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Book Review

*This Is Your Brain on Music: The Science of a Human Obsession*, by Daniel J. Levitin. New York: Dutton, 2006. Appendices, bibliographic notes, index. 314 pp. ISBN 0-525-94969-0, \$24.95.

Daniel Levitin (who directs the Laboratory for Musical Perception, Cognition, and Expertise at McGill University, where he also holds the Bell Chair in the Psychology of Electronic Communication) writes in a spirit reminiscent of Douglas Hofstadter's now classic *Gödel, Escher, Bach* or Andy Clark's *Being There*—making the difficult transition from technical reflection on the minutiae of cognitive science to an engaging account of the mind at work look easy. Thinking about thinking lies at the heart of philosophy, and making it popular without dumbing it down has a pedigree as old as Socrates. Levitin, like many who have shaped the discipline, thinks of cognitive science as experimental philosophy. The experimental orientation opens philosophical investigation to constant transformation and grounds it in the concrete experience of the world; this takes it back to Socratic roots and invites a narrative dimension that, in turn, invites readers. There is a sense of being engaged with the author, with the world, with an inquiry, that non-philosophers often miss in philosophical texts.

That Levitin chooses to investigate music adds to the appeal, but it also adds to the significance of the inquiry. As he notes in his introduction (5), “Music is unusual among all human activities for both its *ubiquity* and its *antiquity*. No known human culture now or anytime in the recorded past lacked music.” What Levitin means by the antiquity of music is straightforward: where we find the earliest evidence of human culture, we also find evidence of music. Music is as old as human culture, and it appears where human culture appears. Whether it is unique to humans is a subject of some controversy; but whether it is present to humans is not. And this leads directly to the assertion of ubiquity. Where humans have been, there has been music; and where humans are, music is. There is an intimate connection between humanity and music that reaches across both time and space and may well justify an even stronger claim than the “obsession” of Levitin's subtitle. It may be the case (and I think this was Plato's suspicion) that we are not only obsessed with music but also formed by it. The aforementioned implications for definition apply as much to “humanity” as to “music,” and this is of profound significance in our increasingly instrumental age.

But there is more to the ubiquity. Levitin notes that “music listening, performance, and composition” engage “nearly every part of the brain” (6). Its ubiquity is “internal” (cognitive, psychological) as well as “external” (cultural, social). Where humans are, music is—but, even more striking, the experience of music is pervasive in each human being that experiences it. Listeners as well as performers are inclined to describe the experience of music as something in which we are entirely involved—body and soul. We can lose ourselves in it, abandon ourselves to it—and many of us do so frequently. This could mean (as

Levitin thinks it does) that our perception and appreciation of music can tell us something fundamental about our humanity. It could also mean (again, as Levitin thinks it does) that our perception and appreciation of music can tell us something fundamental about the structure of brains which are so thoroughly engaged by it.

On this count, the relatively recent distinction between performer and listener is a significant one—particularly because the evidence belies any depiction of the music listener as passive. Listening, as surely as performing and composing, engages the whole brain; and that is important for thinking about thinking. At the very least, it favors an understanding of musical perception as active. But it also points to a field in which to explore the activity experimentally rather than simply asserting it. By investigating perceptual mechanisms engaged in listening to music and comparing them to mechanisms engaged in making it, we may learn something of the working of perceptual mechanisms more generally. This is precisely what Levitin does, and the results are significant not only for a science of music but also for an experimentally grounded philosophy of perception with implications for aesthetics, epistemology, and language. The relation between music and language has, of course, been a subject of controversy. But even if we do not think of music as language, that the cognitive mechanisms at work when it engages us as listeners have much in common with those at work when we are engaged in making it suggest that we consider the possibility that something similar happens in what we do identify as language. Reading written language or listening to spoken language, for example, are not passively receptive; they are activities analogous to writing and speaking. The reader is a writer, the listener a speaker, in much the same way that a fully engaged music listener is a maker of music.

Levitin addresses this early, and he continues to develop it throughout, as a challenge not only to the rigid separation between performers and listeners but also as a challenge to the rigid separation between experts and non-experts. Many people, he notes, who claim to know nothing about music can nevertheless identify the music they like and distinguish it from the music they don't. And many, as experiments conducted by Levitin and others demonstrate, can also reproduce the music they like with remarkable accuracy. Part of the challenge here is to the understanding of "expertise." Music is so intrinsically a part of human experience that all humans share some musical ability, just as we all share some linguistic ability. (As the often quoted African proverb has it, "If you can walk, you can dance; if you can talk, you can sing.") The rigid separation of performers from listeners and the further categorization of both into experts and non-experts may explain some of the difficulty "ordinary" listeners have in talking about our musical experience. Abandoning some of the jargon that institutionalizes the separation opens access to what is arguably a universal human experience. Making human experience accessible is consistent with the kind of philosophical inquiry Socrates carried on, and it is in the spirit of the "pragmatic" philosophy of writers like William James. The point is not to build and defend a specialized realm so much as to open human experience (and the

world in which it happens) to critical and appreciative reflection-to "enlarge the universe of human discourse" (as Clifford Geertz put it).

This is related to another question Levitin poses early, that of the relationship between music and science-which stands in here for the broader question of relationship between art and science. He subtitles the introduction "I Love Music and I Love Science-Why Would I Want to Mix the Two?" The answer, developed not only in the introduction but also throughout the book, brings "art" and "science" together around an experimental attitude that (in Robert Sapolsky's words) "reinvents and reinvigorates mystery." Once again, this taps an ancient philosophical discussion-and it reclaims an old tradition in which the artist and the scientist share an experimental/experiential attitude toward the world. More to the point, it suggests that creative engagement with the world combines "art" and "science" in the celebration and exploration of mystery. It is not new to claim that philosophy begins in wonder, but it is worth repeating; and Levitin (in the long tradition of philosophers who "abandon" philosophy to engage the world) repeats it eloquently.

Levitin doesn't leave readers guessing what he is about. At the end of the introduction, he writes "Your brain on music is a way to understand the deepest mysteries of human nature. That is why I wrote this book" (11-12). There will be philosophers who want to argue about "human nature," and Levitin will provide substantial material for the argument in the process of writing "the story of how brains and music co-evolved-what music can teach us about the brain, what the brain can teach us about music, and what both can teach us about ourselves" (12). When Levitin asks "What is music?" (as he does in the first chapter, he is also asking "What is human?" The answers to both questions fall in the realm of natural philosophy. By taking an experimental approach, Levitin sidesteps explicit arguments about "essence" but puts himself in a broadly constructivist tradition familiar from philosophical approaches most influenced by evolutionary theory-pragmatism, process thought, Bergsonism, and genetic epistemology. To speak of the co-evolution of music and brains is to suggest a "natural" evolutionary process in which both are constructed while mutually influencing one another in a process that is itself constructive. He is interested not only in what brains make of music, but also what music makes of brains. And he is convinced that the making is key to understanding mind (along the lines of Marvin Minsky's assertion that "mind" is what brains do).

Levitin works his way back from timbre (which he says has come to dominate our appreciation of music, particularly since the advent of rock) to rhythm (which he says has been the dominant dimension of music through most of human history). In this regard, it is most interesting that he points to composers such as Scriabin and Ravel and popular songwriters like Stevie Wonder and Paul Simon who describe their compositions as "sound paintings, with timbre playing a role equivalent to the one that color does in visual art, separating melodic shapes from one another" (53). For both artists and philosophers of art, this raises significant questions about the relative importance of line and color that have been hotly debated. In Levitin's account of music, the equivalent debate revolves around timbre and rhythm. In neither case is it a

question of either/or-line or color, timbre or rhythm. Each of these elements works together in a composition to make a whole, so the question is always one of mutual tension and interrelationship. In distinguishing music from visual art, Levitin adds the dimension of time: "one of the things that makes music different from painting is that it is dynamic, changing across time, and what moves the music forward are rhythm and meter" (53). In Levitin's archaeological account, digging through timbre leads us to rhythm; and that is the engine that drives his composition of the brain. In a familiar pattern of ethnographic investigation, what is older is "under" what is newer, and what is newer is constructed on the foundation of what is older. That is consistent with evolutionary theory, of course; but what is not consistent-and therefore stands out here as a question for further investigation-is the implication that painting is not dynamic. One implication of evolutionary theory, developed at length in Bergson and Whitehead, is that "nature" itself is dynamic. Painting is in nature as surely as music. If rhythm and meter move music forward, what moves painting? In the process of supporting the assertion, Levitin gives us substantial material with which to address the question, and it points in the direction of at least a partial rehabilitation of Bishop Berkeley. For painting as for music (and as for poetry), what moves it forward is as much a matter of what happens between viewer or listener or reader and painting or song or poem as what happens "in" the object of art. One could argue that you typically see (and hear) music being made in a performance while you typically see only the product of performance in a work of visual art. But, from beginning to end, art is as much about seeing/hearing/experiencing what is not there as about what is-and an aesthetic theory inclined to break down divisions (as Levitin's is) is wise to extend the work beyond an object passively observed.

The point, one might say, is to get into it.

And this is connected to Levitin's discussion of the classic definition of music as "organized sound." The definition, first, extends the realm of music beyond the human. Birds, for example (as Charles Hartshorne, among others, argued at length), are masters of organized sound. But it also leaves two critical features unspoken. First is the significance of silence to the experience of music. This is (appropriately) implicit in Levitin's discussion, since rhythm and meter depend as much on silence as on sound. But both John Cage and Wallace Stevens (not to mention a long list of Chinese theorists) might push Levitin to give more explicit attention to silence-and to its implications for our understanding of "organization." But leaving that aside for a moment, we can turn (as Levitin does) to another unspoken feature, surprise. Recalling the definition of music as organized sound, Levitin writes (109) that "the organization has to involve some element of the unexpected or it is emotionally flat and robotic." Emotionally flat, robotic, and *boring*, if we recall Hartshorne's study of bird song. Once again, the critical element lies in a relationship-marked by what Hartshorne called the "threshold of monotony." A creative work-whether its matter is sound and silence or pigment and paper-has to maintain a tension between giving us what we expect and giving us what we don't. Too much of the one and we are lost to monotony. Too much of the other and we lose the composition in the

background. Cage could see the value in both types of loss-but that was an aspect of his composition. And it is consistent with Levitin's argument, which points not toward a simple matching of patterns "out there" with patterns "in here" but to a process of *constructing* patterns in which mind, brain, and world are actively engaged.

Given the reference to Hofstadter with which I began, it is appropriate that Levitin boils this down to a conversation with Francis Crick that itself came down to *connection*. (Hofstadter's book is subtitled "An Eternal Golden Braid.") For Crick, as for Levitin, investigation of human evolution leads to the interconnectedness of regions of the brain, of neurons, of genes, of elements all the way down. But the interconnectedness is itself a dynamic product of connection as action-the *process* of connection, all the way down.

*This Is Your Brain on Music* is an accessible synthesis of contemporary research in cognitive science as it relates to music. Because Levitin attends with care to connections, it serves as a more general entry point to philosophical issues relevant to cognitive science-particularly issues related to perception, memory, and aesthetics. Like most good arguments, Levitin's invites new connections that are likely to generate new arguments that lead in new directions. By making the argument accessible to a non-specialist audience, it broadens the circle of conversation-all of which makes the book of interest to philosophers for what it *does* as much as for what it contains.

- Steven Schroeder, \_Shenzhen University, *Essays in Philosophy*, January 2007.