

experience that were traditionally explored by psychoanalysis", thereby showing "why and how consciousness arises". Marc Solms also offers theories about the anatomy and function of dreaming, the evolution of language, and the lability of long-term memory. He has distinctive, persuasive and important things to say about these topics. As his book goes on, those things become ever harder to extricate from the big idea that has him in its grip.

That idea starts from the claim that the brain implements perception and action by generating hypotheses about the future, which are updated continually as information comes in about the ways in which they have have been mistaken. This updating is said to take account of the prior probability of these incoming error signals, and of their expected precision. It is also said to be organized hierarchically. Solms refers to this process of updating hypotheses as "minimizing free energy".

The free energy idea has featured prominently in the theoretically-ambitious parts of the recent neuroscientific literature. Solms's contention is that this account of the brain's information processing explains consciousness. He argues for this by showing how the idea can be applied to processing that modulates our basic appetites in accordance with their current relative priorities, by claiming that such modulations are constitutive of "feelings" (used here as a somewhat technical term), and by going on to assert that these feelings are necessarily conscious.

Insofar as this theory can be supported by clinical and neurological observations, Solms makes a plausible case for it. At the crucial points where philosophical argumentation is needed he is less sure-footed, but no less zealous. The boldness of his tone is occasionally jocular - as when he claims that the equation defining free energy "explains your central aim and purpose in life, as well as everything else that has ever lived" - but it is never less than sincere, sometimes to the point of being fervid. The book's final chapter sees Solms casting himself in the role of a new Prometheus, announcing his urgent efforts to build conscious (but intellectually limited) robots. Readers who find hubris off-putting should nonetheless recognize that there are ideas here deserving of serious consideration.

Christopher Mole

CONSCIOUSNESS

THE HIDDEN SPRING

A journey to the source of
consciousness

MARK SOLMS

432pp. Profile. £20.

If *The Hidden Spring* did all that it claims then it would be the greatest book on psychology of the past 100 years. It purports to unite "the elementary physics of life, the most recent advances in both computational and affective neuroscience and the subtleties of subjective