size. The omission of Darwinian interpretations of contemporary reproductive patterns from this book reflects an omission in the whole field of human demography. I hope it is beginning to be redressed as human evolutionary ecology provides a new perspective on these important issues.

Evolutionary approaches are valuable, not because they tell us what is natural or what is good, but because they help us understand why people do what they do. So, more evolution please. □

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Sensation and explanation

Going Inside: A Tour Round a Single Moment of Consciousness
by John McCrone
Faber & Faber: 1999. 368 pp. £20

John C. Marshall

There are two profound mysteries about human consciousness. First, why are so many books and articles being published on the topic? Second, why does most of the information in these works concern what we can know and do without being conscious of it? There is a simple answer to these questions: we know nothing of scientific value about consciousness (except in the very important sense in which the anaesthetist uses the term). If ever there was a perfect domain of investigation for scholars working on the social construction of science, 'consciousness' must be it: the way in which the notion has bobbed in and out of (more or less) respectable psychological inquiry deserves serious study.

Having said all this, I can now admit that John McCrone's *Going Inside* is far superior to the vast majority of recent tomes on cognitive neuroscience for the general reader. McCrone rounds up the usual suspects, but at least he does so with some care. He begins with Stephen Kosslyn's work on visual imagery, a good choice because it incorporates an informative mix of traditional psychological experimentation and functional brain imaging. And he ends with consciousness, a less good choice, as the chapter basically concludes with the admission that we have no idea "how a lump of flesh like the brain could light up with the inner glow of subjective experience". Apparently, a young Australian philosopher, David Chalmers, became rich and famous by making this somewhat negative (albeit correct) claim at a meeting in Arizona.

Luckily, in the middle sections McCrone just gets on with the job of describing the recent history and current status of some interesting issues in the brain sciences. There are particularly fine descriptions of work on attention, expectation and prediction — from the psychophysics of ball games (baseball and cricket) to the positive shift in the electrical activity of the brain (P 300) that signals surprise.

My only quibble is that McCrone totally misses out on the war work of the UK Medical Research Council's Applied Psychology Unit in Cambridge. The original impetus to study the mind/brain as a predictive system surely came from investigations of gunnery by Kenneth Craik and his colleagues. Likewise, Claude Shannon's mathematical theory of communication led Cambridge psychologists to realize that the 'stimulus' was not merely the event that actually occurred, but rather the selection of that event out of the set of stimuli that might have occurred. Brain scientists, including those interviewed for this book, have a regrettable tendency to ignore what was discovered by techniques other than their own.

By contrast, the story that leads from Donald Hebb's synaptic learning rule to 'neural nets' and the whole connectionist movement is dealt with at length. But equal stress is placed on modern functional brain-imaging techniques, and McCrone lucidly describes how the physiological measures they provide can help us to understand the neurobiology of object-recognition, memory and the emotions. Where he is less clear about what is actually going on (the organization of language in the brain, for example), his perplexity probably reflects confusion in the research he is describing.

Two themes recur with great regularity: 'dynamic system' and 'brain plasticity' are clearly the catch-phrases of the decade. The data to which these phrases direct us are now well established. Yes, the output of the brain is constantly adapting to a huge range of endogenous and exogenous variables. And yes, even the adult brain can (to some extent) rearrange its topography after injury. But we still have far to go in understanding how any cognitive function is actually represented in the brain. McCrone concludes his discussion of brain imaging with the very reasonable remark that, "having splashed out on the machines and hyped up the expectations, the neuroscience community will feel it has to deliver something". □

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To be three or ...

This self-portrait of René Magritte appears in *Consciousness* by J. Allan Hobson (Scientific American Library, $34.95, £23.95). The book explores the relationship between the mind and the brain from the premise that "we are our brains and our brains are us". Thus, it describes brain structures and functions that are now understood to be fundamental to conscious experience. Here is what the book has to say about the Magritte self-portrait. "He is, of course, Magritte, but only in the sense that Magritte is Everyman, the essential person with all the unessential details left out. The consciousness of the bowler-hatted man is generic, having the same formal features every day and — by the light of the moon — every night, in a reliably state-dependent manner."