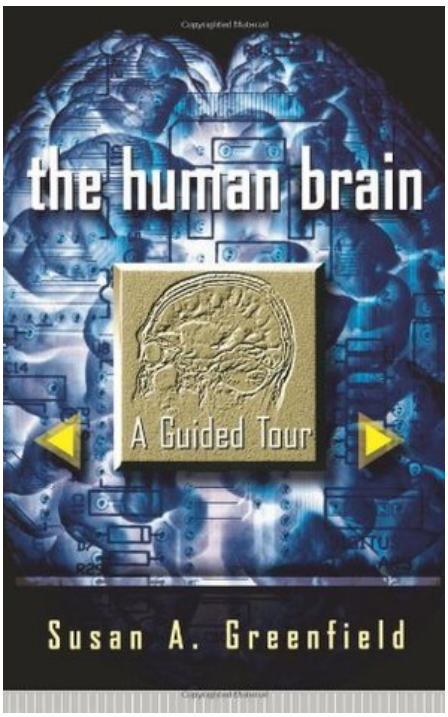

The Human Brain: A Guided Tour (Science Masters)

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What would you see if you removed the skull from the human brain and then slowly worked your way deeper and deeper into the brain, to the level of an individual neuron? With renowned brain researcher Susan Greenfield as your guide, here is your chance to gain a bird's eye view of the human brain—and to learn more about what the brain is, how it works, what happens when one part of the brain is made dysfunctional through stroke or accident, how brain mood-modifying drugs find their targets.In a particularly fascinating chapter, Greenfield surveys for us how a brain is built and then takes us on a tour of the developing brain from the moment of conception.Throughout Greenfield poses the larger questions all readers want to consider, including: At what stage does individuality creep into the developing brain? How does the collection of circuits of neurons give rise not just to an individual brain but an individual consciousness? What might a fetus be conscious of?

The Human Brain: A Guided Tour (Science Masters) Details

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From Reader Review The Human Brain: A Guided Tour (Science Masters) for online ebook

John Tarttelin says

This book is written for the lay reader and not just the expert and the jargon is limited especially at the beginning. Later chapters are somewhat harder to digest but the flow of the work is such that I was able to complete it in a single day. I particularly like the description of how the brain develops in the womb and then subsequently and Greenfield makes a lot of rare individuals whose character or behavior was changed by catastrophic damage to their brains - fascinating stuff.

I recall first hearing of Phineas Gage as a student back in the 1970s. He worked on the early railways in the USA. His job was to tap down explosive charges in rock with a long tamping iron before blasting. On one unfortunate day a spark sent the rod plummeting through his face and brain. His whole personality and character changed after this because the metal had penetrated his prefrontal cortex. Accidents like this have revealed many of the brain's secrets to doctors and neurologists.

Greenfield describes in great detail how neurons in the brain 'talk' to each other. There are a hundred billion neurons in the human brain - a clever animal like an octupus has only 170 million nerve cells in comparison. She shows how poor and inadequate is the analogy of a brain with a computer. Whereas a computer must respond to commands logically in an on/off linear manner, no matter the complexity of the algorithms fed into it, when a neuron fires sending messages across synapses via both chemical and electrical means, both the strength of the chemicals and the electrical current can be varied as can the length of time any chemical or electrical impulse is maintained - thus allowing for supreme fine tuning way beyond that of any supercomputer. There are also four separate chemicals triggers for the neuron to choose from. In fact, the 100 billion neurons with their dendrites (branches) and their axons (main channels of communication) can in theory have more connections than there are atoms in the known universe.

It is often said that the human brain is the most complicated thing in the universe. I think this is somewhat arrogant and a result of our ignorance about the cosmos as a whole. It certainly does not stop our species from aborting tens of thousands of perfectly formed small brains every year, nor does it stop us from allowing hundreds of children to starve to death on a daily basis across the face of our planet. And those 'great brains' haven't stopped us eliminating millions of our fellows in countless useless wars down the centuries. Our beloved brain has a long way to go before perfection is attained!

When it comes to the origin of consciousness, Greenfield speculates that it is the complexity of our neuronal web that leads to self-awareness. She suggests that the more neurons a creature has and the greater the complexity of their mutual dendritic pathways, the greater the self-awareness that creature will exhibit.

As to the origin of the 'soul' she makes a few historical references but does not really state her own view. The concept of the soul may have poetry all of its own, but the soul itself is just another product of those multifarious minute connections. Greenfield is quick to acknowledge (the book was written in 1997) that we still know very little about the intimate workings of our own brains. Perhaps our slabs of grey matter are indications that the Universe is slowly becoming aware of itself in a stuttering, uncertain manner. As for us, we humans are but fleeting atoms in a sea of eternity...

Elle says

a journey through the brain. a fantastically insightful guide to the main organ of the human body - especially useful if your studying this capacity.

Chef Marketis says

Anticipating an evening read with its opening 20 pages of delightfully engaging and accessible prose, I ended up distracting myself in order to retain everything it taught me.
This book is deceptive in how it appears to be an introductory reading but it is instead very much full on in its approach to neurophysiology and neurobiology. I appreciate this perspective but it was a sudden left hook to read Greenfields sentiments in how she wishes to simplify the psychology for the reader to then continue introducing a new piece of neuroanatomy every few pages or another chemical.
This is a book you are supposed to give your undivided attention. This is a book you are supposed to learn from. If you go into it with any other mindset you will just come out with as much knowledge as you had when you went in.
Even the parts of the book that recapped knowledge I was familiar with, its description was incredibly concise and as such allowed me to consider deeply on how I could deliver the same information in a manner which stands up to Greenfield's efficient communication skills.

The last chapter went all out with neurobiology and I'm not sure if it's because of it that I have a headache but I was not expecting to have to reread it as much as I did.

Kriegslok says

One of those books that just ends up boggling the mind, well mine anyway. I am not biology minded but have recently become increasingly fascinated by biology, physics etc which I have tended to neglect most of my life in favour of social sciences. As I become more depressed about humanity I become more interested in the biological and physical world - what it is made up of and what makes it tick. For me, who pretty much didn't get past basic school level science and with very little interest at the time, I needed something that would introduce some of the basics to what the brain is and how it works on a biological level. This book was recommended in some of the basic psychology books I have read as a good introduction, which it was for me. I got a little lost in places but for a novice like me I found it highly readable and now have a better sense of what the little grey cells are and how little we know (or knew 10 years ago when this was written) about how they work and perform the incredible function that they do. Hubrgy for more.

James says

I found the scope and clarity of this book excellent, covering the brain for a general audience well. I study the brain and, like many scientists, struggle with communicating our understanding in the clearest possible manner: the author has done well. I find it curious that most general audience neuroscience books leave out

much or all of behavioural neuroscience, this book does rectify this to some degree. Acknowledging the difficulty in associating the reductionist and top-down approaches- I imagine this is much of the reason there is little on emotion, motivation or decision-making- makes this book a good account while leading the curious reader to look deeper.

Santino Maguire says

I read about 20% of this book before putting it down. It's too light and fluffy for my liking, and (in the part I read, at least) focuses *significantly more* on things we know now to be incorrect (eg. phrenology) than on anything else.

Gizem Kendik says

Zannediyorum beyin konusunda bu kadar az ?ey bilmemize dayanamay?p, ç?ld?r?p s?rf beyni incelemek için denek kolonileri kurulmas?na izin verece?imiz günü bekliyorsunuz. Ben beyin konusunda “dur farenin beyninin ?u parças?n? keseyim. ?imdi de biraz daha büyük bir parça keseyim bakal?m haf?zaya nolucak”tan öteye götürecek her?eye aç???m.

?uraya bir özet b?rak?yorum.
Bilemiyoruz, bilemiyoruz, bilemiyoruz.

Jaye says

If you're looking for a enjoyable yet educational read, this is it.
I had it on the list my biology teacher gave us, and picked it up because really, how can anything about human brain be boring?
I liked the style of writing; scientific facts diluted with peculiar and incredibly interesting biological stories and curious theories.
Bottom line: not complicated, focusing more on the best thing there is about biology: how unique and amazing everything the nature came up with is.

Sarah Lloyd says

This book is 20 years old, and it’s pretty amazing how much work has been done since its publication. It’s also remarkable how much work is still to be done. Anyway, it’s a nice little introduction to the brain as it was known 20 years ago.

Rhys Thomas says

Excellent book that goes into real depth. It was difficult to follow due to a lack of diagrams so I ended up reading the last two thirds with a tablet at my side but the writing is clear. They should do an edition with lots of diagrams.

Sarah says

So far so easy to ready! Hooray.
Finished it and it remained easy to follow. Very interesting stories that made it more relevant and accessible.

Shaun says

I held a human brain in my hands once, and the length of the spinal cord. While gently squeezing the thing so some clear liquid oozed out and then gagging on formaldehyde vapor, I remember thinking how the texture of the brain was very much like tofu. I haven't had a great relationship with tofu since.

I was (and still am) fascinated though. What I held in my surgical glove covered hands --this squidgy mass-- it... it used to be someone. A human being. A person. At some stage lifeblood was running through this gray chunk of jelly. Synapses firing away in a chaotic amount of chemical reactions; an electrical thunderstorm where little explosions of thought, memories and emotions collide and disperse.

This brain used to have a personality, a life, walking, talking and interacting with people, going around getting into arguments, waiting in queues, getting on buses, getting off elevators, listening to music, dancing, having a drink with a friend, having a passionate moment with a stranger, hailing taxis, reading the paper about some asshole in government embezzling public funds, crying -- all of this could have happened to this person. Maybe only some of it. There were emotions. Perhaps they smiled and laughed a lot. Or maybe they were depressed and lonely. Maybe both? I wonder if they ever got goosebumps and what caused it?

Oh yea, the book was pretty cool. You should read it. You don't have to be a zombie to be fascinated by brains.

Lee says

I found this book to be an easy read and very informative. The flow of the chapters is progressive and easily digestible to the layman, with only spatters of scientifically-barbed jargon, making it understandable to the point where intuition takes over.

David says

Not a bad introductory book and glad to say I learnt a few things, especially in regards to the complexity of the organisation of where functions appear to be located in the brain. Would have liked a clearer explanation of how memory works, but then so would the researchers.

Paul says

An older, and probably now out of date overview of the human brain, based on her Christmas lectures from a number of years ago.

It is a straightforward to read, and she explains the concepts well.
