

Neolithic Beginnings in Western Asia and Beyond

Professor Steven Mithen, *University of Reading*, reports on recent developments in our understanding of agricultural origins in Western Asia and his work in Wadi Faynan.

Almost forty years ago the British Academy funded a major project into the origin of agriculture following a proposal by Professor Grahame Clark. This project had profound consequences for our understanding of the past. The idea of an ‘origin’ for agriculture, epitomised in Gordon Childe’s notion of a ‘Neolithic Revolution’ as proposed in his 1936 book *Man Makes Himself*, was replaced by that of gradual economic transformation during which most communities were neither pristine ‘hunter-gatherers’ nor fully-fledged farmers. Such findings still hold today and underlie a great deal of teaching and research – not surprisingly as many of the PhD students associated with Clark’s project now hold chairs of archaeology around the world. This view of economic evolution rather than cultural revolution remains particularly applicable to Western Asia, the region where the first fully agricultural communities arose at sometime between 10,000–8,000 BC. Indeed recent research has shown that the early Neolithic communities of this region, people who were hunter-gatherer-cultivators, were more widespread and complex than previously supposed (*figure 1*).

When Kathleen Kenyon excavated Tell-el Sultan at Jericho in the 1950s she found that the first settlement had been made at around 9500 BC, just after the marked increase in temperature and rainfall that started the Holocene period (*figure 2*). This had been a village of mud-brick circular dwellings. Their occupants had cultivated wheat and barley on the alluvial soils of the Jordan Valley, made no use of ceramics, and often exhumed the skulls of their dead for secondary burial, perhaps after a period of display. Kenyon defined this initial phase of settlement as the ‘Pre-Pottery Neolithic A’ (PPNA), the ‘A’, differentiating it from the following ‘PPNB’ during which two-storey, multi-roomed, rectangular buildings were constructed. Some of the cereal grains recovered from the PPNA deposits were from domesticated wheat and barley and the economy at Jericho appears to have been a classic example of one that combined hunting and gathering with the cultivation of crops.

Following Kenyon’s work, further PPNA settlements were discovered in the vicinity of Jericho, in the region of the West Bank. Archaeological sites such as Netiv Hagdud and Gilgal were excavated and confirmed many of Kenyon’s findings as to the nature of early Neolithic domestic architecture, economy and burial customs. Nevertheless, in spite of the many similarities, Jericho remained unique with regard to its size and the presence of monumental architecture – Kenyon had discovered an encircling wall and a tower that ‘in conception and construction ... would not disgrace one of the more grandiose medieval castles’ (Kenyon (1957, 68).

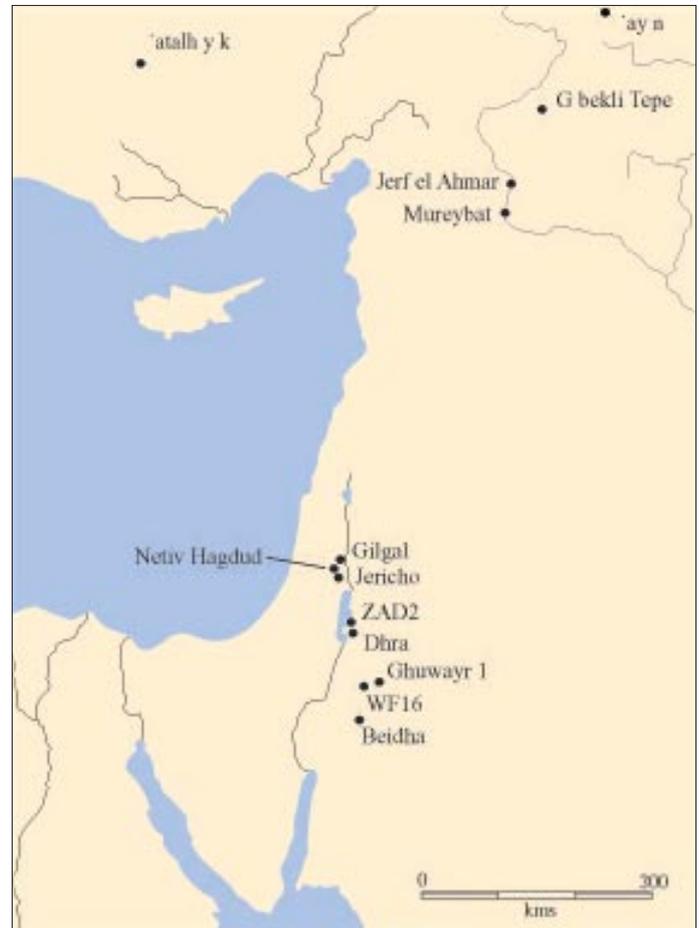


Figure 1. Western Asia showing the location of sites referred to in the text.



Figure 2. Tell-el Sultan, Jericho, in September 1999.

Although excavations at Mureybet in Syria and Çayönü in south-east Turkey indicated that early Neolithic developments had occurred elsewhere in the Levant, many archaeologists have continued to favour the West Bank, and Jericho in particular, as to where both farming and the Neolithic begun. Environmental explanations for these developments have become more persuasive as data from ice cores confirmed the severity of climatic conditions (cold and dry) prior to 9600 BC, and their dramatic improvement (warm and wet) soon after that date.

During the last few years, however, both the pre-eminence of Jericho and environmental change as the prime, perhaps only, cause of economic change have become increasingly questioned. New archaeological discoveries have shown that the PPNA was more widespread than previously believed, while the true significance of Neolithic ideology – the religious views and practices of this period – is becoming appreciated.



Figure 3. Wadi Faynan, Jordan, in September 2000. The land rover is positioned on the PPNA site of WF16.

New PPNA sites in Southern Jordan

Three new PPNA sites have been discovered in southern Jordan. The most southerly of these, WF16, is located in Wadi Faynan and has been examined by myself and Bill Finlayson (Director of the Council for British Research in the Levant) between 1996–2002 (figure 3). We had gone to Wadi Faynan to undertake a survey of its prehistoric archaeology and discovered the PPNA site on our very first visit – only the fourth site of this period to have been discovered in Jordan, and by far the best preserved. Our excavations have demonstrated the presence of similar types of circular dwellings, stone technology and burials to those found at Jericho (figure 4). The richness of the WF16 material culture has been surprising with a great many shell and stone beads, carved objects and pieces of worked bone. Post-excavation studies are now practically complete with several important findings supporting the idea that PPNA communities were truly transitional from hunting-gathering to farming, providing further evidence for evolution rather than revolution at the start of the Neolithic.

The animal bones from WF16 are dominated by those of *capra*, most likely of wild goat but possibly of ibex. This is unusual for

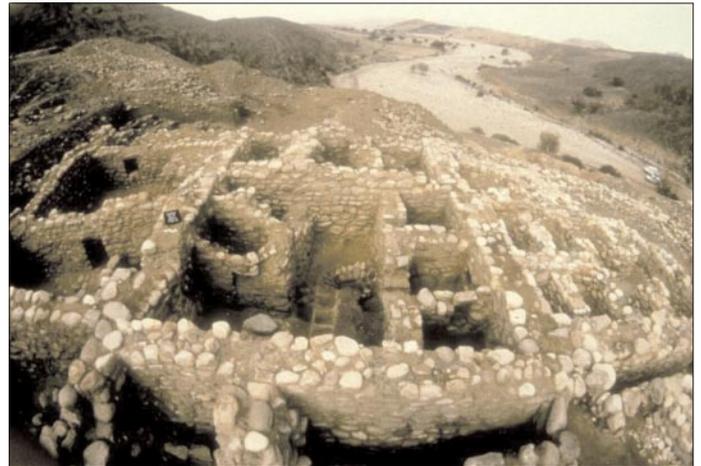


Figure 5. Ghuwayr 1, (PPNB), Jordan. The site of WF16 is located on the small spur visible in the background of the picture

a PPNA site as gazelle is normally the dominant fauna. It may be explained by the relatively rocky surroundings of WF16, as the land to its immediate east begins to climb towards the Jordanian plateau. The *capra* bones are also surprisingly small; in fact, as far as we can ascertain, they are no different in size to those at the later PPNB settlements of Ghuwayr 1 (figure 5), located just 500 m away, and Beidha, which is 50 kilometres to the south-east. Animal size is a strong indication of wild/domesticated status and there is no doubt that the goat bones from Ghuwayr 1 and Beidha came from domestic herds. It is also characteristic of herding economies to slaughter a majority of the immature individuals, whereas hunters tend to select the larger mature animals to kill. The bones from WF16 are equally divided between mature and immature animals. So, if they are indeed from goat, did they come from animals living in domesticated herds or wild flocks? The evidence suggests the former, or at least herds over which there was some form of human control even if the animals remained partially wild. If this is the case, then the WF16 goats would be some of the earliest known animals under human control in the Near East.



Figure 4. Excavation of circular dwellings at WF16, September 2000.

A reduced emphasis on hunting activity is also apparent from the patterns of breakage, damage and wear identified on the pointed stone artefacts from WF16 by microscopic examination. A characteristic tool of the PPNA is the el-Khiam point. These are triangular in shape with opposed notches at their base (*figure 6*).



Figure 6. El Khiam points, a diagnostic artefact of the PPNA.

Such points are widely assumed to have been arrow heads. But less than a third of those from WF16 had been used in this manner – the majority were used as perforators and drill-bits, as had numerous other types of points. The picture emerging from WF16 and other PPNA sites is of intensive manufacturing activity – the working of reeds, wood, hide, stone and other materials. Quite what was being made remains unclear but one can surmise that this included clothing, traps, cages, stone beads, wooded artefacts – and perhaps goat pens. Such intense activity is more likely to be found within sedentary villages rather than at temporary camping sites.

An impression of year-round settlement at WF16 is also apparent from the substantial quantities of plant processing equipment excavated at the site, including large, heavy mortars and grinding slabs. Although traces of cereals are rare, it seems likely that stands of wild barley had been cultivated on the river banks, which were consumed with a diverse range of wild seeds, fruits and vegetable material. Whether people did indeed live all year round at WF16 remains contentious; we have evidence that the dwellings were occupied in the summer and the winter, but whether these were successive periodic visits or part of a continuous occupation is unclear.

Further new information about the PPNA is emerging from ongoing excavations at two sites located about 50 kilometres north of Wadi Faynan. The site of Dhra', being excavated by Bill Finlayson and Professor Ian Kuijt (University of Notre Dame, USA), has produced a mud-walled structure with curious pillars in its interior – whether for structural or symbolic purposes remains unclear (*figure 7*). No more than two kilometres away, the site of ZAD 2 is being excavated by Professor Phil Edwards (La Trobe University, AUS). This also has some impressive

architecture, and a narrow range of stone artefacts suggesting that some specialised activities had taken place at Zad.

When placed together, the cultural diversity and richness of WF16, Dhra' and ZAD 2 are equal to that found in the West Bank – with the exception of that found at Jericho. Although none of these new sites in southern Jordan have monumental architecture, even this aspect of Jericho's uniqueness has now been challenged by the further recent discoveries in the northern reaches of the Levant.

New PPNA sites in Syria and Turkey

During the mid 1990s Professor Danielle Stordeur (CNRS, Lyons) excavated the PPNA site of Jerf el Ahmar in Syria, immediately prior to it being inundated by floodwaters from the newly created Lake Assad. She found elaborate architecture including what appears to have been a centralised grain silo and a circular structure devoted to ritual activity that had once had bulls' skulls attached to its walls. Stordeur also found human burials, ritual deposition of skeletons and skulls, animal figurines and four incised stone plaquettes with pictograms that look as if they are part of a symbolic code.

Although Jerf el Ahmar provided new insights into the early Neolithic, the site falls comfortably into the range of architectural styles, economic activities and burial practices encompassed by the PPNA as defined within the Jordan Valley. This is not the case, however, for the site of Göbekli Tepe, located in south-east Turkey.

Göbekli Tepe was discovered in the 1960s when an archaeological survey recorded 'a complex of round-topped knolls of red earth' upon the summit of an otherwise barren limestone hill. A large number of limestone slabs were assumed to be remnants of a Byzantine cemetery and the site was effectively ignored for thirty years. In 1994 Klaus Schmidt (German Institute of Istanbul) climbed the hill and recognised



Figure 7. Excavations at Dhra', Jordan, directed by Bill Finlayson and Ian Kuijt, August 2001.

the flint artefacts scattered across the ground as Early Neolithic in date and the limestone slabs as the remnants of contemporary architecture. He began excavating and has now revealed an astonishing Neolithic site (*figure 8*).



Figure 8. Excavations at Göbekli Tepe, S.E. Turkey, directed by Klaus Schmidt. October 2002.

Very soon after 9600 BC, at the same time as the first circular dwellings of Jericho were being built, people had come to Göbekli and carved massive ‘T-shaped’ pillars out of the limestone bedrock. Many were eight feet high and seven tons in weight. These were erected within circular buildings that had been sunk into the hill to create what looked like cellars in the earth. Two stone pillars were placed within the centre of each building and up to eight evenly placed around its edge, between which benches had been constructed. The faces of many pillars had been carved to display wild animals – snakes, foxes, wild boar, wild cattle, gazelle and cranes – together with enigmatic symbols like the pictograms of Jerf el Ahmar. The face of one pillar had been carved to depict a human arm and the pillars themselves resemble massive human torsos.

Four adjacent buildings of this type had been exposed when I made my visit to the excavations in October 2002. Schmidt suspects that there are several more still deeply buried below the surface of the hill. When the site had been abandoned, the early Neolithic people deliberately buried their ritual buildings and pillars below several tons of soil.

The time and effort involved in quarrying, carving, transporting and erecting such pillars by people equipped with no more than flint tools is staggering to consider. And even the seven-ton pillars had not entirely satisfied their needs. When Klaus showed me the quarries located up to 100 meters from the buildings he pointed to an unfinished ‘T-shaped’ pillar still partly connected to the bed rock – if removed it would have been no less than twenty feet long and 50 tons in weight. Not surprisingly, our feet crunched over a thick carpet of flint flakes from the tools used to carve the stone. These were made from many thousands of flint nodules that had been carried up the hill from a source several kilometres away.

All of this work had been done by people who relied entirely on wild game and plants for food. Although the excavations have produced a great number of animal bones and plant remains not a single one of these is from a domesticated species. And there are no traces of any domestic dwellings – no houses, fireplaces or pits. Schmidt concludes that Göbekli had been a ritual centre. It was, he believes, a meeting place for many different groups who lived in a 100 kilometre radius of the hill, or perhaps even further afield. They had gathered at Göbekli once or twice a year for purposes of an entirely religious nature. Such gatherings are very likely to have involved people from Jerf el Ahmar. As well as similarities in the choice of abstract signs and the range of animals depicted, the two sites share architectural similarities, especially in the use of circular buildings with benches.

Göbekli Tepe is of great interest because it provides a precedent for the type of imagery found at the famous Neolithic site of Çatalhöyük in Central Turkey, where at around 7000 BC rooms were ‘decorated’ with bulls heads covered in plaster and paintings of vultures and leopards. Perhaps of even more importance is that it is no less than 30 kilometres from the Karacadağ Hills. This is where geneticists have identified the closest wild relative to domesticated wheat and hence south-east Turkey appears to be the best candidate for the origin of wheat domestication. It is possible that the need to acquire sufficient food for those who had worked and gathered for ceremonies at Göbekli Tepe, and perhaps other as yet undiscovered ritual sites, had led to the intensive cultivation of wild cereals which inadvertently created the first domestic strains. When people dispersed from such ritual centres back to their villages, such as Jerf el Ahmar, Jericho and perhaps even WF16, they may have taken seed grain with them and hence spread the new type of wheat around the Near East.

In this regard the domestication of wheat may have had little to do with people struggling against the harsh climatic conditions immediately before the global warming at 9600 BC. It may have been no more than an accidental by-product of the ideology that drove hunter-gatherers to carve and erect massive pillars of stone on a hilltop in southern Turkey.

A global perspective

The new PPNA discoveries in Western Asia, from WF16 in the south to Göbekli Tepe in the north, requires us to revise our

views about how agricultural economies emerged and the Neolithic began. Jericho and the climatic changes around 10,000 BC were no doubt vitally important, but it is evident that the PPNA was more widespread than once believed and changing ideology was as significant as the changing environment.

The opportunity to visit Göbekli Tepe, Dhra', ZAD 2 and many other sites during the tenure of my British Academy Research Readership, as well as preparing the publication of WF16, led me to address a question that I had not even envisaged asking when I began my research: did farming communities arise in other regions of the world by a similar process to that which we can see in Western Asia? One of the most astonishing features of human history is that agricultural economies arose quite independently during the early Holocene in several different regions of the world. In Western Asia we know that sedentary lifestyles preceded plant domestication, which in turn preceded animal herding and the use of pottery. We also now know that changes in ideology went hand-in-hand with changes in economy. Is that pattern also found elsewhere in the world?

Undertaking a survey of the most recent findings concerning the origin and spread of farming throughout the world was a daunting task; new evidence has become available from all regions and the conclusions of geneticists about the origin of domesticated crops, domesticated animals and human groups are often in conflict with archaeological data. Having interpreted the evidence from each region (and published this within my recent book, *After the Ice*) the key finding was the immense variety of pathways that led to farming in different parts of the world. In Mexico, for instance, the domestication of squash and maize occurred while people still lived fully mobile lifestyles; in the Andes and North Africa animals were domesticated before plants; in China the invention of pottery technology coincided with the domestication of rice, but this long preceded farming and sedentary lifestyles in Japan. While farming based on cereals spread rapidly from its areas of origin in China and Western Asia, that based on roots, tubers and vegetables in New Guinea and Central America remained localised for long periods of time.

Australia remained a continent of hunter-gatherers until the Europeans arrived, while the timing and process by which indigenous African plants became domesticated remains effectively unknown.

That there were so many different pathways to farming makes its near contemporaneous development in independent regions of the world during the early Holocene all the more remarkable. Although Western Asia has by far the highest quality and quantity of evidence, even that region has given us surprises during the last decade as in the richness of the PPNA culture in southern Jordan and the monumental sculptures of Göbekli Tepe. The emergence of agriculture in this region and throughout the world is proving to be more complex and more interesting than we had ever imagined.

Further Reading

- Bar-Yosef, O. & Gopher, A. (eds.) (1997). *An Early Neolithic Village in the Jordan Valley. Part I: The Archaeology of Netiv Hagdud*. Cambridge, MA: Peabody Museum of Archaeology and Ethnology, Harvard University.
- Heun, M. Schafer-Pregl, R., Klawan, D., Castagna, R., Accerbi, M., Borghi, B. & Salamini, F. 1997. Site of einkorn wheat domestication identified by DNA fingerprinting. *Science* 278, 1312–1314.
- Kenyon, K. (1957). *Digging Up Jericho*. London: Ernest Benn Ltd.
- Mithen, S.J. (2003). *After the Ice: A Global Human History, 20,000–5000 BC*. London: Weidenfeld & Nicolson.
- Mithen, S.J., Finlayson, B., Pirie, A., Carruthers, D. & Kennedy, A. (2000). 'New evidence for economic and technological diversity in the Pre Pottery Neolithic A: Wadi Faynan 16'. *Current Anthropology* 41, 655–663.
- Schmidt, K. (2001). 'Göbekli Tepe, Southeastern Turkey. A preliminary report on the 1995–1999 excavations'. *Paléorient* 26, 45–54.
- Stordeur, D., Helmer, D. & Willcox, G. (1997). 'Jarf el-Ahmar, un nouveau site de l'horizon PPNA sur le moyen Euphrate Syrien'. *Bulletin de la Société Préhistorique Française* 94, 282–285.

Professor Mithen has received several research grants from the British Academy in support of his work in Wadi Faynan. He also held a British Academy Research Readership 2001–03.