

## Consciousness and Behavior: Who Is in Control?

A review of



### **Does Consciousness Cause Behavior?**

by Susan Pockett, William P. Banks, and Shaun Gallagher

Cambridge, MA: MIT Press, 2006. 364 pp. ISBN 978-0-262-16237-1.

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Reviewed by  
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One should not judge a book by its title. Any book called *Does Consciousness Cause Behavior?* is likely to disappoint the reader, for the answer to this question must depend on the meaning of consciousness, on what one means by “cause,” and on which behavior one has in mind. Despite the book’s title, though, it is surely worthwhile to ask 18 psychologists, neuroscientists, philosophers, and legal scholars to discuss current controversies concerning the function of consciousness. From that point of view at least, the book edited by Pockett, Banks, and Gallagher is a success.

The book was inspired by two recent areas of research that have raised important questions about the causal status of consciousness. First, several studies by Benjamin Libet and others (e.g., Libet, Gleason, Wright, & Pearl, 1983) have demonstrated a gap of some 350 ms between the initiation of an intentional act (as indicated by electrophysiological

recordings) and conscious awareness of that intention. Second, experiments reported by Daniel Wegner (2002) found that subjects are often unable to determine whether an action had been generated by their own volition or by some external agent. Wegner suggested that the experience of conscious will is an “illusion,” a judgment reached after an event has occurred, not part of the causal chain involved in generating the action. An implication of both sets of findings is that consciousness may be an incidental by-product of brain activity, not a determiner of activity. The consequences of such a conclusion may have a major impact on popular notions such as free will, blame, and responsibility.

While I might quarrel with the book's title, the illustration on the book jacket, I thought, was inspired. It is a representation of the game of rock, scissors, paper, which succinctly expresses many of the issues raised by Libet and Wegner. As anyone who has played the game can attest, it is very difficult to identify through conscious reflection alone the true cause of one's choice on any given move of that game.

The book contains 16 chapters divided into three sections. Part I contains chapters that review recent research and theory concerning the neurophysiology of actions, intentions, and the sense of self. Part II includes chapters that assess the presuppositions underlying Libet's and Wegner's research and the implications of their findings for issues such as free will. The chapters in Part III examine consequences of the debates for issues of public policy, especially for questions of legal and moral responsibility.

In other words, it is apparent that the experiments described by Libet and by Wegner may have profound consequences for many areas of human activity. There is need for a careful assessment of this research by scientists, philosophers, and other scholars. Although this book may not settle many of the arguments, it certainly lays them out in a careful and comprehensive way. Every chapter might be the subject of an extensive review, so here all I can do is identify some highlights in the presentations.

## **The Neuroscience of Consciousness**

The chapters in the neuroscience section of the book serve primarily to confirm and to clarify the earlier findings by Libet, and to a lesser extent the findings by Wegner. Susan Pockett, for example, demonstrates that in the case of simple motor actions, one is conscious of being about to make the movement only after neural events that initiate the movement have begun. Marc Jeannerod shows how awareness of mental states such as intending or imagining an action is distinct from awareness of the action itself. Jeannerod is convinced, based on the neurological data, that consciousness is a post hoc phenomenon. He suggests that the sense of consciousness “causing” one's behavior may arise from perceptions of one's own behavior and does not reflect any privileged understanding of the causal mechanisms themselves.

Suparna Choudhury and Sarah-Jane Blakemore extend the discussion to consider the origins of self-consciousness—how is one able to distinguish between moving one's own arm and someone else moving it. These authors too confirm that one must often initiate motor activity before one is aware of it.

None of the chapters in this section answer the question posed in the title of the book. The chapter by Walter Freeman, however, does make a serious attempt to dispose of the question by reframing it. Taking issue with what he calls *linear causality*, he suggests that the concept of *circular causality* is better suited to an understanding of self-organizing systems such as human beings. Freeman's chapter is difficult to follow at times, and I never acquired a clear sense of what he means by circular causality. At times he refers to the mutual interactions of components in a system, at other times to the fact that consciousness is distributed in time and in space throughout the brain, and at yet other times to the causal power of self-determination. He is surely correct, though, that modern science is not well served by mechanistic models that postulate unidirectional causal chains.

## Philosophical Concerns

Any use of the word *cause* necessarily raises difficult and important philosophical questions, and the claims by Libet and Wegner make them even more salient. The chapters in the philosophy section address a number of these questions.

Prior to the publication of this book, the most thorough discussion of Libet's and Wegner's research was probably to be found in Dennett's (2003) discussion of the concept of free will. It is noteworthy, and unfortunate, that only two of the authors in the present book make reference to Dennett. Perhaps the chapters were written too close in time to the publication of Dennett's book. Dennett demonstrated how many misleading statements about consciousness and free will can be traced to a Cartesian, dualist metaphor that thinks of consciousness as a “place in the brain where I am” (Dennett, 2003, p. 242).

Dennett (2003) discussed Libet's and Wegner's research extensively. He argued that if one thinks of conscious free will as spread out over time, during which the coordination of visual and motor activities takes place, then Libet's 350-ms gap disappears. In the same way, in discussing Wegner's research, Dennett asserted that the “illusion” of conscious will is less significant if one considers consciousness to be distributed in space (i.e., within the brain) and in time. This seems to be a large part of the message found in Freeman's chapter (above).

With respect to issues like these, I found the most useful chapter to be one by William Banks, which is included in the final section on law and public policy. Banks's chapter is in fact a helpful overview of the philosophical issues. Although he does not refer to Dennett's work, Banks takes a position that appears to be quite consistent with Dennett's. Consider the

question, “How can an idea move a muscle?” (p. 237). Banks discusses evidence for the necessity and sufficiency of consciousness as a causal agent and considers the problem of reconciling a materialist view of behavior with the issue of free will. Traditionally, there have been two answers to this problem: incompatibilism and compatibilism. The former asserts that the two concepts cannot be reconciled; the latter sees no necessary incompatibility. Incompatibilists can follow one of two roads: either hard determinism, the view that free will must therefore not exist, or liberalism, the conclusion that there must be something beyond materialistic determinism. The latter view, of course, is inescapably dualist and thus not attractive to most behavioral scientists.

Like Dennett, Banks makes a strong argument for the compatibilist view, concluding that free will must be part of the physical causal order. Ideas do not move muscles, then, but they do move other ideas—unconscious ones—and these initiate actions in a way that is presumably not accessible to introspection.

The chapter by Shaun Gallagher offers an alternative to Dennett's and Banks's position. Gallagher correctly points out that the emphasis on motor activity in many of the chapters is irrelevant when discussing free will. Free will is not about bodily movement but about goals and intentions. He does not accept Dennett's claims, but it is not clear (to me) what the alternative is. When Gallagher states that “The exercise of free will cannot be captured in a description of neural activity or of muscle activation or of bodily movement” (p. 120), he seems to be arguing for a Cartesian dualism, although he claims otherwise.

Elisabeth Pacherie also discusses the concept of intention. Like Freeman, she emphasizes that it is misleading to seek causal chains when explaining intention or to require that a cause be some kind of Aristotelean prime mover. Like other authors in the book, she takes issue with Wegner's assertion that, because the interpretation of causal agency is sometimes mistaken, then the experience of intention must be an illusion. I found this argument less than convincing. Pacherie states correctly, “To show that the experience of willing is not always errorless is certainly not to show that it is always in error” (p. 163). Yet this is not really Wegner's claim. Wegner concluded that the experience of willing is an inference drawn after the fact, and the existence of occasional errors provides evidence for this claim. Perhaps Wegner too suffers from the choice of an inapt title for his book. If, instead of calling it *The Illusion of Conscious Will*, he had used a title like *The Judgment of Conscious Will*, it might have generated fewer objections.

## **The Broader Social Implications of the Debate**

Arguments over the nature and function of consciousness are not merely academic. I found three of the chapters in the section on law and public policy to be especially thought provoking. Leonard Kaplan discusses the legal and social consequences of research that

touch on the question of personal responsibility. He provides an interesting review of the history of thought on these matters and shows how the public opinion concerning legal and moral responsibility has changed in recent years. Although one might suppose that these changes reflect a growing enlightenment concerning the causes of behavior, Kaplan suggests that they have not necessarily been for the better. He argues for some caution by researchers in this area. He cites examples of the tendency of public opinion to move far beyond actual evidence and suggests how the work of Libet, Wegner, and others might easily be misinterpreted. Kaplan makes a strong case that scientists who address questions of conscious intention should consider how the public might interpret their findings.

Susan Hurley raises similar issues with regard to discussions of the effects of media violence. Sabine Maasen explores discussions of free will in the German media and draws broader conclusions concerning public understanding of brain sciences. Maasen's comments, like Kaplan's, do not necessarily imply that neuroscientists and cognitive scientist should allow public use of their conclusions to constrain their research and theory; however, they should surely be aware of how their work will be perceived and used.

One obvious omission in this book is a chapter by or representing Libet or Wegner. A careful reader should consult the original work by these authors and try to assess the arguments and interpretations made throughout this book. Also missing is any attempt to integrate all of the separate contributions. Of course, that is typical of edited collections of chapters written by separate authors. The editors provide a cursory overview of the contents in their introduction, and some of the authors make cross-reference to other chapters. As noted, Banks's chapter includes a useful overview of many of the issues covered in the philosophy section. Nevertheless, it will be hard for a casual reader to sort out the areas of disagreement among the authors or to recognize consensus. Absent such an integration, the existing chapters provide plenty of material that allows the reader to interpret Libet's and Wegner's research within a broader context.

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