know enough to bring it fully into the realms of cognitive science and explore it using modern techniques, and that if we do so we may learn not only something about this phenomenon but also about perception, memory and awareness. Brown is aware of the limits of trying to bring a fleeting and unpredictable experience into the lab but his discussion of perceptual explanations of *déjà vu* are worth consideration. He suggests, for example, that inattentional blindness paradigms could be adapted to study *déjà vu*. Discussions of memory and dual processing are perhaps less convincing, and the lack of any consensus concerning a link between neurological conditions and *déjà vu* is disappointing (but not the fault of the author). The difficulty in taking from this book any ideas for research lies in the large number of factors that have been investigated only superficially. The result is many vague possibilities. Summarizing memory explanations of *déjà vu*, for example Brown's sentences run 'A variety of explanations… have been proposed. The simplest perspective is… It is also possible… *Déjà vu* could also… Familiar elements could come from… Also may occur…' I think this is Brown's point – the subject needs a serious sustained treatment to weed out the weaker possibilities. Brown is aware of the difficulties: 'the *déjà vu* experience represents the clash between two simultaneous and opposing mental evaluations: an objective assessment of unfamiliarity with a subjective evaluation of familiarity' (p. 2) and in research, according to Brown, 'there is still an unfortunate tendency…to sidestep common experiences'. Well, common is not always so easy even to describe. Table 2.1 lists over 30 attempts to describe *déjà vu* since 1844, and Table 2.2 over 50 definitions. My own internal life is not so grandiose as to have experienced 'recognition of the immemorially known' but I do recognise 'a weird feeling that one has been through all this before, as if time had slipped a cog and were now repeating itself' (I believe this is also called having a grant application rejected). The serious point is that to study *déjà vu* we need to know who experiences it, when and under what conditions. People can be asked to keep *déjà vu* diaries or can be asked retrospectively about their experiences. Both methods have obvious weaknesses and if one is seriously thinking about research there is daunting number of variables to consider: two thirds of people experience something they call *déjà vu*; it is more often experienced outdoors, in the afternoon or evening and later in the week. The incidence decreases with age, is more common in travellers than non-travellers, in liberals than in conservatives and in those with moderate rather than fundamental religious beliefs. Subject recruitment might require a hardy research assistant…

The book also contains a reminder of the law of physics that 'supernature abhors a vacuum' and any vacuum in scientific psychology will inevitably be filled by parapsychology. You will learn that *déjà vu* experiences correlate positively with beliefs in ESP, precognition, the Loch Ness monster, Sasquatch etc. Your experience may also be evidence of reincarnation, a collective unconscious or telepathy. Closer to earth the neurological evidence is sparse but tantalising. Hughlings Jackson proposed an association between *déjà vu* and aura in epilepsy but subsequent investigations present a complicated picture. Surgical interventions preceded by brain stimulation have shown that the experience can be elicited. Penfield, for example reports a patient who said he had a strange feeling as though he were 'in the future listening to the past' (p. 85). The experience in epileptic aura does seem to be associated with temporal lobe epilepsy of right-hemisphere origin and *déjà vu* in epileptic aura is more protracted and subject to repetition than in normal experience, but whether what is described as *déjà vu* in these situations is the same as the experience without pathology requires clarification.

In the face of so many descriptions and variables but so little research into neural mechanisms, Neppe's warning that 'one single explanation for *déjà vu* is probably as untrue as a single cause for headache' (p. 113) seems entirely reasonable. That we should treat *déjà vu* as an experience to be investigated, I am convinced of by this book; where one would start is a different matter. One thing is certain, however. My next dinner guests are in for a treat. 'Ah *déjà vu*, I'm sure you've asked me that before…'

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Letters

Why do we need a philosophy of the brain?

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I would like to provide some answers to the questions raised by Hardcastle [1] in her review of my latest book [2]. I did not intend to show how the mind can be reduced to the brain. Rather than offering a novel solution to the mind–brain problem, I question its implicit presupposition of how our brain can give rise to the concept of mind. My answer is that our brain suffers from a knowledge gap because it remains unable to perceive itself directly as brain. I call this 'autoepistemic limitation', and as a result,

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our brain cannot do otherwise but 'posit' the concept of mind. In my view this is the origin of the mind–brain problem.

How did autoepistemic limitation originate in the brain's design? I suggest that the brain's inability to perceive itself might be related to its functional organization, which is characterized by top-down modulation and feedback or re-entrant connections. Such relations between empirical features and epistemic abilities are developed in the second chapter of the book. This chapter is the melting pot of the book, where novel perspectives are developed on several philosophical questions, such as qualia, intentionality, first-, second- and third-person perspectives. Because Hardcastle searches specifically for philosophical arguments it might be expected that she overlooked such epistemic–empirical relationships. Their development requires a new concept of neurophilosophy, as reflected in the principles of transdisciplinary methodology (Chapter 1).

Why then does the brain suffer from autoepistemic limitation? My claim is that the brain and its functional principles are designed to be embedded. The idea of embeddedness can be traced back to Merleau-Ponty, and building upon his approach, I develop novel concepts in neuroscience and epistemology in the book. In order to investigate embeddedness, we need systematically to link first-person subjective experience and third-person observation of neuronal states – this is what I call First-Person Neuroscience and First-Person Epistemology. By seeing embeddedness as generally accepted the reviewer missed the importance of this link. However, such radical embeddedness is necessary to understand our brain's design and ultimately its autoepistemic limitation. This is the core point of my book: by 'positing' the concept of mind, the brain hides its own limitation. I am strongly convinced that by ignoring autoepistemic limitation, we would lose our grip on both the point of the book and the brain problem.

References

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