawn of the Neolithic. So far, Mithen has only found wild varieties of figs, barley and pistachios in the lowest, oldest layers, suggesting the first inhabitants were hunter-gatherers.

What's most surprising is that Wadi Faynan lies hundreds of kilometres from the other sites. "It shows that a complex society was developing in the wider Levant at that time," says Mithen. Further east, too, there is monumental architecture that predates agriculture and may have had a ritualistic function (see "Tower of Power"). Mithen and others now think of the whole region as an area of "social experimentation".

If these finds are helping to rewrite one chapter of the Neolithic, there are still many blank pages to fill. Wadi Faynan and Göbekli Tepe must have been the product of a long journey – so when did we make those first baby steps, and why? We may have to dig deep into the past to find out. Around the banks of the Sea of Galilee in Israel and across the border in Jordan, archaeologists have unearthed the foundations of brushwood and mud huts dating from at least 20,000 years ago. From the scattering of plant remains, it seems these sites were occupied by many people, perhaps for long periods, suggesting they were already experimenting with new ways of living at this time.

As if foreshadowing the huge gatherings at Göbekli Tepe, these places were meeting points for different bands from across the region, each of which left their mark with signature styles of stone tools. And their connections may have stretched far and wide; the Jordanian site, Kharaneh IV, has yielded a small hoard of assorted seashells originating from the Mediterranean, Red Sea and the Indian Ocean. "We knew these large-scale interaction networks were common in the Neolithic period, and now sites like these clearly demonstrate these networks were established much earlier in time," says Lisa Maher at the University of California, Berkeley, who has studied the site in Jordan.

Might these early meetings have spurred on the cultural change? "In a large group you need to establish a collective identity," explains Trevor Watkins at the University of Edinburgh – otherwise the meetings are volatile and soon break up. "And the way that works is through ceremonies, rituals, and symbols." So social gatherings can fuel cultural change.

It also works the other way: culture can encourage us to seek out other people to share ideas and maintain our traditions. "It's why I live near Edinburgh," says Watkins. "We have a lot of music, theatre, writers, and from my point of view, a lot of archaeologists to talk to." There's no reason to think that the thirst to share and communicate would have been any weaker in prehistory.

So perhaps the Neolithic arose as communities and cultures evolved together through a self-perpetuating cycle. It was just luck that with a lush climate and plentiful wild foods, these emerging societies could also find a new way of exploiting the land to feed their booming populations. By around 8000 years ago, they began to explore pastures new, bringing their seed, languages and genes to the rest of Europe and Asia.

For the moment, the archaeologists have their hands full exploring the riches of their digs. Schmidt's team hasn't reached the oldest layers of Göbekli Tepe yet, so it may yet yield more secrets. "To completely understand the importance and meaning of the site, a lot more research is necessary," says Notroff. And within the past few years, Turkish archaeologists have explored other, smaller sites nearby that might solve some of the remaining mysteries of the culture.

Mithen, meanwhile, finds the prospect of work at Wadi Faynan both "daunting and thrilling". It has already been more than a decade since he first visited. "And I know it's going to be a dominant aspect of my work for the next 10 or 20 years." As his team digs deeper, he hopes he may find some structures from even further back in time – perhaps helping to join the dots between those early mud huts and the more elaborate society that sat around the amphitheatre. "We've only scratched the surface."

Whatever they find, our views of the origin of civilisation – and of the modern world that we live in – will never be the same.

Tower of power

It has been called the world's first skyscraper. 11,000 years ago, a society of hunter-gatherers built an 8-metre tall tower and staircase out of stone – for apparently no reason.

Ever since it was discovered, the Tower of Jericho has puzzled archaeologists. Some have suggested that it was built as a watchtower, but there's no evidence of any invasions. Instead, the tower might have been a way for the first villagers to bond.

Roy Liran and Ran Barkai at Tel Aviv University, Israel, recently simulated the way the tower would have looked during the summer solstice. They found that the shadows of the surrounding hills would have first enveloped the tower as the sun set, creating an image full of foreboding. The eerie effect could have been used by the village chiefs, they say, to scare their brethren into working harder.

Sacred cows

Domestication of plants in the Neolithic Middle East is often explained in economic terms, as a labour-saving device or an attempt at food conservation. In the light of new finds (see main story), this long accepted explanation is no longer convincing.

It now appears that the human mindset began to change before the economy changed. It began with nomadic hunters and gatherers coming together for ritual purposes at places like Göbekli Tepe. As some laboured, probably seasonally, on the construction of the monuments, others gathered wild grains to feed them. Some grain dropped near the temporary settlement. By a process of repetition and gathering the nearest plants first, wheat was gradually and accidentally domesticated.

What of animals? Could "accident" have played a role there too?

We argue that the domestication of animals had its conceptual roots in hunter-gatherer societies of the Upper Palaeolithic (around 20,000 to 12,000 years ago). Cave art suggests that people at that time had settled on a bestiary of species with special significance beyond pure economics.

The core species of Upper Palaeolithic art were aurochs, horses, bison and felines. Other species, such as mammoths, were added and discarded in some areas, but there was never a time when Upper Palaeolithic cave artists painted whatever took their fancy, such as predominant human faces, trees, or hares. The image-makers focused on creatures that were believed to be spiritually powerful in some way.

What we call "conceptual domestication" of certain – largely herd – animals was already part of people's thinking long before they began to drive and corral actual animals.

We still see this in modern foraging societies such as the San of southern Africa, where the social status of "ritual specialists" (similar to shamans) frequently rests on their intimate relations with powerful spirit animals. Often, these animals are big cats, the ultimate, intractable wild creatures.

But this sort of relationship extends to the control of economically beneficial species, such as antelope.

The striking carvings at Göbekli Tepe suggest that around 11,000 years ago, a similar "spiritual" relationship may have existed with numerous creatures: birds, felines, foxes, aurochs and even insects.

At later sites, the relationship begins to focus on more easily corralled animals, such as pigs and sheep. However, because ritual specialists find power in wild animals rather than those that have been domesticated and thereby trivialised, this trend eventually focused on herds of wild aurochs.

Possibly, people already believed that these wild herds were under the control of ritual specialists. Actual domestication, by driving and corralling, was a logical next step, as it would have been a visible manifestation of the ritual specialists' power. People did not invent domestication of animals for economic purposes: they did so for socio-religious ones. David Lewis-Williams is founder and professor emeritus of the Rock Art Research Institute, University of the Witwatersrand, South Africa. David Pearce is the director of the Institute. They are co-authors of *Inside the Neolithic Mind: Consciousness, cosmos and the realm of the gods* (Thames & Hudson)