Thinking About Technology

The Whale and the Reactor. A Search for Limits in an Age of High Technology. LANGDON WINNER. University of Chicago Press, Chicago, IL, 1986. xiv, 200 pp. $17.50.

Through technology, suggests Langdon Winner, we are making a world for each other to live in. To treat technology as exempt from political or moral evaluation, as a universal good or a product of natural evolution, is to evade the responsibility we share for the way the world works. Winner is not without admiration for the achievements of the modern world, nor does he blame technology for its evils. But he is concerned with how our world works to deprive us of a sense of autonomous creativity, to threaten us with injury, to reinforce political domination over us, and to cut us apart from nature—both our own and that around us. Though it is only a means, not a prime mover, technology tends to obscure from us our responsibility for its workings. As Winner wrote in an earlier book (*Autonomous Technology*, MIT Press, 1978), even the critics of modern technology tend to see it as beyond human control, to forget that real people are creating its effects as they make it and determine its uses. Particular technologies, moreover, may have built-in biases their users tend to forget.

Though nuclear reactors, computers, genetic engineering, toxic waste, and a variety of other specific issues are broached in the book, Winner's focus is on the way we think about technology. This is perhaps clearest in "On not hitting the tar-baby," the eighth (and to my mind the best) of the book's ten essays. Here Winner is concerned with the concept of "risk" and its incorporation in the practice of "risk assessment." Evaluation of risk has become "the most prevalent way our society explores the possibility of limiting technology" (p. 138). But, Winner suggests, it is a curious notion, not least in the way it distances us from clear and present dangers. In the first place, consistently high rates of problems or injuries are risks only from the points of view of particular individuals; they are statistically predictable, even certain, for society at large. Second, the language of risk suggests that those unwilling to face risk lack fortitude, are perhaps cowards, while risk-takers are brave. Third, both everyday and official usage exaggerate the extent of control each of us has over how many dangers we face. "In contrast to the concepts of 'danger,' 'hazard,' or 'peril,' the notion of 'risk' tends to imply that the chance of harm in question is accepted willingly in the expectation of gain" (p. 145). Risk, in short, is a way of thinking about the dangers and proper limits of technology that systematically obscures central issues. As a major frame of discourse and policy-making, risk assessment is inadequate to the real challenges of modern technology.

Winner takes up a range of other topics in a more or less consistent manner. His aim is to reach a broad audience, not dwell on fine points or underlying theory for the benefit of specialists. His references come from a wide range of political thought as well as modern discourse on technology. His touch is light, his style easy; he aims for the quick insight rather than philosophical penetration or comprehensive coverage.

In "Building the better mousetrap," the "appropriate technology" movement is subjected to the same sort of conceptual examination as risk assessment. Here the conclusion is that "its true purpose was not to produce energy from renewable resources, but to generate the hope of social renewal from the winds of despair" (p. 70; Winner never misses a chance to turn a clever phrase). This follows from his more general critique of "industrial society" theories and other accounts of life since the industrial revolution that "obliterate distinctions between technology and other social phenomena" and "arrive at conclusions that deny any chance of practical remedy."

With less sympathy, Winner then looks at the ideology of "decentralization," briskly critiquing the view that this is either a tendency in current technological change or in itself a solution to technological problems. Consumerism has been substituted for more fundamental utopian values, Winner suggests, but he also reveals a general impotence in most modern discussions of human values ("Brandy, cigars and human values"). One of the more detailed essays ("Mythinformation") shows the naiveté (as well as hubris) of the claims of various computer boosters that their technology is somehow a key to the renewal of participatory democracy.

Through nearly all the book Winner goes out of his way to avoid anything that might appear as an "anti-technological" bias. He seems self-consciously to pull his punches, and in doing so perhaps reveals as much as in any of his explicit statements about the difficulties of mounting a critical discourse on technology in modern culture. Apparently, and perhaps correctly, he is worried that strong criticism will reflect more on the author than on the object of attack. But in the last (and title) essay, he states his feelings more directly. He recounts how moved he was when he visited a nuclear power plant under construction at a beautiful point on the California coast near his old hometown. Just as he saw the man-made monstrosity, his attention was drawn to a whale spouting offshore. The very presence of the reactor, he says, "is a tribute to those who cherish power and profit over everything in nature and our common humanity" (p. 176). One is almost relieved to see the mask of polite detachment drop.

Yet, Winner's talk straight from the heart suggests another problem, one that points back to his introductory chapters. There Winner argues that technology must be understood to have a politics, even if culture and certain selfish interests conspire to keep it hidden in modern society. We must wonder, accordingly, why he avoids actually stating any politics of high technology. He rests content to convince us that our technological innovations have social implications beyond inexorable progress. He hopes to prod us to think on the matter, but he doesn't really try to give us any tools with which to do so. He offers no basis for establishing where limits should be drawn, and only some very general suggestions as to why we find it so hard to think sensibly and acutely on these fundamental issues. Winner thus has pulled his theory, like his punches, from this book. But he has not failed to make us see more sharply the politics and the confusions in approaches to technology we normally take as natural and clear.

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Phage λ

A Genetic Switch. Gene Control and Phage λ. MARK PTASHNE. Cell Press and Blackwell Scientific, Palo Alto, CA, 1986. x, 128 pp., illus. Paper, $16.95.

Mark Ptashne's objective in composing *A Genetic Switch* is to provide a concise description of the mechanism that has evolved to regulate the growth of bacteriophage λ in its host, *Escherichia coli*. Upon infecting a permissive bacterial cell, λ is forced to choose between two developmental pathways, lysis and lysogeny. In the former case the virus pirates the vital capacities of the bacterium, multiplies exponentially, and lyses the cell. In the latter case the genetic blueprint (DNA) of the virus becomes inte-