BOOK REVIEWS

The computer experience

David Edge

Turing's Man: Western Culture in the Computer Age.
By J. David Bolter.
University of North Carolina Press: 1984. Pp.264. Hbk $19.95, pbk $8.95.

DAVID Bolter teaches classics at North Carolina, and has been a visiting fellow in computer science at Yale. In *Turing's Man* he offers us a bold interdisciplinary study of "the impact that electronic logic machines are having upon our culture", concentrating on the "subtler effect" of "a change in the way men and women in the electronic age think about themselves and the world around them" (p.4). Computers are a "defining technology" (p.8): they direct and reorganize older technologies, which are then rendered subservient; and, in so doing, they reshape the central experiences of their age. They therefore lend themselves to metaphorical extension, leading us to reconceptualize the world in their own image — much as some earlier technologies (potters' wheels, clocks, steam engines) did before them. "By promising (or threatening) to replace man, the computer is giving us a new definition of man as an 'information processor', and of nature as 'information to be processed'" (p.13). Bolter calls those who hold this view, Turing's Men.

Following a brief historical survey of the successive cultural impacts of manual, mechanical and dynamic technologies, the bulk of the book is taken up with a popular account of the principles of electronic computers (which I am not convinced is all either necessary or entirely successful for the uninitiated, but is still impressive), followed by chapters devoted to the implications of computer technology for mathematics and logic, and for our conceptions of space, time and progress, language, memory, creation and intelligence. Turing's Man "thinks of his world, intellectual and physical, as finite" (p.226), emphasizing discrete arrays rather than continua; lives, like the Greeks, for the moment, lacking historical sensibility, and seems "destined to lose the Faustian concern with depth" (p.220); and, since his interaction with computers is essentially playful, realizes that games are deadly serious. Even "the Western concept of God as an infinite being must surely fade" (p.226). You can't really be bolder than that!

Perhaps realizing that his argument must be self-exemplifying, in his preface Bolter apologizes for his necessarily superficial and general approach. But the discussion of the subject must begin somewhere, and Bolter's first steps are as good as any; his book is a readable and stimulating introduction to a profound intellectual issue. If the debate is to proceed, however, some clarification of the argument is needed.

To begin with, is this another version of technological determinism? Is Turing's Man the necessary result of the development of inherent properties of a physical technology — a development which is inevitable, inexorable, irreversible and beyond social control? Like many other

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Turing's children — "destined to lose the Faustian concern with depth"?

authors, Bolter seems ambivalent on this point. His early discussion of the emergence of computers stresses the importance of economic conditions in stimulating their development, but he argues that these conditions "enabled these devices to express qualities that were latent in them from the moment the first prototypes were tinkered with" (p.5) — and it is from these latent qualities that the characteristics of Turing's Man stem. Can such "hard" aspects be avoided? In his closing discussion, Bolter argues that the tendencies he has described "need not overwhelm us" (p.228): but his strategy for "building humaneness into the machine" (p.229) centres entirely on the programming, the software; he seems to take the hardware as an unavoidable "given". But it is precisely such an implicit technological determinism that many of us find questionable. The hardware itself may be socially shaped. The notion that culture adapts to, and stems from, the inevitable unfolding of the latent characteristics of physical technology is a notion that demands further challenge and analysis.

Secondly, Bolter assumes a cultural homogeneity. The Greek artisans and craftsmen are silent: but Plato and Aristotle speak for them. The potters, weavers and carpenters struggle with their "defining technologies", experiencing and conceptualizing the world in their terms: and the artists, playwrights and speculative thinkers reproduce that world for our inspection. I find this assumption hard to accept. There must surely be a very wide variation, within any society, of experience of the "defining technologies". Turing's Man is essentially a designer and programmer of computer technology — someone who manipulates and creatively explores its potential. Will this kind of experience ever be available to more than a minority? Just as we are familiar with cars and TV sets without designing, mending, tinkering with, or even understanding them, so we may become familiar with computers without sampling the experiences which beget Turing's Men. Even the elementary popular understanding which Bolter presents may be redundant. Why, then, should Turing's Man be taken as representative of an entire culture? Must we all conform to this pattern?

This question leads us back to my point about technological determinism. Just as it is possible that the precise physical form of the technologies we develop are shaped by powerful social interests, so it may be that the ways in which such technologies are metaphorically (conceptually, culturally) extended are also socially moulded. In other words, the reconceptualizations may serve ideological functions, redefining the world so that developments sponsored by a minority come to seem natural and inevitable. Rewriting history with just the same kind of broad brush that Bolter uses, the emergence of mechanical clocks, and their extension into a Newtonian metaphysics, is a story that can plausibly be told in such terms. However, my point is not to argue over particular historical episodes. Rather, it is to stress the importance of increasing our understanding of the social processes that underly *both* the evolution of physical technologies *and* their cultural extension.

Bolter attempts no such analysis. His book is an extended meditation on a particular technological metaphor. To regret that it does not do justice to the relevant literature on metaphor (and, in particular, to the pioneering work of Donald Schon) is, perhaps, a Faustian sentiment which we must now eschew. And many of Bolter's speculations seem strained and implausible. But no matter. His concern, as he says, "is not that the reader agree with all my conclusions but rather that he or she agree that it is important to think about computers from this perspective" (p.xii). And indeed it is. □

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