

Mind and Metaphor: Archaeology and the Evolution of Mind - An Interview with Steve Mithen

The eminent archaeologist delves deep into the pre-history of human consciousness, showing how that history has shaped the modern mind.

by Kate Prendergast

The study of the mind is traditionally the preserve of psychologists. But Steve Mithen, an archeologist at the University of Reading, has made the mind the focus of his own research. In *The Prehistory of the Mind*, Mithen's pioneering and influential book on the subject, he argues that the evolution of the modern mind is properly a subject for archeologists as much as psychologists. For it is archeologists, Mithen suggests, who have unique access to the historical, biological and material evidence from which the evolution of humanity can be charted—from our earliest ancestors to the modern, fully cultural, conscious beings we are today.

In studying the evolution of the mind, Mithen draws on the work of evolutionary psychologists, as well as biological anthropologists. He also refers to the archeological record to develop an original analysis of the modern mind as both uniquely rich and flexible, but still constrained by the history of its own evolution. In this exclusive interview with *Science & Spirit*, Mithen discusses the inter-penetration of psychology and archaeology in developing our understanding of the mind; the advances and limits of the minds of our ancestors, and the unique—and sometimes troubling—features of our own modern mentality.

Domain Names

About 10 years ago, psychologists such as Steven Pinker, Leda Cosmides and John Tooby began to show a new-found interest in evolutionary ideas. Arguing that the only way to understand the nature of the modern mind today was to look at its evolutionary history, they suggested that, as a logical consequence of evolution, the mind will have a highly modular structure, with discrete domains used for different purposes. And because humans have spent the vast majority of their evolutionary history as hunter-gatherers, they also claimed that the best way to study such evolved minds was to look at modern hunter-gatherers.

As an archeologist with a keen interest in the evolution of the mind, Mithen was in a good position to see both the strengths and the weaknesses of this approach. "There were strong arguments being made about the importance of evolutionary history for the mind," Mithen says in his departmental office at Reading. "But they didn't display any knowledge of what life as a prehistoric hunter-gatherer was actually about. They tended to assume that we could take some modern hunter-gatherers today, people like the !Kung bushmen or Arctic Inuits, and just push that type of society way back into prehistory, as a constant, as something that hasn't really changed at all. Now, from an archeological point of view, that's just not on, because we can look at prehistory and see that hunter-gatherer lifestyles are immensely diverse, and that they have evolved.

Their lack of attention to the archeological record was quite a serious remiss in their models."

If lack of attention to the evidence for evolution was one problem, another, Mithen argues, was the way in which the evolving mind was conceptualized. Evolutionary psychologists coined the metaphor "Swiss army knife" to describe the discrete domains of the mind. "What they mean by that is that within one entity is a whole series of specialized 'gadgets,'" says Mithen. "So bits of the mind/brain are especially adapted to solving problems about social interaction, another bit of the mind is especially adapted to solving language problems, another bit is devoted to recognizing predators, or choosing which foods to eat, or choosing mates etc."

Mithen acknowledges that there is much evidence to support the idea of "discrete domains" of the mind—from people with cognitive pathologies who can lose their language skills but retain their mathematical skills, for example—but he prefers to use another metaphor for the mind. "In my book, I spoke about the mind/brain as a building. If we look at it from an evolutionary point of view, a building is a good analogy, because while buildings change through time, the foundations remain. So, although we may have something which is a very modern mind today, it is built on foundations that are much more archaic, the kind of archaic mind that our prehistoric ancestors would have possessed."

Perhaps more important is Mithen's conception of the modern mind as fluid: "What seems to me to be the most characteristic feature of the modern mind is its creativity, its generality; its ability to draw on analogies and metaphors in almost all domains of its existence. Language is really built upon the use of metaphor. And if we look at having religious thoughts, or undertaking science or engaging in art, all of these are reliant on metaphor. Now, the essence of that is not really having specialized mental modules, but the ability to draw on more than one mental module. From an evolutionary point of view, the mind has got to be modular, but when we see minds today, they are clearly not modular. I wanted to ask the question, how could that be?"

This is where the evidence from archaeology becomes invaluable. Mithen reconstructed three major phases in the evolution of the mind. The first takes us back to some of our earliest ancestors, when minds were dominated by a domain of general intelligence, consisting of a bundle of interactive modules, one of which Mithen calls a theory of mind. The second phase, associated with later archaic species, consists of the development of specialized intelligences such as a social intelligence, a natural history intelligence and a technical intelligence. The third phase is characterised by a flow of knowledge and ideas between such specialized domains.

When Mithen looked at the archeological record in order to try and pinpoint these phases, he found that for much of human evolution, people seemed to have had quite a sophisticated theory of mind capacity. "Theory of mind is used for understanding how other people can have beliefs and desires which are quite different from your own. I think we can trace it back through archaic Homo sapiens right back to Homo argaster about 1.5 million years ago. But throughout that time, their theory of mind capacity was devoted to its proper purpose: of thinking about other minds."

While the development of specialist intelligences seem to be characteristic of later archaic species such as Neanderthal, interactions between mental modules is a defining characteristic of modern humans, distinguishing us from all archaic humans and related species. "We do see times with very big substantial changes in human cognition. Broadly between 100,000-30,000 years ago, and perhaps more specifically about 50,000 years ago, we just seem to get a ball-change in the way humans are thinking," says Mithen. "We suddenly get the appearance of more complex technology, people living in more difficult environments, living in bigger communities, religious and artistic behavior. It is as if something fundamental happens to the mind around that time." In contrast, Mithen argues that with Neanderthals, "that rather hard modular view of the mind that evolutionary psychologists were developing seemed brilliantly applicable to them, because these aspects of cross-modal thinking and the use of metaphor and analogy were simply beyond those species. That's why their culture remains so static, and in a way so simple compared to those of modern humans."

Come the Revolution

This cognitive change is what archaeologists dramatically call "the cultural revolution." Around 40,000 years ago, human beings seem to have thrown off the cultural torpor of their evolutionary past, and began to discover specialized hunting and gathering practices, invent new technologies, create art and religion, and colonize the world, in what seems to have been an unparalleled cultural and creative leap.

Explaining this "revolution" has been central to the work of many archeologists. Mithen believes that it "might relate to some cognitive change happening around that time. Broadly what we can say is that with modern humans there are fundamentally new domains of behavior that they're engaging in. And I suppose the biggest change is clearly that they've got symbolic skills, they're making images and paintings, they're wearing artefacts. That suggests that in addition to living in the natural world of animals and plants, they're also living in a symbolic world, one that's full of spirits, ghosts and gods, which is of course what most people do most of the time. So, I think we can see a sea change in cognition, and the way I'd interpret it is that what had been a highly modular mind has to some extent collapsed, and people are beginning to think in brand new ways which are creating whole new experiences."

Perhaps the most important change the first art and symbolism indicates is the emergence of what Mithen calls "religious ideology." But defining religion is one of the most critical—and difficult—aspects of studying the earliest cultural humans. "I would look for a belief in supernatural beings, and a belief in an afterlife, either in a very concrete way or a rather abstract way, of something like the survival of the soul," Mithen says. "One can recognize these, because in most religions you have particular individuals in societies who can mediate with the supernatural beings—whether these are popes, priests, witchdoctors or shamans—and all of those behaviors tend to leave some archeological evidence. As from about 40,000 years ago, you start getting very rich and elaborate burials, as if very special people are being buried. Some of those people might be shamans."

More importantly perhaps than evidence for putative ritual specialists, are rock art images depicting half-animal, half-human beings: beings who cannot exist in the real

world. "It seems reasonable to think that these are some sort of spirits of the ice age world. And those images are really critical, because they show how people are combining different entities that can't exist in the real world, but can exist in the supernatural world."

Mithen argues that all supernatural beings, in all religious systems, have such attributes: "a combination of very human with other quite non-human qualities," and thus he sees great continuity between those very first images of half-animal, half-human figures, and the supernatural beings of the world religions of today.

But if the origins of religious and symbolic behavior are so unequivocal in the archeological record, their purpose seems much less clear. Mithen does not believe religious ideas themselves have great adaptive value, although he does see them as easily exploited by individuals for power, prestige and gain. Rather, Mithen sees religion as a by-product of the new cognitively fluid mind, whose main achievements were the invention of much better hunting weapons, much better clothing and much better ways of socially interacting. But what, then, were the contexts in which such minds emerged, capable of complex forms of social, linguistic, technical and symbolic achievement?

Along with an increasing number of paleo-anthropologists, Mithen believes that the role of prehistoric women and children was crucial in creating the social matrix in which the modern mind emerged. "If we're thinking about the evolution of culture, cognition and mind, there's no question that the role of women and children play a significant part. The key is really that for a lot of human existence, possibly up to 250,000 years ago, the core of society was based around female kin alliances. Males were probably playing a pretty peripheral role. So if we're talking about the evolution of complex ways of thinking to keep groups together, or language as a means of social bonding, the emphasis of that has got to be on the needs of women, because they're the ones that are holding society together. And equally, if we're thinking about the transmission of cultural skills, like those to make complex stone artefacts, that's got to be going through the female line, because that's where you're getting close social bonds."

In laying emphasis on the social contexts of mental evolution, Mithen draws on work by evolutionary psychologist Nicholas Humphrey, and biological anthropologist Robin Dunbar, both of whom stress the importance of social knowledge of others, social interaction and alliance-building in cognitive and linguistic evolution.

Yet, Mithen points out that primatologists, psychologists and biological anthropologists will emphasize the social contexts in which the modern mind emerged, because they study living primates and compare them to modern humans. Archeologists, in contrast, also have access to the evidence for the technical skills of our ancestors; hominids who, in making complex stone tools and in developing more complex subsistence and social strategies, behaved differently from both chimpanzees and modern humans.

"If we look at the archaic human mind, we've got what I call a social intelligence, and a technical and a natural history intelligence. These are bundles of modules for ways of thinking about specific aspects of the world which are quite isolated from each

other. The big thing that happens sometime after 100,000 years ago is that these things begin to merge. Exactly how that merging happens is not clear. What might happen is that language changes, and rather than being exclusively social, language is used for talking about tool-making and animal behavior. This might lead to a collapse between these different domains. This entails a fundamental change, not only in language, but also in human consciousness, and it's at this time that a true reflective consciousness evolves. For our early human relatives, so much more of their thoughts were in their unconscious than ours today. In the case of Neanderthals, I suspect that the rules they used for making stone tools were in their unconscious; they weren't really able to reflect on that. From about 100,000 years ago, so much more came up into the level of consciousness, which may have been due to a change in language and the merging of these different intelligences."

The ability for cross-domain thinking is thus not one-way traffic. It is evident, not only in the ways that we can give human attributes to non-human things, but also in the ways we can think about humans in animal or technical terms. "I've argued in my book that that's the key to racism, when we start to think of other human groups or individuals as if they were animals or objects to manipulate and exploit without giving them any human attributes, emotions or rights." Cognitive fluidity, it seems, comes with a cost.

Prisoner With a Key

Mithen thus presents a complex picture of the modern mind: socially developed and capable of great creativity on one hand, yet with a startling ability for personal aggrandizement and control on the other.

"If we look at the cognitive fluidity of the modern mind, and its ability to use metaphor for cross-domain thinking, this gives us all the good things about human culture," he says. "It's from these that we are able to do science, to make works of art—it gives us our altruism. But it also gives us the dark side of human minds. Racism is just one side of this coin. Equally, people have the ability to use material culture for their own social ends: to start hoarding possessions, controlling access to resources, using plant and animal products and human culture to gain power and prestige for themselves. I don't think the Neanderthals ever did that. No doubt they were highly competitive groups, and we are tempted to look down on them because they never really made any art, or never really asked questions about science. But in those societies you didn't have the quest for power and prestige, the exploitation of other individuals, which pervade our societies."

And this, Mithen believes, is the constraint—or paradox—of evolution: That for all our creativity, and perhaps because of it, our minds create problems and dilemmas that we cannot solve.

"I think our selfishness derives from the almost limitless possibilities we have in our own mind about exploiting others and exploiting the material world. Our creative minds give us so many different options, that as soon as you close one down, another one opens up. You can see this in the modern world: if we manage to sort out ethnic cleansing in the Balkans, it crops up in Chechnya. We have these remarkably crazy minds that give us so many opportunities for bad works as well as good."

Mithen emphasizes the point. "I think we're now crossing a threshold in technology, where we're really interfering with natural entities. We're at the stage with cybernetics and genetic modification of breaking down those natural entities, and what we end up with is no way of thinking about natural entities. When you have a species that isn't a discrete entity any more, how do you think about it? Goldfish genes in a cabbage—we're just not equipped to think about that kind of entity. I think there's a really profound problem with that, one that isn't being taken on board by the scientists and politicians who tackle these questions."

Yet, if we are prisoners of our own mind, does it also not hold the seeds of liberation? Mithen pauses. "Yes. It is arrogant of us to always think we are living at the crux of human history. Thirty years ago, the big ethical dilemma was nuclear weapons, and our ability to destroy the planet for the first time. The problem hasn't gone away, but we've learnt to live with it. It doesn't strike us as an insurmountable ethical problem anymore."

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