>> From the Library of Congress in Washington, DC.

>> I'm Steve Mincher [assumed spelling] for the Library of Congress, and we're talking on the podcast today with Daniel Levitin, author of "This Is Your Brain on Music" and "The World in Six Songs". He's about to give a lecture in the Library's Music and the Brain Series. Daniel Levitin is James McGill Professor of Psychology and Behavioral Neuroscience at McGill University, and that's a mouthful. He's also worked as a record producer and a recording engineer with what Wikipedia tells me are 14 gold and platinum recordings to his credit. Is that true?

>> I think that sounds about right.

>> Okay. Now since I have you here and since you've worked with Steely Dan, I had a question that I could only ask you. Every time I've ever walked into a place where someone is mixing music in a hall or in a recording studio --

>> --Yeah

>> --They're playing "Ricky, Don't Lose That Number" and they're listening --

>> -- Intently --

>> -- Intently. What are they listening for?

>> -- Well, the thing about Steely Dan's recordings are that they are really models of how good recording technology can be. I mean in the history of recorded music, everybody may have their favorite piece of music, or their favorite way of demonstrating the technical capabilities of reproduction equipment. But I think most, if not many, serious listeners agree that the Steely Dan represents really the zenith of what recording technology can be in terms of clarity, frequency response, dynamic range, a complete separation between the instruments and yet they still blend in a harmonious way. So I've used them to test out -- I don't usually use "Ricky, Don't Lose That Number", but --

>> -- Which one do you use?

>> I've been using "Gaslighting Abbie" most recently off of the album "Two Against Nature", but really anything from their repertoire, masterfully -- masterfully done. Roger Nichols, the brilliant Roger Nichols was the chief recording engineer on all of them. Usually what I am listening for is the separation between instruments, which helps you to judge the quality of the stereo imaging, and also the deep base, the deep lows of the base, the shimmering highs of the cymbal, and everything in between.

>> Okay. Well, thanks for clearing that up for me. Can we go back? I've enjoyed these podcasts talking to people about some of the earliest musical experiences. And I want to know if you or someone who was sent off to music lessons at a certain age, or if music was playing in your home?

>> Well, my mother, who is a novelist and has 40 books housed here at this institution, used to play the piano every afternoon before dinnertime for about an hour. And my earliest memories as a child were lying underneath the family grand on this you know 60s shag rug and just listening to the sound of the music watching her feet go up and down on the pedals. And it was a mesmerizing experience because the sound really is all around you. And the low notes came out of one ear, or came into one ear, and the high notes came into another, and I began plinking around with the piano as soon as I could sit at the bench, and that's pretty much where it started with me.

>> Wow. Where to go from there?

>> Well, in grammar school, we had a school music program, and I started taking clarinet when I was 8 years old. We had half an hour a week, I think, of private lessons, and then we had group ensemble. And when I was 12, he gave me to borrow the school saxophone and taught me how to play it, and he wanted to form a school jazz band, a junior high school jazz band. And along the way he gave me lessons in how to write and score music, how to arrange it, how to write for the different instruments, how to understand the ranges of the different instruments. And for an 8th grade project, I scored 2 or 3 pieces for the school band, and we played them. He taught me to conduct them.

>> Wow. Do you still have recordings of those pieces?

>> I do. I do. And we're still in touch. We became good friends. Te was a remarkable man. And his name was Talbage Edee [assumed spelling], and he is now a goat farmer in Oregon. But, you know, a number of his students, we were in a small little farm town, Moraga, California, but a number of his students went on to become great musicians. One of them went on to play with the Ray Charles Band, Steve Turre, the trombone player, and his brother Peter Turre was a drummer. We had players go on to work with you know big groups like that.

>> Fabulous. All right. Let's talk a little bit about "The World in Six Songs". As I understand your thesis, it's that music has helped to define who we are as humans and further that music can be classified under 6 categories, at least the music that has made a difference to our human development. How did you land on those particular 6 categories?

>> Well, I think the idea is similar to what Jared Diamond did with "Guns, Germs and Steel", his wonderful book. His thesis there was that if you want to understand why it is that different peoples in the world have different economic wealth -- you know different levels of economic wealth or health, if you want to understand the nature of you know why some societies have advanced more than others, it's instructive to look at these three things, guns, germs, and steel. They can tell you a whole lot about the movement of wealth and resources in the world. And similarly through an analysis of thousands and thousands of recordings and texts of music going back 6,000 years, what emerged were 6 categories of music that describe the way our ancestors used or probably used music as ways of getting along with one another, communicating emotionally. And so the

"Six Songs" of the title are not 6 particular songs. It's not a book about my 6 favorite pieces, or the 6 most important songs of all time, but it's about 6 kinds of music, songs of friendship, joy, comfort, knowledge, religion, and love, and the ways in which our ancestors used them in order to form social bonds, to comfort one another, to encapsulate knowledge, in short, to create society as we know it.

>> I found it fascinating. And you mounted some pretty persuasive evidence, and as you're reading you find yourself looking into academic subjects like neurochemistry, anthropology, musicology, evolutionary biology. Sometimes with all that just on the course of a paragraph or a page, I got -- I found myself a little dizzy. Do you get that reaction from some readers, or are they just willing to follow you just about wherever you want to go?

>> Oh, why you'd have to ask them. I mean there is a lot of information packed in the book. What I set out to achieve, and what I hoped I pulled off, was that I wanted to give this book more science than there was "This is Your Brain on Music". But the science should be more gently delivered. You should be reading and not really feel like you're being lectured at and not feel like there's a lot of technical stuff going on, but at the end, you should feel that you've learned something. And to do this, you know I think the tough problems that are challenging us in the world today really require an interdisciplinary approach. You can't get at the interesting issues from just one academic perspective, one intellectual discipline. So yeah, something like music involves, well, music theory of course, and musicology, but also biology, and evolutionary biology, in particular, neuroscience and anthropology, to, as you saw in the book, linguistics to some extent.

>> All right. So that's -- thanks for helping me sort of unpack that. That's sort of what's happening in a sense. You're leading us through a survey of some of these ideas. We can dig deeper into any one of them, but you're marshaling them to prove your arguments, to have a discussion.

>> Yeah. And I do want to be honest here. I don't feel that I am bringing to the reader anything new or novel. I think all I've done is I read through hundreds of articles so that you won't have to. And I put together in a way that will be palatable for the proverbial educated lay person, you know, what I read and try to synthesize into a framework. The "Six Songs" can be seen as, I guess, a literary device or framework by which to convey the information. I mean, they're more than that, because I think they have some historic reality. But really it was a way to tie together these disparate fields. I'm not promoting any radically new ideas. I'm just unearthing what was out there in literature for the last 20 years in particular.

>> It reminded me in reading through your book and then thinking about it of J. Carter Brown, the Art Curator and Director of the National Gallery. Before he died, his last great exhibition pared down all his knowledge of 30, 40, 50 years, to pretty much exactly what you were doing. He said, "All art can be divided into these categories." I don't know if he had three or five seven. He put them on all wall next to each other next to each other in Atlanta. And the critics came and were just cutting and

mean, because this was not what they expected. This was not what the great man was meant to deliver at the end of his life.

>> If you read "The World in Six Songs", and what you come away from it with is the single idea there are basically 6 forms of music, or 6 categories of music, that's coming away with the wrong thing. Really what the story is about, what the book is about is the underappreciated role music has played in creating human society. And the particular changes in the brain, in the brain of homo sapiens as distinguished from australopithecines and Neanderthals, these particular changes that gave rise to the desire to communicate, the desire to represent things artistically, to convey them emotionally rather than factually. These things that gave rise to music, language, art, science, and indeed, I believe all of human civilization as we know it. That's the message.

>> The thing that also is so engaging about the book is that you are someone, as you said, in terms of the academic subjects, you're willing to talk about. It's also musical that you are not -- this is not about classical music or jazz or blues or any one kind of music. You're sort of catholic with a small seed taste in music. It is something that really draws us in from the beginning with this. How did you come to love every different kind of music?

>> Thank you very much for the compliment about the book. I mean what I tried to do -- you know I had a number of parallel goals with the book. And one of them was to be able to talk about music that might be 50,000 years old, but then give contemporary examples that the average person could relate to. So you can try and exercise your imagination about how somebody 50,000 years ago on the African plains would have comforted her infant. But now we can sing the The Brahms's Lullaby as a contemporary or relatively contemporary analog. We can talk about knowledge songs and today invoke the ABCs or the Animaniacs singing "The Nations of the World" from a Saturday morning cartoon. These are very different than what knowledge songs would have been 50,000 years ago. But the struggle was to draw from contemporary musical experience, otherwise the reader is lost, of course. And I'm lucky in my own musical taste because I started listening to a variety of music from a young age, and that opened up my ears to the possibilities. My grandfather had a nice collection of swing, Benny Goodman, Artie Shaw. And my mother was playing Chopin and Rachmaninoff on the piano. My father liked Musak, of all things, which I've grown to appreciate. The harmonies are actually quite complex. And although it's intended to not be emotionally arousing, there's a technical sophistication to it. And certainly to play that stuff requires a great deal of musicianship. And then of course, seeing the Beatles on -- I'm sorry I sound like a cliche for my generation, for our generation. But seeing the Beatles on the "Ed Sullivan Show" and hearing Johnny Cash on the radio, the two of them, to quote Rodney Crowley, it sound like the whole thing came from outer space.

>> There's one aspect of your argument that I'd like you to get into a little bit more, and it seems kind of central, but it also seems not controversial, but something I like to talk you about. It's that humans don't continue to do anything that's not adaptive in some way to their environment. In other words, if a human was born who liked to run up to

tigers and stick his head in its mouth and pet them, then the genetic makeup of that person would not be passed down to successive generations.

>> Over the long run.

>> Over the long run, right. Yeah. I know there's guys who in Las Vegas that do that every night.

>> Right. That's right.

>> But how do you use this kind of argument to help you make your case about music?

>> Well, so this of course, isn't my original argument. This comes ultimately from Darwin, and some of his contemporaries who were thinking along the same lines, and more recently people like Richard Dawkins and Dan Dennett, who have written wonderful books to popularize evolution. And in one sense, that's what this is. It's a way -- "The World in Six Songs" is the way to popularize evolution, and the theory of it you know using music as a window, and for an audience that might not otherwise pick up a book about evolution. The idea here is that when we see an activity that is ubiquitous across humans, across human civilization and cultures and across time, we have to ask ourselves what the evolutionary origins might be. And there may be none. It could be an evolutionary accident. There are many of those. But it's worth asking the question. What evolutionary role might it have served? And that leads us down interesting paths. In the case of music, one can argue, as Darwin did, that music was serving a kind of sexual signaling function. It signaled the sexual, mental, and emotional fitness of the singer. For one thing, in the way that music was practiced for 10s of thousands of years, it was always -- almost always accompanied by dance. Now if you can sing and dance for hours on end, you are not neurologically impaired, so at some level there's some physical, sexual fitness being indicated. And those of our ancestors who were able to convey this were the ones who were best at attracting mates, and they passed on this singing and dancing, this sexual signaling. I mean there are other things too. Those of our ancestors who were -- one argument goes, those of our ancestors who were able to avoid pugilistic confrontations, who were able to resolve their differences peacefully, perhaps to mutual grooming, vocal grooming, singing together, would have had more stable societies. They wouldn't have been always fighting with their neighbors. And this is something that could have been passed on.

>> Sure. I think I'm starting to understand that a little better. I guess sometimes when I am reading the book, I'm not sure of sort of what's a metaphor and what I'm meant to take as hard science. I guess it's sort of a combination.

>> Well, I don't know that I intentionally use metaphors to obscure the science, I think. There were a couple of reviewers. It's interesting a couple of reviewers who were musicians that didn't understand the evolutionary arguments, and didn't -- I believe didn't -- they didn't subscribe to evolution to begin with. And so they found the evolutionary arguments either incomprehensible or dissatisfying, and the scientists

who believed in evolution, they like that part. They weren't so sure about the musical part.

>> For me, I mean as you talk, it's starting sink in.

>> I'll give you another example.

>> Please.

>> When people have orgasms together, the hormone is released called oxytocin, a very interesting hormone. Oxytocin causes feelings of trust among people, and particularly trust for the people that are in the proximity of when it's being released. Now you can imagine why evolution, why natural selection would have landed upon this to be produced during orgasm. Orgasm almost always in evolutionary time scales occurred in the context of lovemaking or sexual intercourse, and its variance. And in many, many cases, in a pre-birth control world, sexual intercourse led to offspring. And natural selection needed to find some way of keeping the male around. Before we had a cognitive understanding that the actual of copulating led to reproduction, before mankind figured that out, you know the causal connection, what are you going to do to keep the man around to help care for the offspring? You know we need to be raised for 10 or 12 or 15 years, and it's very helpful to have the man there to help provide resources and fend off attackers and predators. And how are you going to do that? Well evolution hit upon this thing. Well, if the man feels bonded to the woman, that will do it. And there's this chemical thing that does that. It turns out one of the only other times when oxytocin is released is when people sing together. And this suggests, it doesn't prove anything, but it suggests that singing may have been an important way in which ancient humans formed social bonds in order to create societies. When you look at other primate living groups, they seldom have more than 18 or 20 male members. Rivalry and competition is too much. I was going to say interpersonal rivalry, but inter-simian rivalry becomes too much, and they split apart. And yet humans have had living groups in the 10s of thousands for 10s of thousands of years. And Robin Dunbar, among others, believe that vocal grooming, singing together, talking together helped humans to ease these types of tensions, these social tensions. And we find in our own experience, you know, when you sing with people, you feel closer to them. Oxytocin may be part of this story. There's an evolutionary story.

>> Fabulous. Now another thing I enjoyed a lot about your book is the fact that you seem to love musicians and hanging out with them, and having conversations about stuff that you really love with them. Can you tell me about one of those conversations that really made an impression upon you as you were talking to a musician who you love, and a light went on after having a conversation?

>> I've been extraordinarily lucky in my production career in being able to work with great musicians. And then in my new writing career, I've been lucky that musicians have enjoyed, some any way, have enjoyed reading what I have to say. And so a number of them volunteered to talk with me about music and its origins for this book. People like Pete Seeger, Sting, Joni Mitchell, David Burn, Rodney Crowell, Simon, Steve

Wonder, and the insights of people who have risen to the top of their game and who have spent a lifetime trying to communicate through this medium. I think they are worthwhile, and I wanted to share some of those conversations and insights with readers. I think a particular interesting one was talking to Sting about Pete Seeger, because I had interviewed Pete Seeger just a few days before, and Sting was very eager to know what Seeger had to say. And you know I asked Sting if he thought that a song could change the world, which is a rather bold proposition. Can the world be changed by a song? And on one hand he said, "Well, no, a single song can't change the world. It can plant the seeds of change. And Peter Seeger certainly", Sting said, "has planted many, many seeds." The writer of "Where Have All the Flowers Gone?" and, "If I had a Hammer" and a number of songs that make you stop and think about where the world is going and what you might be able to do to make the world a better place, social action songs. And maybe songs like these that are sung at gatherings of 10s of thousands or even millions of people, the March on Washington, these songs were sung there. No, the song itself can't change something. But it's part of a tide, part of an event or a moment in time where people feel that there is something larger than themselves. We just saw this with the election of Obama. A man who the pundits have described as not easy to categorize in terms of his race or his social economic upbringing or his education or his geography, and yet what he is, is an American, and we're finding that the new way of thinking about Americans is, well, we're not rural. We're not city dwellers. We're not white. We're not black. We're all of these things and more. And you know it is the age of post-labeling. And songs can work to strengthen these ideas. People in disparate places can sing them and sing them in their heads and be reminded of this greater truth. Sting summed up his comment by saying that on the other hand -- Sting's one -- a great one for saying things on both hands -- he had this funny remark that's why God gave us 2 hands. On the other hand, if he didn't believe songs could change the world, he wouldn't be writing them.

>> Fantastic. I think we're going to leave it there. I've been speaking with Daniel Levitin, author of "The World in Six Songs" and "This Is Your Brain on Music". I am Steve Mincher for the Library of Congress. Thanks a lot.

>> Thank you, Steve.

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