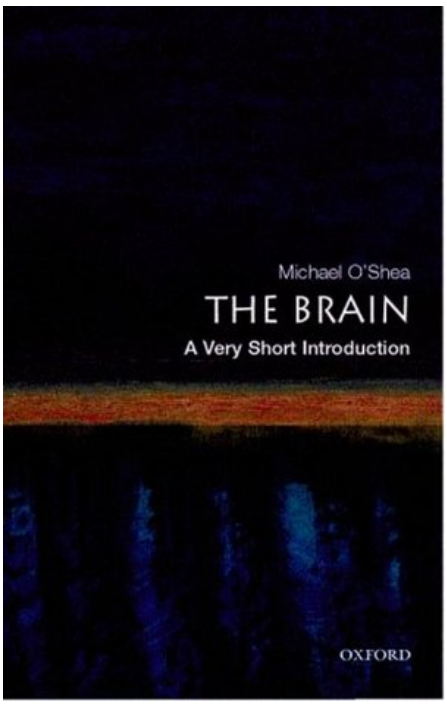

The Brain: A Very Short Introduction

Michael O'Shea

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The Brain: A Very Short Introduction Michael O'Shea
The Brain: A Very Short Introduction provides a non-technical introduction to the main issues and findings in current brain research and gives a sense of how neuroscience addresses questions about the relationship between the brain and the mind. Short, clear discussions on the mechanical workings of the brain are offered and the details of brain science are covered in an accessible style. Explanations of the more familiar implications of the brain's actions, such as memories, perceptions, and motor control are integrated throughout the book. It has chapters on brain processes and the causes of "altered mental states," as well as a final chapter that discusses possible future developments in neuroscience, touching on artificial intelligence, gene therapy, the importance of the Human Genome Project, drugs by design, and transplants. Up-to-date coverage of the newest developments in brain research and suggestions for future research on the brain are also included.
About the Series: Combining authority with wit, accessibility, and style, Very Short Introductions offer an introduction to some of life's most interesting topics. Written by experts for the newcomer, they demonstrate the finest contemporary thinking about the central problems and issues in hundreds of key topics, from philosophy to Freud, quantum theory to Islam.

The Brain: A Very Short Introduction Details

Date	:	Published February 1st 2006 by Oxford University Press (first published October 8th 2003)
ISBN	:	9780192853929
Author	:	Michael O'Shea
Format	:	Paperback 136 pages
Genre	:	Science, Nonfiction, Biology, Neuroscience, Psychology, Brain

From Reader Review The Brain: A Very Short Introduction for online ebook

Steve says

This was excellent. I have been working my way through the VSI brain books (see bookshelf) and this was the last one of the selection I have bought. Predominately this is about medicine and biology - not a subject I spend much enthusiasm on outside of " turning to page forty-seven and drawing little beards and moustaches on the sperms", so I was surprised to discover I actually found brain biology to be quite interesting.

The last chapter concentrates on potential future developments and of course the idea of human-computer hybrids. All very Sci Fi, but all the same tantalisingly close and possible.

It also helps that O'Shea has a sense of humour.

Mennatallah Yahia says

Frankly, I could not understand the majority of the book as it contains many of the scientific terminologies which I have no knowledge of, yet I think it will be a good starting point for me to read more and more about the brain itself -this fascinating organ- and how it works, hopefully I can understand and become familiar with this kind of reading :))

Wilbur says

Fascinating. Brief but full of important information. I'll need to read this again.

Reasonable says

This was one of the first ebooks that I bought from the Kindle store. It is an ultra-brief introduction to your brain. I don't recommend reading it if you have any background in the field of human biology or the nervous system. Nonetheless the book is accessible and thought-provoking. With the launch of Obama's BRAIN Initiative, I would not mind an updated version by Michael O'Shea.

Here are a few little nuggets I've highlighted in the book to give you a taste of it:

"If the connections in the whole brain were untraveled, the strand would be long enough to encircle the earth twice."

"If you had to consciously think about the mechanical processes of reading, you would be illiterate!"

"In the brain electricity is the critically important currency of information flow."

"If we trace the evolution of the human brain, the greatest and most rapid growth has occurred in the frontal lobes of the cortex."

"Synaptic change or plasticity is fundamental to learning and memory."

"Thinking machines, perhaps even with consciousness, could be evolved using genetic algorithms?"

Rafal Kudlinski says

Very interesting book. It's a really short introduction to "The BrAiN". It presents basic information on how brain developed over millions of years and how it works. If you like science topics it may be a good choice of the book for you to read. Give it a try!

Craig Dolder says

This is only my second foray into the VSI series and I loved it. Michael covers the history of research, the common misconceptions, and the current state of research. His prose are accessible to all readers. A bit of high school chemistry might help with understanding the mechanics of synapses, but it is not required. I found this a very thought provoking read.

Steve Mitchell says

This is another cracking little book that gives a very useful starting point to learn more about the subject.

Zeinab says

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Mohammed Amarnah says

I would have finished this book in one day. More thrilling and exciting than the best thriller book out there.

However, the amount of information in one page is literally HUGE. Whenever I was reading this book, I wondered, if that was a "short introduction", then what would I face if I decided to study the brain and neuroscience in further detail.
Did you know that there are about a hundred trillion interconnections that takes place in a small part of your brain?
Anyone will definitely enjoy this book! :D

Andrew says

Brief, straight-forward, if occasionally confusing.

Bojan Tunguz says

This is one of the best books in the VSI series, and I've read well over thirty by now. It gives a very good introduction to the basic neuroanatomy of the brain, and explains many important brain functions. The book is intended for laypeople, but even those (like me) who are familiar with the subject can benefit from reading it. Oftentimes neuroscience textbook overwhelm with details, and it is sometimes hard to see the forest from the trees. This book provides a good bird's eye perspective on the field, and its many references and recommended books make it a valuable reference. Very importantly, the book is up to date in some of the more recent discoveries, including some current controversies like grandma neuron, the idea that the brain has a neuron devoted just for recognizing each family member.

A good, well written and well organized book. I highly recommend it.

Mark says

Fascinating - will have to reread it to understand the more complex stuff.

Jose Moa says

This series of very short introductions by Oxford are in genral little big books with a lot of information and well structured and written.

Thi one is in my opinion outstanding because makes in a short book the no easy task of touch the extremely complex subject of the brain and it does it well.

I will give arelation of the chapters wih a textual series of reflections and facts by the author

1
Thinking about the brain.
"Think for a few moments about a special machine,your brain (a machine made of nanomachines that again are made of molecular nanomachines),a organ of just 1,2 Kg containing one hunded billion of nerve cells

,none of which alone has any idea who or what you are.However conscious awareness of oneself comes just from that : neurons comunicating one with one another by a hundred trillion interconections."
"thinking about your brain is itself something a conudrum because you can only think about your brain with your brain.
So it seems we are caught in the logical paradox of selfreference and in this case in a self reference system.
As a neuron has hundred or thousands of modificable and modulated conections with other neurons it seems extremely unlikely that the brain is simply performing computational algoritms,so we can not expect computers that perform like brains."
"We have no idea how conscious arises from a physical machine and in trying to undestand how the brain does that we may well be up against the most akward of scientific challenges.
That is not say that the problem can not in principle be solved,just that the brain is a finite machine and presumabily has a finite capacity of understanding"

2
From humors to cells : components of the mind.
Here we find a histhory of the meaning and structure of the brain,fom the theory of humors of Hipocrates to the conclussion by Santiago Ramon y Cajal that the brain is composed by cells,he depicte the neurons and by that begining the modern age of neuroscience.

3
Signalling the brain : getting conected.
Inthis chapter is explained how the nervous signals are transmitted as electric pulses,how the signals are transmited across the synaptic conections from the axon to dendritic terminations ,mediatedby chemicals known as neurotransmisors,as for example Dopamina,and thereinforce of electric signals using potasiun and sodium chanels in molecular gates in the axon membrane,also remarks the paper of glial cells in the functioning of the neurons.
"If as now seems probable the neurons and glial cells aretogether esential for information processing,then considering only neurons we have a vastly underestimated the complexity of the brain machine.There are 100 glial cells for every neuron and we are only begining to understand his paper in the brain computations and in many other ways regulating synaptics transmision."
"This then- the neurons and their conections and their histhory,the companion glial cells,yhe multitude of chemical messengers and receptors-is basically all there is to be the brain.We are far of understanding how it works as a whole but there is nothing more.no magic,no aditional components to account for every thought,each perception and emotion,all our memories,our personality,fears ,loves,and curiosities."

4
From the big bang to the big brain.
In this chapter the author briefly describes the evolution of the nervous system and the process of encephalization til reach the human level.
This evolution is in some way repeated in the embrionic development.

5
Sensing ,perceiving and acting.
In ths chapter isdescribed the structure at large ofthe brain and in some way a detailed explanation of the working of the sight and hear senses,its process at different lrvel of the brain and the working of voluntary and involuntary movements of the body.

6
Memories are made of this.

Here is explained the formation of memory by the Eric Kandel theory.
The short term memory consist in a temporal streghtening of synapses by a flush of neurotransmiters and a modificationof existen proteins.
The long term memory consist in a message send from the synapse to the nucleus ,the activation of some genes the creation of new proteins that make a more or les long time permanent streght of the synapse.

7
Broken brain : invention and intervention.
The author here tell the develops an advances in conectig a brain to a electronic device as the can hel to the brain in make moves ,hear or see.
"This is a prospect both seductive and frightening and that demands serious ethical reflections.One are that deserves scrutiny is military implications of this technologie,implications that have not escaped the attention of the US Defence Advance Research Projects Agency with it funding brain-machine interface research.Seriously provocative new weapons capabilities could be placed under direct control of an individuals thoughts by pasing human reticence and ethical reflections "
The author is not very hopefull of standard computer technology
"The worlds most powerful supercomputer weights a tonne,is the size of a average room and comsums more that a million times that a human brain,while at the same time being no match for it on any measure of creative intelligence"
"A fly brain contains about 100000 neurons (has a big capacity of proces to fly betwwen a bush) requiring building instructions of 20000 genes.A human brain with ten million more components can be constructed with twice of genes "
"Convetional computers are so inefficient and inherently uninteligent hat computer scientists are now turning theirattention to neuroscience for inspiration in the creation of a new generation of efficient and adaptatively inteligent machines"

A very recomendable introductory book for those interested in the inner workin of the brain

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Ahmad Sharabiani says

The Brain: A Very Short Introduction (Very Short Introductions #144), Michael O'Shea
How does the brain work? How different is a human brain from other creatures' brains? Is the human brain still evolving? In this fascinating book, Michael O'Shea provides a non-technical introduction to the main issues and findings in current brain research, and gives a sense of how neuroscience addresses questions about the relationship between the brain and the mind. Chapters tackle subjects such as brain processes, perception, memory, motor control and the causes of 'altered mental states'.
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Hoz Kamaran says

A wonderful, excellent, amazing, informative, well written, and perfect book.
