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Book reviews

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Neuroscience and Philosophy: Brain, Mind, and Language. By M. Bennett, D. Dennett, P. Hacker and J. Searle (with an introduction and conclusion by D. Robinson). (Pp. 232; $19.50; ISBN 978-0231140454 pb.) Columbia University Press: New York. 2009.

Most psychiatrists would agree that advances in the neurosciences have shed much light on the biological structures behind mental illness, moving psychiatry forward along the same path of progress that has been seen in other branches of medicine. Such progress, however, has also led many in the field of neuroscience – as well as psychiatry – to adopt a more materialist view of 'the mental', regardless of whether we are dealing with cognitive and emotive function or dysfunction. In this concise volume, Daniel Robinson challenges us to reflect on the nature of mental phenomena by juxtaposing four leading thinkers in the field of philosophical psychology. After providing poignant selections from the lengthy 2003 text entitled *Philosophical Foundations of Neuroscience* by the philosopher-neuroscientist team, Peter Hacker and Maxwell Bennett, Robinson provides rebuttals to the work given at the 2004 meeting of the American Philosophical Association by two prominent philosophers of mind, John Searle and Daniel Dennett. Robinson then includes Hacker's and Bennett's responses to the rebuttals. In this way, Robinson gives a nicely abridged version of the longer work while simultaneously drawing us into a debate that affects both the meaning and trajectory of psychiatry, a debate that has implications for what language psychiatrists use to describe mental illness, a debate made all the more relevant by the approach of DSM-V. Although not specifically a book about mental illness, *Neuroscience and Philosophy* demonstrates that achieving clarity about the goals and language of neuroscience is vital for shaping our expectations and our understanding in regard to the diagnosis and treatment of mental illness.

Robinson makes it clear that the goal of the work is not to discuss the particular meaning of concepts such as memory, emotion, perception, and so forth, but rather to establish the proper conceptual framework within which neuroscientists can make sense of their empirical investigations of these mental activities. Many neuroscientists – and psychiatrists for that matter – frequently confuse empirical and philosophical modes of inquiry. Bennett and Hacker address such problems by trying to clarify the distinct roles of neuroscience and philosophy, stating that 'it is the task of cognitive neuroscience to explain the neural conditions that make perceptual, cognitive, cogitative, affective, and volitional functions possible … By contrast, conceptual questions, the description of the logical relations between concepts, and the examination of the structural relationships between distinct conceptual fields are the proper province of philosophy' (p. 4).

One example of confusion that is frequently discussed is what Bennett and Hacker refer to as the mereological fallacy. According to this fallacy, psychological activities, such as perceiving, thinking, feeling, deciding, etc, are attributed to a part of the person, most commonly the brain, instead of the whole person. Bennett and Hacker interpret this as a contemporary form of Cartesian dualism. For Descartes, the soul, or mind, was a separate entity in which mental capacities resided and yet were somehow connected to the body. Consequently, the goal of neuroscience had been to explain how the mind is connected to the body (brain). Contemporary neuroscientists, however, attempt to solve the problem by trying to physically locate psychological activities in the brain, as though the brain itself is what thinks, feels, and decides. Bennett and Hacker claim that this contemporary approach is not a rejection of Cartesian dualism, but rather a new version of it. For them, it is the person who thinks, feels, and decides, not the brain.

While they are adamant about what the mind is not, there is little account in the book of what they think the mind is. At best, they refer to an Aristotelian model of the soul (psyche), proposing that the mind 'is neither a substance distinct from the brain nor a substance identical with the brain'. Nonetheless, the mereological fallacy raises provocative questions regarding the conceptual frameworks by which many contemporary scientists plan experiments, interpret their results and theorize about mental life and human behaviour. One need only ask the question: 'what exactly *is shown* by all these fMRI studies to which we are subjected?'

The diversity of opinion within the neurophilosophical community is brought to life by Searle and Dennett's at times impassioned rebuttals. Unlike Bennett and Hacker's desire for greater clarity

regarding the specific domains of philosophy and science, Searle and Dennett dismiss such distinctions in favour of an entirely empirical approach to understanding mental phenomena. Searle is specific. 'These [mental states] are entirely caused by brain processes … Conscious states exist [only] in the brain' (p. 99). Dennett refers to philosophy as a sort of 'autoanthropology' in which one's intuitions alone are consulted, as though the philosopher were undertaking an empirical study with an *n* of 1.

Searle and Dennett are bold in their assertions about the progress that has been made in field of neuroscience. In contrast, Bennett and Hacker take a more cautious approach to the attainment of knowledge. They emphasize the need for correct concepts and accurate language in directing scientific inquiry. Science, they claim, 'is no more immune to conceptual error and confusion than any other form of intellectual endeavor' (p. 9). Bennett attempts to illustrate this point with examples from the history of neuroscience, exhorting us to 'pause and reflect' before accepting many of the claims being made by the neuroscientific community. His history lesson might be construed as an overly pessimistic view of science, perhaps even undermining our fidelity to an evidence-based method of practising psychiatry. But what physician has not wondered whether the vast sea of 'evidence' has contributed more to confusion than clarity?

Robinson's purpose is not to belittle neuroscience, but rather to strengthen it with the appropriate distinctions and clarity of language, and to remind us that we are ultimately trying to understand what it means to be human and how we can relieve suffering. In a field as diverse and, at times, contentious as psychiatry, this book in a excellent and economical way to join the conversation. Its brevity belies its depth.

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Secondary Schizophrenia, 2nd edition. By P. S. Sachdev and M. S. Keshavan (Pp. 436; $120.00; ISBN 9780521856973 cloth.) New York: Cambridge University Press. 2010.

The remarkable proliferation of genomic and other biological studies of schizophrenia in the last decade has directly and indirectly provoked a 'shake-up' of pre-existing conventional wisdom about the disorder. This has impacted not only genetic and non-genetic theories of its etiology. Sachdev and Keshavan's broad-ranging book hints that this has also spread to the realm of its very definition. One of the most striking results in the panoply of recent discoveries has been the small proportion of variance explained by either many known common, or a few observed rare alleles, commonly explained by the current inability to detect a putative 'missing heritability'. This inevitably leads to the possibility that non-genetic causes may play a larger role than previously thought, in the etiology of even the most carefully diagnosed and clinically typical cases. Another glint of light into a previously darkened corner has come as a meta-analysis of existing twin studies. This has demonstrated that environmental factors shared within a family (such as parenting styles, nutrition, propensity to infection, etc.) explain a modest but significant portion of variance in risk, which individual studies are underpowered to demonstrate. This state of affairs has engendered a kind of cognitive dissonance in many seasoned workers in the field: holding out the possibility of using genetic variants to predict risk and treatment response, while simultaneously making it plausible that theories with which we have long grown uncomfortable, such as the schizophrenogenic mother, could be exhumed.

This is the contemporaneous scientific milieu forming the backdrop of this book and which makes it particularly timely. It is therefore either prescient or revisionary that Sachdev and Keshavan have selected the title of their book, the predominant focus of which is the numerous non-psychiatric syndromes and conditions associated with psychotic symptoms. However, which one it is will ultimately have to be decided by an enormous amount of future work disentangling reliably measured genetic variation from potential environmental causes in cases defined by the strictest and most universal diagnostic criteria. For the title and indeed the book itself suggest that psychosis as we know it may be a final common pathway of myriad processes, and that schizophrenia is but one class subsuming only processes which have yet to be identified. This is the underlying premise of their dichotomy of 'primary' and 'secondary' schizophrenia.

First and foremost, this is a textbook designed to thoroughly review non-psychiatric causes of psychosis for the medical student and interested researcher alike. All of the major classes of such conditions are covered. Some are caused by Mendelian diseases such as lysosomal storage diseases, as well as mitochondrial diseases. Some are genetically complex disorders such as Alzheimer's, in which psychosis is a prominent feature. Some are multifactorial conditions impinging directly on brain