

ClarityCap

AUDIO GRADE CAPACITORS



ClarityCap has been manufacturing high quality audio grade capacitors in the United Kingdom for the last 20 years. More and more people are appreciating the difference that ClarityCap makes to sound quality.

**SA Series**

- 630Vdc
- 10µm poly film
- Copper leads
- Low DF

The "SA" series metallized polypropylene caps are wound using a 10µm (630Vdc) rated film. Insulated copper terminals are hand soldered to give the best possible connection.

µf	Price	µf	Price
0.10	\$3.70	9.00	\$13.50
0.22	\$3.75	10.0	\$14.10
0.33	\$4.20	12.0	\$15.00
0.47	\$4.30	15.0	\$17.85
1.00	\$4.40	18.0	\$21.15
1.50	\$5.10	20.0	\$23.45
2.20	\$5.80	22.0	\$24.95
3.30	\$7.60	25.0	\$30.10
3.90	\$7.80	30.0	\$35.55
4.70	\$8.05	33.0	\$37.70
5.60	\$9.45	39.0	\$44.15
6.20	\$10.00	47.0	\$51.95
6.80	\$10.95	50.0	\$55.60
8.20	\$12.30		

PX Series

- 250Vdc
- 6µm poly film
- Copper leads
- Low DF



The "PX" series metallized polypropylene caps are wound using a 6µm (250Vdc) rated film.

µf	Price	µf	Price
0.47	\$1.90	12.0	\$7.30
1.00	\$2.15	15.0	\$9.20
1.50	\$2.45	18.0	\$10.90
2.20	\$2.65	20.0	\$11.75
3.30	\$2.65	22.0	\$12.55
3.90	\$3.20	25.0	\$13.90
4.70	\$3.85	30.0	\$15.40
5.00	\$4.00	39.0	\$18.95
5.60	\$4.40	47.0	\$22.40
6.00	\$4.55	50.0	\$25.00
6.80	\$4.90	68.0	\$30.95
8.20	\$5.40	82.0	\$37.35
9.00	\$5.60	100.0	\$46.60
10.0	\$5.90		

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Music Inside the Brain

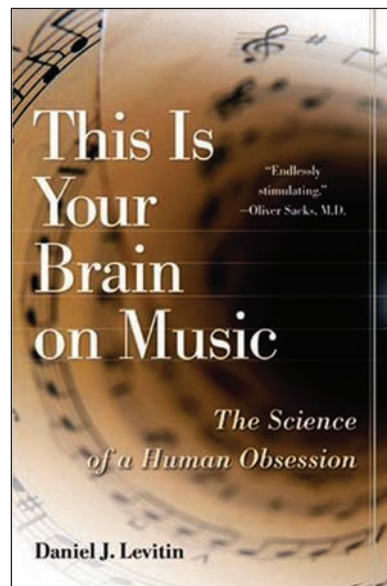
Oliver Sacks was my first introduction to the world of neuroscience in his book "The Man Who Mistook His Wife for a Hat." In it he relates the story of an elderly lady who was orphaned in Ireland when only five years of age, and subsequently emigrated to the United States. In her eighties she apparently suffered a small stroke in the middle of the night and awakened complaining that someone had left the radio on. She was hearing Irish tunes learned in her homeland, suddenly recovered clearly and completely as a result of this damage to her brain.

This raises the question of just how the human brain processes music and suggests that whatever music we have heard is retained within the brain. Ever since reading Sacks and his subsequent writing (plus seeing his remarkable movie), I have followed neuroscientific authors (see accompanying listing) in the hope that their research would shed light on how we process music, its history, and its relevance to our development.

There is excellent news for those of us who love music and are interested in how our brains process it. Daniel J. Levitin has written an outstanding introduction to understanding how we humans handle music listening based on the two disciplines of which he is obviously a master. (*This Is Your Brain on Music, The Science of a Human Obsession*, Daniel J. Levitin, Dutton, New York, 2006, \$24.95. A paperback edition is promised for August 2007.)

The origin of the author's interest in music started with a \$100 stereo system he bought with income from grass mowing when he was 11. His father, as a defense, bought headphones for the boy, which heightened his sonic experience. This led to his becoming a recording engineer and producer for ten years, working his way upward from no-name groups to some internationally famous ones.

Levitin obviously has the kind of curiosity and spirit of inquiry that leads him further into whatever problems he encounters. He wondered about why some musicians succeed and others do not. This led him to Stanford to ask questions about how



music is processed in the brain. He now occupies the Bell Chair of the Psychology of Electronic Communication and runs the Laboratory for Musical Perception at McGill University in Montreal, Canada. He has the ideal tools and experience to link what our brains do with music, and the world of music as performed and heard throughout humankind.

Levitin takes nothing for granted. He recognizes that the great majority of music listeners are not musicians. In order to understand how the brain processes music, he fully and simply explores music's basics. If you don't know the difference between pitch and timbre, you will after reading his chapter "What Is Music." This is a wonderful and comprehensive explanation of music's components. He dedicates a second chapter to loudness, rhythm, and harmony. The book is full of startling insights, including some theorizing about why music is so pervasive and what purpose it might serve in the evolution of homo sapiens. There is some speculation as to whether music might be the precursor of speech. Levitin takes a look at alternative views of others, especially Steven Pinker whose work on inherited grammars in newborns is widely accepted. When it comes to music, however, Pinker thinks it is nothing more than "cheesecake" as an adjunct to language.

An enormous amount of painstaking work has been done by a variety of scientists to discover how the brain works. Oliver Sacks has said that neuroscientists' work is like an auto mechanic attempting to understand the car by studying wrecked vehicles. Damage to brains has been the means of discovering what part of the brain does

what. More recently, magnetic resonance imaging has revealed much more about sensory responses to all manner of stimuli in human and animal brains.

One of the primary discoveries of neuroscientists using fMRI tools is that music activates first one of the most primitive parts of the brain and makes a trace or link to the frontal lobe. It is likely that every song or melody that a person hears is stored in such a link. The brain's ability to recognize voices is another ability of the brain's amazing acuity.

Levitin takes on many more questions about music and brains. How do illusions affect our musical processing? How do we categorize music? How does music which arouses emotion affect the brain? The author goes on to a very insightful discussion of what is it that makes a musician. Is it innate skill, diligent practice, or what?

Then there is the basic question of why we humans like the music we like. I was pleased to discover that inside the womb we humans at a point of development begin to "listen" to music, both what mom is singing and whatever music is playing. Before our children were born my wife and I discussed at length what we would do about our sound system, which was playing music most of every day. We agreed that we would not curtail our music listening or the levels to "avoid disturbing the children."

Thus they grew up with music from their time in the womb until they left for college. Our three-year old son invariably raced to the speaker (mono) when WGBH played a short take from Handel's "Entrance of the Queen of Sheba" yelling, "My roosic, my roosic." Levitin notes that children respond more actively to music they were exposed to while in the womb than to other examples.

Music Instinct is a chapter dealing with why music is so pervasive and whether it has some relationship to our survival as a species. Any human characteristic as pronounced as our love for music is bound, say evolutionary experts, to fulfill some developmental purpose. There is still a sharp difference among experts on music's place in evolutionary development, however. Levitin agrees with Darwin's belief that music is vital to romance between humans, as well as between some other creatures such as birds and whales.

Levitin's book is a major achievement, an orderly introduction to the physiology undergirding our music processing apparatus. It may shed some light on such perennial controversies as meter readers versus subjectivists. It is a remarkable summary of what music is and its basic elements.

The author has an astonishing and enviable knowledge of music and musicians to illuminate his points of argument. He also has the rigor of the disciplined scientist, as well as a fine sense of humor and is a master of crisp, readable prose. The book is a rare gift to the music lover and we hope for many more from this pen.—E.T.D.

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Suggestions for further reading:

Pinker, Steven, *How the Mind Works*, New York, Norton, 1997.

Wallin, Merker, and Brown, eds., *The Origins of Music*, MIT Press, 2001.

Damasio, Antonio, *The Feeling of What Happens*, Harcourt Brace, 1999.