

# The neolithic revolution and the emergence of humanity: a cognitive approach to the first comprehensive world- view

The thesis of this paper is built upon a good deal of theoretical discussion that is not yet widely discussed in the archaeological literature. A substantial part of the paper is therefore concerned with introducing some of this new material in order to build the groundwork on which the concluding discussion can be constructed. The theme is very relevant to the themes of this volume, since it concerns the evolution and emergence of our species-specific, human cognitive capacity to learn cultural knowledge, embed it in the context of our minds, and generate further cultural actions or statements, transmitting information to others. It bears on the heart of the process of cultural transmission, the relationship between the minds of individuals and the collective of culture to which they subscribe. Since it will be a long journey through some difficult country before we reach the concluding discussion of this paper, it may be useful to outline that thesis here at the beginning, and also offer a sketch-plan of the route through the difficult country.

The thesis is that, at a certain stage in the evolution of the modern human mind, it became possible for people to formulate and articulate a 'world-view' in which people could situate themselves in relation to each other, to their place in the world, and imagine a universe that extends beyond the world of the physical senses, including supernatural beings. That stage was reached in south-west Asia at the beginning of the neolithic period, about 12,000 years ago<sup>1</sup>. Only then, people developed the ability to think in terms of abstract concepts, and to relate those concepts to one another into a systematic universe. They could communicate them in language, ritual, symbolic actions, but also in the creation of physical symbols. This was the birth of the modern human mind in terms of its ability to create, communicate and share a rich symbolic culture, present both in the minds of individuals, and signified symbolically in material things. In the new social circumstances of the beginning of the neolithic, such a 'world-view', involving religious ideas, an ideology, a cosmology and some infectious physical symbolic representations developed rapidly and spread contagiously.

This is a rather different way of viewing what Cauvin (1994) has called the 'révolution des symboles' at the beginning of the neolithic, ultimately engendering the PPNB phenomenon. In order to flesh out this baldly stated thesis we need to bring into the discussion some relevant ideas from disciplines other than archaeology. It will already be obvious that I do not put in central place in the neolithic revolution the changes in subsistence strategy that led to the adoption of cultivation and herding. Rather, I am fully in agreement with Jacques Cauvin's view that there were other things going on at this time, social changes and above all what Cauvin calls 'psycho-cultural' changes, developments that were critically important, and with which the changes in subsistence strategy need to be fitted. Much of what Ian Hodder (1990) has to say about *domus* and domestication is also attractive and stimulating. But what Cauvin and Hodder are unable to tell us is what was the cognitive basis of this 'psycho-cultural' transformation, and why this hugely important transformation in the way that people thought, imagined, and articulated their visions in physical symbols should happen when it did and where it did. This paper addresses those questions.

We shall start with a very brief review of the features of the beginning of the neolithic that are left out of consideration by the settlement-subsistence archaeologists (as Kent Flannery has categorised them), and which have been placed centre stage by a few authors, including Cauvin, Hodder and myself. To pursue matters further we need to know something of the linked areas of cognitive science, neurosciences, evolutionary psychology and the evolution of language. This inter-disciplinary field of studies in which cognitive and neuro-scientists, psychologists, linguists, philosophers, anthropologists and a few

archaeologists participate is still very young and is developing very rapidly. The central concern is with the evolutionary processes that have generated what we may call the modern human mind. The implication of that statement is clear: members of the genus *Homo* have not always possessed brains with the capabilities with which we are familiar, and indeed only three or four million years ago *Homo* brains were practically indistinguishable from those of other primates represented today by chimpanzees and gorillas. We are concerned here only with the final stage in that process, the emergence of a modern human mind, minds that work like ours, notwithstanding that they thought about different things and did things differently from us. Most views of the beginning of the neolithic look backward from what we know to be the end of the process we call the neolithic revolution. They ask questions about farming practices and their origins, or village life. I want to take a different perspective, one that works forward from the emergence of anatomically modern humans and what is often now referred to as the upper palaeolithic, or human, revolution. This perspective also involves a rather different, evolutionary time-scale.

For me, the journey towards these conclusions began with the experience of excavating the site of Qermez Dere in N Iraq in the 1980s (Watkins 1990, Watkins, Baird & Betts 1990, Watkins, Dobney & Nexbitt 1995). The extraordinary elaboration of activities involved in the building, maintenance, modification, demolition and replacement of buildings was fascinating. In each house we found pairs of pillars, symmetrically set on either side of the axis of the semi-subterranean houses, but the pillars were not structural. They were free-standing and had carefully formed shapes; each pillar might be re-shaped, re-worked, re-plastered. If these were symbolic features, their treatment must be considered ritual. Through the 1990s, the evidence of symbolic activity, architecture with symbolic references, images, and signs has mounted. For example, there is Jerf el Ahmar, a small village site beside the Euphrates just south of Carchemish that dates to the beginning of the aceramic neolithic period (Stordeur 1998, Stordeur, Helmer & Willcox 1997). At the heart of the village is a subterranean structure with a symmetrical arrangement of non-interconnecting chambers opposite an open area. At the end of the life of the building, it was burnt and destroyed, but not before a decapitated human corpse was placed in the centre of the floor. From the same site we have grooved stones, one of the artefacts typical of this period up and down the Levantine corridor, but in this case the reverse sides have carved signs that are clearly more than decorative motifs. And these are signs, too, on two small stone plaques. From two sites in south-east Turkey, Göbekli (Schmidt 1995, 1998) and Nevalı Çori (Hauptmann 1993), we have learned of spectacular sculptured monoliths in schematic human form.. They were associated with buildings that are quite distinct from the domestic form of houses, and which the excavators believes are shrines. There are other shrines, too, at the centre of the village of Çayönü, with more monolithic standing stones (Özdoğan & Özdoğan 1990).

We have known for many years about the ritual and symbolic treatment of the dead, and particularly of their detached crania, starting from the excavations at Jericho in the 1950s. Detached and plastered skulls have now been found at a number of sites in the Levantine corridor, while one of the special buildings at Çayönü was particularly associated with a large deposit of human skulls, as well as a collection of other skeletal elements. Several sites have produced stone masks, while 'Ain Ghazal, on the outskirts of Amman, has produced two caches of remarkable human sculptures at half life size (Rollefson 1983, 1998). And in this volume, Nigel Goring-Morris discusses the extraordinary diversity of ritual activity associated with buried human remains at Kfar Hahoreh.

People in the Levantine corridor had begun to extend the range of their symbolic representations and activities before the end of the epi-palaeolithic period. At the beginning of the neolithic, however, there seems to be an explosion of symbolic activity and the use of symbols. These are more elements in what Jacques Cauvin has called the symbolic revolution than he has allowed. The question that I want to consider, though, is where these ideas originated, and, in particular, why they originated when they did.

In order to speed us on our way, I am taking as read the argument of Jacques Cauvin's 1994 book, *Naissance des divinités, Naissance de l'agriculture: La Révolution des Symboles au Néolithique* (now also available, updated and in English, as Cauvin 2000). On the one hand, Cauvin is at pains to show that the beginning of farming crops is not the key point in the process that we call the neolithic revolution. People in the Levantine corridor had changed their way of life very substantially in the final epi-palaeolithic period, and had begun to extend the range of their symbolic activities. At the beginning of the neolithic, in the

Khiamian phase to be precise, communities experienced an explosion of symbolic activity and the creation of symbols. They began cultivation only after these developments had taken place, or at best they were engaging in 'pre-domestic agriculture' in parallel with this 'révolution des symboles'. On the other hand, he relates his 'psycho-cultural' revolution to the thinking of philosophers such as Ernst Cassirer, the structuralist archaeologist and anthropologist André Leroi-Gourhan, and the work of medieval historians of the Annaliste school who deal in terms of l'imaginaire and mentalités. Somehow, at the very end of the epi-palaeolithic and the beginning of the neolithic, in a certain part of south-west Asia people began to develop ideas of a supernatural world. The concepts of a female deity and a male principle became elaborated and more explicit, and people began to be able to define their own position in relation to their divinities, and thus sought to serve, emulate and influence these anthropomorphic deities.

Now we need to start off on quite a different path. The evolution of the (modern) human mind and the evolution of language have become hotter and hotter subjects in recent years, as the theories and researches of evolutionary scientists, biologists and geneticists, inter-relate with new research in evolutionary psychology, cognitive and neuro-sciences, and linguistics. On the edges of this nebula, a few anthropologists have been attracted to apply a cognitive approach to anthropology and the anthropology of religion. And one or two archaeologists have begun to put the archaeological sequence of the palaeolithic alongside the theories of evolutionary psychology (notably Steven Mithen), or to apply cognitive ideas to the field of material culture.

The best place for us to begin is with the human facility for language, because language pre-supposes a capacity to operate in terms of symbolic representation. The theoretical linguist Noam Chomsky developed the idea of a universal grammar, a kind of meta-grammar that underpins any contemporary human language. Learning language is so complicated and is managed by almost every infant without systematic teaching, without recourse to systematic examples, wherever in the world the infant is born. Chomsky concluded that we are born with a 'language acquisition device' hard-wired into our brains. In other words, our modern human brains have an evolved predisposition for language. This was the beginning from which evolutionary psychologists have developed the idea of the evolution of the human mind in terms of a series of 'modules' or 'domains'<sup>2</sup>. Language is a cultural and not a biological phenomenon, but it depends on the genetically driven evolution of the brain/mind. To account for the evolution of modern language, we must take on board the notion of gene-culture co-evolution. The evolution of language remains a highly contentious area of research and debate, but there is one point on which almost all those qualified to comment are in agreement. Language capability such as is present in all contemporary languages emerged around 100,000 years ago, or even around 50,000 or 40,000 years ago, that is after the emergence of our species, *Homo sapiens*. Modern language capability is a characteristic that has been evolved within our species<sup>3</sup>.

The implication of language capability is that anatomically modern humans (AMH) had evolved full symbolic reference capability. That stage occurred at about the time that *Homo sapiens* emerged out of Africa and first appeared here in the Mediterranean part of south-west Asia, or possibly a little later, as the middle palaeolithic turned to the upper palaeolithic period. It is worth spending a moment considering what is meant by symbolic reference (or symbolic representation, the more correct psychological term). Symbolic representation is a uniquely modern human cognitive faculty that operates with such facility in our minds that we are simply not aware of the complexity of what our minds are doing. The nineteenth century American philosopher Charles Peirce produced definitions of reference that are widely used by linguists, semiologists and other philosophers. In the simplest terms, he defined three levels of reference, of which the most basic is iconic reference. Iconic reference depends on the ability of the sign to remind us of what it is representing, so the icon looks like or in some other reminds us of the object to which it refers. Indexical reference is more complex, and only certain animal species have learned to operate at this level. The index can be entirely arbitrary, and the relationship between the object and the index of the object needs to be known if the indexical reference is to be read. This is the way that words work at a one-by-one level, where the word is an arbitrary signifier of the object signified. But language using symbolic reference is much more complex again, because with language the signs (words) take their meaning in relation to one another<sup>4</sup>. At one level, language uses systems such as grammar and syntax to demonstrate the relations between the words that make up a sentence, and a sentence says much more than the sum of the individual words of which it is composed. At another level, we define the meanings

of words in hierarchical relationships: a bluebottle is a kind of fly, which is an insect, which is different from a reptile or a mammal. At its most complex the world of symbolic reference (language and thought) provides us with the framework within which we structure our ideas about the world in which we live.

Palaeolithic archaeologists, anthropologists and other specialists interested in human evolution and the emergence of AMH have been enjoying the idea of an upper palaeolithic, or human, revolution. Soon after the beginning of the upper palaeolithic period, *Homo sapiens* in western Europe began to draw, paint and incise images on the walls of caves, pebbles and pieces of antler. They modelled the human female form, practised ritualised burial of their dead and began to use items of personal ornament that presumably signified something to the wearer and the viewer. Steven Mithen (1996) writes of the modularity of the human mind finally gaining 'cognitive fluidity' at this time. For the first time, human minds that had evolved formidable capacities in a wide variety of domains were able to cross-reference fully across the spectrum of those very different faculties. Yet, from the point of view of knowing the symbolic richness of the earliest neolithic in south-west Asia, the cultural results of the upper palaeolithic revolution in the archaeological record, including the formidable symbolic representations on the walls of caves, do not add up to a great deal. There is actually very little output over a relatively long period of tens of thousands of years; only a few sites produce any examples; and, more significantly, the various phenomena do not seem to make a coherent whole. For Steven Mithen, at the core of the 'upper palaeolithic revolution' is the transformation of the human mind and its new capacity for symbolic reference. He passes over the neolithic, saying that it is the complementary economic revolution whose central feature is the adoption of agricultural levels of productivity. That is doing far less than justice to what we see in the archaeological record of south-west Asia.

How can we relate the explosion of symbolic reference at the beginning of the neolithic to the upper palaeolithic revolution? Is it simply more of the same, just a richer diet of symbolism? One factor that was different at the end of the epi-palaeolithic and the beginning of the neolithic was the social world of the permanent, sedentary community. People needed to relate to quite large numbers of other people, among whom they lived all the time, for the whole of their lives. The size of the early permanent village settlements suggests population levels that the psychologist Robin Dunbar (1996) believes were at or beyond the 'natural' limit of the human mind to manage. Bear in mind that as the group size doubles, the number of social relationships amongst all those people increases by the square. Peter Wilson (1988), has discussed at length the cognitive and social effects of living in settlements with permanent architecture, as opposed to living in open encampments. Sedentary societies recognise concepts of private and public space, and differentiate the spaces in their settlements according to those principles. Whether in terms of the need to cope with exponentially increasing permutations of social relationships, or in discriminating between private and public space within the settlement, or differentiating the (artificial) settlement from the surrounding natural world, or distinguishing the immediate territory which was extensively exploited and 'owned' from the wider environment, people at the end of the epi-palaeolithic and the beginning of the neolithic were living in a different environment from their hunter-gatherer predecessors, and environment that emphasised the difference between the near / the artificial / the controlled and the further away / the natural / the uncontrolled.

Just as they began to systematise their physical and human environment, the buildings, the settlement, the groups within the community, their territory, their relations with neighbouring communities and the wider world, so perhaps they also began to use their relatively novel abilities to signify ideas and concepts in terms of physical symbols. Previously they had employed vague and rather unspecific ideas about a spirit-world, the kind of animistic world that palaeolithic specialists are now attributing to upper palaeolithic people in south-west France. In the epi-palaeolithic and earliest neolithic societies of south-west Asia, it was useful to formulate things much more clearly, and to use the oppositions that were part of everyday life as the basis for further, symbolic oppositions, oppositions between our temporal world and a supernatural world, between us everyday humans and supernatural beings, oppositions between the events and processes of our everyday world and the properties of the supernatural world.

For some tens of thousands of years, they had possessed modern-type languages, among whose characteristics were immensely complex and strictly formalised relations between many levels of symbolic reference. And at the beginning of the neolithic they found the way to systematise their non-language

powers of symbolic reference. What made these ideas powerful, easy to remember and easy to transmit was people's ability to signify abstract and even supernatural concepts in terms of physical symbols. They turned the building of houses into symbolic architecture. They structured the layout of their settlements to signify ideas about how life should be lived within their village communities. They treated the bodies, and particularly the heads, of their dead in ways that symbolised relationships between the world of the living and those who had gone.

Finally and most importantly, they symbolised their ideas about the supernatural world and its population in terms of physical embodiments of supernatural beings and forces. The anthropologist Pascal Boyer (1993, 1994) has discussed the universals of human religious experience, and our willingness to anthropomorphize and symbolise supernatural beings. Perhaps this capacity began to develop in the minds of *Homo sapiens* in the upper palaeolithic, but it arguably achieved new levels of power for expression at the beginning of the neolithic. The great advantage of all this symbolic reference through physical artefacts was that, unlike speech, dance or ritual enactment, which is transient, the physical symbolism with which they surrounded themselves was always there, always reminding them, teaching their children. They had learned what the psychologist Merlin Donald (1991, 1998) has called 'external symbolic storage', a mode of telecommunication<sup>5</sup>. Above all, these ideas about their world were systematic, categorical, discriminating, ordered. Such a systematic and symbolically rich world-view was ideal for providing the cultural underpinning that could be shared by all those in the community, for they lived in and by and through the symbolic references in their settlements. And finally, such a systematic and readily symbolised world-view was infectious, readily communicated and easily learned by others who had the same cognitive skills and the same need to cope with their new way of life. In fact, the modern human mind had learned to generate symbolically constituted material culture. In short, we can empathise more closely with what they were expressing than with the mysterious world of the upper palaeolithic, because they, like us, understood and expressed something of their humanity.

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