

## REFERENCES

THE SPIRITUAL ANATOMY OF EMOTION: HOW FEELINGS LINK THE BRAIN, THE BODY, AND THE SIXTH SENSE by Michael A. Jawer with Marc S. Micozzi. Rochester, VT: Park Street Press, 2009. Pp. ix. + 558. \$24.95 (paperback). ISBN 978-1-59477-288-7.

To what extent does the body (not the brain) create the mind? Can suppressed emotions lead to independently verifiable anomalous phenomena such as precognition, telepathy, and the appearance of apparitions? Are particular personality types more prone to producing and perceiving such phenomena? These are several of the intriguing questions that Jawer and Micozzi propose to address in this comprehensive book. As a researcher in cognitive neuroscience who is also open to the possibility that anomalous phenomena are demonstrations of how much we have yet to learn about space and time, I was enthusiastic to learn how these issues would be approached by an emotion researcher and expert on sick-building syndrome (Jawer) and a physiology professor and editor of an alternative medicine textbook (Micozzi).

My enthusiasm waned somewhat throughout the poorly edited volume, but after I made it through 458 pages of anecdotes and research findings taken from the fields of neuroimmunology, music cognition, clinical psychology, energy medicine, post-traumatic stress disorder and many more, I had a difficult insight. On the one hand, I am very sympathetic to many of the authors' precepts, most especially that the brain and body (not just the brain) make up the "self," that anomalous phenomena are deserving of scientific examination as are any other phenomena we don't understand, that the expression of feeling gives human life meaning and the suppression of feeling is an important cause of disease, and that people vary

academic researcher who is intrigued by its premise. Unfortunately, I would be sympathetic with this dismissal.

Much of my time spent reading this book was also spent wondering whether I was being an academic snob. The authors make the generalization that neuroscientists are mostly men who are resistant to the idea of the body being involved in the evolution and experience of human awareness. As a female cognitive psychologist/neuroscientist who passionately believes that the body is integral to everything human, neither attribute applies to me, so I thought maybe I was being critical of the book just based on the breadth of the generalization. In addition, the primary author (Jawer) doesn't list any academic credentials. I spent days wondering if I was resentful of him because he felt comfortable putting forth some very strident opinions about controversial scientific issues without the academic credentials to back them up; meanwhile I feel sheepish about having written a self-help book that claims no scientific import. After extensive self-examination, I decided that my academic snobbery and possible resentment were real, but not to blame for my opinion of the book. Several other scientific explorations written by nonacademics have struck me as compelling, easy to read, and relatively well researched. For example, whatever academic snobbery or resentment I might have did not intrude into my appreciation of Malcom Gladwell's *Blink* (Gladwell, 2007).

Following this analysis, I tried to delineate what exactly would have to be altered to make this book acceptable to researchers with open hearts and discerning minds. Here is my best attempt at some fair answers to that question.

*Fact checking.* The book contains several false statements that should have been caught by an editor familiar with basic high school biology and physics. For example, on page 109, the authors state, "No question will ever be more basic to medicine, religion, philosophy, or science" than that of why "living organisms evidently defy the second law of thermodynamics." The second law of thermodynamics is stated thus: "as the molecules of something randomly interact, their arrangement will, over time, become less and less ordered." This statement is close enough, but it leaves out one critical point, which is that entropy (often conceived of as disorder) decreases over time *in a closed system*. I know of no doctor, theologian, philosopher, or scientist who wonders why living organisms defy the second law of thermodynamics, because we don't. We're not closed systems; we eat so we can use the

energy from food to keep ourselves from falling into disarray. Another discouraging example of a basic misunderstanding is found in a discussion of sex hormones. Contrasting androgens with sex hormones, a move that makes little sense because testosterone is a sex hormone that is also an androgen, the authors state, "Androgens emanate not from the testes or ovaries, but from the adrenal gland" (p. 100). The adrenal cortex produces some androgens, while the most well-known androgen (testosterone) is produced in both the testes and ovaries. Finally, a recurrent problem is

that the authors seem to believe that electromagnetic radiation requires an atmosphere to “convey” it. “The earth’s atmosphere conducts a good deal of electromagnetic radiation” (p. 175), “...electromagnetic radiation of extremely low frequency in the earth’s atmosphere...” (p. 181), “the earth’s atmosphere, which seems to our eyes invisible, is actually a conveyance for electromagnetic radiation...” (p. 441). In summary, these errors were gross enough that they made me wonder what other false statements were presented as truths from fields with which I am unfamiliar. This concern wasn’t assisted by the frequency with which popular news reports and websites were used as references for scientific claims that would have better been served by support from existing peer-reviewed journal articles.

*Logical consistency.* The prose seemed meandering; it appeared to contain many digressions. However, upon completing the book, it occurred to me that if the authors had laid out a logical path from the beginning, or if an editor had insisted on such, then the proper places in the argument for each of the many discussions would have been clear. The authors made a gargantuan effort to cast a broad net over multiple intersecting fields in order to make their many points, and this kind of work is much needed, especially now that further specialization among researchers is destroying appreciation of the art of synthesis in scientific thought. However, it is not acceptable to early in the book put forth good evidence that women are beset by syndromes that may be traceable to a lack of expression of emotions (pp. 283, 297) and later to idealize women as if they are highly sensitive beings who excel at understanding and processing emotions (pp. 297, 451). Another example: in a discussion of presentiment, the authors include well-known work by Bechara, Damasio, and others dealing with subconscious awareness of a stacked card deck that precedes conscious awareness that the deck is stacked against the participants in a card game. These results do not provide evidence for any anomalous phenomenon, because exposure to the decks allowed participants to subconsciously determine which deck was “bad.” Though the authors describe the experiment accurately, later in that section they group Bechara’s results with those from presentiment work showing physiological changes that precede randomized and unpredictable stimuli, such as Radin’s well-known findings (Radin, 1997, 2004; Radin & Lobach, 2007). Instead of making the obvious distinction that in one case the subconscious is working on information available through known means and in the other case something unknown may be at play, they make

the following distinction between the two types of studies: “Damasio and colleagues concluded that intuition must be a brain-based phenomenon ... I suspect this model makes sense when the stimulus—in this case, a card game—is primarily mental. When the stimulus is physical, my intuition is that the body acts first, with feeling-tinged information leading the brain to decide.” It was just too difficult for me to make the logical leap that the most fundamental difference between these two types of experiment was whether the stimuli were mental or physical rather than whether information was

available to the participants about the content of the stimuli.

*Clarity.* Jawer and Micozzi put years of effort into this book, and that effort shows. I appreciated the many threads they connected to make their very important claim that neuroscientists need to include all of the body in our understanding of what creates the mind, and I was grateful that the authors highlighted the importance of keeping an open mind toward the possibility that anomalous phenomena are real events that are not yet understood. Unfortunately, these two important and yet controversial ideas would have been much better served had the authors been clearer about their definitions. For instance, the authors repeatedly seem to confuse awareness with conscious awareness, and make the claim that neuroscientists are only interested in conscious awareness. For example: "What we know, the neuroscientists assert, is shaped, focused, and brought into definition by the brain. Therefore the brain must know all. But, as I have contended, the brain does not know all. Some types of sensory influence operate beyond the threshold of awareness" (p. 427). A clarifying statement indicating that the authors believe that the brain is only responsible for conscious awareness, if that is indeed the case, would perhaps help make their point more coherent. Further, especially intriguing to anyone interested in the mechanisms underlying anomalous phenomena is that the authors state that they have a controversial yet compelling new approach to understanding the interplay between emotions and anomalous events. The authors assert that anomalous phenomena result from intense feelings, especially those that are repressed, being transmitted in space and time via electromagnetism. These controversial assertions are clearly stated as conjectures, but later in the book when a discussion of mechanism should occur, the impending discussion is seemingly waylaid. In a summary paragraph (p. 397), the authors discuss the controversial nature of their previous assertions. "More problematic is the notion that intense feelings can be transmitted to others in nonordinary ways and can be harbored in the electromagnetic environment. What studies have inquired into these possibilities?" Which indeed? But this line of questioning is sadly followed by: "Indeed, what research pertains to other key questions relevant to the thesis of this book...." Research pertaining to the other key questions is then described, and some research about the ability to sense electromagnetic energy. Perhaps because I like the idea that emotions are key to our understanding of anomalous

phenomena, it disturbs me that a key question—how do emotions (or emotional suppression) transmit themselves across space and time and result in anomalous events?—is not answered with any degree of rigor, unless one is satisfied with a vague discussion of undefined "energy" being put into an "electromagnetic environment." Again, I would like to point out that this idea is intriguing to me. It's just that the idea will gain no footing, and may even be perceived as reduced in merit among academic researchers, unless it is presented with some clarity.

In summary, any lay reader of this book will learn a lot about the body, brain, and mind, as well as a little about anomalous phenomena, particularly apparitions. The book is a starting point for thinking about these ideas, a place to go for new thoughts and interesting insights. However, it is not for those hoping to find a well-informed and clear discussion of controversial and very important issues in present-day neuroscientific research.

## REFERENCES

- GLADWELL, M. (2007). *Blink: The power of thinking without thinking*. New York: Back Bay Books/Little, Brown.
- RADIN, D. (1997). Unconscious perception of future emotions: An experiment in presentiment. *Journal of Scientific Exploration*, 11, 163–180.
- RADIN, D. (2004). Electrodermal presentiments of future emotions. *Journal of Scientific Exploration*, 18, 253–273.
- RADIN, D., & LOBACH, E. (2007). Toward understanding the placebo effect: Investigating a possible retrocausal factor. *Journal of Alternative and Complementary Medicine*, 13, 733–739.

JULIA MOSSBRIDGE

*Department of Psychology  
Swift Hall, Room 301  
2209 Sheridan Road  
Northwestern University  
Evanston, IL 60208, USA  
j-mossbridge@northwestern.edu*