



## Book Review

*Brain-Wise: Studies in Neurophilosophy* by Patricia Smith Churchland. Cambridge, MA: MIT Press, 2002.

Reviewed by Anthony Landreth

In many regards, *Brain-Wise* is an update on Patricia Churchland's 1986 book *Neurophilosophy*. Both books present textbook neuroscience in the context of traditional philosophical problems. Neither of these books are so much an attempt to argue, point-by-point, for particular positions on traditional philosophical issues, as they are arguments for a different approach to philosophical questions.

A lot has happened since *Neurophilosophy*. With the advent of cognitive neuroscience, and the continuing maturation of cognitive science, the base of empirical research has grown enormously. With the passage of nearly two decades, and the popularity of *Neurophilosophy*, a small but active and international community of neurophilosophers has emerged. In *Brain-Wise*, Churchland adds to the survey of relevant science some of the innovations of the next generation of neurophilosophers.<sup>1</sup> *Brain-Wise* is not just an update on relevant science, but an update on relevant neurophilosophy as well, offering coverage of work produced by philosophers (e.g. Rick Grush and Steven Quartz) as well as neurophilosophical work produced by neuroscientists (e.g. work on the emotions

and decision making from the Damasio).

The book is straightforwardly introductory. Each chapter ends with suggested readings and each chapter begins with a survey of the philosophical area under investigation. The book is divided into sections devoted to metaphysics, epistemology, and religion. Metaphysics breaks down into a chapter on the self and self-knowledge, one on consciousness, and one on the free will debate. Epistemology breaks down into a chapter on neuronal models of mental representation and a chapter on neural plasticity and learning. The religion section has only one chapter, entitled 'Religion and the Brain', principally concerned with the explanatory value of religious perspectives.

Churchland's strengths lie primarily in her synoptic view of the behavioral sciences. As an alternative to thought-experiment as a method for investigating the order of the natural world, she brings together a host of clearly described and familiar scientific case studies. The rationale is that thought-experiment may have little bearing on our understanding of the natural world. Churchland warns us to be wary of *a priori* methods in philosophy, since, from a

Darwinian perspective, there is little reason to expect that we have come prepackaged with the conceptual resources sufficient for an armchair discovery of natural law. Churchland recommends that we would “do best to resign ourselves to the probability that there is no special faculty whose exercise yields the Absolute, Error-Free, Beyond-Science Truths of the Universe” (pg. 41). In Churchland’s mind, this leads to a renouncement of metaphysics as a methodology, with the retention of some metaphysical questions for scientific investigation. When the sciences begin to encroach on the subject matter of metaphysics, the metaphysical status of its issues “will eventually be cast off as uninformative and burdensome” (40). In Churchland’s view, metaphysics is a term that one applies to the pre-scientific stage in a field’s evolution, a term of history. In opposition to *a priori* methods, Churchland endorses abductive argumentation. What can be explained by a framework becomes the determinant of tenable positions. Case studies in neuroscientific explanation therefore take center-stage, since they become the data for assessing explanatory power.

Unfortunately, this abductive approach is not one that Churchland sticks to consistently. For instance, despite her deployment of explanatory strategies from cognitive science, the bulk of her section on freedom of the will is guided by *a priori* considerations in the standard fashion. Following her rejection of libertarian approaches to freedom of the will, Churchland offers a compatibilism founded on a concept of self-control that she confesses is in need of clarification. Then, she asks us to test our intuitions regarding the amount of self-control we should attribute to an individual under a variety of circumstances (pg. 210). The result of this investigation is supposed to uncover our concept of self-control (assuming that there is just one such concept to be had) that will be useful for apportioning praise and blame to those who uphold and violate our social norms. From a perspective of staunch opposition to conceptual

analysis, one should question that understanding our (common sense?) concept of self-control will result in a better theory of either freedom or personal responsibility. And yet, that seems to be what Churchland has committed herself to by adopting the above strategy.

It is curious why Churchland did not take Daniel Dennett’s line (1984), that what we ought to do is ask ourselves what sort of freedom—or perhaps self-control—we might want, and then compare our list of desiderata to what nature has made available, just to see if we can get it. Perhaps this would have been a more consistent approach, since it would reduce—though unlikely eliminate—the competition of intuitions that Churchland wants to avoid. Some people might discover that they want no more freedom than a cognitive neuroscience of action provides. Others might want more, but by taking Dennett’s route, their desire for that *something more* becomes part of the selection criteria for a theory, not the methodology for constructing the theory.

In other sections, Churchland sometimes gets running but seems to lose track of where she is going. In her epistemology section, she argues for a naturalistic approach, then moves on to theoretical issues concerning neural representation and neural plasticity, without explaining the bearing of her case studies on basic epistemological issues, for instance—how we can be wrong, or how we are to understand what counts as evidence. While it might be a bit demanding to expect a neurophilosophical theory of knowledge in an introductory text, one should at least expect some coverage of the basic issues. This is absent. In place of these issues, Churchland surveys some of the basics on neuroplasticity, a topic unfamiliar to normative epistemology, but nonetheless important for consideration of the epistemic constraints imposed upon us by our neural architecture.

While an account of neural representation is critical to Churchland’s contribution, in this regard one might call into question the coherence of her presentation. One could justifiably

be confused when encountering first Rick Grush's emulator account of neural representation in the section on self-knowledge, then Paul Churchland's state space account in the epistemology section. Churchland appears to endorse both accounts, and yet they are quite different in the way that she describes them. In Grush's emulator account (2003), representation is a similarity relation between some phenomenon and a brain process, such that we can think of that process as mimicking the input-output pattern of that which it represents. In the emulator account, a neural representation is characterized as being part of a control system. In Paul Churchland's (1996) state space account of neural representation, the content of a neural representation is defined in terms of its location in a multi-dimensional space, where the parameters of the space could be defined according to, e.g., stimulus features. The way it is presented, Paul Churchland's account does not appear to be an isomorphic account, but Grush's account is explicitly based on isomorphism. Control appears to be at the heart of Grush's account, while vector coding is the central concept in Paul Churchland's view. Nowhere does Churchland explain how these views are supposed to fit together. But while much of the philosophical hard work of this section is left for another day, one cannot fault Churchland for her attempts to encourage philosophers to exploit untapped resources. Many of the ideas surveyed in this section are relevant but ignored by contemporary epistemology. Many call into question how truly *naturalized* so-called naturalized epistemology has become.

The shortest section of the book is the religion section. There is little of a distinctively neurophilosophical approach at work in it. That is not to say that there aren't opportunities for neurophilosophers to do some work here. Graham (2000) provides some clues as to how neurophilosophers might address problems relevant to philosophical theology—for instance, in addressing the tension between embodiment (as a way of thinking about cognition) and disem-

bodiment (as a state experienced in near-death cases), as well as questions concerning the cognitive architecture of an omniscient being. The recent slew of popular books on the relationship between religion and neuroscience might also have provided some interesting grist for the mill. Instead, Churchland provides only a brief investigation into the relationship between epilepsy and experiences of the divine, and tucks the rest into the suggested reading list. This section is little more than an addendum to the rest of the book and would not be missed.

While *Brain-Wise* is not an ideal introduction to philosophy, generally speaking, nor the most biologically rigorous of neurophilosophy texts (cf. Bickle 2003) it is perhaps the most accessible single-author introduction to neurophilosophy available. Churchland is always engaging, enthusiastic and frank. While there are a number of neurophilosophical positions that she does not survey (cf. Bechtel, et al. 2002), the book offers more than enough to chew on with a kind narrative continuity unavailable in edited volumes. Neurophilosophy is still young and the job of the neurophilosopher is still not well-understood. Neurophilosophers—as theoreticians applying neuroscience to philosophical problems—are in increasing need of skills for evaluating the character of neuroscientific evidence. The acquisition of these skills would be greatly facilitated by a philosophy of science committed to problems in neuroscience, but at present, there is no field of research that investigates the methodological and epistemic problems encountered by neuroscientists. The exchange between philosophy and neuroscience has been, primarily, one way. If this state of affairs is going to change, philosophers will have to undergo a different training regime to that to which they are accustomed. Philosophers will need a better feel for the geography of the biologically-based behavioral sciences. Toward that end, *Brain-Wise* represents progress in its level of detail and accessibility in canvassing cognitive neuroscience, in its challenge to conventional wisdom on the nature of

the philosopher's intellectual contribution, and in its gestures toward a different kit of tools with which to make that contribution.

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### Notes

1. To avoid confusion, whenever referring to the author, I use the last name "Churchland" alone. When referring to Paul Churchland, I will consistently use both his first and last name.

### References

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