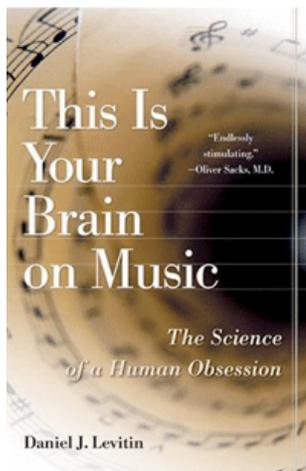



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CULTURE DISH***This Is Your Brain on Music* by Daniel J. Levitin**

By ROB MITCHUM | 3.05.07



It almost sounds like a movie script: top-flight record producer works with stars like Carlos Santana and Stevie Wonder, but eventually grows tired of the music industry's fast and loose lifestyle, choosing to take a sudden career detour and return to school to study ... neuroscience. OK, so it wouldn't be a very exciting movie, and the transition from the mixing board to the fMRI machine isn't as difficult as you'd think, as both mainly involve copious amounts of flicking switches and tedious point-and-clicking. But Daniel Levitin's bizarre resume is the kind of backstory book publishers love, making him the perfect personality for producing a book that explains and advertises what science currently knows about the neurobiology of music. In other words, he makes for great copy.

Which only leaves the question of whether he's the best man to write about this fascinating topic ... not that I'm [biased](#) or anything. It's a common publisher's fallacy that the best person to write about a particular scientific field is either one of the top scientists in that area of research (as if they had time to learn how to write well) or a

"celebrity" scientist, someone, like Levitin, with an extra-scientific angle. That's not to say that members of these categories don't sometimes end up writing excellent books; Stephen Hawking, for instance, might qualify for both. But Levitin has two considerable handicaps to overcome, being both a scientist within the field of music neuroscience (and thus prone to esotericism), and a member of two famously reticent occupations: record producer and laboratory researcher.

Fortunately, *This is Your Brain on Music* proves Levitin to be an amicable guide to a sometimes labyrinthine field, presenting a cognitive neuroscientist's insider view with healthy doses of self-deprecation and patience. Only rarely does the book get mired in terminology, either musicological or psychological, and while the tone is pretty professorial throughout, it's the jeans-and-t-shirt kind of professor, the kind that always has a bit of facial scruff and takes smoke breaks with his students.

The educational approach is essential for the subject matter, which contains dual prerequisite hurdles of a basic understanding of brain anatomy and function and intro-level music theory. While everyone in the world listens to music, only a small percentage can consciously break those sounds down into its component parts, and terms like pitch, meter, timbre, and key are commonly misused and misunderstood...even by, ahem, accredited music reviewers. For that reason, the first two chapters of Levitin's book are essential for anyone who's ever wanted a quick survey of musical elements, as he lucidly breaks down each of the key attributes in the course of explaining what separates music from plain old sound.

But after presenting the crucial details, Levitin spends the rest of the book looking at the big picture, as cognitive neuroscientists are wont to do – for the uninitiated, the cog-neuro folk adhere to the top-down, holistic approach to understanding the brain and mind, while the neurobiologists work from the small things up, examining circuitry and function at the level of cells and molecules. Being a member of the latter contingent, I can't help but chafe at Levitin's reduction of my team's approach to mere anatomical "cartography," but I'll also admit that his more Gestalt background is ideal for studying music's effects on the brain. Loudly playing a Duran Duran song for a single neuron isn't going to tell you much (believe me, I've tried), and as the book reports, listening to music doesn't involve just one isolated brain region, instead utilizing everything from auditory cortex to language centers to the cerebellum.

So Levitin's comfort zone is in human studies using imaging technology and computational modeling, and research in these areas gets the lion's share of the spotlight in *This is Your Brain on Music*. When Levitin stays

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on task, examining how the brain organizes and analyzes the information encoded within music, his conclusions can be thrilling. It's personally heartening, for instance, to find that non-musician's brains are typically just as good as those of trained musicians at processing complex patterns and rules of musical compositions. Turns out we've all got a musicologist inside our heads, but only those of us who bothered to survive more than a couple months of piano lessons know the technical names to discuss music in the "proper" or as I call it, "boring" manner.

Occasionally, however, Levitin veers away from probing the mysteries of how brains process music and instead uses music to illustrate rather dull, semantic cognitive-neuroscience arguments, and here the book hits a few tedious patches. The longest chapter of the book, named for the amazingly bizarre Beatles song "You Know My Name, Look Up the Number," does little more than whore music out as a pawn in the tiresome memory-modeling debate, pitting constructivism vs. record-keeping camps against each other with music as the weaponry. To be mercifully brief, constructivism is the idea that the brain stores memories in terms of generalized rules that can be applied to new information, while the record-keeping hypothesis is that memories are stored as exact copies. My biases aside, it is a worthwhile debate, though it's one fought largely with frustratingly anecdotal evidence, and Levitin provides fresh new examples for each side to "a-ha!" each other with, like our ability to identify a song we've never heard as fitting a "disco" prototype, or our skill in identifying a flawed version of a familiar tune with just one different note or subtle change in timbre.

By contrast, more interesting questions about the science of music get short shrift, like the neurological basis for differences in taste, or the evolutionary basis of music. Oh, both of these are addressed by Levitin in their own chapters, but whether due to space constraints or the field's infancy, the answers are less than satisfactory. The chapter on taste, for instance, basically concludes that most people like their music familiar, but not *too* familiar, and different, but not *too* different. No magic recipe for creating a #1 single there.

But *This is Your Brain on Music* is just the opening salvo of a scientific conversation that we'll probably be having for decades to come, not a definitive summary of the field, and Levitin is humble enough to realize the difference. Most importantly, it's a breezy pop-science read; Levitin may not be the flashiest or most creative writer, but he's got a bulging inventory of anecdotes from the worlds of music and science (he's met both Crick and Clapton) to spice up the proceedings and make some clever analogies. I'll even let his archetypal baby-boomer musical taste slide – he uses Sting and the Police as examples roughly 25 times in 250 pages. More than anything, the book reflects an author and a scientist with a tangible love for music; it's not just some abstract topic for Levitin to study, it's his passion, and his strange career path is more than just a qualification and great jacket-copy, it's a reflection of his lifelong pursuit.