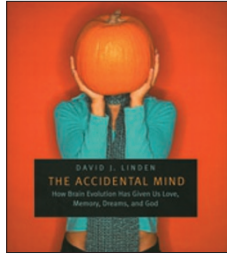


The most wonderful organ—not!



The Accidental Mind

by David J. Linden

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Reviewed by Charles Jennings

“I used to think that the brain was the most wonderful organ in my body,” said comedian Emo Phillips. “Then I realized who was telling me this.” David Linden would surely agree. In *The Accidental Mind*, he argues that the brain is overrated; far from being an engineering miracle, as it is sometimes portrayed, it is a kludge, “an ill-assorted collection of poorly matching parts, forming a distressing whole.” From its basis in Precambrian technology—neurons that are slow, unreliable and energetically inefficient—the evolutionary history of the brain is a series of design compromises, culminating in a jerry-built assemblage of redundant systems that make us who we are today.

The Accidental Mind is a popular book that is targeted at a lay audience. Although the ‘kludge’ theme is not a novel thesis (most biologists would agree that evolution is a tinkerer rather than an engineer), it is a point worth making for a general audience, especially given the inexplicable staying power of the Intelligent Design myth. In any case, Linden’s repeated digs at our brain’s imperfections, and our own blindness to them, give this book an attitude that distinguishes it from the general run of popular science books.

The book’s ambition is reflected in its subtitle, *How Brain Evolution Has Given Us Love, Memory, Dreams and God*. After a brief and lucid introduction to neurophysiology and brain development, Linden summarizes what is known about the neural basis of these characteristically human attributes. He emphasizes design constraints and the resulting compromises that have been necessitated by evolutionary history. Thus, he argues, the sluggishness of neurons as computational devices means that very large numbers of neurons and synapses are required to produce the brain’s computing power. The resulting circuitry is too complex to be encoded in the genome, so as brains evolved they became increasingly dependent on experience-dependent plasticity to establish the wiring pattern. The cellular processes that underlie developmental plasticity have been co-opted by the brain’s various learning systems, and this in turn has led to the evolution of emotions, which allow the brain to tag memories according to their significance. Linden goes on to trace the origins of love (necessitated by prolonged postnatal maturation and the need for stable parental pair bonding), sleep and dreams (periods during which memories can be consolidated without disruption by ongoing sensory input), and

even religion (see below). The entire argument is represented in one diagram on page 244, which is surely one of the more ambitious attempts ever to reduce the origin of the human condition to a single figure.

This may sound like a lot to bite off, but Linden, a well-known expert on synaptic plasticity, does an unusually good job of balancing entertainment and accuracy. He does not patronize readers and is careful to avoid the oversimplifications that plague neuroscience journalism (a brain center for love, a gene for adultery, and so on). Unlike many researchers, however, he is unafraid to speculate, and many of his ideas will appeal to professional neuroscientists as well as to lay readers. For example, I liked the proposal that dreams often reflect our fears and anxieties because dreams evolved to consolidate memories by tapping into preexisting systems that strengthen memories for fearful events. The book is full of such ideas, and whether right or wrong, they convey the flavor of insights that neuroscience can offer into the origins of human nature.

The message is delivered with a light touch, and if the humor occasionally verges on the sophomoric, at least it is never dull. As every publisher knows, sex sells—and Linden delivers. If you have ever wondered how neuroimaging studies of human orgasm are performed, this is the book for you. It gets even better: Linden describes the case of a woman from Taiwan who could trigger orgasms by brushing her teeth, and he even shows us her electroencephalogram record. There follows the inevitable joke about bringing new meaning to oral sex. If you don’t find this sort of thing funny, it’s probably your upbringing: one of many things I learned from this book is that sense of humor is largely determined by the environment, with adoptive twins being more likely to enjoy the same jokes than identical twins reared apart.

Linden is at his most provocative on the subject of religion, but I found this chapter to be the least satisfying. He suggests that religious impulses arise in part from the brain’s tendency to construct coherent narratives to explain that which cannot otherwise be interpreted: a faculty revealed, for example, by the confabulations of Gazzaniga’s famous split-brain patients. Though I share Linden’s view that religion must have biological underpinnings, surely not all confabulations are religious in character. Religious experience also involves other characteristics, such as emotional urgency and perceived moral authority, that are given short shrift here. We may all believe things that we cannot prove, but it seems like a stretch to conclude, as Linden does, that religion and science are two branches of the same cognitive stream, distinguished only by the falsifiability of their hypotheses. This view glosses over some real tensions, and readers wanting illumination of these matters will need to look elsewhere.

These objections aside, I enjoyed the book. It is entertaining, intellectually stimulating, well written and scientifically authoritative. It is also well illustrated and you can even download some of the images as brain-themed note cards from the book’s web site. Although not a textbook, *The Accidental Mind* would make an excellent introduction to the field for nonspecialist students, or for anyone else wanting an introduction to neuroscientific thinking and to the types of explanations that neuroscience can (and cannot) offer to some of life’s great mysteries.

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