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Being Digital **FREE**

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will benefit from the text's discussion of the major issues in the field. The book is written so that readers can easily skim through it to grasp the overall ideas and concentrate on the sections that interest them the most.

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Being Digital

Nicholas Negroponte

Alfred A. Knopf, New York, 1995; ISBN 0-679-43919-6; 243 pp., cloth, \$23.00.

Review by Randal Harrington

I was inspired to read Nicholas Negroponte's *Being Digital* after a heated debate with my sister, who is a journalist studying new media at the University of Nevada, Reno. Our debate centered around a column that Negroponte wrote for *Wired* magazine. It was a collection of these columns that evolved into his book, *Being Digital*. Negroponte, if you remember, created the world-renowned MIT Media Lab in 1985.

The column that sparked our discussion was one in which Negroponte argued in favor of corporate (that is, private) funding for university research.¹ I was attempting to convince my sister that this was essentially a bad, and possibly dangerous, idea because corporate funding creates a situation ripe for conflicts of interest and threats to academic freedom. However, in all honesty, I was not entirely convinced of my own argument.

To achieve intellectual accountability, government-grant givers consult specialists in well-defined fields of study. The catch is that a genuinely new field of study has no established group of "experts" and consequently no peer reviewers to recommend a green light to the government funders. Consequently, new ideas and interdisciplinary projects tend not to get funded. I had argued that corporate sponsors were interested only in final products that they could sell, a utilitarian view of research that would shortchange more basic studies.

However, Negroponte's MIT Media Lab is a testament to the incorrectness of this argument; success in creating new ideas has attracted numerous sponsors, even though they are purportedly not allowed to influence the direction of the research.

Many would argue, in fact, that this kind of funding stimulates new thinking in fields that have become stagnant from "inbreeding." Futuristic problem-solving could provide researchers, including physicists, with entirely new contexts for inquiry into what physicist Alan Gershenfeld (a colleague of Negroponte's who works at the MIT Media Lab) describes as "emergent behavior." Gershenfeld argues, "The fundamental mistake that recurs in the basic-versus-applied debate is to confuse constraints for connections."²

Being Digital is a book about the digital "thread" that is largely responsible for creating many of these new connections. However, the book itself is a more general look into our digital future and is not a detailed description of the research being performed at the Media Lab. (For those interested in futuristic research projects, I suggest examining the World Wide Web pages of the "Physics and Media Group" of the

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MIT Media Lab at <http://physics.www.media.mit.edu/> or reading Stewart Brand's book *The Media Lab: Inventing the Future at MIT*.)

Although sections of *Being Digital* read like an elementary-school primer on digital technologies—"the number of bits that can be transmitted per second through a given channel is the bandwidth of that channel"—other parts of the book prompted George Gilder, economist and futurist author of *Telocsm*, to write that Negroponte has the "visionary insight of McLuhan, [and] the humor and lucidity of Feynman." Although I question the Feynman comparison, I did find that Negroponte provides a compelling argument for why the world is changing and why the world should change as we move from an economy dominated by the exchange of atoms to a "commerce of bits."

Negroponte also provides some insight into his epistemological beliefs by arguing in favor of a constructivist pedagogy. He writes, "In the 1960's, most pioneers in computers and education advocated a crummy drill-and-practice approach, using computers on a one-on-one basis, in a self-paced fashion, to teach those same God-awful facts more effectively. Now with the rage of multimedia, we have closet drill-and-practice believers who think they can colonize the pizzazz of a Sega game to squirt a bit more information into the heads of children, with more so-called productivity." As one alternative to this approach, he devotes an entire chapter of the book to a description of the LEGO/Logo project and the work of Seymour Papert, also from MIT.

Although often overly simplistic, the book provides a refreshing look beyond the "information-superhighway" metaphor. The future is not about access to information—something we soon may be able to take for granted—but rather about how we choose to process that information. It seems reasonable to believe that this approach will offer

many new and exciting opportunities for physicists. Careful interpretation of information arising from a combination of critical thinking and innovative representation is something that physicists have been in the business of doing for a long time.

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Negroponte provides a compelling argument for why the world is changing and why the world should change.

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