Synaptic Self How Our Brains Become Who We Are

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Human Simon and Schuster
Longlisted for the PEN/E.O. Wilson Literary Science Writing Award A leading neuroscientist offers a history of the evolution of the brain from unicellular organisms to the complexity of animals and human beings today Renowned neuroscientist Joseph LeDoux digs into the natural history of life on earth to provide a new perspective on the similarities between us and our ancestors in deep time. This page-turning survey of the whole of terrestrial evolution sheds new light on how nervous systems evolved in animals, how the brain developed, and what it means to be human. In The Deep History of Ourselves, LeDoux argues that the key to understanding human behavior lies in viewing evolution through the prism of the first living organisms. By tracking the chain of the evolutionary timeline he shows how even the earliest single-cell organisms had to solve the same problems we and our cells have to solve each day. Along the way, LeDoux explores our place in nature, how the evolution of nervous systems enhanced the ability of organisms to survive and thrive, and how the emergence of what we humans understand as consciousness made our greatest and most horrendous achievements as a species possible.
The Accidental Mind Synaptic Self
What happens in our brains to make us feel fear, love, hate, anger, joy? Do we control our emotions, or do they control us? Do animals have emotions? How can traumatic experiences in early childhood influence adult behavior, even though we have no conscious memory of them? In The Emotional Brain, Joseph LeDoux investigates the origins of human emotions and explains that many exist as part of complex neural systems that evolved to enable us to survive. One of the principal researchers profiled in Daniel Goleman's Emotional Intelligence, LeDoux is a leading authority in the field of neural science. In this provocative book, he explores the brain mechanisms underlying our emotions -- mechanisms that are only now being revealed.
The War of the Soups and the Sparks Other Press, LLC
A New York Times Bestseller Renowned neurologist Dr. Frances E. Jensen offers a revolutionary look at the brains of teenagers, dispelling myths and offering practical advice for teens, parents and teachers. Dr. Frances E. Jensen is chair of the department of neurology in the Perelman School of Medicine at the University of Pennsylvania. As a mother, teacher, researcher, clinician, and frequent lecturer to parents and teens, she is in a unique position to explain to readers the workings of the teen brain. In The Teenage Brain, Dr. Jensen brings to readers the astonishing findings that previously remained buried in academic journals. The root myth scientists believed for years was that the adolescent brain was essentially an adult one, only with fewer miles on it. Over the last decade, however, the scientific community has learned that the teen years encompass vitally important stages of brain development. Samples of some of the most recent findings include: Teens are better learners than adults because their brain cells more readily "build" memories. But this heightened adaptability can be hijacked by addiction, and the adolescent brain can become addicted more strongly and for a longer duration than the adult brain. Studies show that girls' brains are a full two years more mature than boys' brains in the mid-

teens, possibly explaining differences seen in the classroom and in social behavior. Adolescents may not be as resilient to the effects of drugs as we thought. Recent experimental and human studies show that the occasional use of marijuana, for instance, can cause lingering memory problems even days after smoking, and that long-term use of pot impacts later adulthood IQ. Multi-tasking causes divided attention and has been shown to reduce learning ability in the teenage brain. Multi-tasking also has some addictive qualities, which may result in habitual short attention in teenagers. Emotionally stressful situations may impact the adolescent more than it would affect the adult: stress can have permanent effects on mental health and can to lead to higher risk of developing neuropsychiatric disorders such as depression. Dr. Jensen gathers what we've discovered about adolescent brain function, wiring, and capacity and explains the science in the contexts of everyday learning and multitasking, stress and memory, sleep, addiction, and decision-making. In this groundbreaking yet accessible book, these findings also yield practical suggestions that will help adults and teenagers negotiate the mysterious world of adolescent development.

Rewire Your Brain McFarland

Based upon the author's lifetime practices as a dancer, poet and teacher, this innovative approach to developing body awareness focuses on achieving self-discovery and well-being through movement, mindfulness and writing. Written from a holistic (rather than dualistic) view of the mind-body duality, discussion and exercises draw on dance, psychology, neuroscience and meditation to guide personal exploration and creative expression.

Inventing Ourselves Springer Science & Business Media

In 1996 Joseph LeDoux's The Emotional Brain presented a revelatory examination of the biological bases of our emotions and memories. Now, the world-renowned expert on the brain has produced with a groundbreaking work that tells a more profound story: how the little spaces between the neurons—the brain's synapses—are the channels through which we think, act, imagine, feel, and remember. Synapses encode the essence of personality, enabling each of us to function as a distinctive, integrated individual from moment to moment. Exploring the functioning of memory, the synaptic basis of mental illness and drug addiction, and the mechanism of self-awareness, Synaptic Self is a provocative and mind-expanding work that is destined to become a classic.

Words Can Change Your Brain Harper Collins

Emphasizing experimental approaches and recent discoveries, a comprehensive, up-to-date introduction to essential concepts of cellular neuroscience provides an in-depth look at the structure and function of nerve cells, from protein receptors and synapses to the biochemical processes that drive the mammalian nervous system.

Anxious Simon and Schuster

First released in the Spring of 1999, How People Learn has been expanded to show how the theories and insights from the original book can translate into actions and practice, now making a real connection between classroom activities and learning behavior. This edition includes far-reaching suggestions for research that could increase the impact that classroom teaching has on actual learning. Like the original edition, this book offers exciting new research about the mind and the brain that provides answers to a number of compelling questions. When do infants begin to learn? How do experts learn and how is this different from non-experts? What can teachers and schools do-with curricula, classroom settings, and teaching methods--to help children learn most effectively? New evidence from many branches of science has significantly added to our understanding of what it means to know, from the neural processes that occur during learning to the influence of culture on what people see and absorb. How People Learn examines these findings and their implications for what we teach, how we teach it, and how we assess what our children learn. The book uses exemplary teaching to illustrate how approaches based on what we now know result in in-depth learning. This new knowledge calls into question concepts and practices firmly entrenched in our current education system. Topics include: How learning actually changes the physical structure of the brain. How existing knowledge affects what people notice and how they learn. What the thought processes of experts tell us about how to teach. The amazing learning potential of infants. The relationship of classroom learning and everyday settings of community and workplace. Learning needs and opportunities for teachers. A realistic look at the role of technology in education.

Molecular and Cellular Physiology of Neurons, Second Edition W. W. Norton & Company

"Accessible, witty . . . an important new researcher, philosopher and popularizer of brain science . . . on par with cosmology's Brian Greene and the late Carl Sagan" (The Plain Dealer). One of the Wall Street Journal's 10 Best Nonfiction Books of the Year and a Publishers Weekly "Top Ten in Science" Title Every person is unique, but science has struggled to pinpoint where, precisely, that uniqueness resides. Our genome may determine our eye color and even aspects of our character. But our friendships, failures, and passions also shape who we are. The question is: How? Sebastian Seung is at the forefront of a revolution in neuroscience. He believes that our identity lies not in our genes, but in the connections between our brain cells—our particular wiring. Seung and a dedicated group of researchers are leading the effort to map these connections, neuron by neuron, synapse by synapse. It's a monumental effort, but if they succeed, they will uncover the basis of personality, identity, intelligence, memory, and perhaps disorders such as autism and schizophrenia. Connectome is a mind-bending adventure story offering a daring scientific and technological vision for understanding what makes us who we are, as individuals and as a species. "This is complicated stuff, and it is a testament to Dr. Seung's remarkable clarity of exposition that the reader is swept along with his enthusiasm, as he moves from the basics of neuroscience out to the farthest regions of the hypothetical, sketching out a spectacularly illustrated giant map of the universe of man." —TheNew York Times "An elegant primer on what's known about how the brain is organized and how it grows, wires its neurons, perceives its environment, modifies or repairs itself, and stores information. Seung is a clear, lively writer who chooses vivid examples." —TheWashington Post

The Emotional Brain Fordham Univ Press

What happened along the evolutionary trail that made humans so unique? In his accessible style, Michael Gazzaniga pinpoints the change that made us thinking, sentient humans different from our predecessors. He explores what makes human brains special, the importance of language and art in defining the human condition, the nature of human consciousness, and even artificial intelligence.

Memory Makes The Brain: The Biological Machinery That Uses Experiences To Shape Individual Brains Penguin

The development of the young brain after birth and the emergence of cognitive capacities, mind, and individuality rest on the maturation of a dense net of synaptic connections between neurons. Memory Makes the Brain describes the dramatic, competitive elimination of surplus synapses that occur in the young, maturing brain — in a process called synaptic pruning that was discovered by pediatric neurologist Peter Huttenlocher in the 1970's at the University of Chicago. Explaining similarities between developmental pruning and learning processes in the adult brain, neurobiologist Christian Hansel offers a unique perspective on brain adaptation and plasticity throughout lifetime, at times weaving in personal accounts and memories. The cellular plasticity machinery that enables learning is known to be affected in brain developmental disorders such as autism. Memory Makes the Brain explains how both maturation and adult synaptic plasticity are deregulated in autism, and how we begin to trace back autism-typical behavioral abnormalities to such synaptopathies.

How People Learn II John Wiley & Sons

BRILLIANTLY EXPLORING TODAY'S CUTTING-EDGE BRAIN RESEARCH, MIND WIDE OPEN IS AN UNPRECEDENTED JOURNEY INTO THE ESSENCE OF HUMAN PERSONALITY, ALLOWING READERS TO UNDERSTAND THEMSELVES AND THE PEOPLE IN THEIR LIVES AS NEVER BEFORE. Using a mix of experiential reportage, personal storytelling, and fresh scientific discovery, Steven Johnson describes how the brain works -- its chemicals, structures, and subroutines -- and how these systems connect to the day-to-day realities of individual lives. For a hundred years, he says, many of us have assumed that the most powerful route to self-knowledge took the form of lying on a couch, talking about our childhoods. The possibility entertained in this book is that you can follow another path, in which learning about the brain's mechanics can widen one's self-awareness as powerfully as any therapy or meditation or drug. In Mind Wide Open, Johnson embarks on this path as his own test subject, participating in a battery of attention tests, learning to control video games by altering his brain waves, scanning his own brain with a $2 million fMRI machine, all in search of a modern answer to the oldest of questions: who am I? Along the way, Johnson explores how we "read" other people, how the brain processes frightening events (and how we might rid ourselves of the scars those memories leave), what the neurochemistry is behind love and sex, what it means that our brains are teeming with powerful chemicals closely related to recreational drugs, why music moves us to tears, and where our breakthrough ideas come from. Johnson's clear, engaging explanation of the physical functions of the brain reveals not only the broad strokes of our aptitudes and fears, our skills and weaknesses and desires, but also the momentary brain phenomena that a whole human life comprises. Why, when hearing a tale of woe, do we sometimes smile inappropriately, even if we don't want to? Why are some of us so bad at remembering phone numbers but brilliant at recognizing faces? Why does depression make us feel stupid? To read Mind Wide Open is to rethink family histories, individual fates, and the very nature of the self, and to see that brain science is now personally transformative -- a valuable tool for better relationships and better living.

Synaptic Self Simon and Schuster

How we raise young children is one of today's most highly personalized and sharply politicized issues, in part because each of us can claim some level of "expertise." The debate has intensified as discoveries about our development-in the womb and in the first months and years-have reached the popular media. How can we use our burgeoning knowledge to assure the well-being of all young children, for their own sake as well as for the sake of our nation? Drawing from new findings, this book presents important conclusions about nature-versus-nurture, the impact of being born into a working family, the effect of politics on programs for children, the costs and benefits of intervention, and other issues. The committee issues a series of challenges to decision makers regarding the quality of child care, issues of racial and ethnic diversity, the integration of children's cognitive and emotional development, and more. Authoritative yet accessible, From Neurons to Neighborhoods presents the evidence about "brain wiring" and how kids learn to speak, think, and regulate their behavior. It examines the effect of the climate-family, child care, community-within which the child grows.

Synaptic Self MIT Press

Synaptic SelfPenguin

Connectome W. W. Norton & Company

This work constitutes the proceedings of a New York Academy of Sciences conference held in September 2002. It seeks to take stock of understanding of the self and its relation to the brain, and consider future directions for scientific research in a multidisciplinary context.

The Integrated Mind Springer Science & Business Media

In this book the author has collected a number of his important works and added an extensive commentary relating his ideas to those of other prominentnames in the consciousness debate. The view presented here is that of a convinced dualist who challenges in a lively and humorous way the prevailing materialist "doctrines" of many recent works. Also included is a new attempt to explain mind-brain interaction via a quantum process affecting the release of neurotransmitters. John Eccles received a knighthood in 1958 and was awarded the Nobel Prize for Medicine/Physiology in 1963. He has numerous other awards honouring his major contributions to neurophysiology.

The Self Harper Collins

The Emotional Brain Revisited tackles various issues at play in the current neuroscientific, psychological, and philosophical research on emotions. The book discusses such topics as the role of amygdala in the emergence of emotions, the place of the affect within the psychological construction of the agent, insights from the research on emotions in animals, and the relation between emotions, rationality, morality, and law. Furthermore, various conceptual controversies underlying the empirical studies on emotions are considered. [Subject: Philosophy, Psychology, Cognitive Science]

The Shallows: What the Internet Is Doing to Our Brains Columbia University Press

Over the past thirty-five years, there has been an explosive increase in scientists' ability to explain the structure and functioning of the human brain. While psychology has advanced our understanding of human behavior, various other sciences, such as anatomy, physiology, and biology, have determined the critical importance of synapses and, through the use of advanced technology, made it possible actually to see brain cells at work within the skull's walls. Here Jean-Pierre Changeux elucidates our current knowledge of the human brain, taking an interdisciplinary approach and explaining in layman's terms the complex theories and scientific breakthroughs that have significantly improved our understanding in the twentieth century.

Neuronal Man Hay House, Inc
The question of how nerves communicate with one another was the subject of a heated & protracted dispute between pharmacologists & neurophysiologists. This book recalls the debate & how the theory of chemical transmission was eventually confirmed by the discovery of neurotransmitters.
The Mind-Brain Relationship Harvard University Press
This book examines the biological, especially the neural, substrates of affiliation and related social behaviors. Affiliation refers to social behaviors that bring individuals closer together. This includes such associations as attachment, parent-offspring interactions, pair-bonding, and the building of coalitions. Affiliations provide a social matrix within which other behaviors, including reproduction and aggression, may occur. While reproduction and aggression also reduce the distance between individuals, their expression is regulated in part by the positive social fabric of affiliative behavior.Until recently, researchers have paid little attention to the regulatory physiology and neural processes that subserve affiliative behaviors. The integrative approach in this book reflects the constructive interactions between those who study behavior in the context of natural history and evolution and those who study the nervous system.The book contains the partial proceedings of a conference of the same title held in Washington, DC, in 1996. The full proceedings was published as part of the Annals of the York Academy of Sciences.
Phantoms in the Brain Penguin
The recent explosion of knowledge in neuroscience has enormous implications for the practice of psychoanalysis, and The Mind-Brain Relationship offers an indispensable introduction to the seemingly unfamiliar, intimidating, and yet exciting and essential field of neuropsychoanalysis.