

COMMENT

The origins of anthropomorphic thinking

Steven Mithen and Pascal Boyer (*J. Roy. anthrop. Inst.* (N.S.) 2, 717-21) disagree over the naturalness of anthropomorphic thinking. According to Mithen, anatomically modern humans, unlike archaics such as the Neanderthals, display 'cognitive fluidity', such that the specialized neural circuitry for 'understanding of the natural world' draws spontaneously on the 'social intelligence' module and vice versa. One result is that hunter-gathers intuitively attribute 'theory of mind' to animals, empathizing with hunted species as if they were human kin - the essence of 'totemism'.

For Mithen, then, it is cognitively intuitive or 'natural' for *Homo sapiens sapiens* to generate and transmit therianthrope representations - as exemplified in the early Aurignacian ivory statuette of a man's body with a lion's head from Hohlenstein-Stadel in southern Germany. This notion of naturalness is unacceptable to Boyer, who has invested much theoretical labour in establishing the reverse position. Referring to human/animal composites and comparable 'cultural representations which violate intuitive principles', Boyer writes: 'These are not part of evolved intuitive ontology but quite the opposite' (p. 720). It is precisely the counter-intuitive, surprising and hence attention-grabbing nature of therianthropes and other inhabitants of the spiritual domain - their systematic violation of natural cognitive expectations - which in Boyer's view accounts for their impact, memorability and hence success in cultural transmission. Boyer considers it 'misleading' to lump together the generation and transmission of sophisticated cultural representations of this kind with the spontaneous tendency of very young children to expect animals to behave like humans, motivated by similar (human-like) goals, beliefs and desires. 'These expectations', Boyer writes, 'appear early in cognitive development; they are delivered equally automatically on the basis of similar cues for animals and humans. So it would be contrived to assume that they require a "transfer" of human properties onto animals' (p.720).

Boyer is surely right here. The thought of a child displays 'animism' at an early stage, before the

flowering of language or a developed sense of self. It in no way depends on reflexivity or 'cognitive fluidity'. Mithen's attempt to reduce 'totemism' to childlike animistic thought in fact recalls a nineteenth-century tradition in evolutionary anthropology better left to gather dust. Unfortunately, Boyer himself is scarcely more convincing in providing an explanation for the existence in the first place of what he terms 'counterintuitive cultural representations' such as gods or spirits capable of seeing everything at once. Boyer simply assumes that such representations exist. But why? Given their plausibility, why are they not resisted, ignored or dismissed? Boyer chooses not to address what for Darwinians is surely the central evolutionary question: what were the fitness benefits to evolving modern humans of their fascination with representations of this kind?

Darwinian psychologists (e.g. Baron-Cohen 1995) have documented the centrality of 'pretend play' to normal human mind-reading competence and reflexivity. When a child pretends that a pencil, say, is an aeroplane, experiencing this pretence as a fiction in which others collude, it is enabled to view the fiction - inseparable from its own thought - as if from the outside. Identification with others in respect of the pretend-play representation allows the child to construct a further representation of its own self as a distinct subject. In the absence of social pretend-play, this cognitive breakthrough is never made. Rather, the subject remains 'inside' its own thoughts, unable to view itself as a subjective agency distinct from them. The child then knows, but does not know that it knows. Only in 'knowing that we know' can each one of us construct the self as a subject independent of our thoughts - integrating the mind's various outputs and displaying in the process 'cognitive fluidity'.

It is noticeable that Mithen nowhere addresses the evolutionary function of 'communal pretend-play' or 'ritual'. In his book (Mithen 1996), there is an index entry under 'religion', but none under 'ritual'. The omission is perplexing because, as Boyer (1994) points out, and as social anthropologists since Durkheim have known, the ritual domain is intimately bound up with those 'counterintuitive' representations which are so central to religious cosmology. It seems important to stress, however, that contrary to Boyer, 'the gods' do not just appear

and then replicate themselves autonomously through being 'attention-grabbing'. Rather, the immortals need organized communal help. Humans in fact incur substantial energetic costs in performing elaborate rituals designed specifically to sustain such hallucinatory representations. There is little to be said for Boyer's (1996: 94) assertion that 'religious ontologies need very little actual transmission in order to be reproduced from generation to generation'. The evidence rather is that humans would not believe in improbable entities such as unicorns, rainbow snakes, therianthropes or other magico-religious fictions without loud, costly, ritualistic and even traumatic signals, often central to initiatory ordeals, designed precisely to overcome listener-resistance and ensure transmission.

The record of African rock art provides a therianthrope of comparable age to the Hohlenstein-Stadel lion-man and the anthropomorphic bison of Chauvet cave - a 26,000-year-old feline with human legs from Apollo 11, Namibia (Wendt 1976). Lewis-Williams (1984) has argued that this figure could indicate traditions of ritual trance dance reaching back into the Pleistocene. Rock art studies in southern Africa and beyond have been revolutionized by the hypothesis that the images represent trance or 'spirit world' experience, not perceptible reality (Garlake 1995; Lewis-Williams 1981). In particular, graphic depictions of humans metamorphosing into animals - dying eland, 'flying bucks', underwater creatures - appear to be fundamental metaphors for experiencing trance 'death' and entering states of 'potency'.

A Darwinian searching for the ultimate evolutionary cause of these behaviours must take into account the costs. Trance-inducing rituals are high-cost activities: even those who do not dance engage in energetically costly night-long singing and clapping, while trancers themselves - who spend years in acquiring their skills face considerable stress and pain in entering altered states of consciousness. Around these rituals are woven elaborate ideologies, narratives of visits to the spirit world, besides also the production of rock art - decidedly a costly signalling activity.

Mithen's notion that the adaptive value of all this is to be understood in terms of better hunting techniques and efficiency is unconvincing. In the case of the Kalahari Bushmen, one of the most appropriate occasions for trance performance occurred after a successful hunt - when 'community healing' would alleviate the tensions surrounding distribution of a large-scale kill. Just how the mental and physical exhaustion of undergoing trance through one night, into the following day and then into the next night (Barnard 1992: 58) could improve male hunting performance is difficult to understand.

The other ancient Bushman ritual involving anthropomorphic metaphor is the menarcheal rite, often called the Eland Bull dance. Trance potency

and menstrual potency in Bushman conception were readily conflated through parallel symbolism involving blood, sweat, smell, identification with the game, and shooting or being shot by poisoned arrows (cf. Huffman 1983; Katz 1982: 172). We would ask Mithen: how does placing a menarcheal girl in a hut on starvation rations and dancing around her in a communal pretence of being elands mating with an eland bull improve a hunter's understanding of eland behavioural ecology?

In this case as in so many others, the Bushmen themselves make clear what is going on. At the culmination of the five-day long seclusion and emergence of the menarcheal girl 'everyone will be hot (eager) for eating and the men will want to go hunting' (Lewis-Williams 1981: 51). In Darwinian terms, this makes good sense. The whole energy-expensive ritual has focused attention on the fact that the girl is imminently fertile, imminently sexually available, and therefore highly attractive to males who should be motivated to hunt and bring game in brideservice.

Mithen's picture is of anatomically modern human males becoming endowed with marginally increased productivity thanks to some fortuitous cognitive re-wiring. But his attempt to explain hunter-gatherer religion as a direct cognitive contribution to male hunting efficiency will convince few social anthropologists familiar with the details. The choice is not between such mentalist techno-economic functionalism and a picture of *Homo sapiens sapiens* lost in 'profound metaphysical problems about the human condition' (Mithen 1996: 169). It is time to abandon the tired 'Man the Hunter' paradigm and instead seek adaptive explanations in terms of social and political solutions to problems of social distribution and exchange (cf. Erdal & Whiten 1994). Symbolic systems need not be seen as 'metaphysics'; they are best viewed as collective cognitive maps defining through metaphor the 'other-worldly' forces governing the distribution of resources crucial to reproductive success primarily food and sexual partners. Adopting this point of departure, we can generate a Darwinian model of the evolutionary emergence of human symbolic culture and cognition which does justice to the complexity of the ethnographic, rock-art and other symbolic data. If such a model can also explain the emergence of 'reflexivity', 'cognitive fluidity' and 'metaphorical thinking', so much the better.

As encephalization proceeded and accelerated among late archaic *Homo sapiens* from 250,000 BP onwards, females came under unprecedented reproductive stress owing to the high energetic cost of producing larger-brained infants (Power & Aiello 1997). Pregnant and nursing females would have needed regular supplies of high protein and fatty foods. Their major problem would have been in preventing would-be dominant or philanderer males

from channelling valuable high-energy food to cycling females at the expense of pregnant/nursing females. The logical solution would be for the pregnant/nursing females to resist such philandering strategies by bonding closely with menstruants, preventing their 'privatization' by philanderer males. Females would be expected to gather around anyone who had begun to menstruate, keeping dominant males away from her, drawing where necessary on the support of male kin, refusing sex to all outgroup males except those prepared to supply meat to the coalition as a whole.

How would we expect such female coalitions to signal 'no sex'? The most unmistakable way would be to reverse the normal 'yes'-signals. Instead of signalling to prospective male partners 'I am of the same species as you, of the opposite sex and this is my fertile time' - the parameter settings central to normal 'courtship ritual' - females 'on strike' should systematically reverse all this, indicating 'wrong species/wrong sex/wrong time' (Knight et al. 1995). Khoisan women staging an 'Eland Bull Dance' are doing precisely that.

According to this model, then, communal pretend-play arises as a female-driven strategy for motivating male hunting. Maximum male effort is secured by advertising the imminent fertility of cycling females, while on the other hand signalling non-availability in the short term. As well as predicting the emergence of metaphorical pretend-play or 'ritual', and hence the corresponding forms of reflexivity, the model parsimoniously accounts for a constellation of features including pre-hunt ritual celibacy, menstrual taboos ('wrong time'), 'anthropomorphism' ('wrong species') and that gender ambiguity ('wrong sex') which is so pervasive in the signature of 'ritual potency' worldwide.

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Chris Knight and Camilla Power claim that Pascal Boyer and myself disagree with regard to the naturalness of anthropomorphic thinking. They are mistaken. I believe that anthropomorphic thinking is a very recent development in human cognitive evolution, arising 100,000 years ago at the earliest and most probably restricted to *H. sapiens sapiens* alone. It does not have a deep evolutionary basis in the mind in the same manner as does thought about social relationships, physical objects or the natural world. Anthropomorphic thinking is dependent upon the integration of knowledge and ways of thinking from these cognitive domains, or what Boyer would refer to as intuitive ontologies. As such, it is an 'unnatural' way of thinking with no evolutionary basis in the mind. I regard all types of thoughts which are products of 'cognitive fluidity' as unnatural. Knight and Power might be forgiven for this 'mistake' as it obviously hinges around how 'naturalness' is defined, which neither they, myself nor Boyer have attempted to do in a serious manner. But I find it more difficult to forgive their misrepresentation of my views regarding the evolution of totemic and religious thought.

To claim that I 'attempt to reduce "totemism" to childlike animistic thought' is quite ridiculous. Both totemic thought and childlike animistic thought share a belief in the continuity of the human and non-human world, although the nature of this

continuity may be significantly different. At no place in the *Prehistory of the mind*, or in my other writings have I suggested that one can be reduced to the other. Both are simply a product of the cognitively fluid minds that modern humans possess. Children may indeed display animism at a stage before they acquire language. I suspect that a major reason for this is that from birth they are surrounded by material artefacts that are intentionally designed to create cognitive fluidity (i.e. to 'confuse'), such as plastic dolls that have human-like faces designed to activate mental modules relating to social intelligence, especially those concerning the theory of mind. In effect, even before children create cognitive fluidity for themselves by the use of language, we draw them into this with the material world we create for them, and indeed the manner in which we behave for them ('would you like to feed teddy, darling!').

Knight and Power describe ritual as including stress, pain and elaborate ideologies – emotionally and energetically high-cost activity. They claim that I believe 'the adaptive value of all this is to be understood in terms of better hunting techniques and efficiency'. This is a complete travesty of my views. As has been widely recognized, anthropomorphic thinking does appear to be an effective means for predicting animal behaviour, and hunter-gatherers who had this ability may have gained greater foraging efficiency than those who did not. This may have been one of the selective benefits that brought cognitive fluidity into existence; but it would have been just one among many. Yet once present, cognitive fluidity may lead to all types of behaviour that have no functional value at all – such as many aspects of religious thought and behaviour. To claim that I have attempted to 'explain hunter-gatherer religion as a direct cognitive contribution to male hunting efficiency' is a quite appalling misrepresentation of my ideas.

As regards the 'omission' of any discussion of 'ritual' in the *Prehistory of the mind*, I think that Knight and Power should relax somewhat and not feel so perplexed (I'm a little perplexed as most people criticize my book for trying to cover too many things rather than not enough). I am sure that Knight and Power are absolutely right that the ritual domain is intimately bound up with the counter-intuitive representations which are so central to religious cosmologies. In a recent paper (Mithen in press) I have addressed precisely this in light of my ideas about the prehistory of the mind. Very briefly to summarize, it seems to me that because religious ideas are unnatural (in terms of being a product of cognitive fluidity rather than having an evolutionary

basis in the mind) they are difficult to transmit. Whereas it is easy for us to share ideas about human social relationships (because we share a social intelligence with a deep evolutionary basis) it is immensely difficult for us to share ideas about religious entities. Ritual enables the sharing of religious ideas by imprinting these into minds often by rote repetition, by stress and by pain. Such imprinting is not necessary for sharing ideas that relate to what Boyer would call an intuitive ontology or I would refer to as an evolved cognitive domain. Without such ritual the existence of religious institutions (i.e. a body of shared religious ideas) would be impossible. Another means by which religious ideas are shared is by using material images, such as carvings of half human/half animal figures, the costumes people wear or symbolic images such as the crucifix. These images serve to anchor religious ideas into a mind in which they have no natural home. As regards the 'adaptive value' of sharing religious ideas and how we explain the costs involved in doing this, I suspect that for the majority of people for the majority of time there is no value at all – it is just an expensive activity that they would be better off without. But dominant individuals (often males) within societies maintain their own power bases by manipulating the minds of other disadvantaged individuals by promulgating beliefs in religious ideologies.

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