What Women Want

THE PUZZLING POLITICS OF GENDER
By Julia Baird

PUT PALIN ON THE SUPREME COURT!
By Dahlia Lithwick
Euroscientists may be the rock stars of 21st-century science, but how many of them actually have platinum records to their credit? There’s at least one: Daniel Levitin, author of “This Is Your Brain on Music,” the 2006 best seller that mixed serious science with discussions of “Ode to Joy” and “Super Freak.” His new book is “The World in Six Songs,” which puts an evolutionary spin on why people love a good tune. Levitin took a break from his research at McGill University in Canada (and from practicing with his campus band, the Diminished Faculties) to speak, and sing, with Newsweek’s Mary Carmichael: CARMICHAEL: OK, I’m putting on “Gimme Shelter” in the background. [Plays opening chords and “oooh.”]

What’s going on in my brain? LEVITIN: Well, so much of music is subjective that people can have very idiosyncratic responses to the same piece. It’s not as if you just put a card of Pantone green in front of you. Yes, your eardrum is wiggling in and out, and the brain is interpreting that pattern of wiggling—it’s extracting pitch and rhythm and timbre and melody, and binding them together into what you recognize as song. That’s what people studying auditory perception for the last 100 years have looked at. But the paradigm shift in the field in the last five or six years is that people have also started looking at emotion. So if you like “Gimme Shelter,” the brain’s reward centers are coming online—the nucleus accumbens, the amygdala, the ventral tegmental area. These are part of an ancient reward system that modulates levels of dopamine, which you can think of as “happy juice.” You’re also listening to lyrics, so the language centers, Broca’s and Wernicke’s areas, are working. And there are two other things going on in the brain. You may have some associations to that song—a first kiss, maybe. Actually, it reminds me of “The Departed.” Then that memory association will be part of it. And there’s one last thing that’s true of all music—it’s patterned over time, unlike paintings, which are patterned over space. So whether you know it or not, your brain is constantly trying to figure out what the next note is going to be. Because you’ve been exposed to Western tonal music, you know after a certain chord sequence what the next possibilities are. Your brain has compiled a statistical map of which ones are most likely and least likely. If the song keeps hitting the most likely notes, you’ll get bored, and if it’s always the least likely ones, you’ll get irritated. A really good song needs to have the right ratio.

Sing, Brain, Sing

Daniel Levitin on the Stones, ‘happy juice’ and death at the watering hole

Which is what? Fifty-fifty? It’s different for every person. Some people like very predictable melodies, and others prefer the less likely notes. Wait, is this a mathematical way of measuring how sophisticated someone’s taste is? Well, “sophisticated” in terms of how complex their favorite music is. Not necessarily how good it is. A lot of scientists think that music is a “spandrel,” a byproduct of evolution that just happens to be something we like. But your new book argues that it’s important—that it made us who we are as a species. The six songs in the title are six ways in which our ancestors used music to develop society—to create social bonds, for instance, or to transmit knowledge, or for large-scale coordination. With social bonds, singing together produces oxytocin, a trust hormone. Or moving together in a coordinated way—as far back as “The Art of War,” Sun Tzu recognized the importance of that in battle. Or think about ancient construction projects, like the Great Pyramids, with the “one, two, three, heave-ho”—you had to move together to get things done. There’s an ancient connection between movement and music. Most languages don’t make a distinction between the words “music” and “dance.” And we can see that in the brain. When people are lying perfectly still but listening to music, the neurons in the motor cortex are firing. Which explains why people can’t help but tap their feet to a beat. Right. So the story is that those of our ancestors who synchronized automatically, who moved in response to sound, were perhaps more successful at their cooperative undertakings and were able to pass on that trait. But the Pyramids weren’t built that long ago, on an evolutionary time scale. And the Neanderthals were making flutes out of bear bones 40,000 years ago. I’m not saying music evolved just for the Pyramids. But it made them possible. The “knowledge songs” are another example of a survival advantage. Before there was writing, if you had important information that needed to be preserved—“don’t go to that watering hole, our uncle went there and they killed him”—you might have encoded it in song, because words are easier to remember when they’re put to music. Music sticks in the head. If you look at preliterate societies today, a lot of knowledge transmission is done through song: how to build a raft, how to make an airtight water jug. We have vestiges of this in America. All American children learn the alphabet song. And my students sing me a song about the parts of the brain [breaks into the tune of “Camptown Races”]: Neocortex, frontal lobe, brain stem, brain stem/Hippocampus, neural node, left hemisphere.
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But we still do most of our learning via language. What does music do for us that mere words can’t?

As Helen Vendler says of poetry, music is not a news report. Except for these knowledge songs, it’s not usually intended to represent objective facts. What music is better able to do than language is to represent the complexity of human emotional states. It’s rarely the case that we feel just one single emotion. When was the last time you felt pure joy? More likely it’s joy with a bit of apprehension, happiness with a bit of sadness. There are only seven notes on the major scale, and seven on the minor, but the ways in which those notes are strung together can convey different emotions. It has to do with predictability, where your brain is trying to guess the next note. If I play notes in a predictable fashion, initially, there’s no tension—it’s comforting. But if I do it over and over again, tension will build.

Because you’re expecting some variation.

And that leads to complex feelings of tension and resolution, comfort and arousal. It’s not that far from humor—it has to play around with your expectations of what’s normal, and then violate them.

You said that “music sticks in the head,” and in fact I’ve turned off the Stones but I can still hear Mick going “oooh” in my brain.

Why do songs get lodged in there like that? Maybe it’s meant to get stuck in your head. Having “music in the head” allows you to experiment with variations. A lot of people report that when a song gets stuck in their head, the tempo will change a little, or the notes will. So it could be a kind of a game for exercising the mind. When a song gets stuck, it’s not the whole thing; it’s usually about 20 seconds of it. That’s about the same length as auditory short-term memory. And the songs tend to be relatively simple ones. It’s more likely Rihanna that’s in there and not Stravinsky or Mahler.

There’s a common belief that people who are good at math are also good at music. But you disagree with that.

As far as I can tell, it’s an illusory link. Yes, there are a bunch of people who are good at both, but there are also a bunch of people who are good at one and not the other. There are also a bunch of people who are left-handed and redheaded, but I don’t think one causes the other. Although music and math are both in some sense languages—so maybe if you have an aptitude for languages, you’re good at all three.

You’re also a composer, and you produced for Steely Dan and Stevie Wonder (congrats on those platinum and gold records, by the way). When you write music, do you try to apply anything you’ve learned from your scientific work?

I’ve been trying in my own writing not to think about any of the laboratory lessons. Instead, I think more about the lessons I’ve learned from my songwriter friends. I played two songs recently for Joni Mitchell, and I had a songwriting lesson from Rodney Crowell, who has a number of top-10 country hits. They seem to think the musical side is fine. It’s the lyrics I need to work on. I need to be more specific. Instead of “the girl left me,” I need to say, “the girl left me standing on the corner with a hole in my shoe,” or “the girl left me on our anniversary.” Something that has some emotional truth, even if it’s not literally true. We’re sort of numb to generalities—“I had a bad day today” doesn’t move you. But “I stepped on a nail,” or “my boss screamed until he was shaking and the veins in his temples were bulging”—

It puts an image in your head.

That’s it. Rodney also says I need to be more conversational. Don’t try to be Shakespeare. I’m looking through you/Where did you go? I thought I knew you/What did I know? That’s not Shakespeare, but it’s a great lyric.

You obviously love music. Are there some people who don’t like it at all?

There are a lot of people who don’t, but then we humans differ in so many interesting ways. The estimates are that with music, as many as 10 percent of the population just don’t get it.

Really? I’ve never met a person like that.

That’s because they’ve learned not to advertise it. People look at them funny. But hey, there are people who don’t like chocolate, and I don’t understand that. There are people who don’t like sex.