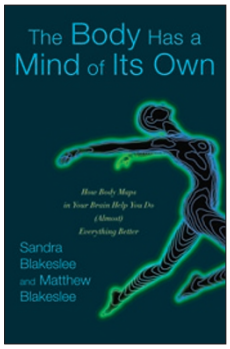
Why soccer players are smarter than scientists



The Body Has a Mind of Its Own: How Body Maps in Your Brain Help You Do (Almost) Everything Better

by Sandra Blakeslee & Matthew Blakeslee

Random House, 2007
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Reviewed by Vincent Walsh

Two of my favorite images from the history of neuroscience are Penfield's somatosensory and motor homunculi. They are reassuring (in one sense, there are little men in the brain), informative (the little man has been remapped according to functional needs) and disturbing (no matter how many times one looks at them, they do not represent how one feels about oneself). If the homunculi could read this book, I am sure that they would feel the same way, as it attempts to explain how and why the brain's maps of the body are themselves continually redrawn throughout our lives.

The brain contains multiple maps of the body, the coordinate systems of which vary according to whether the map is to be used to move our heads, shift our gaze, reach out and shake someone's hand, throw a stick, experience emotion, play golf, drive a car or play a video game. For almost everything we do, we have to map the external world and our experiences into one atlas, or as the authors explain, something more like a scrapbook in which pages and scraps can be removed, pasted, or even doodled on. The scrapbook is changing every day of your life.

Writing clearly for a nonspecialist audience is not an easy task. Working scientists sometimes lose perspective because they are too close to the field, and professional science writers often lose it because they do not know how to weigh evidence. Both groups sometimes go overboard in trying to pretend that the topic is very easy to understand. Sandra and Matthew Blakeslee avoided all of these traps to produce a book that can be read by nonscientists and scientists who do not specialize in these fields. They have three main weapons at their disposal: they write clearly and engagingly without needless dramatization, they choose great examples to illustrate the concepts they are describing, and they take time to explain why these things matter. The latter is something they do particularly well, giving detailed examples from the realms of aging, sports, learning, stroke recovery and anorexia. What these examples show is that the brain is training and retraining from childhood to old age and that our senses develop in the way they do because of what we do with our bodies. It's a point that bears repetition. An animal born with normal eyes and a normal brain will grow up functionally blind if it is prevented from moving. Action trains our senses.

Of course, there is always a tradeoff between depth and breadth, and one can sometimes sense the authors' regret at not having more time to explain everything. But they know when to stop themselves. In every chapter, they provide a strong foundation with detailed examples that make a major point: maps are ubiquitous, maps are plastic, maps can go wrong, maps are the basis of our sense of self. To drive home the point, they entertain you with things that you thought you knew (imagery can help you to learn, but imagining and fantasizing are different; you have to know about the stuff that you imagine), things that you do not believe (women are more empathic than men) and things that you could not have imagined (buy yourself a transcutaneous electrical nerve stimulator and try the illusions on pages 34–36).

The book's central point is that because humans are embodied, to understand our experiences, beliefs, actions and cognition, we must consider many maps, each with varying degrees of abstraction that represent or refer back to our bodies. The idea is scientifically cogent, important and, in my view, attractive. We are taught to respect intelligence when it is expressed linguistically, mathematically, musically and even pointlessly (I have chess in mind) as long as it is disembodied. Indeed, comedians and artsy commentators can be as nasty as they like about the intelligence of David Beckham, Ronaldinho and Wayne Rooney, but this book explains why these people are real geniuses, why we should admire and respect their brains.

Elite sports people (especially in team and combat sports) must be able to integrate multiple body maps to read others' movements and intentions, to integrate these with their own body maps and to gauge possible outcomes of their actions. This requires brain plasticity, practice and knowledge; there is, perhaps, more going on in the brains of these sporting elites than in the minds of the media lightweights who mock them. Sporting brains are not the only surprises. Other intellectual outcasts are also given coordinates in the brain's maps of the body. You will find good accounts of the brain basis of auras, out-of-body experiences, why homophobics literally feel the love they hate and why some people crave the amputation of apparently normal limbs.

The book ends with an apology to working scientists for oversimplifications, omissions and possible misrepresentations. I think that the apology is unnecessary. True, one can pick fights with the book. The Mandala concept was unnecessary in my reading, transcranial magnetic stimulation does not really "stun and fatigue" neurons, and women are not really more empathic than men. (Did I mention that already? Sorry, I didn't feel enough men share my rage the first time.) But the subject matter of this book is both difficult and consequential, and if the price for conveying how our brains map our bodies is a few disgruntled scientists, it is a price worth paying. There is only one serious complaint to be made about the book. I understand that it is not directed at primary researchers, but the lack of any guides to further reading is a pity, especially as this book will make you want to know more.

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