

From Controlling Technology  
ed. William B. Thompson  
1991 Prometheus

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**In Praise of Technology**

Samuel C. Florman

A generation ago most people believed, without doubt or qualification, in the beneficial effects of technological progress. Books were written hailing the coming of an age in which machines would do all the onerous work, and life would become increasingly utopian.

Today there is a growing belief that technology has escaped from human control and is making our lives intolerable. Thus do we dart from one false myth to another, ever impressed by glib and simple-minded prophets.

Hostility to technology has become such a familiar staple of our reading fare that rarely do we stop to consider how this new doctrine has so quickly and firmly gained its hold upon us. I believe that critical scrutiny of this strange and dangerous phenomenon is very much overdue. The founding father of the contemporary anti-technological movement is Jacques Ellul, whose book, *The Technological Society*, was published in France in 1954, and in the United States ten years later. When it appeared here, Thomas Merton, writing in *Commonweal*, called it "one of the most important books of this mid-century." In *Book Week* it was labeled "an essay that will likely rank among the most important, as well as tragic, of our time."

Ellul's thesis is that "technique" has become a Frankenstein monster that cannot be controlled. By technique he means not just the use of machines, but all deliberate and rational behavior, all efficiency and organization. Man created technique in prehistoric times out of sheer necessity, but then the

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*bourgeoisie* developed it in order to make money, and the masses were converted because of their interest in comfort. The search for efficiency has become an end in itself, dominating man and destroying the quality of his life.

The second prominent figure to unfurl the banner of anti-technology was Lewis Mumford. His conversion was particularly significant since for many years he had been known and respected as the leading historian of technology. His massive *Myth of the Machine* appeared in 1967 (Part I: *Technics and Human Development*) and in 1970 (Part II: *The Pentagon of Power*). Each volume in turn was given front-page coverage in *The New York Times Sunday Book Review*. On the first page of *Book World* a reviewer wrote, "Hereafter it will be difficult indeed to take seriously any discussion of our industrial ills which does not draw heavily upon this wise and mighty work." The reviewer was Theodore Roszak, who, as we shall see, was soon to take his place in the movement.

The next important convert was René Dubos, a respected research biologist and author. In *So Human an Animal*, published in 1968, Dubos started with the biologist's view that man is an animal whose basic nature was formed during the course of his evolution, both physical and social. This basic nature, molded in forests and fields, is not suited to life in a technological world. Man's ability to adapt to almost any environment has been his downfall, and little by little he has accommodated himself to the physical and psychic horrors of modern life. Man must choose a different path, said Dubos, or he is doomed. This concern for the individual, living human being was just what was needed to flesh out the abstract theories of Ellul and the historical analyses of Mumford. *So Human an Animal* was awarded the Pulitzer Prize, and quickly became an important article of faith in the anti-technology crusade.

In 1970 everybody was talking about Charles A. Reich's *Greening of America*. In paperback it sold more than a million copies within a year. Reich, a law professor at Yale, spoke out on behalf of the youthful counterculture and its dedication to a liberating consciousness-raising. Theodore Roszak's *Where The Wasteland Ends* appeared in 1972 and carried Reich's theme just a little further, into the realm of primitive spiritualism. Roszak, like Reich, is a college professor. Unlike *The Greening of America*, his work did not capture a mass audience. But it seemed to bring to a logical climax the anti-technological movement started by Ellul. As the reviewer in *Time* magazine said, "he has brilliantly summed up once and for all the New Arcadian criticism of what he calls 'postindustrial society.'"

There have been many other contributors to the anti-technological movement, but I think that these five—Ellul, Mumford, Dubos, Reich, and Roszak—have been pivotal.

They are united in their hatred and fear of technology, and surprisingly unanimous in their treatment of several key themes:

1. Technology is a "thing" or a force that has escaped from human control and is spoiling our lives.
2. Technology forces man to do work that is tedious and degrading.
3. Technology forces man to consume things that he does not really desire.
4. Technology creates an elite class of technocrats, and so disenfranchises the masses.
5. Technology cripples man by cutting him off from the natural world in which he evolved.
6. Technology provides man with technical diversions which destroy his existential sense of his own being.

The anti-technologists repeatedly contrast our abysmal technocracy with three cultures that they consider preferable: the primitive tribe, the peasant community, and medieval society.

Recognizing that we cannot return to earlier times, the anti-technologists nevertheless would have us attempt to recapture the satisfactions of these vanished cultures. In order to do this what is required is nothing less than a *change in the nature of man*. The anti-technologists would probably argue that the change they seek is really a return to man's *true* nature. But a change from man's present nature is clearly their fondest hope.

In the often-repeated story, Samuel Johnson and James Boswell stood talking about Berkeley's theory of the nonexistence of matter. Boswell observed that although he was satisfied that the theory was false, it was impossible to refute it. "I never shall forget," Boswell tells us, "the alacrity with which Johnson answered, striking his foot with mighty force against a large stone, till he rebounded from it—" 'I refute it *thus*.' "

The ideas of the anti-technologists arouse in me a mood of exasperation similar to Dr. Johnson's. Their ideas are so obviously false, and yet so persuasive and widely accepted, that I fear for the common sense of us all.

The impulse to refute this doctrine with a Johnsonian kick is diminished by the fear of appearing simplistic. So much has been written about technology by so many profound thinkers that the nonprofessional cannot help but be intimidated. Unfortunately for those who would dispute them, the anti-technologists are masters of prose and intellectual finesse. To make things worse, they display an aesthetic and moral concern that makes the defender of technology appear like something of a philistine. To make things worse yet, many defenders of technology are indeed philistines of the first order.

Yet the effort must be made. If the anti-technological argument is allowed to stand, the engineer is hard pressed to justify his existence. More important, the implications for society, should anti-technology prevail, are most disquieting. For, at the very core of anti-technology, hidden under a

vener of esthetic sensibility and ethical concern, lies a yearning for a totalitarian society.

The first anti-technological dogma to be confronted is the treatment of technology as something that has escaped from human control. It is understandable that sometimes anxiety and frustration can make us feel this way. But sober thought reveals that technology is not an independent force, much less a thing, but merely one of the types of activities in which people engage. Furthermore, it is an activity in which people engage because they choose to do so. The choice may sometimes be foolish or unconsidered. The choice may be forced upon some members of society by others. But this is very different from the concept of technology *itself* misleading or enslaving the populace.

Philosopher Daniel Callahan has stated the case with calm clarity:

At the very outset we have to do away with a false and misleading dualism, one which abstracts man on the one hand and technology on the other, as if the two were quite separate kinds of realities. I believe that there is no dualism inherent here. Man is by nature a technological animal; to be human is to be technological. If I am correct in that judgment, then there is no room for a dualism at all. Instead, we should recognize that when we speak of technology, this is another way of speaking about man himself in one of his manifestations.

Although to me Callahan's statement makes irrefutable good sense, and Ellul's concept of technology as being a thing-in-itself makes absolutely no sense, I recognize that this does not put an end to the matter, any more than Samuel Johnson settled the question of the nature of reality by kicking a stone.

It cannot be denied that, in the face of the excruciatingly complex problems with which we live, it seems ingenuous to say that men invent and manufacture things because they want to, or because others want them to and reward them accordingly. When men have engaged in technological activities, these activities appear to have had *consequences*, not only physical but also intellectual, psychological, and cultural. Thus, it can be argued, technology is *deterministic*. It causes other things to happen. Someone invents the automobile, for example, and it changes the way people think as well as the way they act. It changes their living patterns, their values, and their expectations in ways that were not anticipated when the automobile was first introduced. Some of the changes appear to be not only unanticipated but undesired. Nobody wanted traffic jams, accidents, and pollution. Therefore, technological advance seems to be independent of human direction. Observers of the social scene become so chagrined and frustrated by this turn of events—and its thousand equivalents—that they turn away from the old common-sense explanations, and become entranced by the demonology of the anti-technologists.

In addition to confounding rational discourse, the demonology outlook of the anti-technologists discounts completely the integrity and intelligence of

the ordinary person. Indeed, pity and disdain for the individual citizen is an essential aspect of anti-technology. It is central to the next two dogmas, which hold that technology forces man to do tedious and degrading work, and then forces him to consume things that he does not really desire.

Is it ingenuous, again, to say that people work, not to feed some monstrous technological machine, but, as since time immemorial, to feed themselves? We all have ambivalent feelings toward work, engineers as well as anti-technologists. We try to avoid it, and yet we seem to require it for our emotional well-being. This dichotomy is as old as civilization. A few wealthy people are bored because they are not required to work, and a lot of ordinary people grumble because they have to work hard.

The anti-technologists romanticize the work of earlier times in an attempt to make it seem more appealing than work in a technological age. But their idyllic descriptions of peasant life do not ring true. Agricultural work, for all its appeal to the intellectual in his armchair, is brutalizing in its demands. Factory and office work is not a bed of roses either. But given their choice, most people seem to prefer to escape from the drudgery of the farm. This fact fails to impress the anti-technologists, who prefer their sensibilities to the choices of real people.

As for the technological society forcing people to consume things that they do not want, how can we respond to this canard? Like the boy who said, "Look, the emperor has no clothes," one might observe that the consumers who buy cars and electric can openers could, if they chose, buy oboes and oil paints, sailboats and hiking boots, chess sets and Mozart records. Or, if they have no personal "increasing wants," in Mumford's phrase, could they not help purchase a kidney machine which would save their neighbor's life? If people are vulgar, foolish, and selfish in their choice of purchases, is it not the worst sort of cop-out to blame this on "the economy," "society," or "the suave technocracy"? Indeed, would not a man prefer being called vulgar to being told he has no will with which to make choices of his own?

Which brings us to the next tenet of anti-technology, the belief that a technocratic elite is taking over control of society. Such a view at least avoids the logical absurdity of a demon technology compelling people to act against their own interests. It does not violate our common sense to be told that certain people are taking advantage of other people. But is it logical to claim that exploitation increases as a result of the growth of technology?

Upon reflection, this claim appears to be absolutely without foundation. When camel caravans traveled across the deserts, there were a few merchant entrepreneurs and many disenfranchised camel drivers. From earliest historical times, peasants have been abused and exploited by the nobility. Bankers, merchants, landowners, kings, and assorted plunderers have had it good at the expense of the masses in practically every large social group that has ever been (not just in certain groups like pyramid-building Egypt, as Mumford

contends). Perhaps in small tribes there was less exploitation than that which developed in large and complex cultures, and surely technology played a role in that transition. But since the dim, distant time of that initial transition, it simply is not true that advances in technology have been helpful to the Establishment in increasing its power over the masses.

In fact, the evidence is all the other way. In technologically advanced societies, there is more freedom for the average citizen than there was in earlier ages. There has been continuing apprehension that new technological achievements *might* make it possible for governments to tyrannize the citizenry with Big Brother techniques. But, in spite of all the newest electronic gadgetry, governments are scarcely able to prevent the antisocial actions of criminals, much less control every act of every citizen. Hijacking, technically ingenious robberies, computer-aided embezzlements, and the like, are evidence that the outlaw is able to turn technology to his own advantage, often more adroitly than the government. The FBI has admitted that young revolutionaries are almost impossible to find once they go "underground." The rebellious individual is more than holding his own.

Exploitation continues to exist. That is a fact of life. But the anti-technologists are in error when they say that it has increased in extent or intensity because of technology. In spite of their extravagant statements, they cannot help but recognize that they are mistaken, statistically, at least. Reich is wrong when he says that "decisions are made by experts, specialists, and professionals safely insulated from the feelings of the people." (Witness changes in opinion, and then in legislation, concerning abortion, divorce, and pornography.) Those who were slaves are now free. Those who were disenfranchised can now vote. Rigid class structures are giving way to frenetic mobility. The barons and abbots and merchant princes who treated their fellow humans like animals, and convinced them that they would get their reward in heaven, would be incredulous to hear the anti-technologists theorize about how technology has brought about an increase in exploitation. We need only look at the underdeveloped nations of our present era to see that exploitation is not proportionate to technological advance. If anything, the proportion is inverse.

Next we must confront the charge that technology is cutting man off from his natural habitat, with catastrophic consequences. It is important to point out that if we are less in touch with nature than we were—and this can hardly be disputed—then the reason does not lie exclusively with technology. Technology could be used to put people in very close touch with nature, if that is what they want. Wealthy people could have comfortable abodes in the wilderness, could live among birds in the highest jungle treetops, or even commune with fish in the ocean depths. But they seem to prefer penthouse apartments in New York and villas on the crowded hills above Cannes. Poorer people could stay on their farms on the plains of Iowa, or in their small towns in the hills of New Hampshire, if they were willing to live the spare and simple

life. But many of them seem to tire of the loneliness and the hard physical labor that goes with rusticity, and succumb to the allure of the cities.

It is Roszak's lament that "the malaise of a Chekhov play" has settled upon daily life. He ignores the fact that the famous Chekhov malaise stems in no small measure from living in the country. "Yes, old man," shouts Dr. Astrov at Uncle Vanya, "in the whole district there were only two decent, well-educated men: you and I. And in some ten years the common round of the trivial life here has swamped us, and has poisoned our life with its putrid vapors, and made us just as despicable as all the rest." There is tedium in the countryside, and sometimes squalor.

Nevertheless, I personally enjoy being in the countryside or in the woods and so feel a certain sympathy for the anti-technologists' views on this subject. But I can see no evidence that frequent contact with nature is *essential* to human well-being, as the antitechnologists assert. Even if the human species owes much of its complexity to the diversity of the natural environment, why must man continue to commune with the landscapes in which he evolved? Millions of people, in ages past as well as present, have lived out their lives in city environs, with very little if any contact with "nature." Have they lived lives inherently inferior because of this? Who would be presumptuous enough to make such a statement?

The next target of the anti-technologists is Everyman at play. It is particularly important to anti-technology that popular hobbies and pastimes be discredited, for leisure is one of the benefits generally assumed to follow in the wake of technological advances. The theme of modern man at leisure spurs the anti-technologists to derision.

In their consideration of recreation activities, the anti-technologists disdain to take into account anything that an actual participant might feel. For even when the ordinary man considers himself happy—at a ball game or a vacation camp, watching television or listening to a jukebox, playing with a pinball machine or eating hot dogs—we are told that he is only being fooled into *thinking* that he is happy.

It is strategically convenient for the anti-technologists to discount the expressed feelings of the average citizen. It then follows that (1) those satisfactions which are attributed to technology are illusory, and (2) those dissatisfactions which are the fault of the individual can be blamed on technology, since the individual's choices are made under some form of hypnosis. It is a can't-lose proposition.

Under these ground rules, how can we argue the question of what constitutes the good life? The anti-technologists have every right to be gloomy, and have a bounden duty to express their doubts about the direction our lives are taking. But their persistent disregard of the average person's sentiments is a crucial weakness in their argument—particularly when they ask us to consider the "real" satisfactions that they claim ordinary people experienced in other cultures of other times.

It is difficult not to be seduced by the anti-technologists' idyllic elegies for past cultures. We all are moved to reverie by talk of an arcadian golden age. But when we awaken from this reverie, we realize that the anti-technologists have diverted us with half-truths and distortions. The harmony which the anti-technologists see in primitive life, anthropologists find in only certain tribes. Others display the very anxiety and hostility that anti-technologists blame on technology—as why should they not, being almost totally vulnerable to every passing hazard of nature, beast, disease, and human enemy? As for the peasant, was he "foot-free," "sustained by physical work," with a capacity for a "nonmaterial existence"? Did he crack jokes with every passerby? Or was he brutal and brutalized, materialistic and suspicious, stoning errant women and hiding gold in his mattress? And the Middle Ages, that dimly remembered time of "moral judgment," "equilibrium," and "common aspirations." Was it not also a time of pestilence, brigandage, and public tortures? "The chroniclers themselves," admits a noted admirer of the period (J. Huizinga), tell us "of covetousness, of cruelty, of cool calculation, of well-understood self-interest . . . ." The callous brutality, the unrelievable pain, the ever-present threat of untimely death for oneself (and worse, for one's children) are the realities with which our ancestors lived and of which the anti-technologists seem totally oblivious.

It is not my intention to assert that, because we live longer and in greater physical comfort than our forebears, life today is better than it ever was. It is this sort of chamber of commerce banality that has driven so many intellectuals into the arms of the anti-technological movement. Nobody is satisfied that we are living in the best of all possible worlds.

Part of the problem is the same as it has always been. Men are imperfect, and nature is often unkind, so that unhappiness, uncertainty, and pain are perpetually present. From the beginning of recorded time we find evidence of despair, melancholy, and ennui. We find also an abundance of greed, treachery, vulgarity, and stupidity. Absorbed as we are in our own problems, we tend to forget how replete history is with wars, feuds, plagues, fires, massacres, tortures, slavery, the wasting of cities, and the destruction of libraries. As for ecology, over huge portions of the earth men have made pastures out of forests, and then deserts out of pastures. In every generation prophets, poets, and politicians have considered their contemporary situation uniquely distressing, and have looked about for something—or someone—to blame. The anti-technologists follow in this tradition, and, in the light of history, their condemnation of technology can be seen to be just about as valid as the Counter-Reformation's condemnation of witchcraft.

But it will not do to say *plus ça change plus c'est la même chose*,\* and let it go at that. We do have some problems that are unique in degree if not in kind, and in our society a vague, generalized discontent appears to

\*Editors' note: "The more things change, the more they are the same."

be more widespread than it was just a generation ago. *Something* is wrong, but what?

Our contemporary problem is distressingly obvious. We have too many people wanting too many things. This is not caused by technology; it is a consequence of the type of creature that man is. There are a few people holding back, like those who are willing to do without disposable bottles, a few people turning back, like the young men and women moving to the counterculture communes, and many people who have not gotten started because of crushing poverty and ignorance. But the vast majority of people in the world want to move forward, whatever the consequences. Not that they are lemmings. They are wary of revolution and anarchy. They are increasingly disturbed by crowding and pollution. Many of them recognize that "progress" is not necessarily taking them from worse to better. But whatever their caution and misgivings, they are pressing on with a determination that is awesome to behold.

Our blundering, pragmatic democracy may be doomed to fail. The increasing demands of the masses may overwhelm us, despite all our resilience and ingenuity. In such an event we will have no choice but to change. The Chinese have shown us that a different way of life is possible. However, we must not deceive ourselves into thinking that we can undergo such a change, or maintain such a society, without the most bloody upheavals and repressions.

We are all frightened and unsure of ourselves, in need of good counsel. But where we require clear thinking and courage, the anti-technologists offer us fantasies and despair. Where we need an increase in mutual respect, they exhibit hatred for the powerful and contempt for the weak. The times demand more citizen activism, but they tend to recommend an aloof disengagement. We surely could use a sense of humor, but they are in the grip of an unrelenting dolefulness. Nevertheless, the anti-technologists have managed to gain a reputation for kindly wisdom.

This reputation is not entirely undeserved, since they do have many inspiring and interesting things to say. Their sentiments about nature, work, art, spirituality, and many of the good things in life, are generally splendid and difficult to quarrel with. Their ecological concerns are praiseworthy, and their cries of alarm have served some useful purpose. In sum, the anti-technologists are good men, and they mean well.

But, frightened and dismayed by the unfolding of the human drama in our time, yearning for simple solutions where there can be none, and refusing to acknowledge that the true source of our problems is nothing other than the irrepressible human will, they have deluded themselves with the doctrine of anti-technology. It is a hollow doctrine, the increasing popularity of which adds the dangers inherent in self-deception to all of the other dangers we already face.

## Technology and Human Values

Melvin Kranzberg

Just when technology seems on the verge of banishing want and starvation, we find it called into question. The suspicion with which John Ruskin, William Morris, and Herman Melville regarded the machine in the nineteenth century has carried over into the twentieth. Counterbalancing H. G. Wells's belief in the beneficence of technology were the nightmare visions of the future contained in Çapek, Huxley, and Orwell. Most recently, such stalwart upholders of the humane tradition as Jacques Barzun, Lewis Mumford, and F. W. Leavis have exhibited the same ambivalence toward scientific and technological "progress."

Why is it that technology, which ministers to human needs and which has been regarded as a boon to mankind throughout most ages—and is still so regarded in the so-called underdeveloped areas—is viewed with such suspicion? Has technology changed? Has our value system changed?

Man himself is what he is as a result of technological change. Archeology, anthropology, biology, and psychology tell us that man could not have become *Homo sapiens* (man the thinker) had he not been at the same time *homo faber* (man the maker). Only by his possession and use of tools can we distinguish between man and "almost man." Man made tools, but tools also made man.

From the very beginning of our species, therefore, man has depended upon his technology. His attempt to master and control his physical environment is enshrined in the legend of Prometheus, who stole fire from the gods to bring it to mankind. Ever since then the march of civilization has been accom-

From *Virginia Quarterly Review* 40 (1964): 578-92. Reprinted by permission.