Cotterill, R. (1998). *Enchanted Looms: Conscious Networks in Brains and Computers.* Cambridge, UK: Cambridge University Press. Softcover, 508 pages.

It just won't go away: Consciousness, or mind, continues to attract interest as one of the remaining mysteries confronting science. However, these days it seems to be of greater interest to computer scientists and cognitive neuroscientists than those who might be expected to pursue it, such as psychologists. Is this because mainstream psychologists know something – maybe their history of futility or at least frustration with the question – is it because the computer scientists have newer and better methods than psychologists had previously, or is it simply a matter of the pendulum swinging during the history of this quest to understand the mystery of mind?

No doubt, new brain-imaging technologies have spurred interest among many brain scientists, and computing advances have kept alive in some quarters the hope that a computer can model the human brain. The burden of the new methods is that the tools are more expensive and thus often not widely available, but the more complex tools also require an extended apprenticeship before one begins to pursue the actual question of consciousness.

As a result, there is a gap or disconnect between those who pursue these questions with the new methods and others, perhaps the majority, in the mainstream of the parent disciplines. Those using the new techniques often have trouble communicating with those who are not daily immersed in these technical approaches to the problem. As an example of the gap, psychologists and educators historically have extrapolated freely from neuropsychology to classroom practice, to the extent that neuroscientists feel the need to acclaim that the gap is "A bridge too far" (Bruer, 1997), that the limitations obvious to the neuroscientists have been ignored or overlooked by those on the periphery.

The book includes the obligatory overview of brain structures, neurochemistry, memory and brain functioning, imaging techniques, perceptual processing conceptions, neural network techniques in computing, and other aspects such as the probable evolutionary development of consciousness in the brain. Cotterill really does a fine job of integrating these many layers of the problem. The entire treatment has a nice writing style, quite readable in the technical areas, with good illustrations, and thoughtful in the more

philosophical parts. It is also thankfully lacking in the hyperbole that often surrounds reports of work from the cutting-edge, as he is clear and honest about the limitations and the things yet to be determined.

Those immersed in these techniques will no doubt find this book incomplete or dated or otherwise lacking in the details, but I think the audience for this treatment is elsewhere. That is, Cotterill is trying to bridge the gap back to the rest of us who have been on the periphery, and in the process think through his own involvement perhaps. Thus, the result is a work that will be more satisfying to those who have been wondering what all the excitement has been about in the last few years, rather than those who have been as immersed as the author. It will still seem somewhat detailed for many readers, but it is truly well-written and does reward the investment of effort.

At the risk of spoiling the plot, we still do not know what consciousness is, we don't even have a clear definition really, but this is a very good book as a survey of the struggle, the journey to discovery. It is a very commendable effort to bridge the gap to those of us who have been watching from the sidelines, time well spent in reading to catch up somewhat with cognitive neuroscience developments, and a good starting point for those who might be planning to join the quest.

REFERENCE

Bruer, J.T. (1997). Education and the brain: A bridge too far. *Educational Researcher, 26*(8), 4-16.

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