



# Brain Cuttings: Fifteen Journeys Through the Mind

*Carl Zimmer*

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## **Brain Cuttings: Fifteen Journeys Through the Mind** Carl Zimmer

The human brain has long been a mystery, but twenty-first century science is beginning to reveal some of its inner workings. With microscopes and brain scans, with psychological experiments and breakthroughs in genetics, neuroscientists are developing new theories about every aspect of our minds from the nature of consciousness to the causes of disorders like autism and schizophrenia. In Brain Cuttings, award-winning science writer Carl Zimmer takes readers on fascinating explorations of the frontiers of research, shedding light on our innermost existence the speed of thought, our perception of time, the complex flashes of electricity that give rise to fear and love, and more.

## **Brain Cuttings: Fifteen Journeys Through the Mind Details**

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## From Reader Review Brain Cuttings: Fifteen Journeys Through the Mind for online ebook

### Daphne says

Great collection of articles about the brain and current scientific understanding of how it works. I was able to pick up a few case studies and insights I hadn't read anywhere else before. Overall, a really interesting, short exploration of the mind and study of the mind. I'm happy that Zimmer has released another collection under this series, and I've already started that one because I enjoyed this one so much.

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### Science For The People says

Recommended on Skeptically Speaking show #90 on December 17, 2010.  
<http://skepticallyspeaking.ca/episode...>

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### Eva says

Some kindle quotes:

People with Botox may be less vulnerable to the angry emotions of other people because they themselves can't make angry or unhappy faces as easily. And because people with Botox can't spread bad feelings to others via their expressions, people without Botox may be happier too. The surgeons grant that this is just speculation for now. - location 259

What's even more remarkable about our brains is that they actually search for new things to make part of this feedback system. Imagine you are poking a stick into an animal's burrow. As you poke away, you are aware of what the far end of the stick is touching, not the end you're holding in your hand. This kind of extended sensation appears to be the result of a reorganization of the brain. - location 327

Which disease a child gets depends on which parent's chromosome 15 carries the defect. Prader-Willi syndrome is caused by a mutation in a father's genes that deletes a chunk of DNA on chromosome 15. Angelman syndrome is associated with a mutation on the mother's chromosome 15. If you think back to the genetics you learned in school, this pattern makes no sense. A gene is a gene is a gene. Two identical stretches of DNA ought to have the same effect on a child, regardless of which parent it comes from. - location 442

In Angelman syndrome, the mother's genes are silenced, allowing the father's genes to act without any restraint. Children with Angelman try to nurse more than average children do. The smiles and laughter that are associated with Angelman may also come from attention-grabbing strategies encoded by paternal genes. Prader-Willi emerges from an opposite breakdown, in which the father's DNA in the same segment of chromosome 15 is deleted. Many symptoms of Prader-Willi make sense as exaggerated versions of strategies that benefit mothers. Babies with Prader-Willi syndrome make few demands on their mothers—so few that they risk starving themselves. Only after they finish weaning does their insatiable hunger emerge. By foraging for food themselves, they don't make demands on their mothers. Crespi and Badcock have identified several other imprinting disorders that have a similar mother-father symmetry. What is striking

about them is that the father-leaning disorders tend to produce autistic symptoms. The mother-leaning disorders tend to produce schizophrenic ones. It is possible that autism and schizophrenia themselves are partly the result of conflicts between parental genes, Crespi and Badcock say. Autism, they argue, is a father-dominated imprinting disorder. Consistent with this idea is the fact that autistic children are more likely to have had placentas that grew aggressively in the womb. Schizophrenia appears to be influenced by mother-dominated genes. Some studies link schizophrenia with low birth weight and slow growth, both of which can benefit mothers. One of the most striking contrasts between autism and schizophrenia is how they affect the ability to understand others. Autistic people have a difficult time figuring out what other people are feeling. Schizophrenic people, on the other hand, sometimes do too good a job. They may come to believe that a refrigerator is talking to them, for example, or that people are conspiring against them. Crespi and Badcock propose that these symptoms are also the result of genetic conflict. Empathetic children can see how frazzled they're making their mothers and how much attention their siblings need. Maternal genes should therefore boost our abilities to get inside other people's heads. Paternal genes, on the other hand, may benefit by reducing these distractions from the business of getting more resources from mothers. "Between these extremes would sit normal cognition," Crespi and Badcock write. The same conflict that gives rise to autism and schizophrenia may be at work in all of us, nudging us one way or another on the spectrum from father-brain to mother-brain. - location 487

each year only one person in a million suffers an anesthesia-related death in the United States. - location 531

Lateralized brains are not unique to humans. Parrots prefer picking up things with their left foot. Toads tend to attack other toads from the right but go after prey from the left. Zebrafish are likely to look at new things with their right eye and familiar things with their left. - location 785

Drunk readers actually reported less mind wandering than sober people did. That does not mean that you should swill vodka if you want a laser focus on Tolstoy's deathless prose. Schooler has shown that there are, in fact, two kinds of mind wandering: mind wandering when you are aware that you're thinking about something else and mind wandering without awareness. He calls this second kind "zoning out." To determine which kind of mind wandering people experience, Schooler and his collaborators told the participants in the War and Peace experiment to report their own drifting but also asked them every few minutes if they were thinking of something else. If people responded to those questions with a yes, that meant they weren't aware enough of their own minds to report their mind wandering on their own. These experiments show that we spend about 13 percent of our time zoning out. But when we are drunk, that figure doubles. In other words, boozy subjects report less mind wandering only because they are less aware of their own minds. - location 845

Some of the common words we use are frozen mistakes. The term influenza comes from the Italian word meaning "influence"—an allusion to the influence the stars were once believed to have on our health. - location 899

Zero made its debut in A.D. 876. - location 987

In 1854 physicist William Thomson showed that the wider a telegraph wire, the faster its signal and the farther the signal could travel. That same principle applies to nerves. Some neurons are fat and fast, while others are thin and slow. Another way to speed up wires is to insulate them, and again the same goes for neurons. Some neurons are wrapped in an insulating material known as myelin. In the heavily myelinated neurons running down the spine, signals can travel up to 180 miles an hour. In neurons that lack myelin, signals travel just over half a mile an hour. Nerve fibers that carry pain are among the slowest. Pain can take many seconds to reach the brain, explaining why sometimes we seem to react to a stubbed toe in slow motion. - location 1099

scientists reported 15 people with Tourette's syndrome had 52 percent fewer tics thanks to deep-brain

stimulation. - location 1452

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## ThePinkCarrot says

Good book for learning a tiny bit about a particular brain subject. Only a launching board if you want to learn more. He has several tidbits, so you learn a little about many things. Not very technical.

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## Book says

Brain Cuttings by Carl Zimmer

Brain Cuttings is a book of essays about brain science from the excellent author Carl Zimmer. This interesting page-turner of a book takes us for a journey to the fascinating world of brain science. This 364 KB-book is composed of the following fifteen essays: 1. "Does Shame Excite a Blush?" 2. The Googled Mind, 3. The Music of Time, 4. They Imprint Your Genes, Your Mum and Dad, 5. Of Ether and Consciousness, 6. Stalking the Grandmother Cell, 7. The Flash of Desire, 8. Two Brains in One, 9. The Neurobiology of Zoning Out, 10. The Brains Dark Matter, 11. An Intuition for Math, 12. The Speed of Thought, 13. Fear's Anatomy, 14. The Mind's Eye Goes Blind, and 15. Too Clever.

Positives:

1. Carl Zimmer is a fantastic writer. Always produces consistent quality work.
2. One of the most fascinating topics in science, the brain.
3. Fifteen brief yet interesting essays that cover a wide spectrum of topics regarding the human brain. All accessible to the masses.
4. Where would we be without the grand theory of evolution?
5. Fascinating tidbits throughout. "People with Botox may be less vulnerable to the angry emotions..." perhaps somewhat speculative but fascinating nonetheless.
6. The extended mind theory.
7. How fear impacts our neurons, "scary" stuff...
8. Fascinating brain disorders.
9. Gene imprinting.
10. The mystery of anesthesia. The intriguing history.
11. The nature of consciousness.
12. How neurons work.
13. The essay "Flash of Desire" was hilarious yet as with all the essays informative.
14. What we know about areas of the brain and their functions. Including the two hemispheres.
15. Mind wandering, say what?
16. Glia, a sticky subject or is it?
17. Numbers and the brain, you can count on it.
18. The speed of neurons.
19. Studies of blindsight.
20. The future of neuroscience.
21. Great references section.

Negatives:

1. I wanted more and more depth.

2. Never gets into the more controversial topics like dualism, free will or out of body experiences.
3. A topic on how brain injuries impact the brain and hence the individual would have been welcomed.

In summary, this is a great science appetizer. It's a brief digital book but touches on many on-going fascinating topics in brain science. I enjoyed the book immensely and my only criticism is that it was too brief and left out some of the more controversial topics. That being said, I highly recommend this book to anyone who has an interest in brain science, it is such a fascinating world and it has many implications for the future.

Further suggestions: "The Believing Brain..." by Michael Shermer, "The Scientific American Brave New Brain..." by Judith Horstman, "The Blank Slate" by Steven Pinker, "Human" by Michael S. Gazzaniga, "SuperSense" by Bruce M. Hood, "Hardwired Behavior" by Laurence Tancredi, "Braintrust: What Neuroscience Tells Us about Morality" by Patricia S. Churchland, and "The Brain and the Meaning of Life" by Paul Thagard.

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### **Karen says**

I see that other reviewers have not always given these books by Carl Zimmer raving reviews, but I love this kind of stuff. It helps that I have a couple of neuroscience degrees, so this stuff is up my alley. Like another reviewer said, this kind of science writing is brain candy...to me it's like grabbing dark chocolate. It really satisfies something in me to read this kind of current and pertinent information about the brain and its impact in other fields. In neuroscience, I was more involved in diseases like Alzheimer's and HIV encephalitis...so I didn't get to explore other things that interested me like sleep or artificial intelligence. A book like this lets you peek into these fields and see what is going on. And it reminds me of things that I may have forgotten, so I go find papers and look them up again.

Anyone who enjoys books along the lines of short stories about medical science should enjoy Zimmer's books. I plan on getting his other Brain Cuttings book and reading that as well. It will be fun...

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### **Betsy Del Vecchio says**

I found the essays interesting. It is a book that motivates the reader to do additional research into the topics Mr. Zimmer discusses. I am looking forward to reading the sequel.

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### **Mohamed says**

The book is rather short but fairly good.

The book consisted of 15 chapters or journeys as Zimmer claims. Most chapters are 5 or 6 pages long so they are very convenient if you're reading them while commuting. The chapter I liked most is the Googled mind, I even have 2 quotes to share with you from that chapter.

" Socrates worried that writing would make people forgetful and unwise"

" We are, in Clark's words, "natural-born cyborgs."

Without even knowing much about the author, who I later figured out that he is a popular science writer from Yale, it was obvious that he is no scientist or neurologist. But that doesn't have to keep you away from reading the book which won't take much of your time anyway.

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### **Michael Hatmaker says**

**Amazing. Just amazing.**

I'll be brief: Read this book. You will learn something about how our minds work, and your imagination will be sparked by the potential for monumental breakthroughs in the years to come.

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### **Joe Faust says**

Too-short collection of essays about the works and quirks of the human brain. Zimmer remains a top-notch science writer, one of my two favorites.

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### **Isil Arican says**

Great Book! Very investing examples and stories from the fascinating world of neuroscience. Highly recommended.

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### **Judith says**

Very disappointing because it is only simple and superficial.

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### **David Schwan says**

A set of essays dealing with different aspects of the brain. As usual Carl Zimmer describes some fascinating information. It turns out that using Botox is causing some rather interesting social engineering (an unintended consequence). The last chapter deals with the singularity, and how difficult it is (and likely will continue to be) to become a cyborg or an enhanced human.

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### **Debayan Sinharoy says**

This is like a KFC/BigMac version of short, crispy neuroscience articles. If you have two hours to spare, on a flight or in a train, and if you like the brain, this is the book to go with.

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**Essam Munir says**

A Short book with great ideas...

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