

Book Review

A review of *The Singing Neanderthals: The Origins of Music, Language, Mind and Body* by Steven Mithen. London: Weidenfeld and Nicolson, 2005. ISBN: 0-297-64317-7. 374pp.

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Non-evolutionary explanations for the origin of music have probably existed for thousands of years—many cultures have considered music to be a gift of the gods or of a particular god. But evolutionarily-informed hypotheses concerning music are rare. Why? To be sure, “music” is complex, but then so is speech, whose evolutionary origins and trajectory have been the subject of theory and lively debate for decades. The observation that everyone learns to talk, whereas musical talent is rare, is true only for music in modern societies: we don’t require everyone who talks to be a master orator. In small-scale societies people sing and dance as readily and competently as they converse.

So why is musical behavior universal? What could be its adaptive value? And just what *is* music anyway? Like speech, it is not one identifiable cognitive capacity but is constituted of multiple separate components. Pitch recognition varies from “tone deaf” to “perfect” and influences abilities for musical memory, discrimination of melodies, awareness of changing harmony, and even the ability to keep time. Other components of music include perception of contour or melody, phrasing, pulse, meter, and rhythm, along with sensitivities to timbre and the dynamics of tempo and auditory volume. Often disregarded are additional important abilities to synchronize and take turns. Individuals vary in endowment of these various features and individual cultures’ musics vary in the importance given to a particular feature. Music is both “passive” and “active”: it is both recognized and produced.

And this is only the “nature” of music. In order to begin to think profitably about its biology one needs to be familiar with a daunting array of specialist subjects.

evolutionary theory;

human evolution (including early environments, ways of life, and social life)

paleoarchaeology (the archaeological and fossil evidence for linguistic and musical capacity and their phylogenetic development);

anatomy of the brain and body (the ear and audition, the vocal tract and vocalization; the location of musical abilities in the brain);

neurobiology of musical cognition and emotion (how listening and vocal

production develop and are computed; evidence of mental modules for components of music as evinced in musical savants or in persons with deficits caused by brain injury; how we recognize music, what we recognize, and how it makes us feel; brain chemistry and neuroanatomy of music and musical states);

origin and evolution of language (the similarities and differences between music and language; gestural vs. oral theories of origin; semantics, syntax, prosody);

music-like communication systems in other animals (including whales, birds, and especially non-human primates) and arguments pro and con their relevance to human communication;

developmental psychology of musical and linguistic behavior in infants and young children;

ethnomusicology (the range of musical behavior in a variety of human societies with differing ways of life; how music is conceptualized and used in non-Western groups);

the art and practice of music itself.

Also relevant are findings from *music therapy* and *psychology of music*, including the *psychology of musical emotion*.

Steven Mithen, a cognitive archaeologist and professor of early prehistory at Reading University in England and author of provocative books and papers about human cognition and behavior, has armed himself with impressive knowledge in most of these subjects and boldly tackled the difficult subject of the origin and adaptive value of human music. Whether or not one is convinced by his concluding hypothesis, *The Singing Neanderthals* is a treasure trove of information and analysis relevant to understanding the evolution of music. Anyone who subsequently proposes another hypothesis cannot neglect the knowledge and questions set forth by Mithen nor can his conclusions be ignored, based as they are on careful consideration and synthesis of this vast range of specialist material. The footnotes alone provide an education in important relevant ideas about the evolution of music and much else.

Mithen rightly pays tribute to important early evolutionarily-minded predecessors, including John Blacking (1973) and Nils Wallin (1991). Although both contributed important insights and were themselves musically trained, they did not (and at the time could not) command the resources Mithen brings to bear: anthropologist and performing classical musician Blacking's ideas lacked evidence from archaeology and neurology while neuroscientist and musicologist Wallin neglected paleontology and ethnomusicology. Mithen also considers and incorporates, sometimes with amendment, ideas proposed in more recent comprehensive evolutionary hypotheses of music (e.g., those of Benzon [2001], Dissanayake [2000], Merker [2000], and Miller [2000]) into the strands that he gradually weaves into two major themes. The first, proposed in a preliminary form by Steven Brown (2000a), is the co-evolution of what we today call music and

language. The second is a completely original hypothesis of the existence among Neanderthals of a peculiar proto-music/language that was *holistic* (not composed of segmented elements), *manipulative* (influencing emotional states and hence behavior of oneself and others), *multimodal* (using both sound and movement), *musical* (temporally controlled, rhythmic, and melodic), and *mimetic* (utilizing sound symbolism and gesture)—what Mithen aptly if cutely terms “the ‘HmMMM’ communication system” (172), “a prelinguistic musical mode of thought and action” (p. 267).

The Singing Neanderthal hypothesis is described two chapters from the end of the book, but is hinted at throughout earlier chapters that establish the vast range of supportive evidence. Mithen claims that although Neanderthals had the kind of vocal tract and respiratory control that could have enabled speech, the neural circuitry for language was not present. In *The Prehistory of the Mind* (1996) Mithen argued that pre-*sapiens* hominids like Neanderthals lacked “cognitive fluidity” or metaphorical thought—the ability to hold concurrently in mind information from several different cognitive domains. Additionally, the absence of symbolic artifacts in their dwelling sites implies absence of symbolic thought and hence of symbolic utterance—i.e., spoken language (p. 228). Yet the challenging lives of Neanderthals—with their physically difficult environment, large body size, and large but dependent infants—required complex emotional communication and intergroup cooperation. They developed a “music-like communication system that was more complex and more sophisticated than that found in any of the previous species of *Homo*” (p. 234), one that included iconic gestures, dance, onomatopoeia, vocal imitation and sound synaesthesia.

Mithen’s hypothesis accounts for important aspects that are usually excluded in the majority of discussions of music: he appreciates that it typically includes bodily movement (toe-tapping, head-nodding, hand-clapping, and dance) and that “music-making is first and foremost a shared activity, not just in the modern Western world, but throughout human cultures and history” (p. 205). Although he does not describe musical behavior of Mbuti or Ba-Benjellé pygmies in Central Africa or Kaluli villagers in the Southern Highlands of Papua New Guinea, such small-scale societies amply illustrate the ubiquity (and complexity) of communal singing during most daily activity—“woven tapestries” (Meurant 1995) of sound that may even incorporate natural sounds of the forest (Feld 2001).

Especially welcome to communication and cognitive studies in general is Mithen’s emphasis on the importance of acquiring “*emotional* intelligence”—the ability to communicate one’s feelings with face, voice, and body and to decode the emotional signals of others in increasingly complex social interactions. Mithen proposes that “vocal grooming” (Aiello and Dunbar 1993) would have been initially musical more than verbal (pp. 135-36).. Rather than emphasizing the Machiavellian competitive advantages of comprehending the intentions and desires of others, Mithen points out that the emotional content of musical vocalizations would have been more ‘honest’ than words—contributing to social commitment and expressing,

inducing, and sharing emotion, especially happiness, thereby promoting selectively advantageous cooperative behavior. Not cited by Mithen is a provocative supportive observation made by Steven Brown (2000b, p. 297) that the two most salient features of music, compared to any other form of vocal communication in nature, are its use of temporal synchronization and pitch-blending. This leads Brown to propose that these cognitive capacities may have evolved specifically for coordination and emotional unification among individuals in a group and thus may be adaptations specifically for group selection.

Mithen appreciates that musical behavior may have had more than one adaptive function—and admits that, at least in *Homo ergaster* (a common ancestor of both neanderthals and sapiens), “singing and dancing may have provided both indicator and aesthetic traits for females when choosing mates” (p. 187). However, he disagrees completely with the now notorious pronouncement by Steven Pinker (1997) that music is derived from other adaptive capacities but is itself peripheral and even nonadaptive—like pornography or a taste for sugar and fat. Music, says Mithen, is too different from language (or anything else) to be a spin-off. He makes the further point that the emotional power of music indicates a long evolutionary history, not a recent invention aimed at pleasure: “We don’t have emotions for free or for fun” (p. 25). Indeed, every chapter in the book tacitly serves to rebut Pinker’s characterization of music.

The book is a sizable, impressive achievement and I found it thought-provoking and informative on every page. My few quibbles and questions are testament to the intellectually provocative nature of the author’s exposition.

Mithen pays more attention than most other evolutionary thinkers to (and bases much of his hypothesis on) the musical qualities and effects of “baby talk”: adult speech directed at prelinguistic infants, with its characteristic undulant “melodic” and dynamically varied vocalizations, exaggerated facial expressions, and rhythmic head and body movements. Although he considers infant-directed speech (IDS) to be evolutionarily important, claiming that it provides evidence that musicality has a developmental if not emotional priority over language, he does not make as much as he could of the implications that inhere in the close behavioral and emotional attunement and exquisite temporal coordination that mother-infant interaction enables (Miall and Dissanayake 2003; Nadel et al. 1999). Although Mithen proposes that the mental machinery of IDS belongs originally to a musical ability concerned with regulating social relationships and emotional states (p. 74), it is just as likely that mother-infant interaction (which Mithen suggests was present as early as half a million years ago) was the source for—not a derivative of—musicality. It is not farfetched to propose that the human capacity for temporal synchronization to an external pulse—not known to exist in other mammals or other primates—derived from a capacity that evolved in ancestral mother-infant interactions and then developed further in proto-music, whether in neanderthals or even earlier in *H. heidelbergensis*.

Mithen thinks that modern humans are relatively limited in musical abilities

compared to Neanderthals (p. 245). He suggests that the evolution of language has inhibited the musical abilities that modern humans have inherited from the common ancestor that we share with Neanderthals. Yet here I think he inadvertently slips into the Westernized assumptions about music that he decries elsewhere and reveals his own (relatively) weak spot—insufficient acquaintance with the ethnomusicological literature. It is not spoken language itself that overlays or stunts musical ability, but the factors in modernized societies that have made music a specialty—individuality, competitiveness, compartmentalization, and institutionalization—reinforced by the high degree of *literate* (not oral improvisatory) training required to read (and compose) musical scores as well as literary texts. In small-scale pre-modern societies (and in any large modern sub-Saharan African city, as well in children anywhere who are customarily exposed to frequent communal musical activity), everyone participates in music—regularly, spontaneously, and wholeheartedly—and benefits thereby from the many adaptive advantages Mithen recognizes and so expertly describes.

With regard to editorial infelicities, there are errors with two names: it is *Colwyn* (not Colin) Trevarthen (pp. 81, 196, 197) and *Mechthild* (not Mehthild) Papoušek (pp. 73, 371). And note 22 on p. 295 should read “ten thousand adults” (not ten). Perhaps the publisher can correct these in future printings and, even more, jettison the unfortunate, off-putting cover art showing two open-mouthed chimpanzees, wearing earphones and “singing” into a microphone. This sort of illustration trivializes the serious content of the book and is demeaning both to chimpanzees and to Neanderthals. It looks to me like something decided by a publisher (or publisher’s marketing department) without the author’s knowledge or approval.

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