



## Mind Reviews

The Neurologist Sings -- Primate Politics -- Surgery of the Soul

By Diana Deutsch , Rachel Dvoskin , Richard Lipkin and Nikhil Swaminathan | Thursday, January 31, 2008

### MUSICOPHILIA - TALES OF MUSIC AND THE BRAIN

by Oliver Sacks. Knopf, 2007

Music provides a fascinating window into the mind. In my research at the University of California, San Diego, I have found that music and language are deeply intertwined and that listening to music can involve striking illusions and perceptual disagreements. Now Oliver Sacks, world-renowned neurologist and author, has combined his lifelong passions for neurology and music to produce a masterly overview of music and the brain. In *Musicophilia*, Sacks focuses on individual case studies, which he presents vividly and with care. In so doing, he convinces readers that these cases illustrate—albeit in extreme fashion—aspects of musical processing that relate to everyone’s brain.

Sacks describes people who are so plagued with tunes stuck in their head that they urgently seek medical advice. He writes about patients who hallucinate music—sometimes unrelenting, loud music that interferes with their sleep and ability to function in everyday life. Many musical hallucinations are remarkably detailed, demonstrating that we must possess extraordinarily accurate and precise musical memories that are normally inaccessible to us.

Other cases involve patients afflicted with severe amnesia, aphasia (difficulty with speech) or dementia who have miraculously preserved sophisticated musical capacities. Sacks also encounters patients with Parkinson’s disease who, though usually paralyzed, will rise up and dance to music, as well as people suffering from Tourette’s syndrome who are relieved of their habitual ticks when playing in ensembles. Sacks goes on to consider, among other topics, people who develop insatiable desires for music following brain trauma and unusual musical phenomena such as absolute pitch.

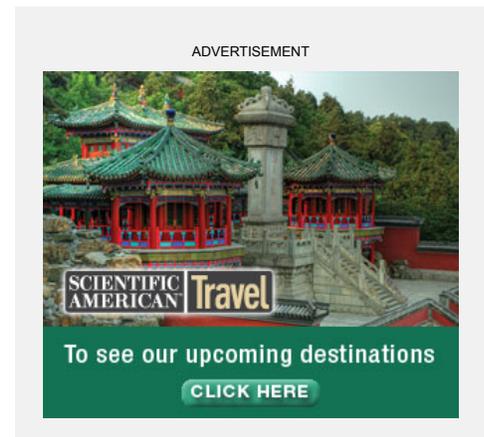
Although the book is deeply personal in tone, Sacks expertly reviews perceptual and behavioral laboratory studies. He provides illuminating discussions of modularity in musical processing—currently a hot debate topic. His case studies strongly suggest that rather than a single music-processing center in the brain, there must be separate neural bases for the perception of rhythm, melody and timbre and for the integration of musical elements into coherent wholes.

*Musicophilia* is a landmark book—thoughtful, compelling and engrossing.

### MACACHIAVELLIAN INTELLIGENCE: HOW RHESUS MACAQUES AND HUMANS HAVE CONQUERED THE WORLD

by Dario Maestri. University of Chicago Press, 2007

In 1513 Niccolò Machiavelli advised politicians that being feared was more important than being loved if they were to preserve a stable and healthy state.



About 2.5 million years earlier rhesus macaques, dusty-brown monkeys that are ubiquitous in mainland Asia, already used strong kin-based alliances and rigid dominance hierarchies to maintain order. Evolutionary biologist Dario Maestripieri of the University of Chicago, who has studied rhesus behavior for more than 20 years, attributes this species' overwhelming success largely to a special set of cognitive adaptations, which they share with humans.

In *Macchiavellian Intelligence*, Maestripieri suggests that in response to the complexities of cooperation and competition that arose from life in large social groups, people and rhesus macaques “evolved a sophisticated and opportunistic form of social intelligence.” Stemming from these adaptations, he argues persuasively, are some of the most fundamental (and least commendable) human traits, including aggression, nepotism and xenophobia.

Many social scientists believe widespread variation in lifestyle and behavior implies that there is no typical “human nature.” Maestripieri questions this view, suggesting that stripped of their cultural clothes, human societies are fairly similar to one another—and to those of rhesus macaques. The strict dominance hierarchies and social alliances in the military and in prisons, he says, may be the most truthful manifestations of many of our psychological and behavioral predispositions.

Maestripieri's informative narrative on the lives of the macaques—peppered with amusing anecdotes and witty observations—leaves no doubt he is the right person to tell their story. But he sometimes takes too far the idea that human interactions can be reduced to the daily risk-reward calculations that underlie rhesus behavior (should I fight? should I grant sex?), ignoring evidence that culture shapes our brains and actions. The result is his occasional use of improbable and even offensive stereotypes, such as the notion that all women use sex (or should, if they do not) to exploit men's power.

Nevertheless, *Macchiavellian Intelligence* is an intriguing departure from the currently vogue studies of animal benevolence—chimps are our moral progenitors, capuchins are exemplars of fairness, and empathetic rats show the roots of human compassion. Maestripieri convinces us that rhesus macaques, on the other hand, help to explain some of the darker qualities underlying the human success story.

#### THE LOBOTOMIST

DVD. PBS Direct, 2008. Directed by Barak Goodman and John Maggio.

Lobotomy, a gruesome brain operation purported to treat intractable mental illness, has emerged as one of the ghastliest failures of modern medicine. That this operation achieved such prominence even among reputable physicians during the 1940s remains a perplexing social mystery.

Grappling with this baffling saga, directors Barak Goodman and John Maggio have produced a fascinating documentary that explores with compassion and a critical eye the unfolding of this tragic tale of human agony, experimentation, hope and failure. Based on a book of the same title by journalist Jack El-Hai (Wiley, 2005), Goodman and Maggio's *The Lobotomist* presents an impressively evenhanded interpretation of the legacy of Walter J. Freeman, the physician who popularized the procedure in the U.S.

In the early 20th century intractably ill mental patients faced a lifetime in filthy, dingy asylums as their hopeless families and physicians searched desperately for some way—any way—to lessen their agonies. Freeman, an ambitious neurologist from a prominent medical family, became convinced that operating on the brain to sever connections between the “rational” frontal lobe and the “primitive” thalamus would stop unmanageable emotions from disturbing patients' reasoning faculties. His initial experiments in the late 1930s produced controversial results, relieving some patients of violence or fear yet rendering them docile and childlike. Demand swelled until the early 1950s, when long-term studies revealed the procedure's severe side effects and the advent of antipsychotic drugs rendered lobotomy—and its purveyor—obsolete.

A one-hour documentary cannot provide the same level of detail as a book can, but words on a page pale in comparison to the emotional impact of archival footage showing lobotomies performed on live patients with an ice pick and a common hammer. Goodman and Maggio restrain themselves from exploiting the story's grotesque nature, however; they portray accurately and empathetically the complexity of this American fiasco. In the end, the viewer feels appropriate sadness and confusion over the ironies surrounding Freeman, his patients, their families and mainstream medicine as they all struggled to understand the so-called miracle cure.

## Blogs on the Brain

by Nikhil Swaminathan

Scientific American Mind offers up a hearty helping of science, but for the most voracious brain buffs six issues a year may not be enough. Fortunately, plenty of extra crumbs of brain candy can be picked up online in the blogosphere.

Any well-stocked bookmark folder has to include Cognitive Daily, the brainchild of cognitive psychologist Greta Munger and her writer husband, Dave. In a lyrical tone, the Mungers dutifully break down two to three pieces of peer-reviewed research per week on topics relating to everyday life, such as whether using red ink to grade papers impairs learning or how adopted children acquire new languages. On “Casual Fridays,” the pair conduct mini studies, quizzing readers on everything from whether they have perfect pitch to who makes the messes in their home.

Most neuroblogs serve as filters for brain science news, mining content from journals, newspapers, magazines and more. The most earnest of these curators, Mind Hacks, is a multiauthor U.K. outfit born out of a 2004 book with the same name. The blog culls articles that in some way help readers better understand their own mind. PsyBlog occupies similar territory but also offers fun special features—for example, a recent post heralded 10 brilliant social psychology studies, including Philip Zimbardo’s disturbing Stanford Prison Experiment in which students posing as “guards” quickly developed abusive behavior toward “prisoners.”

For a blog with more personality, try The Neurocritic, which is always sardonic (and occasionally scathing). According to his bio, the anonymous author has led a hard-knock life, and he works out his hostility by excoriating scientists and journalists who dare to sensationalize findings. In November he jumped on the authors of a New York Times op-ed over the dubious results of their fMRI study regarding people’s perceptions of the 2008 presidential candidates.

Nearing the highbrow end of this spectrum is The Frontal Cortex, the literary brain blog of Jonah Lehrer, twentysomething author of Proust Was a Neuroscientist (Houghton Mifflin, 2007). Like the book, which presents instances of art as a harbinger of scientific insights, Lehrer’s blog covers neuroscience as part of a broader cultural milieu.

But because this is the Web, there are also plenty of opportunities to give your reading comprehension skills a rest. For example, try Channel N, a repository of brain science videos where you can sample, among other things, Mind columnist Vilayanur S. Ramachandran’s lectures on neurological oddities. And, speaking of our own, don’t forget to drop by the Mind Matters blog at SciAmMind.com, where David Dobbs serves up a weekly morsel of brain food straight from the research lab.

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