Book Reviews

Ralph D. Ellis and Natika Newton, eds.
Consciousness & Emotion, vol. 1
Agency, Conscious Choice, and Selective Perception
Amsterdam: John Benjamins, 2005, 330 pp.
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Reviewed by Jeremy Trevelyan Burman

In developmental biology, it has long been clear that phenotype is underdetermined by genotype. To address the gap, famed geneticist Conrad Waddington (1905–1975) proposed that an 'epigenetic landscape' mediates the influences of genes on growth (Waddington, 1957). Although the idea was slow to catch on, his proposal is now widely accepted, with pride of place in the emerging evolutionary subfield known colloquially as 'evo-devo.' Yet equivalent notions have been slower to emerge in psychology. A new concept (*enactivism*), and the book series in which it has found a home (*Consciousness and Emotion*), should help to change this.

'Enactivism' allows the application of the 'epigenetic landscape' metaphor to cognitive science by linking feeling with the perceived conformation of reality: the logic of language and action are underpinned by a logic of feeling, which affords a landscape of emotional hills and valleys through which the developing organism must travel as it matures. As this logic changes through experience, altering the perceived rationality of future choices, the valences of possible decisions also change. One might therefore reasonably suggest, anticipating the emergence of a paradigmatic response to the approach's main competitor (cognitivism), that *behaviour is underdetermined by cognition* — a fundamental organizing principle addressed in every chapter in the first volume of this new book series. In contrast to preformist conceptions of the mind, we are left with the following: the

developmental history of each organism constructs a 'lens' through which the quality of individual phenomenal experience is 'perceived,' as an internalized felt-approximation of those aspects of the real things-in-themselves that impinge upon the successful implementation of planned actions. Thus, the world is grown into; it is not, *a priori*, 'represented' (as was also argued by Piaget, most recently in Piaget & Garcia, 1983/1989).

Contributions to the first section explore various levels of what it means to construct such a world of experience. **Smith and Carlsson** conducted a series of perceptual experiments to determine its stability, concluding that objective knowledge can be achieved only by accepting that all observations originate in the embodied self; that 'truth' relies on consistency through change — which itself requires the recognition that the perception of self and subject are influenced by context – and 'creativity' in constructing approximate truth relies on the quality of the interchange between self and other. Discussing the interactions that manage this construction, **Ciompi and Panksepp** review research from their psychosocial and neuroscientific perspectives; they also propose a number of strategies to test their conclusion that emotion energizes the problem space, while cognition optimizes within it. **Pahlavan and Lubart** extend this review and describe their empirical work (along similar lines as Smith and Carlsson's), showing some gender differences in the emotional definition of problem spaces, as well as interactive effects manifest in processing and retrieval times. **Ellis** (no relation) **and Toronchuk** then drop down another level to show how the pruning processes of 'neural Darwinism' can construct networks that serve to approximate reality-in-action; they also discuss the immune system, adopting the language of Panksepp's framework to add further nuance to the emerging description of emotional-cognitive evolutionary- development.

The second half of the first section, which focuses on extending the 'enactivist' perspective into consciousness studies, could have easily stood on its own. **Beisecker** unpacks the classic philosophical question of 'what it is like to be,' arguing that puzzles of first-person subjectivity would be more productively examined by physical scientists following the delimiting of a descriptive logic of experience (as Piaget also came to argue, such as in Piaget & Garcia, 1987/1991). **Shariff and Peterson** then expand on Benjamin Libet's well-known studies of the unconscious neural precursors to voluntary action, concluding that the mental life of organisms is causally extended in time: to have a mind means being able to look forward into the logico-emotional landscape, planning appropriately to end up where 'what it is like' is

subjectively good, then undertaking actions to move in that direction. **Balconi and Lucchiari** also provide empirical support for this conclusion, suggesting that a social dimension should be incorporated into the 'enactivist' approach, reflecting the importance of social relations in successfully navigating this landscape. Their analysis of the EEG concomitants of facial processing shows that emotional signals are responded to both consciously and unconsciously. However, while the electrophysiological events associated with both states have the same structure, unconscious processing is characterized by lower waveform amplitude. The takeaway message seems clear: the mechanisms of conscious and unconscious adaptation differ in degree, but not in kind. **Lethin** supports this conception too, with observations regarding the activation of the motor system prior to consciously felt proprioception.

Roughly halfway through the book, **McGann and Torrance** explicitly define the terms of reference. Given the proposed focus of the second volume in the series — on 'radical enactivism' (Menary, personal communication), as well as the lack of a unified synthesis of the various 'enactivist' approaches in the literature — this chapter may turn out to be a foundational programmatic statement for the whole approach:

> The structures of the world allow the structures of the observer to exist, while the structures of the observer allow the structures of the world to be conceived and perceived. It is this complex interplay between the world and the subject which gives rise to meaning, the understanding of the world…. The enactive mind is not a passive recipient of information from the world, but actively engages with its environment…. Cognition is not tied into the workings of an 'inner mind,' some cognitive core, but occurs in directed interaction between the body and the world it inhabits (p. 184).

In other words, 'meaning' and 'doing' are related through 'feeling' in 'becoming,' which is enacted by individuals in the world. McGann and Torrance synthesize these ideas with Panksepp's to outline an alternative to Antonio Damasio's picture of emotional-cognition. They argue that the fundamental value of 'enactivism' for the cognitive sciences is the provision of a causal role for motivational states. Unlike other approaches, it can therefore explain the value of goals and goal statements in simplifying reality for action.

The final third of the book is historically-informed: Freud, Wittgenstein, C.S. Peirce, and William James are all trotted out to contribute (for a related treatment of Piaget and Kuhn, see Burman, forthcoming). **Natsoulas** argues, in the first of his two chapters, that

Freud can be seen to offer a sophisticated phenomenology of emotion; that his conception of the unconscious is consistent with the notion that the causes of such states can have effects that 'become-conscious,' but only in specific ways. This is held up in contrast to James' conception of the stream of consciousness, in which a flow can be conceived of as a separate pre-conscious experience that exists below awareness. In the book's concluding chapter, and his second contribution, **Natsoulas** then shifts away from Freud to focus specifically on this aspect of James' description of religious experience: a change-of-mind from one stream to another can be so jarring-yet-right as to feel 'mystical.' (From Freud's perspective it seems the move might be conceptualized as a jump from one valley — or basin of attraction — to another, deeper one in the landscape; from James', it would be of coming to travel two such valleys simultaneously, perhaps even switching the focus from the original one to the deeper other following a 'depersonalizing' perturbation.)

In a related discussion, which also expands upon Beisecker's unpacking of 'what it is like,' **Hurley** traces some threads in the post-Witggensteinian tapestry of epistemology and philosophy of mind to point out a fundamental misunderstanding regarding the role of emotion in constructing knowledge: a Cartesian-dualist remnant relegating 'feeling' to the backseat in decision-making, denying its capacity for influencing the emergence of 'truthiness' in 'epistemic justification.' She argues, by way of remedy, that the reality of phenomenal experience is norm-governed; that the human logico-emotional landscape — having social characteristics — is also imbued with moral character, *such that otherwise neutral concepts can be felt to be fundamentally right or wrong*. Developing the theme into a testable hypothesis, **Sundararajan and Schubert** then build on Pierce's semiotics to suggest a means of measuring the ways in which this landscape is processed. The resulting five-factor model delimits emotional-cognitive enaction so that individual differences can be assessed empirically.

In terms of where this all fits in the marketplace, however, the new book series is reminiscent of an age-independent *Advances in Child Development and Behavior* (integrative), but situated thematically between the *Journal of Consciousness Studies* (theoretical) and *Consciousness and Cognition* (empirical). Given the vast amount of these kinds of work needed to adequately address the question of 'what it is like to be a human,' the series is likely to be welcomed by everyone interested in the topic. Yet, that said, the importance of this first book was not immediately clear: future volumes will need to telegraph their implications more explicitly if they are to be successfully received.

Should this be accomplished, the occasional copy error — for which the publisher has become known (see e.g., Sutherland, 2001) — will probably also go unnoticed.

References

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Susan Pockett, William Banks and Shaun Gallagher, eds.
Does Consciousness Cause Behaviour?
Cambridge, MA: The MIT Press, 2006. 362 pp. ISBN 0262162377

Reviewed by Johnjoe McFadden

'It does exactly what it says on the tin' goes an advert on British TV and this collection of essay brought together by the neurophysiologist, Susan Pockett and colleagues, attempts a similarly no nonsense approach to answering the question posed on the book's dust jacket. Whether it succeeds or not at answering the questions is perhaps not as important as the fact that the question is even posed. Our notion of free will, personal responsibility and criminal culpability all hinge on the 'naïve' view that our conscious minds do indeed have a role in driving our actions. If we are, as several of the contributors believe, merely aware automatons, then all of these notions, central to our view of what it means to be human, are undermined.

It may seem odd to question the efficacy of consciousness but the epiphenomenal view goes back as least as far as Darwin's colleague, T.H. Huxley, who claimed that consciousness was like the 'steam whistle, which accompanies the work of a locomotive [but] without influence upon its machinery'. Pockett herself opens the debate by outlining the issues and evidence, particularly the by now famous experiments performed by Benjamin Libet who discovered that our awareness of our intention to perform a particular act lag behind (by several hundred milliseconds) electrical activity in the brain that predicts that act. Many contributions of this volume are in essence interpretation, criticism or conclusions drawn from Libet's experiments.

Indeed one of the weaknesses of the book is that we become rather too familiar with Libet's experiments as they are independently described by most of the contributing authors.

Libet himself did not believe that his experiments meant we had to abandon our notion of free will, but proposed that consciousness may act to veto actions initiated unconsciously — more of a free won't than a free will. Pockett herself questions the relevance of Libet's experiments for our understanding of most human behaviour, which is far more complex than the wrist-flexing actions measured by Libet.

The next chapter by Marc Jeannerod describes his experiments, which sought to extend Libet's investigations into more complex actions such as line-drawing. Jeannerod describes how subjects were completely unaware of minor adjustments made by their hands to correct a trajectory needed to complete a circle or line. Jeannerod's conclusions are even starker than Libet's. He suggests that free will is a 'post hoc phenomenon', essentially an illusion generated by the coincidence of our thoughts and actions to build a narrative of cause and effect.

Most of the other contributors lean more towards a belief in at least a measure of efficaciousness for consciousness. Choudhury and Blakemore continue to examine experimental evidence, considering the function or mirror neurons in the brain and their role in making predictions and generating 'forward models' of actions. Passingham and Lau examine the measurement of readiness potentials in monkeys and consider the neurobiological basis for initiating actions. They propose that the prefrontal cortex may be the physical seat of the global workspace — where parallel signals are integrated to generate a serial output that drives our actions.

The neurophysiologist Walter J. Freeman measured neuroelectrical activity in the brain of animals challenged with various stimuli. In his chapter he describes how the results forced him to abandon simplistic notions of causality in favour of self-organising dynamics in the brain orchestrated by a 'global state variable'. He ends his chapter by calling for new laws to account for the complexity of brain dynamics.

The next sections examine the philosophical aspects of the title question. Shaun Gallagher argues, similarly to Pockett, that free will cannot be squeezed into the 150 milliseconds that precede an action and is more likely to be about making long term choices. Peter Ross discusses the libertarianism debate and suggests that the brain may be subject to quantum level 'micro indeterminism'. Elisabeth Pacherie discusses the causal theory of action and points out that our requirement to perform some, but not all, actions consciously suggests that

consciousness cannot be causally idle. She examines the notion of 'cause' in relation to Libet's experiments and points out that it may not be possible to identify a single cause within a causal chain of events and that the 'cause' may not always be the initial event. I found this argument particularly pertinent to the questions posed in this book. What caused the First World War? Was it the assassination of the Arch Duke Franz Ferdinand or the break-up of the Ottoman Empire in the years preceding the war? But the seeds of the Ottoman collapse were sown decades before the Sarajevo assignation. Which of these events qualifies as 'the cause' of the war? Like most events it had many 'causes' each of which played a causal role in the sense of being necessary (but not sufficient) for the event. The fact of finding earlier 'causes' (Ottoman collapse, electrical activity in the brain) does not rule out a role for later causes (assignation, awareness), unless the earlier causes can be shown to be both necessary and sufficient for the event (which was not the case in Libet's experiment).

Further chapters by Timothy Bayne and by Alfred Mele examine both Libet's experiments and provide suggestions for future experimentation. The chapter by Bertram Malle is one of the most readable and examines the scientific criticism of folk theories of causation, awareness and agency. He makes the very reasonable point that "Once causal interaction exists at all it should be possible in both directions". The steam whistle is not actually acausal. The steam ejected into the whistle reduces the pressure in the rest of the steam engine and slows the train ever so slightly. Similarly, if consciousness is a product of brain activity then its generation must inevitably have some back-causation on the system that generated it.

The next section includes chapters by Banks, Prinz, Kaplan, Hurley and Maasen that discuss the implications of conscious causality (or lack of it) for law and public policy. This is clearly an important issue. If we are automatons then can we be held responsible for our actions? Wolfgang Prinz makes the interesting observation that 'asking a psychologist to discuss free will is like asking a zoologist to lecture on unicorns'. Nevertheless, he does go on to discuss the psychological unicorn and claims that it is essentially a social institution of Western democracy. The lawyer Leonard Kaplan examines the issues surrounding free will and criminal jurisprudence. He discusses the failure of the "ghetto defence" in the US legal system but cautions that the proliferation of disorder and syndrome defences is beginning to undermine the ideology of human autonomy. Chapters by Hurley and Maasen examine the issue with regard to the media, free speech and public understanding of science.

Overall, this is an excellent volume that brings together an impressive cast of commentators on the key question for consciousness studies: does the *c word* actually do anything. I can't finish without a few words on my own take on the issue. Imagine we created a robot that was a complete automaton; just a machine that went about its daily activities entirely without awareness. But then we connected the robot's brain to another machine that was indeed conscious, in such a way that actions performed by our robot were brought to the attention of the conscious machine. But, despite being conscious and aware of the robot's actions, the conscious machine doesn't have any motor function — it doesn't do anything. Would our automaton robot be inclined to write books and articles on the nature of consciousness and whether it causes behaviour?

Susan Hurley and Matthew Nudds, eds.
Rational Animals?
Oxford University Press, 2006. 561pp.
ISBN 0198528264 (hbk), 0198528272 (pbk)

Reviewed by Lynne Sharpe

Rational Animals? is the fruit of an ambitious project, bringing together an impressive team of nine philosophers and twenty three scientists, including psychologists, primatologists, cetologists and a zoologist, who describe and discuss their research studies of dolphins, chimpanzees, parrots, crows and other creatures. The problem of misunderstanding which so often bedevils interdisciplinary debate is skilfully avoided by the editors' excellent introductory chapter which takes the reader on a very useful tour of the field, the different interpretations of rationality and the variation of focus between the different disciplines. The questions to be addressed are listed:

'Are any non-human animals rational? What issues are we raising when we ask this question? Are there different kinds or levels of rationality, some of which fall short of full human rationality? Should any *behaviour* by non-human animals be regarded as rational? What kinds of tasks can animals successfully perform? What kinds of *processes* control their performance at these tasks and do they count as rational processes? Is it useful or theoretically justified to raise questions about the rationality of animals at all? Should we be interested in whether they are rational? Why does it matter?'

The introduction also gives a summary of each of the contributions, which are carefully ordered so as sometimes to complement,

sometimes to challenge, those adjacent. The main body of the book is then divided into six sections under the headings: *Types and levels of rationality, Rational versus associative processes, Metacognition, Social and cognition behaviour, Mind reading and behaviour reading* and *Behaviour and cognition in symbolic environments.*

The introductory chapter ends by considering the relevance of the presence or absence of rationality in non-human animals:

> Rationality is one of the main hooks on which human distinctiveness and specialness has been hung. We treat rationality as having intrinsic worth, in addition to sentience. If a creature can feel pain, we may feel we ought to avoid making it suffer unnecessarily, but we may not on that account grant it the additional intrinsic value and dignity associated with rationality. Understanding whether and in what ways non-human animals can be rational may prompt us to rethink human rationality, our relations to other animals, and our own irrationalities.

So although the book does not discuss ethics, there is a suggestion here that its findings could inform future ethical debate, especially on the proper treatment of animals. But can it be reasonable — or indeed ethical — to leave for another day the ethical concerns that arise from the treatment of the animal subjects of the research under discussion? And the mention of pain in the above quotation may be misleading, with its implication that, when we know whether and which animals are rational, we will know how we should treat them. The cases are not analogous: if we know that a creature can feel pain, we may well agree that we should avoid causing it pain. But what is it that we should avoid when we know that an animal is rational? Is it not more relevant that a number of the contributors to this book agree that the highly developed cognitive capacities demonstrated by bottlenosed dolphins, for example, are likely to be evolutionarily related to the complexity of the social system in which they live? We are told that wild dolphins range through vast areas of ocean, interacting with hundreds of conspecifics in varied and very complex ways and this ought to be enough to tell us that they are seriously deprived when they are confined to a small tank or pool and made to spend their lives jumping through hoops — real or metaphorical — to satisfy the curiosity of human beings. The presence or absence of rationality is irrelevant here just as it would be to the ethics of confining any active, far-ranging creature — a swallow, for example — to a small cage for life in order to discover whether an alternative use could be found for the abilities that enable it to fly half way round the globe and back every year.

Nor, incidentally, can it be assumed that it is rationality that gives that 'intrinsic value and dignity' accorded to our fellow human beings. We do not consider our pre-rational children to be lacking in value.

Related to, but perhaps even more surprising than, the lack of an ethical dimension to the book, is the absence of any serious discussion of the relation between rationality and feelings. The Humean view that 'reason is and ought only to be the slave of the passions' (David Hume, *A Treatise of Human Nature*) is denied even a passing reference. Since the dispute as to whether reason and emotion are mutually dependent or mutually exclusive — or neither — has persisted for millennia it surely deserves a place in such a broad study as this.

But with a book that covers so much so well it would be churlish to carp about what else one might feel should have been included. Suffice to say that it is thoughtful, thought-provoking, informative and fascinating and that it will do a great deal to further interdisciplinary understanding and informed debate.

BOOKS RECEIVED

Mention here neither implies nor precludes subsequent review

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