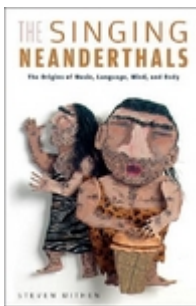


## Say It With Music: A Two-Million-Year Refrain

A review of



**The Singing Neanderthals: The Origins of Music, Language, Mind, and Body**

by Steven Mithen

Cambridge, MA: Harvard University Press, 2006. 374 pp. ISBN

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Reviewed by

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Several men and women are gathered near a lagoon in southern England, butchering the carcass of a recently killed horse. The men create their own tools for the purpose, tools that are not merely utilitarian but beautifully proportioned works of art. They spend time shaping the tools because they are as concerned with the reactions of the young women as they are with the preparation of the meat. To impress the women, they hum sexually suggestive melodies and express a dancelike grace in their movements. A group of hunters carries in another carcass, chanting rhythmically to ease their load. Meanwhile, a mother croons to her infant, who is resting on the ground while the mother helps with the preparations.

The area where this takes place will eventually become the village of Boxgrove, but that will not happen for half a million years. These individuals are members of the species *Homo heidelbergensis*, ancestors of modern *Homo sapiens*. The remarkable scene is taken from Steven Mithen's account of the origins of music, language, and other cognitive activities.

How can Mithen justify such a rich and detailed description of the behavior and thoughts of a species that has been extinct for 100,000 years? In fact, his investigation of the cognitive processes of Early Humans is based on a broad array of evidence. Ten years ago he published a theory of the origins of human intelligence (Mithen, 1996) based on archeological and fossil evidence. He suggested then that the most important intellectual advance in *Homo sapiens* was the ability to integrate separate domains of intelligence, such as technical and social skills. To support his thesis, he cited evidence such as the finding that Early Humans engaged in separate activities in spatially separate locations, whereas among Modern Humans the activities took place in one area.

In *The Singing Neanderthals: The Origins of Music, Language, Mind, and Body*, Mithen extends his examination of cognitive prehistory to develop a more comprehensive theory, in which intelligence, language, and music are all seen as interrelated faculties. The evidence for his theory again comes primarily from archeological and fossil findings, but he draws on many other disciplines to provide an explanation for phenomena as disparate as “singing” by siamang gibbons, the shape of Paleolithic hand axes, the large gluteus maximus in humans, and cooperative behavior in the prisoner's dilemma game.

The primary purpose of *The Singing Neanderthals* is to provide an evolutionary account of the origins of music. Although explanations abound for the origins of language and other cognitive activities, there have been surprisingly few attempts to explain the universal attraction that people have for music. In a comprehensive overview of cognitive mechanisms, Steven Pinker (1997) dismissed music as “auditory cheesecake” (p. 534); that is, a technology rather than an adaptation. Mithen takes issue with this assertion and goes to some lengths to show how music may have provided significant adaptive advantages for our ancestors.

## **The Theory of HmMMMM**

Mithen considers music in the context of many other aspects of behavior, especially language. He believes that music must have been an important vehicle for communication among early hominids. On the basis of several lines of evidence, he concludes that their communications were holistic, multimodal, manipulative, and musical (HmMMMM). Later, he adds the property of mimesis (i.e., imitation and mimicry), and therefore extends the acronym to HmMMMMM.

At first I found the acronyms just too cute and clever to be taken seriously, but I must admit that they serve as handy abbreviations. It is still not clear to me, though, why he needed both versions—the difference seems to reflect stages in his development of the theory rather than a chronological or evolutionary development.

Much of the book is devoted to a systematic assessment of the evidence in support of each term in the acronym. The result is a broadly based account of much that is known about Early Humans. Some of it is well established, whereas some is quite speculative. All of it is plausible, however, and most important, I believe that even the speculation suggests testable hypotheses that are worth exploring further.

Mithen traces the development of HmMMMM from gestures used by Early Humans, through the appearance of rhythmic movement, to the elaborate communications used by *H. heidelbergensis* in the scene I described above. Critical to this development was bipedalism, which produced changes in the vocal tract, which in turn enabled a greater range of vocal sounds. At the same time, an increasingly complex social structure generated a need for more elaborate communications, a need that was filled by the properties of HmMMMM.

And so we come to the explanation for the book's title. *H. neanderthalis* appeared in Europe 250,000 years ago and survived until quite recently (disappearing roughly 30,000 years ago). Although some authors have concluded that Neanderthals possessed a true language, Mithen argues that language demands a cognitive fluidity that neither Neanderthals nor earlier hominids possessed. Instead, their method of communication was HmMMMM. Indeed, Mithen believes that this inherently musical system reached its zenith with the Neanderthals, compared with whom “modern humans are relatively limited in their musical abilities” (p. 245). As HmMMMM was replaced as a communications device by language, music was relegated to a less central role in modern human behavior. Mithen finds only traces of the earlier system, for example, in infant-directed speech, onomatopoeia, Indian mantras, and, of course, in music as we know it.

## Evidence for HmMMMM

The strength of Mithen's book lies in the breadth of sources that he uses to support his theory. He begins with a survey of musical communications in primates, finding evidence that music can be used to manipulate the moods of other members of the species. In siamang gibbons, for example, there is a relationship between their songlike vocalizations and social grooming. The evidence is correlational, of course, but suggestive nonetheless.

A survey of neurological studies, especially those that examine the effects of brain lesions, suggests how music and language might be related. Although there is clearly a dissociation between the two faculties, there is evidence also for a shared neural circuitry at some level. For example, Broca's area in the cerebral cortex may be involved in both, predominantly in the left hemisphere for language and the right hemisphere for music.

Studies with modern humans show many connections between music and mood, which is hardly surprising. Mithen's hypothesis is that music evolved as a device for enhancing cooperation among individuals. As the social structure of Early Humans became

more complex, the need for cooperation would have become greater. This need was perhaps greatest among the Neanderthals, because for most of their existence they struggled to survive in a hostile environment. Mithen briefly reviews research concerning the prisoner's dilemma game and discusses the tit-for-tat theory of mutual cooperation. He proposes that music would have been a good way to initiate and maintain the cooperative behavior on which the success of tit-for-tat depends.

Evidence from fossils and from stone artifacts created by Early Humans is critical to Mithen's theory. He argues convincingly, for example, that the cultural stability beginning 1.8 million years ago and lasting over 1.5 million years makes it unlikely that hominids possessed language during that time. Yet the complexity of the social structure must have demanded a complex communications system. He builds his theory on proposals by Wray (2000) that language began as a holistic system, in which an utterance was a complete message, not made up from meaningful words. Mithen concludes that this holistic system was Hmmmmm. He argues that although the availability of language would have encouraged innovation, a holistic system would promote stability.

Other archeological evidence suggests that other pressures may have led to the evolution of a musical method for communicating. For example, the increased size of infants who were still dependent on their mother created a need for "putting down baby," and hence for a method that would be effective at calming an otherwise distressed infant.

Mithen adapts other theories to his purpose. For example, some have suggested that the rather large gluteus maximus in *Homo sapiens* is an adaptation developed for running. Mithen suggests that instead, or in addition, it might have been selected for dancing, and thus closely related to music.

The role of sexual selection in human evolution has been recognized by numerous authors, and Miller (2000) had applied this theory to the origins of music. Miller, however, had little to say about archeological evidence for his hypothesis. Mithen supplies the missing evidence. Musical skills would have been important in the competition for mates. The point is hardly new. As Irving Berlin (1921) said, "Somehow they'd rather be kissed to the strains of Chopin or Liszt." But it does help to see that the theme has been around for two million years.

Where firm evidence for a hypothesis does not exist, Mithen argues from plausibility. That is, the argument has a rational rather than empirical tone. For example, he finds accounts of Early Human society that do not consider vocalization to be incomplete and suggests that it would be hard to accept a prehistory in which music did not play a central role. "Without music, the prehistoric past is just too quiet to be believed" (p. 4).

Mithen creates an elaborate story, each element of which he supports with evidence where evidence exists, and with an argument of plausibility in other cases. It would be astonishing if every detail of Mithen's story turns out to be correct. Nevertheless, the book is a rich source of ideas that might be subject to further verification through empirical research. The suggested role of music in enhancing cooperation in the prisoner's dilemma game is just

one example. His assertion that language promotes innovation whereas holistic communications promote stability also deserves further exploration.

There are some points with which a reader might quarrel. For example, Mithen accepts the argument by Hauser, Chomsky, and Fitch (2002) that the ability to use recursion (the embedding of one message within another) is a prerequisite for the development of language, and he suggests that the property of recursion would already be present in HmMMMM. Although it is clear that music now uses recursion, I find it hard to see how the earlier, fundamentally holistic form of communication could be recursive.

Others might be concerned that Mithen has little to say about how music has evolved since language replaced HmMMMM as the primary vehicle for communication. He suggests how holistic utterances might have become segmented, providing the units from which a language could develop, but there must be more to the story of what happened to music. This topic remains for others to explore; see, for example, Dennett's (2006) treatment of music in the service of religion.

None of these concerns detract from a most enjoyable and informative book. Mithen's ideas should stimulate a great deal of further research that can only add to our understanding of music and its relevance to the human experience.

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