

BOOK REVIEWS

The User Illusion: Cutting Consciousness Down to Size by Tor Nørretranders. Translated by Jonathan Sydenham. New York: Viking/Penguin Putnam, 1998. xii + 467 pp. \$29.95 (c). ISBN 0-670-87579-1.

This book is not a turgid treatise in defense of objectivity in the so-called science wars. It does not discredit the emerging field of consciousness studies, and it does not call for the reinstatement of consciousness as the leading taboo topic in psychology. It is not a public broadside promoting biological materialism and reductionism. And it does not cut consciousness down to size by advocating either polarity of epistemology—realism or idealism.

Here is what this book is about. The original title of this book in Danish, *Maerk Verden*, means “mark the world.” This aptly summarizes Nørretranders’ thesis, namely, that human perceptual processes carve out—or mark off—small segments of the physical world and represent them to our conscious awareness as reality. To do this, our sensory systems must filter and discard enormous quantities of information. The author terms this discarded information “exformation” (e.g., the first paragraph of this review is similar to exformation). In contrast, the English title, *The User Illusion*, is a somewhat oblique reference to a concept developed in the early days of the personal computer, which describes the intuitively designed interfaces between the owners of personal computers and their machines. Unfortunately, this is not fully explained until page 290. In a footnote, Nørretranders rebuts effectively the criticism that the so-called user illusion is nothing more than the latest metaphor in a long line of technologically based ones about the mind. The legs of his thesis are four empirically verifiable neuropsychological phenomena: (a) the extremely limited “bandwidth” of our conscious awareness in the here and now, (b) the undervalued role of subliminal perception in everyday life, (c) the half-second delay between sensory inputs and conscious awareness, and (d) the backward referral in time of subjective experience. Yet, given these factors, the Danish title seems preferable, because it summarizes how consciousness establishes physical reality from a neuropsychological point of view.

This book about consciousness does not include any discussion of consciousness-related anomalies. This is unfortunate, considering the light that the four phenomena cited above could shed on extended human abilities.

Some readers will be vexed by the following elements: (a) The *New York Times*’ Op-Ed style of editorializing about social implications woven through some of the later chapters, (b) the fact that the author is a prominent intellectual and journalist, but not an academician, and (c) the author’s method of

scholarship, which impresses me as a good example of Polanyi's notion of "personal knowledge."

This book is worthy of being read, because it is well-written, the chapter notes, bibliography, and index are edifying, and specialists and nonspecialists will find the content satisfying. On the balance, *The User Illusion* embodies an expression that Einstein reportedly used during his Princeton years whenever he was working on a particularly difficult problem, "I will a little think."

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Lamarck's Signature by Edward J. Steele, Robyn A. Lindley, and Robert V. Blanden. Reading, MA: Perseus Books, 1998. xxi + 286 pp. \$25.00 (c). ISBN 0-7382-0014-X.

Epigenetic Inheritance and Evolution by Eva Jablonka and Marion J. Lamb. New York: Oxford University Press, 1995, x + 346 pp., \$60.00, (c). ISBN 0-19-854062-0.

The incredible richness of the biosphere challenges us with obvious questions: What is the origin of diversity among plants and animals? Are natural kinds static, or do they change over geological time? What are the forces causing these changes, and are they directed toward specific ends? Is there any drive toward increasing complexity, and if so, what is the relationship of this process to entropy? What is the interplay between heredity, embryonic development, and ecology?

A theory that addresses these issues is needed as a cornerstone of biology. We now know a significant amount about the processes at work during the morphogenetic events that turn a fertilized egg into an embryo and then an adult. In large part, these processes are directed by the genome—information that is instantiated by patterns within DNA molecules. This information is passed from parent to offspring and carries instructions telling molecular machines how to assemble and modify a growing embryo, as well as instructions for building the machines themselves. It is now appreciated that the genome is not simply "beads on a string" of DNA; functionally, it consists of logic elements, subroutine modules, addresses for information retrieval and modification, error-correction mechanisms, hierarchical organization, *etc.* (see Shapiro, 1991).

The inheritance of acquired characteristics theory was a natural way to at-