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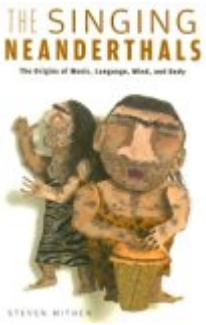

Steven J. Mithen. *The Singing Neanderthals: The Origins of Music, Language, Mind, and Body.* Cambridge: Harvard University Press, 2006. xi + 332 pp. $16.95, paper, ISBN 978-0-674-02559-2.

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Current debates within and outside of world intellectual communities about human origins, evolution, creationism and science are privileged with a newcomer: *The Singing Neanderthals: The Origins of Music, Language, Mind, and Body* by Steven Mithen (2006). Although many of the core ideas of *Singing Neanderthals* are not new, the very gargantuan scope and the multiple disciplines engaged are appealing enough to justify any initial excitement. Before we begin a summary of the arguments, evidences, conclusions and problems raised in Mithen, here is a condensed selection from the table of contents of the book of seventeen chapters: (1) Need for an Evolutionary History of Music; (2) Similarities and differences between music and language; Acquired and congenital amusia; (3) The modularity of music and language: Music processing within the brain; (4) Talking and singing to baby: Brain maturation, language learning and perfect pitch; (5) Music, emotion, medicine and intelligence; (6) The origin of "Hmmmmm" communication; (7) Getting into rhythm: The evolution of bipedalism and dance; (8) Singing for sex: Is music a product of sexual selection? (9) Neanderthals in love: "Hmmmmm" communication by *Homo neanderthalensis*; (10) A mystery explained, but not diminished: Modern human dispersal, communicating with the gods, and the remnants of "Hmmmmm."

As scholar whose expertise is in prehistory, it comes as no surprise that Mithen holds much faith and comfort not only in the general area of evolution, but also in specific aspects of human expressive behavior, namely, music, language, and gesture. Firmly anchored in these evolutionary premises, Mithen partially supports classic Darwinian thoughts, and those of his peers who specialize in human origins, evolution, and migrations of early humans. See, for example, Christopher Stringer and Clive Gamble, *In Search of the Neanderthals: Solving the Puzzle of Human Origins* (1993), Eric Trinkaus and Pat Shipman, *The Neandertals: Of Skeletons, Scientists, and Scandal* (1994), and Clive Finlayson, *Neanderthals and Modern Humans: An Ecological and Evolutionary Perspective* (2004).

In an initial disclaimer, the author delimits the scope of the book, noting that "These are the topics that both require and evolutionary expla-

nation and may provide some clues to the origins of music and language. There are, of course, many other aspects of music and language that also require explanation, most notably the diversity and distribution of languages and musical styles in the world today. These are not addressed, because their explanations lie principally in the historical development of human societies and dispersals of populations that took place after the universally shared capacities for language and music had evolved" (p. 6).

Psychologists, archaeologists, historians, ethnologists, linguists, biophysicists, (ethno)musicologists and anthropologists from several branches of the discipline were once keenly devoted to excavating and explaining the origins and universals features of music and language. It is important, however, in this preliminary remark to note that significant advances have been made in the last quarter century. These transcend not only the former preoccupations with universals, but they illuminate (albeit always as work-in-progress) the significant involvement of the brain, mind, kinesics, and cultural and individual contexts in processing musical and linguistic information. Regrettably, our avant-garde techniques, resources, assumptions and perspectives are severely undermined by our insistence on investigating and explaining "music" within the constraints of mainly Western concepts and examples, as pursued in *Singing Neanderthals*.

In building a general context for the book for the general readership, I would therefore like to mention another background factor, namely, the perennial problem associated with basic definitions and determinations of the nature of the human brain *in relation* to the mind. Even with our advanced tools and technologies, it is still impossible to conduct a totally unobtrusive studies or experiments involving the brain, for example as we attempt to locate specific sites, constitution, and interactions of parts of the brain in relation to music and language processing. If we could successfully see and interpret the thoughts going on in the mind-brain continuum in individuals, their particular relationships with sound-music-language-visual stimuli and why and how they qualify and are qualified by emotions (even in dream states), then we would be in position to make with confidence a glorious "*Eureka!*." Otherwise, much of our research work on the subject will continue to be cautious-sounding through the employment of redundant apologies and speculative voices (with expressions such as "may be," "could have been," and so on, sprinkled throughout the text) as often encountered in *Singing Neanderthals*.

First, we must applaud Mithen for his brave acknowledgment of the ontological braids interconnecting music, language, mind-brain, and the body. It demonstrates his fuller awareness of the plural and yet phenomenologically linked operations of these important traits that define our modes of being, ancient and present. As intimated at the beginning of this review, readers do not expect an author of a text of this scope to possess and demonstrate the same level of expertise across the various disciplines that are implicated in the title. For example, Mithen makes it clear both in the preface and in chapter 1 that the subject of music has been the most neglected in earlier studies of language origins and, according to him, "Writing this book has been an attempt to compensate for my musical limitations" (p.vii). However, the literature on music cognition, perception, and recent developments in cognitive ethnomusicology receives only marginal treatment; on the subject of music and emotions, for example, he presents only a generalized perspective. Thus, there is no discussion of the wealth of recent scholarship that challenges earlier efforts at associating emotions with specific musical types. For example, Deryck Cooke, *The Language of Music* (1959), an outdated and controversial book, was briefly presented together with Leonard Meyer's work *Emotion and Meaning in Music* (1956) and "Music and Emotion: Distinctions and Uncertainties" (2001) but without the

critical perspective necessary for bringing them up to the stature of contemporary scholarship on music and emotions.[1] There is even an older source that has some influence on Cooke and Meyer--Charles Diserens's ***The Influence of Music on Behavior*** (1926) that was not mentioned.

Another shortcoming is seen in the sections on "perfect pitch." The lack of serious discussions of distinctions and yet important relationships between musical ability and musicality casts much doubt on his assertions about perfect pitch, especially as identified with earlier stages of human evolution and encapsulated by the statement: "The evolutionary parallel of this is intriguing: it suggests that prelinguistic hominids may have maintained a bias towards perfect pitch throughout their lives, and hence developed enhanced musical abilities in comparison with those found among language-using hominids, including ourselves" (p.79).

There is no doubt the author is familiar with the psychological literature and draws confidently on many examples to support his case about perfect pitch.[2] Again, it is mainly the lack of serious perspectives on cross-cultural definitions of ***musicality*** in the context of the recent literature on music perception, cognition, and cognitive ethnomusicology that renders statements such as this one about perfect pitch haphazard. ***À priori*** frameworks are double-edged swords: they can cut asunder, and bind together, either too soon or too late. Thus, Mithen's firm commitment to evolution colors his conclusions on one of the interesting archaeological finds in the last two decades: the Neanderthal bone flute discovered by archaeologists in 1996. Because Mithen believes that Neanderthals were incapable of making musical instruments, he controverts the popular opinion--that is, he seriously doubts if the "bone flute" is really a flute, saying,

"But I wasn't convinced, and concluded that the bone's resemblance to a flute is simply one of chance. So we lack any evidence that the Neanderthals manufactured musical instruments. My own theoretical views suggest that they were unlikely to have been able to do so, although I suspect that unmodified sticks, shells, stones and skins may have played some role in their music-making" (p. 244).

I fully acknowledge the "pre-scientific" status of popular opinions, but a determination of the (non)musical status of the "bone" must remain work-in-progress at best; we should not bypass the expertise and insight of art historians, for example, especially if Mithen must demonstrate full commitment to the inter- and multidisciplinary demands of *Singing Neanderthals*.

It is not really easy navigating, interpreting, and applying the psychological literature, which occupies a significant portion of the text and Mithen must be highly commended for his efforts, regardless of the "secondary" nature of these sources. The most courageous and encouraging discussions of the secondary sources include those dealing with language and music, especially how they are processed in the mind. Naturally, these sources include varying dimensions of psychological testing, theories, and assumptions, as exemplified in those that approach the mind-brain operations as "neural networks" and "modules" with certain universal traits. Jerry Fordor's ***La mente modulare: Saggio di psicologia delle facoltà*** (1988) in which he established the groundwork for modularity of the mind or "massive modularity", as it is also known; Noam Chomsky and his proponents of generative grammar, and Ray Jackendoff and Fred Lerdhal's musical applications and extensions in their classic ***Generative Theory of Tonal Music*** (1983) are noteworthy examples. There are, certainly, many contemporary adherents of neural networks and generative grammar paradigms and techniques, but Mithen takes a middle ground and thus supports much of the recent findings that interrelate the 'modules,' including issues related to the left and right hemispheres of the brain. For example, he says:

"The fact that the music and language systems in the brain share some modules is also to be expected given the evolutionary history I have proposed, because we now know that ***both originate from a single system*** (reviewer's emphasis). Conversely, the fact that ***they also have their own independent modules*** (reviewer's emphasis) is a reflection of up to two hundred thousand years of independent evolution. The modules relating to pitch organization would once have been central to 'Hmmmmm' but are now recruited only for music (with possible exception in those who speak ***tonal languages***) (reviewer's emphasis); while other 'Hmmmmm' modules might now be recruited for the language system alone--perhaps for example, those relating to grammar. This evolutionary history explains why brain injuries can affect either music alone (chapter 4), language alone (chapter 3), or both systems if some of the shared modules are damaged" (p. 274).

However, as understood and appreciated now among cognitive ethnomusicologists such as Udo Will (2007), Dane Harwood (1976), Judith Becker (2004), and Bruno Deschênes (1998) is the importance of cultural and individual contexts in understanding the processing of musical and linguistic information.[3][4][5][6] The musical, linguistic and ethnographic details required and demonstrated by these scholars are obviously beyond the skills and expertise of Mithen, not to mention the lack of personal field examples. Udo Will's observation from the previously cited 2007 publication is worth quoting here:

"In both these approaches, the anthropological as well as the neuro-phenomenological one, there is an essential link between the cultural and the biological domain, each cannot be understood without the other, and there can no longer be a question of either relocating one domain in the other or defining one in isolation from the other. The cultural domain is no longer conceived in opposition to the biological and its grounding in action seems to preempt its reification.... What is needed is an anthropological reconceptualization of 'culture' along those lines proposed by Tomasello and Becker, one that takes into consideration the basic aporias of the old one and integrates insights and perspectives forwarded by neuroscientists like Varela and Freeman." [7]

An excerpt from he following Internet source titled, "Interdisciplinarity and the Study of Mind" by Renato M.E. Sabbatini and Silvia Helena Cardoso will serve as additional reminder of both the complexity and cross-disciplinary resources of not only the mind, but also of music, language, and the body:

"The study of the mind and of its biological basis is one of the greatest scientific endeavors of all times. It is the key to the definitive understanding of the very nature of human beings. However, the sheer complexity of the nervous system and the many methodological barriers which exist on the way to the objective study of its structure and function, require extensive collaboration among the scientific disciplines. Molecular and cellular biology, developmental biology, genetics, biochemistry, biophysics, pharmacology, electronics, information technology, biomedical engineering, mathematics, statistics, physics, cognitive sciences, psychology, linguistics and many others converge and intermesh in what is probably the most interdisciplinary of all sciences."[8]

"Hmmmmm" might sound like a metonymy for "doubt" in certain contemporary cultural-social contexts; but here it encapsulates Mithen's effort to broaden the range of articulatory and neural processing of music and language information by considering the role of gesture and bodily movement. But what is "Hmmmmm"? It is an acronym signifying that music and language have origins in a form of "***H***olistic" communication among early hominids and which Mithen describes as "***M***anipulative," "***M***ulti-***M***odal," "***M***usical," and "***M***emetic."

After a discussion of the enduring question of when speech becomes or is song, and vice versa,

Mithen clarifies the bodily and gestural extensions of music and language but within the trademark refrain of evolution, as illustrated by the following three examples:

"The holistic 'Hmmmmm' utterances of ***Homo ergaster*** would have been as much music-like as language-like. We should envisage each holistic utterance as being made from one, or more likely a string, of the vocal gestures that I described in the previous chapter. These would have been expressed in conjunction with hand or arm gestures and perhaps, body language as a whole, as I will describe below. In addition, particular levels of pitch, tempo, melody, loudness, repetition and rhythm would have been used to create particular emotional effects for each of these 'Hmmmmm' utterances.... The key argument of this chapter is that both the multi-modal and the musical aspects of such utterances would have been greatly enhanced by the evolution of bipedalism" (pp. 149-150).

"Here we must note the importance of song--the combination of music and language. Song can be considered as the recombination of the two products of 'Hmmmmm' into a single communication system once again. But the two products, music and language, are only being recombined after a period of independent evolution into their fully evolved forms.... Moreover, that music is often produced by instruments which, as an extension of the human body in material form, are themselves a product of cognitive fluidity. And that is a further consequence of the segmentation of 'Hmmmmm'" (pp. 273-274).

"As motor actions, such gestures ultimately derive from ancient mammalian capacities for sucking, licking, swallowing and chewing. These began the neuroanatomical differentiation of the tongue that has enabled the tongue tip, tongue body and tongue root to be used independently from each other in order to create particular gestures, which in turn create particular sounds, some of which involve a combination of gestures.... As the size of the dentition and jaws in the early ***Homo*** species became reduced, a different range and a greater diversity of oral gestures would have become possible compared with those available to their australopithecine ancestors. Although we do not know exactly how the potential range of vocalizations would have varied between the australopithecines, early ***Homo*** and the modern African apes, one thing is certain: hominids would have been more sensitive to high-frequency sounds than are modern humans" (pp. 128-129).

The treatment of the literature on the body, music and musical instruments is superficial, as can be expected of someone not deeply rooted in music, cognition, kinesics, and so on. Thus, readers would need to turn to scholars such as Ray Birdwhistell, ***Kinesics in Context: Essays on Body Motion*** (1970); John Blacking, ***The Anthropology of the Body*** (1977); John Baily, "Musical Performance, Motor Structure, and Cognitive Models" (1992); and Jane Davidson, "Which Areas of a Pianist's Body Convey Information about Expressive Intention to an Audience?" (1994) for culturally and contextually grounded examples and discussions emanating from specific fields of expertise. [9][10]

Mithen makes special effort to support his arguments by drawing on selective cultural practices from past and present societies but these examples fall short of building a sound ethnographic basis for the study. The examples of lullaby, childrearing, and other vocal expressions that he identifies as cross-cultural practices or tendencies are not in fact universal, and will be challenged in contemporary urban and diverse cultural traditions. He acknowledges there are some unique characteristics of urban child-reading practices, but this acknowledgment does not completely absolve him. See parts of the following conclusions for yet one more area of vulnerability:

"The expression 'Yuk!', and closely related sounds such as 'eeeurrr' are found in all cultures

of modern humans, accompanied by the characteristic facial expression of wrinkling the nose and pulling down the corners of the mouth. This is the expression of disgust, which since the time of Charles Darwin has been recognized as a universal human emotion…. 'Yuk!', 'eeeurr' and related sounds are vocal consequences of the facial expressions they accompany and are further examples of sound synaesthesia…. " (p. 203).

Despite its shortcomings, ***Singing Neanderthals*** is a courageous undertaking and illuminates the extended interconnections among brain-mind, music, language, gesture and bodily movement. While the quantity of supportive data or related literature is commendable and commensurate with the scope of the book, there are important lapses and superficial treatments, especially in the areas of the body, music perception, cognition, and emotions in cultural contexts. Mithen builds arguments and cites secondary sources in remarkable ways to transport us beyond the narrow confines of modular and neural-network approaches to the mind. By addressing gesture and body the author makes important stride in demonstrating the interdisciplinary issues and challenges involved in any attempt to explain both the "***why***" and "***how***" of mind-body-music-language origins and their developments over time.

Future investigators should pay attention to our contemporary music listening habits, some of which are closely linked with our ambulatory and emerging digital cultures, an important development with significant implications for understanding and interpreting how humans are "enticed" to adapt and develop new motor and affective responses such as now commonly identified with Dolby AC3 surround sound; long and frequent hours of watching and absorbing movement; language and musical information from (HD)Television; "lip-synching;" the walkman phenomenon; text-messaging (that is, the ability to keyboard on tiny pads and in the dark); driving with one hand and using the cell-phone with the other; and so on. These examples will be necessary when investigating evolution and adaptation as a premise for explaining musical ability and musicality in the contexts of cultural and social practices in the future. The multi-facetted expertise required must include art historians and iconologists, among other groups that Mithen ignores. The centrality of the mind-brain as the center-force throughout the history of mankind and in our expressive behaviors and acts will continue to defy precise measurements and identification for a while. We will continue to enjoy the ways in which we use our minds to direct our bodies, but never completely understanding how and why music and language illuminate the paths that we must dance through; no specific age is required.

Notes

[1]. Leonard Meyer, "Music and Emotion: Distinctions and Uncertainties" in ***Music and Emotion***, eds. P. N. Juslin and J. A. Sloboda (Oxford: Oxford University Press, 2001): 341-360.

[2]. See, for example, Leon Miller and Jenny Saffran and Greinpentrog whose works are extensively cited.

[3]. Udo Will, "In the Garden of Cultural Identities: On the Logic of Culture, Race and Identity in Postmodernist Discourse," forthcoming in ***EME [European Meetings in Ethnomusicology]*** Vol. 12 (2007): August/September 2007.

[4]. Dane Harwood, "Universals in Music: A Perspective from Cognitive Psychology," in ***Ethnomusicology*** 20/3 (1976): 521-533.

[5]. Judith Becker, ***Deep Listeners: Music, Emotion, and Trancing*** (Bloomington: Indiana University Press, 2004).

[7] Will 2007: 16.

[6]. Bruno Deschênes, "Toward an Anthropology of Music Listening," in ***International Review of the Aesthetics and Sociology of Music*** 29/2 (1998): 135-153.

[8]. http://www.cerebromente.org.br/n06/opiniao/interdisc_i.htm. Visited August 12, 2007.

[9]. John Baily, "Music Performance, Motor Structure, and Cognitive Models," in ***European Studies in Ethnomusicology: Historical Developments and Recent Trends***, eds. Max Peter Baumann, Artur Simon, and Ulrich Wegner (Wilhelmshaven: Florian Noetzel, 1992), 142-158. Selected papers presented at the Viith European Seminar in Ethnomusicology, Berlin, October 1-6, 1990, Intercultural Music studies 4.

[10]. Jane W. Davidson, "Which Areas of a Pianist's Body Convey Information about Expressive Intention to an Audience?" in ***Journal of Human Movement Studies*** 26 (1994): 279-301.