

LANGDON WINNER, *Autonomous Technology: Technics-out-of-Control as a Theme in Political Thought*. (Cambridge, Mass.: MIT Press, 1977)

At least since the appearance of the infamous mushroom cloud in 1945, scholars attempting to assess the impact of technology on society have on occasion seen fit to make their point by accentuating the negative. No better example of this atomic era disenchantment than Lewis Mumford, whose pre-war admiration of the machine-tooled artifact paled into insignificance as he devoted his post-war years to warning us all about "the pentagon of power." In Europe, meanwhile, Jacques Ellul uttered similar warnings about how society as a whole was being transformed by and after the model of technology. Such jeremiads have on occasion been challenged, but they are more commonly just disregarded as impressionistic curiosities. Now out of the very womb of technological acceptability comes a work whose author not only chooses to take this tradition of technophobia seriously but shows us with abundant examples that its roots reach far more deeply into the past and that its branches, if we are to survive, must extend out beyond the privacy of the esthetic and ethical into the forum where policy is engendered for the people as a whole.

Winner's *Autonomous Technology* is an important and timely study which without question must now be recognized as the point of departure for any further consideration of the impact of technology on society. It is without serious competition as the best single compendium of modern and contemporary views on the political ramifications of technology; and in the process of pursuing this subject Winner manages to extend his inquiry into some long ignored recesses of political philosophy. It is, indeed, his very penchant for theory which produces the strengths and the weaknesses of what is structurally an annotated taxonomy of views on the nature and extent of technology's domination over man.

As is indicated by the very title of his work, Winner has in essence produced what the medievalist might well call a commentary, not, in this instance, on the *Sentences* of Peter Lombard, but on the crypto-religious concerns of Jacques Ellul about *The Technological Society*. A mere glance at the column-length citations to Ellul in the index is suggestive of how important the French theologian's reified and totalized concept of *technique* is to Winner not just as a point of departure but, as it turns out, as a final albeit conditional conclusion as well. Winner, however, is by no means a mere intellectual lackey of Ellul. *Autonomous Technology* is a powerful rethinking of continental technophobia in light of the American romance with tool systems, including such military excesses as the electronic battlefield, so-called, which was (it might be noted) a misguided attempt by liberal technocrats to "humanize" the war in Viet Nam. But when all is said and done, Winner differs from Ellul not as to the reality of autonomous technology but as to its locus and structure. Structurally, it is divided pluralistically according to various broad areas of expertise, e.g., communications, which in turn, are located within various sociotechnical "networks," meaning, presumably, large and, usually, multi-national corporations or industries: "Through relationships of varying degrees of certainty and solidity, the systems establish meta-networks, which supply 'inputs' or receive 'outputs' according to the purposes at hand. One need only consider the relationships among the major functional components—systems of manufacturing, energy, communications, food supply, transportation—to see the pulse beat of the technological society." (p. 239.) In dealing with these *decentralized* bastions of technological power, neither individual nor elite nor group with vested interests exercises much control, even if in a position of some power with respect to any one of them.

This humble, almost defeatist, announcement of corporate hegemonies makes Winner evaluatively hypersensitive to any phraseology or theorizing that would

dare leave humans somehow in control. To assume that it is humans who use tools ("the toll-use ethic") is obsolete (pp. 27, 200ff.); and, almost by way of corollary, the promise of "labor-saving devices" is a will-o'-the-wisp (p. 204). New products do not necessarily yield "progress" (p. 99). Problems associated with technology cannot be explained away by appealing to some flaw in Western ideology, e.g., as to "domination of nature" (pp. 117, 131ff.). Nor will they yield to a "new ethic" which is somehow technology specific (p. 133). Talk about how technology "mechanizes" our lives (p. 193) or "dehumanizes" our workplace (pp. 211f.) receives no better marks from Winner, who says the former is a declining metaphore (has he read Terkel's *Working* carefully?) and the latter fails to consider what is distinctively human. [Here his point is better taken, but too sweeping a generalization. See my article, "Humanization of Technology," in *Research in Philosophy and Technology*, I, ed. Paul T. Durbin and Carl Mitcham. Greenwich, Conn.: JAI Press, 1978; reviewed by Winner in *Science* 202 (6 Oct. 1978): 44-45.]

Extant theories look no better than metaphors when subjected to Winner's scrutiny. Technology on his view is not neutral prior to use: "Is technology a neutral tool to human ends? No longer can an affirmative answer be given without sever qualifications Although virtually limitless in their power, our technologies are tools without handles. Often they seem to resist guidance by preconceived goals or standards. Far from being merely neutral, our technologies provide a positive content to the area of life in which they are applied, enhancing certain ends, denying or even destroying others." (p. 29; see also p. 72.) In light of this ethical ambiguity, technology's misapplications cannot be adequately remedied by after-the-accident assessment of damages, as is done in tort law (pp. 85-98).

It has been suggested, of course, that an elite made virtuous would render technocracy benign, but for Winner there is no such elite to protect us from ourselves (pp. 147-71). This claimed lacuna undermines the assumptions of Marx about the ruling class (pp. 41, 85, 263) and the exceptions made by Lenin for technical expertise prior to the withering away of the state (pp. 265ff.). Not similarly undermined but nonetheless the subject of criticism is what Winner ever so tactfully refers to as "technological politics," which one realizes upon translating from systems jargon to English is simply what corporate giants do to bend government to their needs rather than to the public interest, resulting in "reverse adaptation" (exploitation of the technologies at their disposal (pp. 237-262). This particular theory about the politics of technology differs from most others considered by Winner in that it is *practiced* to the point of being a truism. Having expressed his disapproval of this *modus operandi* [at one point he calls it "a set of pathologies" (p. 324)], Winner looks forward to the expansion of "decentralist democratic politics" (p. 324) which would replace technological politics with "a truly *political technology*" (p.333).

This backhanded endorsement of small-scale communitarian experimentation coupled with appropriate technology (pp. 324-25), though relevant to the issues, seems somewhat out of place in view of Winner's self-imposed concentration on "technology as a general dilemma in political life" to the exclusion of particular problems, cases or organizations (p. 134). His adherence to the heights is, however, more a matter of emphasis than of methodology. For, he does take the trouble to ridicule Ralph Nader's group for, in his view, discovering the obvious about governmental agencies (p. 244), and to pontificate (erroneously) about China's stance on technology (p. 277), about a very dubious "growing gap" between physical and mental tasks (p. 274), and about some "somnambulism" he claims to have observed in current constitutional analysis of technology (pp. 323-24). Finally, he informs us that there is a growing diminution of ethical responsibility within large systems: "What is interesting about the new ethical context offered by highly complex systems is that

their very architecture constitutes vast webs of extenuating circumstances. Seemingly valid excuses can be manufactured wholesale for anyone situated in the network. Thus, the very notion of moral agency begins to dissolve." (pp. 303-304.) This at the very time when liability is moving rapidly towards strict liability on the part of producers and personal accountability on the part of their agents and representatives.

Even more surprising than these random unsupported shots from the hip is Winner's total neglect of other important contributions to our understanding of the impact of technology on society, in particular, those who favor restraint and even constraint in some instances. Included here would be, in addition to intellectual activists like Nader, such involved thinkers as Barry Commoner, Jerome Ravetz, Kenneth Boulding, Rene Dubos, Garrett Hardin, and, in general, all whose concerns include the biological and ecological dimensions rather than inanimate engineering alone. Winner does occasionally refer to the biological dimension, e.g., in connection with genetic engineering (p. 72) and the environmental impact of chemicals (p. 91). But on the whole he presents a dialectic of physical changes on the one hand and social changes on the other. One must look elsewhere to appreciate the full impact of the biological revolution, e.g., to the rapidly multiplying studies and institutions concerned with biomedical ethics.

Such criticisms would, of course, be out of place if Winner had adhered to his expressed intention of focusing on mid-range theory: "If I am right, what is needed are inquiries that stand somewhere between the ultimate 'Being of beings' and the latest squabble on this or that social gadget. One must seek simultaneously to avoid depths without meaning . . . [and pursue] . . . the middle ground between idea sublime and affairs quotidian—the subject of political theory." (p. 134.) He is willing to characterize past history as "a gradual retailoring of the universe" (pp. 214-215, emphasis added), and claims to be operating "at the level at which one seeks to elucidate first principles about man, nature, and being." (p. 133.) In addition, he accepts Ellul's holistic approach to *la technique à la Durkheim* as at least "one way of thinking about a condition that has come to plague many scientists and technicians in the mid-twentieth century." (p. 68.) This apparent openness to broad perspective notwithstanding, Winner does not hesitate to castigate those in search of synthesis, on the grounds that they are supposedly not taken seriously by some anonymous arbiters of truth whom Winner identifies only as "the mainstream" (p. 290). Bruno Bettelheim's appeal for "most careful thinking and planning" is received with approval, but it fails because it is radical and is "ignored in most polite society" (p. 196). Impact studies, projections of alternative futures, ecological research, and activist intervention—all, for Winner, are ultimately ineffectual (pp. 90-92). And in spite of his anticipation of worker control, Winner displays a profound ignorance of the influence of unionism when he asserts that employees generally have no sense of how their working conditions could be otherwise (p. 201).

In a word, Winner accepts the idea that technology, at least in industrial societies as we know them, is autonomous. It is "a part of the modern experience" (p. 56), it has "intuitive plausibility" (p. 15; see p. 43), it takes the form of "technological drift" (p. 88) which some call "progress" (p. 99), and is, finally, "the distinctly modern frustration" (p. 202).

Having thus painted himself into a deterministic corner as far as the realities of developed nations are concerned, Winner leaves himself little in reserve except a leap of faith to "a level of questioning and criticism far beyond anything advanced industrial societies are willing to undertake" (p. 182). What this exotic critique might entail is not explicitly identified. But Winner does conclude with the suggestion that a kind of zero-base budgeting approach to systems maintenance—what he

chooses to call "epistemological Luddism" (pp. 330-33)—might lead us beyond the dilemma of Dr. Frankenstein and of Prometheus as well.

This moderately dissatisfied account of Winner's remarkable work should in no way be interpreted as a commentary on its overall worth. For, his problems, as set forth in *Autonomous Technology*, are problems for us all. That his analysis is afflicted with some unevenness and inconsistency is due especially to his willingness to take on the dragon, unarmed, in its lair. Nor are there many scholars more richly endowed with the necessary erudition to have taken on such a massive assignment so well. All students of technology's role in our lives owe a great debt of gratitude to Dr. Winner for moving us ahead, with his guidance, as far as he has. There is every indication that the work he has begun is but a prolegomenon to yet more significant work to come. Having called so many basic and crucial questions to our attention, he may well feel what he himself calls a "new ethical" responsibility to help us find some answers.

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BERNARD GENDRON, *Technology and the Human Condition*. (New York: St. Martin's Press, 1977. 263 pages.)

It is a fact that a great many of our contemporary fears and frustrations stem from the technology we have created. Our machines threaten our freedom, they often make our lives complicated and unpleasant, they are difficult to control and, above all, they have the awesome power to destroy life itself and indeed the very planet we inhabit. Not surprisingly, technology has taken on a spectral aspect in much contemporary literature. It appears as a congeries of vast, impersonal and very powerful forces which become embedded in our psyches and generate in us feelings of impotence and repressed terror.

Gendron launches *Technology and the Human Condition* by noting that our temptation to attribute some presumed supernaturalism to technology may really be a mask for our ignorance of it. It doesn't help much to regard technology as demonic or, as some are inclined to do, godlike. What is important is to understand it better and particularly to understand its social impact. To the extent we do this we can make a more rational assessment of the degree to which technology is a progressive or a regressive force in our midst.

It must be said straightaway that Gendron's book is a strenuous attempt to attain this goal. His reasoning is generally cogent, although on occasion too brief and impetuous leading him to draw conclusions that are either not warranted by the facts or in contradiction with the facts. But *Technology and the Human Condition* holds the reader's attention even when it does not command assent. The book is structured upon a dialectically intricate comparison of three views of technology: the Utopian, the Dystopian, and the Socialist. Each view is set forth in some detail, then examined for logical weaknesses and, finally, weighed against competing interpretations.

The Utopian claims "that technological growth will in the long run bring about the virtual elimination of every major social evil." (p. 12.) Gendron formulates what he calls the "best argument" for the Utopians in the following four propositions: