Book review for *New Scientist*

The Four Realms of Existence: A New Theory of Being Human by Joseph E. LeDoux, hardback 24th Nov, Harvard University Press, 368 pp

Consciousness: How our Brains Turn Matter into Meaning by John Parrington, Paperback, 26th October 2023/Icon Books 210 pp

Susan Blackmore, October 2023

These two new books on consciousness add to the rapidly expanding literature on this contentious and difficult subject. One claims to give us 'a new view of what makes us who we are'; the other 'a radical new theory of human consciousness'. These are bold claims, so have they succeeded?

Both LeDoux and Parrington take an evolutionary approach to the origins of language, thought, and self, and both survey research on perception, learning, and memory in humans and other animals. Both are materialists trying to fit consciousness into the physical world of living bodies and brains, and both deny that consciousness is really terribly mysterious after all. But there the similarity ends.

LeDoux's aim is to provide a new theory of being human by dividing our evolutionary past into four realms: the biological, neurobiological, cognitive, and conscious. Each transcends and depends upon the one below, and most living things exist only biologically. It is the integration of this four-part ensemble that makes us humans who we are.

Along the way through these four realms, are excellent accounts of the evolution of brain structures and cognitive abilities. Exploring the lives of jelly fish that move and hunt without a brain and the abilities of flies, birds, and mammals, LeDoux tries to place each in its realm. When it comes to cognition, he tells the fascinating story of nineteenth century researchers such as Helmholtz and William James who grappled with the problem of consciousness, how that was followed by depressing decades of behaviourism, and how cognitive psychology broke free.

I learnt much from these evolutionary tales, yet I remained unconvinced that LeDoux's division into these 'Four Realms' is worthwhile. Among many previous schemes are John Maynard Smith's famous 'Major Transitions in Evolution' and Dan Dennett's division of living creatures into Darwinian, Skinnerian, Popperian, and Gregorian stages. Yet LeDoux does not mention these or explain why his scheme is any better.

Parrington also tells an evolutionary tale, but a rather different one. His main aim is to explain inner speech and thought, and our distinct capacity for self-conscious awareness. For him the critical abilities are language and tool use. Seeking a materialistic theory of the human mind, he claims to follow Darwin in seeing mind as produced by 'the same blind chance' that guides the rest of evolution, which is distinctly odd because 'blind chance' alone could not account for exquisitely designed wings, eyes, and brains. What Darwin saw was the power of natural selection.

Turning to consciousness, both mention the ‘hard problem’ which is to explain how subjective experience arises from the objective workings of a physical brain, but neither questions whether this is a soluble or well-posed problem in the first place. LeDoux lays the groundwork for his answer in describing the cognitive realm but then seems to get confused. Briefly describing contemporary theories such as Integrated Information Theory (IIT), Attention Schema theory, and Global Workspace theory (GWT) he puts his money on Higher Order theories in which experiences are conscious only if re-represented or thought about. Although he ably surveys which brain areas are responsible for what, this theory immediately rules out many interesting states, including psychedelic experiences, deep meditation, and pure consciousness.

This also implies that since most other animals cannot sustain higher order thoughts, they cannot be conscious. LeDoux doesn’t deny that they might be but says that to find out ‘consciousness itself must be measured’. But this is impossible. In the current state of consciousness science, we have no idea whether ‘consciousness itself’ even exists, nor do we have any way of separating it from the functions of brain and behaviour. Although LeDoux has neither solved nor seriously questioned the validity of the hard problem, he is at least talking about subjective experience.

Parrington is not. Weirdly, although ‘consciousness’ is mentioned on almost every page of his book, Parrington doesn’t explain any of the major theories or propose a new one of his own. All his work is devoted to understanding the neural circuits involved in perception, action, behavioural control, and self-modelling. His stated goal is to develop ‘a material explanation of human consciousness’. He has done a great job of exploring material explanations of thought, perception, self-representation, and behavioural control, but none of this gets at the deeper questions about subjective experience. Are we humans different from other creatures? With his materialistic understanding of consciousness, he puts the burden on human tool use and inner speech, which other creatures do not have. Yet he gives no clue as to how inner speech can give us the ineffable experiences of the blueness of the sky, the smell of coffee, our emotions of fear or sensations of hunger.

In consciousness studies there have been three main ways of facing the hard problem. The first accepts the problem as valid but claims that it’s too hard and works instead on the ‘easy problems’ of cognition, perception and so on. Without admitting as much, this is what Parrington has done. The second also accepts the problem as valid and then tries to explain how subjective experience ‘arises’ from brain processes. No one has yet succeeded in this and neither have these authors. Third is to reject the very idea that consciousness ‘arises from brain activity’ at all. This is ‘illusionism’ which, in several different guises, urges us to replace the hard problem with solving the ‘illusion’ problem of how our false ideas about consciousness arise.

Despite all the ways in which these books teach us much about human cognition, brain structure, and evolution, above all they demonstrate just how far consciousness studies have yet to go in making sense of consciousness.