

## Letters to the Editor

*A Forum for Commentary on Articles and Research Issues*

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### *Matchmaking in the Pleistocene: A Reply to Mithen*

Steven Mithen identifies what he perceives to be five “mismatches” between his presentation (Kohn and Mithen 1999; Mithen 2005) and our discussion (Nowell and Chang 2009) of the “sexy handaxe theory” that he believes constitute an “inaccurate characterization” of the theory. In this reply, we briefly address each of his concerns in turn.

First, Mithen objects to our use of the adjectives “evocative” and “romantic,” as he feels that these terms were chosen to discredit his presentation in the minds of readers. It is clear from the context that these words were meant to describe the compelling nature of the model, not to describe Kohn’s and Mithen’s (1999) writing style.

Second, Kohn and Mithen (1999: 518) do indeed list five questions that “remain unanswered” by existing theories drawn upon to explain handaxe morphology. Because they describe these questions as “fundamental” and proceed to address each of these questions in turn, it can be reasonably inferred that they are arguing that any robust theory should be able to account for these unanswered questions and, in fact, in their summary they argue that their hypothesis does just that (Kohn and Mithen 1999: 524). We believe that it is only because we have shown quite conclusively that the sexual selection hypothesis does not resolve *any* of these unanswered questions that Mithen is now splitting hairs.

More importantly, Mithen leaves completely unaddressed the fact that the acceptance of sexual selection as an explanation for handaxe morphology relies on at least three untestable sub-hypotheses (#2–4) (Nowell and Chang 2009: 34, emphasis in the original):

1. Hominins are attracted to symmetry and hominin females make mating decisions on the basis of symmetry in morphological traits;
2. The quality of handaxe manufacture by extinct hominins was governed at least in part by heritable variation;
3. This heritable variation, that is related to the morphology of handaxes manufactured by extinct hominins, also was related to male fitness; and,
4. Extinct hominin females made mating decisions at least in part on the basis of handaxe morphology.

Third, Mithen argues that we have unfairly characterized the theory as focused exclusively on symmetrical handaxes. It is correct that Kohn and Mithen (1999:521) refer to variation in handaxe shape, and that they argue that females made “less refined [i.e., less symmetrical]” handaxes than males (Kohn and Mithen 1999: 523). This does not change the fact that their hypothesis was expressly intended, by their own description, to explain the

existence of symmetrical handaxes. In their 1999 abstract, Kohn and Mithen (1999: 518) write that they seek to answer the question of why handaxe shape was “symmetrical and regular.” They (Kohn and Mithen 1999: 520) go on to argue that handaxe shape is overdetermined, that “an excessive level of symmetry [is] imposed,” and that “the manufacture of a fine symmetrical handaxe [might] have been a reliable indicator of the hominid’s ability to secure food, find shelter, escape from predation and compete successfully within the social group” (Kohn and Mithen 1999: 521). Another example of their focus on symmetrical handaxes is their argument (quoting Miller 1997: 96) that “the symmetry of handaxes may have ‘play[ed] on the perceptual biases of receivers to attract attention, provoke excitement, and increase willingness to mate’” (Kohn and Mithen 1999: 522). In 2005, Mithen wondered, again, why hominins “invest[ed] so much time in making highly symmetrical artefacts” (Mithen 2005: 188). He (2005: 189) further refers to “the one special feature of handaxes, their symmetry.” We (2009) maintain that the “sexy handaxe hypothesis” is based on a misreading and misrepresentation of the archaeological data.

Fourth, Mithen objects to our use of the term “lek,” because he argues that handaxes can function as indicators of good genes without any “deliberate display” on the part of hominins. Yet, Kohn and Mithen argue that display and observation of handaxe manufacture are critical to their hypothesis. They propose that, among a range of possible indicators of fitness, “handaxe-making might be considered if hominids of the opposite sex were present” (Kohn and Mithen 1999: 521), which specifically indicates that hominins modified their behavior based on whether potential mates were observing them. They assert that, for handaxes to serve as honest indicators of fitness, and to foil cheaters who might acquire already-manufactured handaxes and attempt to pass them off as their own, “observation by a potential mate of handaxe production is *the important factor*, [that] explains why handaxes were discarded shortly after being made” (Kohn and Mithen 1999: 522, our emphasis). This is an argument that Mithen repeats 15 years later: “The simple possession of a hand-axe would be quite insufficient as an indicator of good genes because it could have been stolen from another individual; a female (or male) observer would need to see the hand-axe actually being manufactured in order to ensure that he/she was not being cheated” (Mithen 2005: 190–191). They claim that, in most models of sexual selection, females are choosy and “males tend towards display, so conspicuously impractical handaxes were most likely made by males” (Kohn and Mithen 1999: 523). Finally, they write of the Furze Platt handaxe, “we also cannot but feel that the knapper was engaging in a social display when making that artifact” (Kohn and Mithen

1999: 524). These all constitute explicit arguments that handaxe manufacture occurred as part of a deliberate display meant to advertise fitness to potential mates.

Finally, Mithen claims that we wrongly interpret Kohn and Mithen (1999) as arguing that handaxes were made primarily by males to attract females. He writes that we (perhaps purposefully) overlook the fact that they have, in fact, argued that handaxes were put to a variety of purposes and that advertising “good genes” is just one of these purposes. Actually, we (Nowell and Chang 2009: 83), clearly cite Kohn and Mithen (1999: 520, abbreviated here) thusly: “handaxes were general purpose artefacts; their functions are likely to have included the butchery of animals, cutting wood, slicing meat, and chopping vegetables... experimental work appears to confirm this, as handaxes are clearly effective for a range of activities...” However, it is difficult to take issue with the fact that Kohn and Mithen argue for the *primacy* of sexual selection in the morphology, manufacture, and function of handaxes. The title of their 1999 paper is, “Handaxe Morphology: A Product of Sexual Selection?” The abstract of the same paper asks, “Why were handaxes made and why was their shape symmetrical and regular?” (Kohn and Mithen 1999: 518, our emphasis). They argue that “once competitive social conditions in mate choice were relaxed, handaxes—most notably those of a classic form—would disappear due to their high cost of manufacture” (Kohn and Mithen 1999: 523). In 2005 Mithen writes, “it is not surprising that we should find so many hand-axes in the archaeological record, often several hundreds discarded together in pristine condition. Once made, they were of limited further use” (p.191; see Nowell and Chang 2009 for why this is a misreading of the archaeological data). In their 1999 paper, Kohn and Mithen elaborate:

“The result is that during the Early Palaeolithic there were two technologies. One was a ‘social technology’, the handaxes, *related principally* to the social world. The other was a ‘functional technology’ related to the natural world and comprising artefacts such as cores and re-touched flakes, used for plant processing, wood working and animal butchering....Whilst handaxes were rarely used for such functional activities, they nevertheless could be used for functional tasks, most notably animal butchery” (Kohn and Mithen 1999: 523, our emphasis).

And, in 2005, Mithen presented handaxe manufacture in the context of a holistic argument for the role of sexual selection in shaping hominin behavior: “Could it be that many hand-axes were made primarily to impress members of the opposite sex? If so, they would provide hard evidence (quite literally) that sexual selection was a potent force in Early Human society, and would support the notion that music may have been used to the same end, as Darwin originally proposed” (Mithen 2005: 188).

In conclusion, Mithen now appears to be trying to distance himself from his and Kohn’s original position by claiming that we have misrepresented their work. However, their published words speak for themselves. In his latest reply, Mithen has not only contradicted his prior publications, but neatly undermined his own theory as originally presented.

It may be that it was easier to look for perceived “mismatches” rather than to address our detailed critique of their model or our fundamental argument, which is that the hypothesis itself is untestable and therefore not scientific. We hope that we have resolved these putative “mismatches” to Mithen’s satisfaction and we further hope that, after reading our reply, his “dismay” has once again become “delight.”

## REFERENCES

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